

Recirculated Portions of Draft EIR

STANFORD UNIVERSITY
2018 GENERAL USE PERMIT
Environmental Impact Report
State Clearinghouse No. 2017012022

Volume 1

Prepared for
Santa Clara County
Department of Planning & Development
Planning Office

June 2018



County of Santa Clara

Department of Planning and Development

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**SUBJECT: STANFORD UNIVERSITY 2018 GENERAL USE PERMIT
RECIRCULATED PORTIONS OF DRAFT EIR (SCH# 2017012022)**

Ladies and Gentlemen:

The enclosed recirculated portions of the Draft Environmental Impact Report (Draft EIR) are intended to assist the public and decision-makers in understanding the implications of the construction of higher levels of housing on the Stanford campus beyond the 3,150 net new housing units/beds proposed by Stanford. The recirculated Alternatives Chapter (Chapter 7 of the Draft EIR) introduces two new alternatives to the proposed Project and compares their impacts to proposed Project impacts. **Additional Housing Alternative A** includes a requirement that Stanford provide additional on-campus housing equal to the increased housing demand (i.e., an additional 2,549 units/beds) generated by the proposed 2018 General Use Permit. **Additional Housing Alternative B** would require an additional 1,275 units/beds. Under both alternatives, Stanford could choose to provide some of these units off-campus. Both alternatives assume the same level of academic and academic support development as under the proposed 2018 General Use Permit. In addition, to the revised alternatives chapter, a new significant Project impact (Impact 5.17-1 - Environmental Consequences of Stanford Providing Off-campus Housing Under Proposed Project) has been identified in the EIR.

Pursuant to State CEQA Guidelines Section 15088.5(f)(2), comments that were previously submitted on the Draft EIR during the previous public comment period of October 6, 2017 through February 2, 2018 will be responded to by the County and should not be resubmitted. Your additional comments regarding the adequacy of the recirculated portions of Draft EIR are welcome. The 45-day public review period for the recirculated portions of the Draft EIR begins on **June 12, 2018** and ends on **July 26, 2018**. Written comments on the recirculated portions of the Draft EIR should be addressed to:

David Rader. Santa Clara County Planning Office, County Government Center, 70 W. Hedding Street, 7th Floor, East Wing San Jose, CA 95110. E-mail: david.rader@pln.sccgov.org

Two public meetings will be held to receive comments on the recirculated portions of the Draft EIR:

- **June 27 (Wednesday), 6-8 p.m.** at City of Menlo Park Council Chambers 701 Laurel St., Menlo Park
- **July 10 (Tuesday), 6-8 p.m.** at Palo Alto Arts Center Auditorium, 1313 Newell Road, Palo Alto

Sincerely,

Kirk Girard, Director of Planning and Development

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LIST OF ABBREVIATIONS AND ACRONYMS

ABAG	Association of Bay Area Governments
AB 26	California Assembly Bill 26
AB 32	California Global Warming Solutions Act
AB 52	California Assembly Bill 52
AB 939	California Integrated Waste Management Act of 1989
AB 900	California Assembly Bill 900
AB 1358	California Assembly Bill 1358
AB 1484	California Assembly Bill 1484
AB 1807	California Assembly Bill 1807
AB 1881	California Assembly Bill 1881
AB 2588	California Assembly Bill 2588
ACHP	federal Advisory Council on Historic Preservation
ACI	American Concrete Institute
ACM	asbestos-containing materials
AC Transit	Alameda-Contra Costa Transit District
ADA	federal Americans with Disabilities Act of 1990
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFY	acre-feet per year
AGB	Academic Growth Boundary
agl	above ground level
ALUC	Santa Clara County Airport Land Use Commission
APRS	Administrative Panel on Radiation Safety
APSA	California Aboveground Petroleum Storage Act
AR4	Fourth Assessment Report
ASA	County Architecture and Site Approval process
ASCE	American Society of Civil Engineers
asl	above sea level

ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BART	San Francisco Bay Area Rapid Transit District
Basin Plan	San Francisco Bay Basin (Basin Plan)
BAWSCA	Bay Area Water Supply and Conservation Agency
BDT	best demonstrated technology
BRH	Bureau of Radiological Health
BMPs	best management practices
Btu	British thermal units
CAA	federal Clean Air Act
CAGR	Compound Annual Growth Rate
CalARP	California Accidental Release Prevention Program
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal OES	Governor's Office of Emergency Services
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCAT	California Climate Action Team
CCFD	Santa Clara County Central Fire Department
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPH-RHB	California Department of Public Health, Radiological Health Branch
CDP	Census-Designated Place for federal census
CDSM	Cement Deep Soil Mixing foundation technique
CEC	California Energy Commission
CEF	Stanford Central Energy Facility
CERCLA	federal Comprehensive Environmental Response, Compensation and Liability Act of 1980
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey

CFR	Code of Federal Regulations
CHP	California Highway Patrol
CH ₄	methane
CHRS	California Historical Resources System
CLUP	Comprehensive Land Use Plan by Santa Clara County Airport Land Use Commission
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database inventory of rare plants and animals
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ E	carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
CPAU	City of Palo Alto Utilities Department
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CSC	California Species of Concern
CTS	California tiger salamander
CTC	California Transportation Commission
CUPAs	certified unified program agencies for hazardous materials programs
CWA	Federal Clean Water Act
cy	cubic yards
DAPER	Stanford Department of Athletics, Physical Education, and Recreation
dB	decibel
DEH	County Department of Environmental Health
DNL	day-night noise level
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
DPS	Stanford Department of Public Safety
DTSC	California Department of Toxic Substances Control

DWR	California Department of Water Resources
EIF	Environmental Information Form
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act of 2007
ECIP	Energy Conservation Incentive Program
EH&S	Stanford Department of Environmental Health and Safety
ERP	Energy Retrofit Program
EMS	emergency medical service
EO	Executive Order issued by California Governor or U.S. President
EOC	Emergency Operations Center
EPCRA	Emergency Planning Community Right-to-Know Act
ESF	Environmental Safety Facility
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FCAA	federal Clean Air Act
FAR	floor area ratio
FCVs	Fuel cell vehicles
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FFVs	flexible fuel vehicles
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTE	full-time equivalent workers
GGE	greenhouse gas equivalents
GWh	gigawatt hours
GHGs	Greenhouse gases
gpm	gallons per minute
gsf	gross square feet
GVW	gross vehicle weight
GWP	global warming potential
GSP	groundwater sustainability plan
HAP	hazardous air pollutant
HCP	Habitat Conservation Plan

HFCs	hydrofluorocarbons
HHC	County Historical Heritage Commission
HMTA	Hazardous Materials Transportation Act
HMBP	Hazardous Materials Business Plan
HM Project	Hydromodification Management Project
HRA	health risk assessment for hazardous or toxic air pollutants
HCM 2000	Highway Capacity Manual 2000
HEPA	High Efficiency Particulate Air Filter
HLUCP	Heliport Land Use Compatibility Plan
HI	hazard index for hazardous or toxic air pollutant exposure
HMBP	hazardous materials business plan
HRA	Health Risk Assessment
HOV	High Occupancy Vehicle
HMCD	County Hazardous Materials Compliance Division
HVAC	heating, ventilation and air conditioning
Hz	hertz
ISG	Individual Supply Guarantee for potable water deliveries
ISL	Interim Supply Limitation for potable water deliveries
I-280	Interstate 280
I-80	Interstate 80
IFC	International Fire Code
IPCC	Intergovernmental Panel on Climate Change
ITP	Incidental Take Permit
ITS	Intelligent Transportation Systems
kWh	kilowatt-hours
LAFCO	Santa Clara County Local Agency Formation Commission
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise level
Lb	pounds
LEPC	Local Emergency Planning Committee
LBRE	Stanford Lands, Buildings and Real Estate Division
LCFS	Low Carbon Fuel Standard
LEED®	Leadership in Energy and Environmental Design
LID	Low Impact Development
LORS	Laws, Ordinances, Regulations, and Standards

LBP	lead-based paint
LVW	loaded vehicle weight
MACT	Maximum Achievable Control Technology
MBTA	Federal Migratory Bird Treaty Act
mgd	million gallons per day
MMBTUs	million British Thermal Units
MMcf	million cubic feet
MMRP	Mitigation Monitoring and Reporting Program required by CEQA
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone designated by the State Geologist
MS4	Municipal Separate Storm Sewer System
msl	mean sea level
MTC	Metropolitan Transportation Commission
MTCO ₂ E	metric tons of carbon dioxide equivalent
Mw	Maximum Moment Magnitude Earthquake
MW	megawatt
MWh	megawatt-hours
MWh/year	megawatt-hours per year
NAAQS	national ambient air quality standards
NAHC	California Native American Heritage Commission
NECPA	National Energy Conservation Policy Act
NEHRP	National Earthquake Hazards Reduction Program
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIH	National Institutes of Health
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide
NOP	CEQA Notice of Preparation
NO _x	nitrogen oxide
N ₂ O	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act

NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council of the National Academies of Sciences, Engineering, and Medicine
NTR	National Toxics Rule
NWIC	Northwest Information Center of the California Historical Resources Information System
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OPR	Governor's Office of Planning and Research
OSHA	Occupation Safety and Health Administration
PAFD	City of Palo Alto Fire Department
PAPD	City of Palo Alto Police Department
PAUSD	Palo Alto Unified School District
PCBs	polychlorinated biphenyls
PDA	Priority Development Area identified by ABAG
perc	perchloroethylene
PG&E	Pacific Gas and Electric Company
PHEVs	plug-in hybrid electric vehicles
PM	particulate matter
PM _{2.5}	particulate matter of 2.5 microns in diameter or less
PM ₁₀	particulate matter of 10 microns in diameter or less
ppb	parts per billion
pphm	parts per hundred million
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
PSSI	Peninsula Sanitary Service, Inc.
QOS	quality of service
RCRA	Resource Conservation and Recovery Act of 1976
RECP	Regional Emergency Coordination Plan
RFS	Renewable Fuel Standard
RHNA	Regional Housing Need Allocation developed by ABAG
RICE	Reciprocating Internal Combustion Engines
RLMP	Responsible Laboratory Management Practices
RMP	Risk Management Plan

ROG	reactive organic gases
RPS	Renewable Portfolio Standard established by the CEC
RRMP	Revised Risk Management Plan
RSPA	Research and Special Programs Administration
RTPs	Regional Transportation Plans mandated by state law
RWQCB	Regional Water Quality Control Board
RWQCP	Regional Wastewater Quality Control Plant
SAC	Stanford Seismic Advisory Committee
SARA	Superfund Act and Reauthorization Act of 1986
SB 32	California Senate Bill 32
SB 97	California Senate Bill 97
SB 107	California Senate Bill 107
SB 350	California Senate Bill 350
SB 352	California Senate Bill 352
SB 375	California Senate Bill 375
SB 610	California Senate Bill 610
SB 656	California Senate Bill 656
SB 743	California Senate Bill 743
SCS	Sustainable Communities Strategy required by SB 375
SAAQS	state ambient air quality standards
SCRA	Stanford Campus Residential Association
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SMCTA	San Mateo County Transportation Authority
SamTrans	San Mateo County Transit District
SCVWD	Santa Clara Valley Water District
SAR	Second Assessment Report
SCA	Special Conservation Areas identified in Stanford Community Plan
SCS	Sustainable Communities Strategy
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCVTA	Santa Clara Valley Transportation Authority
SDC	Seismic Design Category
SDWA	Safe Drinking Water Act
sf	square feet
SESI	Stanford Energy System Innovations

SFBAAB	San Francisco Bay Area Air Basin
SFCJPA	San Francisquito Creek Joint Powers Authority
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act of 2014
SHPO	State Historic Preservation Officer
SEI	Structural Engineering Institute
SEL	Sound Exposure Level
SIM1	Lorry I. Lokey Stem Cell Research Building
SIP	State Implementation Plan for federal Clean Air Act compliance
SLAC	Stanford Linear Accelerator Center
SMOP	Synthetic minor operating permits
SO ₂	sulfur dioxide
SR 82	State Route 82
SR 84	State Route 84
SR 85	State Route 85
STC	sound transmission class
STIP	State Transportation Improvement Program
SUFMO	Stanford University Fire Marshal's Office
SUMC	Stanford University Medical Center
STC	sound transmission class
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TAZs	Traffic Analysis Zones
TBACT	Best Available Control Technology for Toxics
TDM	Transportation Demand Management
TIRE	Traffic Infusion on Residential Environment
TMDL	total maximum daily load for water quality standards
TMP	Transportation Management Plan
TPY	tons per year
UCHS	Stanford University Committee on Health and Safety
UCERF3	Uniform California Earthquake Rupture Forecast
UCMP	University of California Museum of Paleontology

UPAAG	Unified Program Administration and Advisory Group for hazardous materials programs
U.S. 101	U.S. Highway 101
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
UPAs	Unified Program Agencies for hazardous materials programs
USP	Stanford University Safety Partners
USTs	Underground storage tanks
UWMP	Urban Water Management Plan
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
VdBs	vibration decibels
VMS	Variable Message Signs
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WBERP	Whole Building Retrofit Program
WGCEP	Working Group on California Earthquake Probabilities
WHO	World Health Organization
WSA	Water Supply Assessment
Y2E2	Stanford Yang & Yamazaki Environment & Energy Building
ZNE	zero net energy

CHAPTER 1

Introduction

This document contains recirculated portions of the Draft EIR for the proposed Stanford University 2018 General Use Permit. For the purpose of comparison and to assist the public and decision-makers in understanding the implications of the construction of higher levels of housing on the Stanford campus, two new alternatives to the proposed Project are addressed in the EIR: Additional Housing Alternative A and Additional Housing Alternative B. In addition, a new significant Project impact (Impact 5.17-1) is identified in the EIR.

Additional Housing Alternative A assumes a general use permit would be modified to include the same level of academic and academic support development as the proposed 2018 General Use Permit, but would include a requirement that Stanford provide additional housing equal to the increased housing demand (i.e., an additional 2,549 units/beds) generated by the proposed 2018 General Use Permit. Additional Housing Alternative B also assumes a new general use permit would be sought for the same level of academic and academic support development as the proposed 2018 General Use Permit, but would include a requirement that Stanford provide additional housing equal to half of the increased housing demand (i.e., an additional 1,275 units/beds) generated by the proposed 2018 General Use Permit.

1.1 Project Overview

Stanford University (Stanford) has applied for a new General Use Permit governing development on its lands in unincorporated Santa Clara County. The proposed General Use Permit would authorize an additional increment of campus growth and land use development, including 2,275,000 net new square feet of net new academic and academic support facilities, and 3,150 net new housing units/beds, anticipated to take place over a period that would extend from approximately 2018 through 2035. The proposed General Use Permit would apply only to those Stanford lands that are located within unincorporated Santa Clara County, and thus, are subject to the land use jurisdiction and regulatory authority of the County of Santa Clara. Stanford seeks County approval of the proposed General Use Permit and related amendments to the Stanford Community Plan and County Zoning Map. For ease of reference, all of these approvals are collectively referred to as the “2018 General Use Permit” or the “Project” in the EIR.

1.2 Environmental Review

1.2.1 Background

The California Environmental Quality Act (CEQA) requires that before a decision can be made to approve a project with significant environmental effects, an EIR must be prepared that fully describes the significant environmental effects of the project. The EIR is a public information document for use by governmental agencies and the public to identify and evaluate environmental consequences of a proposed Project, and to identify feasible alternatives or mitigation measures to lessen or eliminate significant adverse impacts. The information contained in the EIR is reviewed and considered by the lead agency prior to the decision to approve the proposed Project.

On January 10, 2017, the County of Santa Clara, as Lead Agency responsible for the EIR, sent a Notice of Preparation (NOP) to governmental agencies, organizations, and persons interested in the proposed Project to initiate the public scoping period for this EIR, which ended on February 17, 2017.¹ The NOP is included in Appendix NOP of the Draft EIR. The County also held a public scoping meeting at the Palo Alto Arts Center Auditorium in Palo Alto on February 8, 2017 to receive oral comments on the scope of the EIR. The comments received in response to the NOP, both written and oral, are included in Appendix NOP Responses in the Draft EIR.

On October 6, 2017, the County of Santa Clara released for public review the Draft EIR on the proposed 2018 General Use Permit. A 120-day public review and comment period on the Draft EIR began on October 6, 2017 and closed on February 2, 2018. During the public review, the County received 19 comment letters from governmental agencies, 13 comment letters from organizations, and 184 comment letters from individuals. The County also held five public meetings to receive oral public comment on the Draft EIR:

- Santa Clara County public meeting held at Palo Alto City Hall on October 12, 2017;
- Public meeting held by Supervisor Simitian at Palo Alto City Hall on October 19, 2017;
- Menlo Park City Council meeting held at Menlo Park City Hall on November 15, 2017;
- Santa Clara County Planning Commission Meeting held at Palo Alto Arts Center Auditorium on November 30, 2017; and
- Public meeting held by Supervisor Simitian at Palo Alto City Hall on January 23, 2018.

1.2.2 Recirculation of Portions of the Draft Environmental Impact Report

This document contains recirculated portions of the Draft EIR for the proposed 2018 General Use Permit. CEQA requires a lead agency to recirculate all or portions of a Draft EIR when “significant new information” is added to the EIR after the public review period begins but prior to certification (CEQA Guidelines Section 15088.5). In the case of the EIR for the proposed Stanford University

¹ It should be noted certain public agencies requested and were granted an extension to the deadline, including the City of Palo Alto, City of Menlo Park, and the Palo Alto Unified School District.

2018 General Use Permit, the term “new information” includes the introduction and analysis of two new alternatives to the proposed Project, and the identification of a new significant Project impact. If the revision to the EIR is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified (CEQA Guidelines Section 15088.5(c)).

Public notice and circulation of a Recirculated Draft EIR is subject to the same notice and consultation requirements that applied to the original Draft EIR, per CEQA Guidelines Sections 15086 and 15087. **Consistent with CEQA Guidelines Section 15088.5(c), since the new information is limited to a few portions of the Draft EIR, the County has elected to recirculate only the portions of the Draft EIR that have been modified.** The revisions to the Draft EIR are limited to portions the following chapters of the Draft EIR: Chapter 1, Summary; Chapter 5 Environmental Setting, Impacts and Mitigation Measures; Chapter 6, Other CEQA Issues; and Chapter 7, Alternatives.

Accordingly, in accordance with the CEQA Guidelines Section 15088.5(f)(2), the County requests that reviewers limit the scope of their comments to the revised portions of the Recirculated Draft EIR.

1.2.3 Public Review of the Recirculated Draft EIR

CEQA requires a minimum public review period of 45 days for a Draft EIR subject to State Clearinghouse review, as for the proposed Stanford University 2018 General Use Permit Draft EIR (CEQA Guidelines Sections 15086 and 15105); this same minimum 45-day review period also applies to and will be used for the recirculated portions of the 2018 General Use Permit Draft EIR. Notice of the recirculated portions of the Draft EIR, with required content, will be sent directly to each commenter that commented on the Draft EIR (CEQA Guidelines 15088.5(f)(3)). **As noted earlier, per CEQA Guidelines Section 15088.5(c) and (f)(2), the County directs reviewers to limit their comments to the revised portions of the Draft EIR as set forth herein.**

The County of Santa Clara will provide public notice of availability of the recirculated portions of the Draft EIR consistent with CEQA Guidelines Section 15087 requirements. Copies of the recirculated portions of the Draft EIR, the original Draft EIR, and referenced documents therein, are available for public review at the following locations: (1) County of Santa Clara Planning Office, County Government Center, 70 West Hedding, 7th Floor, East Wing, San Jose, California; (2) Mitchell Park Library, 3700 Middlefield Rd, Palo Alto; and (3) Rinconada Library, 1213 Newell Road, Palo Alto. The recirculated portions of the Draft EIR and original Draft EIR are also available on the County of Santa Clara’s website at www.sccgov.org/sites/dpd/Programs/Stanford/Pages/GUP2018_CEQA.aspx.

Written comments on the recirculated portions of the Draft EIR should be sent by mail to: Mr. David Rader, Senior Planner, County of Santa Clara Planning Office, County Government Center, 70 West Hedding, 7th Floor, East Wing, San Jose, California; or by email to: david.rader@pln.sccgov.org.

During the public review period for the recirculated portions of the Draft EIR, the County of Santa Clara will conduct two public meetings:

- **June 27, 2018 (Wednesday) from 6:00 p.m. to 8:00 p.m.** at City of Menlo Park Council Chambers, 701 Laurel Street, Menlo Park; and
- **July 10, 2018 (Tuesday) from 6:00 p.m. to 8:00 p.m.** at Palo Alto Arts Center Auditorium, 1313 Newell Road, Palo Alto.

Information on these meetings is available on the County Planning's website at: www.sccgov.org/sites/dpd/Programs/Stanford/Pages/GUP2018_CEQA.aspx

1.2.4 Final EIR and EIR Certification

The County will respond in writing to significant environmental points raised by the reviewers of the recirculated portions of the Draft EIR in their comments, as limited to the topics of the recirculation. The Final EIR will consist of the Draft EIR, the recirculated portions of the Draft EIR, and a Response to Comments Document that will respond to substantive comments received on the Draft EIR and the recirculated portions of the Draft EIR, and any revisions to the Draft EIR and the recirculated portions of the Draft EIR. The County of Santa Clara Board of Supervisors will hold a public hearing to consider the adequacy of the Final EIR in complying with the requirements of CEQA.

The County of Santa Clara Board of Supervisors must certify that the Final EIR meets CEQA requirements before making a decision to approve the Project. Prior to approval of a project for which the EIR identifies significant environmental effects, CEQA requires the adoption of Findings of Fact (CEQA Guidelines, Sections 15091 and 15092) for such effects. If the Final EIR identifies significant impacts that cannot be mitigated to less-than-significant levels, a statement of overriding considerations must be adopted for those impacts (CEQA Guidelines, Section 15093(b)).

1.2.5 Mitigation Monitoring and Reporting Program

As required under CEQA (see CEQA Guidelines, Section 15097), a Mitigation Monitoring and Reporting Program (MMRP) will be prepared and presented to the County of Santa Clara Board of Supervisors at the time of certification of the Final EIR for the proposed Project and will identify the specific timing and roles and responsibilities for implementation of adopted mitigation measures.

1.3 Organization and Content of the Recirculated Portions of the Draft Environmental Impact Report

The recirculated portions of the Draft EIR begins with this Introduction (Chapter 1), which provides a project overview, description of the environmental review process for the recirculated portions of the Draft EIR, and organization and content of this document.

Chapter 2 of this document includes the following recirculated portions of the Draft EIR:

- Chapter 1, Summary: Modifications to Section 1.5, Significant and Unavoidable Environmental Effects; Section 1.6, Alternatives to the Proposed Project; and Section 1.9, Summary of Impacts and Mitigation Measures;
- Chapter 5, Environmental Setting, Impacts and Mitigation Measures: New Section 5.17, Environmental Consequences of Stanford Providing Off-Campus Housing Under Proposed Project;
- Chapter 6, Other CEQA Issues: Modification to Section 6.2, Significant and Unavoidable Impacts; and
- Chapter 7, Alternatives: Modifications to Section 7.2, Alternatives Selection; Section 7.4, Alternatives Selected for Further Evaluation; Section 7.5, Summary Comparison of Alternatives; Section 7.6, Environmentally Superior Alternative; and Section 7.7, References.

In accordance with 15088.5(g) of the CEQA Guidelines, the revisions made to the previously circulated Draft EIR are summarized below:

Chapter 1, Summary: Section 1.5, Significant and Unavoidable Environmental Effects, Table 1-1 is modified to identify a new significant impact (Impact 5.17-1). Section 1.6, Alternatives to the Proposed Project, is modified to reference the two new alternatives to the proposed Project: Additional Housing Alternative A and Additional Housing Alternative B. Section 1.9, Summary of Impacts and Mitigation Measures, Table 1-2, is modified to identify new Impact 5.17-1.

Chapter 5, Environmental Setting, Impacts and Mitigation Measures: New Section 5.17, Environmental Consequences of Stanford Providing Off-Campus Housing Under Proposed Project, is included.

Chapter 6, Other CEQA Issues: Section 6.2, Significant and Unavoidable Impacts, Table 6-1 is modified to identify new Impact 5.17-1.

Chapter 7, Alternatives: This chapter is presented in whole, but modified to include the description and comparative analysis of the two new alternatives to the proposed Project. Section 7.2, Alternatives Selection, Table 7-1 is modified to identify new Impact 5.17-1. Section 7.4, Alternatives Selected for Further Evaluation, is modified to introduce the two new alternatives to the proposed Project. New Subsection 7.4.4. Additional Housing Alternative A contains a full description and comparative analysis of Additional Housing Alternative A; new Subsection 7.4.5 contains a full description and comparative analysis of Additional Housing Alternative B. Section 7.5, Summary Comparison of Alternatives is modified to include a summary comparison of the two additional housing alternatives to the proposed Project. Section 7.6, Environmentally Superior Alternative, is modified to include two new subsections: Subsection 7.6.3, Additional Housing Alternative A; and Subsection 7.6.4, Additional Housing Alternative B. Section 7.7, References, is modified to reflect additional references.

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CHAPTER 2

Recirculated Portions of Draft EIR

As described in Chapter 1 in this document, consistent with CEQA Guidelines Sections 15088.5(c), since the required revisions are limited to a few portions of the Draft EIR, the County is only recirculating the portions of the Draft EIR that have been modified. The modified text is included in these chapters and includes portions of the Draft EIR:

- Chapter 1, Summary: Modifications to Section 1.5, Significant and Unavoidable Environmental Effects; Section 1.6, Alternatives to the Proposed Project; and Section 1.9, Summary of Impacts and Mitigation Measures;
- Chapter 5, Environmental Setting, Impacts and Mitigation Measures: New Section 5.17, Environmental Consequences of Off-Campus Housing Under Proposed Project;
- Chapter 6, Other CEQA Issues: Modification to Section 6.2, Significant and Unavoidable Impacts; and
- Chapter 7, Alternatives: Modifications to Section 7.2, Alternatives Selection; Section 7.4, Alternatives Selected for Further Evaluation; Section 7.5, Summary Comparison of Alternatives; Section 7.6, Environmentally Superior Alternative; and Section 7.7, References.

All other resource chapters contained in the Draft EIR remain the same and are not discussed further in this document. Accordingly, comments submitted to the County regarding this document should be limited to the Recirculated Portions of the Draft EIR.

The revisions for each recirculated chapter are marked to help the reader identify the specific portions of the chapters that have been modified. Revised or new language is underlined; and deleted language is indicated by ~~striketrough~~ text. An exception is where new tables are added to the recirculated portions of Section 7.4, Alternatives Selection for Further Evaluation, in Chapter 7, Alternatives, in which case the table headings, end notes and sources are underlined, but for readability purposes, the text in the body of the tables is not underlined.

It should be noted that due to the level of detail provided in the analysis of Additional Housing Alternatives A and B presented herein, the format for the impact assessment of these additional housing alternatives in modified Chapter 7, Alternatives, of this document follows the same format that was used for the impact assessment of proposed Project in Chapter 5 of the Draft EIR. Accordingly, each environmental issue addressed for the additional housing alternatives contains a separate impact statement and analysis; where required, identification of feasible mitigation measures to reduce significant impacts; and a determination of significance of the impact following implementation of mitigation measures. Similar to the other alternatives that were originally evaluated in the Draft EIR, modified Chapter 7 also provides the requisite comparative analysis of each additional housing alternative to the proposed Project.

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RECIRCULATED PORTIONS OF CHAPTER 1 OF DRAFT EIR

Summary

1.5 Significant and Unavoidable Environmental Effects

Throughout this EIR, significant environmental impacts are identified, and mitigation measures are described that would eliminate the impacts or decrease them to a less-than significant level. Similarly, many impacts are identified that would be less-than-significant without the need for additional mitigation measures. There are, however, a number of impacts that are identified that cannot be eliminated or cannot be decreased to a level of insignificance even with the implementation of feasible mitigation measures. The key unavoidable significant environmental impacts include those listed in **Table 1-1**, below.

TABLE 1-1
SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT

Impacts
5.4 Cultural Resources
Impact 5.4-1: Project development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
Impact 5.4-6: Project development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments, could contribute considerably to significant cumulative adverse changes in the significance of historical resources.
5.11 Noise and Vibration
Impact 5.11-2: Project construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity.
Impact 5.11-6: Project construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to significant cumulative noise impacts.
5.15 Transportation
Impact 5.15-2: Implementation of the proposed Project could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-3: Implementation of the proposed Project could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-9: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
Impact 5.15-10: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
5.17 Environmental Consequences of Stanford Providing Off-campus Housing Under Proposed Project
<u>Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts.</u>

1.6 Alternatives to the Proposed Project

This EIR presents a discussion of a reasonable range of alternatives to the proposed Project that would feasibly attain most of the Project's basic objectives, but that would avoid or substantially lessen any identified significant adverse environmental effects of the project. The alternatives are described below.

1. No Project Alternative, consisting of
 - a. No Project/No Development Alternative; and
 - b. No Project/Individual Use Permits Alternative;
2. Reduced Project Alternative; ~~and~~
3. Historic Preservation Alternative;
4. Additional Housing Alternative A; and
5. Additional Housing Alternative B

The comparative evaluation of these alternatives is presented in Chapter 7 of the EIR.

1.9 Summary of Impacts and Mitigation Measures

Table 1-2 summarizes all of the impacts of the proposed Project, identifies the significance determination of each impact, and presents the full text of the recommended mitigation measures and improvement measures.

(Note: Since only the last page of Table 1-2 of the Draft EIR required revision, for simplicity, only the last page of Table 1-2 is presented below.)

TABLE 1-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Utilities and Service Systems (cont.)		
Impact 5.16-1 (cont.)	Transportation and Traffic Mitigation Measure 5.15-1: <i>Construction Traffic Control Measures.</i>	
Impact 5.16-2: Project development would increase the demand for water, however it would be adequately supplied from existing entitlements and resources. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-3: The Project would increase demand for wastewater treatment, but would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-4: The Project would discharge additional flows to the municipal sewer and drainage system, but not to an extent which would exceed the facilities' capacity in light of existing commitments. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-5: Project construction would result in an increased generation of solid waste, but would not exceed permitted capacity to accommodate the Project's solid waste disposal needs or conflict with federal, State, and local statutes and regulations related to solid waste. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-6: Operation of the Project would comply with federal, state, and local statutes and regulations related to solid waste and would be adequately served by existing landfills with sufficient permitted capacity to accommodate the Project's solid waste disposal needs. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-7: Implementation of the proposed Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for water supplies. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-8: Implementation of the Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for wastewater treatment. <i>(Less than Significant)</i>	None required.	Less than Significant
Impact 5.16-9: Implementation of the Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for landfill space. <i>(Less than Significant)</i>	None required.	Less than Significant
Environmental Consequences of Stanford Providing Off-campus Housing under Proposed Project		
Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts. <i>(Significant)</i>	Mitigation Measure 5.17-1: The local governmental agencies in which off-campus housing would be located can and should mitigate the environmental impacts from off-campus housing to the extent feasible.	<u>Significant and Unavoidable</u>

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RECIRCULATED PORTIONS OF CHAPTER 5 OF DRAFT EIR

Environmental Setting, Impacts and Mitigation Measures

5.17 Environmental Consequences of Off-campus Housing Under Proposed Project

5.17.1 Impacts and Mitigation Measures

Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts. (Significant)

The proposed 2018 General Use Permit is expected to result in demand for 2,425 off-site housing units. The growth in Stanford student, faculty, staff, postdoctoral student, and other worker households that would live off-site would likely be distributed among many jurisdictions in the Bay Area. Assuming that future off-campus residents distribute in patterns similar to how current off-campus residents live, these jurisdictions are listed in Table 5.12-11 of the Draft EIR.

With respect to affordable housing, Stanford proposes that affordable housing impact in-lieu payments made under the proposed 2018 General Use Permit would support development of affordable housing within one-half mile of any major transit stop or a high-quality transit corridor in the Bay Area.

Based upon Stanford's historical development of off-campus housing projects in the cities of Palo Alto, Menlo Park, and Los Altos, and the location of residence of existing Stanford affiliates based on Stanford's 2016 Commute Survey, the potential indirect impacts of distributing the proposed Project's off-campus housing demand within the cities of Palo Alto, Menlo Park, and Mountain View provide a representative analysis of the indirect impacts that would more broadly occur among the Bay Area jurisdictions. Specifically, as described in the Draft EIR, Palo Alto is currently home to approximately 19 percent of off-campus students, faculty, and staff; Menlo Park has 9 percent; and Mountain View has nearly 10 percent.² Therefore, the potential effects of any off-campus housing development projects that Stanford would potentially provide would disproportionately affect these jurisdictions compared to other communities in the Bay Area that house Stanford affiliates.

² Stanford University 2018 General Use Permit Draft EIR Appendix PHD, Table 13.

All three cities have adopted updates to their respective general plans within the last six years. The effects of population growth expected to occur during the next several decades resulting from such growth, including from residential housing development that may be associated with Stanford off-campus housing demand, have been analyzed in the Final EIRs for each respective general plan. While there are differences regarding how the analyses were conducted and how they are described in the environmental review documentation for each plan, significant impacts were identified for all three communities regarding air quality and transportation. It is reasonable to assume that the general plans for these communities accounted for the population growth associated with Stanford affiliates residing within each respective jurisdiction and that any off-campus housing provided by Stanford in more distant communities would have similar impacts as those identified below. Of course, the effects of population growth anticipated in those three Final EIRs include the impacts of all growth, only some of which could be growth caused indirectly by Stanford's proposed 2018 General Use Permit.

Any new off-campus housing constructed as result of Project demand, including affordable housing units, would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. For purposes of this EIR, the impacts associated with the demand for off-site housing units are being analyzed as indirect impacts of the Project.

City of Palo Alto

Palo Alto adopted an update to its general plan, *Comprehensive Plan 2030*, on November 13, 2017 (City of Palo Alto, 2017a). The Final EIR prepared for the update analyzed six unique scenarios for growth in Palo Alto through 2030 (City of Palo Alto, 2017b). The total number of new housing units constructed by 2030 under the six scenarios ranged from a low of 2,720 under the "business as usual" scenario to 6,000 units under the most aggressive housing scenario. The City Council developed a "Preferred Scenario" that would result in 3,545 to 4,420 new housing units in the city by 2030.

The effects of such growth anticipated to occur under the general plan update were considered in the Final EIR. Most impacts were determined to be less than significant through implementation of identified mitigation measures. However, several impacts related to air quality and transportation/traffic were determined to remain significant and unavoidable, as summarized below:

- AIR-2: Implementation of the proposed Plan could violate an air quality standard; contribute substantially to an existing or project air quality violation; and/or result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (All Six Scenarios)
- TRANS-1: Implementation of the project would cause an intersection to drop below its motor vehicle level of service standard, or deteriorate operations at representative intersections that already operate at a substandard level of service. (All Six Scenarios)

- TRANS-3: Implementation of the project would cause a freeway segment or ramp to drop below its level of service standard, or deteriorate operations that already operate at a substandard level of service. (All Six Scenarios)
- TRANS-6: Implementation of the project would impede the operation of a transit system as a result of congestion. (All Six Scenarios).

Regarding air quality, implementation of the general plan under all scenarios would generate a substantial increase in criteria air pollutant emissions from on-site sources, vehicle trips, and energy use, which would result in a significant, unmitigable impact. Emissions generated during construction associated with individual development projects permitted under the proposed plan also would generate significant levels of criteria air pollutants and toxic air contaminants. Under all six scenarios, the plan would cause multiple intersections to drop below their motor vehicle level of service standard, or deteriorate operations at intersections that already operate at a substandard level. Up to eight intersections were determined to have significant intersection impacts, and seven freeway segments or ramps on U.S. 101 and I-280 also would drop below level of service standards. In addition, the degradation in level of service would impede the operation of a transit system as a result of congestion.

City of Menlo Park

Menlo Park adopted its current general plan, *ConnectMenlo*, on November 29, 2016 (City of Menlo Park, 2016a). In addition to the proposed plan and no project alternatives, the Final EIR analyzed two reduced intensity scenarios (City of Menlo Park, 2016b). The number of housing units that could be constructed by 2040 ranged from 1,000 under the no project-business as usual alternative to 5,500 units under the proposed plan. The Final EIR prepared for the general plan identified significant and unavoidable impacts for air quality, GHG emissions, transportation and circulation, and population and housing (cumulative), as summarized below:

- AQ-2a: Despite implementation of the proposed project policies as identified in Chapter 4.2, Air Quality, Table 4.2-8, criteria air pollutant emissions associated with the proposed project would cause a substantial net increase in emissions that exceeds the Bay Area Quality Management District (BAAQMD) regional significance thresholds.
- AQ-2b: Despite implementation of the proposed project policies, criteria air pollutant emissions associated with the proposed project construction activities would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- AQ-5: Despite implementation of the General Plan policies, criteria air pollutant emissions associated with the General Plan would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- GHG-1: The proposed project would result in a substantial increase in GHG emissions from existing conditions by the proposed General Plan horizon year 2040 and would not achieve the 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Additional

state and federal actions are necessary to ensure that state and federally regulated sources (i.e., sources outside the City's jurisdictional control) take similar aggressive measures to ensure the deep cuts needed to achieve the 2050 target.

- GHG-2: While the proposed project supports progress toward the long term-goals identified in Executive Order B-30-15 and Executive Order S-03-05, it cannot yet be demonstrated that Menlo Park will achieve GHG emissions reductions that are consistent with a 40 percent reduction below 1990 levels by 2030 or an 80 percent reduction below 1990 levels by the year 2050 based on existing technologies and currently adopted policies and programs.
- POP-4: Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to population and housing.
- TRANS-1a: Implementation of the proposed project would exceed the City's current impact thresholds under the 2040 Plus Project conditions at some roadway segments in the study area.
- TRANS-1b: Implementation of the proposed project would result in increased delay to peak hour motor vehicle traffic exceeding the significance threshold at some of the study intersections.
- TRANS-2: Implementation of the proposed project would result in impacts to Routes of Regional Significance.
- TRANS-6a: Implementation of the proposed project would not provide adequate pedestrian or bicycle facilities to connect to the area-wide circulation system.
- TRANS-6b: The project would generate a substantial increase in transit riders that cannot be adequately serviced by existing public transit services, and the project would generate demand for transit services at sites more than one-quarter mile from existing public transit routes.

Similar to the determination of Palo Alto's Final EIR, implementation of Menlo Park's general plan would result in generation of criteria air pollutant emissions that would result in significant impacts during construction and operation. GHG emissions were determined to be significant and unavoidable as the emissions generated would not achieve a 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Five significant impacts were identified for transportation: exceedances of impact thresholds at roadway segments; increased delay to peak hour motor vehicle traffic thresholds; impacts to Routes of Regional significance; inadequate provision of pedestrian or bicycle facilities; and generation of a substantial increase in transit riders that cannot be adequately served by existing public transit services.

City of Mountain View

Mountain View's 2030 General Plan (adopted July 10, 2012) determined that 8,970 new housing units could be developed in the city by 2030 (City of Mountain View, 2012a). The general plan Final EIR identified significant impacts for Air Quality, Noise, and Transportation, as summarized below (City of Mountain View, 2012b):

- TRANS-1: Implementation of the Draft General Plan and GGRP would result in increased daily land-use-based vehicle miles of travel (VMT) per service population in 2030 due to population and employment growth planned within the City.
- TRANS-2a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased roadway segment levels of service on one roadway study segment (39. San Antonio Road between SB US 101 Ramps and Charleston Road).
- TRANS-2b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased roadway segment levels of service on several roadway study segments.
- TRANS-3a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-3b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-4a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- TRANS-4b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- AIR-2: Implementation of the Draft General Plan and GGRP could contribute to or result in a violation of air quality standards in the existing and cumulative conditions by increasing VMT greater than the population increase.
- AIR-4: Implementation of the Draft General Plan and GGRP would result in a cumulatively considerable net increase in ozone and particulate emissions.
- NOI-1: Increased traffic from projected development under the Draft General Plan and GGRP would result in a significant increase in traffic noise levels compared to existing conditions in the 2030 and cumulative conditions along some roadway and freeway segments in the City.

Regarding air quality, impacts would result from violation of air quality standards by increasing VMT greater than the population increase, and the cumulatively considerable net increase in

ozone and particulate emissions. Increased traffic noise levels along some roadway and freeway segments would be significant. Significant transportation impacts included the following: increased daily land-use-based VMT due to population and employment growth; increased motor vehicle traffic and congestion, which would result in decreased roadway and freeway segments level of service; and increased motor vehicle traffic and congestion outside the city.

Conclusion

Although the above analysis focuses on the impacts in three cities where housing locations are reasonably foreseeable, similar impacts would likely occur in other Bay Area jurisdictions where off-campus housing would be located. As discussed above, any new off-campus housing under the proposed Project would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. As such, the implementation of any mitigation measures to reduce associated environmental impacts, in particular those included in or required by General Plan EIRs, would depend on the actions of those jurisdictions.

Mitigation Measure 5.17-1: The local governmental agencies in which off-campus housing would be located can and should mitigate the environmental impacts from off-campus housing to the extent feasible.

Significance after Mitigation: Significant and Unavoidable.

Given uncertainties in the specific location and type of off-campus housing that may occur under this option, it is also uncertain if feasible mitigation would exist to reduce all significant environmental impacts to a less than significant level. Further, the County cannot require or guarantee that local governments would implement mitigation measures for off-campus housing included in or required by General Plan EIRs. For these reasons, the impact is determined to be significant and unavoidable.

5.17.2 References

City of Palo Alto, *Comprehensive Plan 2030*, adopted November 13, 2017a.

City of Palo Alto, *Comprehensive Plan Update Final EIR for the City of Palo Alto*, certified November 13, 2017b.

City of Menlo Park, *ConnectMenlo*, adopted November 29, 2016a.

City of Menlo Park, *ConnectMenlo Final EIR*, certified on November 29, 2016b.

City of Mountain View, *2030 General Plan*, adopted July 10, 2012a.

City of Mountain View, *2030 General Plan Final EIR*, certified on July 10, 2012b.

RECIRCULATED PORTIONS OF CHAPTER 6 OF DRAFT EIR

Other CEQA Issues

6.2 Significant and Unavoidable Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed project on various aspects of the environment are discussed in detail in Chapter 5, Environmental Setting, Impacts, and Mitigation Measures. Project-specific and cumulative impacts that cannot be avoided if the project is approved as proposed are summarized in **Table 6-1**, below.

Section 15126.2(b) also requires: “Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and reasons why the project is being proposed, notwithstanding their effect, should be described.” The discussion of the feasibility of alternatives to address significant impacts of the proposed Project is found in Chapter 7, Alternatives.

**TABLE 6-1
SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT**

Impacts
5.4 Cultural Resources
Impact 5.4-1: Project development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
Impact 5.4-6: Project development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments, could contribute considerably to significant cumulative adverse changes in the significance of historical resources.
5.11 Noise and Vibration
Impact 5.11-2: Project construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity.
Impact 5.11-6: Project construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to significant cumulative noise impacts.
5.15 Transportation
Impact 5.15-2: Implementation of the proposed Project could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-3: Implementation of the proposed Project could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-9: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
Impact 5.15-10: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
<u>5.17 Environmental Consequences of Stanford Providing Off-campus Housing Under Proposed Project</u>
<u>Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts.</u>

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RECIRCULATED CHAPTER 7 OF DRAFT EIR

Alternatives

7.1 Introduction

An EIR must describe a range of reasonable alternatives to the proposed Project that might feasibly accomplish most of the basic objectives of the proposed Project and could avoid or substantially lessen one or more of the significant effects. This chapter describes the CEQA requirements for an alternatives analysis, presents Stanford's Project objectives, summarizes the significant effects of the proposed Project that cannot be avoided or reduced to insignificance, and describes the alternatives, including those that were considered but dismissed from further evaluation. The chapter then considers the comparative effects of each of the alternatives relative to those of the proposed Project, and evaluates the relationship of the alternatives to the Project objectives. As required under section 15126.6(e) of the State CEQA Guidelines, an environmentally superior alternative is identified and addressed at the end of this chapter.

7.1.1 CEQA Requirements for Alternatives Analysis

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to the proposed project, or to the location of the proposed project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6(a), (d)). The "range of alternatives" is governed by the "rule of reason," which requires the EIR to describe and consider only those alternatives necessary to permit informed public participation, and an informed and reasoned choice by the decision-making body (CEQA Guidelines Section 15126.6(a), (f)).

The range of alternatives must include alternatives that could feasibly attain most of the basic objectives of the project and could avoid or substantially lessen any of the significant effects of the project (CEQA Guidelines Section 15126.6(a)-(c)). CEQA generally defines "feasible" to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. In addition, the following may be taken into consideration when assessing the feasibility of alternatives: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and the ability of the proponent to attain site control (CEQA Guidelines Section 15126.6(f)(1)). If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR (CEQA Guidelines Section 15126.6(f)(2)(B)).

The description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative. An EIR need not describe or evaluate the environmental

effects of alternatives in the same level of detail as the proposed Project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed Project (CEQA Guidelines Section 15126.6(d)).

The “no project” alternative must be evaluated. This analysis is required to include a discussion of the continuation of the existing conditions, as well as what could be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2)).

CEQA also requires that an environmentally superior alternative be selected from among the alternatives. The environmentally superior alternative is the alternative with the fewest or least severe adverse environmental impacts. If the “no project” alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives (CEQA Guidelines Section 15126.6(e)(2)).

7.2 Alternatives Selection

7.2.1 Project Objectives

As presented in Chapter 3, the objectives of the proposed Project, are reiterated below. As noted above, this EIR need only consider alternatives that would feasibly accomplish most of the proposed Project's basic objectives.

Stanford's stated objective is County approval of a 2018 General Use Permit that would authorize continued growth and development on the campus in a manner that implements the Stanford Community Plan's policies and that is consistent with the growth assumptions in the approved Sustainable Development Study. As described in Chapter 2, Project Description, Stanford's more specific objectives are as follows:

- Continue to implement the policies of the Stanford Community Plan, including policies promoting compact urban development, housing, single-occupant vehicle trip reduction, resource conservation, and health and safety;
- Continue to allow Stanford flexibility to develop its lands within a framework that minimizes potential negative effects on the surrounding community (“flexibility with accountability”);
- Authorize continuation of existing academic, academic support and housing uses on the Stanford campus;
- Enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities;

- Enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique Escondido Village (EV) Graduate Student Residences Project;
- Enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by authorizing 550 transit-oriented high density housing units that can be occupied by faculty, staff, postdoctoral scholars and medical residents;
- Prioritize use of campus lands within unincorporated Santa Clara County for academic and academic support facilities, student housing, and faculty housing; and
- Support existing and new academic, academic support and housing uses by authorizing new and improved parking facilities, roadway, utility and infrastructure improvements, child care centers, facilities designed to promote vehicle trip reduction, and temporary trailers for construction surge space.

7.2.2 Summary of Significant Effects of the Proposed Project

As described above, alternatives to the proposed Project must substantially lessen or avoid one or more of the significant project and/or cumulative environmental impacts. The following summarizes the conclusions for the significant and unavoidable impacts identified in Chapter 5 of this EIR.

**TABLE 7-1
SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT**

Impacts
5.4 Cultural Resources
Impact 5.4-1: Project development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
Impact 5.4-6: Project development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to significant cumulative adverse changes in the significance of historical resources.
5.11 Noise and Vibration
Impact 5.11-2: Project construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity.
Impact 5.11-6: Project construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to significant cumulative noise impacts.
5.15 Transportation
Impact 5.15-2: Implementation of the proposed Project could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-3: Implementation of the proposed Project could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Project conditions.
Impact 5.15-9: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
Impact 5.15-10: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.
5.17 Environmental Consequences of Stanford Providing Off-campus Housing Under Proposed Project
<u>Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts.</u>

7.3 Alternatives Considered but Dismissed from Further Evaluation

CEQA Guidelines Section 15126.6(c) requires an EIR to identify and briefly discuss any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process. In identifying alternatives, primary consideration was given to alternatives that could reduce significant impacts while still meeting most of the project objectives.

7.3.1 Off-Site Alternative

Because the primary purpose of the proposed 2018 General Use Permit is to authorize continued growth and development of the campus in a manner that implements the Stanford Community Plan's policies and that reflects the growth assumptions in the approved Sustainable Development Study, an alternative that would provide for Stanford campus growth and development at an alternative site would not accomplish the primary Project purpose.

Stanford does have off-campus functions that serve to support its academic mission. For example, Stanford is constructing an administrative campus in Redwood City to house functions and departments that do not need to be on the academic campus lands in Santa Clara County. Stanford also has applied to the City of Menlo Park for approvals to construct multi-family housing that may be occupied by staff and other Stanford affiliates, and similarly does not need to be on the academic campus lands in Santa Clara County.

The development proposed under the 2018 General Use Permit would house academic programs, closely associated facilities, and Stanford populations that are connected to the University's programs on the academic campus lands in Santa Clara County. Locating such programs and populations offsite would not achieve most of the basic Project objectives. In particular, housing academic programs and populations that are connected to Stanford's on-campus programs at an alternative offsite location would not: encourage interdisciplinary collaboration; maintain flexibility to respond quickly to changes in educational or research technologies; balance academic and academic support space growth with student housing growth; foster collaboration and learning; prioritize use of campus lands within unincorporated Santa Clara County for academic and academic support facilities, student housing, and faculty housing; and support existing and new academic, academic support and housing uses. Further, because of the interactions between programs and populations, such an alternative could tend to increase trip making and VMT, resulting in environmental impacts that would be exacerbated compared to those of the proposed Project.

Since this alternative would not accomplish the primary Project purpose and most Project objectives, and would tend to exacerbate environmental impacts rather than avoid them, it was dismissed from further evaluation.

7.3.2 All-Academic Growth/No New Housing Alternative

An alternative that focuses exclusively on academic growth, and that excludes additional student housing, would not reflect the growth assumptions in the approved Sustainable Development Study and therefore would not accomplish the primary Project purpose. Such an alternative also would not provide Stanford flexibility to develop its lands within a framework that minimizes potential negative effects on the surrounding community and would not enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique EV Graduate Student Residences Project. An alternative that excludes new faculty housing would fail to enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by allowing students and faculty to live in close proximity to each other. An alternative that eliminates all housing growth also would not implement the policies of the Stanford Community Plan that encourage new housing on the Stanford campus, and that link housing growth to academic facility growth. Further, such an alternative would tend to increase commute trips and per worker VMT. Such an alternative would not achieve most of the basic Project objectives. Since this alternative would not accomplish the primary Project purpose and most Project objectives, and would tend to exacerbate environmental impacts compared to the proposed Project, it was dismissed from further evaluation.

7.3.3 All Housing Alternative

An alternative that focuses exclusively on housing growth, and that excludes growth in academic and academic support facilities, would not reflect the growth assumptions in the approved Sustainable Development Study and therefore would not accomplish the primary Project purpose. Such an alternative would not enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities. An alternative that excludes growth in academic and academic support facilities would not implement the Stanford Community Plan policies that support compact urban development within the Academic Growth Boundary and encourage development at an intensity to further use of transit. Such an alternative also would not provide Stanford flexibility to develop its lands within a framework that minimizes growth in the surrounding community. Nor would such an alternative enable Stanford to balance academic and academic support space growth with student housing. An alternative that eliminates all academic and academic support space growth would not achieve most of the basic Project objectives. Since this alternative would not accomplish the primary Project purpose and most Project objectives, it was dismissed from further evaluation.

7.3.4 No Construction Noise Variance Alternative

As discussed in Section 5.11, Noise and Vibration, there is the potential for certain construction activities that would occur under the proposed 2018 General Use Permit to result in a substantial temporary or periodic increase in ambient noise levels in and around the Project site, including at sensitive receptors. As described in Section 5.11, since it is unknown whether conditions justifying such a variance from the County's construction noise standards might occur, it is possible that these increases in ambient noise in and around the Project site could be significant; and consequently, this impact was deemed significant and unavoidable.

A potential alternative was considered in which the County would grant no variance from the County's construction noise standards for all construction work conducted under the proposed 2018 General Use Permit. This potential alternative was dismissed as infeasible for several reasons. First, there may be circumstances in which construction work conducted under the allowances of a variance could, on balance, outweigh the adverse effects associated with construction under a variance. Examples of this could include conducting work outside of the normal construction hours in order to be less disruptive to a nearby school or daycare facility, or conducting a large concrete pour on a compressed schedule (i.e., outside of the normal construction windows) to minimize disruption to neighboring uses over a longer period. Secondly, there are situations when it is not feasible to perform all of the construction work near an offsite sensitive receptor during the day. Examples of this include shifting deliveries to night hours so as to reduce daytime traffic congestion; and completing a utility project at a time when service disruption is less problematic to affected users. Finally, there are times when, due to the nature and location of the construction activity, it may be impossible to avoid exceeding the construction noise standard at the property line of a nearby sensitive receptor. An example of this would be if construction must occur on or very near a property line, certain equipment could exceed the threshold even with all feasible mitigation in place. For these reasons, this alternative was deemed to be infeasible, and was dismissed from further evaluation.

7.4 Alternatives Selected for Further Evaluation

The alternatives identified for analysis are designed to inform the public discussion and the final decisions by the Santa Clara County Board of Supervisors on the proposed 2018 General Use Permit. Specifically, the alternatives are designed to inform decision-makers about:

- The relative change in environmental impact (increase or decrease) that might be expected by potential modifications to the proposed Project; and
- The effect of the potential modifications to the Project on the ability to achieve the project objectives.

The alternatives that are evaluated in this EIR are:

1. No Project Alternative, consisting of
 - a. No Project/No Development Alternative; and
 - b. No Project/Individual Use Permits Alternative;

2. Reduced Project Alternative; ~~and~~
3. Historic Preservation Alternative;
4. Additional Housing Alternative A; and
5. Additional Housing Alternative B

Table 7-2, below, provides a summary comparison of the principal differences in characteristics between the proposed Project and the alternatives.

7.4.1 No Project Alternative

Evaluation of a No Project alternative is required to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project alternative reflects the conditions that would be reasonably expected to occur in the foreseeable future if the project were not approved (CEQA Guidelines Section 15126.6(e)). Here, a range of outcomes could occur if the County decided not to approve the proposed 2018 General Use Permit. On the lowest end of the scale, future development of the Stanford campus could be limited to the remaining development already authorized by the 2000 General Use Permit. On the highest end of the scale, the same amount of development as has been requested through the proposed 2018 General Use Permit could be authorized by the County through individual permit applications and approvals. To bracket this range, the County has identified two No Project alternatives: the No Project/No Development alternative, and the No Project/Individual Permits alternative.

The No Project/No Development Alternative

Description

Under No Project/No Development Alternative, no new use permits would be approved, and all conditions of the 2000 General Use Permit would remain in place. In order to bracket the low end of potential development under No Project conditions, it is assumed that all development authorized under the 2000 General Use Permit would be implemented, but there would be no increase in the academic and academic support development square footage or number of new student housing units beyond the quantities authorized by the 2000 General Use Permit.

If all applicable conditions of the 2000 General Use Permit were met, Stanford would be able to continue to remodel existing campus facilities; build replacement academic and academic support facilities by demolishing a commensurate square footage of existing facilities; and build new replacement housing by demolishing commensurate housing units or student beds. In addition, as authorized under the 2000 General Use Permit, Stanford would continue to be able to utilize up to 50,000 square feet of construction surge space. Furthermore, Stanford would be able to utilize remaining unbuilt parking as authorized under the 2000 General Use Permit. Any net new childcare center space would need to replace existing academic and academic support space. Infrastructure improvements to serve development at the campus would continue to be allowed, as authorized under the 2000 General Use Permit.

TABLE 7-2
COMPARISON SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES

	Proposed 2018 General Use Permit	No Project Alternatives		Reduced Project Alternative	Historic Preservation Alternative	<u>Additional Housing Alternative A</u>	<u>Additional Housing Alternative B</u>
		No Project/No Development Alternative	No Project/ Individual Use Permits Alternative				
Development Levels							
Academic and Academic Support (net new square feet)	2,275,000	0 (Replacement of academic and academic support facilities allowed by demolishing a commensurate square footage of existing facilities)	Amount dependent on individual use permits approved	1,300,000	Similar to Project	<u>Similar to Project</u>	<u>Similar to Project</u>
Housing							
Net new housing (units/beds)	3,150	0 (Replacement of housing allowed by demolishing commensurate number of housing units or student beds)	Amount dependent on individual use permits approved	1,800	Similar to Project	<u>5,699</u>	<u>4,425</u>
- Amount of net new amount of housing available to faculty, staff, postdoctoral scholars, and medical residents (net new units/beds)	550			300	Similar to Project	<u>2,892^b</u>	<u>1,825^b</u>
Other Development							
Net new childcare center space and other space that reduces vehicle trips (net new square feet)	40,000 sf	Any net new childcare center space would need to replace existing academic and academic support space	Individual childcare facilities could be sought through individual use permits	Similar to Project	Similar to Project	<u>Similar to Project</u>	<u>Similar to Project</u>
Utilization of construction surge space authorized under the 2000 General Use Permit (square feet)	up to 50,000 sf	Yes	Construction surge space for individual projects could be sought through individual use permits	Similar to Project	Similar to Project	<u>Similar to Project</u>	<u>Similar to Project</u>

TABLE 7-2 (CONTINUED)
COMPARISON SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES

	Proposed 2018 General Use Permit	No Project Alternatives		Reduced Project Alternative	Historic Preservation Alternative	<u>Additional Housing Alternative A</u>	<u>Additional Housing Alternative B</u>
		No Project/No Development Alternative	No Project/ Individual Use Permits Alternative				
Development Levels (cont.)							
Parking Utilization of the remaining unbuilt parking authorized under the 2000 General Use Permit	Yes	Yes	Stand-alone individual parking facilities or parking associated with individual buildings could be sought through individual use permits, no limit defined	Similar to Project	Similar to Project	<u>In addition to utilizing unbuilt parking, 114 additional parking spaces would be needed for 207 additional graduate student beds.</u> <u>For purposes of analysis, it is assumed that parking for faculty/staff housing would not count toward campus parking limits.</u>	<u>In addition to utilizing unbuilt parking, 57 additional parking spaces would be needed for 104 additional graduate student beds.</u> <u>For purposes of analysis, it is assumed that parking for faculty/staff housing would not count toward campus parking limits.</u>
Creation of a parking reserve	Yes	No	No	Yes, but proportionally reduced in relation to reduced academic development	Similar to Project	<u>Similar to Project</u>	<u>Similar to Project</u>
Infrastructure Improvements	Yes	Yes, in correlation with development levels authorized under the 2000 General Use Permit	Yes, in correlation with level of development	Yes, in correlation with level of development	Similar to Project	<u>Yes, in correlation with level of development</u>	<u>Yes, in correlation with level of development</u>

TABLE 7-2 (CONTINUED)
COMPARISON SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES

	Proposed 2018 General Use Permit	No Project Alternatives		Reduced Project Alternative	Historic Preservation Alternative	<u>Additional Housing Alternative A</u>	<u>Additional Housing Alternative B</u>
		No Project/No Development Alternative	No Project/ Individual Use Permits Alternative				
No Net New Trips Standard							
<i>Existing</i>							
Implement, and update as needed, its TDM programs designed to achieve No Net New Commute Trips	Yes	Yes	No	Yes	Yes	<u>Yes^c</u>	<u>Yes^c</u>
Implement off-campus trip reduction programs as contemplated by the Stanford Community Plan's trip credit policy	Yes	Yes	No	Yes	Yes	<u>Yes</u>	<u>Yes</u>
If No Net New Commute Trips standard is exceeded, provide funding to the County for intersection improvements or alternative programs.	Yes	Yes	No	Yes	Yes	<u>Yes</u>	<u>Yes</u>
<i>Proposed Additional</i>							
If No Net New Commute Trips standard is exceeded, pay a per trip fund that would be prioritized for funding trip reduction programs implemented by other entities in the vicinity, including programs that encourage and improve use of alternative transportation modes, and/or improve safety and mobility for pedestrians, bicyclists and transit users. The County would retain discretion to use the funds for intersection improvements.	Yes	No	No	Yes	Yes	<u>Yes^c</u>	<u>Yes^c</u>

TABLE 7-2 (CONTINUED)
COMPARISON SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES

	Proposed 2018 General Use Permit	No Project Alternatives		Reduced Project Alternative	Historic Preservation Alternative	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development Alternative	No Project/ Individual Use Permits Alternative				
Other Commitments							
Existing Sustainability Programs and Practices Stanford would implement, and update as needed, existing sustainability programs and practices (including energy supply and efficiency, water supply and conservation, transportation, and solid waste reduction and recycling)	Yes	Yes	Yes	Yes	Yes	<u>Yes</u>	<u>Yes</u>
Proposed Additional Sustainability Programs and Practices Stanford would meet final Tier 4 standards for all construction equipment, except for chainsaws and paving phase equipment	Yes	No	No ^a	Yes	Yes	<u>Yes</u>	<u>Yes</u>
Stanford would not conduct any impact pile driving on construction projects necessitating piles, but rather, would use alternative pile installation methods (e.g., drilling to place) to minimize potential noise and vibration disruption;	Yes	No	No ^a	Yes	Yes	<u>Yes</u>	<u>Yes</u>
All Marguerite buses would be electric by 2035	Yes	No	No ^a	Yes	Yes	<u>Yes</u>	<u>Yes</u>
70 percent of Stanford Land Buildings and Real Estate and Bonair fleet vehicles would be electric by 2035	Yes	No	No ^a	Yes	Yes	<u>Yes</u>	<u>Yes</u>
Stanford would rely heavily on low-water-demand, native plants for new landscaping	Yes	No	No ^a	Yes	Yes	<u>Yes</u>	<u>Yes</u>

TABLE 7-2 (CONTINUED)
COMPARISON SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES

	Proposed 2018 General Use Permit	No Project Alternatives		Reduced Project Alternative	Historic Preservation Alternative	<u>Additional Housing Alternative A</u>	<u>Additional Housing Alternative B</u>
		No Project/No Development Alternative	No Project/ Individual Use Permits Alternative				
Population Increase							
Anticipated Population Growth in All Population Segments (includes undergraduates, graduate students, postdoctoral students, faculty, staff, nonmatriculated students, and other worker populations)	Background increase through 2018: 1,448 total; 1,293 daily Plus Project increase: 9,610 total; 8,583 daily	Same background increase through 2018 as proposed Project; no increase beyond 2018 assumed; possible that population could grow somewhat as building use intensifies but to a level lower than that associated with buildout of the proposed 2018 General Use Permit	Increase dependent in part on individual use permits approved	Same background increase through 2018 as proposed Project Plus the following increase: 5,492 total; 4,890 daily	Similar to Project	<u>Similar to Project;</u> <u>however, the onsite</u> <u>residential</u> <u>population would be</u> <u>higher than the</u> <u>Project.</u>	<u>Similar to Project;</u> <u>however, the onsite</u> <u>residential</u> <u>population would be</u> <u>higher than the</u> <u>Project.</u>

- ^a For purposes of alternatives analysis, it is assumed that the additional commitments proposed by Stanford under the Project would not be proposed by Stanford as part of applications for individual use permits. However, it is possible that some of these types of project features could be required either as mitigation measures/conditions of approval or would be implemented as needed to comply with evolving regulatory requirements under this scenario.
- ^b The number of additional housing units was calculated based on housing demand from increased faculty, staff, and postdoctoral scholars, as well other workers. The actual occupancy of these additional units under this alternative is unknown, but assumed to be potentially occupiable by unspecified proportions of some or all of these groups.
- ^c Because this additional housing alternative would shift substantial numbers of commute trips to residential trips it is unknown whether the No Net New Commute Trips standard could be feasibly achieved through implementation of expanded TDM programs.

Under this alternative, all existing Stanford Community Plan policies and 2000 General Use Permit conditions, including but not limited to those associated with implementing Stanford's "No Net New Commute Trips" standard, would be maintained. It is also assumed under this alternative that Stanford's existing sustainability programs and practices would be maintained and updated as needed, including for energy supply and efficiency, water supply and conservation, transportation, and solid waste reduction and recycling.

Because there would be no increase in existing authorized development and housing levels on the Project site under this alternative beyond that authorized by the 2000 General Use Permit, no growth in Stanford's total population (including students, faculty, staff, and other worker populations) beyond 2018 is assumed. However, the analysis also recognizes that under this alternative, some unquantifiable population growth could occur as long as the No Net New Commute Trips standard was maintained or, Stanford provided funding for intersections improvements identified in the 2000 General Use Permit. Further, increases in population would tend to compress programs and other campus functions. While increases in population would be allowable, square footage constraints would tend to limit that population growth so that the campus population growth would be substantially less than that which would occur with buildout of the proposed 2018 General Use Permit.

While this alternative focuses on a scenario in which there would be no increase in development authorized under the 2000 General Use Permit, it should be noted that pursuant to the provisions of the 2000 General Use Permit, the County could incrementally amend the 2000 General Use Permit to allow individual projects or small increments of development, including increases in academic and academic support, and housing. If approved, this additional development would be subject to all applicable conditions of the 2000 General Use Permit, including any comprehensive campus-wide and site-specific measures for reducing environmental effects. Such a scenario would result in impacts similar to the impacts of the scenario assumed for the No Project/Individual Use Permits Alternative.

Comparative Analysis of Environmental Effects

Visual and Scenic Resources

There would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project. Nearly all of the replacement academic, academic support or housing development that would occur under this alternative would be located within the Academic Growth Boundary, and not adjacent to any state scenic highway.³ When considering these factors, this alternative would have a lesser effect on scenic vistas, scenic resources, visual character, and light and glare than the proposed Project. Furthermore, as with the proposed Project, replacement development under this alternative would be subject to the County ASA review process or other approval processes, which consider issues of visual character and quality; would be required to be consistent with the overall aesthetic and

³ However, the 2000 General Use Permit does allow a cumulative maximum of 15,000 square feet in the Foothills Development District and 10,268 of those square feet remain available; therefore, a very small amount of the replacement square footage could be constructed outside the Academic Growth Boundary. Under the County's Open Space & Field Research zoning, development in the Foothills District is restricted and requires submission of a visual analysis.

scenic policies of the Stanford Community Plan; and would be subject to a lighting plan review as conditioned under the 2000 General Use Permit. As with the proposed Project, all impacts to visual and scenic resources under this alternative would be less than significant.

Air Quality

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, construction-related air quality effects associated with generation of criteria air pollutants and localized increases in dust would be less than the proposed Project. Implementation of a dust control plan for this alternative similar to that identified for the proposed Project would similarly ensure construction effects of criteria air pollutants would be reduced to a less than significant level. However, under this alternative, Stanford's Project commitment to use construction equipment with Tier 4 engines would not occur. Consequently, the potential for construction activities that would occur under this alternative to result in localized increases in health risks associated with exposure to toxic air contaminants (TACs) and particulate matter that is 2.5 microns in diameter (PM_{2.5}) would be greater than under the proposed Project. Nevertheless, as part of ASA or approval processes measures for addressing health risks similar to those identified for the proposed Project could be implemented.

Under operation of this alternative, there would be substantially less daily vehicle trip generation compared to the proposed Project, and as a result, there would be lower levels of vehicle emissions associated with the lower operational trips. However, Stanford's proposed Project commitment to electrification of the Marguerite fleet of buses and other portions of Stanford's fleet would not be mandated and, thus, may not occur under this alternative; and thus, there is no assurance that reductions in some pollutants such as particulates, reactive organic gases (ROG) and nitrogen oxide (NOx) associated with fleet electrification would be realized under this alternative. The resulting mobile source emissions still would be lower under this alternative than under the proposed Project due to fleet improvements required under existing regulations.

Because this alternative would not result in a net increase in building space and residential units above that authorized under the 2000 General Use Permit, stationary source emissions also would be reduced under this alternative as a result of reduced development.

Since there would be less overall development under this alternative compared to the proposed Project, the potential under this alternative for new laboratory fume hood emissions to result in potential operational health risk impacts may be less than under the proposed Project. However, if driven by programmatic needs, pursuant to the provisions of the 2000 General Use Permit Stanford could retrofit existing building space into labs with new fume hoods, which could result in fume hood emissions comparable to those described for the proposed Project. A mitigation measure similar to that identified for the proposed Project exists in the 2000 General Use Permit, and would similarly reduce this impact to a less-than-significant level.

Biological Resources

There would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project; and less population and associated human activity on the Project site during operation of this alternative compared to the

proposed Project. Consequently, there would be less potential for construction- related effects on protected trees, nesting birds, special-status plant and animal species, riparian habitat, native oak woodland, and jurisdictional waters and wetlands under this alternative compared to the proposed Project. To the extent that campus population would be less under this alternative than under the proposed Project, operations-related effects caused by human activity would similarly be less. The 2000 General Use Permit does not include measures to protect San Francisco dusky-footed wood rat or special-status bat species. However, as part of ASA or approval processes for individual projects, implementation of biological resource protection measures similar to those identified for the proposed Project would similarly ensure construction- and operational-related effects to biological species under this alternative would be reduced to a less than significant level.

Cultural Resources

There would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project. However, since construction of new development under this alternative would require a commensurate reduction in existing academic and academic support space and housing levels, there could be a greater potential under this alternative for remodeling and/or demolition of historic buildings on the Project site compared to the proposed Project. Implementation of measures to address the treatment for demolition, remodeling and/or alteration of historic structures for this alternative similar to those identified for the proposed Project would mitigate impacts to historic resources to the extent feasible, however, as with the Project, this impact would remain significant and unavoidable for this alternative on both on a project and cumulative level.

Given the likely overall smaller footprint of construction disturbance under this alternative, potential impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources for this alternative would be less than for the proposed Project. Implementation of measures to protect archaeological resources, paleontological resources, human remains, and tribal cultural resources during construction for this alternative similar to those identified for the proposed Project would mitigate impacts to these resources to a less than significant level.

Energy Conservation

Under operation of the No Project/No Development Alternative, there could be substantially reduced daily vehicle trip generation compared to the Project. Consequently, this alternative would have less gasoline demand associated with the reduced operational trips compared to the proposed Project. However, Stanford's proposed Project commitment to electrification of the Marguerite fleet of buses and other portions of Stanford's fleet would not be mandated by the County and, thus, may not occur under this alternative; and thus, reductions in mobile gasoline consumption from reduced commute trips may be offset by increased gasoline and diesel fuel use by Marguerite buses and other portions of Stanford's fleet.

If population increases were to occur due to more intensive use of existing academic and academic support space, per worker VMT could increase due to an increased worker population without increased on-campus housing. This could increase gasoline consumption under this alternative.

This alternative would not result in a net increase in building space; therefore, electricity consumption for stationary sources would be less under this alternative than under the proposed Project. There also may be a reduction in electricity use by Marguerite buses and other Stanford fleet vehicles compared to the proposed Project under this alternative if Stanford chooses not to proceed with its fleet vehicle electrification.

Overall, this alternative could result in overall less energy consumption compared to the proposed Project, and the impact would be considered similarly less than significant.

Geology and Soils

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, impacts associated with construction-related soil erosion under this alternative would be less than the Project, and similarly less than significant. Since there would be substantially less overall development and population on the Project site under this alternative compared to the proposed Project, potential operational exposure of people and/or structures to groundshaking, landslides, unstable geologic units or soils, or soil erosion under this alternative would be less than for the Project, and would be similarly less than significant.

Greenhouse Gases

If the No Project/No Development Alternative results in a substantial decrease in campus population growth, there would be substantially reduced vehicle trip generation compared to the Project; and as a result, there would be a reduction in GHG emissions associated with this decrease in operational trips. However, continued campus population growth associated with more intensive use of academic and academic support spaces, combined with a lack of additional campus housing development, could result in increased per worker VMT and associated greenhouse gas emissions from commuting. This would partially offset the reduction in GHG emissions from the decrease in the total number of vehicle trips.

Further, Stanford's proposed Project commitment to electrification of the Marguerite fleet of buses and other portions of Stanford's fleet would not be mandated by the County and, if Stanford elects not to proceed with the electrification, would not occur under this alternative; and thus, reductions in GHG emissions associated with that Project element would not be realized under this alternative. The relative increase in gasoline-related GHG emissions under this alternative if Stanford elected not to convert Marguerite buses and other Stanford fleet vehicles to electricity would be approximately balanced out by the decrease in electrical energy and natural gas demand associated with this alternative as a result of the no net increase in building space and residential units above that authorized under the 2000 General Use Permit.

Overall, the No Project/ No Development Alternative would result in lower total GHG emissions than the proposed Project; and the impact would be similarly less than significant.

Hazards and Hazardous Materials

Since there would be substantially less overall new construction and smaller construction footprint on the Project site under the No Project/No Development Alternative compared to the proposed Project, potential construction-related impacts to soil and groundwater would be less than the Project, and implementation of standard construction best management practices would ensure those impacts would be similarly less than significant. However, since construction of new development under this alternative would require a commensurate reduction in existing academic and academic support space and housing levels, there could be the potential under this alternative for more remodeling and/or demolishing of existing older buildings on site to occur, and a related greater potential for exposure to hazardous building materials than under the proposed Project. Nevertheless, as under the Project, potential exposure to hazardous materials under this alternative would be eliminated or reduced to legally acceptable levels through compliance with abatement measures required as part of applicable regulations.

There would be substantially less overall development and smaller population on the Project site than under the Project. As a result, under this alternative, there would be fewer operations involving transportation, use, storage and disposal of hazardous materials, and correspondingly, less potential health and safety risks related to these activities, than under the proposed Project. As under the proposed Project, adherence to existing regulatory requirements and management programs would ensure these potential effects for this alternative would be reduced to a less-than-significant level.

Since there would be substantially less overall development and smaller population on the Project site under this alternative than under the proposed Project, this alternative would expose less people or structures to potential wildland fires than the proposed Project; and this impact would be similarly less than significant. In addition, effects on impairment of an adopted emergency response plan or emergency evacuation plan under this alternative would also be less than under the proposed Project, and as with the proposed Project, would be less than significant.

Hydrology and Water Quality

Since there would be substantially less overall new construction and a smaller construction footprint on the Project site under the No Project/No Development Alternative compared to the proposed Project, potential construction-related impacts to groundwater would be less than the proposed Project, and with implementation of standard construction best management practices would be similarly less than significant.

There would be substantially less overall development on the Project site compared to the proposed Project, and consequently, less potential for new development to impact water quality from increased pollutants or siltation; or increases in peak runoff potentially resulting in flooding, during operation. As with the proposed Project, adherence to stormwater control measures as a part of the RWQCB Municipal Regional MS4 Stormwater Permit under this alternative would ensure potential water quality impacts from new development would be less-than-significant. Furthermore, mandatory compliance with the Storm Drainage Master Plan, the County's drainage design standards, SCVURPPP, and NPDES requirements would ensure effects on peak runoff and capacity of stormwater infrastructure would be less than significant. With less overall

development and a substantially smaller footprint than the proposed Project, this Alternative would also have less potential than the proposed Project to deplete groundwater, interfere with groundwater recharge, and/or result in lowering of the groundwater table. As with the proposed Project, drainage control requirements, on-going management of groundwater use, and continued implementation of Stanford's Groundwater Recharge plan would ensure potential effects on groundwater would be less-than-significant.

Land Use and Planning

Under the No Project/No Development Alternative, no new general use permit would be approved, and no amendments to the Stanford Community Plan or zoning would occur. All conditions of the 2000 General Use Permit would remain in place, and construction of any new development would require a commensurate reduction in existing academic and academic support space and housing levels.

As under the proposed Project, most replacement academic, academic support or housing development that would occur under this alternative would be constructed within the Academic Growth Boundary.⁴ Similar to the Project, at the time individual projects were proposed, the County would require Stanford to apply for County ASA or other approvals, and such approvals may be subject to additional environmental review prior to consideration of approval by the County. Similar to the proposed Project, implementation of this alternative would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Noise and Vibration

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, conventional construction-related noise and vibration impacts would generally be less than the proposed Project. Implementation of construction noise control measures in the 2000 General Use Permit would serve to reduce construction noise impacts of this alternative; however, as under the proposed Project, construction noise increases in ambient noise levels in the site vicinity under project and cumulative conditions would be similarly significant and unavoidable. Stanford's proposed Project commitment to use alternative pile installation methods during construction would not occur under this alternative. However, the County noise ordinance prohibits operating any device that causes vibrations that endanger health or safety or annoy or disturb persons of normal sensitivities. Consequently, compliance with the County noise ordinance would preclude Stanford from using pile driving where doing so would result in potentially significant noise and vibration impacts.⁵

⁴ However, the 2000 General Use Permit does allow a cumulative maximum of 15,000 square feet in the Foothills Development District and 10,268 of those square feet remain available; therefore, some of the replacement square footage could be constructed outside the Academic Growth Boundary. Any uses placed outside of the Academic Growth Boundary would be required to be consistent with the Stanford's Community Plan's land use designations for those lands.

⁵ There would be no basis for the County to grant a variance from the noise ordinance for pile driving because Stanford's alternative pile installation methodology effectively establishes that no variance is warranted.

During operation of this alternative, since there would be substantially less overall development on the Project site compared to the proposed Project, there would be less noise-generating sources, such as building mechanical equipment, generators, and loading docks than under the proposed Project. Implementation of standard measures for shielding/enclosing HVAC equipment and emergency generators near sensitive receptors, similar to those identified for the proposed Project, would serve to reduce operational noise sources from this alternative, and the impact would be similarly less than significant. Since this alternative would generate less vehicle trips than the proposed Project, it would also generate less traffic noise than the proposed Project, and the impact would be similarly less than significant.

Population and Housing

Since there would be no increase in existing authorized development and housing levels on the Project site under the No Project/No Development Alternative beyond that authorized by the 2000 General Use Permit, Stanford's total population (including students, faculty, staff, and other worker populations) under this alternative may be similar to that which would occur with buildout of the 2000 General Use Permit.

Alternatively, a modest level of population growth could occur through more intensive use of academic and academic support space on the campus. Although the campus population could continue to grow without material increases in campus development, it would likely grow at a much slower rate than anticipated under the proposed Project.

This alternative would not induce the same amount of population growth as it would not propose any net new campus housing or academic and academic support space. This alternative would also not result in as much direct job growth at the Project site, and would indirectly result in less housing growth outside of the campus and less induced employment growth from businesses supported by Stanford and its employees than the proposed Project. Consequently, direct, indirect and induced population and housing growth would be less than the proposed Project, and similarly less than significant.

It should be noted that under this alternative, Stanford would not provide any additional contributions to the affordable housing fund as no new academic and academic support square footage would be added to the campus. Stanford also would not construct additional housing on the campus that qualifies as affordable under the standards identified in the County's Housing Element.

Public Services

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, impacts associated with increases in demand for fire protection, emergency medical service and police protection services during construction would be less than the proposed Project, and similarly less than significant.

Since there would be substantially less development and population on the Project site under this alternative compared to the proposed Project, operational impacts associated with increases in demand for fire protection, emergency medical service and police protection services under this

alternative would be less than the proposed Project, and similarly less than significant. In addition, impacts associated with increase enrollment in public schools under this alternative would also be less than the proposed Project, and similarly less than significant.

Recreation

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, impacts associated with construction of new recreational facilities under this alternative would be less than the proposed Project, and similarly less than significant with implementation of standard best management practices during construction.

Since there would be less population on the Project site under this alternative compared to the proposed Project, impacts associated with increases in use of existing neighborhood and regional parks and other recreational facilities under this alternative would be less than the proposed Project, and similarly less than significant.

Transportation and Traffic

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, overall construction traffic-related impacts would be less than the Project, and with implementation of similar construction traffic control measures as identified for the Project, would be similarly less than significant.

Assuming that this alternative would eliminate increases in population growth beyond the amount forecasted in 2018, it would generate less daily vehicle trips than the proposed Project, and would avoid significant and unavoidable Project and/or cumulative impacts that would occur at the following 22 study intersections in 2018 and/or 2035 with the proposed Project:

- #2 I-280 NB Off-Ramp / Sand Hill Road (AM Peak Hour) – 2018/2035
- #13 I-280 SB Off-Ramp / Page Mill Road (AM and PM Peak Hours) – 2018
- #17 Junipero Serra Blvd – Foothill Expressway / Page Mill Road (AM and PM Peak Hours) – 2018/2035
- #19 Hanover Street / Page Mill Road (AM Peak Hour) – 2035
- #20 El Camino Real / Page Mill Road – Oregon Expressway (AM and PM Peak Hours) – 2035
- #21 Middlefield Road / Oregon Expressway (AM Peak Hour) – 2035
- #29 Foothill Expressway / Hillview Avenue (AM Peak Hour) – 2035
- #30 Foothill Expressway / Arastradero Road (AM and PM Peak Hours) – 2018/2035
- #31 Foothill Expressway / San Antonio Road (PM Peak Hour) – 2018/2035
- #32 Foothill Expressway / El Monte Avenue (AM Peak Hour) – 2035
- #33 Foothill Expressway / Springer Road – Magdalena Avenue (AM and PM Peak Hour) – 2035
- #37 El Camino Real / Encinal Avenue (PM Peak Hour) – 2035

- #38 El Camino Real / Valparaiso Avenue (PM Peak Hour) –2035
- #41 El Camino Real / Ravenswood Road (PM Peak Hour) –2035
- #48 El Camino Real / Embarcadero Road (PM Peak Hour) –2035
- #56 Alma Street / Hamilton Avenue (PM Peak Hour) –2035
- #58 Alma Street / Charleston Road (PM Peak Hour) – 2018/2035
- #59 Middlefield Road / Marsh Road (AM Peak Hour) – 2035
- #63 Middlefield Road / Lytton Avenue (PM Peak Hour) –2035
- #66 Middlefield Road / Embarcadero Road (AM and PM Peak Hours) –2035
- #89 Central Expwy / Castro St. – Moffett Blvd. (AM Peak Hour) –2035
- #90 Foothill Expressway / Edith Avenue (PM Peak Hour) – 2035

This alternative would also avoid the impacts (albeit less than significant) related to implementation of mitigation measures at these intersections.

In addition, assuming this alternative results in no population growth beyond the amount forecasted in 2018, this alternative would also avoid significant and unavoidable Project and/or cumulative impacts that would occur on the following freeway segments in 2018 and/or 2035 with the proposed Project:

- Northbound SR 85
 - South De Anza Boulevard to Stevens Creek Boulevard (AM peak hour) – 2018/2035
 - Stevens Creek Boulevard to I-280 (AM peak hour) – 2018/2035
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (PM peak hour) – 2018/2035
- Northbound I- 280
 - Wolfe Road to De Anza Boulevard (AM peak hour) - 2035
 - SR 85 to Foothill Expressway (AM and PM peak hours) - 2035
 - Foothill Expressway to Magdalena Avenue (AM peak hour) - 2035
 - Sand Hill Road to Woodside Road (PM peak hour) - 2035
- Southbound I-280
 - El Monte Road to Magdalena Avenue (PM peak hour) – 2018
 - Sheep Camp Trail to Edgewood Road (AM peak hour) - 2035
 - Magdalena Avenue to Foothill Expressway (PM peak hour) - 2035
 - Foothill Expressway to SR 85 (PM peak hour) - 2035
 - De Anza Boulevard to Wolfe Road (PM peak hour) - 2035

If some population growth were to occur under the No Project/ No Development Alternative, some of the impacts to intersections and freeway segments could occur, but to a far lesser extent than under the proposed Project. It would be speculative to attempt to quantify the precise level of impacts at intersections and freeway segments under this scenario.

This alternative would also reduce the following, albeit less than significant, impacts under Project and/or cumulative conditions: contributions to delay on transit routes, impacts on residential streets in nearby neighborhoods, design hazard impacts, impacts on emergency access, and impacts to bicycle or pedestrian facilities.

If the population growth remains flat under the No Project/No Development Alternative, based on the projections of VMT in 2020 (with construction of the EV Graduate Student Residences), worker (including students) VMT per capita (4.46) would be slightly lower than under the proposed Project (4.53); and resident VMT per capita (10.09) would be lower than the proposed Project (10.75). As with the proposed Project, the worker and resident VMT would be below applicable significance thresholds, and consequently less-than-significant. However, continued population growth through more intensive use of academic and academic support space, combined with no increase in campus housing, could result in higher levels of per worker VMT under this alternative than under the proposed Project.

Utilities and Service Systems

Since there would be substantially less overall new construction on the Project site under the No Project/No Development Alternative compared to the proposed Project, impacts associated with expansion of existing on-campus infrastructure under this alternative would be less than the proposed Project, and similarly less than significant with implementation of standard best management practices during construction.

Since there would be substantially less development and population on the Project site under this alternative compared to the proposed Project, impacts associated with increase in the demand for water, and increase in demand for wastewater treatment and collection would be less than the proposed Project, and similarly less than significant. In addition, impacts associated with increased generation of solid waste and effects on landfill capacity, and compliance with federal, state, and local statutes and regulations related to solid waste, under this alternative would be less than the proposed Project, and similarly less than significant.

Ability to Meet Project Objectives

The No Project/No Development Alternative would fail to achieve the primary Project purpose and most of the basic Project objectives. This alternative would severely constrain Stanford's ability to develop the campus in a manner that reflects its historical growth rates and the growth assumptions in Stanford's approved Sustainable Development Study. If intensification of existing facilities and population growth occur under this alternative, it may occur in a manner that does not implement the Community Plan's strategies to promote compact development, increase the supply and affordability of housing, plan for a more adequate and balanced housing supply, facilitate and expedite needed residential development, and augment affordability programs and funding.

This alternative also would not accomplish the following more specific project objectives: enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond quickly to

changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities; enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique EV Graduate Student Residences Project; enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by authorizing 550 transit-oriented high density housing units that can be occupied by faculty, staff, postdoctoral scholars and medical residents; and support existing and new academic, academic support and housing uses by authorizing new and improved parking facilities, roadway, utility and infrastructure improvements, child care centers, facilities designed to promote vehicle trip reduction, and temporary trailers for construction surge space.

The No Project/Individual Use Permits Alternative

Description

Under the No Project/Individual Use Permits Alternative, the County would consider and potentially approve individual use permits on a "per project" basis that authorize new academic and academic support and housing development. The amount of academic and academic support, and housing that would be developed under this alternative is undefined, and would depend on the individual use permits that would be approved, although is expected to be less than that which would occur under the Project. Stanford could also potentially seek approval of certain other actions proposed under the 2018 General Use Permit, although on an individual basis, including net new childcare facilities; utilization of construction surge space; and parking for individual developments. It is also expected that Stanford would request approval of infrastructure improvements that would be required to serve this development at the campus.

The No Project/Individual Use Permits alternative assumes development under existing zoning, with issuance of individual use permits for each proposed new or expanded building on the Academic Campus lands. Under this alternative, each new project would go through use permit, architectural, and environmental review individually. Each project would be subject to stand-alone conditions of approval. It is assumed that under this alternative, Stanford would continue to implement its existing sustainability programs and practices including for energy supply and efficiency, water supply and conservation, transportation (including TDM), and solid waste reduction and recycling. While under this alternative, the conditions of the 2000 General Use Permit would not specifically apply, it is reasonable to assume that the County would impose conditions similar to most of those included in the 2000 General Use Permit, and potentially certain additional commitments that Stanford proposes under the Project, to reduce potential environmental effects of individual projects.

Since the amount of net new academic and academic support development and housing levels that would be developed on the Project site under this alternative is expected to be less than that which would occur under the Project, Stanford's total population (including students, faculty,

staff, and other worker populations) under this alternative is also expected to be less than that which would occur under the Project.

Comparative Analysis of Environmental Effects

Given the undefined amount of development that could occur under the No Project/ Individual Use Permits Alternative, quantitative comparisons of potential environmental effects of this alternative to the proposed Project cannot be made. However, in general, since there would be expected to be less overall construction and smaller footprint of construction disturbance under this alternative compared to the Project, there would be expected to be less overall site-specific construction related environmental effects, including on biological resources, cultural resources, geology and soils, hazards and hazardous materials, and hydrology and water quality. While there may be overall less construction noise under this alternative, the significant and unavoidable project and cumulative construction impact associated with substantial temporary or periodic increase in ambient noise levels would not be avoided under this alternative.

Since there would be expected to be less overall new academic and academic support space, and less new housing, and correspondingly, smaller population under this alternative compared to the Project, there would be expected to be less operational demand for public services, recreational facilities, and utilities and service systems than under the Project. With less operational development and smaller population expected under this alternative, there would also be less vehicle trip generation and VMT, less sources of and generation of air emissions, TACs and GHG emissions; less energy demand, and less noise generation than the proposed Project. This alternative could reduce the severity of, but would not avoid, the potential significant and unavoidable project and cumulative impacts to study intersection and freeways from increases in traffic volumes; and the potentially significant and unavoidable project and cumulative impacts to historical resources.

As discussed above, it is reasonable to assume that the County would impose certain conditions similar to most of those included in the 2000 General Use Permit, and potentially certain additional commitments that Stanford proposes under the Project, to reduce potential environmental effects of individual projects. It is also assumed that certain commitments may be required in part over time with evolving regulatory requirements under this scenario. However, implementation of the campus-wide No Net New Trips Commute standard may not be feasible on a project-by-project basis. Accordingly, if congestion-based traffic analyses are still allowed under CEQA when the individual projects are approved, mitigation for traffic impacts of new buildings most likely would take the form of traditional funding for intersection improvements or alternative mitigation.

Ability to Meet Project Objectives

If the same amount of development ultimately were approved, the alternative could achieve most of the basic Project objectives but not to the same degree as the proposed 2018 General Use Permit. Impacts on the surrounding community, particularly as it relates to transportation and traffic, would likely be greater than impacts resulting from a single use permit that includes measures to address impacts comprehensively, on a campus-wide basis.

In addition, the elimination of a new general use permit for Stanford would cause the County and Stanford to expend more resources on the preparation and review of individual use permits, potentially diverting these resources from other County initiatives, and other campus actions or further mitigation measures to reduce impacts.

7.4.2 Reduced Project Alternative

The Reduced Project alternative assumes a new general use permit would be sought, but for less additional academic, academic support and housing development than the proposed Project. This alternative would allow for up to two million square feet of development on the Project site (academic and academic support space, and student housing).⁶ Of that total square footage, approximately 1.3 million net new square feet would be used to construct academic and academic support space.⁷ Approximately 700,000 net new square feet would be used to construct on-site housing, assumed to consist of 1,000 undergraduate beds and 500 graduate student beds.⁸ In addition, 300 faculty/staff housing units would be developed. This alternative would achieve the housing linkage ratio that is proposed for the Project.

Similar to the proposed Project, this alternative also assumes 40,000 square feet of trip reduction amenities such as onsite childcare and mobility hubs; and up to 50,000 square feet of construction surge space. It is also expected that Stanford would request approval of infrastructure improvements that would be required to serve such development.

Stanford indicates that to accommodate its historic rates of population growth while maintaining its historic population density (persons per square foot), Stanford would need to construct academic and academic support space at the same annual pace as has been assumed for the proposed 2018 General Use Permit. Accordingly, if the Reduced Project Alternative were approved, construction of academic and academic support space most likely would occur at the same annual rate as is assumed under the proposed Project. However, the duration for build out under the use permit under this alternative would likely be shorter than under the proposed Project because the Reduced Project Alternative's academic and student housing allocations would be exhausted sooner.

If the same academic growth rate as is calculated for the proposed Project (133,824 square feet [sf] per year) is applied to the Reduced Project Alternative's 1.3 million square feet of academic and academic support facilities, the 1.3 million square feet of academic development authorized by the alternative would be completed within 9.7 years (i.e., by Fall 2028 [10-year mark] or slightly earlier).

The estimated population growth of each Stanford population segment (including students, faculty, staff and other worker populations) that would occur between 2018 and 2028 for the Reduced Project Alternative is presented in **Table 7-3**.

⁶ This alternative is modeled on the "Minimal Growth Scenario" in the 2009 Stanford *Sustainable Development Study*, as described on pp. 55-57 of that Study.

⁷ *Sustainable Development Study* Figure 3-30 and Additional Infill Development, pp. 56 and 57.

⁸ *Sustainable Development Study* Figure 3.31, p. 57.

**TABLE 7-3
PROJECTED POPULATION GROWTH UNDER THE REDUCED PROJECT ALTERNATIVE –
ALL POPULATION SEGMENTS**

Affiliation	Population 2018	Population 2028	Increase 2018- 2028
Undergraduates	7,085	8,085	1,000
Graduate Students, including PhDs	9,528	10,234	706
Postdoctoral Students ^a	2,403	2,929	526
Faculty ^b	3,073	3,505	432
On-Campus Staff ^c	8,985	10,347	1,363
Nonmatriculated Students ^d	972	1,201	229
Other Worker Populations (total / daily based on commute frequency) ^e	9,166 / 5,321	10,402 / 5,955	1,236 / 634
Total /Daily	41,212 / 37,367	46,703 / 42,256	5,492 / 4,890

^a Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^b Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^c Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^d Non-matriculated students are students taking courses or engaged in graduate-level research or training but who are not seeking a degree.

^e Other worker populations includes casual, contingent, and temporary employees; non-employee academic affiliates; and third party contractors including janitorial staff and construction workers.

SOURCE: Stanford University Land Use and Environmental Planning Office, in consultation with the Stanford Office of Institutional Research and Decision Support

Comparative Analysis of Environmental Effects

Between the years 2018 and 2028, the impacts of the Reduced Project Alternative would be similar to those of the proposed 2018 General Use Permit. After 2028, assuming the County does not approve another use permit or individual projects, the construction impacts of this alternative would be similar to those of the No Project/No Development alternative, as there would be no additional net new development beyond that authorized by the use permit for the Reduced Project, and correspondingly, no (or very limited) additional increase in population. Operational impacts would be less than those of the proposed Project because less academic and academic support space and housing would be constructed. (Stanford could apply for and receive County approval of another General Use Permit in 2028 that would allow additional development, but this alternative does not speculate as to whether such a use permit would be sought or issued.) The discussion below focuses on effects at the same buildout timeframe as the proposed Project (2035), except where noted otherwise below.

Visual and Scenic Resources

There would be less total new development on the Project site under the Reduced Project Alternative (i.e., no net increase in development assumed between 2028 and 2035) compared to the proposed Project. As under the proposed Project, all new academic, academic support or housing development that would occur under this alternative would be located within the Academic Growth Boundary, and not adjacent to any state scenic highway. When considering these factors, this alternative would have a lesser effect on scenic vistas, scenic resources, visual character, and light

and glare than the proposed Project. Furthermore, as with the proposed Project, development under this alternative would be subject to the County review process, which considers issues of visual character and quality; would be required to be consistent with the overall aesthetic and scenic policies of the Stanford Community Plan; and would be subject to a lighting plan similar to that required under the proposed Project. As with the proposed Project, all impacts to visual and scenic resources under this alternative would be less than significant.

Air Quality

There would be less total new construction on the Project site under the Reduced Project Alternative compared to the proposed Project. Between 2018 and 2028, construction under this alternative would occur at the same annual rate as the proposed Project during the same timeframe, so during this period, construction-related air quality effects associated with generation of criteria air pollutants, localized increases in dust, and localized increases in health risks associated with exposure to TACs and PM_{2.5} would be similar to the proposed Project. Implementation of a dust control plan, and health risk screening measures for this alternative similar to those identified for the proposed Project would similarly ensure effects of dust and air toxics would be reduced to a less than significant level.

Under this alternative there would be less daily vehicle trip generation between 2028 and 2035 compared to the proposed Project. Consequently, there would be less vehicle emissions associated with this smaller increase in operational trips during this timeframe. Since there would be less total development under this alternative compared to the proposed Project, there would also be less stationary source emissions under this alternative than would occur under the proposed Project during this period. As with the proposed Project, impacts to air quality from operations under this alternative would be less than significant.

Similarly, since there would total less new development under this alternative compared to the proposed Project, the potential for new laboratory fume hood emissions to result in potential operational health risk impacts under this alternative would less than under the proposed Project. Mitigation similar to that identified for the proposed Project would similarly reduce this impact to a less-than-significant level.

Biological Resources

There would be less total new construction on the Project site under the Reduced Project Alternative compared to the proposed Project; and less population and associated human activity on the Project site during operation of this alternative compared to the proposed Project. Consequently, there would be less potential for construction- and/or operational-related effects on protected trees, nesting birds, special-status plant and animal species, riparian habitat, native oak woodland, and jurisdictional waters and wetlands, under this alternative compared to the proposed Project. Implementation of biological resource measures for this alternative similar to those identified for the proposed Project would ensure construction- and operational-related effects to biological species would be reduced to a less than significant level, similar to the proposed Project.

Cultural Resources

There would be substantially less total new construction and development on the Project site under the Reduced Project Alternative compared to the proposed Project. Consequently, under this alternative, there would be overall less potential for demolition and/or remodeling of historic buildings on the Project site. Implementation of measures to address the treatment for demolition, remodeling and/or alteration of historic structures for this alternative similar to those identified for the proposed Project would mitigate impacts to historic resources to the extent feasible, however, as with the Project, this impact would remain significant and unavoidable for this alternative on both on a project and cumulative level.

Given the likely overall smaller footprint of construction disturbance under this alternative, potential impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources for this alternative would be less than for the proposed Project. Implementation of measures to protect archaeological resources, paleontological resources, human remains, and tribal cultural resources during construction for this alternative similar to those identified for the proposed Project would mitigate impacts to these resources to a less than significant level.

Energy Conservation

Under the Reduced Project Alternative, there would be less daily vehicle trip generation between 2028 and 2035 compared to the proposed Project. Consequently, there would be a reduction in gasoline and diesel demand associated with this smaller increase in operational trips during this timeframe compared to the proposed Project. Additionally, the decrease in development envisioned under this alternative would result in a decrease in electrical energy and natural gas demand between 2028 and 2035 compared to same timeframe for the proposed Project. Consequently, this alternative would have a lesser impact with respect to energy consumption than the proposed Project, and as with the proposed Project, the impact would be less than significant.

Geology and Soils

Since there would be less total new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, impacts associated with construction-related soil erosion under this alternative would be less than the proposed Project, and similarly less than significant. Since there would be less overall development and population on the Project site under this alternative compared to the proposed Project, potential operational exposure of people and/or structures to groundshaking, landslides, unstable geologic units or soils, or soil erosion under this alternative would be less than for the proposed Project, and would be similarly less than significant.

Greenhouse Gases

Since there would be substantially less total construction on the Project site under the Reduced Project Alternative compared to the proposed Project, total construction-related GHG emissions under this alternative would be less than the proposed Project.

Under operation of this alternative, there would be less daily vehicle trip generation between 2028 and 2035 than the proposed Project. Overall, there would be less vehicle GHG emissions associated with operational trips under this alternative compared to the proposed Project during the same timeframe. Since there would be less total new development under this alternative compared to the proposed Project, less stationary source GHG emissions would be generated under this alternative than would occur under the proposed Project; and the impact would be similarly less than significant.

Hazards and Hazardous Materials

Since there would be substantially less overall new construction and smaller construction footprint on the Project site under the Reduced Project Alternative compared to the proposed Project, potential construction-related impacts to soil and groundwater would be less than the proposed Project, and with implementation of standard construction best management practices would be similarly less than significant. In addition, under this alternative, the potential for exposure to hazardous building materials during construction would be less than the proposed Project, and would be similarly eliminated or reduced to legally acceptable levels through compliance with abatement measures required as part of applicable regulations.

There would be less overall development and smaller population on the Project site under this alternative compared to the proposed Project. As a result, under this alternative, there would be less operations involving transportation, use, storage and disposal of hazardous materials, and correspondingly, less potential health and safety risks related to these activities, than under the proposed Project during this timeframe. As under the proposed Project, adherence to existing regulatory requirements and management programs would ensure these potential effects for this alternative would be reduced to a less-than-significant level.

Since there would be less overall development and smaller population on the Project site under this alternative than under the proposed Project, this alternative would expose less people or structures to potential wildland fires than the Project; and this impact would be similarly less than significant. In addition, effects on impairment of an adopted emergency response plan or emergency evacuation plan under this alternative would also be less than proposed Project, and, as with the proposed Project, the impact would be less than significant.

Hydrology and Water Quality

Since there would be less overall new construction and a smaller construction footprint on the Project site under the Reduced Project Alternative compared to the proposed Project, potential construction-related impacts to groundwater would be less than the proposed Project, and with implementation of standard construction best management practices would be similarly less than significant.

There would be less overall development on the Project site under this alternative compared to the proposed Project, and consequently, less potential for new development to impact water quality from increased pollutants or siltation; or increases in peak runoff potentially resulting in flooding, during operation. As with the proposed Project, adherence to stormwater control

measures as a part of the RWQCB Municipal Regional MS4 Stormwater Permit under this alternative would ensure potential water quality impacts from new development would be less-than-significant. Furthermore, mandatory compliance with the Storm Drainage Master Plan, the County's drainage design standards, SCVURPPP, and NPDES requirements would ensure effects on peak runoff and capacity of stormwater infrastructure would be less than significant. With less overall development and a smaller footprint than the proposed Project, this Alternative would also have less potential than the proposed Project to deplete groundwater, interfere with groundwater recharge, and/or result in lowering of the groundwater table. As with the proposed Project, drainage control requirements, on-going management of groundwater use, and continued implementation of Stanford's Groundwater Recharge plan would ensure potential effects on groundwater would be less-than-significant.

Land Use and Planning

Under the Reduced Project Alternative, similar to the proposed Project, a new general use permit would be sought, although for less additional academic, academic support and housing development than the proposed Project; and new conditions would be adopted as part of the new general use permit.

Similar to the proposed Project, at the time individual projects were proposed, the County would require Stanford to apply for County ASA or other approvals, and the projects may be subject to additional environmental review prior to consideration of approval by the County. Similar to the proposed Project, implementation of this alternative would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Noise and Vibration

Since there would be less total new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, construction-related noise and vibration impacts under this alternative would be less than the proposed Project. Implementation of construction noise control measures and a construction noise and vibration control plan would serve to reduce construction noise and vibration impacts of this alternative; however, as under the proposed Project, construction noise increases in ambient noise levels in the site vicinity under project and cumulative conditions would be similarly significant and unavoidable.

During operation of this alternative, since there would be less overall development on the Project site compared to the proposed Project, there would be less noise generating sources, such as building mechanical equipment, generators, and loading docks than under the Project. Implementation of standard measures for shielding/enclosing HVAC equipment and emergency generators similar to those identified for the proposed Project, would serve to reduce operational noise sources from this alternative, and the impact would be similarly less than significant. Since this alternative would generate less daily vehicle trips than the proposed Project between 2028 and 2035, it would also generate less traffic noise than the proposed Project during this timeframe, and the impact would be similarly less than significant.

Population and Housing

Under the Reduced Project Alternative, Stanford's total population growth (including students, faculty, staff, and other worker populations) would occur at the same rate as the proposed Project between 2018 and 2028, after which it is assumed Stanford's population would not materially increase thereafter through 2035. As discussed above, the growth between 2018 and 2028 under this alternative would be consistent with Stanford's historic annual growth rate for academic and academic support facilities. As shown in Table 7-3, the total increase in Stanford population (including students, faculty, staff, and other worker populations) under this alternative would be 5,492, with a daily population of 4,890; this is approximately 43 percent less than the increase in population generated by the proposed Project). It is estimated by Fall 2028, 1,000 undergraduates could be added under this alternative, necessitating construction of 1,000 undergraduate beds. The remaining square footage allocated to housing would provide 500 additional graduate student beds, and 300 faculty/staff units. As under the proposed Project, it is also assumed that this alternative would result in additional indirect employment from businesses supported by Stanford and its employees, in proportion to Stanford's growth.

The growth of Stanford-affiliated populations under this alternative between 2018 and 2028 would result in population growth and associated demand for housing in many Bay Area jurisdictions similar to that of the proposed Project during the same timeframe. Given Stanford's assumed flat growth thereafter, this alternative would not result in an increase in housing demand between 2028 and 2035. As a result, this alternative would have a lesser effect on population and housing growth than the proposed Project. As under the proposed Project, effects of population and housing growth attributable to this alternative would be less than significant.

Public Services

Since there would be less overall new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, impacts associated with increases in demand for fire protection, emergency medical service and police protection services during construction would be less than the proposed Project, and similarly less than significant.

Since there would be less development and population on the Project site under this alternative compared to the proposed Project, operational impacts associated with increases in demand for fire protection, emergency medical service and police protection services under this alternative would be less than the proposed Project, and similarly less than significant. In addition, impacts associated with increased enrollment in public schools under this alternative would also be less than the proposed Project, and similarly, less than significant.

Recreation

Since there would be substantially less overall new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, impacts associated with construction of new recreational facilities under this alternative would be less than the proposed Project, and similarly less than significant with implementation of standard best management practices during construction.

Since there would be fewer residents on the Project site due to the addition of fewer student beds, and no new faculty/staff housing units under this alternative compared to the proposed Project, impacts associated with increases in use of existing neighborhood and regional parks and other recreational facilities under this alternative would be less than the proposed Project, and similarly less than significant.

Transportation and Traffic

Since there would be less overall new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, overall construction traffic-related impacts would be less than the proposed Project, and with implementation of similar construction traffic control measures as identified for the Project would be similarly less than significant.

Since this alternative would generate less vehicle trips than the proposed Project, this alternative would avoid significant and unavoidable Project and/or cumulative impacts that would occur at 11 study intersections in 2018 and/or 2035 with the proposed Project (Fehr and Peers, 2017):

- #21 Middlefield Road / Oregon Expressway (AM Peak Hour) – 2035
- #30 Foothill Expressway / Arastradero (PM Peak Hour) – 2018; (AM/PM Peak Hour) – 2035
- #32 Foothill Expressway / El Monte Avenue (AM Peak Hour) – 2035
- #33 Foothill Expressway / Springer Road – Magdalena Avenue (AM and PM Peak Hour) – 2035
- #48 El Camino Real / Embarcadero Road (PM Peak Hour) – 2035
- #56 Alma Street / Hamilton Avenue (PM Peak Hour) – 2035
- #58 Alma Street / Charleston Road (PM Peak Hour) – 2035
- #59 Middlefield Road / Marsh Road (AM Peak Hour) – 2035
- #63 Middlefield Road / Lytton Avenue (PM Peak Hour) – 2035
- #89 Central Expressway / Castro Street-Moffett Boulevard (AM Peak Hour) – 2035
- #90 Foothill Expressway / Edith Avenue (PM Peak Hour) – 2035

This alternative would still result in significant and unavoidable project and/or cumulative impacts at 11 study intersections in 2018 and/or 2035 (Fehr and Peers, 2017).

This alternative would also avoid the impacts (albeit less than significant) related to implementation of mitigation measures at these intersections.

In addition, this alternative would eliminate all significant and unavoidable Project impacts on study freeway segments in 2018, and would avoid significant and unavoidable cumulative impacts that would occur on 7 study freeway segments in 2018 and/or 2035 with the proposed Project, as identified below (Fehr and Peers, 2017):

- Northbound SR 85
 - South De Anza Boulevard to Stevens Creek Boulevard (AM peak hour) – 2018/2035
 - Stevens Creek Boulevard to I-280 (AM peak hour) – 2018/2035
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (PM peak hour) – 2018/2035
- Northbound I- 280
 - Wolfe Road to De Anza Boulevard (AM peak hour) – 2035
 - Sand Hill Road to Woodside Road (PM peak hour) - 2035
- Southbound I-280
 - El Monte Road to Magdalena Avenue (PM peak hour) – 2018
 - Sheep Camp Trail to Edgewood Road (AM peak hour) - 2035
 - De Anza Boulevard to Wolfe Road (PM peak hour) - 2035

This alternative would still result in significant and unavoidable project and/or cumulative impacts at 4 study freeway segments in 2035 (Fehr and Peers, 2017).

This alternative would also reduce the following, albeit less than significant, impacts under Project and/or cumulative conditions: contributions to delay on transit routes, impacts on residential streets in nearby neighborhoods, design hazard impacts, impacts on emergency access, and impacts to bicycle or pedestrian facilities.

The Reduced Project Alternative would have a similar worker and resident VMT per capita as the proposed Project. As with the proposed Project, the worker and resident VMT would be below applicable significance thresholds, and consequently less-than-significant.

Utilities and Service Systems

Since there would be substantially less overall new construction on the Project site under the Reduced Project Alternative compared to the proposed Project, impacts associated with expansion of existing on-campus infrastructure under this alternative would be less than the proposed Project, and similarly less than significant with implementation of standard best management practices during construction.

Since there would be substantially less development and population on the Project site under this alternative compared to the proposed Project, impacts associated with increase in the demand for water, and increase in demand for wastewater treatment and collection would be less than the proposed Project, and similarly less than significant. In addition, impacts associated with increased generation of solid waste and effects on landfill capacity, and compliance with federal, state, and local statutes and regulations related to solid waste, under this alternative would be less than the proposed Project, and similarly less than significant.

Ability to Meet Project Objectives

This alternative not fully achieve the Project objectives for the following reasons:

- The alternative would result in reduced flexibility for Stanford to develop its lands within a framework that minimizes potential negative effects on the surrounding community.
- The alternative would not fully enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2028 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities.
- The alternative would not fully enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2028 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique Escondido Village Graduate Student Residences Project.
- The alternative would not fully enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by authorizing 550 transit-oriented high density housing units that can be occupied by faculty, staff, postdoctoral scholars and medical residents.

In addition, reducing the time period anticipated for build out of the General Use Permit would cause the County and Stanford to expend more financial resources in pursuit of another General Use Permit or individual use permits in the post-2028 period, potentially diverting these resources from other county initiatives, and other campus actions or further mitigation measures to reduce impacts.

The Reduced Project Alternative addressed in this EIR assumes 43 percent less academic and academic support development than the proposed Project, and 43 percent less housing units/beds, than the proposed Project. The County also evaluated the feasibility of an additional reduced project alternative that would further limit Stanford's academic and academic support development, and/or housing to the point where there would not be significant and unavoidable traffic impacts. The County estimated that academic and academic support development would need to be reduced by approximately 80 – 90 percent, compared to the proposed Project to avoid all significant and unavoidable traffic impacts.⁹ The County determined that this potential alternative would be substantially similar to the No Project / No Development Alternative given the very limited amount of additional development allowed, and thus did not pursue evaluation of this alternative further as it was not substantially different from this alternative. Similar to the No Project / No Development Alternative, this alternative would further reduce, although would not avoid, the significant and unavoidable environmental effects from the proposed Project related to noise and historic resource impacts. As described in the No Project / No Development

⁹ An exception would be the unsignalized intersection of I-280 Southbound Off-Ramp / Page Mill Road which would remain significant in the 2018 scenario.

Alternative, this alternative would further restrict the ability to meet those Project objectives identified above.

7.4.3 Historic Preservation Alternative

Description

Under the Historic Preservation Alternative, all of the buildings and structures on the Project site that are identified in this EIR as historic resources and subject to the General Use Permit would be preserved through the duration of the 2018 General Use Permit. Accordingly, under this alternative, there would be no demolition or remodeling of historic resources that would result in significant, unmitigated impacts to those historic resources. Remodeling and other alterations to historic buildings could occur if such modifications were consistent with the Secretary of Interior standards. As discussed in Section 5.4, there are 74 historic buildings, recorded as 50 historic properties (42 collegiate and eight non-collegiate properties, all located within the Academic Growth Boundary of the Project site.

It is assumed there would be certain exceptions would be allowed for the alteration and/or demolition of historic resources during the lifetime of the use permit, for reasons determined by the County wherein the resource poses a potential hazard of collapse and/or safety threat to the public; examples could include the structural condition of the resource due to age and/or as a result of natural or manmade hazard (e.g., earthquake, fire, etc.).

All other aspects of this alternative would be similar to the proposed Project including academic, academic support and housing development levels, childcare center space and other space that reduces vehicle trips, utilization of construction surge space, parking requests, and infrastructure improvements. Furthermore, all proposed additions to the Stanford's "No Net New Commute Trips" standard would apply to this alternative. In addition, all existing and proposed commitments to Stanford's sustainability programs and practices are assumed for this alternative.

Since it is assumed there would be a similar amount of net new academic and academic support development and housing levels on the Project site under this alternative as would occur under the proposed Project, Stanford's total population (including students, faculty, staff, and other worker populations) under this alternative would be similar to that which would occur with buildout of the 2018 General Use Permit.

It should be noted that under the 2000 General Use Permit, Stanford only demolished and replaced one building that was potentially eligible for listing on the California Register, the Encina Gym. In that instance, the demolished building was constructed of unreinforced masonry, and could not be occupied absent substantial seismic retrofit work. In a Supplement to the 2000 General Use Permit EIR, the County determined retrofit and re-use of that building was not feasible, and approved demolition.

Comparative Analysis of Environmental Effects

In general, and depending on the number, if any, of historic buildings that would otherwise be significantly impacted under the proposed 2018 General Use Permit, the Historic Preservation Alternative could have the incremental effect of directing more new development authorized under the general use permit to occur outside of the main campus core -where the majority of Stanford's identified historic buildings are present - onto additional undeveloped or vacant infill and redevelopment sites. However, as under the proposed Project, it is assumed all new development would continue to occur within the Academic Growth Boundary.

The only potential notable changes in environmental effects between the Historic Preservation Alternative and the proposed Project would be limited to the following environmental topics discussed below. All other environmental topics (i.e., air quality, greenhouse gas emissions, energy conservation, population and housing, public services, transportation and traffic, and utilities and service systems) would be expected to be largely the same, and consequently, are not discussed further.

Visual and Scenic Resources

Under this alternative incrementally more new development may occur toward the periphery of the Academic Growth Boundary and outside of the main campus core. This could result in incrementally more tree loss near the outer portions of the campus, and more development that may be visible (including associated nightlighting) from off-site land uses. However, as under the proposed Project, all new academic, academic support or housing development that would occur under this alternative would be located within the Academic Growth Boundary, and not adjacent to any state scenic highway. As with the proposed Project this alternative would not be expected to result in a significant effect on scenic vistas, scenic resources, visual character, and light and glare as the proposed Project. As with the proposed Project, development under this alternative would be subject to the County ASA review process or other approval processes, which consider issues of visual character and quality; would be required to be consistent with the overall aesthetic and scenic policies of the Stanford Community Plan; and would be subject to approval of a lighting plan. As with the proposed Project, all impacts to visual and scenic resources under this alternative would be less than significant.

Biological Resources

This alternative may result in more development in closer proximity to on-site natural resources, and could result in incrementally more tree loss as compared to the proposed Project. Nevertheless, all development that would occur under this alternative would continue to be required to be developed pursuant to the policies and requirements of the Stanford Community Plan, the County's tree preservation ordinance, the Stanford Habitat Conservation Plan, which together provide protection of sensitive biological resources and impose restrictions on location of development in biological sensitive areas on the Project site. Otherwise, all construction- and/or operational-related effects on protected trees, nesting birds, special-status plant and animal species, riparian habitat, native oak woodland, and jurisdictional waters and wetlands, under this alternative would be similar compared to the proposed Project. Implementation of biological

resources mitigation measures for this alternative would be similar to those identified for the proposed Project, and would similarly ensure construction- and operational-related effects to biological species would be reduced to a less than significant level.

Cultural Resources

As discussed above, this alternative would ensure that there would be no demolition or remodeling of the historic resources (except for those exceptions noted) such that significant impacts to those resources would occur. This would avoid the significant and unavoidable Project and cumulative impacts associated with the potential for development under the Project to cause, or cumulatively cause, a substantial adverse change in the significance of a historical resource.

If under this alternative incrementally more new development occurred in peripheral areas of the Academic Growth Boundary outside of the main campus core, it could result in an incrementally greater construction footprint and more effects to undeveloped or vacant land. As a result, this alternative could have a greater potential to result in impacts to archaeological resources, paleontological resources, human remains, and tribal cultural resources compared to the proposed Project. However, implementation of measures to protect archaeological resources, paleontological resources, human remains, and tribal cultural resources during construction for this alternative similar to those identified for the proposed Project would mitigate impacts to these resources to a less than significant level.

Geology and Soils / Hydrology and Water Quality / Hazards and Hazardous Materials

This alternative could result in a greater construction footprint on the Project site, which could result in incrementally more soil erosion/siltation and/or construction-related impacts to soil and groundwater. This alternative could also result in an incremental increase in impervious surfaces on the Project site, which could result in incrementally greater impacts water quality from increased pollutants or siltation; or increases in peak runoff potentially resulting in flooding, or decrease in groundwater recharge. However, as with the Project, adherence to stormwater control measures as a part of the RWQCB Municipal Regional MS4 Stormwater Permit under this alternative would ensure potential water quality impacts from new development would be less-than-significant. Furthermore, mandatory compliance with the Storm Drainage Master Plan, the County's drainage design standards, SCVURPPP, and NPDES requirements would ensure effects on peak runoff and capacity of stormwater infrastructure would be less than significant. Finally, drainage control requirements, on-going management of groundwater use, and continued implementation of Stanford's Groundwater Recharge plan would ensure potential effects on groundwater would be less-than-significant.

Land Use and Planning

As under the proposed Project, under this alternative a new general use permit would be sought; and new conditions would be adopted as part of the new general use permit. Similar to the proposed Project, at the time individual projects were proposed, the County would require Stanford to apply for County ASA or other approvals, and may be subject to additional

environmental review prior to consideration of approval by the County. Similar to the Project, implementation of this alternative would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Noise and Vibration

This alternative could result in incrementally more construction occurring near the outer portions of the campus, including near the Project site boundary, where construction noise and vibration effects would have a greater potential to impact off-site sensitive land uses.

As under the proposed Project, implementation of construction noise control measures and a construction noise and vibration control plan would serve to reduce construction noise and vibration impacts of this alternative; however, as under the proposed Project, construction noise increases in ambient noise levels in the site vicinity under project and cumulative conditions would be similarly significant and unavoidable.

During operation of this alternative, implementation of standard measures for shielding/enclosing HVAC equipment and emergency generators similar to those identified for the proposed Project, would serve to reduce operational noise sources from this alternative, and the impact would be similarly less than significant. Potential traffic noise impacts of this alternative would be similar to the Project, and the impact would be similarly less than significant.

Recreation

If under this alternative incrementally more new development occurs in peripheral areas of the Project site, outside of the main campus core, it could result in more development occurring on the site of Stanford existing or future recreational uses, and a potential net decrease in existing or planned future sites for recreational facilities. However, as under the proposed Project, given the abundance of available land within the Academic Growth Boundary, it is expected that under this alternative Stanford would continue provide adequate on-campus recreation facilities for faculty, staff and students, and that expanded indoor recreation facilities would be authorized as needed as part of the academic and academic support space authorized by the General Use Permit.

Ability to Meet Project Objectives

Assuming the same amount of development ultimately were approved, the alternative could achieve the primary Project purpose, but if this alternative resulted in retention of historic buildings that could not be occupied or that could not feasibly be adaptively reused, this alternative would somewhat limit, but not preclude, Stanford's ability to achieve the following basic project objectives:

- Continue to allow Stanford flexibility to develop its lands within a framework that minimizes potential negative effects on the surrounding community ("flexibility with accountability");
- Enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to

respond quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities; and

- Enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the EV Graduate Student Residences Project.

Under this alternative, Stanford would be constrained in its ability to flexibly use or alter existing historic buildings that, based on objective analysis and in the considered opinion of Stanford and the County, cannot practicably be used or converted to modern academic, academic support, or housing uses.

7.4.4 Additional Housing Alternative A¹⁰

Description

For the purpose of comparison and to assist the public and decision-makers in understanding the implications of the construction of higher levels of housing on the Stanford campus, Additional Housing Alternative A assumes a general use permit would be modified to include the same level of academic and academic support development (i.e., 2.275 million net new square feet) as the proposed 2018 General Use Permit, but would include a requirement that Stanford provide housing equal to the increased housing demand generated by the proposed 2018 General Use Permit. Except for provision of additional parking, all other components of the proposed Project are assumed to be left unchanged for this alternative. For this reason, the analysis of Additional Housing Alternative A relies upon and incorporates by reference the description of the environmental setting, impact analyses, mitigation measures and significance conclusions for the proposed Project, in addition to analyzing the environmental effects of the increased housing included with this alternative.

Under Additional Housing Alternative A, it is assumed that the additional demand would be met by constructing additional on-campus housing (i.e., within the General Use Permit Academic Growth boundary). As described below, in addition to the proposed on-campus housing that would be provided under the proposed 2018 General Use Permit (3,150 units/beds), this alternative would also provide additional 2,549 units/beds of on-campus housing, equivalent to the net increase in off-campus housing demand that would occur under the proposed Project. Thus, Additional Housing Alternative A includes the provision of a total of 5,699 new on-campus housing units/beds.

¹⁰ The Additional Housing Alternative A description presented herein relies in part on a housing alternatives description prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-PRD included in this document.

Although Additional Housing Alternative A assumes that all new housing would be provided on-campus, under this alternative Stanford could elect to, subject to approval by the County, offset the incremental off-campus housing demand by providing off-campus housing. The specific amount, location and type of off-campus housing that would or could be provided are not known at this time. It would also represent a worst case as far as disclosure of reasonably foreseeable environmental effects of such housing. However, it is assumed that any portion of affordable off-campus housing provided by Stanford would be located within a six-mile radius of the campus. This is consistent with the 2000 General Use Permit Condition H.6(c).¹¹ Any new off-campus housing that could be proposed by Stanford under this option would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. Therefore, in order to conservatively assess the localized effects of meeting the full increase in housing demand of the proposed 2018 General Use Permit, this EIR assumes that all of the additional housing that would be developed under this alternative would be built on-campus. However, this EIR also provides a separate qualitative discussion of environmental consequences of Stanford providing additional off-campus housing under this alternative.

Similar to the proposed Project, this alternative also assumes the construction of 40,000 square feet of trip reduction amenities such as onsite childcare and mobility hubs; and up to 50,000 square feet of construction surge space. Additional Housing Alternative A assumes that, in addition to utilizing unbuilt parking authorized by the 2000 General Use Permit, 114 additional parking spaces would be needed for the 207 additional graduate student beds contemplated by this Alternative. As with the proposed Project, parking for faculty/staff housing would not count toward campus parking limits.

It is also reasonably assumed that Stanford would request approval of infrastructure improvements consistent with the levels of demand that would be required to serve development under this alternative. Similar to the proposed Project, infrastructure improvements would include utilities and circulation improvements. As under the proposed Project, some utility and habitat improvements could occur outside the Academic Growth Boundary under this alternative.

Furthermore, the proposed adjustments to the No Net New Commute Trips compliance methodology proposed under the Project would also occur under this alternative. However, it should be noted that that because this alternative would shift a substantial number of commute trips to residential trips, the No Net New Commute Trips standard may not be achieved because travel demand management (TDM) measures are not as effective in reducing residential trips, compared to commute trips.

Sustainability practices and programs that would be implemented under the proposed Project are included as part of this alternative.

¹¹ 2000 General Use Permit Condition H.6(c) required that cash payments made by Stanford in-lieu of providing affordable housing would be made to an escrow account established and maintained by the County for the purpose of funding affordable housing projects within a six-mile radius of the Stanford campus boundary.

On-Campus Housing

Table 7A-1 estimates the net increase in housing units under Additional Housing Alternative A. Table 7A-1 first shows the projected increase in the number of Stanford affiliates (students, faculty, staff, postdoctoral students, and other workers¹²) who would live off campus during the 2018 General Use Permit period, and the estimates of the number of households that each of these increases in population would represent (see Section 5.12, Population and Housing, and Appendix PHD in the Draft EIR for additional detail). As shown in the Table 7A-1, the total projected daily population growth at Stanford predicted to occur during implementation of the 2018 General Use Permit is 8,162 Stanford affiliates. Of that number, 3,168 of those new Stanford affiliates would be housed in the proposed new on-campus housing. This leaves 4,994 new Stanford affiliates that would be housed outside the campus, which, after accounting for non-Stanford employed adults living in campus housing, would result in an estimated increase in demand for 2,425 off-campus housing units.

As shown in Table 7A-1, under Additional Housing Alternative A the off-campus housing demand generated under the proposed 2018 General Use Permit would instead be accommodated on campus, which would translate to an equivalent increase of 2,549 new on-campus housing units/beds (207 graduate student beds¹³ and 2,342 units for postdoctoral students, faculty, staff, and/or other workers). When adding the 2,549 new on-campus housing units/beds to the new on-campus housing proposed under the proposed 2018 General Use Permit (i.e., 3,150 housing units/beds), this alternative would result in a total of 5,699 new on-campus housing units/beds. This alternative would achieve the housing linkage ratio that is proposed for the Project (and as with the Project, would have a greater number of housing units/beds than required by the housing ratio).

Distribution of Additional Housing

In order to assess the comparative effects of this alternative, it is necessary to make assumptions about the location on the campus of the additional increment of housing. As under the proposed Project, it is assumed that the additional increment of on-campus housing that would occur under this alternative would be located within the Academic Growth Boundary, and not within the Campus Open Space land use designation.

¹² This estimate does not include growth in non-matriculated students, estimated at 420 individuals under the proposed 2018 General Use Permit (see Draft EIR Table 5.12-9). Non-matriculated students are students taking courses or engaged in graduate-level research or training over the short term (ranging from a few hours to a few months), but who are not seeking a degree. They include students who complete courses entirely online, and students taking courses on a part-time basis. Consequently, while this population segment is accounted for in the overall population totals, it is not relevant to the anticipated demand for new housing.

¹³ If the increase in off-campus graduate students were housed on campus, they would be housed in student beds. As a result, the increase in 83 off-campus graduate student housing units was converted to an estimated 207 on-campus student beds.

TABLE 7A-1
NET INCREASE IN HOUSING UNITS UNDER ADDITIONAL HOUSING ALTERNATIVE A

	Undergraduate Students	Graduate Students	Postdoctoral Students ^a	Faculty ^b	Staff ^c	Other Workers ^d	Total
Total Growth During 2018 General Use Permit (Daily)	1,700	1,200	961	789	2,438	1,074	8,162
Less: Number Housed on Campus ^e	(1,700)	(918)	N/A	(550)	N/A	N/A	(3,168)
Off-Campus Stanford Population Growth	0	282	961	239	2,438	1,074	4,994
Less: Non-Stanford Population in On-Campus Housing ^f	0	(72)	0	(418)	0	0	(490)
Net Increase in Off-Campus Population under 2018 General Use Permit	0	210	961	(179)	2,438	1,074	4,504
Calculation of Increase in Off-Campus Households under 2018 General Use Permit^g	0	83	449	(102)	1,385	610	2,425
Increase in Households if Beds are provided on Campus for Graduate Students rather than Off Campus Housing Units^h		207					2,549
Household Adjustment Factor ^g	N/A	2.54/1.02	2.14	1.76	1.76	1.76	N/A

NOTES:

Totals shown may differ from the sums of individual numbers due to rounding.

N/A = Not applicable

^a Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.^b Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.^c Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.^d Other worker populations includes casual, contingent, and temporary employees; non-employee academic affiliates; and third party contractors including janitorial staff and construction workers.^e The on-campus housing included in the proposed 2018 General Use Permit is assumed to consist of housing for 1,700 undergraduate students and 918 graduate students along with 550 units for faculty or staff.^f Stanford predicts 72 non-student spouses would occupy the graduate student housing that would be included in the proposed 2018 General Use Permit. In addition, each of the 550 staff and faculty units would accommodate at least one member of the staff or faculty, along with any other members of the faculty or staff household. The Draft EIR analysis assumes an average of 1.76 workers per staff or faculty household, per footnote (g) below, resulting in an average of one faculty or staff member and 0.76 other workers per faculty or staff unit.^g For each population group, the Draft EIR makes a household adjustment factor in order to translate population growth into new households. For graduate students and post-doctoral scholars, the adjustment is based on the average number of employed adults per household, calculated from the 2016 Commute Survey conducted by the Stanford's Department of Parking and Transportation Services. For faculty and staff, the adjustment is based on the average number of employed residents per worker household for Santa Clara County, according to 2011-2015 American Community Survey data. The Draft EIR does not apply a household adjustment factor to the undergraduate population because the 2018 General Use Permit includes enough on-campus undergraduate beds to accommodate the entire increase in the number of undergraduate students.^h Of the 210 graduate students that would require beds on campus, it is likely that 2 percent of them would be married to Stanford-student spouses; therefore, 207 beds would be demanded.

SOURCE: Stanford University Land Use and Environmental Planning Office (see Appendix ALT-PRD)

Other factors considered in the distribution of additional housing under this alternative are the goals to keep the interior of the campus compact and walkable, and, consistent with the 1985 Land Use Policy Agreement,¹⁴ keep any new multi-family housing that is occupied by non-

¹⁴ Please see <https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/1985Policy.aspx>.

Stanford affiliates outside the academic campus lands. The campus must remain compact and walkable so that students and faculty can travel between classes. In addition, there is a benefit for education and discovery when academic buildings are located close to one another, promoting cross-discipline exchange of information. Placing faculty/staff housing in and near the Campus Center Development District could create a barrier, or gap between existing or future academic buildings. Stanford also states that any new faculty/staff housing is likely to be placed on the outer edge of the academic campus because it is difficult to predict future housing demand and needs. If housing constructed for Stanford affiliates later needed to be converted to housing occupied by the general public, the housing sites would be subject to annexation by Palo Alto under the provisions of the 1985 Land Use Policy Agreement. Additional factors that would limit additional housing in the Lagunita Development District under this alternative include constraints posed by the Stanford Habitat Conservation Plan for land adjacent to Lagunita, and existing oak woodlands in the Lathrop Development District that constrain additional development in this district. Accordingly, it is assumed that no additional increment in on-campus housing under this alternative would be placed in the Campus Center, Lagunita and Lathrop Development Districts.

Graduate Student Beds Distribution

It is assumed that the additional increment of on-campus graduate student beds that would be developed under this alternative (207 beds) would be located in the East Campus Development District. This is the same location on campus where the most recently approved EV Graduate Residences are being constructed, and also where the 900 new graduate student housing units proposed under the 2018 General Use Permit are expected to be developed.

Faculty/Staff/Postdoctoral Students/Other Worker Housing Distribution

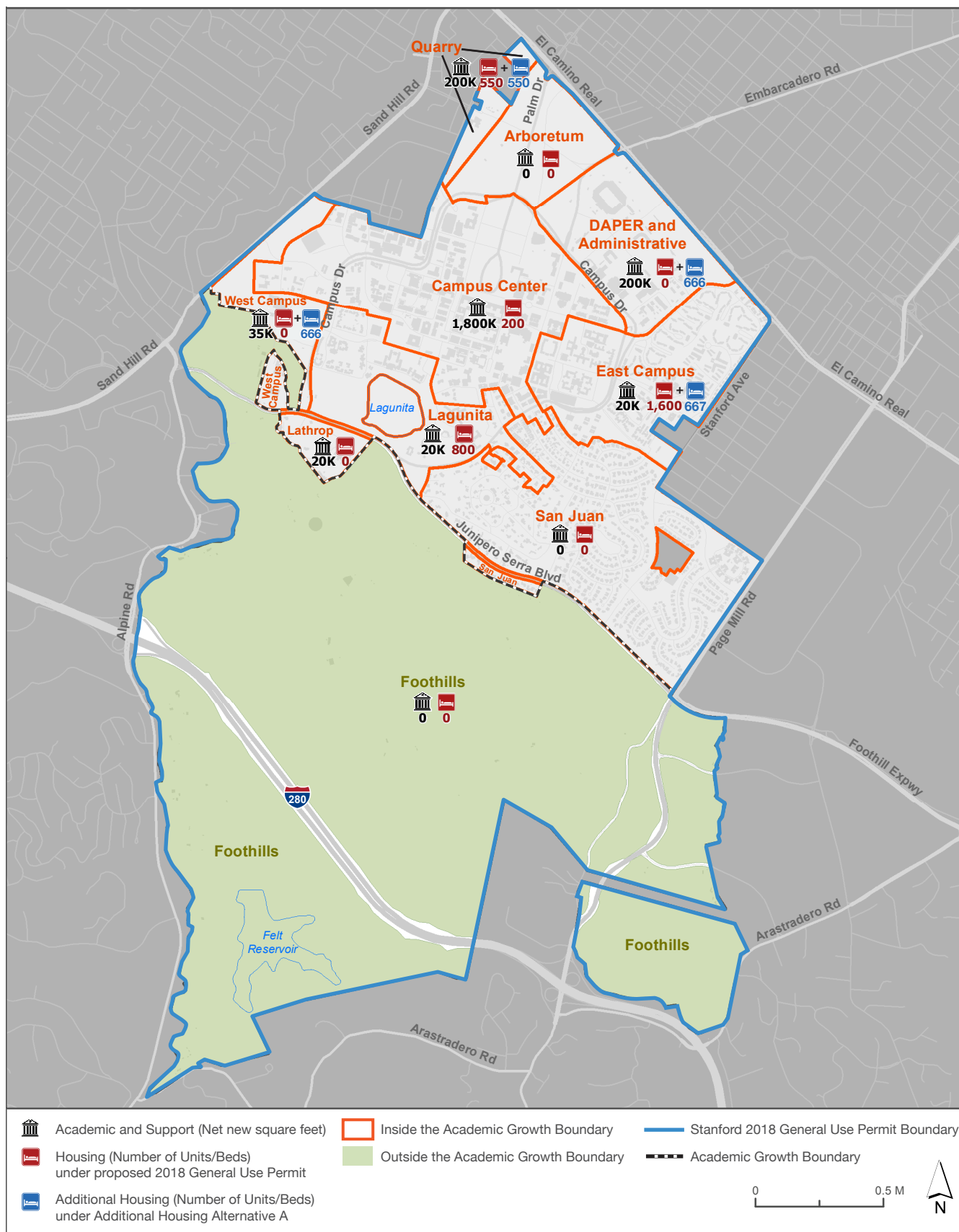
Table 7A-2 and **Figure 7.A-1** present a summary of the distribution of development within the campus development districts assumed under Additional Housing Alternative A.

TABLE 7A-2
ADDITIONAL HOUSING ALTERNATIVE A DEVELOPMENT DISTRIBUTION BY DEVELOPMENT DISTRICT

Development District	Net New Academic and Academic Support Space (Net New Square Feet)	Net Additional Housing Development (Number of Units/Beds)
Quarry	200,000	1,100
Arboretum	0	0
DAPER ^a & Administrative	200,000	666
Campus Center	1,800,000	200
East Campus	20,000	2,267
West Campus	35,000	666
Lagunita	20,000	800
Lathrop	20,000	0
San Juan	0	0
Foothills	0	0
Total	2,275,000	5,699

^a DAPER = Department of Athletics, Physical Education, and Recreation

SOURCE: Stanford University Land Use and Environmental Planning Office, 2018



SOURCE: Stanford LBRE LUEP; ESA

Stanford 2018 General Use Permit . 160531

Figure 7.A-1
Development Districts and Assumed Distribution of Academic, Academic Support and Housing under Additional Housing Alternative A

For the reasons described above in the section titled “Distribution of Additional Housing,” it is assumed that the additional increment of on-campus housing for faculty, staff, postdoctoral students and/or other workers that would be developed under this alternative (2,342 units) would be located at the edges of the Quarry, West Campus, Department of Athletics, Physical Education, and Recreation (DAPER) and Administrative, and/or East Campus Development Districts. This is similar to the approach taken by Stanford for the recently constructed faculty/staff housing on El Camino Real and Stanford Avenue, and the housing that would be developed in the Quarry Development District under the proposed 2018 General Use Permit.¹⁵

- 550 additional faculty, staff, postdoctoral students, and/or other worker units would be located in the Quarry Development District (for a total of 1,100 faculty/staff units in the Quarry Development District when added to the 550 units proposed by Stanford in the 2018 General Use Permit application);
- 460 faculty, staff, postdoctoral students, and/or other worker units would be located in the East Campus Development District, located at the edge of the District near El Camino Real and Stanford Avenue (which equates to 667 additional housing units added to this district when combined with the 207 graduate student beds identified above);
- 666 faculty, staff, postdoctoral students, and/or other worker units would be located in the DAPER and Administrative Development District, located at the edge of the district along El Camino Real; and
- 666 faculty, staff, postdoctoral students and/or other workers units would be located in West Campus Development District located at the edge of the district along Sand Hill Road.

Placement of additional housing in the East Campus Development District would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Further, placement of housing at the edges of the West Campus and DAPER and Administrative Development Districts could require development of lands that are currently used for existing recreation fields and/or detention basins located in these areas, which could, in turn, need to be relocated elsewhere on the campus. Under this circumstance, Stanford would provide replacement stormwater detention facilities with an equivalent detention capacity. Although speculative and not considered in this analysis, Stanford has indicated that the need to relocate these facilities could lead to requests to modify the Arboretum, other Campus Open Space areas or lands outside the Academic Growth Boundary. Any such modification would be required to comply with CEQA prior to consideration of approval.

Assumed Characteristics of Additional Housing Units

Assumptions about the potential characteristics of the additional on-campus housing under this alternative are informed by (a) the requirement in the Stanford Community Plan (Policy SCP-LU 3) that faculty/staff housing within the Academic Campus lands must be at least 15 units per acre; (b) the configuration and appearance of the EV Graduate Residences; and (c) the rough

¹⁵ This pattern is also similar to Stanford’s practice of building off-campus housing near the edges of the campus in other jurisdictions, such as the Stanford West apartments, Welch Road apartments, and University Terrace project in Palo Alto.

conceptual site planning Stanford has conducted for the proposed Quarry Road housing in support of the 2018 General Use Permit application.

Based on the Stanford Community Plan, and consistent with its policies promoting compact urban development, it is reasonable to assume that additional faculty, staff, postdoctoral student and/or other worker housing that would occur under this alternative within the Quarry, West Campus, DAPER and Administrative and/or East Campus Development Districts would be multi-family housing.

The EV Graduate Residences project and Stanford's internal conceptual site planning for the proposed new housing at Quarry Road indicate that additional graduate student housing and/or multi-family housing buildings that would be developed under this alternative could range from about 50 feet tall to heights reaching approximately 100 to 135 feet.^{16,17} Based on planning for the Quarry Road housing sites proposed under the 2018 General Use Permit, densities for the additional multi-family housing under this alternative would range from about 40 to 80 units per acre.¹⁸ The higher range of these height and density estimates would be expected for all new multi-family housing that would occur in the Quarry Development District under this alternative.¹⁹ These heights and densities also are assumed for purposes of analysis in the remaining Development Districts.

Under this alternative, on-campus housing developed in the DAPER and Administrative, Quarry, West Campus and East Campus Development Districts could exceed 50 feet in height (up to approximately 135 feet). Under this alternative, construction of additional faculty/staff housing units in the Quarry Development District would necessitate modifications to the El Camino Real Frontage Plan. The Plan establishes a 20-foot setback along El Camino Real, and a 50 feet height limit within 100 feet of El Camino Real. The County and Stanford may determine that high density transit-oriented housing across from the Palo Alto Transit Station is an appropriate land use for this location, such that a reduced setback and increased height limits are appropriate. Construction of the additional faculty/staff units in the DAPER and Administrative Development District under this alternative could also necessitate modifications to the El Camino Frontage Plan. El Camino Real is a high-quality transit corridor. While it may be physically feasible to locate housing farther back from El Camino Real, the County may determine that retention of existing facilities and encouragement of high density housing along the transit corridor justify modifications to the El Camino Frontage Plan's setbacks and height limits.

¹⁶ While heights on both of the Quarry sites to be developed under the proposed 2018 General Use Permit are unknown and might be taller than 50 feet, Stanford assumed for conceptual planning purposes that 550 units could be achieved on these sites with buildings that are about 50 feet tall.

¹⁷ The EV Graduate Residences project currently under construction includes four residential buildings that are 116 feet to the top of the roof and 134 feet to the top of the mansard.

¹⁸ In its 2018 General Use Permit application, Stanford proposes to construct 550 units on two sites in the Quarry Development District, at a combined density of approximately 40 units/acre (on 13.5 acres).

¹⁹ If twice as many units were constructed on the Quarry Development District housing sites, the density would double and it is reasonable to assume that building heights also would double. As a result, if a total of 1,100 housing units (550 housing units proposed under the 2018 General Use Permit and 550 housing additional units under this alternative) were assumed to be placed upon the combined 13.5-acres housing sites in the Quarry Development District, the density would be approximately 80 units per acre, and building heights would be 100 feet or more.

On-campus Population

Under this alternative, as under the proposed Project, academic and academic support space would expand at a growth rate consistent with Stanford's historic growth rate for such facilities. The projected total/daily population growth (excluding campus residents) would be the same as that which would occur under the proposed 2018 General Use Permit (see Table 5.12-9 in Draft EIR Section 5.12, Population and Housing). However, since this alternative would provide additional on campus housing to accommodate the net increase in off-campus population that would occur under the proposed Project, the anticipated population that would reside on the Project site under this alternative would be greater than under the proposed Project.

Table 7A-3 summarizes the anticipated population that would reside on the Project site in 2018, and in 2035 under this alternative. This includes the increase in on-campus residential population associated with remaining authorized housing that would be developed on-site by 2020 under the 2000.

TABLE 7A-3
STANFORD POPULATION RESIDING ON PROJECT SITE UNDER ADDITIONAL HOUSING ALTERNATIVE A

Affiliation	Residential Population Within Project Site Boundary in 2018	Residential Population Within Project Site Boundary under Proposed Project in 2035 ^a	Additional Change in Residential Population Within Project Site Boundary under Additional Housing Alternative A Compared to Project	Total Residential Population Within Project Site Boundary in 2035	Total Change in Residential Population Within Project Site Boundary 2018 to 2035
Undergraduate Students	6,617	8,317	0	8,317	1,700
Graduate Students	5,205	8,183	210	8,393	3,188
Non Student Spouses	660	894	17	911	251
Children	420	420	0	420	0
Faculty/Staff/Postdoctoral Students ^{b,c,d}	965	1,515	2,342 ^e	3,857	2,892
Other Family Members	1,471	2,335	3,678	6,013	4,542
Total	15,338	21,664	6,247	27,911	12,573

^a This includes increases in population associated with remaining authorized housing that would be developed on-site by 2020 under the 2000 General Use Permit, and population associated with new housing that would be authorized under the proposed 2018 General Use Permit.

^b Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^c Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^d Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^e The number of additional housing units in Table 7A-1 for this category was calculated based on housing demand from increased faculty, staff, and postdoctoral scholars, as well other workers. The actual occupancy of these additional units under this alternative is unknown, but assumed to be potentially occupiable by unspecified proportions of some or all of these groups.

SOURCE: Stanford University Land Use and Environmental Planning Office, in consultation with the Stanford University Residential and Dining Enterprises (see Appendix ALT-PRD)

General Use Permit and the increase in on-campus residential population associated with new housing that would be authorized under the proposed 2018 General Use Permit (together amounting to 6,326), and the increase in on-campus residential population associated with the additional on-campus housing proposed under this alternative (6,247), for a total increase in on-campus residential population of 12,573. The total on-campus residential population in 2035 under this alternative would be 27,911.

Comparative Analysis of Environmental Effects²⁰

Visual and Scenic Resources

Impact 7A.1-1: Additional Housing Alternative A would not adversely affect scenic vistas. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and consequently, would have a greater potential to affect scenic vistas than the proposed Project. It is assumed that the additional increment of on-campus housing for faculty, staff and/or other workers that would be developed under this alternative (2,342 units) would be located in the Quarry, West Campus, DAPER and Administrative, and/or East Campus Development Districts (see **Figure 7.A-1**). As under the proposed Project, no new building square footage or housing would be constructed in the Foothills Development District; therefore, the existing scenic views from the Stanford hills would remain unchanged and this alternative would not adversely affect these scenic vistas.

As with the proposed Project, under this alternative, scenic views of the Stanford foothills and Santa Cruz Mountains are already limited by the topography, intervening existing buildings, and landscaping on the campus. As under the proposed Project, depending on the specific location, orientation, mass and height of the additional housing that would occur under this alternative, it would have the potential to block certain views of the foothills from areas immediately adjacent to the new buildings. Given the location of the four development districts in which the additional housing would be developed under this alternative relative to the central campus, the additional housing would not adversely affect scenic vistas of the foothills from the central campus.

Existing views of the East Bay Hills and San Francisco Bay from the central campus are similarly currently restricted due to topography and existing buildings and vegetation. Depending on specific location, orientation, mass and height of the additional housing development that would occur under this alternative, it would further block certain views of the East Bay Hills and San Francisco Bay from the central campus. However, similar to the proposed Project, the potential loss of certain limited views of the East Bay Hills due to individual additional housing projects constructed under this alternative would not significantly not adversely affect scenic vistas from the campus; therefore, similar to the proposed Project, the impact under this alternative would be less than significant.

²⁰ The following analysis assumes that all of the additional housing that would be developed under Additional Housing Alternative A would be built on-campus. Please see a separate discussion of environmental consequences of Stanford providing additional off-campus housing under this alternative that follows this analysis.

Sand Hill Road, which borders the West Campus Development District, is recognized as a scenic route in Policy L-9.1 of the City of Palo Alto's general plan: *Comprehensive Plan 2030*. Views of the East Bay Hills and Stanford foothills along this portion of Sand Hill Road are mostly limited to the direct line of sight along the roadway due to the topography and existing vegetation. Although the additional housing development that would occur within the West Campus Development District under Additional Housing Alternative A could potentially remove or alter the landscaping along Sand Hill Road, scenic vistas of the East Bay Hills and Stanford foothills from this road would not be adversely affected and the impact would be less than significant.

Mitigation: None required.

Impact 7A.1-2: Additional Housing Alternative A could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and consequently, would have a greater potential to result in effects on scenic resources than the proposed Project.

As under the proposed Project, development that would occur under this alternative would not be located adjacent to any state scenic highway. Junipero Serra Boulevard and Page Mill Road are identified as scenic roads by the Santa Clara County General Plan. Most of the Foothills Development District is subject to a scenic roads zoning overlay (Zoning Ordinance Chapter 3.30) that protects the visual character of scenic roads through special development and sign regulations.

Similar to the proposed Project, any development under this alternative along Junipero Serra Boulevard and Page Mill Road would be subject to the scenic roads overlay (Section 3.30.050). It should be noted that of the four development districts in which the additional housing under this alternative is assumed to be located, only two small areas of one of the development districts (West Campus) borders Junipero Serra Boulevard. Since both of these small areas are designated as Campus Open Space and similar to the proposed Project, no housing (or any other development under this alternative) would be placed on lands with this designation.

As under the proposed Project, damage to scenic resources occurring as a result of potential infrastructure projects constructed in the vicinity of I-280, Junipero Serra Boulevard, or Page Mill Road would be reduced to a less-than-significant level through compliance with the County's scenic roads overlay regulations. Therefore, similar to the proposed Project, this alternative would have a less than significant impact on scenic resources.

Mitigation: None required.

Impact 7A.1-3: Additional Housing Alternative A could degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

Similar to growth proposed by the Project, all academic and academic support and housing development under Additional Housing Alternative A would be located within the Academic Growth Boundary. Although no site-specific projects and locations have been identified for housing development under this alternative, the potential effects on visual character or quality are described below for the four development districts (DAPER and Administrative, Quarry, East Campus, and West Campus) where additional housing is proposed under this alternative. This alternative's effects on visual character in the other development districts would be the same as under the proposed Project.

DAPER and Administrative Development District

Development in the DAPER and Administrative Development District under this alternative includes the additional 666 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with up to 200,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands that are located between Stanford Stadium and El Camino Real. Similar to the proposed Project, any new development that would be constructed in the interior portions of the site (i.e., along Campus Drive and Serra Street, which is currently occupied by several short administrative buildings, surface parking lots, and the Stanford Corporation Yard) would not affect the existing visual character of the area.

This alternative could include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the DAPER and Administrative Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. While it may be physically feasible to locate housing farther back from El Camino Real, the County may determine that retention of existing facilities and encouragement of high density housing along the transit corridor justify modifications to the plan's setbacks and height limits.

Placement of additional housing in the vicinity of El Camino Real could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. As under the proposed Project, any development on the existing athletic fields or the open area known as Masters Grove would degrade the relatively open quality of this area, and would be especially noticeable from off-site public vantage points if buildings are constructed in the fields adjacent to or nearby El Camino Real. Any existing fields within the DAPER and Administrative Development District that may be relocated elsewhere on campus for recreation and/or detention purposes would be of a similar type and scale as those that currently exist, and would not be considered features that would degrade visual character.

While no site-specific housing locations have been identified, each individual building or project that would be developed in this district pursuant to the proposed 2018 General Use Permit would

require submittal of an application to the County at the time proposed to determine if the project would require review under the County's ASA process. The ASA application includes submittal of various types of information that would assist the County in evaluating whether specific housing development projects proposed under this alternative would affect the visual character and quality of the site and its surroundings. In the past, Stanford has submitted visual simulations of some proposed projects that could potentially be seen from public roads outside the General Use Permit boundary. The County also may require simulations for buildings constructed through the ASA or other approval processes.

Changes to the existing visual character or quality of Stanford lands in the DAPER and Administrative District under this alternative would occur in specific locations as new buildings are constructed during the lifetime of the Project. Visually, the district would become denser over the lifetime of the Project as new buildings are constructed in proximity to existing buildings. Portions of the DAPER and Administrative District that are devoid of existing buildings would undergo noticeable visual transformation if additional housing is constructed in these areas. In addition, this district currently does not include housing for students, faculty, staff, or other workers. The significance and potential for such development to degrade the visual character of the Project site is dependent on a number of factors, including the design, location, height, massing, and landscaping surrounding new buildings. Proposed development that would have the potential to affect visual character and quality under this alternative would be subject to review by the County through the ASA process described above. Prior to submittal of an ASA application, new housing projects would be designed in accordance with County and Stanford guidance and policy documents that would limit adverse aesthetic effects of such projects. Although changes in the appearance of lands within the DAPER and Administrative District would occur over the duration of the Project, compliance with the County's ASA or other approval processes would not result in the degradation of the existing visual character or quality of the Project site. Thus, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

Quarry Development District

Development in the Quarry Development District under this alternative includes 1,100 new housing units (550 more faculty, staff, postdoctoral student and/or other worker units than under the proposed Project) and 200,000 square feet of academic and academic support space (same as the proposed Project). Because the Quarry Development District currently consists primarily of a construction staging yard and surface parking lots, any new development, whether proposed by the Project or Additional Housing Alternative A, would alter the visual character of this area. Additional housing proposed under this alternative would likely result in taller buildings and reduced open areas compared to the Project due to space limitations in this district. Stanford anticipates that the residential density in the Quarry District under this alternative would be approximately 80 units per acre and building heights could be up to 135 feet tall.

This alternative is assumed to include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the Quarry Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. The County and

Stanford may determine that high density transit-oriented housing across from the Palo Alto Transit Station is an appropriate land use for this location, such that a reduced setback and increased height limits are appropriate. The development of additional housing in this district would be noticeable compared to that proposed by the Project, even considering that the urban context of the area includes multi-story buildings such as the Hoover Pavilion and the Lucile Packard Children's Hospital Stanford.

As discussed above under DAPER and Administrative District, above, proposed development that would have the potential to affect visual character and quality in the Quarry Development District would be subject to review by the County through the ASA process. Prior to submittal of an ASA application, new housing projects would be designed in accordance with County and Stanford guidance and policy documents that would limit adverse aesthetic effects of such projects. Although changes in the appearance of lands within the Quarry Development District would occur over the duration of the Project, compliance with the County's ASA or other approval processes would not result in the degradation of the existing visual character or quality of the Project site. Thus, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

East Campus Development District

Development in the East Campus Development District under this alternative includes 2,267 new housing units (667 more units than the proposed Project, including an additional 460 faculty, staff, postdoctoral student and/or other worker units as well as 207 graduate student units) and 20,000 square feet of academic and academic support space (same as the proposed Project). Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. Stanford has indicated that placement of additional housing in this district would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Additional housing proposed in this development district would not change the existing visual character of this district as this district consists almost entirely of graduate and undergraduate housing, of varying building types and sizes. As shown on Figure 5.1-3 in Section 5.1 in the Draft EIR, views of the interior portion of the East Campus Development District, and thus possible building sites, would largely be hidden from public vantage points adjacent to the district. As under the proposed Project, new buildings would likely not be constructed along Stanford Avenue or El Camino Real, as those areas were recently developed with new faculty and staff housing. Similar to the proposed Project, development in the East Campus Development District would be designed in accordance with County and Stanford guidance and policy documents, and would be subject to review by the County through the ASA process. Therefore, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

West Campus Development District

Development in the West Campus Development District under this alternative includes the additional 666 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with 35,000 square feet of academic and academic support space that was

proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands currently occupied by the Palo Alto Stock Farm Stable (Red Barn), and another narrow strip of land along Campus Drive near its intersection with Junipero Serra Boulevard. New housing proposed under this alternative would represent a noticeable increase in development intensity compared to the relatively small amount of academic and academic support space proposed for this district by the Project. Most of the West Campus Development District is currently devoid of building or structures, including along Sand Hill Road. Under this alternative, any new housing constructed in areas near Sand Hill Road could be visible from off-campus locations, depending on a number of factors related to specific development proposals, such as building placement and height, and screening provided by existing and/or proposed landscaping along Sand Hill Road. As noted above under Impact 7A.1-1, Sand Hill Road is recognized as a scenic route by the City of Palo Alto. Removal or alteration of the existing vegetation could degrade the existing visual quality of this portion of Sand Hill Road. As with the DAPER and Administrative Development District, placement of housing along Sand Hill Road could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. Any existing fields within the West Campus Development District that may be relocated elsewhere on campus for recreation and/or detention purposes would be of a similar type and scale as those that currently exist, and would not be considered features that would degrade visual character.

Other areas within the West Campus Development are currently occupied by the Central Energy Facility, the O'Donohue Family Stanford Educational Farm, the West Campus Tennis Courts, and a surface parking lot south of Searsville Road. Regardless of where new housing would be placed in the West Campus Development District under this alternative, the visual character of this area would change from low-intensity, recreation-focused to include multi-unit residential housing, that would be visible from off-campus locations. Similar to the proposed Project, development in the West Campus Development District would be designed in accordance with County and Stanford guidance and policy documents, and would be subject to review by the County through the ASA process. Therefore, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

Mitigation: None required.

Impact 7A.1-4: Additional Housing Alternative A could create a new source of substantial light or glare that would adversely affect nighttime views in the area. (Significant)

As under the proposed Project, new housing development proposed under Additional Housing Alternative A could increase ambient light levels due to light dispersion from the new buildings, which may result in spillover lighting within the Project site or in adjacent neighborhoods, and could adversely affect nighttime views in the vicinity of the Project site. Because proposed

housing development under this could be located on the periphery of the campus in the Quarry, West Campus, DAPER, and/or East Campus Development Districts, spillover lighting from new housing may increase in off-site areas of the City of Palo Alto (and to a lesser degree in the City of Menlo Park) that border these development districts. Increased ambient light levels under this alternative compared to the proposed Project would likely be most noticeable in the West Campus and DAPER Development Districts, where no housing is proposed for those districts under the Project. Construction of additional housing in the Quarry Development District under this alternative would necessitate modifications to the *Plan for the El Camino Real Frontage* such that buildings would be located closer to El Camino Real and also would be taller, potentially resulting in increased ambient light levels compared to the Project. Construction of additional housing units in the DAPER and Administrative Development District could also necessitate modifications to the plan that would reduce building setback and height restrictions.

As under the proposed Project, Stanford guidelines and policies that address exterior lighting, lighting of paths and pedestrian areas, vehicular and roadway lighting, landscape and entryway lighting, accent lights, and building-mounted lights would be applicable to new housing proposed under this alternative. The County also reviews development proposals through the ASA or other approval processes. In order to assure that new lighting constructed under this alternative would not adversely affect nighttime view in the area, Implementation of Mitigation Measure 7A.1-4, which is the same as that identified for the proposed Project, would reduce the impact to a less than significant level. As with the proposed Project, by employing appropriate design standards, including those described in the ASA Guidelines, and minimizing the quantity of reflective material used in new construction, light and glare impacts related to lighting under this alternative would be reduced to less-than-significant levels.

Mitigation Measure 7A.1-4: Stanford shall submit a lighting plan for approval by the County Planning Office, as part of an ASA review, for each development project that would include exterior light sources. The plan shall show the extent of illumination that would be projected from proposed outdoor lighting. State-of-the-art luminaries shall be used where necessary, with high beam efficiency, sharp cut-off, and glare and spill control. Upward glow shall not be allowed in residential or academic uses.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7A.1-5: Additional Housing Alternative A, in combination with past, present, and future projects could potentially contribute to cumulative visual and scenic resource impacts. (Significant)

The geographic scope of potential cumulative impacts to visual and scenic resources encompasses the Stanford lands within the General Use Permit boundary and areas outside the boundary from which viewers could see the Project in conjunction with views of other projects in the cumulative scenario.

As with the proposed Project, housing development under Additional Housing Alternative A would likely not be visible from Portola Valley, Los Altos Hills, Menlo Park, or unincorporated portions of San Mateo County. Therefore, no cumulative visual and scenic resource impacts would result from this alternative combining with impacts of past, present, or reasonably foreseeable future projects within these jurisdictions.

Any potential future Stanford projects on Stanford-owned lands in Palo Alto with views of housing development constructed under this alternative would be similarly designed in accordance with Stanford guidance and policy documents that would limit potentially adverse visual characteristics of such projects.

Past, present, and reasonably foreseeable future projects within those areas of Palo Alto not owned by Stanford have the potential to create new visual impacts that could be affected by the Project. However, these areas are either built-out as residential neighborhoods; institutional uses that are unlikely to be altered; or border areas of Stanford along El Camino Real that are designated as Campus Open Space, and thus would not be developed under this alternative.

Therefore, the less-than-significant impacts of Additional Housing Alternative A regarding scenic vistas, or visual character would not combine with impacts of past, present, or reasonably foreseeable future projects in areas of Palo Alto with views of housing development under this alternative and result in a cumulative impact for these environmental resources. Cumulative light and glare impacts would be significant pre-mitigation, but implementation of Mitigation Measure 7A.1-4 would reduce this alternative's contribution to a less than cumulatively considerable level. Projects constructed in Palo Alto would be subject to Section 18.23.030 of the City of Palo Alto Municipal Code, which includes measures to reduce off-site light spillage. Post-mitigation, the cumulative impact regarding light and glare would not be significant.

Mitigation: Implement Mitigation Measure 7A.1-4.

Significance after Mitigation: Less than Significant.

Air Quality²¹

Construction Impacts

Impact 7A.2-1: Additional Housing Alternative A construction would not result in emissions of NO_x, PM, and ROG_s that would exceed BAAQMD significance thresholds. (Less than Significant)

Construction of individual projects developed under Additional Housing Alternative A would generate construction emissions from the same variety of sources as the proposed 2018 General Use Permit: off-road construction equipment; and on-road worker, vendor, and hauling vehicles.

²¹ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives air quality analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-AQT included in this document.

Construction-related emissions from Additional Housing Alternative A were calculated using the same methodology as discussed in the Draft EIR for the proposed Project.

However, the average construction scenario for Additional Housing Alternative A assumed an annual average of approximately 360,500 square feet of new building construction (an increase of 135 housing units, or 135,000 square feet, over the proposed Project), approximately 53,840 square feet of demolition (an increase of about 3,540 square feet over the proposed Project), and excavation of approximately 144,880 of cubic yards of soil (an increase of about 82,820 cubic yards over the proposed Project).

Table 7A.2-1 presents a summary of the average daily construction-related emissions that would result under Additional Housing Alternative A under the average construction scenario. As shown in Table 7A.2-1, under the average construction scenario, emissions of ROG, NO_x, PM₁₀ and PM_{2.5} under this alternative would be higher than the proposed Project, however, as with the proposed Project, emissions would be below the respective thresholds for these pollutants.

**TABLE 7A.2-1
ADDITIONAL HOUSING ALTERNATIVE A AVERAGE DAILY CONSTRUCTION EMISSIONS**

Pollutant	Average Daily Emissions (pounds/day)			
	ROG	NO _x	Exhaust PM ₁₀ ^a	Exhaust PM _{2.5} ^a
Average Construction Scenario				
2018 General Use Permit Emissions	14.9	22.0	2.8	1.3
Additional Emissions under Additional Housing Alternative A	8.7	17.6	0.5	0.3
Total Additional Housing Alternative A Emissions	23.5	39.6	3.3	1.6
Significance Threshold	54	54	82	54
Above Threshold?	No	No	No	No

NOTE:

^a Exhaust PM for the Project average and peak construction scenarios includes tire wear and brake wear PM for on-road vehicles. The BAAQMD Thresholds do not include these sources so the comparison is conservative.

SOURCE: Ramboll, 2018 (see Appendix ALT-AQT)

Additional Housing Alternative A would have more total construction than the proposed Project. However, peak construction under both the proposed Project and Additional Housing Alternative A would be less than the scope and size of the Escondido Village project authorized under the 2000 General Use Permit, which served as the basis for the peak construction scenario analyzed in this EIR. The largest new housing site under Additional Housing Alternative A would be the site at Quarry Road, which is assumed to accommodate a total of 1,100 new faculty/staff units at about 1,100,000 square feet of building development. The Escondido Village project consists of approximately 3 million square feet of building development, including structured parking and housing replacement space. Thus, even if the largest new housing complex under Additional Housing Alternative A were constructed over a duration similar to the Escondido Village project,

the peak square footage would remain lower than the peak construction scenario analyzed in the Draft EIR. Consequently, as a conservative approach for Additional Housing Alternative A, and similar to the conservative approach taken for the proposed Project, the construction emissions for the peak construction year for this alternative are assumed to be consistent with that of the Escondido Village project. As a result, under the peak construction scenario for Additional Housing Alternative A, emissions of ROG, NOx, PM₁₀ and PM_{2.5} under this alternative would be similar to the proposed Project, and would be below the respective thresholds for these pollutants.

Therefore, as under the proposed Project, the construction-related criteria air pollutant emissions under Additional Housing Alternative A would be less than significant.

Mitigation: None required.

Impact 7A.2-2: Additional Housing Alternative A construction would generate fugitive dust that could result in a localized increase in particulate matter. (Significant)

Similar to the proposed 2018 General Use Permit, demolition, excavation, grading, and other construction activities associated with individual projects developed under Additional Housing Alternative A may cause wind-blown dust that could contribute PM into the local atmosphere. Since that there would be an increase in total construction under this alternative compared to the proposed Project, there would be a corresponding increase in dust-generating activities under this alternative as well. As under the proposed Project, construction-related dust emissions under this alternative would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, dust generated from construction activities may result in significant adverse impacts on a temporary and intermittent basis during the construction period.

The BAAQMD's recommended approach to analysis of construction-related particulate impacts (other than exhaust PM) is to emphasize implementation of effective and comprehensive dust control measures rather than detailed quantification of emissions. The BAAQMD considers construction-related fugitive dust impacts of projects to be less than significant if a suite of recommended dust-control measures is implemented. Therefore, implementation of the BAAQMD-identified Best Management Practices for control of fugitive dust, the same mitigation as identified for the proposed Project, would reduce construction effects from fugitive dust generation under this alternative to a less than significant level.

Mitigation Measure 7A.2-2: Best Management Practices for Controlling Particulate Emissions. Stanford shall require all construction contractors to implement the following measures:

- 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 track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweepers is prohibited;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified visible emissions evaluator; and
- Post a publicly visible sign with the telephone number and person to be contacted regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Significance after Mitigation: Less than Significant.

Impact 7A.2-3: Additional Housing Alternative A construction would generate emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

Site preparation activities, such as demolition, excavation, grading, foundation construction, and other ground-disturbing construction activities associated with individual projects developed under Additional Housing Alternative A would affect localized air quality. Emissions from construction equipment during these site preparation activities would include directly emitted particulate matter (PM_{2.5} and PM₁₀) and TACs such as diesel particulate matter (DPM). The generation of these emissions during construction could expose sensitive receptors to substantial pollutant concentrations of TACs, resulting in a localized health risk. Given that there would be an increase in total construction activities, and an increase in total on-campus sensitive receptors, under this alternative compared to the proposed 2018 General Use Permit, this alternative would have a greater potential to expose sensitive receptors to substantial pollutant concentrations or health risks than the proposed Project.

Similar to the proposed Project, it is not possible to conduct a health risk assessment (HRA) for construction related to each individual project that would occur under Additional Housing Alternative A. Accordingly, the same screening tool that was developed for the proposed 2018 General Use Permit to ensure future construction activities would not result in emissions of toxic air contaminants exceeding BAAQMD health risk significance thresholds would similarly be

applicable to Additional Housing Alternative A.²² The screening tool provides minimum distances to site new projects depending on size and proximity to sensitive receptors such as children.

Table 7A.2-2 presents the screening distances developed to determine the circumstances in terms of construction project size and distance from receptors under which a significant construction-related health risk may occur. As under the proposed Project, although the precise location of future individual projects under this alternative is not known, because construction projects could occur closer to sensitive land uses than the screening distances shown in Table 7A.2-2, this alternative could result in a significant health risk impact.

TABLE 7A.2-2
CONSTRUCTION HEALTH RISK SCREENING DISTANCES

Maximum Project Size	Minimum Distance (feet) to Nearest Receptor Type ^a		
	Childcare Facility	Child Resident	Adult Resident
3.27 million square feet with up to 900,000 CY of debris/soil export	460	165	33
540,000 square feet with up to 150,000 CY of debris/soil export	165	33	33
180,000 square feet with up to 50,000 CY of debris/soil export	100	33	33
45,000 square feet with up to 12,500 CY of debris/soil export	33	33	33

NOTES:

^a The screening tool stipulates that a 33-foot buffer must exist around the construction site fence line where no sensitive receptor resides. If a construction site is within the 33-foot buffer from sensitive receptors, or directly adjacent to a childcare facility, the project must both comply with the screening limits presented above and restrict diesel-powered operations to when children are not present in order to screen out of conducting a health risk analysis.

SOURCE: Ramboll Environ, 2017 (see Draft EIR Appendix AQT)

Implementation of **Mitigation Measure 7A.2-3(a)**, the same mitigation identified for the proposed Project, would require Stanford to conduct a health risk screening of individual projects developed under the proposed 2018 General Use Permit. If applicable, **Mitigation Measure 7A.2-3(b)**, also the same as identified for the proposed Project, would require a project-specific health risk analysis to demonstrate that the project construction activities would not result in a significant acute, chronic non-cancer or cancer-related health risk to specific sensitive receptors. Implementation of Mitigation Measures 7A.2-3(a)-(b) would ensure potential exposure of sensitive receptors to substantial pollutant concentrations or health risk from construction activities under the Additional Housing Alternative A would be less than significant.

²² The screening tool is based on the EV Graduate Residences project, which reflects the largest quantity of earth moving and the largest amount of above and below ground construction that Stanford has undertaken for a single project under the 2000 General Use Permit. The EV Graduate Residences construction project is likely to be larger than any individual project that would be constructed under either the proposed 2018 General Use Permit, or this alternative.

Mitigation Measure 7A.2-3(a): Health Risk Screening for Construction Projects. Prior to approval of an individual project, Stanford shall conduct a project-specific health risk screening using the screening distances presented in Table 7A.2-2 and submit it to the County Planning Office for peer review and approval. If the individual project is located further from sensitive receptors than the minimum distance identified in Table 7A.2-2, then no further construction health risk assessment or additional mitigation is required. If the construction project is closer than the specified minimum distance, then a project-specific Health Risk Assessment shall be prepared, as outlined in Mitigation Measure 7A.2-3(b).

Mitigation Measure 7A.2-3(b): Project-Specific Health Risk Analysis. If the screening criteria in Table 7A.2-2 are not met, Stanford shall prepare and submit to the County Planning Office for peer review and approval a project-specific health risk analysis demonstrating that project construction activities will not result in a significant acute, chronic non-cancer or cancer-related health risk to sensitive receptors. As a performance standard, any subsequent project-specific health risk analysis must demonstrate an excess cancer risk level of 10-in-1 million or less, a non-cancer (i.e., chronic or acute) hazard index of 1.0 or less, and an incremental increase an annual average PM_{2.5} concentration of no more than 0.3 microgram per cubic meter.

Significance after Mitigation: Less than Significant.

Operational Impacts

Impact 7A.2-4: Additional Housing Alternative A operational emissions from new development would result in emissions of criteria air pollutants (PM₁₀) at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants. (Significant)

Similar to the proposed Project, Additional Housing Alternative A would generate operational emissions from a variety of sources, including new vehicle trips, operation of boilers, maintenance operation of diesel emergency generators; new laboratories; fueling stations; and off-road sources from Stanford maintenance equipment and construction activities. Additional Housing Alternative A would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the proposed Project, which would result in a net increase in criteria air pollutants compared to the proposed Project.

An air quality analysis of Additional Housing Alternative A is included in Appendix ALT-AQT, and includes a detailed inventory of operational emissions of this alternative. The operational criteria air pollutant inventory analysis for Additional Housing Alternative A used the same methodology that was developed for the proposed Project for all sources except entrained road dust from vehicle trips. These analytical methods include use of the same USEPA emission factors to estimate emissions from emergency generators and boilers, and the same EMFAC2014 emission factors from CARB to estimate emissions for vehicle trips. However, for entrained road dust, localized Santa Clara County-specific emission factors were applied using Method 7.9 of the California Air Resources Board and applied to the 2018 baseline, buildout of the proposed

Project, and the additional housing alternative scenarios. Consequently, baseline and proposed Project values for PM₁₀ and PM_{2.5} reported below are slightly different than what was reported in the Draft EIR.²³

Table 7A.2-3, below, presents the net change in maximum annual and average daily criteria air pollutant emissions in the study area between the 2018 baseline and 2035 with buildout of Additional Housing Alternative A. Similar to the proposed Project, emissions of ROG and NOx would decrease by 2035 compared to the 2018 environmental baseline, largely as a result of improvements to the motor vehicle fleet due to more stringent emission standards; as well as the proposed electrification of Stanford’s Marguerite bus fleet and 70 percent of its Lands, Buildings and Real Estate (LBRE) and Bonair vehicle fleets by 2035. Emissions of PM₁₀ and PM_{2.5} under this alternative are predicted to increase due primarily to entrained dust emissions associated with increased Vehicle Miles Traveled (VMT).

As shown in Table 7A.2-3, emissions of ROG, NOx, and PM_{2.5} for Additional Housing Alternative A would all be below BAAQMD thresholds. However, the increase in emissions of PM₁₀ under this alternative would exceed the BAAQMD threshold of 82 pounds per day and 15 tons per year. Mobile sources would be responsible for 94 percent of the increase in PM₁₀ emissions under this alternative. Therefore, operational emissions of PM₁₀ under Additional Housing Alternative A would result in a significant impact. This is a different finding of significance than was identified for the proposed Project, which was determined to have a less than significant operational PM₁₀ emission impact as a result of comparatively less VMT. Table 7A.2-3 also compares emissions under Additional Housing Alternative A to those generated by the proposed 2018 General Use Permit, with emissions ranging from 8 to 17 percent greater under Additional Housing Alternative A, depending on pollutant.

Under this alternative, similar to the proposed Project, Stanford would convert the majority of its campus fleet vehicles to electric vehicles, and install electric vehicle charging stations to encourage the use of private zero-emission vehicles.²⁴ However, Stanford cannot control the mode of propulsion used in private vehicles.

Additionally, under this alternative, and similar to the proposed Project, Stanford would be subject to its “No Net New Commute Trips” standard. Stanford currently achieves the standard through a range of approaches that currently include implementation of its Transportation Demand Management (TDM) programs and participation in off-campus trip reduction programs. Under this alternative, similar to the proposed Project, an additional approach would include funding trip reduction programs that that encourage and improve use of alternative transportation modes and/or improve mobility for pedestrians, bicyclists and transit users. These approaches are formalized in **Mitigation Measure 7A.15-2** under Transportation and Traffic, below. Mitigation Measure 7A.15-2

²³ The operational mobile emissions presented in the Draft EIR Appendix AQT included vehicle emissions from the EMFAC2014 model, which contains PM₁₀ and PM_{2.5} from exhaust, brakewear, and tirewear, but not roadway dust. BAAQMD subsequently clarified that roadway dust should be included in the emissions to compare to the operational thresholds. The inclusion of roadway dust in proposed Project operational mobile emissions did not change any significance conclusions included in Table 7B.2-3 in the Draft EIR for the proposed Project.

²⁴ Electric vehicles emit zero PM₁₀ exhaust, although they still produce brake wear, tire wear, and entrained roadway dust that contribute to total PM₁₀ emissions.

would also serve the purpose to reduce mobile emissions, including PM₁₀, under this alternative to the extent the No Net New Commute Trips standard is achieved. However, this is considered a significant and unavoidable impact because it is uncertain whether this measure would reduce mobile PM₁₀ emissions below the significance threshold. As explained under the Additional Housing Alternative A Description, because this alternative would shift a substantial number of commute trips to residential trips, the No Net New Commute Trips standard may not be achieved because travel demand management (TDM) measures are not as effective in reducing residential trips, compared to commute trips.

TABLE 7A.2-3
NET CHANGE IN MAXIMUM ANNUAL AND AVERAGE DAILY OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS
UNDER ADDITIONAL HOUSING ALTERNATIVE A

Pollutant:	ROG	NOx	PM ₁₀	PM _{2.5} ^a
Maximum Annual Emissions (Tons Per Year)				
Total 2018 Baseline Emissions ^c	47	82	33 ^c	10 ^c
Total Emissions in 2035 with Buildout of Additional Housing Alternative A	45	53	49	14
Net Change in Emissions of Additional Housing Alternative A Compared to Baseline ^b	-2	-29	+16	+4
Threshold	10	10	15	10
Above Threshold?	No	No	Yes	No
Total Emissions in 2035 with Buildout of proposed 2018 General Use Permit ^c	40	49	42 ^c	12 ^c
Increase in Emissions of Additional Housing Alternative A over proposed 2018 General Use Permit ^b	+5	+4	+7	+2
Average Daily Emissions (Pounds Per Day)				
Total 2018 Baseline Emissions ^c	256	447	181 ^c	55 ^c
Total Emissions in 2035 with Buildout of Additional Housing Alternative A	246	288	269	76
Net Change in Emissions of Additional Housing Alternative A Compared to Baseline ^b	-10	-159	+88	+22
Threshold	54	54	82	54
Above Threshold?	No	No	Yes	No
Total Emissions in 2035 with Buildout of proposed 2018 General Use Permit ^c	220	270	232 ^c	68 ^c
Increase in Emissions of Additional Housing Alternative A over proposed 2018 General Use Permit ^b	+26	+19	+37	+9

NOTES:

^a PM_{2.5} from non-mobile sources conservatively assumed to be equivalent to PM₁₀ value.

^b Emission totals may not appear to total due to rounding.

^c 2018 Baseline and buildout of proposed 2018 General Use Permit values for PM₁₀ and PM_{2.5} presented here are different than those reported in the Draft EIR, as the values in this table reflect more recently available emission factors published in 2017.

SOURCE: Ramboll, 2018 (see Appendix ALT-AQT)

Mitigation: Implement Mitigation Measure 7A.15-2.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.2-5: Additional Housing Alternative A operation of development would generate emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

Similar to the proposed 2018 General Use Permit, Additional Housing Alternative A would result in development that would generate operational emissions of TACs and localized contributions to PM_{2.5} concentrations from a variety of sources, including emissions from passenger vehicles and delivery vehicles, diesel generators, laboratory fume hood stacks and, to a lesser extent, natural gas combustion. Given that there would be an increase on-campus sensitive receptors, under this alternative compared to the proposed 2018 General Use Permit, this alternative would have a greater potential to expose sensitive receptors to substantial pollutant concentrations or health risks than the proposed Project.

Mobile Source Air Toxics

Mobile source air toxics are emitted from vehicles and are compounds that are known or suspected to cause cancer or other serious health and environmental effects. Examples of mobile source air toxics include benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, polycyclic organic matter (POM), naphthalene, and diesel particulate matter (DPM). TAC emissions from mobile sources would be reduced under this alternative compared to 2018 environmental baseline conditions, resulting in a reduction of health risks from mobile sources.

As discussed in Impact 7A.2-4, Additional Housing Alternative A would result in a marginal increase in PM_{2.5} emissions, and incrementally more than the proposed Project. This would be a basin-wide increase primarily resulting from non-exhaust emissions resulting from increased VMT. Using traffic volumes on El Camino Real as a proxy and the BAAQMD's screening calculator for roadway emissions, the predicted increase in vehicles along El Camino Real under this alternative would result in an increased PM_{2.5} concentration of 0.04 µg/m³ at 100 feet (or 0.02 µg/m³ more than the proposed Project). This increase is below BAAQMD's significance threshold of 0.3 µg/m³ for project-level contributions to localized concentrations of PM_{2.5}. Consequently, similar to the proposed Project, Additional Housing Alternative A is considered to have a less-than-significant impact with regard to health risks from mobile sources.

Diesel Emergency Back-up Generators Air Toxics

Similar to the proposed Project, new diesel emergency back-up generators would be required for some buildings constructed under Additional Housing Alternative A as a safety requirement. Any new diesel generators larger than 50 horsepower would require a permit from the BAAQMD and must comply with the Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. As a practical matter, the BAAQMD will not issue a permit for a new generator that results in an operational cancer risk greater than 10 in one million. Accordingly, and similar to the

proposed Project, health risk impacts from new emergency generators under this alternative would be considered less than significant.

Laboratory Air Toxics

Because Additional Housing Alternative A would not change the allocation for development of academic space compared to the proposed Project, there would be no increase in on-campus laboratory development, or chemical usage associated with those uses, under this alternative compared to the proposed Project, although as noted above, there would be a larger on-campus residential population.

TAC emissions dispersion predicted the incremental increase in cancer risk associated with the Project was estimated to be 4.5 in one million, which is well below the BAAQMD significance threshold of 10 in a million. The risk under Additional Housing Alternative A would be the same as for the proposed Project since there would be no additional laboratories under this alternative. As under the proposed Project, under this alternative acute and chronic hazard indices (HIs) would increase by 0.03 and 0.01, respectively, which are also below the BAAQMD significance threshold of 1.0. Therefore, as under the proposed Project, impacts on health risks from laboratory TAC emissions under this alternative would similarly be less than significant.

Similar to the proposed Project, limitations of the health risk assessment prepared at this stage may not account for development under Additional Housing Alternative A that may involve substantial amounts of laboratory space and fume hoods. BAAQMD's Rule 2-1 exempts teaching laboratories used exclusively for classroom experimentation and/or demonstration. Given the potential for future development under Additional Housing Alternative A to include both teaching laboratories as well as research laboratories, the potential exists that the requirements of Rule 2-1 may not apply. Consequently, similar to the proposed Project, the potential health risks from laboratory TAC emissions under Additional Housing Alternative A is considered significant. Accordingly, **Mitigation Measure 7.2-5**, the same mitigation proposed for the Project, is identified to ensure that substantial amounts of laboratory space under this alternative would not result in a significant health risk.

Natural Gas Combustion

Natural gas combustion results in emissions of benzene, formaldehyde, and toluene. Under Additional Housing Alternative A, there would be an incremental increase in these TAC emissions due to an increase in natural gas combustion associated with residential and non-residential growth. However, these increases under this alternative compared to the 2018 baseline would be marginal [net change of 0.35 lb/yr of benzene (an incremental increase of 0.06 lb/yr over the proposed Project), 12.2 lb/yr of formaldehyde (an incremental increase of 2.0 lb/yr over the proposed Project), and 0.54 lb/yr of toluene (an incremental increase of 0.10 lb/yr over the proposed Project)], and any new natural gas boilers would need to be permitted and comply with any applicable BAAQMD standards (Appendix ALT-AQT). Therefore, health risk impacts from natural gas combustion resulting from development under Additional Housing Alternative A would be similar to those under the proposed project, and similarly, would be less than significant.

Mitigation Measure 7A.2-5: Laboratory Fume Hood Emission Control. For any individual project that contains more than 25,000 square feet of emissions-generating laboratory space within a building and 50 fume hoods, Stanford shall conduct a health risk screening analysis and obtain a permit from the BAAQMD for the proposed individual project; this permit may be required either prior to or as a condition of approval of the proposed individual project. In accordance with BAAQMD Rules 2-1 and 2-5, new sources of emissions must implement Best Available Control Technology for Toxics (T-BACT) if individual source risks exceed 1.0 in a million for cancer and/or chronic hazard index is greater than 0.20. Additionally, a permit will be denied if project cancer risk exceeds 10.0 in a million or if the chronic or acute hazard index exceeds 1.0. Compliance with BAAQMD rules will ensure that new laboratory operations will not result in a significant health risk impact.

Significance after Mitigation: Less than Significant.

Impact 7A.2-6: Additional Housing Alternative A operations would not result in local concentrations of carbon monoxide that would exceed State and federal standards. (Less than Significant)

Development under Additional Housing Alternative A would generate additional vehicle trips (over baseline and Project conditions) and associated emissions of CO along area roadways. BAAQMD provides a screening methodology based on peak hourly traffic volumes to evaluate potential impacts of CO emissions from mobile sources (BAAQMD CEQA Air Quality Guidelines, Updated May 2017). This preliminary screening procedure provides a conservative indication of whether the proposed Project would result in the generation of CO concentrations that would substantially contribute to an exceedance of the thresholds of significance. If all of the screening criteria are met, the proposed Project would result in a less-than-significant impact to air quality with respect to concentrations of local CO.

The screening methodology focuses on intersections with vehicle traffic exceeding 44,000 vehicles per hour after Project buildout (or 24,000 vehicles per hour in locations with limited vertical or horizontal air mixing) that could violate or contribute to a violation of ambient air quality standards for CO. Based on the study intersection analysed in Section 7.15, Transportation and Traffic, indicates that with buildout of Additional Housing Alternative A in 2035, the greatest total intersection volumes would occur at the intersection of Page Mill Road with El Camino Real during the p.m. peak hour with 8,765 vehicles (an increase of less than 200 vehicles over the proposed Project). With buildout of Additional Housing Alternative A in 2035, all study intersection volumes would be below the 24,000 vehicles per hour screening threshold. Thus, similar to the proposed Project, Additional Housing Alternative A would not contribute to a violation of CO air quality standards.

Mitigation: None required.

Impact 7A.2-7: Additional Housing Alternative A operation of development would not create objectionable odors that would affect a substantial number of people. (Less than Significant)

The BAAQMD CEQA Guidelines identifies wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, recommends buffer zones of one to two miles around them to avoid potential odor conflicts, and requires a BAAQMD permit. There are no facilities of these types in the vicinity of the Project site, and similar to the Project, none are proposed or allowed under Additional Housing Alternative A. As under the proposed Project, Additional Housing Alternative A would provide for the development of new housing, academic, and academic support uses, and would not result in the development or operations of odor sources of concern. Consequently, similar to the proposed Project, the potential for Additional Housing Alternative A to result in objectionable odors is less than significant.

Mitigation: None required.

Impact 7A.2-8: Additional Housing Alternative A operation of development could conflict with or obstruct implementation of the applicable air quality plan. (Significant)

In April 2017 the BAAQMD adopted the 2017 Clean Air Plan (BAAQMD, 2017d). The 2017 Clean Air Plan's primary goals are to protect public health and protect the climate, and it contains 85 measures some of which address reduction of GHGs. The 2017 BAAQMD CEQA Guidelines identify a methodology to assess consistency with the Clean Air Plan be used to evaluate plan-level projects. Specifically, the 2017 BAAQMD CEQA Guidelines recommend the consideration of three questions:

- Does the project support the primary goals of the air quality plan?;
- Does the project include applicable control measures from the air quality plan?; and
- Does the project disrupt or hinder implementation of any Clean Air Plan control measures?

With regard to the first question, the BAAQMD CEQA Guidelines provide a basis for assessing support of the primary goals. The primary goals of the 2017 Bay Area Clean Air Plan are to:

- Attain all state and national air quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Any project (i.e., project or plan) that would not support these goals would not be considered consistent with the 2017 Clean Air Plan. If approval of a project would not result in significant

and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the 2017 Clean Air Plan. Based on the discussion presented in Impact 7A.2-4 above, development under Additional Housing Alternative A would have a significant and unavoidable impact with regard to operational emissions of PM₁₀. Because Additional Housing Alternative A would be located in a region designated as non-attainment for state of California Standards for PM₁₀ and as indicated in Table 5.2-1 of the Draft EIR, in an area that has experienced regular exceedances of the state PM₁₀ standard, this alternative's significant and unavoidable operational PM₁₀ impact is deemed inconsistent with the 2017 Clean Air Plan's goal of attaining the state air quality standards, and therefore, Additional Housing Alternative A would be considered inconsistent with the 2017 Clean Air Plan. This finding is not the same as under the proposed Project, which did not have a significant operational PM₁₀ impact (see Impact 5.2-4 in the Draft EIR).

The second question recommended in the 2017 BAAQMD CEQA Guidelines for evaluating consistency with the 2017 Clean Air Plan is whether the project includes applicable control measures from the air quality plan. The 2017 Clean Air Plan contains transportation control measures and measures related energy, green building, waste management, water control and control of short-lived GHGs. The measures applicable to criteria air pollutants, TACs, or greenhouse gases generated under Additional Housing Alternative A are the same as those identified for the proposed 2018 General Use Permit in **Table 5.2-11** of the Draft EIR. As discussed in Chapter 3, Project Description, in the Draft EIR, Stanford currently implements a number of programs and practices to promote sustainability at the campus, including Transportation Demand Management, energy supply and efficiency, water supply and conservation, and solid waste reduction and recycling. As with the proposed Project, under Additional Housing Alternative A, Stanford would commit to continue to implement, and update as needed, these sustainability programs and practices.

These mechanisms would be consistent with most, but not all, of the relevant control measures of the 2017 Clean Air Plan. As with the proposed Project, there are some control measures with which Additional Housing Alternative A, as proposed, may not be consistent. Where an implementation mechanism does not currently exist or is not identified in Additional Housing Alternative A, mitigation measures identified in the EIR are identified to ensure consistency of Additional Housing Alternative A with the 2017 Clean Air Plan. With elements identified as part of Additional Housing Alternative A, and implementation of mitigation measures identified in this EIR, this alternative would be consistent with applicable control measures from the 2017 Clean Air Plan, similar to the proposed Project.

The final basis for evaluation of consistency with the 2017 Clean Air Plan is whether Additional Housing Alternative A would disrupt or hinder implementation of any 2017 Clean Air Plan control measure. With elements identified as part of the proposed 2018 General Use Permit, along with implementation of mitigation measures identified in this EIR, Additional Housing Alternative A would not adversely affect implementation of any 2017 Clean Air Plan control measure. This is the same finding as under the proposed Project.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7A.15-2: Mitigation either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements to fund transportation mitigation efforts.

Mitigation Measures 7A.3-8(a)-(b): Mitigation for native oak woodland

Mitigation Measure 7A.3-9(a)-(c): Mitigation for wetlands.

Mitigation Measure 7A.3-11(a)-(c): Mitigation for protected trees.

Significance after Mitigation: Significant and Unavoidable.

While the above-identified mitigation measures would address potential inconsistencies of Additional Housing Alternative A with respect to the absence of several relevant control measures of the 2017 Clean Air Plan, these measures would not address Additional Housing Alternative A’s inconsistency with the Plan’s goal of attaining the state air quality standards. Significant PM₁₀ emissions associated with Additional Housing Alternative A would be the result of regional increases in VMT which could only be addressed through trip reduction measures. As discussed in Mitigation Measure 7A.15-2 in the Transportation and Traffic section, Stanford would mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections, the former of which has the potential to reduce VMT. However, as discussed under the description of Additional Housing Alternative A, the No Net New Commute Trips standard may not be achieved for this alternative through travel demand management (TDM) measures as TDM measures would not be as effective in reducing residential trips associated with this alternative, compared to commute trips. Consequently, the PM₁₀ impact under Additional Housing Alternative A is conservatively identified as significant and unavoidable.

Cumulative Impacts

Impact 7A.2-9: Additional Housing Alternative A would not result in emissions of NO_x, PM_{2.5}, or ROG that are cumulatively considerable, but would result in emissions of PM₁₀ that would be cumulatively considerable. (Significant)

BAAQMD developed thresholds of significance for both construction and operation with consideration of individual project emission levels that would be cumulatively considerable. If a project exceeds the identified project significance levels, then its emissions would be cumulatively considerable. Table 7A.2-3 shows that operational emissions under Additional Housing Alternative A would exceed emission thresholds for PM₁₀. Therefore, emissions of PM₁₀ from Additional Housing Alternative A would result in a cumulatively considerable contribution to a cumulative air quality impact. This is a different finding of significance than was identified for the proposed Project, which had a less than significant operational emission impact as a result of comparatively less VMT.

Mitigation: Implement the following mitigation measure:

Mitigation Measure 7A.15-2: Mitigation either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements to fund transportation mitigation efforts.

Significance after Mitigation: Significant and Unavoidable.

As discussed above, significant PM₁₀ emissions associated with Additional Housing Alternative A would be the result of regional increases in VMT which could only be addressed through trip reduction measures. As discussed in Mitigation Measure 7A.15-2 in the Transportation and Traffic section, Stanford would mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections, the former of which has the potential to reduce VMT. However, as discussed under the description of Additional Housing Alternative A, the No Net New Commute Trips standard may not be achieved for this alternative through travel demand management (TDM) measures as TDM measures would not be as effective in reducing residential trips associated with this alternative, compared to commute trips. Consequently, the PM₁₀ impact under Additional Housing Alternative A is conservatively identified as significant and unavoidable.

Impact 7A.2-10: Additional Housing Alternative A could considerably contribute to cumulative emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

As discussed in Impact 7A.2-3, because construction projects developed under Additional Housing Alternative A could occur closer to sensitive land uses than the screening distances shown in Table 7A.2-2, Additional Housing Alternative A could result in a significant health risk impact, similar to the proposed Project. Additionally, as discussed in Impact 7A.2-5, as with the proposed Project, the health risks from TACs from operation of laboratories under this alternative are considered significant. Similar to the proposed Project, these represent impacts where the contribution of Additional Housing Alternative A could also be cumulatively considerable. Consequently, mitigation measures are identified for Additional Housing Alternative A, the same mitigation as that identified for the proposed Project, to address these impacts of Additional Housing Alternative A.

Under the Community Air Risk Evaluation (CARE) program, the BAAQMD identified communities in the Bay Area subject to high TAC emissions, with sensitive populations that could be affected by them. The most recent CARE retrospective document indicates that there are no cumulatively impacted communities within five miles of the Project site. Similar to the proposed Project, given that Additional Housing Alternative A contributions to localized health risk would be less than significant with mitigation, as described in Impact 7A.2-3 and

Impact 7A.2-5 for both construction and operations, and that there are no impacted CARE communities in the Project vicinity, Additional Housing Alternative A cumulative impact to local health risk and hazards would be reduced to less than cumulative considerable, and therefore a less than significant level with identified mitigation.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7A.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Mitigation Measure 7A.2-5: Laboratory Fume Hood Emission Control

Significance after Mitigation: Less than Significant.

Biological Resources

Construction and Operational Impacts

Impact 7A.3-1: Additional Housing Alternative A activities could result in adverse effects on special-status and migratory birds. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction under this alternative, tree and shrub pruning or removal, or grading could directly impact nesting birds by damaging or destroying nests, causing adults to abandon nests, or directly killing or injuring nesting birds. Additionally, construction activity, such as elevated sound levels and vibrations from heavy construction equipment, could cause adult birds to abandon nests. Due to the greater level of on-campus construction and larger development footprint under this alternative, there would be a greater potential for these impacts to occur than under the proposed Project. Similar to the proposed Project, implementation of this alternative could result in significant impacts to special-status and migratory birds.

As with the proposed Project, indirect effects to birds under this alternative would be unlikely during operation of facilities because birds nesting in or near existing campus buildings and facilities would most likely be acclimated to the noise and activity associated with campus activity. Consequently, similar to the proposed Project, operational impacts on nesting birds under this alternative would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce impacts of construction on nesting birds, including raptors and other migratory bird species protected by the MBTA, to a level that is less than significant. If Mitigation Measure 7A.3-1(a) is implemented, no further mitigation measures are required. In the event that Mitigation Measure 7A.3-1(a) cannot feasibly be implemented, then implementation of Mitigation Measures 7A.3-1(b) through (e) would reduce this impact to a less-than-significant level.

Mitigation Measure 7A.3-1(a): *Avoid tree removal and commencement of outdoor construction activities during nesting season.* Tree removal or pruning associated with project construction and commencement of outdoor project construction activities shall be avoided from February 1 through August 31, the primary local bird nesting season, to the extent feasible. If no tree removal or pruning associated with project construction is proposed during the nesting period and outdoor project construction activities will commence outside the nesting period, no surveys for active bird nests are required.

Or

Mitigation Measure 7A.3-1(b): *Survey for active bird nests within 250 feet of construction sites.* If the County Planning Office determines that compliance with Mitigation Measure 7A.3-1(a) is not feasible because the timing of a construction project necessitates construction-related tree removal/pruning during the nesting season and/or commencement of outdoor construction activities during the nesting season, within seven days prior to the proposed start of construction activities an independent, qualified biologist approved by the County shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits.

Mitigation Measure 7A.3-1(c): *Minimize impacts to active bird nests.* If any active nests are detected during the pre-construction survey, an independent, qualified biologist approved by the County shall recommend a work-exclusion buffer zone that shall be designated around the active nest to allow for both the successful fledging of the birds and initiation of work on some portions of the project site. The work-exclusion zone(s) shall be reviewed and approved by the County Planning Office prior to commencement of construction. A qualified biologist shall monitor any occupied nest located within a protective buffer zone in order to determine if the designated buffer zone is effective and when the buffer zone is no longer needed. If the buffer zone is determined to be ineffective, its size shall be increased until it is effective, or work shall cease until the young have fledged and are independent of the nest.

Mitigation Measure 7A.3-1(d): *Delay activity.* If no sufficient work-exclusion zone(s) are possible, then there shall be a delay in the start of construction until the active nest is no longer occupied. A qualified biologist shall monitor any occupied nest to determine when the nest is no longer used.

Mitigation Measure 7A.3-1(e): *Remove nest starts.* A qualified biologist can visit project sites at any time prior to tree removal or the initiation of outdoor construction work in order to find and remove nest starts which do not have eggs or nestlings present. This activity will minimize impacts to birds as they will generally move elsewhere and restart their nest building process.

Significance after Mitigation: Less than Significant.

Impact 7A.3-2: Additional Housing Alternative A activities could result in adverse effects on special-status bats. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on infill and redevelopment sites, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction of individual projects under this alternative, activities such as building demolition, tree and shrub removal, grading, and new building construction could directly impact roosting special-status bats, and elevated sound levels from heavy construction equipment could cause adult bats to abandon maternity roosts. Due to the greater level of on-campus construction activity under this alternative compared to the proposed Project, there would be the potential for more disturbance to bats to occur under this alternative. Similar to the proposed Project, construction activities under this alternative could result in significant impacts to special-status bats.

As with the proposed Project, indirect effects to bats during operation of facilities under this alternative would be unlikely because bats roosting in or near existing campus facilities would be acclimated to light, noise and activity associated with campus operations. Consequently, similar to the proposed Project, operational impacts on special-status bats would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce construction impacts on special-status bats to a level that is less than significant. If Mitigation Measure 7A.3-2(a) is implemented, and no roosting bats are identified, no further mitigation measures are required. In the event that Mitigation Measure 7A.3-2(a) identifies roosting bats, then implementation of Mitigation Measures 7A.3-2(b), (c), and/or (d) would reduce this impact to a less-than-significant level.

Mitigation Measure 7A.3-2(a): Conduct pre-project survey. Prior to project construction, an independent, qualified bat biologist approved by the County shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned and structures to be demolished within the work area and within a 50-foot radius of the work area. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits. If no roosting bats are found, no further action is required. If a bat roost is found, Stanford shall implement the following measures to avoid impacts on roosting bats.

Mitigation Measure 7A.3-2(b): Evict non-maternal roosts. If a non-maternal roost of bats is found in a tree or structure to be removed or demolished as part of project construction, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity. Removal or demolition should occur no sooner than at least two nights after the initial minor site modification (to alter airflow). This action allows bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of disturbance. Departure of the bats from the construction area shall be confirmed with a follow-up survey by a qualified bat biologist prior to start of construction.

Mitigation Measure 7A.3-2(c): Avoid maternal roosting areas. If active maternity roosts are found in trees or structures that will be removed or demolished as part of project

construction, tree removal or demolition of that structure shall commence and be completed before maternity colonies form (generally before March 1) or shall not commence until after young are flying (generally after July 31). Active maternal roosts shall not be disturbed.

Mitigation Measure 7A.3-2(d): Develop and employ bat nest box plan. If special-status bats are found in trees or structures to be removed or demolished as part of project construction, Stanford shall develop and implement a Bat Nest Box Plan for the Stanford campus employing current bat nest box technology. The design and placement of nest boxes shall be reviewed by an independent, qualified bat biologist and shall be consistent with Stanford's anticipated long-term planning and development activities.

Significance after Mitigation: Less than Significant.

Impact 7A.3-3: Additional Housing Alternative A activities could result in adverse effects on the San Francisco dusky-footed woodrat. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction of individual projects under this alternative, construction activities in wooded or brushy habitats could result in direct impacts to dusky-footed woodrats. As with the proposed Project, direct impacts during construction of this alternative could include mortality of adults or young, as well as destruction of woodrat stick nests where construction takes place in the Lathrop or Lagunita Development Districts. It should be noted that none of the additional housing proposed under this alternative would be located within the Lathrop or Lagunita Development Districts; consequently, this alternative would have similar impacts to the dusky-footed woodrats in these areas as the proposed Project. Similar to the proposed Project, construction activities associated with this alternative could result in significant impacts to San Francisco dusky-footed woodrat.

As with the proposed Project, indirect impacts to dusky-footed woodrat due to increased predation caused by expanding the range of urban-adapted predators would not occur because development of new academic and academic support and residential uses within the Academic Growth Boundary would occur in an urban environment, where these predator species are already present. Similarly, this alternative would not introduce increased nighttime lighting, noise or other human disturbances in areas where such conditions do not already exist. Consequently, similar to the proposed Project, operational impacts on the dusky-footed woodrat under this alternative would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce the impacts of construction to San Francisco dusky-footed woodrats to a level that is less than significant. If Mitigation Measure 7A.3-3(a) is implemented, and no San Francisco dusky-footed woodrat nests are identified, no further mitigation measures are required. In the event that Mitigation Measure 7A.3-2(a) identifies active

nests, then implementation of Mitigation Measures 7A.3-2(b) and/or (c) would reduce this impact to a less-than-significant level.

Mitigation Measure 7A.3-3(a): Surveys. Prior to any clearing of vegetation within the Lathrop Development District, Lagunita and adjacent uplands, jurisdictional waterways/wetlands, or lands on the Project site outside the Academic Growth Boundary, an independent, qualified biologist approved by the County shall conduct a survey for San Francisco dusky-footed woodrat nests within the project area. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits.

Mitigation Measure 7A.3-3(b): Avoidance. Where feasible, an exclusion buffer of at least 10 feet from these nests shall be established and clearly demarcated to avoid moving or bumping the nests or the logs or branches on which the nests rest.

Mitigation Measure 7A.3-3(c): Mitigation. If establishing a buffer and avoiding the nests is not feasible, the nests shall be dismantled and the nesting material moved to a new location outside the project's impact areas so that it can be used by woodrats to construct new nests. Prior to nest deconstruction, each active nest shall be disturbed by a qualified wildlife biologist to the degree that all woodrats leave the nest and seek cover out of the impact area. Whether the nest is on the ground or in a tree, the nest shall be slightly disturbed (nudged) to cause the woodrats to flee. For tree nests, a tarp shall be placed below the nest and the nest dismantled using hand tools (either from the ground or from a lift). The nest material shall then be piled at the base of a nearby tree or large shrub outside of the impact area.

Significance after Mitigation: Less than Significant.

Impact 7A.3-4: Additional Housing Alternative A construction activities could result in adverse effects on special-status plant species. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Natural areas within the Academic Growth Boundary contain potentially suitable habitat for rare, threatened or endangered plant species. Similar to the proposed Project, during construction of individual projects under this alternative, construction activities such as grading and ground-disturbing activity in these locations could result in loss of rare, threatened or endangered plant species. As with the proposed Project, construction activities under this alternative could result in significant impacts to special-status plant species. Since the additional housing that would be developed under this alternative would be located primarily on infill and redevelopment sites, potential impacts on special-status plant species under this alternative would be similar to the proposed Project.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce impacts to special-status plant species to a level that is less-than-significant. If Mitigation Measure 7A.3-4(a) is implemented, and no special-status

plant species are identified, no further mitigation measures are required. In the event that Mitigation Measure 7A.3-4(a) identifies such species, then implementation of Mitigation Measures 7A.3-4(b) and/or (c) would reduce this impact to a less-than-significant level.

Mitigation Measure 7A.3-4(a): Surveys. If construction is proposed within any jurisdictional waterways/wetland areas, Lagunita basin and adjacent uplands, the Lathrop Development District, or Project site lands outside the Academic Growth Boundary, an independent, qualified biologist approved by the County shall conduct a focused survey for special-status plant species prior to ground disturbance during the late winter/early spring period when most local native plant species are flowering and most easily identified. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits. If special status plant surveying during flowering period is not possible, development within sensitive habitat areas shall be avoided unless approved by CDFW and the County Planning Office.

Mitigation Measure 7A.3-4(b): Avoidance. Construction activities shall avoid impacts to special-status plant species by establishing a buffer zone around the individuals in question. The buffer size shall be determined by an independent, qualified biologist approved by the County in order to avoid potential disturbance. The width of the buffer shall depend on a consideration of site-specific characteristics, including the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, soils, physical and chemical characteristics) and adjacent uses (e.g., sprinkler irrigation or shading from buildings or other structures). The buffer zone shall be clearly demarcated using exclusion fencing.

Mitigation Measure 7A.3-4(c): Mitigation if avoidance is not feasible. If the County Planning Office determines that establishing an avoidance buffer is not feasible, individual plants (including seeds) shall be transplanted to an area with suitable physical and biological conditions on the Project site outside of the Academic Growth Boundary and monitored and adaptively managed for five years. Transplantation may be accomplished by relocating individual plants or through seed collection and dispersal, or a combination of both, to be determined based on the species.

Significance after Mitigation: Less than Significant.

Impact 7A.3-5: Additional Housing Alternative A activities would not result in significant effects on federal and state protected species covered by the Stanford Habitat Conservation Plan. (Less than Significant)

Implementation of the Stanford Habitat Conservation Plan (HCP) satisfies the requirements of both the federal and state endangered species acts. The three species covered by the Stanford HCP and incidental take permit (ITP) are: California red-legged frog (CRLF); California tiger salamander (CTS); and San Francisco gartersnake. As is the case for the proposed Project, because Stanford is required by U.S. Fish and Wildlife Service (USFWS) to implement the HCP, impacts to Covered Species from construction and operation under this alternative would be less-than-significant. Impacts under this alternative would be similar to proposed Project impacts.

Mitigation: None required.

Impact 7A.3-6: Additional Housing Alternative A activities could result in significant effects on steelhead. (Potentially Significant)

Steelhead are found exclusively outside the Academic Growth Boundary within the San Francisquito Creek watershed. Similar to the proposed Project, while all new academic and residential development under Additional Housing Alternative A would occur within the Academic Growth Boundary, Stanford could also construct certain infrastructure improvements, as well as on-going habitat improvements and conservation projects, outside the Academic Growth Boundary under this alternative.

Similar for the proposed Project, the County approved a Special Conservation Area Plan that would protect steelhead from construction and operational activities at Stanford, including those activities that would occur under this alternative. As under the proposed Project, because construction of infrastructure, as well as on-going habitat improvement and conservation projects, could adversely affect steelhead by rendering habitat less hospitable in the short term due to increases in sediment loading and disturbance, construction activities under this alternative would have a significant impact on steelhead. Impacts under this alternative would be similar to proposed Project impacts.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would serve to further ensure that impacts to steelhead would be reduced to a level that is less-than-significant. If Mitigation Measure 7A.3-6(a) is implemented, and no work is conducted within 150 feet of top of bank of a creek, no further mitigation measures are required. In the event that implementation of Mitigation Measure 7A.3-6(a) is infeasible, then implementation of Mitigation Measures 7A.3-6(b) would reduce the significance of this impact under this alternative to a less-than-significant level.

Mitigation Measure 7A.3-6(a): Habitat avoidance. Grading or ground-disturbing activities within 150 feet of the top of bank of a creek that supports steelhead shall be avoided.

Mitigation Measure 7A.3-6(b): Protective measures. If the County Planning Office determines that avoidance of steelhead habitat is not feasible, Stanford shall obtain any required permits and approvals from federal and state wildlife agencies as well as a Streambed Alteration Agreement. Such permits and approvals shall specify the conditions under which construction activities may occur, including any applicable construction windows, installation of coffer dams or other measures necessary to protect steelhead.

Significance after Mitigation: Less than Significant.

Impact 7A.3-7: Additional Housing Alternative A activities could result in substantial loss or degradation of riparian habitat. (Potentially Significant)

Similar to the proposed Project, construction of infrastructure, habitat improvement and conservation projects under this alternative, including channel modifications and/or removal of man-made facilities and barriers to steelhead migration could occur within riparian habitat on the Project site outside of the Academic Growth Boundary. Stanford's activities in riparian areas are subject to the USFWS-approved Stanford HCP and the County-approved Special Conservation Area Plan which state that Stanford will protect habitat and use effective mitigation measures. Nevertheless, similar to the proposed Project, under this alternative, potential construction activity within riparian habitats on the Project site outside the Academic Growth Boundary could result in a significant impact to riparian habitat. Impacts under this alternative would be similar to proposed Project impacts.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would mitigate impacts to riparian habitat to less-than-significant levels. If Mitigation Measure 7A.3-7(a) is implemented, and no work is conducted within 150 feet of riparian habitat, no further mitigation measures are required. In the event that implementation of Mitigation Measure 7A.3-7(a) is infeasible, then implementation of Mitigation Measures 7A.3-7(b) would reduce the significance of this impact to a less-than-significant level.

Mitigation Measure 7A.3-7(a): Grading or ground-disturbing activities within 150 feet of riparian habitat shall be avoided.

Mitigation Measure 7A.3-7(b): If the County Planning Office determines that avoidance is not feasible, Stanford shall obtain all appropriate permits for wetland or other work within the riparian area from the Corps, USFWS, NMFS and CDFW. As specified by agency permits, any riparian habitat areas lost as a result of project development would be replaced through the creation, preservation or restoration of equivalent habitat at an appropriate mitigation ratio or through other measures that the agencies deem appropriate and approve in order to adequately mitigate the impact.

Significance after Mitigation: Less than Significant.

Impact 7A.3-8: Additional Housing Alternative A activities could result in the loss of native oak woodland habitat. (Potentially Significant)

In Santa Clara County, a decrease of 0.5-acre or more in the native oak canopy of an individual oak woodland is considered a significant impact. Similar to the proposed Project, under this alternative, potential removal of oaks within the oak woodland/savannah community as a result of development and/or infrastructure improvements in the Lathrop Development District, or necessary infrastructure improvements that may occur outside the Academic Growth Boundary, would have the potential to result in a significant direct impact to oak woodland. None of the additional housing proposed by this alternative would be located within the Lathrop Development

District or outside the Academic Growth Boundary; consequently, this alternative would have similar impacts to oak woodlands in these areas as the proposed Project.

As with the proposed Project, operational activities associated with this alternative would not be expected to result in indirect impacts to oak woodland because operations are not likely to introduce non-native plant species that outcompete native oak trees, or introduce Sudden Oak Death into the oak woodlands. Consequently, similar to the proposed Project operational impacts on native oak woodland habitat under this alternative would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project and which are modeled on the Planning Office Guide to Evaluating Oak Woodlands Impacts, would reduce impacts to oak woodlands to a level that is less-than-significant.

Mitigation Measure 7A.3-8(a): Prior to oak tree removal within the Lathrop Development District, a tree removal plan and arborist report shall be submitted which identifies the species type, acreage, diameter, and amount of canopy of oak trees proposed for removal. The arborist report shall be prepared by an I.S.A. Certified Arborist, Registered Professional Forester, or another professional approved by the County Planning Office.

Mitigation Measure 7A.3-8(b): If the proposed oak tree removal would result in a decrease of 0.5-acre or more of native oak canopy on the project site, at least two of the following three mitigation measures shall be implemented:

- 1) *Planting Replacement of Oak Trees.* Pursuant to Public Resources Code Section 21083.4, the planting of oaks shall not fulfill more than 50 percent of the mitigation requirement for the project.

Tree replacement can be dependent upon the size of the canopy of the removed trees, the number of trees to be removed, the size of trees to be removed, the type of trees to be removed, the steepness of the slope on which trees will be removed, or the amount of room on a parcel in which trees can be planted. The objective of tree planting shall be to restore former oak woodland at a ratio of 2:1 or 3:1 based on the condition of the oak woodland habitat. 2:1 restoration is recommended for medium quality oak woodland habitat, and 3:1 restoration is recommended for high quality oak woodland habitat.

The following standard mitigation ratios shall be used, unless a different ratio is applied by the Planning Office based on site-specific characteristics:

- For the removal of one small tree (5-18 inches): two 24-inch boxed trees or three 15 gallon trees.
- For the removal of 1 medium tree (18-24 inches): three 24-inch boxed trees or four 15 gallon trees.
- For the removal of a tree larger than 24 inches: four 24-inch boxed trees or five 15 gallon trees.

All tree replacement shall be with in-kind species, unless alternate species are approved by the county. A Tree Planting and Maintenance Plan shall be submitted showing species, size, spacing and location of plantings and the location and species of established vegetation. Tree plantings shall be monitored for five years following planting and a survival rate of 75% will be required. Should the planted trees fail to meet the established performance and survival criteria, Stanford shall be responsible for additional plantings and management activities necessary to ensure the long-term success of planted mitigation trees.

- 2) Conservation Easement. Protect existing native oak trees on or off the project site from future development through a conservation easement or fee title dedication to the County or a land conservation group approved by the County.

Oak woodland offered as mitigation must be configured in such a manner as to best preserve the integrity of the oak ecosystem and minimize the ratio of edge to area. Priority should be given to conserving oak habitat adjacent to existing woodlands under conservation easements, public lands or open space lands. The protection of existing oak woodlands through conservation easements shall mitigate for the loss of oaks at a ratio equal to 2:1 (for medium quality oak woodland habitat) or 3:1 (for high quality oak woodland habitat) as determined by the County Planning Office. Land proposed as mitigation, when viewed with adjacent protected conservation land, should not result in conserved parcels of less than one acre.

- 3) Other Options. If the County Planning Office determines that there are no feasible sites for oak woodland mitigation on Stanford lands, then Stanford shall submit a plan for review and approval by the County Planning Office that provides for the conservation of oak woodlands elsewhere in Santa Clara County in the same manner as 7A.3-8(b)(2).

This plan must include protection of an existing oak ecosystem through a conservation easement or fee title dedication to the County or other local agency or organization responsible for the oak woodlands preservation.

Significance after Mitigation: Less than Significant.

Impact 7A.3-9: Additional Housing Alternative A construction activities could result in substantial adverse effects on jurisdictional waters and wetlands. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, construction of new buildings and infrastructure, and on-going habitat enhancements/improvements and conservation projects under this alternative could necessitate filling or altering waters and wetlands through sediment delivery, discharge of contaminants, or interruption of hydrological flow. While, similar to the proposed Project, only a small quantity of jurisdictional waters or wetlands are located in areas upon which building development under this alternative could be constructed, infrastructure and habitat enhancement improvements could indirectly affect jurisdictional waters

and wetlands in all locations in which such features are present. As under the proposed Project, construction activities under this alternative could result in significant impacts to jurisdictional waters and wetlands. Impacts under this alternative would be similar to proposed Project impacts. The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would mitigate impacts to jurisdictional waters and wetlands to less-than-significant levels.

Mitigation Measure 7A.3-9(a): Jurisdictional waters and wetland identification.

Stanford has provided a wetland delineation that covers the lands within the Academic Growth Boundary. Prior to grading or ground-disturbing activities on lands outside the Academic Growth Boundary, the County shall determine whether the existing wetland delineation is adequate to assess the project's impacts and, if not, an independent, qualified wetland biologist approved by the County shall delineate jurisdictional waters or wetlands on and within 250 feet of the construction site.

Mitigation Measure 7A.3-9(b): Jurisdictional waters and wetlands avoidance. For all projects grading or ground-disturbing activities within 250 feet of jurisdictional waters or wetlands shall be avoided unless the County Planning Office determines that avoidance is not feasible.

Mitigation Measure 7A.3-9(c): Jurisdictional waters or wetland replacement. If the County Planning Office determines that avoidance of jurisdictional waters or wetlands is not feasible, Stanford shall obtain all appropriate permits for wetland work from the Corps or Regional Water Quality Control Board. As specified by the Corps or Regional Water Quality Control Board, any jurisdictional waters or wetlands that are filled as a result of project development shall be replaced through the creation, preservation or restoration of jurisdictional waters or wetlands or through other measures that the agencies deem appropriate through permit requirements to adequately mitigate the impact. Potential measures may include the following:

- For creek projects, remove hardscape features from the stream channel and stream banks.
- Stabilize exposed slopes or streambanks immediately upon completion of construction activities.
- To restore disturbed aquatic sites, a wetland mitigation and monitoring plan will be prepared that outlines the objectives to mitigate for construction impacts. At a minimum the plan will include thresholds of replanting success (e.g., 90 percent plant survival after one year, 80 percent second year, and 70 percent third year), monitoring requirements (e.g., at least once each year to confirm site stability, plant viability, and to schedule weeding, as needed), and shall specify resource agency reporting requirements.

Significance after Mitigation: Less than Significant.

Impact 7A.3-10: Implementation of Additional Housing Alternative A would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

Similar to the proposed Project, while construction activities associated with infrastructure improvements and on-going habitat enhancement improvements under Additional Housing Alternative A could temporarily impede wildlife movement, such improvements would not result in substantial long-term interference. Implementation of the required USFWS-approved Stanford HCP and County-approved Special Conservation Area Plan measures would ensure that impacts to movement corridors and nursery sites for fish and wildlife on Project site lands outside the Academic Growth Boundary and CTS movement corridors within the oak woodland/savannah community within the Academic Growth Boundary would be less-than-significant. Impacts under this alternative would be similar to proposed Project impacts.

Mitigation: None required.

Impact 7A.3-11: Implementation of Additional Housing Alternative A could conflict with local Santa Clara County tree preservation ordinance. (Potentially Significant)

Similar to the proposed Project, construction of academic facilities, housing units and infrastructure improvements under Additional Housing Alternative A could result in the need to remove trees that are protected by the Santa Clara County tree preservation ordinance. Notwithstanding protections provided by the County tree preservation ordinance, construction activities under this alternative could result in significant impacts to protected trees, similar to the proposed Project. More trees may potentially be impacted under this alternative compared the proposed Project because there would be more construction and larger development footprint under this alternative. The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would ensure compliance with the County's tree preservation ordinance:

Mitigation Measure 7A.3-11(a): A "tree" is defined a woody plant having a single trunk measuring at least 37.7 inches in circumference (12 inches or more in diameter) or in the case of multi-trunk trees, a trunk size of 75.4 inches in circumference (24 inches in diameter). A protected tree on the Stanford campus is a:

- heritage tree (if included on the County's heritage resource inventory adopted by resolution of the Board of Supervisors);
- a tree planted or retained as required by conditions of approval of County permits;
- and a tree located within County rights-of-way and easements.

Stanford shall not remove a protected tree unless:

1. Removal of the protected tree is authorized by a County land use approval for which a grading or building permit has been issued.

2. Removal of the protected tree is authorized by a County-issued administrative permit or encroachment permit for tree removal; or
3. Removal of the protected tree is exempt. In addition to trees removed pursuant to a County land use approval, the ordinance currently exempts removal of a protected tree in the following circumstances:
 - the tree is diseased, dead, or dying or substantially damaged from natural causes;
 - tree cutting is needed to remove a hazard to life and personal property; and
 - maintenance work within public utility easements

Mitigation Measure 7A.3-11(b): Issuance of a land use permit, administrative permit or encroachment permit that authorizes removal of a protected tree shall be conditioned as follows:

1. Protected trees shall be replaced at a ratio of 3:1 for oaks and 1:1 for other protected trees; or
2. Stanford may submit a Vegetation Management Plan for the entire campus to the County Planning Office for review and approval. This plan must provide for the same or greater level of tree protection as the measures described in Mitigation Measure 7A.3-11(b)(1).

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7A.3-12: Implementation of Additional Housing Alternative A could cumulatively cause an adverse impact to biological resources. (Potentially Significant)

Cumulative impacts analysis considers the effects of Project implementation in combination with those of proximate past, present, and reasonably foreseeable future projects, and whether the project's contribution to the cumulative impact would be significant. Stanford's lands outside the Academic Growth Boundary in unincorporated Santa Clara County are relatively isolated, covering a large area adjacent to other largely undeveloped lands, including Stanford's 1,200-acre Jasper Ridge Biological Preserve, which is maintained for research and education and closed to recreational use. On the Stanford HCP lands, which include most of the Project site as well as adjacent Stanford-owned land in the City of Palo Alto, creek restoration, invasive species removal and vegetation management activities are ongoing. These activities may cause minor disturbance to habitat areas, but the long-term impact would be beneficial to sensitive natural communities and to special status plants and wildlife.

Stanford is also considering a range of alternatives at the Searsville dam and reservoir that could provide fish passage, allow natural annual sediment load to flow downstream, create a replacement water diversion downstream, and relocate Searsville water storage functions to an expanded Felt Reservoir. Stanford acknowledges that such improvements would require comprehensive and

coordinated collaboration with federal, State and local agencies, including the San Francisquito Creek Joint Powers Authority (SFCJPA), its local government members, and local community and residents in the watershed. No specific alternative has been selected or approved at this time.

In addition, the SFCJPA is currently undergoing environmental review of a range of alternatives to address flow capacity deficiencies in San Francisquito Creek to reduce flooding potential, and enhance ecosystems and recreation. Alternatives include potential channel and/or potential bypass improvements within the creek downstream of Stanford; and constructing one or more detention basin improvements, including on Stanford lands within the Project site (e.g., Lagunita, Felt Reservoir) and outside the Project site (e.g. Searsville Reservoir and within the Jasper Preserve). No specific alternative has been selected or approved at this time.

Otherwise, urbanized areas of adjacent jurisdictions, including within Palo Alto, are adjacent to largely developed areas of the Project site (i.e., those areas within the Academic Growth Boundary). As discussed in Chapter 5.0 of the Draft EIR, Stanford is currently in the midst of constructing the remaining housing and academic and academic support facilities authorized under the 2000 General Use Permit within the Academic Growth Boundary. While the timing of construction has the potential to increase temporary impacts on biological resources from tree removal, noise disturbance, and other impacts, impacts would be limited to the immediate construction area within the Academic Growth Boundary, which has limited biological value. Additional non-Project cumulative development in adjacent jurisdictions would be expected to continue to occur over the duration of the 2018 General Use Permit and would be subject to applicable regulations and environmental review requirements of those jurisdictions.

Special Status Plants and Wildlife

As discussed above, activities under this alternative would result in potential impacts to special-status plants and wildlife. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measures 7A.3-1(a)-(e), 7A.3-2(a)-(d), 7A.3-3(a)-(c), 7A.3-4(a)-(b), and 7A.3-6(a)-(c) identified for this alternative would require plant and nesting bird, bat, and dusky-footed woodrat surveys and avoidance and minimization of potential impacts to special-status species and their habitat, including corridors; and reduction of any potentially impacts to special-status plants and wildlife to a less than significant level. Other cumulative development projects outside the Project site would also be required to comply with applicable federal and State regulations protecting special-status species through implementation of similar mitigation measures during construction by those jurisdictions. Activities associated with this alternative would cause a small amount of loss of undeveloped habitat in the area, principally within the Academic Growth Boundary. However, similar to the proposed Project, with the implementation of these measures, this alternative would not have a cumulatively considerable contribution to impacts on special status species.

Nesting Birds

As discussed above, activities under this alternative would result in potential impacts to nesting migratory birds, including special-status species. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measure 7A.3-1(a)-(b) for this alternative would require preconstruction nesting bird surveys and avoidance of known nest sites, thereby minimizing this

impact under this alternative to a less than significant level. Other cumulative projects for creek restoration, invasive species removal and vegetation management may also impact nesting birds, but would also be required to comply with applicable regulations protecting nesting birds, through implementation of similar mitigation measures during construction by those jurisdictions. Similar to the proposed Project, with the implementation of these measures, implementation of this alternative would not have a cumulatively considerable contribution to impacts on nesting birds.

Steelhead

The Project site contains a segment of San Francisquito Creek that provides habitat for steelhead. As discussed above, in addition to implementing the County Special Conservation Area Plan guidelines to minimize disturbance to steelhead, Stanford must obtain permits and approvals from applicable federal and state wildlife and water quality agencies to perform work in creeks that support steelhead; see Mitigation Measure 7A.3-6(a)-(c). These permits, including a Streambed Alteration Agreement, specify the conditions under which construction activities may occur, including construction windows, cofferdams or other measures necessary to protect steelhead. Other cumulative projects would also be required to comply with applicable federal and State regulations protecting steelhead and other fish, through implementation of similar mitigation measures during construction by those jurisdictions. Similar to the proposed Project, with the implementation of these measures, this alternative would not have a cumulatively considerable contribution to impacts on steelhead.

Wetlands, Waters and Sensitive Riparian Communities

Construction under this alternative could result in impacts to riparian habitat or jurisdictional waters of the United States and waters of the State. As discussed above, Mitigation Measures 7A.3-7(a)-(b) and 7A.3-9(a)-(c) would minimize disturbance, and mitigate for necessary disturbance to sensitive riparian areas, wetlands and waters. As with special-status species, other cumulative projects would be required to comply with applicable federal and State regulations protecting riparian habitat and jurisdictional waters by those jurisdictions. Similar to the proposed Project, the potential impacts of this alternative in combination with other projects would not contribute to a cumulatively significant impact on riparian habitat, and jurisdictional waters of the United States and waters of the State, including drainages and seasonal wetlands.

Oak Woodlands

As discussed above, construction under this alternative could result in impacts to sensitive oak woodland habitat from ongoing and future development projects. Mitigation Measures 7A.3-8(a)-(b) and 5.3.11(a)-(c) would minimize disturbance and mitigate for necessary disturbance to oak woodlands, including protected trees. Other cumulative projects outside the Project site would also be required to comply with applicable federal and State regulations protecting oak woodlands of those jurisdictions. The potential impacts of this alternative in combination with other projects would not contribute to a cumulatively significant impact on oak woodland communities.

As discussed above, all biological impacts associated with construction and operation of Additional Housing Alternative A would be mitigated to a less than significant level. There are no biological impacts of this alternative that, when considered in combination with other cumulative development, would make a considerable contribution to cumulative effects.

Mitigation: Implement Mitigation Measures 7A.3-1(a)-(b), 7A.3-2(a)-(d), 7A.3-3 (a)-(c), 7A.3-4(a)-(b), 7A.3-6(a)-(c), 7A.3-7(a)-(b), 7A.3-8(a)-(b), 7A.3-9(a)-(c), and 7A.3.11(a)-(c).

Significance after Mitigation: Less than Significant.

Cultural and Paleontological Resources

Construction and Operational Impacts

Impact 7A.4-1: Additional Housing Alternative A development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. (Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on redevelopment and infill sites. As discussed in Section 5.4, the majority of historic resources within the Academic Growth Boundary are located in the Campus Center Development District. The additional housing proposed under this alternative would be located in the East Campus Development District, within which only two eligible collegiate buildings exist; the DAPER and Administrative Development District, within which the stadium embankment is the only identified eligible collegiate property, and the Quarry and West Campus Development Districts, within which no eligible collegiate buildings are identified. Consequently, this alternative would have an incrementally greater potential than the proposed Project to result in direct, physical impacts to historic resources and infill development that could alter the setting and surrounding environment of historic resources and result in indirect impacts; both of these effects could result in significant impacts.

Implementation of **Mitigation Measures 7A.4-1(a)-(e)** identified for this alternative, which are the same as those identified for the proposed Project, would provide a formal framework for conditions protecting historic resources. Similar to the proposed Project, while it is considered unlikely that Stanford would demolish any of its historic buildings and structures within the Project site or alter them in a manner that does not comply with the Secretary of Interior Standards under this alternative, if such actions were to occur, they would result in a significant and unavoidable impact to historic resources. Pursuant to the established regulatory framework, the County would review these projects and prepare the appropriate project-specific CEQA environmental review, and if a significant impact were to be identified additional feasible mitigation for these individual projects may be identified at that time to avoid or reduce the magnitude of the significant impact. The project-specific CEQA environmental review would include an evaluation of the feasibility of preserving the historic resource.

Mitigation Measure 7A.4-1(a): The Stanford University Historic Resources Survey dated April 2017 contains an evaluation of all buildings and structures located within the Stanford Community Plan's Academic Campus land use designation that were constructed prior to 1976. Prior to 2025, Stanford shall provide to the County Planning Office for the review and approval of the County Planning Director (or designated representative) an additional survey of structures built within the Academic Campus land use designation between 1976 and 1985 ("Survey Addendum"). At its discretion, the County Planning Office may require a peer review of the Survey Addendum by a qualified professional (Architect with preservation experience or Architectural Historian) at Stanford's expense.

Mitigation Measure 7A.4-1(b): For any building project that involves demolition of an historical resource that is listed or has been identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey or Survey Addendum, a project-specific analysis of the impact to historic resources and any feasible alternatives and mitigation measures shall be prepared as part of the CEQA environmental review of the project. Consistent with the County's process the analysis of project impacts, alternatives and mitigation will be referred to the Santa Clara County Historical Heritage Commission for its recommendation prior to approval.

Mitigation Measure 7A.4-1(c): For any proposed building project that involves remodeling, alteration, or a potential physical effect on an historical resource that is listed or identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey or Survey Addendum, Stanford shall meet the following requirements:

- 1) The proposed building project shall be consistent with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995) ("Secretary of Interior's Standards"). Stanford shall submit documentation to the County prepared by a qualified professional to demonstrate consistency of the proposed project with the Secretary of the Interior's Standards. If the work to be performed constitutes basic maintenance, repair or replacement, Stanford shall mark the project plans with text stating: "Exterior work is limited to replacement of deteriorated materials with in-kind materials that match the old. Project plans have been reviewed by [Name of Architect], who has determined the work would comply with the Secretary of Interior's Standards." If the work to be performed is more extensive than basic maintenance, repair or replacement in kind, Stanford shall submit a letter along with the project plans explaining the basis for the University Architect's Office determination that the work would comply with the Secretary of Interior's Standards. The County Planning Office will review the marked plans or letter, and may require additional documentation.
- 2) The requirement that the building project must be consistent with the Secretary of the Interior's Standards shall be primarily limited to alterations to the exterior. Building interiors will be exempt from such a consistency requirement, except for interior spaces that are open to the general public on an ongoing basis. Such buildings are listed below along with their public interior spaces.

Historic Resource	Primary public space(s) subject to review (if integrity present)	Secondary space(s): no review required
Cantor Center/ Stanford Museum	Lobby and galleries on first and second floors of 1891 and 1902 wings	Restrooms, staff offices, collection storage areas, all basement areas and all spaces in 1999 addition
Memorial Church	Main sanctuary, entry vestibule, organ and choir lofts	Restrooms, offices and store rooms, all basement areas
Art Gallery	Vestibule and gallery space	Restrooms, offices and store rooms, all basement areas
Hoover Tower	Lobby, galleries, observation platform	Restrooms, offices and store rooms, all basement areas
Memorial Hall	Lobby, Pigott Theater, Auditorium	Restrooms, offices and store rooms, radio station
Frost Amphitheater	Terraces, stage	Restrooms, store rooms
Burnham Pavilion/ Ford Center	Lobby, main gym	Restrooms, locker rooms, offices, store rooms; all spaces in 1990 addition

- 3) The County Planning Office may require a peer review of the Secretary of the Interior's Standards consistency analysis by a qualified professional (Architect with preservation experience or Architectural Historian) at Stanford's expense.
- 4) If it is not feasible for the building project to be consistent with the Secretary of Interior's Standards, a project-specific analysis of the impact to historic resources and any feasible alternatives and mitigation measures shall be prepared as part of the CEQA environmental review. The analysis of impacts, alternatives and mitigation measures will be referred to the Santa Clara County Historical Heritage Commission for its recommendation prior to County approval.

Mitigation Measure 7A.4-1(d): For any building project that involves demolition, modification or significant alteration of a structure located outside of the Academic Campus land use designation that is 50 years old or more, Stanford may elect to follow the Secretary of Interior's Standards. If Stanford does not elect to follow the Secretary of Interior's Standards for such a project Stanford shall submit an assessment regarding its eligibility for listing on the California Register ("Eligibility Assessment") to the County Planning Office. If the County Planning Office determines that the building/structure is eligible for listing on the California Register, then Stanford shall comply with the provisions in Sections 2 and 3 above and the building/structure shall be treated as if it were identified as eligible for listing in the Stanford Historic Resources Survey or Addendum for purposes of those Sections. The County Planning Office may require a peer review of the Eligibility Assessment by a qualified professional (Architect or Architectural Historian) at Stanford's expense.

Mitigation Measure 7A.4-1(e): Proposed new buildings located within 75 feet of an historic resource that is identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey, Survey Addendum or Eligibility Assessment, measured from the nearest exterior walls, shall be reviewed by the University Architect to ensure that the design does not negatively impact the historic resources surrounding it. Stanford shall prepare design guidelines and submit a letter to the County Planning Office confirming that the new building construction has been reviewed by the University Architect's Office and is compatible with any historic

resources located within 75 feet of the proposed new building. The County Planning Director (or designated representative) will review the letter prior to County approval of the new building. The County Planning Office may require a peer review of the University Architect's evaluation prior to approval of the building.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.4-2: Additional Housing Alternative A development could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. Consequently, this alternative would require greater excavation of soils related to underground utilities, construction of building foundations, and in some cases, to accommodate underground levels, than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to archaeological resources compared to the proposed Project.

Similar to the proposed Project, while no individual projects and specific locations have been identified for development under this alternative, if construction were to occur within the boundaries of a recorded prehistoric archaeological site, a project-specific analysis would be required to determine whether the site constituted a unique archaeological resource according to PRC Section 21083.2 or a historical resource according to PRC Section 21084.1, and if so, whether the site would be adversely affected, thus resulting in a significant impact. Also, similar to the proposed Project, it is possible that previously unknown prehistoric archaeological sites could be unearthed during excavation or earthmoving activities for an individual project under the alternative. As under the proposed Project, this could result in a significant impact to a unique archaeological resource or a historical resource under this alternative.

Existing County policies and regulatory mechanisms provide oversight at the County level to protect significant archaeological resources within the Project site. Individual projects under this alternative that would require a County building permit or other County approval would be subject to conditions of approval that include specific requirements addressing archaeological resources within the Project site. Implementation of **Mitigation Measure 7A.4-2(a)-(b)** identified for this alternative, which is the same as that identified for the proposed Project, would provide a formal framework for conditions providing protection of archaeological resources under this alternative. Similarly, implementation of this mitigation measure for this alternative would ensure that potential impacts to prehistoric and historic-period archaeological resources on the Project site would be reduced to a less-than-significant level.

Mitigation Measure 7A.4-2(a): Stanford has provided a map to the County Planning Office, maintained as a confidential record, that shows the location of all known prehistoric and historic archaeological resources in the unincorporated Santa Clara County portion of Stanford lands. Stanford shall conduct a Record Search at the Northwest Information Center of the California Historical Resources Information System and submit an updated map each year as part of the 2018 General Use Permit annual monitoring and compliance process. This annual update will be the basis for evaluating potential impacts of future projects that include ground disturbance.

At the discretion of the County Planning Office, project-related archaeological site assessments and monitoring shall be conducted and mitigation measures identified by either the Stanford University Archaeologist or an independent archaeologist retained by the County at Stanford's expense. All archaeological reports (including, but not limited to, site assessments, monitoring reports, Archaeological Treatment Plans) shall be forwarded to the County Planning Office for review at Stanford's expense. All work shall be performed by, or under the supervision of, an archaeologist that meets the Secretary of Interior Professional Qualifications Standards in Archaeology (36 CFR 61).

Significant impacts from projects on prehistoric and historic archaeological resources shall be addressed as specified below:

1. If a building project is proposed to be situated on a mapped archaeological site, a qualified archaeologist shall conduct further project-specific analysis to determine whether a significant impact would occur. If the site is determined to be eligible and cannot be avoided, an Archaeological Resources Treatment Plan shall be prepared and approved by the County Planning Office prior to the commencement of ground disturbing activities. If a Stanford archaeologist performs this work, the County may at its discretion require a peer review by an independent qualified archaeologist at Stanford's expense. Project-specific mitigation, if necessary, shall be identified in accordance with the provisions of Section 21083.2 of the Public Resources Code.
2. In the event that previously unidentified historic or prehistoric archaeological resources are discovered during construction, the contractor shall cease work in the immediate area and the County Planning Office and University Archaeologist shall be contacted immediately. The University Archaeologist shall provide and implement a proposed Archaeological Resources Treatment Plan. At the discretion of the County Planning Director (or designated representative) an independent qualified archaeologist may be retained by the County at the expense of Stanford to assess the significance of the find and the adequacy of the proposed Archaeological Resources Treatment Plan.
3. Archaeological monitoring shall be conducted at any time construction-related ground-disturbing activities (greater than 12 inches in depth) are taking place within 100 feet of known archaeological resources. A technical report including the results of all monitoring activities shall be prepared once monitoring is completed in accordance with professional standards and submitted to the University Archaeologist. The archaeological monitoring shall be conducted or supervised by an individual meeting the Secretary of Interior Professional Qualifications Standards in Archaeology (36 CFR 61).

Mitigation Measure 7A.4-2(b): In the event that human skeletal remains are encountered, Stanford is required by County Ordinance No. B6-18 to immediately notify the County Coroner. Work shall immediately stop within a 100-foot radius of the find. If the County Coroner determines that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to Health and Safety Code Section 7050.5(c), and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coroner. If artifacts are found in association with the human skeletal remains no further disturbance of the artifacts may be made until authorized by the County Planning Office. It is the responsibility of Stanford to provide for reburial of the human skeletal remains and associated artifacts following completion of the required Native American consultation process described Health and Safety Code section 7050.5 (c); Stanford will file a State Record Form (DPR Series) documenting the reburial location with the California Historical Resources Information System and provide the location on the updated map provided for in Section 3 above.

Significance after Mitigation: Less than Significant.

Impact 7A.4-3: Additional Housing Alternative A development could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to paleontological resources during construction compared to the proposed Project.

Similar to the proposed Project, if excavation related to construction of development on the Project site under this alternative would uncover additional paleontological resources, this impact would be considered significant.

Existing County policies and regulatory mechanisms provide oversight at the County level to protect significant paleontological resources within the Project site. Individual projects under this alternative that would require a County building permit or other County approval would be subject to conditions of approval that include specific requirements addressing paleontological resources within the Project site. Implementation of **Mitigation Measure 7A.4-3** identified for this alternative, which are the same as those identified for the proposed Project, provides a formal framework for conditions providing protection of paleontological resources. Implementation of this mitigation measure would ensure that potential impacts to prehistoric and historic-period paleontological resources on the Project site for this alternative would be reduced to a less-than-significant level.

Mitigation Measure 7A.4-3: In the event that potentially significant fossilized shell or bone is uncovered during any earth-disturbing operation, contractors shall stop work within 100 feet of the find and notify the University Archaeologist and the County Building Inspector assigned to the project. The University Archaeologist shall visit the site and make recommendations for treatment of the find (including but not limited to consultation with a paleontologist and excavation, if warranted), which shall be sent to the County Building Inspection Office and the County Planning Office. If a fossil find is confirmed, it will be recorded with the United States Geological Survey and curated in an appropriate repository.

Significance after Mitigation: Less than Significant.

Impact 7A.4-4: Additional Housing Alternative A development could disturb human remains, including those interred outside of dedicated cemeteries. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to undiscovered human remains during construction compared to the proposed Project.

Although unlikely, there is the possibility that human remains, including those interred outside of dedicated cemeteries, could be encountered during ground-disturbing activities associated with new development under this alternative. As with the proposed Project, this impact would be considered significant for this alternative.

In the event that human skeletal remains are discovered during construction, implementation of **Mitigation Measure 7A.4-2(b)** identified for this alternative, which is the same as that identified for the proposed Project, as described under Impact 7A.4-2, requires the contractor to cease work within 100 feet and notify the County coroner. If the coroner determines that the bones are Native American, the coroner shall contact the California Native American Heritage Commission. Implementation of this mitigation measure for this alternative would ensure potential impacts to human remains would be reduced to a less-than-significant level.

Mitigation: Implement Mitigation Measure 7A.4-2(b).

Significance after Mitigation: Less than Significant.

Impact 7A.4-5: Additional Housing Alternative A development could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. (Potentially Significant)

Based on the results of the NAHC Sacred Lands File search, there are no documented tribal cultural resources on the Project site. However, there are numerous prehistoric archaeological sites on the Project site, many of which may be considered tribal cultural resources. Similar to the proposed Project, potential impacts to archaeological sites that are considered tribal cultural resources as a result of development under this alternative would be considered significant.

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative would have a greater potential to result in impacts to tribal cultural resources during construction compared to the proposed Project.

As discussed in Impact 7A.4-2 above, **Mitigation Measure 7A.4-2(a)** identified for this alternative requires that if a project is proposed within 100 feet of the location of a recorded archaeological site, at the discretion of the County Planning Office, further site-specific analysis shall be conducted to determine whether a significant impact would occur and to identify appropriate mitigation. The mitigation measure also requires archaeological monitoring for ground-disturbing activities (greater than 12 inches in depth) would take place in the immediate vicinity of known archaeological resources. Additionally, in the event that a previously unidentified prehistoric archaeological resource is discovered during construction, Mitigation Measure 7A.4-2(b) requires the contractor to cease work within 100 feet and contact the County Planning Office and University Archaeologist, and in the event that human skeletal remains are encountered, notify the County Coroner. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measure 7A.4-2 for this alternative would ensure potential impacts to tribal cultural resources would be reduced to a less-than-significant level.

Mitigation: Implement Mitigation Measure 7A.4-2(a)-(b).

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7A.4-6: Additional Housing Alternative A development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments, could contribute considerably to significant cumulative adverse changes in the significance of historical resources. (Potentially Significant)

The geographic scope for cumulative effects on historical resources includes unincorporated Santa Clara County, as well as the Stanford lands in unincorporated San Mateo County, the cities of Palo Alto and Menlo Park, and towns of Portola Valley and Woodside. Similar to the proposed Project, the potential impacts under this alternative when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on historic resources. A cumulatively considerable (significant) effect would occur if this alternative affected the same type of resource as one or more cumulative projects.

Similar to mitigation identified for the proposed Project, compliance with Mitigation Measure 7A.4-1(a)-(e) for this alternative would require a protocol for the identification and protection of historic buildings and structures within the Project site and would generally reduce impacts to these types of resources as a category to the extent feasible. Similarly, cumulative projects located outside of the Project site that involve historic resources, would be subject to applicable regulations and environmental review requirements of those jurisdictions. While these regulations, processes, and conditions reduce impacts to historic resources both on the Stanford lands and in Santa Clara County as a whole, demolition of historic resources would not be prohibited; therefore, the cumulative impact for this alternative, similar to the proposed Project, would be significant and unavoidable.

Mitigation: Implement Mitigation Measure 7A.4-1(a)-(e).

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.4-7: Ground-disturbing activities undertaken as part of the Additional Housing Alternative A could cumulatively cause a substantial adverse change in the significance of an archaeological resource, paleontological resource, or tribal cultural resource, or disturb human remains during construction. (Potentially Significant)

The geographic scope for cumulative effects on cultural and paleontological resources includes the unincorporated Santa Clara County, as well as the Stanford lands in unincorporated San Mateo County, the cities of Palo Alto and Menlo Park, and the towns of Portola Valley and Woodside. The cumulative analysis combines archaeological resources, paleontological resources, tribal cultural resources, and human remains into a single, non-renewable resource base and considers the additive effect of potential project impacts to significant regional impacts on cultural resources. Similar to the proposed Project, the potential impacts under this alternative when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on cultural resources. A cumulatively considerable effect would occur if the Project affected the same type of resource as one or more cumulative

projects. Impacts to archeological resources, tribal cultural resources, paleontological resources, and human remains interred outside of dedicated cemeteries would be mitigated to a less-than-significant level with compliance with **Mitigation Measure 7A.4-2(a)-(b)** and **Mitigation Measure 7A.4-3**, which would require implementation of protocol to follow in the event of a discovery and the appropriate treatment of human remains as well as site-specific studies and monitoring in locations of previously recorded sites. Similarly, cumulative projects located outside of the Project site that involve archeological resources, tribal cultural resources, paleontological resources, and human remains interred outside of dedicated cemeteries, would be subject to applicable regulations and environmental review requirements of those jurisdictions. Therefore, similar to the proposed Project with implementation of Mitigation Measure 7A.4-2 and Mitigation Measure 7A.4-3, this alternative's contribution to cumulative impacts would not be considerable, and the impact would be less than significant.

Mitigation: Implement Mitigation Measure 7A.4-2(a)-(b) and Mitigation Measure 7A.4-3.

Significance after Mitigation: Less than Significant.

Energy Conservation²⁵

Construction and Operational Impacts

Impact 7A.5-1: Additional Housing Alternative A development would not result in the use of fuel, water, or energy in wasteful or inefficient manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect. (Less than Significant)

Additional Housing Alternative A would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the proposed Project, which would result in a net increase in energy use compared to the proposed Project.

Similar to the proposed Project, each of the six potential impact areas identified for Appendix F of the CEQA Guidelines are assessed for Additional Housing Alternative A with respect to energy use.

Appendix F.1: Energy Requirements and Energy Use Efficiencies of Additional Housing Alternative A

Similar to the proposed Project, energy consumption under Additional Housing Alternative A would be associated with electricity and natural gas use for operations, fuel consumption for mobile sources and emergency generator use, as well as energy consumption for construction activities. **Table 7A.5-1** presents the total energy demand in 2035 that would occur in the study

²⁵ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives energy analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-ENE included in this document.

area with implementation of Additional Housing Alternative A, and the net change in energy demand as compared to the 2018 environmental baseline.

TABLE 7A.5-1
NET CHANGE IN ENERGY CONSUMPTION UNDER PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE A

Energy Sector	Energy Demand in 2018 Baseline (MMBtu)	Total Energy Demand in 2035 with Proposed Project	Net Change in Energy Demand in Proposed Project compared to 2018 Baseline (MMBtu)	Total Energy Demand in 2035 with Buildout of Additional Housing Alternative A (MMBtu)	Net Change in Energy Demand Additional Housing Alternative A compared to 2018 Baseline (MMBtu)
Electricity	1,095,088	1,355,768	+260,680	1,386,598	+291,510
Natural Gas	577,799	718,441	+140,641	747,236	+169,437
Mobile Gasoline Consumption	673,769	528,237	-145,531	623,969	-49,800
Mobile Diesel Consumption	63,490	22,687	-40,803	28,437	-35,053
Stationary Fuel Consumption	5,042	6,157	+1,115	6,157	+1,115
Construction Activities	5,240	5,240	0	8,901	+ 3,661
Total	2,420,428	2,636,532	+216,104	2,801,297	+380,869

NOTES:

MMBtu = million British Thermal Units

SOURCE: Ramboll, 2018 (see Appendix ALT-ENE)

As can be seen from Table 7A.5-1, due to additional development and growth under Additional Housing Alternative A, demand for electricity and natural gas under this alternative would increase as compared to the 2018 baseline. Table 7A.5-1 also shows that demand for gasoline and diesel would decrease under Additional Housing Alternative A as compared to the 2018 baseline. Similar to the proposed Project, this is due to implementation of Stanford's alternative transportation programs, TDM program, and electric vehicle initiatives that would occur under this alternative; as well as from reasonable assumptions about increasing fuel efficiency of vehicles based on established State and federal regulatory standards.

Overall energy demand in 2035 with buildout of Additional Housing Alternative A is projected to increase approximately 16 percent over the 2018 baseline, although fuel consumption would be reduced as a result of the electrification of bus fleets. Energy demand in 2035 with buildout of Additional Housing Alternative A would also be approximately 6 percent greater than Project conditions in 2035 due to the additional energy and fuel demand generated by the additional on-campus residential units.

However, as shown in **Table 7A.5-2**, the per capita energy demand under Additional Housing Alternative A would decrease, indicative of an overall improvement in energy efficiency compared to baseline conditions. Additional Housing Alternative A would also have a slightly

lower per capita energy demand (37.3 MMBtu/service population) than the per capita energy demand of the proposed Project (38.3 MMBtu/service population) that results from the additional population serviced occupying the additional on-campus residential units. Similar to the proposed Project, the decrease in per capita energy demand under Additional Housing Alternative A compared to 2018 baseline conditions demonstrates that energy use efficiencies would increase under Additional Housing Alternative A, and resulting energy use from implementation would not be wasteful or inefficient.

TABLE 7A.5-2
NET CHANGE IN PER CAPITA ENERGY CONSUMPTION UNDER PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE A

Inventory Year	MMBtu Equivalents	Service Population	MMBtu/ Service Population
2018 Baseline	2,420,428	53,268	45.4
2035 with Buildout of Proposed Project	2,636,532	68,781	38.3
2035 with Buildout of Additional Housing Alternative A	2,801,297	75,078	37.3

NOTES:

MMBtu = million British Thermal Units

SOURCE: Ramboll, 2018 (see Appendix ALT-ENE)

Appendix F.2: The Effects of Additional Housing Alternative A on Local and Regional Energy Supplies and on Requirements for Additional Capacity

Similar to the proposed Project, use of the local and regional energy supply under Additional Housing Alternative A would be efficient as a result of use of renewable energy, energy efficiency standards, and the continued operation of the Stanford's CEF and implementation of the SESI program. Additionally, as under the proposed Project, while Stanford's proposed electrification of all Marguerite buses and 70 percent of its LBRE and Bonair vehicle fleets by 2035 would result in a small increase in calculated total electricity usage, the incremental electricity increase under this alternative would be more than offset by the associated decrease in diesel fuel consumption as shown in Table 7A.5-1. In addition, continued operation of the Stanford Solar Generating Station in Kern County and on-campus rooftop solar panels would provide campus electricity by renewable sources.

Over 98 percent of Stanford's electrical demand that is not met by the Solar Generating Station and on-campus rooftop solar panels is provided by a direct access provider which Stanford would, similar to the proposed Project, have the discretion to change throughout implementation of Additional Housing Alternative A. Electrical service providers including PG&E actively plan for anticipated increases in peak demand and actively plan to offset growth in peak demands by encouraging and deploying energy efficiency and conservation measures within their service area. Given that there are approximately 6,000 megawatts of pending power plant projects in the state, similar to the proposed Project, Additional Housing Alternative A's increase in electrical demand

would not have a substantial impact on the local or regional electrical supplies or require additional capacity to be constructed.

As shown in Table 7A.5-1, under Additional Housing Alternative A, the annual natural gas consumption in the study area in 2035 is estimated to increase by approximately 169,437 MMBtu over the 2018 baseline (and an increase of 28,795 MMBtu over the proposed Project). However, it is projected that natural gas demand in California will decrease in 2030 to 2.23 trillion Btu/yr. Ninety percent of the State's natural gas is imported from the Rocky Mountain region, the Southwest, and Canadian basins. The United States produces 20 trillion cubic feet per year and had 340 trillion cubic feet of proven reserves in 2014. Similar to the proposed Project, Stanford's natural gas consumption under Additional Housing Alternative A would not be substantial in comparison to the national natural gas reserves and would comprises only 0.003 percent of annual national natural gas production. Consequently, given the ample regional natural gas supplies available, Additional Housing Alternative A, similar to the proposed Project, would not have a significant impact on local or regional natural gas supply or require additional capacity to be constructed.

Gasoline and diesel are provided by California's transportation fuel supplier network. As shown in Table 7A.2-1, implementation of Additional Housing Alternative A would result in a reduction of gasoline and diesel demand compared to the 2018 baseline. The total net reduction in fuel use under Additional Housing Alternative A (-84,853 MMBtu) would be less than that under the proposed Project (-186,334MMBtu), however, due largely to a greater mobile gasoline use under this alternative. Regardless, similar to the proposed Project, Additional Housing Alternative A would not adversely affect local or regional supply of these fuels. As under the proposed Project, overall, Additional Housing Alternative A would not have a substantial impact on the local or regional energy supplies or require additional capacity to be constructed.

Appendix F.3: The Effects of Additional Housing Alternative A on Peak and Base Period Demands for Electricity and Other Forms of Energy

Stanford's SESI program was designed to increase its energy efficiency and allow the CEF to meet both peak and base demand for heating and cooling. Specific features of the new CEF allow for renewable or sustainable options for meeting peak demand. Stanford's procurement of substantial amounts of renewable energy, including the new 73 MW off-site Kern County solar plant and the 4.9 MW of on-site rooftop solar panels, would help meet peak electricity demands on campus. Specifically, the off-site solar plant would meet Stanford's peak electricity demand of 42 MW. This generation of new renewable energy would reduce the strain on electricity production by reducing the demand for the grid resources, particularly during peak times when energy demand is the highest. Although Additional Housing Alternative A would increase electricity demand compared to the proposed Project, based on the availability of these resources, as with the proposed Project, Additional Housing Alternative A effects on peak and base period demands for electricity would not result in wasteful or inefficient use of energy, or require additional capacity to be constructed.

Appendix F.4: The Degree to which Additional Housing Alternative A Complies with Existing Energy Standards

As under the proposed Project, during implementation of Additional Housing Alternative A, Stanford would be required to adhere to applicable federal and State standards designed to minimize use of fuel in construction vehicles and ensure that buildings employ required energy efficiency techniques.

Stanford new building construction is subject to California's Title 24, which reduces energy use in residential and commercial buildings through progressive updates to both the Green Building Standards Code (Title 24, Part 11) and the Energy Efficiency Standards (Title 24, Part 6). Provisions added over the years include consideration and possible incorporation of new energy efficiency technologies and methods for building features such as space conditioning, water heating, and lighting, as well as construction waste diversion goals. Additionally, some standards focus on larger energy saving concepts such as reducing loads at peak periods and seasons, improving the quality of energy-saving installations, and performing energy system inspections. Development projects under the 2000 General Use Permit have often exceeded Title 24 requirements in construction and operation of new buildings.

With respect to transportation energy, existing energy standards are promulgated either through the regulation of fuel refineries and products, such as the low carbon fuel standard, or through light-duty vehicle greenhouse gas emissions standards and corporate average fuel economy standards established by USEPA. Further, construction projects at Stanford would comply with State requirements designed to minimize idling and associated emissions, which also minimizes use of fuel.

Appendix F.5: The Effects of Additional Housing Alternative A on Energy Resources

See the discussion above under Appendix F.2: The Effects of the Project on Local and Regional Energy Supplies and on Requirements for Additional Capacity.

Appendix F.6: The Projected Transportation Energy Use Requirements and Overall Use of Efficient Transportation Alternatives under Additional Housing Alternative A

As described further in the analysis of VMT presented in Transportation and Traffic, the per resident and per worker VMT generation under Additional Housing Alternative A, although higher than the proposed Project, would be substantially lower than the regional and countywide averages. The VMT rates would be supported by Stanford's TDM program and the ability for residents to commute to work or class without using personal vehicles due to the density of public transit near and on the campus. In addition, on-campus housing for faculty and students would lower commuting VMT. Lower VMT results in lower mobile fuel use per worker and per resident than the regionwide and countywide average.

Stanford's existing alternative transportation programs have resulted in the percentage of sustainable commuters (commuters traveling in modes other than single occupancy vehicles) at Stanford to increase from 31 percent in 2002 to 51 percent in 2016. The use of transit passes, bicycling, rideshares, and other alternative modes of transportation, demonstrate the efficient use of transportation systems at Stanford.

Although Additional Housing Alternative A's total VMT and consumption of mobile fuels is higher than the proposed Project's, Stanford's TDM measures and commute options that are currently in-place, including, but not limited to, Marguerite shuttle system, use of transit subsidies, Stanford's Commute Club and use of electric vehicles represent efficient transportation alternatives that would be utilized under Additional Housing Alternative A, similar to the proposed Project.

Conclusion

Overall energy demand in 2035 with buildout of Additional Housing Alternative A is projected to increase approximately 16 percent over the 2018 baseline (and approximately 6 percent greater than Project conditions in 2035). Electricity and natural gas demands would be higher than the proposed Project's, while the decrease in mobile fuels demand would be lesser than under the proposed Project. As shown in Table 7A.5-2, similar to the proposed Project, the per capita energy demand under Additional Housing Alternative A would decrease, indicative of an overall improvement in energy efficiency compared to baseline conditions. As under the proposed Project, the decrease in per capita energy demand under Additional Housing Alternative A demonstrates that energy use efficiencies would increase under this alternative, and resulting energy use from implementation of the alternative would not be wasteful or inefficient. Further, similar to the proposed Project, Additional Housing Alternative A would not have a substantial impact on the local or regional energy supplies or require additional capacity to be constructed.

Similar to the proposed Project, based on an evaluation of issues identified in CEQA Appendix F, Additional Housing Alternative A would not result in wasteful or inefficient consumption of fuel or energy, and would not create demand on local and regional energy supplies that would require additional energy generation or transmission capacity. This impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7A.5-2: Additional Housing Alternative A development, in conjunction with other cumulative development and growth, would not contribute to cumulative increases in demand for energy which would result in the use of large amounts of fuel, water, or energy, or use these in wasteful manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect. (Less than Significant)

Electricity

Stanford is procuring the vast majority of electricity from Calpine through the direct access program. Calpine is one of many direct access electricity providers in the state and Stanford has the discretion to change providers over the implementation of the 2018 General Use Permit or Additional Housing Alternative A.

Continued growth throughout California's service areas could contribute to ongoing increases in demand for electricity. These anticipated increases would be countered, in part, by ongoing increases in national, statewide, and local requirements and incentives to support construction or retrofit of buildings with increased energy efficiency. Overall state-wide electricity supply during most conditions is adequate to meet demand. However, as demand continues to increase, temporary shortfalls could occur on portions of the statewide grid during temporary periods of high peak demand. Electricity providers such as Calpine and PG&E are actively planning for anticipated increases in peak demand through 2050. Given that California ranked first in electricity production from both solar and geothermal energy, and that there are approximately 6,000 megawatts of pending power plant projects in the state, similar to the proposed Project, development under Additional Housing Alternative A would not constitute a cumulatively considerable impact on the primary regional electricity distributors or sources.

Natural Gas

With respect to natural gas, PG&E sources natural gas from a combination of producers and suppliers located in Canada and the U.S. Southwest. The utility maintains contracts with producers and suppliers over daily, monthly, and longer term agreements. PG&E also maintains gas storage facilities and a network of conveyance and distribution pipelines within its service area. In order to address future increases in demand, PG&E maintains an active planning process to identify and deploy additional conservation measures to minimize increases in demand, to secure continued natural gas supply, and to maintain sufficient distribution system capacity within its service area. The latest California Gas Report indicates that predicted demand for Northern California during a high demand wintertime scenario in 2035 of 2,463 MMCF per day will be 79 percent of available capacity. Similar to the proposed Project, existing and planned infrastructure is anticipated to be sufficient to maintain service to Additional Housing Alternative A and other cumulative scenario projects. Therefore, cumulative scenario impact on natural gas supply would not be cumulatively considerable.

Transportation Fuel

The cumulative context of transportation fuels involves both construction activities, which is predominantly a demand for diesel fuel; as well as operational demand, which is predominantly a demand for gasoline. Base gasoline demand dropped by about 13 percent between 2003 and 2013 and base diesel fuel demand remain unchanged between 2003 and 2013. Future statewide increases in gasoline demand associated with growth will likely continue to be offset by improvements to the vehicle fleet and programs such as low carbon fuel standard. As shown in Table 7A.5-1, implementation of Additional Housing Alternative A would, similar to the proposed Project, result in a net decrease in gasoline and diesel demand. Consequently, as under the proposed Project, Additional Housing Alternative A would not have a cumulatively considerable contribution to the demand for transportation fuels.

Mitigation: None required.

Geology and Soils

Construction Impacts

Impact 7A.6-1: Additional Housing Alternative A construction would not result in substantial soil erosion or loss of topsoil. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in correspondingly greater disturbance of soils formerly protected with vegetation or covered by asphalt or concrete that could be exposed to winds and water flows that result in soil erosion or the loss of topsoil.

As under the Project, individual projects developed under this alternative would be required to implement construction best management practices (BMPs), as detailed in the Storm Water Pollution Prevention Plan (SWPPP) as required by the Construction General Permit from the National Pollution Discharge Elimination System (NPDES) program, which provide a benefit of preventing soil erosion and loss of topsoil at construction sites. Thus, with adherence to the required BMPs, potential construction-related erosion effects would be minimized.

As under the Project, following completion of construction activities for individual projects under this alternative, disturbed areas would be either revegetated through landscaping or covered by impervious surfaces such as structures or asphalt which limits the potential for erosion. Thus, construction activities that would occur under the alternative would result in less-than-significant soil erosion impacts.

Mitigation: None required.

Operational Impacts

Impact 7A.6-2: Additional Housing Alternative A development would not expose people or structures to substantial adverse effects from ground shaking. (Less than Significant)

Additional Housing Alternative A would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more people and structures on the campus to potential effects of earthquake groundshaking. As with the proposed Project, as part of the County's approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all requirements of the California Building Code (CBC), the County Geologist, the County Building Inspection Office, the Stock Farm Monocline Agreement, and any other agreements defined during the term of the use permit under this alternative with regard to reduction of seismic risk. Similar to the proposed Project, site-specific geotechnical investigations for each project developed under this alternative, as required by the CBC, County

and Stanford would be prepared for, and reviewed and approved by, the County Planning and Development Department prior to issuance of a building permit, ensuring that seismic design requirements are incorporated into construction specifications. As under the proposed Project, compliance with the building safety design standards of the CBC, the County and Stanford would reduce potential impacts associated with ground shaking in projects developed under this alternative to a less-than-significant level.

Mitigation: None required.

Impact 7A.6-3: Additional Housing Alternative A development would not expose people or structures to potential substantial adverse effects associated with liquefaction or lateral spreading, including the risk of loss, injury or death, in the event of a major earthquake on one of the regional active faults. (Less than Significant)

Additional Housing Alternative A would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more residential population and structures on the campus to potential effects of liquefaction or lateral spreading in the event of a major earthquake. Under this alternative, additional housing would be developed in certain development districts - West Campus, DAPER and Administrative and Quarry Development Districts – that contain areas identified as being moderately susceptible to liquefaction; the East Campus Development District is identified as having a low susceptibility to liquefaction. Similar to the proposed Project, adherence to building code requirements using geotechnical design measures outlined in the final design level geotechnical report prepared for individual projects under this alternative, and approved by the County, would minimize the potential for effects related to liquefaction and lateral spreading. As with the proposed Project, implementation of these building code requirements and geotechnical measures for individual projects developed under this alternative would ensure that seismically-induced ground failure, including liquefaction and lateral spreading, would be a less than significant impact.

Mitigation: None required.

Impact 7A.6-4: Additional Housing Alternative A development would not expose people or structures to potential substantial adverse effects associated with landslides, including the risk of loss, injury or death, in the event of a major earthquake on one of the other regional active faults. (Less than Significant)

Additional Housing Alternative A would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more residential population and structures on the campus to potential effects of landslides in the event of a major earthquake. However, additional on-campus housing that would be developed under this alternative would not be located in areas of the Project site

identified by CGS as being highly susceptible to seismically induced landslides; or susceptible to slope instability. In any case, similar to the proposed Project, compliance of individual projects under this alternative with applicable building safety design standards would reduce potential impacts associated with seismically induced landslides to a less-than-significant level.

Mitigation: None required.

Impact 7A.6-5: Additional Housing Alternative A development would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in correspondingly greater disturbance of soils and/or the loss of topsoil than the proposed Project. As discussed in Impact 7A.6-1, above, similar to the proposed Project, with implementation of construction BMPs included in the SWPPP as required by the Construction General Permit from the NPDES program, potential construction-related erosion effects associated with new development under this alternative would be minimized. As with the proposed Project, following construction, each project that would be developed under this alternative would be required to implement post-construction BMPs that include erosion control measures. Thus, as with the proposed Project, operation of the new development under this alternative would not result in substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

Mitigation: None required.

Impact 7A.6-6: Additional Housing Alternative A development would not result in substantial adverse effects from on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse as a result of being located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project development. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than would occur under the proposed 2018 General Use Permit. As a result, this alternative would have a greater potential than the proposed Project to be subject to effects from new development being located on an unstable geologic units or soils. As discussed in Impact 7A.6-3, above, certain development districts the proposed additional housing would be developed in - West Campus, DAPER and Administrative and Quarry Development Districts – contain areas identified as being moderately susceptible to liquefaction. However, as discussed in Impact 7A.6-4 above, none of the development districts in which additional on-campus housing would be developed are identified by CGS as being highly susceptible to seismically induced landslides; or susceptible to slope instability. As with the proposed Project, under this alternative, the potential for unstable soils to be present at the Project site would depend on site specific

conditions and the scope of proposed improvements which would be evaluated as part of the required geotechnical investigations for individual projects. Site preparation measures would be recommended in a geotechnical report and incorporated into site design in accordance with building code requirements, and approved by the County. Therefore, similar to the proposed Project, with adherence to building code requirements, the potential for unstable soils to adversely affect new development under this alternative would be reduced to a less-than-significant level.

Mitigation: None required.

Impact 7A.6-7: Development under the Additional Housing Alternative A would not be located on expansive soils that would create substantial risks to life or property. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than would occur under the proposed 2018 General Use Permit. As a result, this alternative would have a greater potential than the proposed Project to for new development to be located on expansive soils. As under the proposed Project, as a requirement of the CBC, any development under this alternative would be required to complete a final geotechnical investigation that includes site-specific recommendations for the mitigation of potentially expansive soils. As under the proposed Project, geotechnical investigation and analysis of underlying soils would inform the recommended structural design of individual building projects under this alternative. Therefore, similar to the proposed Project, implementation of standard geotechnical engineering practices and adherence to building code requirements under this alternative would identify and reduce potential impacts from expansive soils on new development to a less-than-significant level.

Mitigation: None required.

Cumulative Impacts

Impact 7A.6-8: Development facilitated by the Additional Housing Alternative A, combined with past, present, and reasonably foreseeable probable projects, would not result in substantial adverse cumulative impacts to geology, soils, or seismic hazards. (Less than Significant)

The geographic scope of potential geology and soils impacts is restricted to the Project site and immediate vicinity because related risks are relatively localized or even site-specific. Accordingly, potential seismic related hazards, including groundshaking and earthquake-induced liquefaction and landslides, would not be considered cumulative in nature. Similarly, other potential geologic hazards such as unstable soils, expansive soils, and slope stability would also be localized or site-specific, and as a result, would not be cumulative in nature.

As under the proposed 2018 General Use Permit, for individual projects under Additional Housing Alternative A, construction activities at the Project site, similar to other cumulative development greater than one acre in size, would be required to comply with the NPDES Construction General Permit, which contain erosion control requirements that would minimize the potential for erosion. The NPDES program requires the preparation and implementation of SWPPPs for construction activities that include BMPs that ensure erosion control measures are included during construction. The individual projects under this alternative would be required to comply with these regulations, as would other cumulative development. Similarly, individual projects under this alternative would be required to implement post-construction BMPs that include erosion control measures, as would other cumulative development. Therefore, similar to the proposed Project, this alternative, in conjunction with other nearby cumulative development would not have a cumulatively significant impact associated with erosion.

Mitigation: None required.

Greenhouse Gas Emissions²⁶

Impact 7A.7-1: Additional Housing Alternative A would not generate greenhouse gas emissions, either directly or indirectly, that would have a cumulatively considerable contribution to global climate change. (Less than Significant)

Additional Housing Alternative A would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the proposed Project, which would result in a net increase in greenhouse gas emissions compared to the proposed Project.

Similar to the GHG Impact analysis conducted for the proposed Project, an evaluation was conducted of the emissions inventory for the complete buildout of the development allowed in the study area under Additional Housing Alternative A. GHG operational emissions include electricity use, natural gas use, mobile sources, emergency generator use, solid waste, and water supply and wastewater; as well as GHG emissions from construction activities.

The total estimated GHG emissions in 2035 in the study area with buildout of Additional Housing Alternative A are presented in **Table 7A.7-1**, below. Development and growth under Additional Housing Alternative A would emit total GHG emissions of approximately 137,295 MTCO₂e per year in 2035 (11,883 MTCO₂e per year more than the proposed Project in 2035). The dominant GHG emissions sources would be almost evenly distributed between transportation, electricity imported to campus, and natural gas which contribute 37 percent, 28 percent, and 29 percent of the total inventory, respectively. This GHG emission rate is an approximate 9 percent increase over both the 2018 baseline emissions as well as the emissions under the proposed Project.

²⁶ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing GHG emissions analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-GHG included in this document.

TABLE 7A.7-1
TOTAL GHG EMISSIONS IN 2035 WITH BUILDOUT OF PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE A

GHG Source	GHG Emissions under the Proposed Project (metric tons CO ₂ e per year)	GHG Emissions under Additional Housing Alternative A (metric tons CO ₂ e per year)
Electricity		
PG&E Commercial	27	27
PG&E Searsville/Olmstead	37	37
New Faculty/Staff Housing	279	1,468
Direct Access	454	454
Imported to Campus and CEF	35,628	35,677
Non-Stanford Commercial	419	419
Subtotal	36,844	38,082
Natural Gas		
PG&E Residential	4,281	4,333
PG&E Commercial	20,559	20,559
PG&E Searsville/Olmstead	71	71
New Faculty/Staff Housing	347	1,823
Hot Water Generators	7,104	7,104
Replacement Process Steam Plant	5,770	5,770
Subtotal	38,131	39,659
Mobile Sources		
Worker Trips	15,524	14,506
Resident Trips	14,222	22,763
Campus Vehicles On-road	1,170	1,170
Campus Vehicles Off-road	235	235
Other Trips	11,767	11,894
Subtotal	42,919	50,569
Emergency Generators		
Subtotal	444	444
Solid Waste		
Subtotal	5,286	6,145
Water Transport and Treatment		
Domestic Water Use	320	413
Wastewater Treatment	121	156
Direct Wastewater Emissions	633	818
Subtotal	1,074	1,387
Miscellaneous Sources		
On-Campus Research and Fire Suppression	294	294
Construction Equipment	420	713
Subtotal	714	1,007

TABLE 7A.7-1 (CONTINUED)
TOTAL GHG EMISSIONS IN 2035 WITH BUILDOUT OF PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE A

GHG Source	GHG Emissions under the Proposed Project (metric tons CO ₂ e per year)	GHG Emissions under Additional Housing Alternative A (metric tons CO ₂ e per year)
Total GHG Emissions 2035 with Buildout of Additional Housing Alternative A	125,412	137,295
Service Population	68,781	75,078
Emissions per Service Population	1.8	1.8
2030 Service Population Threshold	2.7	2.7
Exceeds 2030 Threshold?	No	No
2035 Service Population Threshold based on progress to 2050	2.1	2.1
Exceeds 2035 Threshold?	No	No

NOTES: The service population, comprised 49,479 workers, 25,599 residents and 19,668 workers who are residents, as derived from population estimates the SB 743 VMT Analysis prepared by Stanford for the additional housing alternatives.

SOURCE: Ramboll, 2018 (see Appendix ALT-GHG)

As with the 2035 inventory used for the proposed Project, the 2035 inventory for Additional Housing Alternative A was conservatively developed using 2030 emission factors. As a result, the electricity intensity factor, mobile emission factors, and other GHG sources are expected to continue to decrease after 2030 to meet California's long-term GHG reduction goals.

Additional Housing Alternative A would result in emissions of 1.8 MT of CO₂e per service population, similar to the proposed Project. This is below the 2.7 MT of CO₂e per service population threshold to determine consistency with the reduction goals established under SB 32 and EO B-30-15 for year 2030. The emissions of 1.8 MT of CO₂e per service population under Additional Housing Alternative A would also be below the 2.1 MT of CO₂e per service population threshold significance criterion developed for determining the GHG reduction trajectory toward 2050.

While the total GHG emissions under Additional Housing Alternative A would be 9 percent above the GHG emissions under the 2018 baseline (and Project) conditions, GHG emissions under Additional Housing Alternative A, similar to the proposed Project, would be below the significance thresholds that relate to consistency with GHG reduction goals for year 2030 and, to the extent feasible, year 2050. Similar to the proposed Project, Additional Housing Alternative A would not generate GHG emissions, either directly or indirectly, that would make a cumulatively considerable contribution to a significant impact on global climate change. Thus, this impact is less than significant.

Mitigation: None required.

Impact 7A.7-2: Additional Housing Alternative A could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Significant)

The consistency of Stanford's operations with respect to state and local GHG reduction plans under the proposed 2018 General Use Permit was assessed in Section 5.7 of the Draft EIR. Plans, executive orders and regulations considered in this evaluation included:

- Assembly Bill 32 (AB32)
- The AB 32 Scoping Plan
- Plan Bay Area
- Executive Order B-30-15
- Senate Bill 32
- Executive Order No. S-3-05
- The 2017 Clean Air Plan
- Health Element of the County of Santa Clara General Plan

Additional Housing Alternative A's consistency with these plans, policies, and executive orders would essentially be the same as under the proposed Project, as discussed below.

Assembly Bill 32

The primary goal of AB 32 is the requirement for statewide GHG emissions to be reduced to 1990 levels by 2020. BAAQMD developed an efficiency metric of 4.6 MT of CO₂e per service population or less as indicative of a proposed plan or mixed use development as sufficient for achieving the year 2020 of AB32 (BAAQMD, 2009). As indicated in Table 7A.7-1, similar to the proposed Project, emissions under Additional Housing Alternative A would be well below this efficiency metric. Thus, as under the proposed Project, Additional Housing Alternative A would not conflict with the primary goal of AB 32.

CARB Scoping Plan

The AB 32 Scoping Plan identifies over 70 measures for reducing greenhouse gas emissions to 1990 levels by 2020. Specific measures discussed in the Scoping Plan that are relevant to the proposed Project include the Renewables Portfolio Standard (RPS) and Advanced Clean Cars program.

As discussed in the Environmental Setting of Section 5.7 in the Draft EIR, notable recent changes to Stanford's energy systems have occurred in combination with the renewable sources that utilities must use to comply with California's Renewables Portfolio Standard (RPS), resulting in the anticipated total percentage of Stanford's electricity from renewable sources would be over 65 percent under Additional Housing Alternative A in 2035, similar to the proposed Project.

Vehicle GHG emission limits required by regulation combined with low carbon fuel standards will reduce the campus's vehicular GHG emissions on a per service population basis. As under the proposed Project, additional emissions reductions would result from Stanford's proposed

electrification of all its Marguerite, LBRE and Bonair vehicle fleets by 2035 under Additional Housing Alternative A. Consequently, similar to the proposed Project, through its past and ongoing proactive actions, and with implementation of Additional Housing Alternative A, Stanford would be consistent with elements of the Scoping Plan relevant to its operations.

Plan Bay Area

MTC estimates increases in both residents and workers at Stanford in its 2040 growth projections under Plan Bay Area. Similar to the proposed Project, Additional Housing Alternative A is consistent with the SCS in terms of proposing additional residences and academic square footage in locations specified in the SCS for such development. In addition, the VMT analysis presented in Transportation and Traffic indicates that Additional Housing Alternative A would generate VMT per worker and VMT per capita rates that are below the regional averages, similar to the proposed Project.

As under the proposed Project, because Additional Housing Alternative A would locate residents and workers where envisioned by the SCS, and would generate less VMT per capita and VMT per worker compared to the existing regional averages, it would not conflict with the regional goals and targets expressed in the *Plan Bay Area Sustainable Communities Strategy*.

Executive Order B-30-15 and SB 32

Executive Order B-30-15 established a GHG emission reduction goal for California of 40 percent below 1990 levels by 2030. The GHG emissions total presented in Table 7A.7-1 conservatively represents the emissions inventory for Additional Housing Alternative A at full build-out in 2035. As explained in the preceding impact analysis, similar to the proposed Project, the emissions under Additional Housing Alternative A would be below the 2030 service population target calculated based on the GHG reduction goal established under SB 32 and EO B-30-15 (40 percent reduction below 1990 levels by 2030, taking into account the 1990 emissions levels and the projected 2030 statewide population and employment levels). Similar to the proposed Project, Additional Housing Alternative A would not conflict with SB 32 (or with the 2017 Scoping Plan that implements SB 32) and EO B-30-15, and Stanford's GHG emissions under Additional Housing Alternative A would be below the efficiency metric threshold derived for year 2030 reduction goals.

Executive Order S-3-05

Executive Order No. S-3-05 established a goal of reducing the State's GHG emissions to 80 percent below the 1990 level by the year 2050. Similar to the proposed Project, GHG emissions under Additional Housing Alternative A would be lower than the service population target calculated for 2035 based on the trajectory needed to achieve the GHG reduction goal established under EO S-3-05 (80 percent reduction below 1990 levels by 2050, taking into account the 1990 emissions levels and the projected 2030 statewide population and employment levels). Therefore, as under the proposed Project, Additional Housing Alternative A would not conflict with the attainment of the State's long-term GHG reduction goal for 2050.

BAAQMD 2017 Clean Air Plan

The 2017 Clean Air Plan contains transportation measures and measures related energy, green building, waste management, water control of short-lived GHGs. Those Clean Air Plan measures applicable to the Project are identified in **Table 5.2-11** in Section 5.2, Air Quality of the Draft EIR. Table 5.2-11 provides a brief description of the control measure and identifies any existing or proposed mechanism that Stanford and surrounding local jurisdictions and transit agencies would have in place to implement these measures. All existing mechanisms or those included in the proposed 2018 General Use Permit would also be part of Additional Housing Alternative A and, therefore, would be consistent with most, but not all, of the relevant control measures of the 2017 Clean Air Plan. Because there are some control measures with which the Project as proposed may not be consistent, this impact is also considered significant under Additional Housing Alternative A. Where an implementation mechanism does not currently exist or is not identified in Additional Housing Alternative A, mitigation measures are identified below to ensure its consistency with the 2017 Clean Air Plan.

County of Santa Clara General Plan

In 2015, the County of Santa Clara adopted a new Health Element of the General Plan. The Health Element contains five policies that may be interpreted to address climate change and GHG emissions. The first of these is Policy HE-G.5, which directs the County to support efforts to reduce transportation-related GHG emissions. Like the proposed Project, Additional Housing Alternative A addresses this policy by Stanford's continued implementation of its TDM programs which are designed to achieve the Stanford Community Plan's No Net New Commute Trips standard.

Policy HE-G.10 directs the County to promote energy conservation and efficiency in homes, businesses, schools, and other infrastructure to reduce energy use and criteria pollutant and greenhouse gas emissions, and Policy HE-G.17 directs the County to promote energy retrofits and increase extreme heat resiliency for housing. Similar to the proposed Project, development under Additional Housing Alternative A would address these policies through implementation of Stanford's Climate and Energy Plan, which sets forth high-performance, whole-building energy performance targets specifically for each new building. As under the proposed Project, these requirements would ensure that development under Additional Housing Alternative A would be consistent with Policies HE-G.10 and HE-G.17.

Policy HE-G.11 directs the County to encourage renewable energy, such as solar and wind turbines on commercial, industrial and residential buildings. Similar to the proposed Project, under Additional Housing Alternative A, Stanford's updated campus-wide energy system, and heat recovery systems would provide renewable energy in addition to procuring electricity from its Solar Generating Station in Kern County as well as generating additional electricity from its on-campus rooftop solar installations, providing part of the campus's electricity demand. Therefore, as under the proposed Project, development under Additional Housing Alternative A would be powered and heated via these renewable energy sources, and hence would implement the intent of Policy HE-5.11.

Policy HE-G.16 directs the County to implement heat island mitigation by supporting urban greening and the use of green infrastructure to minimize the urban heat island effect. Stanford's Guidelines for Sustainable Buildings includes strategies for using microclimate and environmentally responsive design which include designing sites to reduce "heat island" effects, as discussed in the Draft EIR. Similar to the proposed Project, implementation of these strategies would make Additional Housing Alternative A consistent with Policy HE-G.16.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7A.15-2: Mitigation either through a program of "no net new commute trips" or through the contribution of funding equivalent to Stanford's proportionate share of the cost of improvements to fund transportation mitigation efforts.

Mitigation Measures 7A.3-8(a)-(b): Mitigation for native oak woodland

Mitigation Measure 7A.3-9(a)-(c): Mitigation for wetlands.

Mitigation Measure 7A.3-11(a)-(c): Mitigation for protected trees.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Climate change is the cumulative effect of all natural and anthropogenic sources of GHGs accumulated on a global scale. The GHG emissions from an individual project, even a very large development project, would not individually generate sufficient GHG emissions to measurably influence global climate change, and thus the assessment of GHG emissions impacts is inherently a cumulative analysis.

The analysis in Impact 7A.7-1 uses the BAAQMD CEQA Guidelines service population metric to assess the significance of the contribution to cumulative global GHG emissions under Additional Housing Alternative A. Consideration of a project's climate change impact, therefore, is essentially an analysis of a project's contribution to a cumulatively significant global impact through its emission of GHGs. While it is possible to examine the quantity of GHGs that would be emitted from individual project sources, it is not currently possible to link these GHGs emitted from a specific source or location to particular global climate changes.

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. Therefore, the evaluation of cumulative GHG impacts presented above evaluates whether Additional Housing Alternative A would make a considerable contribution to cumulative climate change effects. This is the same finding as under the proposed Project.

Hazards and Hazardous Materials

Construction Impacts

Impact 7A.8-1: Under Additional Housing Alternative A, demolition of existing structures that contain hazardous building materials would not create a significant hazard associated with exposure of workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. As a result, this alternative would result in more demolition and/or and modifications of existing improvements and structures on the Project site than under the proposed Project, and correspondingly, greater potential exposure of construction workers, the public, or the environment to hazardous materials such as lead-based paint (LBP), asbestos containing materials (ACMs), mercury and polychlorinated biphenyls (PCBs). However, as under the proposed Project, potential exposure to these hazardous building materials under this alternative would be eliminated or reduced to legally acceptable levels through compliance with abatement measures required as part of applicable federal, State and local regulations implemented through Stanford's Department of Environmental Health and Safety (EH&S) programs and overseen by County of Santa Clara Hazardous Materials Compliance Division (HMCD). Therefore, similar to the proposed Project, this impact for this alternative would be less than significant.

Mitigation: None required.

Impact 7A.8-2: Under Additional Housing Alternative A, construction projects could disturb soil and groundwater contaminated by historical hazardous material use, which could present risks the health of construction workers, the public, and/or the environment. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in overall greater soil disturbance on the Project site during construction compared to the proposed Project, and thus, would have a corresponding greater overall potential to disturb groundwater. Under this alternative, as under the proposed Project, if potential disturbance occurs in areas previously contaminated by hazardous materials, construction workers, the public, and/or the environment may be exposed to a localized release of compounds considered hazardous to human health or the environment, which would be a significant impact. However, implementation of **Mitigation Measure 7A.8-2(a)-(c)** identified for this alternative, which is the same as that identified for the proposed Project, establishes protocols for construction activities that would reduce or eliminate

the potential risks to public or construction worker health, or the environment, reducing this impact to a less than significant level.

Mitigation Measure 7A.8-2(a): During construction within the Project site, any contractor shall cease any earthwork activities upon discovery of any suspect soils or groundwater (e.g., petroleum odor and/or discoloration) during construction. The contractor shall notify Stanford's Department of Environmental Health and Safety (EH&S) and the County of Santa Clara's Hazardous Materials Compliance Division (HMCD) of the Department of Environmental Health upon discovery of suspect soils or groundwater. EH&S will retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present.

Mitigation Measure 7A.8-2(b): If contamination is found to be present, any further proposed soil- or groundwater-disturbing activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a California state licensed professional. The contractor shall follow all procedural direction given by County HMCD and/or identified in a Soil and Groundwater Management Plan prepared for the site by a qualified environmental firm to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility (in coordination with EH&S).

Mitigation Measure 7A.8-2(c): If contaminated soil or groundwater is encountered and identified constituents exceed human health risk levels, it shall be delineated, removed, and disposed of offsite in compliance with the overseeing agency, either County HMCD or Regional Water Quality Control Board (RWQCB), as well as the receiving facilities' requirements.

Significance after Mitigation: Less than Significant.

Impact 7A.8-3: Improper handling or storage of hazardous materials during Additional Housing Alternative A construction activities could result in spills would not significantly increase public health and/or safety risks to future residents, maintenance workers, visitors, and the public and environment in the area surrounding the spill. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. As a result, this alternative would use more of certain hazardous materials such as fuels, oils, solvents, and glues during construction than the proposed Project, the inadvertent release of which could adversely impact workers, the public, soil, surface waters, or groundwater quality. Similar to the proposed Project, the use of construction best management practices implemented as part of a SWPPP as required by the NPDES General Construction Permit under this alternative would minimize the potential adverse effects to workers, the public, surface waters, groundwater and soils. Similar to the proposed Project, given the protective measures required to comply with federal, State, and local laws and regulations (i.e., best management practices) and the quantities of hazardous materials typically needed for construction projects, the potential exposure of construction workers or the public, or

contamination of soil and/or groundwater, from construction-related hazardous materials under this alternative would be considered a less-than-significant impact.

Mitigation: None required.

Operational Impacts

Impact 7A.8-4: Operation of uses developed under the Additional Housing Alternative A that could involve the transportation, use, storage and disposal of hazardous materials, would not present significant public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit. As a result, this alternative would have a corresponding increase in transportation, use, storage and disposal of hazardous materials associated with operation of these uses compared to the proposed Project. As described for the proposed Project, residential uses would typically include use of familiar hazardous materials such as toners, paints, and household cleaning products; and any building maintenance and landscaping activities associated with residential uses commonly involve use of fuels, oils, paints, lubricants, solvents, and pesticides. These common types of materials are typically stored and used in small quantities, and used in accordance with manufacturer recommendations. As such, the routine transport, use, storage or disposal of these materials under this alternative would not be reasonably expected to cause an adverse impact to the public and the environment.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, impacts associated with transportation, use, storage and disposal of hazardous materials associated with operation of those facilities under this alternative would be similar to the proposed Project. Development and operation of those facilities under this alternative would be subject to the same applicable regulatory requirements, and same oversight by Stanford's EH&S and the County's HMCDD, as the proposed Project, which would similarly ensure potential exposure of people or the environment to hazardous materials would be a less than significant impact.

Mitigation: None required.

Impact 7A.8-5: Hazardous materials used at facilities operating under Additional Housing Alternative A could potentially be spilled through upset or accidental conditions, but would not significantly increase public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated infrastructure, than the proposed 2018 General Use Permit. Any potential accidental releases of hazardous materials or wastes associated with operation of additional on-campus residential uses

would be small in scale; similar to the proposed Project, potential effects to residents, workers, the public or the environment under this alternative would be less than significant.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, potential accidental releases of hazardous materials or wastes associated with operation of those facilities, and related potential adverse effects to residents, workers, the public or the environment would be similar to the proposed Project. Operation of those facilities would be subject to the same applicable regulatory requirements and management programs, and same oversight by Stanford's EH&S and the County's HMCD, as the proposed Project; the potential impact to workers, residents, visitors, or the environment would therefore be reduced to a less-than-significant level.

Mitigation: None required.

Impact 7A.8-6: New development under Additional Housing Alternative A could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, thus, could result in a safety hazard to the public or environment. (Potentially Significant)

Additional Housing Alternative A would involve overall more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit, and therefore, would have a greater potential to develop in areas on the campus where residual hazardous materials may be present in the soil and cause significant impacts. However, implementation of **Mitigation Measures 7A.8-2(a), 7A.8-2(b), and 7A.8-2(c)** identified for this alternative, which are the same as those identified for the proposed Project, would ensure that any earthwork activities that occur on the Project site that may encounter suspicious materials would be adequately addressed, and thus, the potential for residual contamination to significantly impact the public or environment would be less than significant post-mitigation.

Mitigation: Implement Mitigation Measure 7A.8-2(a)-(c).

Significance after Mitigation: Less than Significant.

Impact 7A.8-7: Implementation of Additional Housing Alternative A could result in hazardous emissions or handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school, but would not create a significant hazard to those facilities. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit that could be located within one-quarter mile of an existing or proposed school. As discussed above, operation of residential uses involves common hazardous materials that are typically stored and used in small quantities. Accordingly, there are no characteristics associated with operation of the additional housing that

would result in substantial hazardous emissions or handling of hazardous or acutely hazardous materials, substance, or waste that would result in adverse exposure to hazardous emissions at nearby schools.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, this alternative would similarly not include a substantive change in hazardous emissions, and all transportation, use, storage, and disposal of hazardous materials would be conducted in accordance with applicable local, State, and federal requirements. Therefore, similar to the proposed Project, implementation of the alternative would not result in any adverse exposure to hazardous emissions to existing or future schools within, or in the vicinity of, the Project site.

Mitigation: None required.

Impact 7A.8-8: Development facilitated by Additional Housing Alternative A would not substantially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Additional Housing Alternative A would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit. Therefore, this alternative would increase the on-campus residential population that would be served by emergency response and evacuation plans. As with new development proposed under the Project, any changes to the circulation network that may occur to accommodate additional housing under this alternative would be designed to accommodate appropriate emergency access to, and egress from, all areas of the Project site. Additionally, similar to the proposed Project, all project-specific designs, including private internal circulation and building site plans for the additional housing under this alternative would be subject to review and approval by emergency service providers, per Fire Code requirements. As with the proposed Project, under this alternative Stanford would continue to operate its Office of Emergency Management (OEM) and coordinate emergency response planning efforts with applicable jurisdictional emergency response providers, including County OEM; and also continue to maintain its emergency notification systems at Stanford via its AlertSU strategy. Therefore, similar to the proposed Project, these emergency response requirements would ensure this alternative would not substantially impair implementation of or physically interfere with any emergency response or evacuation plans. Impacts would be similar to those of the proposed Project.

Mitigation: None required.

Impact 7A.8-9: Development under Additional Housing Alternative A would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. (Less than Significant)

Additional Housing Alternative A would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would increase the on-campus residential structures and residential population on the campus that would be exposed to risk involving wildland fires. This alternative would not introduce housing development or increase population within the foothills, designated by the County as a wildland/urban interface. Rather, and similar to proposed Project, all additional housing that would be developed under this alternative would be located within the Academic Growth Boundary, including on infill and redevelopment sites. Similar to the proposed Project, additional on-campus housing that would be developed under this alternative would be required to include fire suppression design requirements as specified in current adopted building codes, and would be served by sufficient fire protection services. As with the proposed Project, implementation of applicable fire and building code standards would ensure that adequate fire and life safety measures are incorporated into the alternative in compliance with all applicable state and local fire safety regulations. Similar to the proposed Project, these factors would reduce the potential impact associated with exposure of people and property to risk involving wildland fires under this alternative to a less than significant level.

Mitigation: None required.

Cumulative Impacts

Impact 7A.8-10: Hazards at the Additional Housing Alternative A site, in combination with past, present, and future projects could potentially contribute to cumulative hazards. (Potentially Significant)

The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses primarily the Project site and immediate surrounding area. Cumulative hazardous materials effects could occur if activities that would occur under Additional Housing Alternative A at the Project site, and other past, existing and proposed development, together, would significantly increase risks in the vicinity of the Project site. As discussed above, the additional housing that would occur under this alternative would involve routine hazardous materials in relatively small quantities. As under the proposed Project, based on the existing management of hazardous materials and the continued oversight, guidance and compliance monitoring that would be conducted by Stanford's EH&S and/or County HMCD for all development on the campus, there would not be a substantial change in how hazardous materials are handled under this alternative. As a result of these existing regulatory requirements that apply to the Project site, and given that nearby off-site land uses would be subject to their own applicable regulations and internal standard operating procedures controlling the use, storage, and disposal of hazardous materials, the potential hazardous materials and hazard impacts would not combine to become cumulatively considerable.

Similar to the proposed Project, this alternative, as well as other past, present, and future projects would be required to adhere to existing regulatory requirements for the appropriate handling, storage, transportation, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. Cumulative increases in the transportation of hazardous materials and wastes would cause a less than significant impact because the probability of accidents is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents.

During construction, implementation of Mitigation Measure 7A.8-2(a)-(c) would also reduce any contribution from this alternative to potential cumulative disturbance of soil and groundwater. Given this and all the other factors discussed above, the cumulative impact of this alternative to hazards and hazardous materials would be less than significant.

Mitigation: Implement Mitigation Measures 7A.8-2(a)-(c).

Significance after Mitigation: Less than Significant.

Impact 7A.8-11: Additional Housing Alternative A, in combination with past, present, and future projects would not substantially impair implementation or physically interfere with emergency response or evacuation plans. (Less than Significant)

As discussed in Impact 7A.8-11, above, site review for individual building projects and existing emergency response requirements are sufficient to ensure that the alternative's effect on potential impairment or implementation of any emergency response or evacuation plans would be considered a less-than-significant impact. Furthermore, regional plans such as the Local Hazard Mitigation Plan and the Santa Clara County Operational Area Emergency Operations Plan (EOP) are adaptive to changes in population and provide the inter-agency coordination to ensure that emergency response and evacuation can be effectively coordinated in an emergency. Therefore, the effects of the alternative would not combine to become cumulatively considerable.

Mitigation: None required.

Impact 7A.8-12: Additional Housing Alternative A, in combination with past, present, and future projects would not substantially contribute cumulatively to exposure to wildland fires. (Less than Significant)

Additional Housing Alternative A, as well as other land uses in the Project site vicinity would include the proper mechanisms to ensure the alternative's potential impacts to wildland fire hazards and emergency response access would be less than significant, and correspondingly, would also ensure the alternative's contribution to cumulative effects on wildland fires would also be less than significant.

Mitigation: None required.

Hydrology and Water Quality

Construction Impacts

Impact 7A.9-1: Additional Housing Alternative A construction could violate water quality requirements or waste discharge requirements, or otherwise degrade water quality. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in correspondingly greater earthwork activities during construction such as removal of surface vegetation, grading and excavation of soils, and potential placement of imported soil, which would could result in increased erosion and sedimentation. Similar to the proposed Project, as part of the approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, including implementation of construction BMPs, as detailed in a SWPPP, along with any additional use permit conditions that must be met regarding stormwater control and management during construction.

Similar to the proposed Project, inactive wells, if not abandoned appropriately, can present potential conduits for contamination from the surface to underlying groundwater resources. Unless the existing potential conduits are eliminated, this would be a significant impact under this alternative. Implementation of **Mitigation Measure 7A.9-1**, which is the same as that identified for the proposed Project, would require Stanford to refer to the well survey, prior to obtaining a demolition or grading permit for individual projects under this alternative to ensure that there are no wells within each building site that might need to be appropriately abandoned to eliminate this pathway for contamination.

Implementation of SWPPP requirements, as well as Mitigation Measure 7A.9-1, would prevent significant construction-related impacts to water quality, and ensure that all construction activities that would under occur under the alternative would minimize the potential to adversely affect receiving waters. Therefore, during construction, the potential water quality impacts of this alternative would be less than significant post-mitigation, similar to the proposed Project.

Mitigation Measure 7A.9-1: Prior to issuance of a demolition or building permit, Stanford shall review its historic wells survey and confirm that no historic wells not properly closed are located at the project location to determine the potential for encountering any groundwater wells within the area of proposed improvements. If discovered, and the well is no longer part of operations and was not abandoned in accordance with SCVWD requirements, Stanford shall fulfill the well abandonment/ destruction permit requirements. Stanford shall contact SCVWD to locate existing inactive wells and confirm adherence to well abandonment/ destruction requirements.

Significance after Mitigation: Less than Significant.

Impact 7A.9-2: Additional Housing Alternative A construction could include temporary dewatering, but would not substantially deplete groundwater supplies or cause a lowering of the water table. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. Consequently, this alternative would require greater excavation of soils related to underground utilities, construction of building foundations, and in some cases, to accommodate underground levels, than the proposed Project. Similar to the proposed Project, if shallow groundwater were to be encountered during construction, excavations could require temporary dewatering of groundwater to create a dry working environment in order to complete construction.

Similar to the proposed Project, to address the possibility of rising groundwater at the Project site in the future, in the event that any new subgrade construction under this alternative would encounter several vertical feet of groundwater necessitating dewatering, Stanford would, as standard practice, stipulate a geologic/geohydrologic analysis be conducted to assess the potential for any localized consolidation/settlement effects, and identify appropriate measures to protect adjacent structures and infrastructure during construction.

As with construction related to the proposed Project, potential construction dewatering associated with this alternative would only be required for the duration of a portion of the construction period of an individual project. As a result, similar to the proposed Project, construction dewatering under this alternative would not result in long-term, large volume groundwater withdrawal that would lead to substantive depletion of groundwater supplies, permanent lowering of groundwater levels, or seasonal basin recharge. Therefore, as with the proposed Project, the potential impact to groundwater supplies and the water table during construction of individual projects under this alternative would be less than significant.

Mitigation: None required.

Operational Impacts

Impact 7A.9-3: Operation of Additional Housing Alternative A would not violate water quality requirements or waste discharge requirements, or otherwise substantially degrade water quality. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would result in more on-campus impervious surfaces compared to the proposed Project. Any increases in paved areas, building rooftops and parking lots under this alternative would have the potential to generate

more polluted stormwater during storm events than under the proposed Project. Similar to the proposed Project, if not managed appropriately, increases in polluted stormwater would have the potential to violate water quality standards. Relatedly, any potential increase in use of herbicides and pesticides under this alternative associated with additional landscaping could adversely affect the quality of receiving surface waters or groundwater.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, along with any additional use permit conditions that must be met, regarding stormwater control and management during operation. As with the proposed Project, adherence to stormwater control measures as a part of the RWQCB Municipal Regional MS4 Stormwater Permit would minimize the water quality impact from development that would occur under this alternative to a less-than-significant level by requiring all proposed development to include stormwater design measures that protect water quality.

Mitigation: None required.

Impact 7A.9-4: Additional Housing Alternative A operation could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (Potentially Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would result in more on-campus impervious surfaces compared to the proposed Project. As discussed in Section 5.9, Hydrology and Water Quality, the SCVWD has delineated an area known of the Project site known as the Unconfined Zone, where groundwater recharge by infiltration primarily occurs (as shown in Figure 5.9-4). Two of the four development districts which this alternative would add additional housing to – West Campus and East Campus – are located partially within the Unconfined Zone. The other two development districts which this alternative would add additional housing to – Quarry, and DAPER and Administrative Development Districts – are located completely outside the Unconfined Zone. If, under this alternative, increases in impervious surfaces from additional housing were introduced in this area of groundwater recharge, the amount of runoff that recharges into the underlying aquifer could be further reduced, a significant impact as with the proposed Project.

Similar to the proposed Project, new development under this alternative would be required to include on-site drainage plans designed to retain, capture and convey increased runoff in accordance with the SCVURPPP design standards and the Municipal Regional MS4 NPDES permit requirements that include Provision C.3 site control features. As a result, the additional housing associated with this alternative would be required to minimize the amount of stormwater discharge offsite. See also discussion of Stanford's detention facilities in Impact 7A.9-6, below, which encourage groundwater recharge.

Pursuant to the 2000 General Use Permit, Stanford implements a campus-wide plan for groundwater recharge to mitigate the loss of recharge areas from development that occurs within the Unconfined Zone; this involves the conveyance of a quantifiable amount of water from Stanford's irrigation water supply to Lagunita reservoir, and the percolation of that water as recharge into the Unconfined Zone. Similar to mitigation identified for the proposed Project, **Mitigation Measure 7A.9-4**, below, would require continued implementation of this groundwater recharge plan with annual reporting to the County would ensure that future development that would occur in the Unconfined Zone under this alternative would not result in adverse effects to underlying groundwater levels.

As under baseline and proposed Project conditions, under this alternative, Stanford's groundwater wells would be used to supplement local surface water sources for the non-potable landscape irrigation system and, if needed, for the Lagunita reservoir to maintain water levels. Also, as under baseline and proposed Project conditions, under this alternative, Stanford would operate within its secured water rights for surface water diversion for non-potable uses. The additional housing that would be developed on-campus under this alternative would consist of multi-family housing, which would minimize the demand for non-potable water required for landscaping. Additionally, as under the proposed Project, Stanford would use low-water-demand native plants in landscaped areas of the campus, minimizing the non-potable water demand. As a result, total landscape irrigation demand under this alternative would be similar to the proposed Project, and would not be expected to substantively change from baseline conditions.

However, based on a Water Supply Assessment (WSA) prepared by Stanford for the Additional Housing Alternative A (see Utilities and Service Systems below for additional detail), in single and multiple dry water year scenarios, Stanford would need to supplement its potable water supply (i.e., its guaranteed allocation of potable water purchased wholesale from San Francisco Public Utilities Commission) with treated groundwater from its wells in order to accommodate the estimated increase in potable water demand from the additional on-campus housing. Under all water year scenarios, the total groundwater demand for this alternative would not exceed 1.35 mgd (see Utilities and Service Systems, below, for additional detail). As discussed in Section 5.16, Stanford can withdraw up to 1.52 mgd from its wells without adversely affecting groundwater conditions. As a result, similar to the proposed Project, the projected groundwater use for this alternative could be safely withdrawn without causing excessive drawdown in the aquifer. Additionally, Stanford could implement more stringent water conservation measures beyond those implemented historically to further minimize increases in groundwater use.

This alternative would also involve more subsurface construction than the proposed Project. While, as discussed in Section 5.16, Stanford reports that no subgrade building construction to date within the Project site has encountered groundwater, if needed to address the possibility of rising groundwater at the Project site in the future, Stanford would strengthen building foundations to withstand the hydrostatic pressures and waterproofing the structure appropriately. As with the proposed Project, this would avoid any potential localized effects on groundwater levels from conducting long-term groundwater dewatering via pumping for new buildings under this alternative, and correspondingly, avoid adding extracted groundwater to the storm drain system.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with any conditions that must be met regarding groundwater use and recharge during operation. Therefore, the drainage control requirements, the projected use of groundwater wells, and the implementation of the Groundwater Recharge plan as identified in Mitigation Measure 7A.9-4, would assure onsite infiltration such that development that would occur under this alternative would not substantively reduce the aquifer volume or lower the local groundwater level. Similar to the proposed Project, the potential impact under this alternative would therefore be less than significant.

Mitigation Measure 7A.9-4: Stanford Utilities shall review individual projects proposed under the Additional Housing Alternative A for changes in impervious surface area within the Unconfined Groundwater Zone. The accounting of the recharge effort shall be tracked to ensure that all future development will continue to result in an annual net positive recharge in the Unconfined Groundwater Zone. Record of monitored data shall be submitted to the County on an annual basis and Santa Clara Valley Water District and include both water volumes and water quality data.

Significance after Mitigation: Less than Significant.

Impact 7A.9-5: Additional Housing Alternative A development would potentially alter the drainage pattern of the Project site, but would not result in substantial erosion or siltation on or off the site. (Less than Significant)

Additional Housing Alternative A would involve more site development than the proposed Project, and consequently may involve greater alteration of drainage patterns on the Project site. As under the Project, if not managed properly, localized changes in drainage patterns for individual developments that would occur under this alternative could create new impervious surfaces that would increase the amount of surface run-off; and hence cause erosion of exposed soils resulting in sedimentation and siltation of discharge flows on- or off-site.

As discussed in Impact 7A.9-3, above, implementation of design features in accordance with drainage control requirements would be effective in controlling erosion potential and minimizing transport of siltation on or off site. Therefore, similar to the proposed Project, localized changes in on-site drainage patterns associated with development under this alternative would not result in substantial erosion or siltation, and with adherence to stormwater control measures as a part of the Municipal Regional NPDES MS4 stormwater permit, the potential impact is considered less than significant.

Mitigation: None required.

Impact 7A.9-6: Additional Housing Alternative A development would create runoff, but would not exceed the capacity of existing or planned stormwater infrastructure, or result in flooding on- or off-site. (Less than Significant)

Additional Housing Alternative A would involve more site development than the proposed Project, and consequently would involve more impervious surfaces on the Project site. Similar to the proposed Project, if any resulting increases in stormwater were not managed properly, this alternative could result in an increase in peak flows in, and potentially affecting the capacity of, the downstream storm drainage infrastructure, and potentially exacerbate existing or create new flooding conditions.

As under the proposed Project, in order to accommodate post-development increases in runoff from new development under this alternative, each individual project would be required to develop a drainage plan that complies with the County's drainage design standards and the requirements of the SCVURPPP including flow control, and NPDES Provision C.3 requirements for storm capacity minimums. The County's drainage design standards require that project stormdrainage infrastructure be designed to adequately convey all runoff from peak storm events. Any potential increases in stormwater runoff resulting from additional impervious surfaces must be detained to ensure peak flows do not result in on-site or downstream flooding.

As discussed in Section 5.9, Hydrology and Water Quality, as a condition of the 2000 General Use Permit, Stanford developed on-site detention facilities on a watershed basis to create sufficient capacity to offset increased runoff associated with all new impervious surfaces constructed under the 2000 General Use Permit. In 2018, the existing detention facilities are estimated to have the capacity for accommodating an additional approximate 57.0 acres (2.48 million square feet) of impervious surfaces in the San Francisquito watershed, and an additional approximate 194.8 acres (8.52 million square feet) of impervious surfaces in the Matadero watershed. In accordance with Stanford Community Plan Policy SCP-HS 9, all development would require infrastructure improvements to accommodate runoff so as to achieve no increase in peak flow rate. Similar for the proposed Project, this remaining detention capacity would also be more than adequate to accommodate the net increase in impervious surfaces that would occur under this alternative.

As discussed in the Project Description for Additional Housing Alternative A, the placement of housing at the edges of the West Campus and DAPER Development Districts under this alternative could require development of lands that are currently used for existing recreation fields and/or detention basins located in these areas. Under this circumstance, Stanford would provide replacement stormwater detention facilities with an equivalent detention capacity.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, along with any conditions that must be met, regarding stormwater control and management during operation. Pursuant to the County-approved Stanford Storm Drainage Master Plan, Stanford reports to the County annually regarding the remaining capacity for the existing detention facilities. The detention facilities are designed to accommodate the 100-year design storm flow. Mandatory compliance with the Storm Drainage Master Plan, the County's drainage design standards, SCVURPPP, and NPDES requirements, as required by law,

would ensure that proposed development under the alternative would include adequate storm drainage control features, including potential detention facilities and features that promote onsite infiltration. As such, similar to the proposed Project, effects on increases in peak runoff and capacity of existing or planned stormwater infrastructure under this alternative would be considered less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7A.9-7: Additional Housing Alternative A, in combination with past, present, and future projects could potentially contribute to surface and groundwater quality impacts. (Potentially Significant)

The geographic scope of potential hydrology and water quality impacts are the study watersheds. Construction and operation of the development under this alternative, together with past, present and other reasonably foreseeable future projects in the vicinity could cumulatively increase stormwater runoff and pollutant loading in the study watersheds, and hence, to the San Francisco Bay. Construction related to alternative, in combination with other cumulative development, could also affect groundwater quality. As under the proposed Project, development associated with this alternative and other current and future projects in the watersheds would be required to comply with current construction, drainage and grading requirements intended to control runoff and regulate water quality at each site. Similarly, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. As with the proposed Project, new development projects in the affected watersheds in Santa Clara and San Mateo Counties also would be required to comply with the regionally based MS4 NPDES permitting requirements. All construction work disturbing more than one acre in the surrounding areas would require permits from the RWQCB which require all activities to implement BMPs to minimize adverse effects to water quality. The NPDES permits, both the General Construction Permit and the MS4, are based upon addressing cumulative contributions to a watershed and as a result include requirements to implement BMPs that protect water quality to the maximum extent practicable. Further, Mitigation Measure 7A.9-1 would serve to minimize any contribution from this alternative to significant cumulative effects on groundwater quality. Therefore, similar to the proposed Project, the effect of this alternative on surface and groundwater quality, in combination with other cumulative projects, would be less than significant.

Mitigation: Implement Mitigation Measure 7A.9-1.

Significance after Mitigation: Less than Significant.

Impact 7A.9-8: Additional Housing Alternative A, in combination with past, present, and future projects could potentially contribute to depletion in groundwater supplies or interfere with groundwater recharge. (Potentially Significant)

As with the proposed Project, construction and operation of the proposed development under this alternative, together with past, present and other reasonably foreseeable future projects in the vicinity could cumulatively decrease groundwater supplies and interfere with groundwater recharge. As discussed in Section 5.9, Hydrology and Water Quality, the Santa Clara Valley Groundwater Basin is not currently in an overdraft condition and is actively managed by the SCVWD which has recently submitted an application to serve as the Groundwater Sustainability Agency (GSA) for the basin in accordance with the Groundwater Sustainability Management Act. A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. Under this alternative, Stanford would also continue implementation of the Campus-wide Plan for Groundwater Recharge, as specified in Mitigation Measure 7A.9-4, above, to ensure that any loss of recharge areas due to new development under this alternative is addressed through management of Lagunita reservoir as described above. Therefore, considering the projected use of groundwater for the alternative, the proposed landscaping vegetation, current and future management of the groundwater basin and continued adherence to the groundwater recharge plan as overseen by SCVWD, there would be a less than significant cumulative impact to groundwater levels or supplies under this alternative.

Mitigation: Implement Mitigation Measure 7A.9-4.

Significance after Mitigation: Less than Significant.

Impact 7A.9-9: Additional Housing Alternative A, in combination with past, present, and future projects would not result in substantial adverse cumulative surface hydrology impacts. (Less than Significant)

Implementation of this alternative, together with past present and other reasonably foreseeable future projects in the vicinity, could also expose people and/or property to flooding from a 100-year event. These effects could occur through increases in stormwater runoff volumes that overwhelm drainage infrastructure or during high tide in a 100-year storm event along with sea level rise in the Bay. This alternative and other cumulative projects in the vicinity would be required to comply with flood control requirements intended to provide flood protection. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. New development projects in the County also would be required to comply with County flood control requirements. As discussed above, as with the proposed Project, this alternative would include structural measures designed to convey stormwater flows through improvements to existing infrastructure such that runoff volumes do not exceed existing flows during peak storm events. Therefore, this alternative, in combination with other cumulative projects, would not result in a significant cumulative impact to people and/or property from a 100-year event. Similar to the

proposed Project, this alternative would have a less than cumulatively considerable impact, and cumulative effects, therefore, would be less than significant.

Mitigation: None required.

Land Use and Planning

Impact 7A.10-1: Additional Housing Alternative A could conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

As under the proposed Project, it is assumed that the additional increment of on-campus housing that would occur under Additional Housing Alternative A would be located within the Academic Growth Boundary and would not be constructed within the Campus Open Space land use designation (including the Arboretum Development District). It is further assumed under this alternative that no additional increment in on-campus housing under this alternative would be placed in the Campus Center, Lagunita, Lathrop, or San Juan Development Districts. The additional housing (2,342 units) that would be developed under this alternative would be located in the East Campus, Quarry, DAPER and Administrative, and/or West Campus Development Districts.

Based on the Stanford Community Plan Policy SCP-LU 3 that faculty/staff housing within the Academic Campus must be at least 15 units per acre, and consistent with its policies promoting compact urban development, it is reasonable to assume that additional faculty, staff, postdoctoral student and/or other worker housing that would occur under this alternative would be multi-family housing. Stanford indicates that densities for the additional multi-family housing that would be developed under this alternative would range from about 40 to 80 units per acre. The effects on the four development districts where additional housing is proposed under this alternative are described below.

East Campus Development District

Development in the East Campus Development District under this alternative includes 2,267 new housing units/beds (667 more units than the proposed Project, including an additional 460 faculty, staff, postdoctoral student and/or other worker units as well as 207 graduate student beds) and 20,000 square feet of academic and academic support space (same as the proposed Project). Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. Stanford indicates that placement of additional housing in this district would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Proposed additional housing development under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

Quarry Development District

Development in the Quarry Development District under this alternative includes 1,100 new housing units (550 more faculty, staff, postdoctoral student and/or other worker units than under the proposed Project) and 200,000 square feet of academic and academic support space (same as the proposed Project). As noted above, Stanford anticipates that the housing density would be approximately 80 units per acre and building heights would be up to 135 feet in this district. In addition, this alternative is assumed to include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the Quarry Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. Proposed additional housing development under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

DAPER and Administrative Development District

Development in the DAPER and Administrative Development District under this alternative includes the additional 666 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with up to 200,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands in the district that are located between Stanford Stadium and El Camino Real. Stanford indicated that placement of housing along El Camino Real could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. In addition, this alternative could include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the DAPER and Administrative Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. New housing proposed under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

West Campus Development District

Development in the West Campus Development District under this alternative includes the additional 666 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with 35,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, with this alternative Stanford would not construct housing within the Campus Open Space designated lands currently occupied by the Palo Alto Stock Farm Stable (Red Barn), and another narrow strip of land along Campus Drive near its intersection with Junipero Serra Boulevard. As with the DAPER and Administrative Development District, Stanford indicated that placement of housing

along Sand Hill Road could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. New housing proposed under this alternative in this district would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

Summary

As under the proposed Project, housing development proposed by Additional Housing Alternative A would be consistent with the Growth and Development policies of the Stanford Community Plan by reducing potential environmental effects that could result from development of Stanford lands outside the Academic Growth Boundary. The additional housing proposed by this alternative would be consistent with the existing land use designations for Stanford lands described in the Stanford Community Plan. Similar to the proposed Project, at the time individual housing projects are proposed under this alternative, the County would require Stanford to apply for project-specific approvals; these projects may be subject to additional environmental review prior to consideration of approval by the County. Similar to the proposed Project, this alternative would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation: None required.

Cumulative Impacts

Impact 7A.10-2: Additional Housing Alternative A, in combination with past, present, and future projects could potentially contribute to cumulative land use impacts. (Less than Significant)

The geographic scope of potential cumulative land use impacts encompasses the Stanford lands within the General Use Permit boundary, Stanford lands adjacent to the boundary and not under County of Santa Clara jurisdiction, and adjacent, non-Stanford lands in other jurisdictions.

Lands that border the four development districts where additional housing would occur under Additional Housing Alternative A include Stanford lands within Palo Alto, such as the Stanford University Medical Center and Stanford Shopping Center, as well as non-Stanford lands within Palo Alto along El Camino Real and the College Terrace residential neighborhood. These areas are generally developed urban areas. Reasonably foreseeable growth within Palo Alto in areas adjacent to the development districts in which additional housing is proposed would represent intensification of existing land uses. Less than significant cumulative land use impacts would result from development under this alternative combining with impacts of past, present, or reasonably foreseeable future projects in areas of Palo Alto that border those development districts.

Mitigation: None required.

Noise and Vibration

Construction Impacts

Impact 7A.11-1: Additional Housing Alternative A could expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction. (Significant)

Additional Housing Alternative A would involve more on-campus construction compared to the proposed Project due to the additional on-campus housing under this alternative. Thus, Additional Housing Alternative A would have the potential for greater construction noise effects than the proposed Project over the duration of the use permit. Construction activities would involve the same sources of noise as that would occur for the proposed Project. Consequently, as presented in Table 7A.11-1, the estimated construction noise for various phases of construction activity at distances of 50, 100, 150 and 300 feet from the construction site, would be the same as for the proposed Project.

TABLE 7A.11-1
NOISE LEVELS FROM CONSTRUCTION ACTIVITIES AT VARIOUS DISTANCES

Distance from Construction Site	Noise Levels in dBA (Hourly Leq)				
	Demolition	Site Preparation	Grading	Building Construction	Paving
50 feet	85.1	80.4	79.7	83.5	83.5
100 feet	79.1	74.4	73.7	77.5	77.5
150 feet	75.5	70.9	70.2	74.0	74.0
300 feet	69.5	64.9	64.2	68.0	67.9

SOURCE: Adapted from Bolt Baranek and Newman, 1971.

The Santa Clara County Ordinance Code establishes different construction noise limits for different land use areas. The most restrictive construction noise limit is 75 dBA for mobile equipment at single family residential areas, such as those off-site residences located across Stanford Avenue from the Project site. Although the County ordinance does not identify a construction noise limit for schools, it is reasonable to also apply this noise limit to nearby schools, day care facilities and other noise sensitive receptors. As can be seen from Table 7A.11-1, construction closer than 150 feet from off-site receptors would have the potential to result in noise levels in excess of the County's noise standard, which would be a significant impact under Additional Housing Alternative A, as under the proposed Project.

Similar to the proposed Project, during the life of Additional Housing Alternative A, Stanford would not conduct any impact pile driving on construction projects necessitating piles, but rather, would use alternative pile installation methods to minimize potential noise and vibration disruption.

The County Ordinance Code establishes restrictions on the hours of noisy construction activity. The County Ordinance Code prohibits such activity on weekdays and Saturday between the hours

of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, except for emergency work of public service utilities or by variance. As with the proposed Project, if construction activities under this alternative were to occur within these prohibited hours, this alternative would result in a significant impact, irrespective of whether a variance is granted. Implementation of **Mitigation Measure 7A.11-1**, the same mitigation proposed for the Project, would ensure that construction that occurs under Additional Housing Alternative A would be consistent with the County's noise ordinance. It is noted that the Palo Alto Municipal Code is slightly more restrictive, prohibiting such work between the hours of 6:00 p.m. and 8:00 a.m. Monday through Friday and between 6:00 p.m. and 9:00 a.m. on Saturday, or at any time on Sundays and holidays.

Mitigation Measure 7A.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors. If construction would be within 150 feet of off-site sensitive receptors, Stanford shall employ noise attenuation measures to reduce the generation of construction noise to achieve a performance standard of 75 dBA at the affected property line of the nearest off-site single family residential receptor and 80 dBA at the affected property line of the nearest off-site multi-family residential receptor. These measures shall be described in a Noise Control Plan that shall be submitted for review and approval by the County Planning and Development Department prior to issuance of a building permit to ensure that construction noise is consistent with the standards set forth in the County Ordinance Code.

Additional measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- For construction within the Project site that would be 150 feet of sensitive receptors located within the City of Palo Alto, hours of construction activity shall be restricted to those established in the City of Palo Alto Noise Ordinance (i.e., between the hours of eight a.m. to six p.m. Monday through Friday, and between nine a.m. and six p.m. on Saturday).

For construction within the Project site that would be 150 feet of sensitive receptors located within all other residential areas, hours of construction activity shall be restricted to those established in the Santa Clara County Noise Ordinance (i.e., between seven a.m. and seven p.m., Monday through Saturday).

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds). At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels to below 75 dBA;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible; and

- Stationary construction noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.

Emission of sound in the performance of emergency work is exempt from these requirements. In addition, variances to these restrictions may be allowed, with County approval, for certain utility work or other construction for which nighttime work would avoid secondary impacts (e.g., traffic impacts during commute periods); and where compliance with the noise thresholds is technically or economically infeasible. A variance may be granted only where the activity will not create a nuisance and will not be detrimental to the public health and safety.

Significance after Mitigation: Less than Significant.

Impact 7A.11-2: Additional Housing Alternative A construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity. (Significant)

Similar to the proposed Project, the potential exists for construction-related noise generated by Additional Housing Alternative A to be consistent with the standards established in the local general plan and noise ordinance assessed above in Impact 7A.11-1, and still result in a substantial temporary or periodic increase in ambient noise levels. Temporary increases in construction noise would potentially affect both on-site and off-site receptors.

Potential Construction-Related Noise Increases Impacts at Off-Site Receptors

This alternative would result in the additional housing development being located at the edges of the West Campus Development District (along Sand Hill Road), Quarry and DAPER and Administrative Development Districts (along El Camino Real), and/or East Campus Development District (along El Camino Real and Stanford Avenue). Consequently, this alternative could expose more off-site receptors to construction noise than the proposed Project. Similar to the proposed Project, off-site sensitive receptors near Stanford development districts designated for development under Additional Housing Alternative A include those along Stanford Avenue (e.g., Escondido Elementary School and residences in the College Terrace neighborhood), across El Camino Real (e.g., residences in the Southgate neighborhood) and residences along the northwest side of Sand Hill Road. As indicated in Table 5.11-1 in Section 5.11, Noise and Vibration, in the Draft EIR, existing daytime noise levels at these sensitive receptor locations range from 60 to 64 dBA. The nearest off-site sensitive receptors are located as close as 80 feet from the Project site boundary. As shown in Table 7A.11-1, construction noise levels could be as high as 80 dBA at 100 feet. As under the proposed Project, for construction under Additional Housing Alternative A that would occur at or near the Project site boundary, construction noise levels would be 15 to 20 dBA above existing ambient noise levels at off-site sensitive receptors and potentially higher at on-site receptors, which would be a significant impact. Implementation of **Mitigation Measure 7A.11-1** identified above, which implements a performance standard, will reduce this impact, where it is technically and economically feasible to do so. As under the proposed Project, individual projects that would occur under Additional Housing Alternative A would be subject to additional review through the

County's ASA or other approval processes, and additional noise reduction measures may be imposed at that time.

Nevertheless, given the proximity of impacted receptors may preclude a reduction of noise to a less than 15 dBA increase, and because it is unknown whether conditions justifying a variance might occur, it is possible that temporary or periodic increases in ambient noise in the vicinity of Additional Housing Alternative A would remain significant, even with implementation of noise reduction mitigation. Consequently, this impact is considered significant and unavoidable.

Potential Construction-Related Noise Increases Impacts at On-Site Receptors

Additional Housing Alternative A would result in more on-site construction than the proposed project, and would have a larger on-site residential population that could be exposed construction noise. As under the proposed Project, within the vicinity of the Project site under Additional Housing Alternative A, residential uses inclusive of on-site residential, day care or instructional classroom land uses would be considered noise sensitive to potential construction-related impacts of the proposed Project. These on-site receptors could be 50 feet or closer to construction activities that would occur under this alternative. Consequently, temporary construction-related noise increases to on-site receptors could be 15 dBA or greater, and thus would also be significant. As is done currently, and similar to the proposed Project, Stanford would manage and modify its instructional classroom activities under this alternative as needed to ensure temporary construction noise-related effects to instructional classroom land uses would be less than significant. Implementation of **Mitigation Measure 7A.11.2**, the same mitigation proposed for the Project, identifies a minimum construction noise performance standard for noise effects to on-site residential or day care land uses that will reduce construction noise impacts, where it is technically and economically feasible to do so. Similar to the proposed Project, it is expected that individual projects that would occur under Additional Housing Alternative A would be subject to additional review through the County's ASA or other approval processes, and additional noise reduction measures may be imposed at that time.

Nevertheless, given that the proximity of impacted receptors may preclude a reduction of noise to a less than 15 dBA increase, it is possible that temporary or periodic increases in ambient noise in the Project site vicinity would remain significant, even with implementation of noise reduction mitigation. Consequently, similar to the proposed Project this impact under this alternative is considered significant and unavoidable.

Mitigation: Implement Mitigation Measure 7A.11-1 noise impacts at off-site receptors.

Mitigation Measure 7A.11-2: Construction Noise Control Measures and Noise Control Plan for On-Site Receptors. For construction activities over two weeks in duration, and within 150 feet of on-site sensitive receptors, Stanford shall identify noise attenuation measures to reduce the generation of construction noise to achieve a minimum performance standard of 80 dBA, Leq over an 8-hour period at the nearest on-site residential or day care land use.²⁷ These measures shall be described in a Noise Control Plan that shall be submitted for review and approval by the County Planning and

²⁷ Consistent with noise criteria used by FTA for construction activities in vicinity of residential land uses (FTA, 2006).

Development Department prior to issuance of a building permit to ensure that construction noise is consistent with the standards.

If necessary to achieve the minimum performance standard stated above, measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds). At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels to below 80 dBA;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible; and
- Stationary construction noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.11-3: Additional Housing Alternative A construction could result in temporary exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels in the Project site vicinity. (Significant)

Additional Housing Alternative A would involve more on-campus construction compared to the proposed Project due to the additional on-campus housing under this alternative. Thus, Additional Housing Alternative A would have the potential for greater construction groundborne vibration and noise effects than the proposed Project over the duration of the use permit.

A variety of construction activities can propagate ground-borne vibration, demolition (e.g., use of hoe-rams for demolishing large concrete structures), grading activities (e.g., use of vibratory rollers for soil compaction) and pile installation for foundations. As with the proposed Project, under Additional Housing Alternative A, Stanford would not conduct any impact pile driving on construction projects necessitating piles, but rather, would use alternative pile installation methods (e.g., drilling to place piles) to minimize potential noise and vibration disruption.

As discussed for the proposed Project, the vibration threshold for architectural damage to historic buildings and structures is 0.12 PPV (in/sec), the vibration threshold for damage to all other structures is 0.3 in/sec, and the vibration threshold for an adverse human reaction is 0.1 in/sec.

Similar to the approach taken for the proposed Project, this impact analysis conservatively assumes that construction under Additional Housing Alternative A could occur within the immediate vicinity of one or more of Stanford's historic structures.

Groundborne vibration from grading, excavation, and building construction could produce substantial temporary vibration levels at nearby sensitive receptors, as well as at nearby structures. The extent to which these receptors and structures would be affected by groundborne vibration depends largely on soil conditions, building design and materials, construction techniques employed, distance from the construction site to the receptor and structure, and the age and condition of the structure.

Typical reference vibration levels for various pieces of construction equipment are listed below in **Table 7A.11-2.**

TABLE 7A.11-2
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment/Activity	PPV at 25 ft (inches/second)^a
Jackhammer	0.035
Loaded Trucks	0.076
Caisson Drilling (represents Auger Drilling Pile Installation)	0.089
Large Bulldozer	0.089
Hoe Ram	0.089
Vibratory Roller	0.210

SOURCE: FTA, 2006 (Table 12-2, p. 12-12).

As shown in Table 7A.11-2, the use of vibratory rollers would have the potential to create the greatest vibration levels during construction. Based on the vibration velocities in Table 7A.11-2, vibratory rollers would have the potential to cause damage to historic buildings and structures to if it were to occur within an estimated 40 feet of those structures. This would also be the distance from residential land uses at which the adverse human reaction of 0.1 in/sec would start to be exceeded. Construction activities would have the potential to cause damage to modern structures at a distance of 20 feet.

Similar to the proposed Project, due to the proximity of historic structures within the Project site to construction activities that would occur under Additional Housing Alternative A, construction vibration levels could exceed building damage and adverse human reaction threshold, resulting in a significant impact. Implementation of **Mitigation Measure 7A.11-3**, the same mitigation as that identified for the proposed Project, would address this impact, and ensure it would be reduced to a less-than-significant level.

Mitigation Measure 7A.11-3: Construction Vibration Reduction Plan. If construction involving vibratory rollers, hoe rams, or large bulldozers is proposed within 40 feet of an historic structure, Stanford shall develop a Vibration Reduction Plan in coordination with an acoustical consultant, geotechnical engineer, and/or construction contractor, for review

and approval by the County Planning and Development Department. Measures and controls shall be identified based on project-specific final design plans, and may include, but are not limited to, either or both of the following:

1. Use non-vibratory excavator-mounted compaction wheels and small smooth drum rollers for final compaction of asphalt base and asphalt concrete. If needed to meet compaction requirements, smaller vibratory rollers will be used to minimize vibration levels during repaving activities where needed to meet vibration standards.
2. Implementation of buffers and the use of specific types of equipment to minimize vibration impacts during construction at nearby receptors in order to meet a performance standard of 0.12 inches per second PPV at historic buildings and 0.3 inches per second PPV at non-historic buildings.
3. Implementation of a vibration, crack, and line and grade monitoring program for identified historic buildings located within 40 feet of construction activities, in coordination with a geotechnical engineer and qualified architectural historian.

Significance after Mitigation: Less than Significant.

Operational Impacts

Impact 7A.11-4: Additional Housing Alternative A could increase long-term noise levels in the Project vicinity to levels in excess of applicable noise standards. (Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit and therefore, would have more on-site noise sources and more on-site noise-sensitive receptors than the proposed Project.

Similar to the proposed Project, new development under Additional Housing Alternative A would generate noise from heating, ventilating, and air conditioning mechanical equipment that would serve each building. Emergency backup generators, if required for new buildings, would be tested regularly and operated occasionally. Typically, the Bay Area Air Quality Management District (BAAQMD) permits emergency backup generators to operate for up to 50 hours per year, or on average about one hour per week.

While, as under the proposed Project, the specific location of new buildings (and associated building mechanical equipment) that would be developed, and the distance to the nearest sensitive receptors, is not known for this alternative at this time, development under Additional Housing Alternative A would occur on County lands and therefore would be required to comply with the noise restrictions of the Santa Clara County noise ordinance.

Future uses within the Project area could require loading docks. Noise levels of 80 dBA L_{max} and 60 dBA L_{eq} at a distance of 50 feet can be generated during loading dock activities (ESA, 2008).

Existing off-site sensitive receptors in the jurisdictions of Palo Alto and Menlo Park are located as close as 80 feet to the Project site. Consequently, as was assumed for the proposed Project, it is

conservatively assumed that mechanical equipment operation and loading dock activity from new development under Additional Housing Alternative A could increase noise levels at the nearest off-site sensitive receptor by more than the 6 dBA allowed by the City of Palo Alto Noise Ordinance and create a noticeable increase in ambient noise levels above baseline noise levels. Similar to the proposed Project, increased noise from building mechanical equipment under Additional Housing Alternative A is identified as a significant impact.

Mitigation Measure 7A.11-4: Shield or Enclose HVAC Equipment and Emergency Generators. Noise levels from mechanical equipment within 150 feet of sensitive receptors shall be minimized by proper siting and selection of such equipment and through installation of sufficient acoustical shielding or noise emission controls. An acoustical analysis shall be prepared by a qualified professional to ensure that the new mechanical equipment achieves the following noise standards at the property line of an offsite sensitive land uses in Palo Alto or Menlo Park, or at the nearest on-site residential, day care or instructional classroom land use:

- The project shall not cause the average 24-hour noise level (Ldn) to increase by 5.0 dB or more in an existing residential area, even if the Ldn would remain below 60 dB;
- The project shall not cause the Ldn to increase by 3.0 dB or more in an existing residential area, thereby causing the Ldn in the area to exceed 60 dB;
- The project shall not cause an increase of 3.0 dB or more in an existing residential area where the Ldn currently exceeds 60 dB.

Noise levels from the periodic testing of emergency generators within 150 feet of sensitive receptors in the cities of Palo Alto or Menlo Park also shall be minimized by proper siting and through installation of acoustical shielding. Scheduled testing of an emergency generator must not occur before 7:00 a.m. or after 7:00 p.m.

Significance after Mitigation: Less than Significant.

Impact 7A.11-5: Additional Housing Alternative A traffic would not substantially increase traffic noise levels in the vicinity of the Project site. (Less than Significant)

As under the proposed Project, additional traffic generated by Additional Housing Alternative A would increase noise levels on the roadway network. A traffic-related ambient noise increase of either 3 or 5 dBA or more would be considered a significant impact, depending the existing roadway noise levels, where sensitive receptors are located along the affected roadway segments. Traffic noise levels at intersections most affected by traffic from Additional Housing Alternative A were modeled using the FHWA Traffic Noise Prediction Model and the turning movements for 2018 Baseline and 2018 Baseline plus Project conditions from the transportation analysis.

The roadway segments analyzed and results of the modeling are shown in Table 7A.11-3. As shown in Table 7A.11-3, under the 2018 Baseline plus Additional Housing Alternative A scenario, traffic noise would increase between 0.1 and 0.7 dBA (less than the minimum 3 dBA

threshold), depending on roadway study segment. Therefore, development under Additional Housing Alternative A would result in a less than significant operational traffic noise impact. This is a similar conclusion that was reached for the proposed Project, where traffic noise would increase between 0.1 and 0.5 dBA, and also less than the minimum 3 dBA threshold.

TABLE 7A.11-3
TRAFFIC ROADSIDE NOISE LEVELS IN THE PROJECT SITE VICINITY

Roadway Segment	Baseline (2018)	Baseline Plus Additional Housing Alternative A (2018)	Difference between Additional Housing Alternative A and Baseline	Cumulative No Project (2035)	Cumulative Plus Additional Housing Alternative A (2035)	Difference between Cumulative Plus Additional Housing Alternative A 2018 Baseline	Difference between Cumulative Plus Additional Housing Alternative A and Cumulative No Additional Housing Alternative A
	(A)	(B)	(B-A)	(C)	(D)	(D-A)	(D-C)
Sand Hill Road							
between Stock Farm Road and Pasteur Drive	70.3	70.6	0.3	70.6	70.9	0.6	0.3
between Santa Cruz Avenue and Stock Farm Road	70.9	71.2	0.3	70.9	71.2	0.3	0.3
between Saga Lane and Sharon Park Drive	70.9	71.1	0.2	70.7	71.0	0.2	0.4
El Camino Real							
between Churchill Avenue and Serra Street	71.2	71.7	0.5	72.4	72.7	1.5	0.3
Junipero Serra Boulevard							
between Campus Drive and Stanford Avenue	68.1	68.6	0.5	68.7	69.1	1.0	0.4
between Stanford Avenue and Page Mill Road	68.7	69.4	0.7	69.4	70.0	1.3	0.6
Foothill Expressway							
between Arastadero Road and Edith Avenue	72.3	72.4	0.1	74.2	74.3	2.0	0.1
Alpine Road							
between I-280 and Junipero Serra Boulevard	69.8	70.1	0.3	70.2	70.5	0.7	0.3
Oregon Expressway							
between El Camino Real and Middlefield Road	71.3	71.4	0.1	71.9	72.0	0.7	0.1
Embarcadero Road							
between Town & Country and Middlefield Road	65.9	66.2	0.3	67.1	67.3	1.4	0.2
Stanford Avenue							
between Bowdoin Avenue and El Camino Real	61.3	62.0	0.7	61.6	62.3	1.0	0.7

NOTES:

Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model.

Source: FHWA, 2006 and ESA, 2018

Mitigation: None required.

Cumulative Impacts

Impact 7A.11-6: Additional Housing Alternative A construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to cumulative noise impacts. (Significant)

Similar to the proposed Project, development under Additional Housing Alternative A may be constructed during the same time and duration as cumulative projects in the area, and could result in a contribution to construction noise levels. The geographic study area for cumulative construction impacts is defined as a 500-foot radius around the Project site.

The most notable off-site cumulative project that would generate construction noise within this screening distance would be the final stages of construction for the SUMC Renewal Project. Construction noise impacts associated with the SUMC Renewal Project were identified as significant and unavoidable at both the project-level and cumulative scenario in the *Stanford University Medical Center Facilities Renewal and Replacement Draft EIR*. The great majority of construction associated with the SUMC Renewal Project would be completed prior to commencement of construction under Additional Housing Alternative A. However, the SUMC Renewal Project's replacement buildings for the School of Medicine and some of that project's hospital/clinic square footage would be constructed during implementation of Additional Housing Alternative A and, consequently, similar to the proposed Project, could overlap with construction Additional Housing Alternative A. This could include housing construction that would occur within the Quarry and West Campus Development District under this alternative.

Similar to the proposed Project, given that construction noise from development under Additional Housing Alternative A would be significant, as described under Impacts 7A.11-1 and 7A.11-2, and that construction noise from the SUMC Renewal Project would be significant, there could be a significant cumulative construction noise impact. Consequently, as with the proposed Project, mitigation measures are identified to limit the cumulative contribution of noise from construction under Additional Housing Alternative A. Additional Housing Alternative A contribution to cumulative construction noise impacts would be reduced with mitigation, but not to a level that is less than significant for the reasons provided in the discussion of Impact 7A.11-2. This is the same finding as under the proposed Project.

Mitigation: Implement Mitigation Measure 7A.11-1, *Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors*, and Mitigation Measure 7A.11-2, *Construction Noise Control Measures and Noise Control Plan for On-Site Receptors*.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.11-7: Additional Housing Alternative A traffic in combination with traffic from cumulative development would not contribute considerably to cumulative noise impacts. (Less than Significant)

Long-term noise from cumulative development would primarily occur from motor vehicle traffic. When considered alone, development under Additional Housing Alternative A would generate

noise mainly by adding more traffic to area roads and streets. Other anticipated projects would also contribute increased traffic volumes that would generate noise in the area. Any project that would individually have a significant project level noise impact would also be considered to have a significant cumulative noise impact.

A permanent noise increase of 3 dBA or 5 dBA or more in ambient noise levels in the vicinity above levels existing without Additional Housing Alternative A would be considered to generate a significant impact. Traffic noise levels at intersections most affected by traffic from buildout of Additional Housing Alternative A were modeled using the FHWA Traffic Noise Prediction Model and the turning movements for the existing conditions, Cumulative No Project (2035) and Cumulative plus Additional Housing Alternative A (2035) conditions. The segments analyzed and the results of the noise modeling are shown in Table 7A.11-3.

As shown in Table 7A.11-3, the increase in traffic noise between the Baseline (2018) and Cumulative Plus Project (2035) scenario would be no more than 2.0 dBA (less than the minimum 3 dBA threshold) at all analyzed roadway segments. Therefore, the cumulative traffic noise impact under Additional Housing Alternative A would be less than significant. This is the same finding as for the proposed Project.

Mitigation: None required.

Population and Housing²⁸

Impact 7A.12-1: Additional Housing Alternative A would not directly induce substantial population growth by proposing new homes or businesses, and indirectly through the extension of infrastructure. (Less than Significant)

As noted in the proposed Project impact analysis, population and housing changes, in and of themselves, are not normally considered to be significant impacts (i.e., substantial, adverse impacts on the physical environment) under CEQA, but CEQA does allow inclusion of these effects as indicators of other impacts. More specifically, CEQA Guidelines section 15131 provides that social and economic effects may be considered to the extent that (1) they provide a linked connection between the proposed project and a physical environmental effect, or (2) they are useful in determining the significance of a physical environmental effect. The potential physical environmental impacts associated with changes in population and housing due to Additional Housing Alternative A are analyzed in other sections of this chapter (e.g., transportation, public services, air quality).

²⁸ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives population and housing analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-PHD included in this document.

As shown in **Table 7A.12-1**, Additional Housing Alternative A would result in the same projected total/daily population growth as that which would occur under the proposed 2018 General Use Permit.

TABLE 7A.12-1
ANTICIPATED POPULATION GROWTH IN ALL POPULATION SEGMENTS UNDER
ADDITIONAL HOUSING ALTERNATIVE A

Affiliation	2018 Population	2035 Population under Additional Housing Alternative A	Change in Population between 2018 and 2035
Undergraduate Students	7,085	8,785	1,700
Graduate Students, including PhDs	9,528	10,728	1,200
Postdoctoral Students ^a	2,403	3,364	961
Faculty ^b	3,073	3,862	789
On-Campus Staff ^c	8,985	11,423	2,438
Nonmatriculated Students ^d	977	1,397	420
Other Workers (total / daily based on commute frequency) ^e	9,166 / 5,321	11,267 / 6,395	2,101 / 1,074
Total / Daily	41,217 / 37,372	50,827 / 45,955	9,610 / 8,583

NOTES:

^a Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^b Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^c Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^d Non-matriculated students are students taking courses or engaged in graduate-level research or training but who are not seeking a degree.

^e Other worker populations includes casual, contingent, and temporary employees; non-employee academic affiliates; and third party contractors including janitorial staff and construction workers.

SOURCE: Stanford University Land Use and Environmental Planning Office, in consultation with Stanford Office of Institutional Research and Decision Support

However, since this alternative would provide additional on campus housing to accommodate the net increase in off-campus population that would occur under the proposed Project, the anticipated population that would reside on the Project site under this alternative would be greater than under the proposed Project.

The anticipated population that would reside on the Project site in 2035 is shown in Table 7A-3 in the Additional Housing Alternative A description. The increase in on-campus residential population associated with new housing that would be authorized under the proposed 2018 General Use Permit (6,326) combined with the increase in on-campus residential population associated with the additional on-campus housing proposed under this alternative (6,247), would result in a total increase in on-campus residential population of 12,573. The total on-campus residential population in 2035 under this alternative would be 27,911 compared to 21,664 under the proposed Project.

Additional Housing Alternative A assumes that Stanford would provide housing equal to the increased housing demand generated by the proposed 2018 General Use Permit and that the additional demand would be met by constructing additional on-campus housing. Therefore, in

addition to the proposed on-campus housing that would be provided under the proposed 2018 General Use Permit (3,150 units/beds), this alternative would also provide an additional 2,549 units/beds of on-campus housing, equivalent to the net increase in off-campus housing demand that would occur under the proposed Project. Thus, Additional Housing Alternative A includes the provision of a total of 5,699 new on-campus housing units/beds.

Unlike the proposed 2018 General Use Permit, the growth of Stanford-affiliated populations under Additional Housing Alternative A would not result in the construction of housing in other Bay Area communities beyond the Project site. Therefore, the potential negative effects of such growth associated with typical residential development projects would not occur in off-campus locations under this alternative. (Please note that, as described under Additional Housing Alternative A Description, Stanford could elect to, subject to approval by the County, to offset some or all of the incremental off-campus housing demand by providing off-campus housing; the potential environmental consequences of that option are addressed in Impact 7A.17-1, below.)

Similar to the proposed Project, this alternative would accommodate construction of campus infrastructure improvements to support proposed growth, including, but not limited to, utilities and circulation improvements such as pathways, underground pipelines, electrical transmission lines, water supply infrastructure, habitat improvements, and other similar types of improvements. Although most infrastructure would be constructed on vacant land, infill sites, and redevelopment sites within the Academic Growth Boundary, some improvements could occur outside the Academic Growth Boundary. Similar to the proposed Project, development under Additional Housing Alternative A would include infrastructure improvements designed to accommodate Stanford's growth through 2035.

Based on the above analysis, similar to the proposed Project, Additional Housing Alternative A would not directly induce substantial population growth by proposing new homes or businesses, or indirectly through the extension of infrastructure, and the impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7A.12-2: Additional Housing Alternative A, in combination with past, present, and future projects would not result in substantial adverse cumulative population and housing impacts. (Less than Significant)

The geographic scope of potential population and housing impacts encompasses the Stanford lands within the proposed 2018 General Use Permit boundary as well as Bay Area communities that could be affected by population growth resulting from the Project.

Under this alternative, the total estimated direct increase in residential population within the Project site between 2018 and 2035 would be 12,573 people in 2035. This alternative would avoid typical environmental impacts associated with the proposed Project's off-site housing

development. As this population would be housed entirely within the Project site, the increase in population would not combine with non-Stanford population growth in Santa Clara County or other Bay Area communities and contribute to the Bay Area's cumulative housing impact. The impact would therefore be less than significant.

Mitigation: None required.

Public Services²⁹

Construction Impacts

Impact 7A.13-1: Additional Housing Alternative A could increase demand for fire protection, emergency medical service and police protection services but would not result in an adverse physical impact from the construction of additional fire protection, emergency medical, or police protection facilities in order to maintain acceptable performance standards. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. As a result, this alternative could result in additional demand for public services during construction. Similar to construction under the proposed 2018 General Use Permit, construction of individual projects under this alternative would result in temporary increases in vehicle congestion, delays and potential conflicts in the construction site vicinities and/or along construction haul routes; as well as the potential for construction worker accidents and medical emergencies at the construction sites, potentially requiring associated temporary increases in responses from public fire protection, EMS and/or police protection services to these incidents.

As under the proposed Project, all construction activities that would occur at construction sites under this alternative would be required to be conducted in compliance with applicable regulations, including Cal/OSHA standards and practices for worker safety, minimizing the need for public fire protection and emergency service response to worker accidents at construction sites. In addition, similar to mitigation identified for the proposed Project, Mitigation Measure 7A.15-1 under Transportation and Traffic, below, would ensure appropriate construction traffic control measures would be implemented for individual construction projects under this alternative to minimize on- and off-site construction traffic effects, and further minimizing potential construction traffic incidents requiring public fire, EMS and police response. As under the proposed Project, Stanford would pay the City of Palo Alto a fair share contribution annually for PAFD fire protection services and for communication and emergency dispatch services from the PAPD.

²⁹ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives student generation analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-SCH included in this document.

While construction would periodically occur over the duration of this alternative, construction activities in and of themselves would not generate a significant additional demand for public fire protection, EMS and/or police services that would require new or physically altered facilities. Therefore, similar to the proposed Project, Additional Housing Alternative A would generate a less-than-significant construction impact related to fire protection, EMS and police protection services. See also Impacts 7A.13-2 and 7A.13-3, below.

Mitigation: None required.

Operational Impacts

Impact 7A.13-2: Operation of uses under Additional Housing Alternative A would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)

Additional Housing Alternative A would increase housing development on the Project site, and associated residential population, above that proposed by the 2018 General Use Permit, and thus, would increase demand for public fire protection and EMS services beyond that generated by the Project. As under the proposed Project, the increase in development and population under this alternative would occur within existing urbanized areas of the campus, and consequently, would be served by the existing on-campus Fire Station 6. As discussed in Section 5.13 of the Draft EIR, Stanford DPS is relocating to the planned Public Safety Building and Departmental Operations Center in Stanford's Bonair Corporation Yard, which will in turn serve to provide additional operational space for PAFD or another provider at Fire Station 6 to use, if needed.

Similar to the proposed Project, this alternative would allow for authorization of expanded or new academic support development, which could include additional on-campus fire protection/EMS facilities, if needed to serve the campus population in the future. All potential environmental effects associated with construction and operation of academic support development that would occur under this alternative are addressed throughout the analysis for other environmental topics presented for this alternative.

As with the proposed Project, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually for fire protection services from the PAFD. The City of Palo Alto and Stanford are currently in negotiation for a 3-5 year contract for PAFD to provide fire protection and EMS services to Stanford, with automatic renewal.

Similar to the proposed Project, new development that would occur on the Project site under this alternative would require fire and life safety code compliance, provided by the Stanford University Fire Marshal's Office (SUFMO). As under the proposed Project, as new individual developments are proposed under this alternative, the SUFMO would review building plans to ensure the project provides for adequate compliance with fire code requirements.

Given these factors, increases in development on the Project site, and increase in residential and commuter population under this alternative would increase demand for fire protection and emergency medical services, however, would not result in an adverse physical impact from the construction of additional fire protection or emergency medical service facilities. Therefore, similar to the proposed Project, operation of this alternative would generate a less-than-significant impact related to fire protection and EMS services.

Mitigation: None required.

Impact 7A.13-3: Operation of development under the Additional Housing Alternative would increase demand for police protection services. (Less than Significant)

Additional Housing Alternative A would increase housing development on the Project site, and associated residential population, above that proposed by the 2018 General Use Permit, and thus, would increase demand for police protection services beyond that generated by the Project. As discussed in Section 5.13 in the Draft EIR, the Stanford DPS will be relocating on-campus to the planned Public Safety Building and Departmental Operations Center. As under the proposed Project, this facility would provide adequate space for Stanford DPS to operate throughout the life of this alternative.

Similar to the proposed Project, this alternative would also allow for new and/or expanded academic support development, which could include additional Stanford DPS facilities, if needed, to serve the campus population in the future. All potential environmental effects associated with construction and operation of academic support development that would occur under this alternative are addressed throughout the analysis for other environmental topics presented for this alternative.

As with the proposed Project, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually as compensation for the communication and emergency dispatch services it would receive from the PAPD.

As discussed in Section 5.13 in the Draft EIR, the City of Palo Alto is also planning a new Public Services Building (expected to be operational in 2021) that would house the PAPD, as well as its emergency dispatch center and other services, and will accommodate existing and future police and emergency planning facility needs of the City.

Given these factors, increases in development on the Project site and increase in resident and commuter population under this alternative would increase demand for police protection services, but would not result in an adverse physical impact from the construction of additional police protection facilities. Therefore, similar to the proposed Project, operation of this alternative would generate a less-than-significant impact to police protection services.

Mitigation: None required.

Impact 7A.13-4: Additional Housing Alternative A would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards. (Less than Significant)

Additional Housing Alternative A would increase residential development and the associated residential population on the campus compared to the proposed 2018 General Use Permit. Therefore, this alternative would increase on-campus school-aged children that would be served by PAUSD over that which would be generated by the proposed Project.

This analysis uses student generation rates based on children per household to estimate the number of school-age children that would be generated as a result of increased campus population under this alternative. Similar to the proposed Project, rates of 0.23 for elementary school, 0.12 for middle school, and 0.15 for high school were used for this alternative, for a total student generation rate of 0.50. These student generation rates used are consistent with the moderate student generation rates used by PAUSD's demographer, DecisionInsite, in its Fall 2016 Residential Research Summary Report.³⁰ The additional on-campus housing that would be developed under this alternative would be multi-family units, similar to that analyzed for the proposed Project; and consequently, the multi-family student generation rates would remain applicable.³¹

Table 7A.13-1 summarizes the estimated enrollment in PAUSD schools from students generated under this alternative. Under this alternative, 2,892 new faculty/staff housing units (an increase of 2,342 units over the proposed Project) would be constructed on-campus that could be occupied by faculty and staff, including postdoctoral students and medical residents, and/or other workers. Application of the student generation ratios to the 2,892 new units results in an estimated increase of 1,446 additional school-age children (1,171 more school-age children than the proposed Project). As shown in Table 7A.13-1, similar to the proposed Project, the addition of school-age students to the PAUSD would be diffused over various grade levels and schools. As under the proposed Project, since buildout of this alternative, including new residential units, would occur incrementally over an approximate 17-year span, the school-age students generated by this alternative that would be added to PAUSD schools would also occur incrementally over this span.

As described in the Draft EIR Section 5.13, currently PAUSD middle school enrollment exceeds PAUSD middle school capacity, whereas PAUSD elementary and high school enrollment are within PAUSD capacity. However, the PAUSD projected a decline in both its elementary and middle school student enrollment through its planning horizon of 2026/27. In addition, while PAUSD projected a near-term increase in its high school enrollment until 2020, it projected a decline in its high school enrollment thereafter through 2026/27. More recent PAUSD enrollment projections through school year 2022/23 indicate similar near-term enrollment trends, with the exception of PAUSD elementary school enrollment, which under the moderate projection may experience up to a six percent increase over the next five years (PAUSD, 2018b). The overall

³⁰ These rates are also consistent with the rates considered in the Comprehensive Plan Update Final EIR for the City of Palo Alto (City of Palo Alto, 2017b).

³¹ It should be noted that PAUSD has since completed a Winter 2018 Residential Research Summary Report that presents higher multi-family student generation rate for the moderate scenario (0.66) than from its prior report (PAUSD, 2018a). However, data provided by Stanford of its existing faculty/staff multi-family housing on and near the campus yields a student generation rate of no more than 0.38. Consequently, the continued use of a total student yield rate of 0.5 students/unit for the Project and housing alternatives is considered conservative.

long-term projected decline in PAUSD enrollment could serve to lessen the effect of Project-generated school-age children that would attend PAUSD schools on student capacity.

TABLE 7A.13-1
ESTIMATED PAUSD ENROLLMENT FROM STANFORD 2018 GENERAL USE PERMIT FOR
ADDITIONAL HOUSING ALTERNATIVE A

Schools	Increase in Number of Units	Student Generation Rates ^a	Estimated Number of Students
Elementary	2,892	0.23	665
Middle School	2,892	0.12	347
High School	2,892	0.15	434
Total		0.50	1,446

NOTES:

^a Student generation rates from PAUSD, *Residential Research Summary*, Fall 2016 prepared by DecisionInsite, November 2016.

Consistent with the analysis for the proposed Project in Section 5.13 of the Draft EIR, if conservatively assuming that all of the students generated under Additional Housing Alternative A would be added to the PAUSD schools prior to PAUSD's planning horizon of 2026/27, when considering the existing student capacities of PAUSD schools and the declining PAUSD enrollment forecasts through its 2026/27 planning horizon, similar to the proposed Project there would be sufficient remaining capacity in PAUSD elementary, middle and high school categories to accommodate all the estimated students added by this alternative in 2026/27.

On the other hand, if considering an even more conservative scenario that the entire increase in students generated under Additional Housing Alternative A would be added to the PAUSD schools prior to its current shorter planning horizon of 2022/23, and using the more recent PAUSD enrollment projections which show higher near-term enrollment, this alternative would result in exceedances in capacity of PAUSD elementary, middle and high schools. However, these results are unlikely because as discussed above, in actuality, the development of new on-campus residential units under this alternative, and thus, the increase in school-age students generated by this alternative that would be added to PAUSD schools, would not all be concentrated within the first five years of the general use permit, but rather, would occur incrementally over an approximate 17-year span between 2018 and 2035.

In any case, even if school enrollment were to increase such that more school capacity is needed, PAUSD would have multiple options to explore before building a new school. In addition to reactivating existing school sites owned by PAUSD, such as Cubberley, Greendell and Garfield, the PAUSD also has several school properties currently leased to private school providers, such as Athena Academy, Pinewood School and the Ventura site. PAUSD could also take advantage of schools that may be operating below capacity by redrawing lines designating which neighborhoods attend a given school or by adding modular classrooms. Given these circumstances, construction of a new school appears to be speculative even with the increases in student generation that could occur under this alternative. In the event any PAUSD school

expansion occurs, PAUSD would be required to undergo site-specific environmental review, as appropriate, prior to consideration of approval by the PAUSD.

Pursuant to California Government Code Sections 65995.5 through 65997, and related impact fees established by the PAUSD, school impact fees are charged for new residential and commercial development that would be developed by Stanford under this alternative. Pursuant to Government Code section 65997, payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with this alternative.

When considering all the above factors, while Additional Housing Alternative A would increase enrollment in local public schools, this alternative would not result in adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards.

Mitigation: None required.

Cumulative Impacts

Impact 7A.13-5: Implementation of Additional Housing Alternative A in combination with past, present, and reasonably foreseeable projects, would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards. (Less than Significant)

This section analyzes potential impacts to fire protection services that could occur from this alternative in combination with reasonably foreseeable growth in the PAFD service area. As discussed in the Environmental Setting, the PAFD service area includes the jurisdictional boundaries of Palo Alto in addition to some of the unincorporated land surrounding the city limits, including the Project site.

As discussed in Impacts 7A.13-1 and 7A.13-2, above, the alternative's impact to PAFD's fire protection and EMS services is determined to be less than significant. Sufficient fire protection facilities would exist on campus to serve additional development and population under this alternative. Furthermore, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually for fire protection services from the PAFD.

The City of Palo Alto is implementing a number of improvements to PAFD fire station facilities in its City, including improvements to Fire Station 1 by 2019, replacement of Fire Station 3 by 2019, and a planned replacement of Fire Station 4 by 2020. As discussed for the Project, PAFD indicates with these planned improvements, the PAFD can adequately serve the increased demand from increased growth and buildout of the City. Annual City reviews and monitoring of fire department services and performance metrics (including response times) that is conducted by the City would help to ensure that the PAFD would continue to adequately meet the demands of the city and accommodate growth not only by this alternative but from throughout the city.

Therefore, the cumulative impact under this alternative would be less than significant.

Mitigation: None required.

Impact 7A.13-6: Development of Additional Housing Alternative A in combination with past, present, and reasonably foreseeable projects would increase demand for police protection services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards. (Less than Significant)

Cumulative impacts are considered in the context of the growth and development under the alternative as they are within the service area of Stanford DPS, as well as that of the PAPD and the Santa Clara County Sheriff's Department.

As discussed in Impacts 7A.13-1 and 7A.13-3, above, the alternative's impact on police protection services, including Stanford DPS, PAPD and the Santa Clara County Sheriff's Department, is determined to be less than significant. Stanford DPS is relocating on-campus to its planned Public Safety Building and Departmental Operations Center which will provide adequate space for Stanford DPS to operate under this alternative. In addition, the City of Palo Alto planned new PSB will house the PAPD, as well as its emergency dispatch center and other services, and will accommodate existing and future police and emergency planning facility needs of the City. Additionally, annual City reviews and monitoring of law enforcement services and performance metrics (including dispatch response times) that is conducted by the City of Palo Alto would help to ensure that the PAPD would continue to adequately meet the demands of the city and are able to accommodate growth not only by this alternative but from throughout the city.

Therefore, implementation of this alternative in combination with past, present, and reasonably foreseeable projects would have a less-than-significant cumulative effect with respect to police protection services.

Mitigation: None required.

Impact 7A.13-7: Development of Additional Housing Alternative A in combination with past, present, and reasonably foreseeable projects would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards. (Less than Significant)

This section analyzes potential impacts related to schools that could occur from implementation of this alternative in combination with reasonably foreseeable growth in PAUSD's service area. Cumulative development within the PAUSD service area would generate new students to PAUSD, which could result in the need for new or expanded school facilities.

As discussed in Impact 7A.13-4, above, when conservatively considering the existing student capacity of PAUSD schools and the declining PAUSD enrollment forecasts through its 2026/27 planning horizon, there would be sufficient remaining capacity in PAUSD elementary, middle

and high school categories to accommodate all the estimated added students generated by this alternative in 2026/27. Impact 7A.13-4 also acknowledges that in an even more conservative scenario that the entire increase in students generated under Additional Housing Alternative A would be added to the PAUSD schools prior to its current shorter planning horizon of 2022/23, this alternative would result in exceedances in capacity of PAUSD schools; although, these results are unlikely given that new on-campus residential uses under alternative would be developed incrementally over an approximate 17-year span under the new general use permit. Nonetheless, Impact 7A.13-4 describes multiple options available to PAUSD to explore to increase school capacity if needed. Impact 7A.13-4 also discusses that Stanford's payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with the proposed alternative.

The City of Palo Alto recently completed environmental review for, and adopted an update to, its Comprehensive Plan, which considered a range of future growth scenarios. The selection of the preferred scenario by the City would result in 3,545 to 4,420 new housing units in the City that could generate between 1,773 and 3,632 new students. The Final EIR for the update to the Comprehensive Plan determined that this range of anticipated student growth would result in an exceedance of existing PAUSD capacity for its elementary, middle and high schools. The PAUSD is responsible for updating its enrollment forecasts as needed, including any increases that would be associated with growth under the City's Comprehensive Plan. However, the additional student growth under Additional Housing Alternative A combined with the cumulative growth anticipated under the Comprehensive Plan would result in a cumulative increase to enrollment of public schools within the PAUSD service area. As with the Additional Housing Alternative A, all other cumulative projects within the PAUSD service area would also be subject to the school development fees.

It is unknown where or how school facilities would be expanded to accommodate future students. It would therefore be speculative to analyze the impacts of potential future school construction projects in this EIR. As noted above under Impact 7A.13-4, even if school enrollment were to increase such that more school capacity is needed, PAUSD would have multiple options to explore before building a new school. In addition to reactivating existing school sites owned by PAUSD, such as Cubberley, Greendell and Garfield, the PAUSD also has several school properties currently leased to private school providers, such as Athena Academy, Pinewood School and the Ventura site. PAUSD could also take advantage of schools that may be operating below capacity by redrawing lines designating which neighborhoods attend a given school, or by adding modular classrooms and/or developing two-story facilities. The PAUSD is currently preparing its 2018 Facilities Master Plan. As part of the development of the plan, the PAUSD is in the process of defining districtwide standards, and considering infrastructure needs at each of its school sites. The PAUSD Board is considering placing a bond measure on the November 2018, March 2020, or November 2020 ballot to provide funding for the next 20 years of PAUSD facilities improvements. Given these circumstances, construction of a new school appears to be speculative even with the increases in student generation that could occur under this alternative. Further, if it is determined that additional school facilities are needed as growth occurs, expansion and/or construction would be subject to separate environmental review, thereby providing an opportunity to identify and mitigate associated environmental impacts.

Therefore, Additional Housing Alternative A's contribution to cumulative impacts related to school facilities would be less than significant.

Mitigation: None required.

Recreation³²

Approach to Analysis

On-Campus Impacts

Consistent with the analysis prepared for the proposed Project, this alternative analysis also considers the number of all on-campus residents anticipated under Additional Housing Alternative A compared to the total acreage of designated Campus Open Space lands to determine whether there would be at least five acres of designated Campus Open Space per 1,000 campus residents.³³

Off-Campus Impacts

Similar to the approach used to consider off-campus impacts to parks and recreation facilities for the proposed Project, the analysis of Additional Housing Alternative A considers the neighboring public park and recreation facilities used by Stanford's residential population and the potential that an increase in use of off-site facilities under this alternative could contribute to substantial deterioration of those facilities.

Consistent with the approach used to analyze the proposed Project, a combined daily visit generation rate is used for faculty, staff and postdoctoral students to estimate the potential increase in visits to public park and recreation facilities identified in Palo Alto and Menlo Park. This data relies on visit generation rates calculated from a campus-wide survey conducted in 2016. Where other workers are included in the on-campus resident population under this alternative, their household size and park usage behavior are assumed to be the same as that of faculty, staff and postdoctoral students. Similar to that assumed for the proposed Project, this analysis also assumes that spouses and dependents would have the same behavior as the primary affiliate.

Similar to the analysis of the proposed Project, Stanford also conducted a sensitivity analysis that conservatively considered the additive effect of any incidental use of nearby parks and recreation facilities associated with an increase in Stanford commuters that would occur under the alternative.

³² The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives park and recreation facilities analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-REC included in this document.

³³ Campus residents include all residents on Stanford lands within the General Use Permit boundary, including students, faculty, staff, postdoctoral students, and other workers. The resident population estimates also include the spouses and children of the population living on the campus.

Using the same screening criteria as that used for the proposed Project, if growth in on-campus residents under this alternative is found to result in more than 12.5 daily visits per acre at a particular public park or recreation facility, additional site specific analysis would be performed to determine whether the increase in visitors might require replacement of turf or other recreation facilities substantially in advance of their expected life cycles. Alternately, an increase of less than 12.5 daily visits per acre at a particular park or recreation facility would indicate that substantial deterioration from increased use by campus residents would be highly unlikely, and no additional analysis would be necessary.

Construction and Operational Impacts

Impact 7A.14-1: Additional Housing Alternative A would increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Significant)

Additional Housing Alternative A would result in a greater on-campus residential population compared to the proposed Project, and consequently, would create a greater demand for, and use of, on- and off-campus park and recreational facilities than the proposed Project.

On-Campus Park and Recreational Facility Deterioration

It is assumed that under this alternative, the location and amount of land designated as Campus Open Space in the Stanford Community Plan on the Project site would not change from baseline conditions. **Table 7A.14-1**, below, demonstrates that, with an estimated ratio of 9.5 acres of designated Campus Open Space per 1,000 campus residents, the lands designated Campus Open Space on the Project site would provide adequate space to support the estimated campus residents under this alternative. The ratio provided under this alternative would be less than that provided under the proposed Project (12.2 acres of designated Campus Open Space per 1,000 campus residents), however would still be well more than the minimum of five acres of designated Campus Open Space per 1,000 campus residents. Similar to the conclusion reached for the proposed Project, based on the availability of Campus Open Space, the increased residents under this alternative would not result in overuse that could lead to substantial degradation of parks and recreation facilities and would not create a need for construction of new onsite park, recreation and open space facilities.

TABLE 7A.14-1
STANFORD CAMPUS OPEN SPACE ACREAGE PER RESIDENT - ADDITIONAL HOUSING ALTERNATIVE A

	Fall 2018	Fall 2035 (with buildout of Additional Housing Alternative A)
Campus resident population	15,338	27,911
Designated Campus Open Space (approximate)	265	265
Ratio (acres per 1,000 residents, approximate)	17.3	9.5

SOURCE: Stanford, 2018 (see Appendix ALT-REC)

Off-Campus Park and Recreational Facility Deterioration

Table 7A.14-2 presents the estimated increase in usage in public park and recreation facilities in Palo Alto and Menlo Park by campus residents under Additional Housing Alternative A.

TABLE 7A.14-2
ESTIMATED INCREASE IN USAGE IN PUBLIC PARK AND RECREATION FACILITIES BY
ON-CAMPUS RESIDENTS UNDER ADDITIONAL HOUSING ALTERNATIVE A

Figure ^a Reference	Name	Acres ^b	Growth in Daily Visits	Daily ^c Visits per Acre
PALO ALTO				
Regional/District Parks				
1	Foothills Park/Open Space Preserve	Total 1,400; Active 26.7	173	0.1; 6.5
2	Baylands Nature Preserve	Total 1,940; Active 9.2	140	0.1; 15.2
3	Pearson-Arastradero Preserve	Total 622; Active 6.2	107	0.2; 17.3
Neighborhood Parks and Recreation Facilities				
4	Neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks)	4.4	164	37.3
5	Mayfield (Stanford-Palo Alto) playing fields	5.9	64	10.8
6	El Camino Park	12.2	59	4.8
7	Baylands Athletic Center fields	10.0	26	2.6
8	Heritage Park	2.01	26	12.9
9	Rinconada Pool	NA	16	NA
10	Mitchell Park	21.4	13	0.6
11	Peers Park	4.7	25	5.3
12	Lawn Bowling Green	1.9	3	1.6
13	Avenidas Senior Center	NA	5	NA
14	Cubberley Community Center	NA	19	NA
MENLO PARK				
Regional/District Parks				
15	Bedwell Bayfront Park	Total 160; Active 7.0	2	0.0; 0.3
Neighborhood Park and Recreation Facilities				
16	Civic Center recreation facilities	9.3	52	5.6
17	Stanford Hills Park	3.1	44	14.2
18	Sharon Park	9.8	11	1.1
19	Sharon Hills Park	11.5	11	1.0
20	Nealon Park	9.0	7	0.8
21	Jack W. Lyle Park	4.6	6	1.3

NOTES:

^a Figure references are associated with recreation facilities shown on Figure 5.14-2 in the Draft EIR.

^b Acreages of all parks were obtained from Palo Alto or Menlo Park City websites and documents, except for Sharon Hills Park, which was calculated by Stanford. Please see Appendix REC in the Draft EIR for calculations on "actively used" park areas for regional/district parks.

^c Resulting daily visits per acre is calculated based on the total of growth in daily visits under the housing alternative, which includes the growth in campus residents under the proposed Project plus the additional growth assumed for Additional Housing Alternative A.

SOURCE: Stanford, 2018 (see Appendix ALT-REC)

As shown in Table 7A.14-2, the increase in on-campus residents anticipated to occur under Additional Housing Alternative A would cause five parks to experience an increase of visits over the screening threshold of 12.5 daily visits per acre:³⁴

- Two regional/district parks: Baylands Nature Reserve and Pearson-Arastradero Preserve in Palo Alto, and,
- Three neighborhood parks: College Terrace parks and Heritage Park in Palo Alto; and Stanford Hills Park in Menlo Park.

In comparison, under the proposed Project, no public parks would experience an increase over the screening threshold.

Following the approach to analysis described above, the next step was to consider whether the increase in visitors (exceeding 12.5 per acre per day) might require replacement of turf or other recreation facilities substantially in advance of their expected life cycles.

There are no turf areas at the Pearson-Arastradero Preserve and Baylands Nature Preserve in Palo Alto. The calculation of active areas at this park was based on the length and average width of trails, mostly paved trails.³⁵ However, increased visits to the trail system would not necessarily result in accelerated deterioration of the trails. According to research by the National Park Service, human-powered trail activities effectively have a minimal degradation on unsurfaced trails.³⁶ Therefore, the potential degradation of paved trails by an increased number of visitors at the Pearson-Arastradero Preserve and Baylands Nature Preserve is minimal, and no further analysis to these parks is necessary.

There are however, turf areas identified at the remaining four parks where the increase in visits from campus residents under the housing alternatives would exceed the screening threshold: 1) Neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks), 2) Heritage Park, and 3) Stanford Hills Park.

As none of these parks have a reservation system in place to ensure adequate recovery time for the turf areas, impacts to turf areas at these parks under Additional Housing Alternative A could be significant. Over the long term, cities plan for future turf replacement on a schedule that is needed to accommodate observed increases in park usage. However, the relatively large increase in turf usage that could occur under this alternative could necessitate an initial turf replacement more quickly than might have been planned. Because turf has a natural life, and must be replaced from time to time regardless of the increase in use caused by this alternative, a one-time turf replacement could offset the impact associated with possible acceleration of turf replacement. Therefore, mitigation for increased or accelerated physical deterioration to the turf areas due to

³⁴ The sensitivity analysis conducted for Additional Housing Alternative A showed that the inclusion of commuters did not change the conclusions of this analysis.

³⁵ The calculation of turf areas and active areas is documented on Pages 16.73 and 16.74 of Appendix REC of the Draft EIR.

³⁶ Marion and Olive, 2006. *Assessing and Understanding Trail Degradation: Results from Big South Fork National River and Recreational Area*. Retrieved from California Department of Parks and Recreation: <https://www.parks.ca.gov/pages/1324/files/f10602%20marion&olive.pdf>.

implementation of this alternative would take the form of a contribution toward one-time turf replacement at these parks as included below.

Conclusion

Similar to the proposed Project, Stanford is expected to provide adequate on-campus sports, fitness and recreation facilities for faculty, staff and students under Additional Housing Alternative A. As under the proposed Project, new and expanded indoor recreation facilities would be authorized as needed as part of the academic and academic support space authorized by the General Use Permit for this alternative.

However, as discussed above, the increase in campus residents anticipated to occur under the Additional Housing Alternative A would result in an increase in off-campus public park visits resulting in a significant impact to turfs at the College Terrace parks, Heritage Park, and Stanford Hills Park. Impacts related to deterioration of recreation facilities generated by Additional Housing Alternative A would be offset with implementation of **Mitigation Measure 7A.14-1(a)-(b)**, and thus, this impact would be reduced to less than significant with mitigation.

Furthermore, implementation of Improvement Measure 7A.14-1 identified for this alternative, which is the same as that identified for the proposed Project, would provide for park upgrade funds at the four College Terrace parks to ensure these parks remain in good condition.

Mitigation Measure 7A.14-1(a): Prior to occupancy of net new on-campus housing units exceeding 4,425, Stanford shall provide to the City of Palo Alto a one-time contribution equivalent to the capital budget needs to provide for one-time turf replacement at Heritage Park. The amount of the contribution shall be determined by the County of Santa Clara based on an estimate from an independent contractor. The payment shall not be used for any purpose other than turf replacement at Heritage Park.

Prior to occupancy of net new on-campus housing units exceeding 3,150, Stanford shall provide to the City of Palo Alto a one-time contribution equivalent to the capital budget needs to provide for one-time turf replacement at neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks). The amount of the contribution shall be determined by the County of Santa Clara based on an estimate from an independent contractor. The payment shall not be used for any purpose other than turf replacement at College Terrace parks.

Mitigation Measure 7A.14-1(b): Prior to occupancy of net new on-campus housing units exceeding 4,425, Stanford shall provide to the City of Menlo Park a one-time contribution equivalent to the capital budget needs to provide for one-time turf replacement at Stanford Hills Park. The amount of the contribution shall be determined by the County of Santa Clara based on an estimate from an independent contractor. The payment shall not be used for any purpose other than turf replacement at Stanford Hills Park.

Significance after Mitigation: Less than Significant.

Improvement Measure 7A.14-1: Stanford has proposed to provide to the City of Palo Alto a one-time contribution equivalent to the capital budget needs previously identified by the City of Palo Alto (approximately \$300,000) to provide for planned park upgrades

and ensure that the four College Terrace parks remain in good condition. These improvements identified in the Palo Alto Capital Budget were as follows:

- Tennis court upgrade (\$215,000 planned for both Terman Park and Weisshaar Park, this good-neighbor offer assumes \$140,000 is for Weisshaar Park), planned for FY 2021.
- Planned infrastructure improvements to upgrade and renovate safety and accessibility of the playground and other features in Cameron Park, approximately \$160,000, planned for FY 2020.

Impact 7A.14-2: The construction of recreational facilities under Additional Housing Alternative A would cause physical effects on the environment. (Significant)

As with the proposed 2018 General Use Permit, under Additional Housing Alternative A, Stanford would likely relocate or replace some of its existing campus recreation facilities, and would use a portion of authorized net new academic and academic support square footage for new or expanded athletic and recreation facilities. Under this alternative, the placement of additional housing at the edges of the West Campus and DAPER and Administrative Development Districts could require development of lands that are currently used for existing recreation fields, which could, in turn, need to be relocated elsewhere on the campus.

Similar to the proposed Project, the creation of new open spaces and construction of recreational amenities on the Project site would result in physical effects. These effects could be associated with construction, such as noise, archeological impacts, air quality impacts such as emissions of dust and other pollutants, including diesel exhaust, and temporary street closures or other traffic obstructions. As with the proposed Project, since on-campus recreational improvements are part of the overall anticipated development program under the alternative, the associated construction-related impacts associated with new, relocated or replaced recreational facilities are addressed in the construction impact analyses above, including Section 7A.2 Air Quality, 7A.3 Biological Resources, 7A.4, Cultural Resources, 7A.8 Hazardous Materials, 7A.9 Hydrology and Water Quality, 7A.11 Noise and Vibration, and 7A.15 Transportation and Traffic. Similar to those mitigation measures identified for the proposed Project, the mitigation measures outlined in these respective topics for this alternative to reduce construction related impacts would similarly apply to on-campus park and recreation facility development.

Mitigation: Implement the following mitigation measures, as needed for construction of recreation facilities:

Air Quality

Mitigation Measure 7A.2-2: Best Management Practices for Controlling Particulate Emissions during Construction.

Mitigation Measure 7A.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Biological Resources

Mitigation Measure 7A.3-1(a)-(e): Mitigation for nesting birds during construction.

Mitigation Measure 7A.3-2(a)-(d): Mitigation for special-status bat species during construction.

Mitigation Measure 7A.3-3(a)-(c): Mitigation for San Francisco dusky-footed woodrat during construction.

Mitigation Measure 7A.3-4(a)-(b): Mitigation for special-status plant species during construction.

Mitigation Measure 7A.3-6(a)-(c): Mitigation for steelhead during construction.

Mitigation Measure 7A.3-7(a)-(b): Mitigation for riparian habitat during construction.

Mitigation Measure 7A.3-8(a)-(b): Mitigation for native oak woodland during construction.

Mitigation Measure 7A.3-9(a)-(c): Mitigation for wetlands during construction.

Mitigation Measure 7A.3-11(a)-(c): Mitigation for protected trees during construction.

Cultural Resources

Mitigation Measure 7A.4-2(a)-(b): Mitigation for protection of archaeological resources during construction.

Mitigation Measure 7A.4-3: Mitigation for protection of paleontological resources during construction.

Hazardous Materials

Mitigation Measure 7A.8-2(a)-(c): Mitigation for potentially contaminated soils during construction.

Hydrology and Water Quality

Mitigation Measure 7A.9-1: Review historic wells survey.

Noise and Vibration

Mitigation Measure 7A.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors.

Mitigation Measure 7A.11-2: Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.

Mitigation Measure 7A.11-3: Construction Vibration Reduction Plan.

Transportation and Traffic

Mitigation Measure 7A.15-1: Construction Traffic Control Measures.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7A.14-3: Additional Housing Alternative A in combination with past, present, and reasonably foreseeable future projects would increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Significant)

The geographic area for the cumulative analysis of public park and recreation facilities is focused on facilities on campus and those within three miles of the Project site. The increased demand by the Project on public park and recreation facilities (as identified under Impact 7A.14-1 above), would be coupled with that generated by the increased populations of the cities of Menlo Park and Palo Alto. Under its Comprehensive Plan Update, the City of Palo Alto considered its local City and sphere of influence population increase from 2014 to 2030 to range from 92,045 to 94,06, which correlates to an increase of 13 to 16 percent. Palo Alto's Comprehensive Plan Update Final EIR considers this population increase and concluded that cumulative impacts to parks and recreation facilities would be less than significant through compliance with the City's Municipal Code which would ensure that in-lieu fees and impact fees are collected for the creation of new or physically altered parks and recreational facilities to the extent feasible, and with implementation of mitigation to evaluate and mitigate the construction impacts associated with park and recreational facility creation and expansion (City of Palo Alto, 2017b). Similarly, the City of Menlo Park's 2016 update of its Land Use Element identified a 24-year population growth of nearly 53 percent by 2040. Evaluation of cumulative impacts to parks also concluded that conformity with General Plan goals and policies would ensure that adequate parklands and recreational facilities would be provided (City of Menlo Park, 2016).

Ultimately, while there is expected to be a cumulative population increase in the Project area, this growth is not expected to generate a cumulative significant impact to park and recreation facilities with the use of established municipal fee structures of the local jurisdictions. However, because the neighboring plans do not include assumptions of growth under Additional Housing Alternative A, the deterioration of off-campus park and recreation facilities at Pearson-Arastradero Preserve, Baylands Nature Preserve, the College Terrace parks, Heritage Park, and Stanford Hills Park from this alternative would contribute significantly to a cumulative recreation impact. Implementation of Mitigation Measure 7A.14-1(a)-(b), for a one-time turf replacement at these park facilities, would reduce the Stanford's contribution to a cumulative impact. The potential degradation of paved trails by an increased number of visitors at the Pearson-Arastradero Preserve and Baylands Nature Preserve is minimal, and no further analysis for these parks is necessary. Given all these factors, the cumulatively considerable impact identified to park and recreation facilities would be less than significant with mitigation.

Similar to the improvement measure identified for the proposed Project, implementation of Improvement Measure 7A.14-1 to provide for park upgrade funds at the four College Terrace parks to ensure these parks remain in good condition would further reduce Stanford's contribution to a cumulative impact.

Mitigation: Implement Mitigation Measure 7A.14-1(a)-(b).

Significance after Mitigation: Less than Significant.

Improvement Measure: Implement Improvement Measure 7A.14-1.

Transportation and Traffic³⁷

Approach to Analysis

Vehicle Trip Generation

The trip generation was estimated for Additional Housing Alternative A using the same Stanford resident and commuter peak hour trip generation rates used for the proposed Project. It should be noted that the commuter trip generation rate is the average rate per Stanford commuter, which accounts for the fact that only a portion of the commuters drive to campus.

Table 7A.15-1 identifies the trip generation rates for campus commuters, campus residents living in student housing, and campus residents living in faculty/staff housing. A campus commuter is a Stanford affiliate who lives off campus. At Stanford, many commuters travel to the campus by taking public transit (Caltrain and buses) and/or Marguerite shuttles, bicycling, walking, vanpooling or carpooling. As a result, the vehicle trip generation rates for campus commuters are low. Table 7A.15-1 shows that in the morning peak hour, campus commuters generate 0.096 inbound trips per commuter and 0.041 outbound trips per commuter for a total of 0.137 morning peak hour trips per campus commuter. In the evening peak hour, campus commuters generate 0.084 inbound trips per commuter and 0.135 outbound trips per commuter for a total of 0.143 evening peak hour trips per campus commuter.

TABLE 7A.15-1
2018 GENERAL USE PERMIT VEHICLE TRIP GENERATION ESTIMATE

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Commuter (trips/Stanford affiliate living off campus)	0.096	0.041	0.137	0.051	0.084	0.135
Student Resident (trips/bed)	0.028	0.037	0.065	0.077	0.066	0.143
Faculty/Staff Resident (trips/unit)	0.150	0.280	0.430	0.260	0.190	0.450

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Table 7A.15-1 shows that the vehicle trip generation rates measured for on-campus faculty/staff housing units are higher than the trip generation rates for campus computers in both the inbound and outbound directions in both the morning and evening peak hours. The residential rates are the measured trip generation rates on a per-bed or per-unit basis at Stanford student and faculty/staff

³⁷ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives transportation impact analysis and VMT analyses prepared by Fehr & Peers Transportation Consultants for Stanford and independently peer reviewed by ESA; see Appendices ALT-TIA and ALT-VMT included in this document.

housing sites. Residential rates include trips by Stanford affiliates as well as spouses and other household members. A campus resident travels between the campus and other destinations for a variety of purposes, including shopping, dining out, religion, clubs and activities, recreation and exercise, entertainment, socializing, daycare, school, and off-campus employment. These types of trips can generate both outbound and inbound trips during the morning or evening periods. Faculty/staff housing units can also house non-Stanford affiliates as well as Stanford affiliates. In addition, many of the residence-based trips are not as amenable to transit and other modes such as vanpools as commute trips. In the morning peak hour, on-campus faculty/staff housing residential units generate 0.150 inbound trips per unit and 0.280 outbound trips per unit for a total of 0.430 morning peak hour trips per faculty/staff residential unit. In the evening peak hour, on-campus faculty/staff residential units generate 0.260 inbound trips per unit and 0.190 outbound trips per unit for a total of 0.450 evening peak hour trips per residential unit.

Under Additional Housing Alternative A, 2,342 more faculty/staff units are assumed to be constructed on the campus, as compared to the proposed 2018 General Use Permit. These units would reduce the population that otherwise would commute to the campus under Project conditions by 2,342 individuals.³⁸ Therefore, the trip generation estimation process starts by subtracting from Project conditions the commuters who would no longer commute to campus by multiplying 2,342 by the commuter trip generation rate and showing that result as a negative number. The trips associated with 2,342 new faculty/staff housing units are then added to that number to generate a net change in faculty/staff trips compared to Project conditions. The same process was used for the 210 graduate students who are assumed to be housed in new graduate student beds (note that the number of graduate students assumed to occupy the new beds incorporates an assumption for two-student couples).

Table 7A.15-2 presents the trip generation for the proposed Project, for reference, and **Table 7A.15-3** summarizes the residential trips added, commute trips eliminated, and the net change for this alternative.

TABLE 7A.15-2
2018 GENERAL USE PERMIT VEHICLE TRIP GENERATION ESTIMATE

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Campus Trips (based on academic space growth)	751	428	1,179	600	779	1,379
Residents	153	250	403	343	277	620
Non-Residential Generators (Commuters, visitors, others)	598	178	776	257	502	759

SOURCE: Fehr & Peers, August 2017 (see Draft EIR Appendix TIA)

³⁸ The trip generation calculations are based on the following uniform assumptions for all multi-family housing units: (1) the trip generation rates associated with all new multi-family housing units are the same as the surveyed trip rates per faculty/staff housing unit that were used for the Project; and (2) for purposes of deducting trips by commuters moving on to campus, the analysis conservatively assumes that each new multi-family housing unit would house one Stanford affiliate plus that affiliate's other household members.

TABLE 7A.15-3
ADDITIONAL HOUSING ALTERNATIVE A TRIP GENERATION ESTIMATE
(COMPARED TO PROPOSED 2018 GENERAL USE PERMIT)

Trip Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Resident Trips Added	357	664	1,021	625	459	1,084
Commuter Trips Eliminated	(244)	(106)	(350)	(130)	(213)	(344)
Net Change Compared to Project	113	558	671	495	246	740

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Compared to the proposed Project, Additional Housing Alternative A would generate a net increase in vehicle trips entering and leaving campus during the peak hours, due to the higher vehicle trip generating characteristics of faculty/staff residential units as compared to Stanford commuters. These trips would be in addition to those of the proposed Project. The faculty/staff residential units could house singles, couples and families, generating the full range of housing-related trips by vehicle and other modes. As explained above, faculty/staff residential units generate both inbound and outbound vehicle trips during the morning and evening peak periods. The residential trips would have a different distribution than the commuter trips, as described below.

Vehicle Trip Distribution

The commuter and resident trip distribution patterns for Additional Housing Alternative A are the same as for the proposed Project. The commuter distribution is based on Stanford off-campus resident locations, and the resident distribution is based on census data for the census tracts including the Stanford campus residential areas. These distribution patterns were used to distribute and assign the commuter trip reductions and residential bed/unit trip additions to the roadway network. In summary, Additional Housing Alternative A would contribute more trips to the local area when compared to the proposed Project.

Construction Impacts

Impact 7A.15-1: Additional Housing Alternative A would generate construction traffic that would cause a substantial reduction in mobility and in access to land uses. (Significant)

Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. Consequently, Additional Housing Alternative A would generate overall more construction traffic than would occur under the proposed Project. Similar to the proposed Project, impacts could include reduction in off-campus on-street parking; reduction in pedestrian, bicycle and public transit access; additional peak-hour traffic; use of non-truck routes by construction traffic; and interference with special events. These impacts would be significant.

Implementation of the following mitigation measures, same as those identified for the proposed Project, would reduce impacts of construction traffic to mobility and access to less-than-significant levels:

Mitigation Measure 7A.15-1: Construction Traffic Control Measures. The following traffic control measures are required to address impacts from construction of individual projects for Additional Housing Alternative A.

- **Protection and Maintenance of Public Transit Access and Routes.** Stanford and its contractors shall be prohibited from limiting access to public transit, and from limiting movement of public transit vehicles, without prior approval from the VTA or other appropriate jurisdiction. Such approval shall require submittal and approval of a mitigation plan to reduce specific impacts to a less than significant level. Potential actions that would impact access to transit include, but are not limited to, relocating or removing public transit bus stops, limiting access to public transit bus stops or transfer facilities, or otherwise restricting or constraining public transit operations.
- **Maintenance of Pedestrian Access.** Stanford and its contractors shall be prohibited from substantially limiting pedestrian access to properties or facilities in those affected jurisdictions during construction of the project, without prior approval from those jurisdictions. Such approval shall require submittal and approval of specific construction management plans to mitigate the specific impacts to a less than significant level. Pedestrians access-limiting actions would include, but not be limited to, sidewalk closures, bridge closures, crosswalk closures or pedestrian re-routing at intersections, placement of construction-related material within pedestrian pathways or sidewalks, and other actions which may affect the mobility or safety of pedestrians during the construction period. If sidewalks are maintained along the construction site frontage, covered walkways shall be provided.
- **Maintenance of Bicycle Access.** Stanford and its contractors shall be prohibited from substantially limiting bicycle access to properties or facilities in those affected jurisdictions while constructing the project without prior approval from those jurisdictions. Such approval shall require submittal and approval of specific construction management plans to mitigate the specific impacts to a less than significant level. Bicycle access-limiting actions would include, but not be limited to, bike lane closures or narrowing, closing or narrowing of streets that are designated bike routes, bridge closures, placement of construction-related materials within designated bike lanes or along bike routes, and other actions that may affect the mobility or safety of bicyclists during the construction period.
- **Protection and Maintenance of Emergency Service Access and Routes.** Stanford shall inform the Stanford Police and Palo Alto Police and Fire Departments of construction locations, and alternate evacuation and emergency routes shall be designated to maintain response times during construction periods.
- **Parking for Construction-Related Vehicles.** Stanford shall be required to provide adequate on-campus parking for all construction-related vehicles throughout the construction period. If adequate parking cannot be provided on the Stanford campus, a satellite parking area shall be designated, and a shuttle bus shall be operated to transfer construction workers to/from the job site.

- **Restriction on Construction Hours.** Stanford shall make feasible attempts to limit the number of construction material deliveries from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on weekdays. When feasible, Stanford shall be required to prohibit or limit the number of construction employees arriving or departing the site between the hours of 4:30 PM and 6:00 PM.
- **Construction Truck Routes.** Stanford shall be required to deliver and remove all construction-related equipment and materials on truck routes designated by the Cities of Palo Alto and Menlo Park. Heavy construction vehicles shall be prohibited from accessing the site from other routes. Stanford shall provide written notification to all contractors regarding appropriate routes to and from construction sites and weight and speed limits for local roads used to access construction sites. A copy of all such written notifications shall be submitted to the County Planning Office.
- **Phone Number for Complaints.** Stanford shall post at least one sign no smaller than 1,296 square inches at all active construction sites. The sign shall contain the name and telephone number or e-mail address of the appropriate Stanford person the public may contact to report alleged violations of this mitigation measure or to register complaints about construction traffic associated with building projects under the 2018 General Use Permit. Stanford shall keep a written record of all such complaints and shall provide copies of these records to the County Planning Office as part of the annual report process.
- **Construction Impact Mitigation Plan.** In lieu of the above mitigation measures, Stanford may submit a detailed construction impact mitigation plan to the County for review and approval prior to commencing any construction activities with potential transportation impacts. This plan shall address in detail the activities to be carried out in each construction phase, the potential transportation impacts of each activity, and an acceptable method of reducing or eliminating significant transportation impacts. If Stanford determines that it is not feasible to comply with the “Restriction on Construction Hours” above, then the plan shall also explain the basis for this infeasibility determination. Details such as the routing and scheduling of materials deliveries, construction employee arrival and departure schedules, employee parking locations, and emergency vehicle access shall be described and approved.
- **Construction During Special Events.** Stanford shall implement a mechanism to prevent roadway construction activities from reducing roadway capacity during major athletic events or other special events, which attract a substantial number of visitors to the campus. This measure may require a special supplemental permit to be obtained to host such events during significant construction phases.

Significance after Mitigation: Less than Significant.

Operational Impacts

2018 Baseline With Additional Housing Alternative A Conditions

Impact 7A.15-2: Implementation of Additional Housing Alternative A could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Additional Housing Alternative A conditions. (Significant)

Impacts associated with Additional Housing Alternative A are identified by comparing the 2018 Baseline traffic volumes to the 2018 Baseline with Additional Housing Alternative A Conditions traffic volumes. Significant impacts are identified based on the applicable impact criteria, which include changes in the LOS from an acceptable to an unacceptable level or changes in critical delay and critical V/C ratios³⁹ for intersections operating unacceptably. The results of the LOS analysis are summarized in **Table 7A.15-4**. Significant impacts would occur at five intersections under this alternative – the same five that would occur under the proposed Project.⁴⁰ Generally, at the study intersections located closest to the campus, Additional Housing Alternative A would increase congestion compared to the proposed Project. At the study intersections located farther from the campus, this alternative would reduce congestion by a small degree compared to the proposed Project because peak-hour, peak-direction residence-based trips are assumed to start and end at destinations closer to the Stanford campus as compared to peak-hour, peak-direction commute trips. When compared to the proposed Project, Additional Housing Alternative A would add approximately 200 to 220 peak hour trips to intersections directly adjacent to the campus along El Camino Real and between 30 to 130 peak hour trips to intersections that border the campus along Sand Hill Road and Junipero Serra Boulevard. Overall, Additional Housing Alternative A would not reduce significant effects of the proposed 2018 General Use Permit under 2018 conditions.

The intersections where Additional Housing Alternative A would have a significant impact under 2018 Baseline with Additional Housing Alternative A conditions, and the reason that the impact is considered significant, are documented in **Table 7A.15-5**. Measures/strategies to mitigate the significant impacts are described below.

³⁹ V/C ratios (volume-to-capacity ratios) are calculated based on traffic volumes and capacity values for various types of roadways that comprise intersections.

⁴⁰ The Draft EIR identified one additional intersection with a significant impact under the proposed 2018 General Use Permit, at Intersection #31, Foothill Expressway / San Antonio Road. However, that result was due to a volume error that has since been corrected. This correction will be reflected in the forthcoming Response to Comments Document.

TABLE 7A.15-4
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. VIC ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. VIC ^g	Δ in Crit. Delay ^h
1	I-280 NB On-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.4 12.5	B+ B	10.2 13.5	B+ B	0.015 0.032	-0.2 1.1	10.1 13.5	B+ B	0.026 0.031	-0.3 1.1
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	119.6 21.2	F C+	137.4 21.4	F C+	0.038 0.021	18.9 0.2	136.9 22.1	F C+	0.037 0.035	18.4 0.9
3	Addison Wesley / Sand Hill Rd	Menlo Park	LOS D	AM PM	32.4 21.0	C- C+	42.4 21.7	D C+	0.037 0.032	15.7 1.3	40.6 21.6	D C+	0.032 0.031	13.2 1.3
4	Saga Ln / Sand Hill Rd	Menlo Park	LOS D	AM PM	15.0 21.7	B C+	15.3 21.2	B C+	0.036 0.031	0.6 -0.5	15.3 21.1	B C+	0.031 0.030	0.5 -0.5
5	Sharon Park Dr / Sand Hill Rd	Menlo Park	LOS D	AM PM	16.7 16.6	B B	16.8 16.3	B B	0.036 0.032	0.4 -0.1	16.7 16.3	B B	0.031 0.031	0.3 -0.1
6	Alameda de las Pulgas / Santa Cruz Ave	San Mateo County	LOS D	AM PM	16.1 16.9	B B	16.0 16.8	B B	0.000 0.000	0.0 0.0	16.0 16.8	B B	0.000 0.000	0.0 0.0
7	Santa Cruz Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	48.9 48.1	D D	49.8 49.0	D D	0.031 0.038	1.4 1.7	50.7 49.1	D D	0.050 0.036	3.8 1.5
8	Oak Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.6 3.9	B+ A	10.5 3.9	B+ A	0.025 0.024	0.0 0.1	10.4 3.9	B+ A	0.029 0.032	0.0 0.1
9	Stock Farm Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	23.3 28.2	C C	24.3 29.2	C C	0.028 0.027	1.6 1.2	23.5 28.7	C C	0.030 0.032	0.9 0.8
10	Pasteur Dr / Sand Hill Rd	Palo Alto	LOS D	AM PM	20.9 27.3	C+ C	20.9 27.7	C+ C	0.009 0.017	0.3 0.7	20.7 27.5	C+ C	0.020 0.028	0.3 0.5
11	Arboretum Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	18.5 27.3	B- C	19.3 27.8	B- C	0.013 0.017	1.3 0.9	20.4 28.5	C+ C	0.033 0.033	2.8 2.0
12	El Camino Real / Sand Hill Rd	Palo Alto (SC CMP)	LOS E	AM PM	39.0 34.1	D C-	38.9 34.3	D+ C-	0.012 0.016	-0.1 0.3	39.3 34.4	D C-	0.017 0.016	0.4 0.3
13	I-280 SB Ramps / Page Mill Rd*	Santa Clara County	LOS E (warrant)	AM PM	151.7 85.9	F F	153.3 88.3	F F	N/A	N/A	154.0 89.2	F F	N/A	N/A
14	I-280 NB Ramps / Page Mill Rd*	Santa Clara County	LOS E (warrant)	AM PM	40.5 14.8	E B	41.5 14.9	E B	N/A	N/A	41.6 15.0	E B	N/A	N/A
15	Deer Creek Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	14.5 13.5	B B	15.4 13.7	B B	0.026 0.021	1.4 -0.3	15.4 13.7	B B	0.027 0.034	1.5 -0.4
16	Coyote Hill Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	7.5 9.0	A A	8.0 9.4	A A	0.014 0.021	0.0 -0.2	8.0 9.5	A A	0.028 0.033	0.0 -0.2
17	Junipero Serra Blvd - Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	97.2 97.0	F F	101.5 109.9	F F	0.029 0.063	7.2 19.3	110.6 113.0	F F	0.067 0.079	24.9 21.2

TABLE 7A.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
18	Peter Coutts / Page Mill Rd	Santa Clara County	LOS E	AM PM	20.9 29.7	C+ C	21.3 29.8	C+ C	0.020 0.015	0.6 0.0	22.1 30.6	C+ C	0.036 0.030	1.6 0.7
19	Hanover St / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	63.0 47.6	E D	65.7 48.2	E D	0.013 0.017	0.6 -0.1	69.1 59.5	E E+	0.025 0.133	1.2 16
20	El Camino Real / Page Mill Rd - Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	61.2 66.2	E E	66.1 68.8	E E	0.047 0.021	6.5 2.7	71.0 72.0	E E	0.090 0.041	18.2 8.9
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	63.6 58.5	E E+	64.2 58.9	E E+	0.009 0.012	1.0 0.5	64.8 59.3	E E+	0.013 0.017	1.7 0.8
22	Oregon Expy / West Bayshore Rd	Santa Clara County	LOS E	AM PM	20.7 18.9	C+ B-	20.7 19.1	C+ B-	0.003 0.008	0.1 0.2	20.8 19.3	C+ B-	0.011 0.017	0.2 0.7
23	I-280 SB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	40.2 16.1	E C	41.0 16.2	E C	N/A	N/A	40.6 16.2	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	27.2 26.8	D D	28.5 29.9	D D	N/A	N/A	29.0 29.9	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Rd	Menlo Park	LOS D	AM PM	43.8 48.8	D D	46.2 50.9	D D	0.049 0.048	3.0 2.4	46.3 50.9	D D	0.046 0.053	2.8 2.6
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	LOS E	AM PM	28.7 40.7	C D	30.5 45.4	C D	0.009 0.052	1.2 5.9	32.2 44.3	C- D	0.042 0.041	4.9 4.1
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	LOS E	AM PM	14.1 16.3	B B	14.5 17.9	B B	0.020 0.036	0.8 2.8	14.7 17.9	B B	0.041 0.051	1.3 2.3
28	Junipero Serra Blvd / Stanford Ave	Santa Clara County	LOS E	AM PM	19.6 21.1	B- C+	21.0 25.1	C+ C	0.061 0.076	1.8 4.4	22.7 26.3	C+ C	0.094 0.117	3.9 6.2
29	Foothill Expy / Hillview Ave	Santa Clara County	LOS E	AM PM	35.0 34.9	C- C-	35.7 35.1	D+ D+	0.006 0.015	-0.3 0.2	35.8 35.3	D+ D+	0.009 0.013	-0.3 0.2
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	LOS E	AM PM	71.8 92.3	E F	74.7 95.8	E F	0.016 0.150	4.6 -1.0	73.8 95.1	E F	0.015 0.148	3.2 -2.2
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	LOS E	AM PM	18.7 75.8	B- E-	19.2 78.5	B- E-	0.016 0.022	0.6 4.7	19.0 77.7	B- E-	0.012 0.017	0.4 3.1
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	LOS E	AM PM	74.6 88.9	E F	79.0 89.9	E- F	0.014 0.004	9.5 1.3	77.8 89.6	E- F	0.011 0.003	7.0 0.7
33	Foothill Expy / Springer Road-Magdalena Ave	Santa Clara County (SC CMP)	LOS E	AM PM	62.6 71.9	E E	64.0 73.2	E E	0.015 0.010	1.9 2.3	63.6 73.3	E E	0.011 0.009	1.5 2.3
34	Bowdoin St / Stanford Ave*	Palo Alto	LOS E (warrant)	AM PM	14.4 18.5	B C	18.4 27.6	C D	N/A	N/A	20.1 35.9	C E	N/A	N/A

TABLE 7A.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
35	Arboretum Rd / Quarry Rd	Palo Alto	LOS D	AM PM	43.6 41.5	D D	44.1 42.1	D D	0.040 0.039	1.2 1.4	45.1 43.3	D D	0.079 0.075	3.3 3.1
36	Arboretum Rd / Palm Dr	Palo Alto	LOS D	AM PM	29.9 28.6	C C	31.9 29.4	C C	0.085 0.044	3.3 1.3	32.9 30.3	C- C	0.098 0.070	4.8 2.4
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	17.2 29.9	B C	17.0 29.8	B C	0.011 0.015	-0.1 0.1	17.0 29.8	B C	0.009 0.013	-0.1 0.1
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	42.5 42.0	D D	42.4 42.2	D D	0.017 0.015	0.4 0.5	42.3 42.1	D D	0.013 0.014	0.2 0.4
39	El Camino Real / Oak Grove Ave	Menlo Park	LOS D	AM PM	31.3 35.6	C D+	31.0 35.4	C D+	0.018 0.017	-0.3 -0.1	31.0 35.4	C D+	0.014 0.015	-0.2 -0.1
40	El Camino Real / Santa Cruz Ave	Menlo Park	LOS D	AM PM	14.0 23.0	B C	13.8 22.7	B C+	0.018 0.016	-0.3 -0.4	13.8 22.6	B C+	0.014 0.025	-0.2 -0.3
41	El Camino Real / Ravenswood Rd	Menlo Park	LOS D	AM PM	43.7 47.0	D D	43.9 47.2	D D	0.022 0.020	0.6 0.7	43.9 47.4	D D	0.019 0.021	0.6 0.9
42	El Camino Real / Roble Ave	Menlo Park	LOS D	AM PM	14.4 14.7	B B	14.1 14.3	B B	0.014 0.013	-0.3 -0.3	14.1 14.3	B B	0.013 0.013	-0.3 -0.3
43	El Camino Real / Middle Ave	Menlo Park	LOS D	AM PM	27.2 27.5	C C	27.0 27.2	C C	0.014 0.009	-0.3 -0.2	27.0 27.3	C C	0.013 0.012	-0.2 -0.2
44	El Camino Real / Cambridge Ave	Menlo Park	LOS D	AM PM	13.6 19.6	B B-	13.4 19.5	B B-	0.014 0.009	-0.3 -0.2	13.4 19.5	B B-	0.013 0.012	-0.2 -0.2
45	El Camino Real / Quarry Rd	Palo Alto	LOS D	AM PM	14.3 33.2	B C-	15.8 34.2	B C-	0.029 0.031	1.6 1.6	16.5 34.9	B C-	0.036 0.051	2.4 2.6
46	El Camino Real (SB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	21.1 20.3	C+ C+	20.7 20.0	C+ C+	0.028 0.030	-0.2 -0.3	20.9 20.0	C+ C+	0.028 0.042	-0.3 0.1
47	El Camino Real (NB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	19.5 26.3	B- C	20.0 26.4	B- C	0.030 0.033	0.4 0.8	20.4 26.3	C+ C	0.043 0.053	1.3 0.5
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	LOS E	AM PM	45.9 51.1	D D-	47.5 54.9	D D-	0.047 0.059	2.0 7.0	47.6 58.5	D E+	0.063 0.099	2.3 14.6
49	El Camino Real / Churchill Ave	Palo Alto	LOS D	AM PM	24.7 26.6	C C	24.4 26.4	C C	0.017 0.018	-0.1 -0.1	24.2 26.4	C C	0.038 0.043	-0.2 0.1
50	El Camino Real / Serra St	Palo Alto	LOS D	AM PM	24.5 28.0	C C	27.8 33.2	C C-	0.082 0.112	5.4 8.0	33.3 38.4	C- D+	0.181 0.220	11.5 16.7
51	El Camino Real / Stanford Ave	Palo Alto	LOS D	AM PM	33.0 31.9	C- C	33.8 33.1	C- C-	0.060 0.054	11.5 2.0	33.8 33.8	C- C-	0.101 0.083	11.3 3.2

TABLE 7A.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. VIC ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. VIC ^g	Δ in Crit. Delay ^h
52	El Camino Real / California Ave	Palo Alto	LOS D	AM PM	24.0 28.8	C C	22.8 27.9	C+ C	0.029 0.031	-0.9 -0.7	22.3 27.6	C+ C	0.038 0.046	-1.1 -1.0
53	El Camino Real / Arastradero Rd - Charleston Rd	Palo Alto (SC CMP)	LOS E	AM PM	47.8 55.6	D E+	48.3 56.3	D E+	0.020 0.007	0.9 0.4	48.8 56.4	D E+	0.029 0.008	1.8 0.4
54	El Camino Real / San Antonio Rd	Mountain View (SC CMP)	LOS E	AM PM	53.4 53.6	D- D-	53.4 53.5	D- D-	0.008 0.007	0.0 -0.1	53.3 53.5	D- D-	0.007 0.007	0.0 -0.1
55	Alma St / Lytton Ave	Palo Alto	LOS D	AM PM	20.8 18.0	C+ B	21.8 18.6	C+ B-	0.016 0.015	1.5 0.8	22.1 19.2	C+ B-	0.026 0.032	2.0 1.7
56	Alma St / Hamilton Ave	Palo Alto	LOS D	AM PM	6.9 14.9	A B	7.1 15.3	A B	0.008 0.012	0.2 0.8	7.2 16.0	A B	0.014 0.028	0.4 2.1
57	Alma St / Churchill Ave	Palo Alto	LOS D	AM PM	28.2 48.3	C D	28.3 48.3	C D	0.005 0.005	0.1 0.0	28.5 48.5	C D	0.007 0.010	0.3 0.4
58	Alma St / Charleston Rd	Palo Alto	LOS D	AM PM	55.2 55.0	E+ D-	55.7 55.9	E+ E+	0.010 0.017	0.5 1.1	56.3 56.5	E+ E+	0.017 0.024	1.3 1.6
59	Middlefield Rd / Marsh Rd	Atherton	LOS D	AM PM	29.2 53.9	C D-	30.1 54.4	C D-	0.012 0.005	1.4 0.8	30.1 54.4	C D-	0.012 0.005	1.4 0.9
60	Middlefield Rd / Ravenswood Ave	Menlo Park	LOS D	AM PM	34.3 40.4	C- D	35.0 41.2	C- D	0.012 0.012	0.8 0.9	35.2 41.4	D+ D	0.014 0.017	1.1 1.1
61	Middlefield Rd / Ringwood Ave	Menlo Park	LOS D	AM PM	38.0 50.6	D+ D	38.1 50.7	D+ D	0.004 0.005	0.2 0.2	38.4 51	D+ D-	0.009 0.011	0.6 0.6
62	Middlefield Rd / Willow Rd	Menlo Park	LOS D	AM PM	47.9 47.3	D D	48.0 47.5	D D	0.007 0.006	5.3 0.2	48.0 47.6	D D	0.006 0.009	5.3 0.2
63	Middlefield Rd / Lytton Ave	Palo Alto	LOS D	AM PM	38.0 45.9	D+ D	38.3 46.5	D+ D	0.018 0.016	0.4 0.6	38.4 46.5	D+ D	0.018 0.017	0.4 0.6
64	Middlefield Rd / University Ave	Palo Alto	LOS D	AM PM	30.0 35.6	C D+	30.3 36.1	C D+	0.019 0.031	0.3 0.9	30.4 36.0	C D+	0.017 0.031	0.3 0.9
65	Middlefield Rd / Hamilton Ave	Palo Alto	LOS D	AM PM	11.5 11.6	B+ B+	11.5 11.6	B+ B+	0.009 0.007	0.0 0.0	11.5 11.7	B+ B+	0.007 0.009	0.0 0.1
66	Middlefield Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	33.7 39.6	C- D	34.1 40.1	C- D	0.030 0.025	0.7 0.5	34.2 40.2	C- D	0.029 0.024	0.8 0.6
67	St. Francis Drive / Embarcadero Road	Palo Alto	LOS D	AM PM	23.6 17.5	C B	23.4 17.3	C B	0.015 0.014	0.0 -0.1	23.4 17.3	C B	0.013 0.013	0.0 -0.1
68	E. Bayshore Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	51.3 57.6	D- E+	51.6 58.1	D- E+	0.007 0.005	0.4 0.6	51.9 58.5	D- E+	0.008 0.010	0.7 1.2

TABLE 7A.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
69	Middlefield Rd / Charleston Rd	Palo Alto	LOS D	AM PM	50.5 52.6	D D-	50.6 52.7	D D-	0.004 0.006	0.0 0.2	50.7 53.0	D D-	0.007 0.012	0.1 0.7
70	US 101 SB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	32.6 33.9	C- C-	32.6 33.9	C- C-	0.000 0.000	0.0 0.0	32.6 33.8	C- C-	0.000 0.000	0.0 0.0
71	US 101 NB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	18.2 20.7	B- C+	18.2 20.7	B- C+	0.000 0.000	0.0 0.0	18.5 21.4	B- C+	0.014 0.017	0.5 1.2
72	Bay Rd / Willow Rd	Menlo Park	LOS D	AM PM	18.8 10.7	B- B+	18.8 10.7	B- B+	0.008 0.006	0.1 0.0	18.9 10.7	B- B+	0.008 0.008	0.1 0.1
73	Newbridge St / Willow Rd	Menlo Park	LOS D	AM PM	43.5 44.1	D D	43.4 44.1	D D	0.005 0.004	0.0 0.2	43.4 44.2	D D	0.006 0.006	0.0 0.3
74	O'Brien Dr / Willow Rd	Menlo Park	LOS D	AM PM	12.0 14.5	B+ B	11.9 14.5	B+ B	0.003 0.005	0.0 0.0	11.9 14.4	B+ B	0.005 0.005	0.0 0.0
75	Hamilton Ave / Willow Rd	Menlo Park	LOS D	AM PM	40.9 45.3	D D	41.5 45.5	D D	0.005 0.003	1.0 0.3	41.6 45.6	D D	0.006 0.006	1.1 0.5
76	Bayfront Expy / Willow Rd	Menlo Park (SM CMP)	LOS F	AM PM	40.3 57.8	D E+	40.3 58.0	D E+	0.000 0.004	0.0 0.2	40.3 58.0	D E+	0.000 0.004	0.0 0.2
77	Woodland Ave / University Ave	East Palo Alto	LOS D	AM PM	54.5 60.1	D- E	54.8 60.3	D- E	0.000 0.000	0.0 0.0	54.9 60.3	D- E	0.000 0.000	0.0 0.0
78	US 101 SB Ramps / University Ave	East Palo Alto	LOS D	AM PM	29.4 25.5	C C	29.4 25.5	C C	0.003 0.006	0.1 0.1	29.5 25.5	C C	0.006 0.007	0.2 0.1
79	Donohoe St / University Ave	East Palo Alto	LOS D	AM PM	72.4 44.3	E D	73.2 44.3	E D	0.005 0.004	1.3 0.1	73.1 44.3	E D	0.005 0.005	1.2 0.1
80	University Ave / Bay Rd	East Palo Alto	LOS D	AM PM	48.6 50.1	D D	48.7 50.6	D D	0.005 0.009	0.2 0.9	48.7 50.9	D D	0.005 0.014	0.1 1.5
81	University Ave / Bayfront Expy	Menlo Park (SM CMP)	LOS F	AM PM	23.6 94.4	C F	23.7 96.9	C F	0.008 0.007	0.2 3.1	23.7 97.5	C F	0.009 0.009	0.3 3.9
82	Town & Country Driveway / Embarcadero Rd	Palo Alto	LOS D	AM PM	28.9 28.4	C C	28.1 28.0	C C	0.031 0.021	-0.6 -0.3	28.1 27.9	C C	0.028 0.03	-0.5 -0.3
83	Charleston Rd / San Antonio Rd	Palo Alto (SC CMP)	LOS E	AM PM	61.6 62.5	E E	61.8 62.7	E E	0.001 0.002	0.3 0.4	61.9 62.8	E E	0.002 0.002	0.6 0.4
84	US 101 SB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	11.4 13.0	B+ B	11.5 13.0	B+ B	0.002 0.000	0.2 0.0	11.4 13.0	B+ B	0.002 0	0.1 0.0
85	US 101 NB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	21.1 23.5	C+ C	21.2 23.5	C+ C	0.000 0.002	0.0 0.1	27.4 29.8	C C	0.187 0.145	18.6 14.7

TABLE 7A.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
86	Central Expy / Rengstorff Ave	Santa Clara County (SC CMP)	LOS E	AM PM	175.3 83.9	F F	177.4 86.1	F F	0.010 0.008	3.1 1.3	177.1 86.0	F F	0.008 0.009	2.7 1.1
87	Central Expy / Shoreline Blvd (N)	Santa Clara County (SC CMP)	LOS E	AM PM	3.6 7.0	A A	3.6 6.9	A A	0.003 0.007	0.0 -0.1	3.6 6.9	A A	0.006 0.007	-0.1 -0.1
88	Central Expy / Shoreline Blvd (S)	Santa Clara County (SC CMP)	LOS E	AM PM	12.0 7.6	B+ A	11.9 7.5	B+ A	0.003 0.005	-0.1 0.0	11.9 7.5	B+ A	0.006 0.007	-0.3 0.0
89	Central Expy / Castro St-Moffett Blvd	Santa Clara County (SC CMP)	LOS E	AM PM	122.6 94.4	F F	125.1 97.1	F F	0.007 0.006	4.1 3.3	124.8 97.7	F F	0.006 0.008	3.7 4.4
90	Foothill Expy / Edith Ave	Santa Clara County	LOS E	AM PM	28.9 39.0	C D+	29.2 43.2	C D	0.016 0.288	0.6 22.9	29.1 41.2	C D	0.012 0.009	0.4 -0.2
91	Foothill Expy / Main St	Santa Clara County (SC CMP)	LOS E	AM PM	23.0 24.3	C+ C	23.2 24.4	C C	0.016 0.009	0.5 -0.4	23.1 24.4	C C	0.012 0.009	0.4 -0.4
92	University Ave / O'Brien Dr	Menlo Park	LOS D	AM PM	9.2 12.7	A B	9.2 12.7	A B	0.005 0.006	0.0 0.0	9.1 12.7	A B	0.005 0.008	0.0 0.0
93	University Ave / Adams Dr*	Menlo Park	LOS E (warrant)	AM PM	76.3 30.7	F ¹⁰ D	79.8 31.9	F ¹⁰ D	N/A N/A	N/A N/A	81.1 32.6	F ¹⁰ D	N/A N/A	N/A N/A
94	University Ave / Runnymede St	East Palo Alto	LOS D	AM PM	15.3 19.9	B B-	15.3 19.8	B B-	0.005 0.005	0.0 0.0	15.3 19.8	B B-	0.005 0.006	0.0 -0.1
95	University Avenue / Bell Street	East Palo Alto	LOS D	AM PM	14.8 18.2	B B-	14.7 18.1	B B-	0.005 0.005	0.0 -0.1	14.7 18.0	B B-	0.005 0.006	0.0 -0.1

NOTES: **Bold text** indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

In some cases, intersections may show a reduction in average delay with the addition of Project traffic, or with the addition of Additional Housing Alternative A traffic, which is counter-intuitive. However, average delay values are weighted averages, which will decrease when traffic is added to a vehicle movement that operates with low delay. Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.

* Indicates unsignalized intersection.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County, "(SM CMP)" indicates CMP intersection in San Mateo County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(Warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak hour, PM = evening peak hour.

^d Background (2018) With Proposed 2018 General Use Permit presents the results it was included in the Draft EIR. These results are provided for comparison purposes only.

^e Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^f LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

^g Change ("Δ") in critical volume to capacity ratio (V/C) between Background (2018) and Background (2018) With Project; and between Background (2018) and Background (2018) With Additional Housing Alternative A Conditions.

This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^h Change ("Δ") in average critical movement delay between Background (2018) and Background (2018) With Project; and between Background (2018) and Background (2018) With Additional Housing Alternative A Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

ⁱ A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

TABLE 7A.15-5
2018 BASELINE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#2 I-280 NB Off-Ramp / Sand Hill Road (AM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#13 I-280 SB Off-Ramp / Page Mill Road (AM and PM Peak Hours)	Unsignalized Intersection: Under unacceptable LOS F conditions without and with the project, peak-hour traffic signal warrant would be met.
#17 Junipero Serra Blvd – Foothill Expy / Page Mill Rd (AM and PM Peak Hours)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#30 Foothill Expressway / Arastradero Road (PM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the critical volume-to-capacity ratio by 0.01 or more.
#58 Alma Street / Charleston Road (PM Peak Hour)	Palo Alto: Project-generated traffic would cause a degradation from an acceptable LOS D to an unacceptable LOS E.

Mitigation Measure 7A.15-2: Stanford shall mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections specified in Table 1A, which funds shall be expended by the County to fund transportation mitigation efforts.

1. As specified on page 64 and Policy C-1 of the Stanford Community Plan, the no net new commute trips standard is defined as no increase in automobile trips during peak commute times in the peak commute direction, as counted at defined cordon locations around the central campus. The peak commute period is defined as the one-hour period of time with the highest volume of traffic, as determined by the traffic counts.
2. The reasonable cost of all traffic counts conducted for determination of compliance with this mitigation measure shall be paid for by Stanford. The counts shall be performed by an independent consultant under the direction of the County Planning Office or provided to the County Planning Office through another County-approved methodology.
3. The baseline for measuring the no net new commute trips standard shall be the count that was established in 2001. However, during implementation of the Additional Housing Alternative A, Stanford may propose to change the monitoring methodology based on new technology such as automation, subject to review and approval by the County Planning Office. If the monitoring methodology is updated, testing and calibration of the new methodology or equipment will require coordination with the County. The 2001 baseline data will be adjusted as needed to reflect any such calibration. Monitoring counts shall be performed each year using the County-approved methodology.

TABLE 1A
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE A

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alt. A	2035 Cumulative with Additional Housing Alt. A
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	Contribute fair share funding toward the addition of second northbound right-turn lane, as identified in the ConnectMenlo Final Environmental Impact Report.	X	X
13	I-280 SB Off-Ramp / Page Mill Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward the installation of a traffic signal.	X	
17	Junipero Serra Blvd – Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	Contribute fair-share funding toward grade separation project (County Expressway Plan 2040).	X	X
19	Hanover St / Page Mill Rd – Oregon Expressway	Santa Clara County (SC CMP)	Contribute fair share funding toward the installation of a second westbound left-turn lane, identified as an option in the Page Mill Expressway Corridor Study Report.		X
20	El Camino Real / Page Mill Rd - Oregon Expressway	Santa Clara County (SC CMP)	Contribute fair share funding toward the reconfiguration of the east leg of the intersection to include one right-turn lane, two through lanes, two extended left-turn lanes, two receiving lanes, and no on-street parking; and to the extension of the double left-turn lanes, identified in the Page Mill Expressway Corridor Study Report. Contribute fair-share funding toward the installation of a southbound right-turn lane and overlap phase.		X
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	No feasible mitigation measure.		X
29	Foothill Expy / Hillview Ave	Santa Clara County	No feasible mitigation measure.		X
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward a grade separation improvement project, as identified in the draft Santa Clara County Expressway Plan 2040. The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.	X	X
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward the addition of a third southbound through lane on Foothill Expressway between San Antonio Road and El Monte Avenue as identified in the draft Santa Clara County Expressway Plan 2040.		X
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	Contribute fair share funding toward the addition of a third northbound through lane and associated receiving lane that extends to San Antonio Avenue, as identified in the draft Santa Clara County Expressway Plan 2040.		X

TABLE 1A (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE A

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alt. A	2035 Cumulative with Additional Housing Alt. A
33	Foothill Expy / Springer Road - Magdalena Ave	Santa Clara County (SC CMP)	Contribute fair share funding toward the following improvements, as identified as a Tier 2 improvement in the draft Santa Clara County Expressway Plan 2040: • Convert the signal to provide 8-phase phasing; • Change the lane configuration for the east leg to have two left-turn lanes, one through lane, and one right-turn lane; and • Change the configuration for the west leg to have one left-turn lane, two through lanes, and one right-turn lane.		X
34	Bowdoin Street / Stanford Avenue	Palo Alto	Contribute fair-share funding toward the installation of a signal.		X
37	El Camino Real / Encinal Ave	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane.		X
38	El Camino Real / Valparaiso Ave	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane.		X
41	El Camino Real / Ravenswood Rd	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane. Contribute fair-share funding toward widening Menlo Avenue for an exclusive left-turn lane.		X
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	Contribute fair share funding toward the addition of a second northbound left-turn lane.		X
56	Alma St / Hamilton Ave	Palo Alto	Contribute fair share funding toward the reconfiguration of the westbound approach to have one left-turn lane and one right-turn lane, by removing a portion of the parking.		X
58	Alma St / Charleston Rd	Palo Alto	Contribute fair share funding toward the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements.	X	X
59	Middlefield Rd / Marsh Rd	Atherton	Contribute fair share funding toward the addition of a second westbound left-turn lane and second receiving lane on the south leg.		X
63	Middlefield Rd / Lytton Ave	Palo Alto	No feasible mitigation measure.		X
66	Middlefield Rd / Embarcadero Rd	Palo Alto	No feasible mitigation measure.		X
69	Middlefield Road / Charleston Road	Palo Alto	Contribute fair-share funding to the addition of a designated eastbound right-turn lane with an overlap signal phase		X

TABLE 1A (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE A

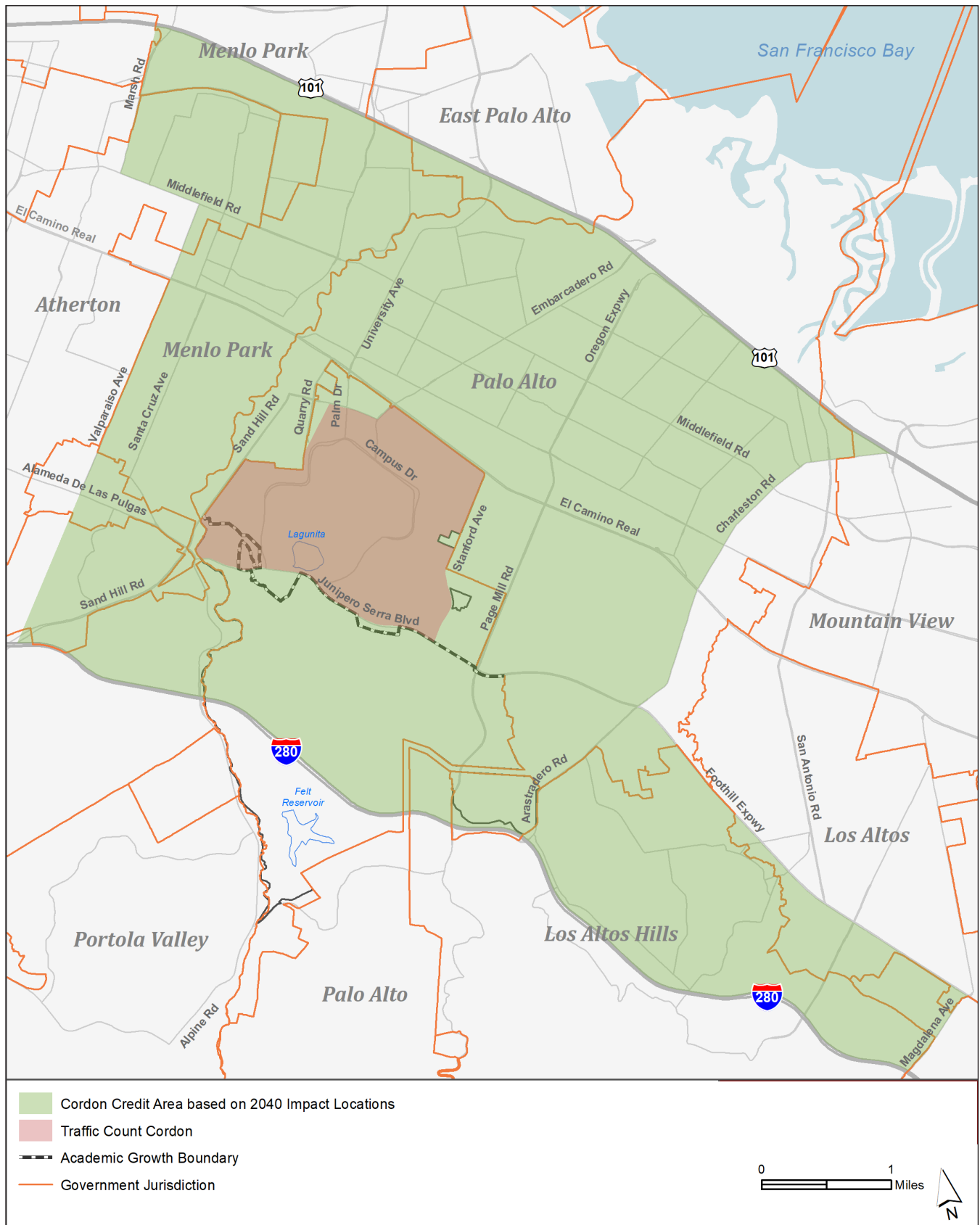
ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alternative A	2035 Cumulative with Additional Housing Alternative A
89	Central Expy / Moffett Blvd	Mountain View	The City of Mountain View's planned closure of Castro Street at the train tracks to form a T-intersection of Central Expressway and Moffett Boulevard would mitigate <u>Additional</u> Housing Alternative A's impact (Mountain View Transit Center Master Plan). If the Castro Street closure project is not implemented, the secondary, back-up mitigation is to contribute fair-share funding toward the construction of a second southbound left turn lane from Central Expressway to Moffett Boulevard.		X
90	Foothill Expressway / Edith Avenue	Santa Clara County (SC CMP)	No feasible mitigation measure.		X

4. Traffic counts and determination of traffic volumes shall occur as described below, unless modifications are approved the County Planning Office.
 - a. Peak-hour traffic for a single year shall be determined through counts taken at two times during the year. All counts shall be conducted during the regular academic year, which does not include academic breaks or end-of-quarter finals. Homecoming or other irregular traffic patterns should be avoided. Specific dates for each count shall be determined by the County Planning Office. The two annual counts shall be averaged to determine the annual traffic level for each monitoring year.
 - i. During the AM peak hour and the PM peak hour, the total amount of traffic crossing the cordon line will be counted by travel direction. The monitoring will be from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. The peak hour within the two-hour count period will be calculated based on total volumes to determine the campus-wide peak hours.
 - ii. All counts shall be taken at the campus entry and exit points shown in Figure 5.15-2, which together form the defined cordon line.
 - a) Traffic counts shall include a methodology to determine the rate of cut-through traffic.
 - 1) All vehicles will need to be identified in order that cut-through trips can be removed from the total volume. Through trips will be identified through license plates on each vehicle or other means. Time will be noted in order to determine when a vehicle crosses the cordon in either direction.
 - 2) Matching license plates will be determined by comparing numbers that crossed both an entering and exiting cordon within a defined period (e.g., 20 minutes), or through other means. Vehicles that enter and exit the cordon within the time period will be cut-through trips across the campus without a campus-related purpose.
 - b) Cordon volumes will be adjusted to account for use of parking lots within the cordon line by hospital-related traffic and use of lots outside the cordon line by campus-related traffic. Parking areas change due to the evolving needs of campus and hospital operations. The lots used for hospital and university parking shall be confirmed prior to annual surveys.
 - 1) Hospital trips will be subtracted from the count and campus trips will be added to the count. The count adjustment will also need to factor in the potential for hospital trips to park in the campus lots and campus trips to park in the hospital lots. At the beginning and end of the peak hour, data will need to be collected from each lot. If campus parking occurs in lots outside the cordon, trips associated with those vehicles will be added back into the count. If hospital parking occurs inside the cordon, trips associated with those vehicles will be subtracted from the count. All vehicles without a parking permit will be assumed to be correctly parked in their respective lots, unless the County approves an alternate protocol for assigning such parking.

- c) Based on the counts, a peak hour will be identified for the campus. Peak hour traffic volume will be determined for the campus based on the count, adjusted for cut-through traffic and hospital parking as described above.
- 1) Total entering and exiting traffic will be summed for the 16 campus gateways. A single peak hour will be determined for the entire campus based on the traffic volumes. The percent of cut-through trips calculated by the license plate matching (or other technology) described above will be removed. The cut-through vehicles will be removed from both the inbound and the outbound traffic since they will have been observed crossing both an entering and exiting cordon boundary. Finally, the entering and exiting traffic for hospital uses inside the cordon boundary and the campus uses outside the cordon boundary calculated as described above will be subtracted from or added to the counts.
5. As specified by Community Plan Policy C-8, the County Planning Office will recognize participation by Stanford in off-campus trip reduction efforts and credit reduced trips towards Stanford's attainment of the no net new commute trips standard. Stanford shall receive credit commensurate with the actual number of trips reduced outside the cordon due to Stanford's efforts, and the proportion of the cost of the program that Stanford is contributing. A reduction of an off-campus trip can be recognized as long as at least one terminus for the trip is within the area shown on **Figure 7A.15-1**.⁴¹ The County Planning Office will determine the appropriate trip credit and monitoring methodology for each program in which Stanford proposes to participate. Such proposals shall be submitted by Stanford to the County Planning Office for review, modification and consideration of approval. The proposals shall be presented to the Community Resource Group prior to any determination by the County Planning Office. Once the County Planning Office has accepted the proposal and the program implementation begins, the County Planning Office will factor a calculation of the trip reduction credit into its conclusion regarding Stanford's annual compliance with the no net new commute trips standard, with the continuing requirement that Stanford provide evidence of its participation in the program in a manner that can be independently verified.

Funding of off-campus circulation infrastructure improvements will qualify for trip credits as long as the improvements will enhance safety or increase mobility for pedestrians, bicyclists or transit users within the local impact area. For example, funding roadway widening or modifications to add transit vehicle or bicycle lanes or to add signals to improve pedestrian or bicycle safety could qualify for trip credits under this approach if approved by the County. Any proposal for such credits shall be accompanied by substantial evidence demonstrating how the infrastructure project would remove vehicular trips from the local impact area. Once the County Planning Office has approved infrastructure improvement project for a trip reduction credit, the project has been implemented, and the trip reductions have been verified, the trip reduction credit will be factored into the County's conclusion regarding Stanford's annual compliance with the no net new commute trips standard in each subsequent year.

⁴¹ Please note this figure is identical to Figure 5.15-8 in the Draft EIR, and was not revised for Additional Housing Alternative A.



SOURCE: Stanford LBRE LUEP

Stanford 2018 General Use Permit . 160531

Figure 7A.15-1
Revised Cordon Credit Area

6. The County Planning Office shall monitor the counts using the procedures described above. If the cordon counts, as modified by trip reduction credits, exceed the baseline volume by 1% or more for any two out of three consecutive years, mitigation of impacts to intersections will be required, implementing Stanford Community Plan Implementation Recommendation C(i)(9). Table 1A identifies the intersection impacts that could occur if the no net new commute trips standard is not achieved, and the physical improvements that would substantially reduce each impact.

- a. Prior to the first year of cordon count monitoring under Additional Housing Alternative A, the County Planning Office will: 1) determine, in consultation with the affected jurisdictions, the cost of the intersection improvements identified in Table 1A; 2) identify Stanford's fair share contributions to those improvements based on Stanford's proportionate contribution to the impact from development under the 2018 General Use Permit as compared to the contributions to the impact from background and cumulative traffic at the intersections; and 3) establish a cost-per-trip fee. This fee shall be increased annually to reflect changes in California construction costs (e.g., by applying the relevant Saylor or RS Means construction cost index).
 - i. Upon its determination that the no net new commute trips standard has been exceeded in two out of three years, the County will require Stanford to pay the cost-per-trip fee for each peak hour trip that exceeded the established no net new commute trips standard during the applicable two to three-year time period.
 - ii. To calculate the annual cost-per-trip fee, the total amount of Stanford's fair share contribution to all intersection improvements will be divided by 17, to reflect the number of years that the 2018 General Use Permit is expected to be in effect. The resulting quotient will then be divided by the total number of peak hour, peak direction vehicle trips anticipated in the EIR to occur absent the no net new commute trips standard.
 - iii. The annual cost-per-trip fee times the number of trips exceeding the no net new commute trips standard in each of the applicable years (i.e., calculated over two years if the goal is exceeded two out of three years) will constitute the trip payment that Stanford must provide to the County.
 - iv. In no event would Stanford be required to pay cumulatively over the time period of the 2018 General Use Permit more than the total amount of its fair share contribution toward improvements at adversely affected intersections and roadways.
- b. The County Planning Office will use the trip fees collected from Stanford as follows:
 - i. The County Planning Office may elect to fund off-campus projects that encourage and improve use of alternative transportation modes or otherwise reduce peak period traffic, including but not limited to transit improvements that directly or indirectly would benefit the local impact area. This fund also could be used for transportation improvements that increase safety and mobility for pedestrians, bicyclists and transit users provided there is substantial evidence demonstrating how the improvements would remove vehicular trips from the local impact area.

- ii. The County Planning Office may elect to fund one or more of the intersection improvements identified in Table 1A. The priority order for funding such intersection improvements will be determined by the County Planning Office in consultation with the affected jurisdictions. If the County elects to fund an intersection improvement in another jurisdiction, it will enter into an agreement with such jurisdiction to address the timing for the County to provide the funding, the timing for the relevant jurisdiction to complete the improvement, and any other matters that the County determines to be appropriate.

Significance after Mitigation: Significant and Unavoidable.

This mitigation would substantially reduce traffic congestion impacts to intersections; however, this is considered a significant and unavoidable impact because it is uncertain whether it would be feasible to improve some of the affected intersections if the No Net New Commute Trips standard is not achieved, if there are not sufficient additional funds to complete the intersection impacts, or if there are not sufficient off-campus projects available to reduce peak hour traffic. As discussed in further detail below, many of the intersections adversely affected under 2018 Baseline with Additional Housing Alternative A conditions are located in other jurisdictions (i.e., other than County of Santa Clara, such as City of Palo Alto, Caltrans, etc.), and consequently, the improvements depend on the actions of those jurisdictions. In some cases, additional funding for intersection improvements may be required and is not yet identified, and consequently, it is not certain that these improvements would be implemented in a timely manner. For these reasons, the impact would remain significant and unavoidable.

CEQA Guidelines section 15126.4(1)(1)(D) states that if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the proposed Project, the effects of the mitigation measure should be discussed. Because, as discussed below, the identified intersection improvements would have the potential to result in effects on bicycle and/or pedestrian conditions, these effects are evaluated below. In all cases, these effects of mitigation are determined to be less than significant.

- **Intersection #2: Contribute fair-share funding to the addition of a second northbound right-turn lane at the signalized intersection of I-280 Northbound Off-Ramp / Sand Hill Road, as identified in the *ConnectMenlo Final Environmental Impact Report*.**

To accommodate the construction of a second right-turn lane on the northbound off-ramp, the off-ramp would be widened from two to three lanes, which may require the acquisition of additional right-of-way.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the eastbound bicycle lane's StreetScore+ QOS, as it would remain unchanged at QOS 4.

Right turns from the northbound off-ramp to Sand Hill Road are not permitted during a red light. The addition of a second northbound right-turn lane would not conflict with eastbound bicyclists if the No Right Turn on Red were to remain in-force. Therefore, the mitigation measure would not adversely affect the existing bicycle lane on Sand Hill Road. There are no pedestrian facilities at this intersection.

- **Intersection #13: Contribute fair-share funding to the installation of a traffic signal at the unsignalized intersection of I-280 Southbound Off-Ramp / Page Mill Road.**

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and requires additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the bicycle StreetScore+ QOS, as it would remain unchanged at QOS 3.7. There is no pedestrian access at this intersection.

It is noted that Santa Clara County's Page Mill Expressway Corridor Study Report describes improvements along the length of Page Mill Road from the I-280 Southbound Ramps to El Camino Real. The improvement concept at the I-280 Southbound Ramps intersection is a roundabout with a traffic signal at the I-280 Northbound Ramps intersection and a third eastbound and westbound through lane on Page Mill Road to the east of the I-280 Northbound Ramps intersection. The County would determine the ultimate improvement design and phasing for the corridor improvements. Additional Housing Alternative A's fair-share funding contribution identified for Intersection #13 may be applied toward a roundabout at the I-280 Southbound Ramps intersection if the County chooses, and the timing of this improvement would also be determined by the County.

- **Intersection #17: Contribute fair-share funding to a grade-separation improvement project, at the signalized intersection of Junipero Serra Boulevard – Foothill Expressway / Page Mill Road, as identified in the draft Santa Clara County Expressway Plan 2040 (if such project is approved and implemented).**

For Additional Housing Alternative A, the impact at this intersection cannot be mitigated to a less-than-significant level with the mitigation measures identified for the proposed Project; instead, the above-described interchange would be needed. Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construct this improvement. Additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

This mitigation differs from the mitigation under the proposed Project. For the proposed Project, the impact at this intersection would be reduced to a less-than-significant level with the following mitigation: Contribute fair share funding toward:

(1) addition of a third through lane on Page Mill Road in the westbound direction (for a total of two left-turn lanes, three through lanes, and a right turn lane plus a bike lane);

(2) addition of a receiving lane to westbound Page Mill Road (resulting in three lanes from Junipero Serra Boulevard approximately to Old Page Mill Road); and

(3) installation of an overlap phase for northbound and southbound right-turning vehicles and widening of the southbound approach to two lanes between Page Mill Road and Stanford Avenue to align with the existing designated right-turn lane.⁴²

It is noted that there is a Tier 1 improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* to widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. The Tier 1 improvement is fully funded through Measure B, but conservatively is not anticipated to be in place by 2035. This was evaluated as a potential mitigation measure and was determined not to bring the impact to a less-than-significant level under 2018 Conditions.

Impacts of Mitigation: With the exception of construction-related impacts, the mitigation would not have a substantial adverse effect on bicycle QOS, which would remain at QOS 3.5. Pedestrian QOS would improve from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound approaches would be reduced from the existing 6+ lanes to an estimated 2 to 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #30: Contribute fair-share funding to a grade-separation improvement project, at the signalized intersection of Foothill Expressway / Arastradero Road, as identified in the draft *Santa Clara County Expressway Plan 2040* (if such project is approved and implemented). The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.**

Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construct this improvement. Due to the proximity of the Miranda Avenue / Arastradero Road intersection, additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

⁴² The third improvement was identified as a mitigation measure in the Draft EIR. Two additional improvements have been added to ensure the impact is mitigated to a less-than-significant level under the assumption that Page Mill Road is four lanes, rather than six lanes as previously assumed.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle QOS, which would remain unchanged at QOS 3.5. Right-turn lanes and high vehicle speeds would continue to cause uncomfortable situations for bicyclists at the intersection. However, the mitigation would improve pedestrian QOS from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound approaches would be reduced from the existing 6+ lanes to an estimated 2 to 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #58: Contribute fair-share funding to the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements at the signalized intersection of Alma Street / Charleston Road.**

To accommodate the construction of a designated northbound right-turn lane, the northbound Alma Street approach would need to be widened and likely would require the acquisition of additional right-of-way. Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal.

Implementation of this mitigation measure would reduce the impact, but not to a less-than-significant level. In addition, because this improvement depends on the actions of the City of Palo Alto, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3 and QOS 3.5, respectively. With the proposed mitigation, pedestrian crossing distances would increase slightly on the south leg of the intersection and remain unchanged on all other approaches while maintaining the current QOS score at the intersection. Bicycle lanes on the eastbound and westbound approaches, and low right-turn speeds would remain, resulting in slightly better conditions compared to what bicyclists experience on the northbound and southbound approaches. The proposed mitigation measure would not conflict with the City of Palo Alto's proposed Class III bike route along Alma Street as identified in the City of Palo Alto Bicycle & Pedestrian Transportation Plan.

See Table 7A.15-6 for mitigated LOS conditions.

Impact 7A.15-3: Implementation of Additional Housing Alternative A could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Additional Housing Alternative A conditions. (Significant)

Please note that only the freeway mainline segment impact analysis is provided for the Additional Housing Alternative A analysis. As described in Draft EIR page 5.15-58, freeway ramp queueing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions.

TABLE 7A.15-6
2018 BASELINE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Additional Housing Alternative A		Mitigation Measure	2018 Baseline With Additional Housing Alternative A (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	119.6 21.2	F C+	136.9 22.1	F C+	See MM 5.15-2 (Table 1A)	45.3 17.9	D B	LTS/SU
13	I-280 SB Ramps / Page Mill Road	Santa Clara County	LOS E (Warrant)	AM PM	151.7 85.9	F F	154.0 89.2	F F	See MM 5.15-2 (Table 1A)	37.2 42.3	D+ D	LTS/SU
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	97.2 97.0	F F	110.6 113.0	F F	See MM 5.15-2 (Table 1A)	70.3 59.2	E E+	LTS/SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	71.8 92.3	E F	73.8 95.1	E F	See MM 5.15-2 (Table 1A)	60.3 67.9	E E	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	55.2 55.0	E+ D-	56.3 56.5	E+ E+	See MM 5.15-2 (Table 1A)	55.2 55.4	E+ E+	SU

Bold text indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak traffic hour. PM = evening peak traffic hour.

^d Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^e LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software program, which applies the methods described in the 2000 *Highway Capacity Manual*.

^f LTS/SU = less-than-significant with mitigation, but is either (1) located outside Santa Clara County where mitigation measures depend on funding and actions by other jurisdictions, or (2) located in Santa Clara County, but depends on other funding for the mitigation to be constructed, and thus the mitigation measure may not be implemented in a timely manner to avoid the impact. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection;

SU = significant and unavoidable.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

The future operations of freeway mainline segments in Santa Clara County and San Mateo County are evaluated using volume-to-capacity ratios, with a V/C ratio greater than 1.00 indicating the volume/demand exceeds capacity. Under 2018 Baseline with Additional Housing Alternative A Conditions, the following 6 freeway segments would meet the significance criteria, which is two more than under 2018 Baseline with Project Conditions:

- Northbound SR 85
 - South De Anza Boulevard to Stevens Creek Boulevard (AM and PM peak hours);
 - Stevens Creek Boulevard to I-280 (AM peak hour);
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (PM peak hour);
 - South De Anza Boulevard to Saratoga Avenue (PM peak hour);
- Northbound I-280
 - Magdalena Avenue to El Monte Road (AM peak hour).
- Southbound I-280
 - El Monte Road to Magdalena Avenue (PM peak hour).

In addition, Additional Housing Alternative A would extend the significant impact to Northbound State Route 85 from Stevens Creek Boulevard to South De Anza Boulevard to both the AM and PM peak hours, while the proposed Project would only cause a significant impact in the AM peak hour.

There are limited options to widen these freeway segments due to right-of-way constraints. Mitigation of freeway impacts is considered beyond the scope of an individual development project, due to the inability of any individual project or local agency to (1) acquire right-of-way for freeway widening, and (2) fully fund a major freeway mainline improvement. Mitigation Measure 7A.15-2 would reduce impacts to freeways to the extent that trips to and from the campus are reduced to achieve the No Net New Commute Trips standard and through applying any fees from exceeding the No Net New Commute Trips standard to alternative programs that reduce vehicular trips. Nevertheless, because it is uncertain whether the No Net New Commute Trips standard would be achieved, the freeway impacts under Additional Housing Alternative A would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.15-4: Implementation of Additional Housing Alternative A would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

Generally, a project causes a significant impact to transit facilities and services if an element of it would conflict with existing or planned transit services, or would decrease the performance or safety of such services. Similar to the proposed Project, Additional Housing Alternative A does

not propose infrastructure changes outside the Project site and, thus, would not interfere with the ability of transit agencies to modify or expand service.

Additional Housing Alternative A would add traffic along major transit corridors throughout the cities of Palo Alto and Menlo Park, which could affect operations of bus routes serving the area. However, as shown in **Table 7A.15-7**, Additional Housing Alternative A would not add substantial delays relative to the total route travel time to any of the transit routes assessed, although delays are sometimes higher than proposed Project delays. The additional delay would be fewer than 30 seconds on all but three of the routes, and fewer than 60 seconds on all but two of the routes. The longest-delay result, 91 seconds on the Dumbarton Express 1 eastbound in the PM, constitutes three percent of the total travel time on that route. Therefore, Additional Housing Alternative A's impact on transit services would be less than significant, as would the proposed Project.

Mitigation: None required.

Impact 7A.15-5: Implementation of Additional Housing Alternative A would not substantially increase intrusion by traffic in nearby neighborhoods. (Less than Significant)

Traffic impacts on residential streets were estimated using the Traffic Infusion on Residential Environment (TIRE) methodology, which empirically determines the potential impact on residential streets based on the premise that any increase in traffic that would cause an index increase of 0.1 or more would be noticeable to residents. The TIRE index is based on a logarithmic scale, and is a numerical representation of a resident's perception of the effect of street traffic on activities such as walking, cycling, or playing. The TIRE indices values range from zero (representing the least noticeable effect on traffic) to five (representing the most severe effect).

Similar to what was analyzed for the proposed Project, two neighborhoods in Palo Alto (College Terrace and Crescent Park) were identified as locations where neighborhood traffic impacts might occur with the proposed growth assuming the build-out of Additional Housing Alternative A for the following reasons:

- **College Terrace** – The neighborhood lies along the southern boundary of the campus and shares access with Stanford Avenue, which is a primary access route to the campus. Even though the traffic calming measures instituted in this neighborhood appear to have been effective, there remains a concern that there are routes through the neighborhood that drivers from Stanford might use to travel between Stanford Avenue and California Avenue to access Page Mill Road or El Camino Real.
- **Crescent Park** – The neighborhood lies along University Avenue, which is a major access route to regional roadways such as US 101 and SR 84 (Dumbarton Bridge), and is a road used by some drivers accessing Stanford. There is existing congestion on the corridor that includes spillover traffic to parallel roadways such as Hamilton Avenue.

TABLE 7A.15-7
BACKGROUND (2018) WITH ADDITIONAL HOUSING ALTERNATIVE A TRANSIT ROUTE DELAY^a

Route		Direction	Peak Hour	Additional Route Average Delay (seconds) ^b	
				Proposed Project ^c	Additional Housing Alternative A
22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	< 5.0 14.3	6.0 28.2
		Westbound	AM PM	10.9 7.0	12.9 10.6
35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 5.1
89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0	< 5.0 22.1
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
102	South San Jose to Palo Alto	Northbound	AM	< 5.0	< 5.0
		Southbound	PM	7.1	24.3
104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0	71.3
		Westbound	AM	14.4	50.5
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	< 5.0 16.0	< 5.0 31.6
		Westbound	AM PM	10.9 7.0	12.9 10.6
281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	5.1 < 5.0	5.3 5.7
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0	13.2 13.6
DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	< 5.0 9.3	18.7 91.0
		Westbound	AM PM	20.8 13.3	65.3 49.6
U	Fremont BART to Stanford Oval	Eastbound	PM	12.3	24.9
		Westbound	AM	< 5.0	18.6
E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	< 5.0 5.3	< 5.0 6.6
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0

^a Transit route delay is calculated by summing each transit route movements through the study intersections. Some movements may experience large increases or decreases in delay as a result of the analysis software (Trafrix 8.0) redistributing green time for each phase.

^b Additional Housing Alternative A was not considered to have a measureable change in overall transit route delay if the increase in travel time was less than five seconds or the travel time improved slightly (due to changes in signal timing, critical movement changes, etc.).

^c Background (2018) With Proposed 2018 General Use Permit presents the results as it was included in the Draft EIR. These results are provided for comparison purposes only.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-T1A)

TIRE Indices on Local Streets

Given that travel patterns throughout and surrounding the Stanford campus may change with Additional Housing Alternative A, variations to the methodology used for the proposed Project were used to calculate the total number of daily trips that may divert through the College Terrace and Crescent Park neighborhoods. Separate approaches were used to estimate the number of diverted daily trips for the two neighborhoods. For the College Terrace neighborhood, a ratio was developed between the number of peak hour trips accessing the University via Bowdoin Street and the total number of daily trips under the proposed Project conditions. This ratio was applied to the new number of peak hour trips using Bowdoin Avenue to determine the new number of daily trips that would potentially cut through the College Terrace neighborhood. This method was also applied to vehicle trips along University Avenue to estimate the number of daily trips that would potentially cut through the Crescent Park neighborhood.

College Terrace TIRE Analysis

As shown in **Table 7A.15-8**, TIRE indices for the local streets serving Stanford in the College Terrace neighborhood currently range from 2.6 to 3.1. Applying the ratio described above yields an estimate that 2,268 daily vehicles would use Bowdoin Street to access Stanford University for Additional Housing Alternative A.

TABLE 7A.15-8
COLLEGE TERRACE NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Volume that Equates to 0.1 Change ^a	Project Daily Trips ^b	Additional Housing Alt. A Trips ^b	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index				
Columbia Street, between College Avenue and California Avenue	2	640	2.8	140	57	68	No
Hanover Street, between Stanford Avenue and College Avenue	2	1,160	3.1	290	76	91	No
Harvard Street, between Stanford Avenue and College Avenue	2	430	2.6	97	28	34	No
Oberlin Street, between Stanford Avenue and College Avenue	2	850	2.9	170	55	66	No
Princeton Street, between College Avenue and California Avenue	2	610	2.8	140	54	65	No
Cornell Street, between College Avenue and California Avenue	2	370	2.6	97	33	39	No

NOTES:

^a Minimum daily traffic volume increase to produce an impact.

^b Assumes 20% of the added daily Stanford traffic east of Bowdoin Street on Stanford Avenue.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Many of the daily trips that access the Stanford campus at Bowdoin Street do not pass through the College Terrace neighborhood, as there is a barrier at the entrance to the College Terrace neighborhood at Bowdoin Street, and all vehicles entering or exiting the campus at Bowdoin Street must also use Stanford Avenue. Vehicles traveling to or from the campus by way of the portion of Stanford Avenue that is to the west of Bowdoin Street do not pass through the College Terrace neighborhood. Vehicles traveling to or from the campus by way of the portion of Stanford Avenue that is to the east of Bowdoin Street can continue on Stanford Avenue directly to El Camino Real. These vehicles also do not pass through the College Terrace neighborhood. The only vehicles that travel through the College Terrace neighborhood are those that zig zag through the neighborhood by taking College Avenue or California Avenue to and from El Camino Real, or by taking Hanover Street to or from Page Mill Road. Vehicles cannot travel directly from Stanford Avenue to Page Mill Road on Hanover Street; there is a barrier at the intersection of California Avenue and Hanover Street that prevents through traffic.

Morning and afternoon peak period turning movement counts collected at the Bowdoin Street / Stanford Avenue intersection were used to estimate trip distribution along Stanford Avenue. Of the 2,268 additional daily trips accessing the campus at Bowdoin Street, it is estimated that 762 daily trips would travel on Stanford Avenue to the east of Bowdoin Street, thereby having the potential to pass through the College Terrace neighborhood.

Existing daily traffic volumes collected throughout the College Terrace neighborhood where Stanford traffic may use neighborhood streets were used to estimate trip distribution throughout College Terrace neighborhood. Due to the existing street closures and traffic calming devices, relatively few drivers are likely to choose to negotiate the circuitous route, as well as multiple stop signs and speed humps, to pass through the neighborhood to access El Camino Real; the alternative (Stanford Avenue) is a direct route to El Camino Real with fewer stops. Similarly, it is unlikely that a large number of drivers would choose to travel from Stanford Avenue to Page Mill Road through the College Terrace neighborhood given that multiple turns and out-of-way travel would be needed. For example, if a driver were to leave the campus at Bowdoin Street, they would need to turn left on Stanford Avenue, right on Hanover Street, right on College Avenue, left on Columbia Street and left on California Avenue to access Page Mill Road. The other options would be to use Stanford Avenue to access Peter Coutts to Junipero Serra Boulevard, or El Camino Real to access Page Mill Road.

While the traffic calming and circuitous routing minimizes the number of drivers electing to cut through the neighborhood, the analysis assumed (based on professional judgment and knowledge of the neighborhood traffic calming and routing) that approximately 20 percent of drivers who travel to and from the Stanford gateway via the east of Bowdoin Street might elect to pass through the neighborhood streets. Because the TIRE index is based on daily traffic volumes, and the greatest time savings for drivers cutting through the neighborhood would be during the morning or evening peak periods when El Camino Real, Page Mill Road and Junipero Serra Boulevard are congested, the 20 percent assumption is considered conservative.

While it is unlikely that even 20 percent of the added daily Stanford traffic traveling east of Bowdoin Street on Stanford Avenue would travel through the neighborhood, this percentage was

used to demonstrate a conservatively-high analysis scenario. Additional Housing Alternative A trip estimates along Oberlin Street, Harvard Street, Hanover Street, Cornell Street, Princeton Street, and Columbia Street were distributed based on the relative existing daily volumes on these roadways. These values were compared to the volume changes needed to create a 0.1 TIRE index increase for each roadway to ascertain whether an impact would result. As shown in Table 7A.15-8, Additional Housing Alternative A would not surpass the 0.1 change in TIRE index on any of the local residential street segments evaluated in this analysis, and the impact on local streets, although higher than the proposed Project impact, would be less than significant, the same as the result of the analysis of the proposed 2018 General Use Permit.

Crescent Park TIRE Analysis

The percentage of trips using University Avenue that would be likely to divert to neighborhood roadways when passing through Downtown Palo Alto was calculated. The potential diversion of this volume to parallel routes within the Crescent Park neighborhood was based on an analysis of the relative existing daily traffic volumes on University Avenue, Lytton Avenue, and Hamilton Avenue for four different segments: east of Middlefield Road, west of Lincoln Avenue, east of Lincoln Avenue, and west of Woodland Avenue. The existing daily traffic volumes along each roadway in each segment were used to estimate potential daily trip distributions. For example, if the Stanford 2018 General Use Permit is estimated to contribute 15 trips on University Avenue, while University Avenue has an existing 100 daily trips and Hamilton Avenue has an existing 50 trips, then 10 additional Stanford trips would be assumed to use University Avenue and five trips would be assumed to use Hamilton Avenue. The estimated potential daily trip distributions of Additional Housing Alternative A trips in Crescent Park neighborhood are shown in Table 7A.15-9. These values were compared to the volume changes needed to create a 0.1 TIRE index increase for each roadway to ascertain whether an impact would result. As shown in Table 7A.15-10, TIRE indices for the local streets serving Stanford in the Crescent Park neighborhood currently range from 3.5 to 3.7, and Additional Housing Alternative A would not surpass the 0.1 change in TIRE index on any of the local residential street segments evaluated in this analysis, and the impact on local streets, although higher than the proposed Project impact would be less than significant, the same as the result of the analysis of the proposed 2018 General Use Permit.

It should be noted that since the TIRE indices are based on the effect of Additional Housing Alternative A as a percentage of total traffic, that Alternative's A effect on cumulative traffic conditions would be even less, and similarly less than significant.

Mitigation: None required.

TABLE 7A.15-9
CRESCENT PARK NEIGHBORHOOD TRIP DISTRIBUTION CALCULATIONS

Roadway Description		Average Daily Traffic	Percent of Total Volumes	Estimated Daily Trips
Cordon 1	University Avenue East of Middlefield Road	20,640	71%	878
	Lytton Avenue East of Middlefield	2,940	10%	125
	Hamilton Avenue East of Middlefield Road	5,580	19%	238
	Total for Cordon 1	29,160	100%	1,241
Cordon 2	University Avenue West of Lincoln Avenue	19,500	84%	1,043
	Hamilton Avenue West of Lincoln Avenue	3,700	16%	198
	Total for Cordon 2	23,200	100%	1,241
Cordon 3	University Avenue East of Lincoln Avenue	20,920	86%	1,068
	Hamilton Avenue East of Lincoln Avenue	3,400	14%	173
	Total for Cordon 3	24,320	100%	1,241
Cordon 4	University Avenue West of Woodland Avenue	24,890	100%	1,241
	Total for Cordon 4	24,890	100%	1,241

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

TABLE 7A.15-10
CRESCENT PARK NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Volume that Equates to 0.1 Change ^a	Project Daily Trips	Additional Housing Alt. A Trips	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index				
Lytton Avenue, between Middlefield Road and Fulton Street	2	2,940	3.5	825	76	125	No
Hamilton Avenue, between Middlefield Road and Fulton Street	2	5,580	3.7	1,250	145	237	No
Hamilton Avenue, between Hamilton Court and Lincoln Avenue	2	3,700	3.6	1,025	121	198	No
Hamilton Avenue, between Lincoln Avenue and Crescent Drive	2	3,400	3.5	825	106	173	No

NOTE:

^a Minimum daily traffic volume increase to produce an impact.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Impact 7A.15-6: Implementation of Additional Housing Alternative A would not substantially increase hazards due to a design feature or incompatible uses. (Less than Significant)

The potential safety impacts of Additional Housing Alternative A are evaluated based on whether any identified intersection mitigation measures would cause adverse safety effects for vehicles, transit, pedestrians, or bicyclists, and if Additional Housing Alternative A would introduce incompatible uses (i.e., types of vehicles that differ from those currently on area roadways). The intersection mitigation measures would be constructed according to the design standards of the relevant jurisdiction/agency (i.e., where the intersection is located), which conform to industry standards for roadway and intersection design and operations. In addition, the secondary effects of the intersection mitigations on pedestrians and bicyclists are described for each mitigation measure (Impact 7A.15-2, above, and Impact 7A.15-9, below). Lastly, the mix of vehicles on area roadways (trucks, autos, etc.) would not materially change from existing conditions. Therefore, the mitigation measures and increased traffic would not cause adverse safety effects for vehicles, transit, pedestrians or bicyclists under Additional Housing Alternative A and cumulative conditions, and impact of Additional Housing Alternative A on safety is less-than-significant.

It is also noted that Stanford's proposed mitigation approach aims to eliminate congestion impacts and the need for the intersection mitigation measures. The approach includes a combination of trip reduction measures for trips to and from the Stanford campus, and trip reduction measures for trips outside the Project site within the impact area, incorporating both infrastructure projects and programs supporting non-auto modes. If successful, this approach would avoid the need to construct any of the intersection capacity mitigations.

Mitigation: None required.

Impact 7A.15-7: Implementation of Additional Housing Alternative A would not result in inadequate emergency access. (Less than Significant)

Emergency access can be impeded as a result of the construction of physical features that can block emergency access routes or make them more circuitous, or as a result of high levels of congestion that lengthen the response time of emergency providers. Additional Housing Alternative A would not result in any infrastructure changes outside the Project site, and thus would not create fixed physical barriers to, or impede, emergency access. The Additional Housing Alternative A traffic analyses (Impact 7A.15-2, above, and Impact 7A.15-9, below) indicate significant impacts (increased congestion/delays) at intersections in both the 2018 with Additional Housing Alternative A and 2035 Cumulative with Additional Housing Alternative A conditions. As described in Impacts 7A.15-2 and Impact 7A.15-9, Additional Housing Alternative A would incrementally increase congestion/delays compared to the proposed Project, but similar to the Project, identifies intersection capacity mitigations, if feasible. Emergency responders are charged with developing fastest-response travel routes and assessing traffic conditions and developing alternate routes in real time to provide emergency services. Therefore,

the identified significant impacts at area intersections would not result in inadequate emergency access within the traffic study area, and the impact on emergency access under Additional Housing Alternative A and cumulative conditions, and although effects would be incrementally greater than the proposed Project's impact, would be less-than-significant.

Mitigation: None required.

Impact 7A.15-8: Implementation of Additional Housing Alternative A would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

A significant impact to bicycle or pedestrian facilities could occur when Additional Housing Alternative A would create a hazardous condition that currently does not exist for pedestrians or bicyclists, or conflicts with planned facilities or local agency policies regarding bicycle and pedestrian facilities. Additional Housing Alternative A would not result in any infrastructure changes outside the Project site and would preclude implementation of planned bicycle or pedestrian facilities, and thus, would not create hazardous conditions where none exist today, nor conflict with planned facilities or local agency policies.

However, several intersection capacity mitigation measures are identified (for Impact 7A.15-2, above, and Impact 7A.15-9, below). Therefore, the analysis of potential impacts also focuses on the proposed mitigations, as these could be effects of Additional Housing Alternative A if they are constructed. The analysis of each mitigation location also includes the effect of the daily traffic volume with the additional trips generated by Additional Housing Alternative A. The analysis found that the identified intersection improvements would not substantially affect quality of service for pedestrians and bicyclists (i.e., no substantial worsening of QOS indices) in all but two cases. At one Cumulative (2035) mitigation location, Middlefield Road / Marsh Road (Intersection #59), the bicycle quality of service would decrease from QOS 2.7 to QOS 3 (the same result as under the Cumulative (2035) with Project Conditions). At Middlefield Road / Charleston Road (Intersection #69), the pedestrian quality of service would decrease from QOS 2 to QOS 2.5. This is a new quality of service result for the Cumulative (2035) with Additional Housing Alternative A Conditions that would not occur under the Cumulative (2035) with Project Conditions.

While the rest of the traffic mitigation measures do not change the quality of service index at the mitigation location, in some cases the mitigations do add another vehicle lane to cross or navigate as a bicyclist. However, these changes do not affect the QOS rating because it is already at 4 (the worst rating). In several cases, the mitigation measures may result in a slight improvement for bicyclists by removing a right-turn conflict zone due to re-striping. As noted in the traffic mitigation discussions, the implementation of the traffic mitigation measures would ultimately be the decision of the responsible jurisdiction, and considerations for bicyclist and pedestrian comfort and convenience may enter into those decisions, resulting in a modified improvement project that adds or enhances pedestrian and/or bicycle facilities, or rejection of the improvement project.

In some cases, the mitigations would add another vehicle lane to cross or navigate as a bicyclist. However, these changes would not affect the QOS rating because it is already at 4 (the worst rating). As noted in the traffic mitigation discussions, the implementation of the mitigation measures would ultimately be the decision of the responsible jurisdiction, and considerations for bicyclist and pedestrian comfort and convenience may enter into those decisions, resulting in a modified improvement that adds or enhances pedestrian and/or bicycle facilities, or rejection of the identified mitigation measure.

In addition, assessment of the bicycle facility capacity to serve future growth in bicycle commuters to the campus (based on existing bicycle counts at the campus gateways and estimates of future growth to 2018 and 2035 under the proposed 2018 General Use Permit) shows that the carrying capacities of bicycle paths and lanes in the various “bike shed” areas surrounding the campus exceed the estimated future growth in bicycle volumes.

For the above reasons, the impact of Additional Housing Alternative A on pedestrian and bicycle facilities, under Additional Housing Alternative A and cumulative conditions, and although effects would be incrementally greater than the proposed Project’s impact, would be less than significant.

Separate from the above analysis, it is noted that under Additional Housing Alternative A, like the proposed Project, Stanford would construct improvements on its lands in unincorporated Santa Clara County that have been identified by the Palo Alto Unified School District (PAUSD) and the City of Palo Alto as the Suggested Routes to Schools shown on the Walkabout Maps for Nixon and Escondido Elementary Schools. These improvements would benefit both pedestrian and bicycle circulation in the immediate area of both schools. Circulation improvements on Stanford lands in unincorporated Santa Clara County, in and around Nixon Elementary School, could include such items as improved crosswalks with high-visibility yellow markings, pavement markings, additional signage, and wayfinding signs. Circulation improvements in and around Escondido Elementary School similarly could include such items as improved crosswalks with high-visibility yellow markings, pavement markings, additional signage, additional traffic control. Specific improvements on Stanford property could include an enhanced mid-block crosswalk on Escondido Road.

Mitigation: None required.

Cumulative Impacts

2035 Baseline With Additional Housing Alternative A Conditions

Impact 7A.15-9: Implementation of Additional Housing Alternative A, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Additional Housing Alternative A conditions. (Significant)

The results for the Cumulative (2035) No Project and 2035 Cumulative With Proposed Project conditions have been updated since publication of the Draft EIR to correct the assumed lane configuration on Page Mill Road under cumulative conditions. Modeling conducted for the Draft

EIR assumed Page Mill Road would have six travel lanes based on VTA's 2040 traffic model. Subsequently, VTA staff indicated that inclusion of the 6-lane configuration had been an error on the part of VTA.⁴³ The updated results are based on modeling that assumes no change to the existing 4-lane configuration for Page Mill Road.⁴⁴

Cumulative impacts associated with Additional Housing Alternative A are identified by comparing 2035 Cumulative (no project) to 2035 Cumulative with Additional Housing Alternative A Conditions. Significant impacts are identified based on the applicable impact criteria, which include changes in the LOS from an acceptable to an unacceptable level or changes in critical delay and critical V/C ratios for intersections operating unacceptably. The results of the LOS analysis are summarized in **Table 7A.15-11**. The results for 2035 Cumulative No Project and 2035 Cumulative With Proposed Project (2018 General Use Permit) conditions are included in Table 7A.15-11 for comparison purposes.

Generally, at the study intersections located closest to the campus, Additional Housing Alternative A would increase congestion compared to the proposed Project. At the study intersections located farther from the campus, this alternative would reduce congestion by a small degree compared to the proposed Project because peak-hour, peak-direction residence-based trips are assumed to start and end at destinations closer to the Stanford campus as compared to peak-hour, peak-direction commute trips. When compared to the proposed Project, Additional Housing Alternative A would add approximately 200 to 220 peak hour trips to intersections directly adjacent to the campus along El Camino Real and between 30 to 130 peak hour trips to intersections that border the campus along Sand Hill Road and Junipero Serra Boulevard. Overall, Additional Housing Alternative A would not reduce significant effects of the proposed 2018 General Use Permit under 2035 conditions.

The intersections where there would be a significant impact under 2035 Cumulative with Additional Housing Alternative A conditions, and the reason that the impact is considered significant, are documented in **Table 7A.15-12**. Additional Housing Alternative A would make a cumulatively considerable contribution to significant impacts at two more intersections than would the proposed Project: Intersections #34 (Bowdoin Street/Stanford Avenue) and #69 (Middlefield Road/Charleston Road). In addition, this alternative would make a cumulatively considerable contribution that differs from that for the proposed Project in terms of the time period(s) when the impact would occur, as follows:

- At Intersection #33 (Foothill Expressway/Springer Road- Magdalena Avenue) – Additional Housing Alternative A (AM peak hour) versus Proposed Project (AM and PM peak hours)
- Intersection #58 (Alma Street/Charleston Road) – Additional Housing Alternative A (AM and PM peak hours) versus Proposed Project (PM peak hour)
- Intersection #89 (Central Expressway/Castro Street-Moffett Boulevard) – Additional Housing Alternative A (PM peak hour) versus Proposed Project (AM peak hour)

⁴³ Email dated 10/3/17 from George Naylor (Santa Clara County VTA) to Ananth Prasad (Santa Clara County Roads and Airports), forwarded via Dave Rader (Santa Clara County Planning Department) to Ellen Poling (Fehr & Peers) on 10/19/18.

⁴⁴ The updated results will also be reflected in the forthcoming Response to Comments Document.

TABLE 7A.15-11
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
1	I-280 NB On-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.3 12.6	B+ B	10.1 13.7	B+ B	0.015 0.032	-0.2 1.2	10.1 13.7	B+ B	0.026 0.031	-0.3 1.1
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	136.9 18.4	F B-	155.2 18.6	F B-	0.038 0.021	19.2 0.2	154.7 19.4	F B-	0.037 0.035	18.8 1.1
3	Addison Wesley / Sand Hill Rd	Menlo Park	LOS D	AM PM	37.9 21.5	D+ C+	49.6 22.3	D C+	0.037 0.032	18.3 1.4	47.5 22.2	D C+	0.031 0.031	15.4 1.3
4	Saga Ln / Sand Hill Rd	Menlo Park	LOS D	AM PM	19.4 30.1	B- C	19.6 29.8	B- C	0.036 0.031	0.5 -0.2	19.7 29.6	B- C	0.030 0.030	0.4 -0.2
5	Sharon Park Dr / Sand Hill Rd	Menlo Park	LOS D	AM PM	17.4 18.9	B B-	17.4 18.6	B B-	0.036 0.032	0.3 0.0	17.3 18.6	B B-	0.030 0.031	0.3 0.0
6	Alameda de las Pulgas / Santa Cruz Ave	San Mateo County	LOS D	AM PM	13.3 14.6	B B	13.3 14.5	B B	0.000 0.000	0.0 0.0	13.3 14.5	B B	0.000 0.000	0.0 0.0
7	Santa Cruz Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	51.3 46.2	D- D	52.8 47.2	D- D	0.030 0.038	2.1 1.7	53.9 47.4	D- D	0.039 0.035	3.5 1.4
8	Oak Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.5 3.9	B+ A	10.5 3.9	B+ A	0.025 0.024	0.1 0.1	10.4 3.9	B+ A	0.029 0.032	0.1 0.2
9	Stock Farm Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	24.3 29.4	C C	25.4 30.3	C C	0.028 0.022	1.7 0.9	24.7 29.5	C C	0.030 0.011	1.2 2.2
10	Pasteur Dr / Sand Hill Rd	Palo Alto	LOS D	AM PM	20.7 26.8	C+ C	20.8 27.4	C+ C	0.009 0.017	0.4 0.7	20.6 27.1	C+ C	0.020 0.028	0.4 0.6
11	Arboretum Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	25.3 31.7	C C	26.0 32.3	C C-	0.013 0.012	1.3 0.9	27.3 33.3	C C-	0.033 0.021	3.4 1.7
12	El Camino Real / Sand Hill Rd	Palo Alto (SC CMP)	LOS E	AM PM	43.8 39.8	D D	43.6 40.3	D D	0.019 0.013	-3.1 0.6	43.8 40.5	D D	0.024 0.022	-2.7 1.3
13	I-280 SB Ramps / Page Mill Rd**	Santa Clara County	LOS E (warrant)	AM PM	37.0 44.6	D+ D	37.2 45.0	D+ D	0.003 0.003	0.3 0.2	37.3 44.7	D+ D	0.003 0.000	0.3 0.0
14	I-280 NB Ramps / Page Mill Rd**	Santa Clara County	LOS E (warrant)	AM PM	15.2 12.4	B B	14.5 12.5	B B	0.005 0.004	0.6 0.7	15.2 12.7	B B	0.005 0.007	0.6 1.2
15	Deer Creek Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	17.5 11.5	B B+	19.1 11.8	B- B+	0.026 0.021	2.7 0.1	19.1 11.9	B- B+	0.028 0.033	2.8 0.2
16	Coyote Hill Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	8.9 8.5	A A	9.8 8.9	A A	0.014 0.021	0.0 -0.1	9.8 9.0	A A	0.028 0.033	0.0 -0.2
17	Junipero Serra Blvd - Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	180.4 162.9	F F	186.9 175.2	F F	0.028 0.044	4.5 27.8	196.8 178.3	F F	0.067 0.053	19.5 30.6

TABLE 7A.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
18	Peter Coutts / Page Mill Rd	Santa Clara County	LOS E	AM PM	22.3 30.5	C+ C	22.9 30.8	C+ C	0.020 0.015	0.8 0.0	23.7 31.7	C C	0.035 0.030	1.7 0.9
19	Hanover St / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	85.6 51.9	F D-	92.1 52.8	F D-	0.025 0.018	11.2 0.6	96.0 62.4	F E	0.053 0.134	17.8 14.1
20	El Camino Real / Page Mill Rd - Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	75.1 83.1	E- F	84.9 90.2	F F	0.047 0.035	13.2 11.0	91.6 98.5	F F	0.105 0.080	38.3 26.1
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	122.7 101.5	F F	125.6 103.6	F F	0.014 0.012	4.7 3.1	125.5 103.2	F F	0.016 0.018	4.3 2.1
22	Oregon Expy / West Bayshore Rd	Santa Clara County	LOS E	AM PM	23.4 20.8	C C+	23.4 21.0	C C+	0.003 0.008	0.0 0.1	23.5 21.2	C C+	0.012 0.017	0.1 0.6
23	I-280 SB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	10.5 2.1	E C	42.7 16.9	E C	N/A	N/A	10.5 2.1	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	26.7 29.1	D D	27.8 32.5	D D	N/A	N/A	28.3 32.6	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Rd	Menlo Park	LOS D	AM PM	48.1 50.6	D D	51.6 52.8	D- D-	0.049 0.029	4.6 1.7	51.6 52.8	D- D-	0.046 0.030	4.3 1.7
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	LOS E	AM PM	30.1 44.1	C D	32.5 50.3	C- D	0.009 0.043	1.5 8.6	34.5 49.9	C- D	0.041 0.037	6.7 6.7
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	LOS E	AM PM	14 17.8	B B	14.4 19.5	B B-	0.020 0.037	0.7 2.8	14.7 19.6	B B-	0.041 0.051	1.2 2.5
28	Junipero Serra Blvd / Stanford Ave	Santa Clara County	LOS E	AM PM	20.6 24.9	C+ C	22.4 29.9	C+ C	0.061 0.084	2.5 6.8	24.4 32.3	C C-	0.095 0.111	5.1 9.4
29	Foothill Expy / Hillview Ave	Santa Clara County	LOS E	AM PM	124.6 58.3	F E+	135.0 64.2	F E	0.024 0.015	16.1 9.0	132.1 63.3	F E	0.036 0.013	11.2 7.7
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	LOS E	AM PM	194.5 202.5	F F	201.2 208.9	F F	0.016 0.095	10.4 18.2	200.5 207.9	F F	0.015 0.092	9.3 15.9
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	LOS E	AM PM	38.8 165.8	D+ F	43.2 171.0	D F	0.016 0.021	6.7 8.1	42.0 169.7	D F	0.012 0.017	4.9 6.5
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	LOS E	AM PM	142.6 133.5	F F	149.3 137.9	F F	0.014 0.004	13.5 1.9	147.6 136.9	F F	0.011 0.003	10.3 1.0
33	Foothill Expy / Springer Road-Magdalena Ave	Santa Clara County (SC CMP)	LOS E	AM PM	128.7 151.5	F F	131.9 154.4	F F	0.014 0.010	4.8 5.1	131.6 154.7	F F	0.011 0.009	4.3 5.5
34	Bowdoin St / Stanford Ave*	Palo Alto	LOS E (warrant)	AM PM	16.7 25.8	C D	22.8 43.2	C E	N/A	N/A	25.7 55.4	D F	N/A	N/A

TABLE 7A.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
35	Arboretum Rd / Quarry Rd	Palo Alto	LOS D	AM PM	46.8 43.3	D D	47.5 44.2	D D	0.040 0.039	1.3 1.8	48.4 45.4	D D	0.079 0.074	3.3 3.6
36	Arboretum Rd / Palm Dr	Palo Alto	LOS D	AM PM	31 31.1	C C	32.4 32.5	C- C-	0.080 0.049	2.1 2.5	32.9 33.7	C- C-	0.092 0.077	2.9 4.0
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	44.9 89.9	D F	45.4 92.9	D F	0.007 0.015	1.4 5.5	45.8 92.5	D F	0.010 0.013	2.2 4.9
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	53.5 56.0	D- E+	54.0 57.4	D- E+	0.017 0.015	1.9 2.7	54.0 57.2	D- E+	0.014 0.014	1.5 2.4
39	El Camino Real / Oak Grove Ave	Menlo Park	LOS D	AM PM	34.4 39.0	C- D+	34.1 38.9	C- D+	0.018 0.017	-0.2 0.0	34.2 38.9	C- D+	0.015 0.015	-0.2 0.0
40	El Camino Real / Santa Cruz Ave	Menlo Park	LOS D	AM PM	26.8 35.5	C D+	26.5 35.5	C D+	0.018 0.010	-0.1 0.0	26.7 35.6	C D+	0.015 0.014	-0.1 0.0
41	El Camino Real / Ravenswood Rd	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.7 65.8	D E	0.008 0.020	1.0 3.8	48.9 66.3	D E	0.015 0.021	1.9 4.1
42	El Camino Real / Roble Ave	Menlo Park	LOS D	AM PM	12.8 15.3	B B	12.7 15.2	B B	0.006 0.009	-0.1 -0.1	12.7 15.1	B B	0.010 0.012	-0.1 -0.2
43	El Camino Real / Middle Ave	Menlo Park	LOS D	AM PM	25.1 28.5	C C	24.9 28.3	C C	0.014 0.009	-0.2 0.1	24.9 28.4	C C	0.013 0.012	-0.2 0.1
44	El Camino Real / Cambridge Ave	Menlo Park	LOS D	AM PM	15.2 24.8	B C	15.0 24.8	B C	0.014 0.009	-0.2 0.2	15.0 24.8	B C	0.013 0.012	-0.2 0.2
45	El Camino Real / Quarry Rd	Palo Alto	LOS D	AM PM	11.9 33	B+ C-	13.3 34.8	B C-	0.029 0.032	1.6 2.7	14.0 36.0	B D+	0.036 0.052	2.4 4.6
46	El Camino Real (SB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	21 22.7	C+ C+	20.7 22.5	C+ C+	0.016 0.031	-0.1 0.0	20.6 22.6	C+ C+	0.034 0.043	-0.1 0.5
47	El Camino Real (NB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	27.3 25.2	C C	28.6 26.1	C C	0.008 0.016	0.5 0.7	28.6 26.6	C C	-0.003 0.005	-0.4 0.1
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	LOS E	AM PM	56.9 72.1	E+ E	60.4 82.2	E F	0.032 0.059	5.2 20.0	63.0 90.1	E F	0.065 0.099	11.8 35.4
49	El Camino Real / Churchill Ave	Palo Alto	LOS D	AM PM	25.4 26.7	C C	25.4 26.6	C C	0.017 0.018	0.1 0.1	25.4 26.9	C C	0.039 0.043	0.4 0.5
50	El Camino Real / Serra St	Palo Alto	LOS D	AM PM	24.6 29.3	C C	28.3 36.1	C D+	0.082 0.111	6.1 10.7	34.4 47.1	C- D	0.181 0.219	13.6 29.3
51	El Camino Real / Stanford Ave	Palo Alto	LOS D	AM PM	31.1 32.2	C C-	31.7 34.7	C C-	0.033 0.054	1.0 3.9	32.2 36.3	C- D+	0.074 0.082	1.6 6.4

TABLE 7A.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
52	El Camino Real / California Ave	Palo Alto	LOS D	AM PM	22.8 27.8	C+ C	22.1 27.5	C+ C	0.029 0.031	-0.4 0.0	21.8 27.5	C+ C	0.038 0.046	-0.6 0.0
53	El Camino Real / Arastradero Rd - Charleston Rd	Palo Alto (SC CMP)	LOS E	AM PM	67.1 68.7	E E	70.2 70.3	E E	0.020 0.019	5.5 3.8	71.6 70.8	E E	0.029 0.024	8.1 4.8
54	El Camino Real / San Antonio Rd	Mountain View (SC CMP)	LOS E	AM PM	60.8 55.6	E E+	61.3 55.7	E E+	0.008 0.007	0.8 0.0	61.2 55.7	E E+	0.007 0.007	0.7 0.0
55	Alma St / Lytton Ave	Palo Alto	LOS D	AM PM	28.2 25.9	C C	30.9 27.1	C C	0.017 0.015	4.1 1.9	32.1 28.4	C- C	0.026 0.029	6.1 3.8
56	Alma St / Hamilton Ave	Palo Alto	LOS D	AM PM	10.2 57.7	B+ E+	10.4 60.0	B+ E	0.007 0.012	0.3 5.0	10.6 63.6	B+ E	0.014 0.028	0.6 11.9
57	Alma St / Churchill Ave	Palo Alto	LOS D	AM PM	32.4 59.2	C- E+	32.5 59.8	C- E+	0.005 0.006	0.2 1.0	32.8 60.4	C- E	0.007 0.010	0.6 2.0
58	Alma St / Charleston Rd	Palo Alto	LOS D	AM PM	123.4 121.5	F F	127.3 126.7	F F	0.009 0.017	3.9 6.6	130.0 129.4	F F	0.018 0.024	6.9 9.5
59	Middlefield Rd / Marsh Rd	Atherton	LOS D	AM PM	76.9 76.0	E- E-	79.7 77.4	E- E-	0.012 0.000	4.6 0.0	79.7 77.5	E- E-	0.012 0.000	4.6 0.0
60	Middlefield Rd / Ravenswood Ave	Menlo Park	LOS D	AM PM	49.3 45.3	D D	51.0 46.7	D D	0.011 0.012	2.1 1.9	51.4 47.4	D- D	0.013 0.017	2.6 2.8
61	Middlefield Rd / Ringwood Ave	Menlo Park	LOS D	AM PM	43.2 52.6	D D-	43.4 52.9	D D-	0.004 0.006	0.2 0.4	43.6 53.3	D D-	0.010 0.012	0.6 0.8
62	Middlefield Rd / Willow Rd	Menlo Park	LOS D	AM PM	50.0 53.0	D D-	50.2 53.4	D D-	0.000 0.006	0.0 0.5	50.2 53.6	D D-	0.000 0.009	0.0 0.8
63	Middlefield Rd / Lytton Ave	Palo Alto	LOS D	AM PM	49.2 66.1	D E	51.1 70.1	D- E	0.018 0.017	2.1 4.4	51.0 70.1	D E	0.017 0.017	2.0 4.5
64	Middlefield Rd / University Ave	Palo Alto	LOS D	AM PM	35.1 39.4	D+ D	35.6 40.8	D+ D	0.019 0.031	0.5 2.0	35.7 40.8	D+ D	0.018 0.031	0.5 2.0
65	Middlefield Rd / Hamilton Ave	Palo Alto	LOS D	AM PM	10.5 10.8	B+ B+	10.6 10.9	B+ B+	0.005 0.007	0.1 0.1	10.5 11.0	B+ B+	0.005 0.010	0.0 0.2
66	Middlefield Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	55.0 68.1	D- E	59.4 72.9	E+ E	0.030 0.025	5.8 6.4	58.8 72.8	E+ E	0.029 0.024	5.1 6.2
67	Saint Francis Dr / Embarcadero Rd	Palo Alto	LOS D	AM PM	23.0 19.3	C+ B-	23.0 19.1	C+ B-	0.015 0.014	0.2 -0.1	23.0 19.1	C+ B-	0.013 0.013	0.2 -0.1
68	E. Bayshore Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	98.5 77.7	F E-	99.0 78.7	F E-	0.006 0.004	0.5 0.9	100.0 79.3	F E-	0.009 0.005	1.7 1.4

TABLE 7A.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
69	Middlefield Rd / Charleston Rd	Palo Alto	LOS D	AM PM	58.0 67.7	E+ E	58.3 68.5	E+ E	0.004 0.007	0.4 1.6	58.5 69.8	E+ E	0.004 0.017	0.3 4.1
70	US 101 SB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	77.3 78.0	E- E-	77.2 77.9	E- E-	0.000 0.000	0.0 0.0	77.2 77.9	E- E-	0.000 0.000	0.0 0.0
71	US 101 NB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	23.2 41.1	C D	23.2 41.1	C D	0.000 0.000	0.0 0.0	24.9 46.0	C D	0.018 0.021	2.9 7.4
72	Bay Rd / Willow Rd	Menlo Park	LOS D	AM PM	19.7 11.3	B- B+	19.7 11.3	B- B+	0.008 0.006	0.1 0.1	19.8 11.3	B- B+	0.007 0.008	0.1 0.1
73	Newbridge St / Willow Rd	Menlo Park	LOS D	AM PM	42.7 53.6	D D-	42.7 53.9	D D-	0.005 0.004	0.1 0.6	42.7 54.1	D D-	0.006 0.006	0.1 1.0
74	O'Brien Dr / Willow Rd	Menlo Park	LOS D	AM PM	19.4 20.1	B- C+	19.4 20.0	B- C+	0.003 0.004	0.0 0.0	19.4 20.0	B- C+	0.005 0.005	0.1 0.0
75	Hamilton Ave / Willow Rd	Menlo Park	LOS D	AM PM	41.3 40.9	D D	42.0 41.1	D D	0.005 0.004	1.2 0.3	42.0 41.2	D D	0.006 0.006	1.3 0.5
76	Bayfront Expy / Willow Rd	Menlo Park (SM CMP)	LOS F	AM PM	51.1 64.9	D- E	51.1 65.3	D- E	0.000 0.004	0.0 0.6	51.0 65.4	D- E	0.000 0.004	0.0 0.7
77	Woodland Ave / University Ave	East Palo Alto	LOS D	AM PM	71.7 66.1	E E	72.7 66.4	E E	0.000 0.006	0.0 0.9	72.9 66.5	E E	0.000 0.007	0.0 1.0
78	US 101 SB Ramps / University Ave	East Palo Alto	LOS D	AM PM	27.9 25.8	C C	28.0 25.8	C C	0.004 0.006	0.2 0.1	28.0 25.8	C C	0.006 0.007	0.2 0.1
79	Donohoe St / University Ave	East Palo Alto	LOS D	AM PM	76.3 43.4	E- D	77.1 43.5	E- D	0.005 0.004	1.3 0.1	77.0 43.5	E- D	0.005 0.005	1.2 0.2
80	University Ave / Bay Rd	East Palo Alto	LOS D	AM PM	54.1 51.8	D- D-	54.4 52.4	D- D-	0.005 0.009	0.5 1.1	54.4 52.8	D- D-	0.005 0.013	0.4 1.7
81	University Ave / Bayfront Expy	Menlo Park (SM CMP)	LOS F	AM PM	26.4 137.3	C F	26.6 140.0	C F	0.008 0.007	0.5 3.3	26.7 140.7	C F	0.010 0.009	0.6 4.3
82	Town & Country Driveway / Embarcadero Rd	Palo Alto	LOS D	AM PM	27.8 28.3	C C	27.2 27.9	C C	0.031 0.021	-0.4 -0.3	27.2 27.8	C C	0.028 0.030	-0.3 -0.4
83	Charleston Rd / San Antonio Rd	Palo Alto (SC CMP)	LOS E	AM PM	79.2 68.3	E- E	79.4 68.6	E- E	0.001 0.002	0.4 0.5	79.6 68.6	E- E	0.002 0.002	0.8 0.6
84	US 101 SB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	11.1 12.8	B+ B	11.2 12.8	B+ B	0.003 0.000	0.2 0.0	11.1 12.8	B+ B	0.002 0.000	0.2 0.0
85	US 101 NB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	25 24.2	C C	25.1 24.2	C C	0.000 0.003	0.0 0.1	42.2 33.2	D C-	0.245 0.160	41.9 19.9

TABLE 7A.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative A			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
86	Central Expy / Rengstorff Ave	Santa Clara County (SC CMP)	LOS E	AM PM	447.1 248.1	F F	449.7 250.5	F F	0.010 0.008	2.2 2.6	449.8 251.0	F F	0.009 0.010	2.0 3.0
87	Central Expy / Shoreline Blvd (N)	Santa Clara County (SC CMP)	LOS E	AM PM	224.5 97.4	F F	223.6 97.1	F F	0.004 0.006	0.2 -0.1	222.8 96.6	F F	0.007 0.007	-2.1 -1.3
88	Central Expy / Shoreline Blvd (S)	Santa Clara County (SC CMP)	LOS E	AM PM	11.2 7.5	B+ A	11.2 7.5	B+ A	0.003 0.005	-0.1 0.0	11.2 7.5	B+ A	0.006 0.007	-0.2 0.0
89	Central Expy / Castro St-Moffett Blvd	Santa Clara County (SC CMP)	LOS E	AM PM	240.1 222.1	F F	243.7 225.7	F F	0.010 0.009	5.2 4.5	244.2 226.1	F F	0.009 0.011	4.7 4.5
90	Foothill Expy / Edith Ave	Santa Clara County	LOS E	AM PM	55.9 105.5	E+ F	61.5 112.6	E F	0.016 0.015	10.2 11.8	60.0 111.1	E+ F	0.012 0.012	7.4 9.5
91	Foothill Expy / Main St	Santa Clara County (SC CMP)	LOS E	AM PM	44.6 54.8	D D-	49.9 55.8	D E+	0.016 0.009	8.5 -1.3	48.4 55.5	D E+	0.012 0.009	6.1 -1.3
92	University Ave / O'Brien Dr	Menlo Park	LOS D	AM PM	9.1 13.4	A B	9.1 13.3	A B	0.005 0.006	0.0 0.0	9.1 13.3	A B	0.006 0.008	0.0 0.0
93	University Ave / Adams Dr*	Menlo Park	LOS E (warrant)	AM PM	425.5 39.6	F ¹⁰ E	456.2 41.4	F ⁸ E	N/A N/A	N/A N/A	465.4 42.4	F ¹⁰ E	N/A N/A	N/A N/A
94	University Ave / Rungymede St	East Palo Alto	LOS D	AM PM	15.3 19.1	B B-	15.3 19.1	B B-	0.005 0.005	0.0 0.0	15.3 19.0	B B-	0.005 0.006	0.0 0.0
95	University Avenue / Bell Street	East Palo Alto	LOS D	AM PM	14.8 17.3	B B	14.7 17.2	B B	0.005 0.005	0.0 0.0	14.7 17.2	B B	0.005 0.006	0.0 0.0

NOTES: **Bold text** indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

In some cases, intersections may show a reduction in average delay with the addition of Project traffic, or Additional Housing Alternative A traffic, which is counter-intuitive. However, average delay values are weighted averages, which will decrease when traffic is added to a vehicle movement that operates with low delay. Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.

* Indicates unsignalized intersection.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County, "(SM CMP)" indicates CMP intersection in San Mateo County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(Warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak hour, PM = evening peak hour.

^d Cumulative (2035) No Project and Cumulative (2035) With Proposed 2018 General Use Permit presents the results from the Cumulative (2035) Conditions with Four-Lane Page Mill Road from I-280 to Junipero Serra Boulevard Memorandum (see Appendix PMR), which evaluated the effects of the proposed Project on the surrounding transportation network assuming that Page Mill Road remained two lanes in each direction. These results are provided for comparison purposes only.

^e Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^f LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

^g Change ("Δ") in critical volume-to-capacity ratio (V/C) between Cumulative (2035) and Cumulative (2035) With Project Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^h Change ("Δ") in average critical movement delay between Cumulative (2035) and Cumulative (2035) With Project Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

ⁱ A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

TABLE 7A.15-12
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#2 I-280 NB Off-Ramp / Sand Hill Road (AM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#17 Junipero Serra Blvd – Foothill Expressway / Page Mill Road (AM and PM Peak Hours)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#19 Hanover Street / Page Mill Road (AM Peak Hour)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#20 El Camino Real / Page Mill Road – Oregon Expressway (AM and PM Peak Hours)	MTA: During the AM peak hour, project-generated traffic would cause a degradation from an acceptable LOS E to an unacceptable LOS F. During the PM peak hour, under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#21 Middlefield Road / Oregon Expressway (AM Peak Hour)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#29 Foothill Expressway / Hillview Avenue (AM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#30 Foothill Expressway / Arastradero Road (AM and PM Peak Hours)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#31 Foothill Expressway / San Antonio Road (PM Peak Hour)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#32 Foothill Expressway / El Monte Avenue (AM Peak Hour)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#33 Foothill Expressway / Springer Road – Magdalena Avenue (AM and PM Peak Hour)	MTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#34 Bowdoin Street / Stanford Avenue (PM Peak Hour)	Palo Alto: Project-generated traffic would cause a degradation from an acceptable LOS D to an unacceptable LOS F.
#37 El Camino Real / Encinal Avenue (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#38 El Camino Real / Valparaiso Avenue (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.

TABLE 7A.15-12 (CONTINUED)
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#41 El Camino Real / Ravenswood Road (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#48 El Camino Real / Embarcadero Road (PM Peak Hour)	VTA: Project-generated traffic would cause a degradation from an acceptable LOS E to an unacceptable LOS F.
#56 Alma Street / Hamilton Avenue (PM Peak Hour)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#58 Alma Street / Charleston Road (PM Peak Hour)	Palo Alto: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#59 Middlefield Road / Marsh Road (AM Peak Hour)	Atherton: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#63 Middlefield Road / Lytton Avenue (PM Peak Hour)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#66 Middlefield Road / Embarcadero Road (AM and PM Peak Hours)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#69 Middlefield Road / Charleston Road (PM Peak Hour)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#89 Central Expwy / Castro St. – Moffett Blvd. (AM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#90 Foothill Expressway / Edith Avenue (PM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.

Measures/strategies to mitigate the contribution of Additional Housing Alternative A to significant cumulative impacts are described below.

Mitigation Measure: Implement Mitigation Measure 7A.15-2.

As detailed in Mitigation Measure 7A.15-2, Stanford shall mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections, which funds shall be expended by the County to fund transportation mitigation efforts.

Significance after Mitigation: Significant and Unavoidable.

This mitigation would substantially reduce Additional Housing Alternative A's contribution to cumulative traffic congestion impacts to intersections; however, the contribution of Additional Housing Alternative A to the cumulative impact would be a significant and unavoidable impact because there is no feasible mitigation to improve some of the affected intersections, and for others it is uncertain whether it would be feasible to improve the intersections if the No Net New Commute Trips standard is not achieved or if there are not sufficient off-campus projects available to reduce peak hour traffic. As discussed in further detail below, many of the intersections adversely affected under 2035 Cumulative with Additional Housing Alternative A conditions identified in Table 1A in Mitigation Measure 7A.15-2 are located in other jurisdictions, and consequently, the improvements depend on the actions of those jurisdictions. In some cases, additional funding for intersection improvements may be required and is not yet identified, and consequently, it is not certain that these improvements would be implemented in a timely manner. At one intersection, the mitigation measure would improve LOS and delay, but would not mitigate impacts to a less-than-significant level. At other intersections, there are no feasible improvements to reduce the impact to a less-than-significant level. For these reasons, the impact would remain significant and unavoidable.

CEQA Guidelines section 15126.4(1)(1)(D) states that if a mitigation measure would cause one or more significant effects in addition to those that would be caused by a project (in this case, Additional Housing Alternative A), the effects of the mitigation measure should be discussed. Because, as discussed below, the identified intersection improvements would have the potential to result in effects on bicycle and/or pedestrian conditions, these effects are discussed below. In all cases, these effects are determined to be less than significant.

- **Intersection #2: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative A conditions, which stipulates contribution of fair-share funding to the addition of a second northbound right-turn lane at the signalized intersection of I-280 Northbound Off-Ramp / Sand Hill Road, as identified in the ConnectMenlo Final Environmental Impact Report.**

To accommodate the construction of a second right-turn lane on the northbound off-ramp, the off-ramp would be widened from two to three lanes, which may require the acquisition of additional right-of-way.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of the Additional Housing Alternative A to the cumulative impact is reduced to less than considerable. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the eastbound bicycle lane's StreetScore+ QOS, as it would remain unchanged at QOS 4. Right turns from the northbound off-ramp to Sand Hill Road are not permitted during a red light. The addition of a second northbound right-turn lane would not conflict with eastbound bicyclists if the No Right Turn on Red were to remain in-force. Therefore, the mitigation measure would not adversely affect the existing bicycle lane on Sand Hill Road. There are no pedestrian facilities at this intersection.

- **Intersection #17: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative A conditions, which stipulates contribution of fair-share funding to grade-separation improvement project, at the signalized intersection of Junipero Serra Boulevard – Foothill Expressway / Page Mill Road, as identified in the draft Santa Clara County Expressway Plan 2040 (if such project is approved and implemented).**

For Additional Housing Alternative A, the impact at this intersection cannot be mitigated to a less-than-significant level with the mitigation measures identified for the proposed Project; instead, the above-described interchange is needed. Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construct this improvement. Additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians. Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

This mitigation differs from the mitigation under the proposed Project. For the proposed Project, the impact at this intersection would be reduced to a less-than-significant level with the following mitigation: Contribute fair share funding toward:

- (1) addition of a third through lane on Page Mill Road in the westbound direction (for a total of two left-turn lanes, three through lanes, and a right turn lane plus a bike lane);
- (2) addition of a receiving lane to westbound Page Mill Road (resulting in three lanes from Junipero Serra Boulevard approximately to Old Page Mill Road); and
- (3) installation of an overlap phase for northbound and southbound right-turning vehicles and widening of the southbound approach to two lanes between Page Mill Road and Stanford Avenue to align with the existing designated right-turn lane.⁴⁵

It is noted that there is a Tier 1 improvement identified for this intersection in the draft Santa Clara County Expressway Plan 2040 to widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. The Tier 1 improvement is fully funded through Measure B, but conservatively is not anticipated to be in place by 2035. This was evaluated as a potential mitigation measure and was determined not to bring the impact to a less-than-significant level under 2035 Conditions.

Impacts of Mitigation: With the exception of construction-related impacts, the mitigation would not have a substantial adverse effect on bicycle QOS, which would remain at QOS 3.5. Pedestrian QOS would improve from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound

⁴⁵ The third improvement was identified as a mitigation measure in the Draft EIR. Two additional improvements have been added to ensure the impact is mitigated to a less-than-significant level under the assumption that Page Mill Road is four lanes, rather than six lanes as previously assumed.

approaches would be reduced from the existing 6+ lanes to an estimated 2 to 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #19: Contribute fair-share funding to installation of a second westbound left-turn lane, at the signalized intersection of Hanover Street / Page Mill Road, identified as an option in the *Page Mill Expressway Corridor Study Report*.**

To accommodate the construction of a second westbound left-turn lane, the westbound approach would need to be widened from three to four lanes and may require the removal of the center median, reduction in lane width, and/or reduction in bicycle lane width at the intersection. There is adequate right-of-way to accommodate the dual westbound left-turn lanes and associated receiving lanes on Hanover Street.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to the cumulative impact is reduced to less than considerable. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 4 and QOS 3, respectively. With the proposed mitigation, limited bicycle facilities on Hanover Street would remain, as well as the intersection crossing distance, maintaining but not exacerbating the current uncomfortable conditions for bicyclists at the intersection. Pedestrian crossing distances would be unchanged on all approaches. The proposed mitigation measure would not create additional conflicts for the City of Palo Alto's proposed Class I facility on the south side of Page Mill Road as identified in their *Bicycle and Pedestrian Transportation Plan*.

It is noted that there is another Tier 1 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040*. The improvement would convert the signal phasing to an eight-phase signal. That improvement would not reduce the contribution of Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. Therefore, it was not identified as a mitigation measure. The proposed mitigation measure for Intersection 19 would not conflict with the County's Tier 1 intersection improvement.

- **Intersection #20: Contribute fair-share funding to the reconfiguration of the north leg of the intersection to include a designated right-turn lane with an overlap signal phase; the reconfiguration of the east leg of the intersection to include one right-turn lane, two through lanes, two extended left-turn lanes, two receiving lanes, and no on-street parking; and to the extension of the double left-turn lanes, at the signalized intersection of El Camino Real / Page Mill Road – Oregon Expressway, as identified in the *Page Mill Expressway Corridor Study Report*. In addition, a designated southbound right-turn lane with an overlap signal phase would be installed.**

This is the same mitigation measure identified for the proposed Project, except that the addition of a designated southbound right-turn lane with an overlap signal phase would be required under Additional Housing Alternative A to mitigate the significant impact to a less-than-significant level.

To accommodate the reconfiguration of the east leg of the intersection, parking would need to be removed along the south side of Page Mill Road, and the median island would need to be shifted to the south to accommodate the additional westbound lane. Little to no right-of-way would be needed to accommodate this improvement; however, an easement would be needed on the north side of the roadway to preserve the sidewalk width, and the bus stop on the southeast corner of the intersection on Oregon Expressway may need to be relocated or further addressed during design. These improvements are identified in Santa Clara County's *Page Mill Corridor Expressway Plan*, and the extension of the double westbound left-turn lanes is identified as a Tier 1 improvement in the draft *Santa Clara County Expressway Plan 2040* along with enhanced pedestrian facilities on the southwest and southeast corners of the intersection.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. The Tier 1 improvements are fully funded through Measure B. However, because this improvement depends on the actions of Caltrans, and the provision of the remaining improvements may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 4. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions assuming the parking is removed next to the eastbound receiving lanes, and right-turn slip lanes and/or high vehicle turning speeds would remain, maintaining the current uncomfortable conditions for bicyclists and pedestrians at the intersection. The proposed mitigation measure would not conflict with the City of Palo Alto's *Bicycle and Pedestrian Transportation Plan* to implement a Class III facility on Oregon Expressway east of the intersection.

- **Intersection #30: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative A conditions, which stipulates contribution of fair-share funding to a grade-separation improvement project, at the signalized intersection of Foothill Expressway / Arastradero Road, as identified in the draft *Santa Clara County Expressway Plan 2040* (if such project is approved and implemented). The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.**

Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construction this improvement. Due to the proximity of the Miranda Avenue / Arastradero Road intersection, additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the Additional Housing Alternative A's contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle StreetScore+ QOS, which would remain unchanged at QOS 3.5. Right-turn lanes and high vehicle speeds would continue to cause uncomfortable situations for bicyclists at the intersection. However, the mitigation would improve pedestrian QOS from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound approaches would be reduced from the existing 6+ lanes to an estimated 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #31: Contribute fair-share funding to the addition of a third southbound through lane on Foothill Expressway between San Antonio Road and El Monte Avenue.**

A third receiving lane would be added on the south leg of Foothill Expressway, as identified as a Tier 1 improvement in the draft *Santa Clara County Expressway Plan 2040*, to extend the southbound right-turn lane from El Monte Avenue to San Antonio Road, which likely would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle StreetScore+ QOS, as it would remain unchanged at QOS 4. With the proposed mitigation, right-turn slip lanes and high vehicle turning speeds would remain, maintaining the current uncomfortable environments for bicyclists at the intersection. The proposed mitigation measure would have no effect on pedestrian quality of service as there is no pedestrian access at this intersection.

It is noted that the full Tier 1 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* includes widening Foothill Expressway from four to six lanes between San Antonio Road and El Monte Avenue. The mitigation measure identified above for Intersection #31 would implement the southbound widening.

- **Intersection #32: Contribute to fair-share funding to the addition of a third northbound through lane, and an associated receiving lane at the signalized intersection of Foothill Expressway / El Monte Avenue, as identified in the draft *Santa Clara County Expressway Plan 2040*.**

To accommodate the construction of a third northbound through lane, the northbound approach would be widened from two to three lanes and may require the acquisition of additional right-of-way. The receiving lanes on the north side of the intersection would also need to be widened, as identified as a Tier 1 improvement in the draft *Santa Clara County Expressway Plan 2040*, to extend the northbound right-turn lane from San Antonio Road to El Monte Avenue, which likely would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of the Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. The Tier 1 improvements are fully funded through Measure B. Because the remainder of these improvements would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged, at QOS 4 (for both). The east-west bicycle and pedestrian crossing distances would increase slightly due to the additional through lane and continue to have right-turn slip lanes and high vehicle turning speeds, while maintaining the current QOS score.

It is noted that the full Tier 1 improvement identified for this intersection in the draft Santa Clara County Expressway Plan 2040 includes widening Foothill Expressway from four to six lanes between San Antonio Road and El Monte Avenue. The mitigation measure identified above for Intersection #32 would implement the northbound widening, but while southbound widening would increase the available storage capacity, it would not be enough to reduce the Additional Housing Alternative A AM peak-hour impact to a less-than-significant level. Therefore, the southbound widening was not identified as a potential mitigation measure at this intersection.

- **Intersection #33: Contribute fair-share funding to the following improvements, at the signalized intersection of Foothill Expressway / Springer Road – Magdalena Avenue, as identified as a Tier 2 improvement in the draft Santa Clara County Expressway Plan 2040:**
 - Convert the signal to provide 8-phase phasing;
 - Change the lane configuration for the east leg to have two left-turn lanes, one through lane, and one right-turn lane; and
 - Change the lane configuration for the west leg to have one left-turn lane, two through lanes, and one right-turn lane.

To accommodate an eight-phase signal, the eastbound and westbound left-turn movements would require designated left-turn lanes, and may require the acquisition of additional right-of-way. To accommodate the change to eastbound and westbound lane configurations, the center median on the west leg of the intersection would need to be shifted to incorporate a designated left-turn lane and remove one receiving lane from the west leg. The eastbound approach would require restriping to change the shared left-turn/through lane to a designated left-turn lane.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.5 and QOS 4, respectively. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions, with right-turn slip lanes and high vehicle turning speeds maintaining the current uncomfortable environment at the intersection. To construct the designated eastbound left-turn lane, the eastbound lanes will be narrowed and the center median may be reduced, resulting in the same curb-to-curb width, but increasing the number of travel lanes. The proposed mitigation would not adversely affect the City of Los Alto's existing Class II bicycle facilities at the intersection.

It is noted that the full Tier 2 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* includes converting to an eight-phase signal, operational/safety improvements at the County Club Drive intersection, and potentially adding a signal at the adjacent Berry Avenue intersection. The mitigation measure identified above for Intersection #33 would implement the eight-phase signal and associated lane configuration changes at the intersection.

- **Intersection #34: Contribute fair-share funding to the installation of a traffic signal at the unsignalized intersection of Bowdoin Street / Stanford Avenue.**

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of the City of Palo Alto, and requires additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the bicycle StreetScore+ QOS, as it would remain unchanged at QOS 2.0. Pedestrian crossing distances would remain unchanged (one lane in each direction) in all directions, but a traffic signal would provide protected crossing times for pedestrians, which increases their quality of service compared to an uncontrolled pedestrian crossing from QOS 1.5 to 1.0.

- **Intersection #37: Contribute fair-share funding to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Encinal Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to the significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 2.8 and QOS 2.7, respectively. The proposed mitigation would not alter the existing

pedestrian crossing distances on all approaches. While the bicycle StreetScore+ QOS on the northbound approach would not improve, bicyclists would no longer move left across the right-turn conflict area, and instances of Right Turn On Red would be reduced because vehicles would no longer have a dedicated right-turn lane. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) proposes Class II bike lanes on El Camino Real between Valparaiso Avenue and Alejandra Avenue, and the City of Menlo Park El Camino Corridor Study (approved May 2016) proposes buffered Class II facilities (bicycle lanes) on El Camino Real between Encinal Avenue and Middle Avenue as part of the preferred alternative (Alternative 2). At Encinal Avenue, the northbound right-turn lane would allow for the conversion of a through / right-turn lane while maintaining the City's goal to provide bicycle lanes up to the Encinal Avenue intersection. The proposed mitigation measure could conflict with a Class II bicycle lane if only on-street parking is removed in order to add a third through lane. However, if the center median were narrowed, space for a bicycle lane could be provided. The existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers if the proposed mitigation measure is constructed. However, this is typical for bus stops on El Camino Real and other major arterials.

- **Intersection #38: Contribute fair-share funding to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Valparaiso Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3 and QOS 4, respectively. The proposed mitigation would not alter the existing pedestrian crossing distances. While the bicycle StreetScore+ QOS on the northbound approach would not improve, bicyclists would no longer move left across the right-turn conflict area, and instances of Right Turn On Red would be reduced because vehicles would no longer have a dedicated right-turn lane. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) proposes Class II facilities on El Camino Real between Valparaiso Avenue and Alejandra Avenue and the City of Menlo Park's El Camino Real Corridor Study (approved May 2016) proposes buffered Class II facilities (bicycle lanes) between Encinal Avenue and Middle Avenue as part of the preferred alternative (Alternative 2). At Encinal Avenue, the northbound right-turn lane remains in place under the preferred alternative, which would allow for the conversion to a through/right-turn lane while maintaining the City's goal to provide bicycle lanes up to the Encinal Avenue intersection. The proposed mitigation measure could conflict with a Class II facility if only on-street parking is removed in order to add a third through lane. However, if the center median were narrowed, space for a bicycle lane could be provided. The existing bus stop on the northeast corner on El Camino Real may block through traffic when

boarding and alighting passengers if the proposed mitigation measure is constructed. However, this is typical for bus stops on El Camino Real and other major.

- **Intersection #41: Contribute fair-share funding reconfiguration of the eastbound approach on Menlo Avenue to include an exclusive left-turn lane, and to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Ravenswood Road.**

This is the same mitigation measure identified for the proposed Project, except that the addition of an exclusive eastbound left-turn lane would be required under Additional Housing Alternative A to mitigate the significant impact to a less-than-significant level.

To accommodate the northbound lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real; the widening of Menlo Avenue would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.5 (for both). The proposed mitigation would not alter the existing pedestrian crossing distances, except on the west leg of the intersection, across which pedestrians would experience an additional 10-12 feet of exposure while in the intersection. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) and the City of Menlo Park Comprehensive Bicycle Development Plan (2005) propose Class III bike routes on El Camino Real at Valparaiso Avenue. The proposed mitigation measure would not conflict with a Class III bikeway.

- **Intersection #48: Contribute fair-share funding to the addition of a second northbound left-turn lane, at the signalized intersection of El Camino Real / Embarcadero Road.**

To accommodate the construction of a second northbound left-turn lane, the northbound approach would be widened from four to five lanes by potentially reducing the lane widths, reducing the width of the center median, and/or removing on-street parking for the length of the additional left-turn pocket and taper. Addition right-of-way may be required to accommodate the second northbound left-turn lane.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Palo Alto and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.8 and QOS 4, respectively. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions, but would add an additional travel lane on the south leg of the intersection, with right-turn slip lanes and high vehicle turning speeds maintaining the current uncomfortable environment at the intersection. This proposed mitigation would not adversely affect the City of Palo Alto's proposed Class III bike routes as identified in their *Bicycle and Pedestrian Transportation Plan*. It should be noted that the City of Palo Alto is currently designing bicycle improvements at this intersection.

The VTA El Camino Real Bus Rapid Transit (BRT) Project would upgrade Rapid Bus Route 522 to have BRT status. The geometric alternatives included in the draft Environmental Impact Report for the BRT Project do not include a separate bus lane through this intersection. Some alternatives studied include the creation of outboard bus lanes through the removal of parking on the south side of El Camino Real. Because there is no final design for this intersection, and the BRT project completion date is uncertain, it is not possible to determine what, if any, effect this mitigation measure would have on the BRT Project. However, the existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers; this typical for bus stops on El Camino Real and other major arterials.

- **Intersection #56: Contribute fair-share funding to the reconfiguration of the westbound approach to have one left-turn lane and one right-turn lane, at the signalized intersection of Alma Street / Hamilton Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the north side of Hamilton Avenue.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Palo Alto, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 2.5 and QOS 2, respectively. The proposed mitigation would not alter the existing pedestrian crossing distances. This proposed mitigation would not adversely affect the City of Palo Alto's proposed Class III bike routes as identified in their *Bicycle and Pedestrian Transportation Plan*.

- **Intersection #58: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative A conditions, which stipulates contribution of fair-share funding to the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements at the signalized intersection of Alma Street / Charleston Road.**

To accommodate the construction of a designated northbound right-turn lane, the northbound Alma Street approach would need to be widened and likely would require the

acquisition of additional right-of-way. Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal.

Implementation of this mitigation measure would improve the level of service, and the impact would be reduced, but not to a less-than-significant level. Therefore, the contribution of Additional Housing Alternative A to this impact would remain considerable, and the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3 and QOS 3.5, respectively. With the proposed mitigation, pedestrian crossing distances would increase slightly on the south leg of the intersection, and remain unchanged on all other approaches, while maintaining the current QOS score at the intersection. Bicycle lanes on the eastbound and westbound approaches, and low right-turn speeds would remain, resulting in slightly better conditions compared to what bicyclists experience on the northbound and southbound approaches. The proposed mitigation measure for Intersection #58 would not conflict with the City of Palo Alto's proposed Class III bike route along Alma Street as identified in the City of Palo Alto Bicycle & Pedestrian Transportation Plan.

- **Intersection #59: Contribute fair-share funding to the addition of a second westbound left-turn lane and a second receiving lane on the south leg, at the signalized intersection of Middlefield Road / Marsh Road.**

The construction of a second westbound left-turn lane and a second receiving lane would require the acquisition of additional right-of-way. This mitigation measure is consistent with recommendations in the *ConnectMenlo Final EIR*, the *Middle Plaza at 500 El Camino Real Draft EIR*, the *Menlo Park Facebook Campus Expansion Project FEIR* and the *Menlo Gateway Final EIR*. The Town of Atherton has preliminary plans to redesign the intersection.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Town of Atherton, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The proposed mitigation would cause the bicycle StreetScore+ QOS to worsen from QOS 2.7 to QOS 3; the pedestrian StreetScore+ QOS would remain unchanged at QOS 3. With the proposed mitigation, a second receiving lane would be added on the southbound approach, causing an uncomfortable situation where bicyclists travel along a four-lane roadway compared to a three-lane roadway existing today. Missing sidewalks and curb ramps cause uncomfortable situations for pedestrians at all intersection crossings.

- **Intersection #69: Contribute fair-share funding to the addition of a designated eastbound right-turn lane with an overlap signal phase, at the signalized intersection of Middlefield Road / Charleston Road.**

The construction of an eastbound right-turn lane would require the acquisition of additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Palo Alto, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle, as the bicycle StreetScore+ QOS would remain at QOS 3; the pedestrian StreetScore+ QOS would decrease from QOS 2 to 2.5. With the proposed mitigation, bicycle and pedestrian southbound crossing distances would increase by approximately 10-12 feet with the addition of a right-turn lane resulting in a slightly less comfortable walking environment when crossing this leg of the intersection. This proposed mitigation would not adversely affect the City of Palo Alto's proposed Class II (Enhanced Bikeway) facilities as identified in their *Bicycle and Pedestrian Transportation Plan*.

- **Intersection #89: Close Castro Street at the train tracks to form a T-intersection of Central Expressway / Moffett Boulevard, consistent with recommendations in the May 2017 Mountain View Transit Center Master Plan.**

The City of Mountain View has approved plans to close Castro Street (the west leg) at the train tracks, which would change the current four-leg intersection to a T-intersection of Central Expressway and Moffett Boulevard. This improvement would not require any additional right-of-way if implemented by the City of Mountain View. Given that this is the City's preferred improvement and would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less-than-considerable level, the closure of Castro Street is the identified mitigation measure at this intersection; if Castro Street is independently closed by the City of Mountain View, Stanford would not need to contribute funding to any improvements at this intersection.

It is noted that there is a Tier 1 improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040*, which would grade-separate the train tracks from the intersection, increasing the available capacity at the intersection and reducing Additional Housing Alternative A's impact to a less-than-significant level. However, because this improvement depends on the actions of the City of Mountain View, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative A's contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The proposed mitigation is anticipated to improve bicycle and pedestrian QOS; the bicycle QOS would shift from 3.3 to 1.7, and the pedestrian QOS would shift from 4 to 2. With the closure of Castro Street, pedestrian and bicycle crossings will be moved to a separated underground facility to cross Central Expressway

and the Caltrain tracks with the exception of the east leg of the intersection where pedestrian crossings would still occur at-grade. Northbound and southbound bicyclists would continue to travel on Central Expressway, but bicyclists traveling from Moffett Boulevard to Castro Street would use the underground crossing.

Intersection #89 Alternative Mitigation: If the closure of Castro Street is not implemented in a timely manner and/or the City of Mountain View does not pursue the improvement, the following alternative (back-up) mitigation measure is proposed, which would reduce the contribution of Additional Housing Alternative A to this significant cumulative impact to a less than considerable level:

Intersection #89 Alternative Mitigation Measure: Contribute fair-share funding to the construction of a second southbound left-turn lane from Central Expressway to Moffett Boulevard.

To accommodate the construction of a second southbound left-turn lane, the Central Expressway center median would need to be reduced and/or removed; the improvement would not require any additional right-of-way. Given the existing and proposed geometry, signal timings may also need to be modified to provide lead-lag left turns (to account for potential truck turn conflicts). With this mitigation, the contribution of Additional Housing Alternative A to the significant cumulative impact would be reduced to a less-than-considerable level. However, because this improvement depends on the actions of the City of Mountain View, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative A to the significant cumulative impact is mitigated. In that case, the impact would remain significant and unavoidable.

Remaining Intersections: Due to physical constraints, no feasible mitigation measures have been identified at the following intersections, and the contribution of Additional Housing Alternative A to significant cumulative impacts would remain considerable, and the cumulative impacts would remain significant and unavoidable:

21. Middlefield Road / Oregon Expressway – the constraint is the proximity of the Oregon Avenue frontage road and the County’s desire to preserve the shoulder striping along Oregon Expressway for use by bicyclists.
29. Foothill Expressway / Hillview Avenue – the constraint is the proximity of the Miranda Avenue / Hillview Avenue intersection and lack of improvement identified in the draft Santa Clara County Expressway Plan 2040.
63. Middlefield Road / Lytton Avenue – the constraint is the proximity of the residential units near the intersection.
66. Middlefield Road / Embarcadero Road – the constraint is the proximity of the residential units near the intersection.
90. Foothill Expressway / Edith Avenue – the constraint is the proximity of the residential units and retail space near the intersection.

See **Table 7A.15-13** for mitigated LOS conditions.

TABLE 7A.15-13
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Additional Housing Alt. A		Mitigation Measure	2035 Cumulative With Additional Housing Alt. A (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	136.9 18.4	F B-	154.7 19.4	F B-	See MM 5.15-2 (Table 1A)	66.4 16.3	E B	LTS/SU
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	180.4 162.9	F F	196.8 178.3	F F	See MM 5.15-2 (Table 1A)	116.8 89.3	F F	LTS/SU
19	Hanover Street / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	85.6 51.9	F D-	96.0 62.4	F E	See MM 5.15-2 (Table 1A)	75.0 59.7	E- E+	LTS/SU
20	El Camino Real / Page Mill Road – Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	75.1 83.1	E- F	91.6 98.5	F F	See MM 5.15-2 (Table 1A)	68.6 83.0	E F	LTS/SU
21	Middlefield Road / Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	122.7 101.5	F F	125.5 103.2	F F	N/A (no feasible improvements)			SU
29	Foothill Expressway / Hillview Avenue	Santa Clara County	LOS E	AM PM	124.6 58.3	F E+	132.1 63.3	F E	N/A (no feasible improvements)			SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	194.5 202.5	F F	200.5 207.9	F F	See MM 5.15-2 (Table 1A)	41.9 70.7	D E	LTS/SU
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	38.8 165.8	D+ F	42.0 169.7	D F	See MM 5.15-2 (Table 1A)	42.0 46.3	D D	LTS/SU
32	Foothill Expressway / El Monte Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	142.6 133.5	F F	147.6 136.9	F F	See MM 5.15-2 (Table 1A)	74.2 113.0	E F	LTS/SU
33	Foothill Expressway / Springer Road – Magdalena Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	128.7 151.5	F F	131.6 154.7	F F	See MM 5.15-2 (Table 1A)	122.4 147.9	F F	LTS/SU
34	Bowdoin Street / Stanford Avenue	Palo Alto	LOS D	AM PM	16.7 25.8	C D	25.7 55.4	D F	See MM 5.15-2 (Table 1A)	9.5 17.7	A B	LTS/SU
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	44.9 89.9	D F	45.8 92.5	D F	See MM 5.15-2 (Table 1A)	35.6 67.0	D+ E	LTS/SU
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	53.5 56.0	D- E+	54.0 57.2	D- E+	See MM 5.15-2 (Table 1A)	52.4 52.3	D- D-	LTS/SU

TABLE 5.15-13 (CONTINUED)
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE A INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Additional Housing Alt. A		Mitigation Measure	2035 Cumulative With Additional Housing Alt. A (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
41	El Camino Real / Ravenswood Road	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.9 66.3	D E	See MM 5.15-2 (Table 1A)	46.7 59.7	D E+	LTS/SU
48	El Camino Real / Embarcadero Road	Palo Alto (SC CMP)	LOS E	AM PM	56.9 72.1	E+ E	63.0 90.1	E F	See MM 5.15-2 (Table 1A)	54.1 78.3	D- E-	LTS/SU
56	Alma Street / Hamilton Avenue	Palo Alto	LOS D	AM PM	10.2 57.7	B+ E+	10.6 63.6	B+ E	See MM 5.15-2 (Table 1A)	10.2 41.2	B+ D	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	123.4 121.5	F F	130.0 129.4	F F	See MM 5.15-2 (Table 1A)	123.3 125.7	F F	SU
59	Middlefield Road / Marsh Road	Atherton	LOS D	AM PM	76.9 76.0	E- E-	79.7 77.5	E- E	See MM 5.15-2 (Table 1A)	41.8 68.5	D E	LTS/SU
63	Middlefield Road / Lytton Avenue	Palo Alto	LOS D	AM PM	49.2 66.1	D E	51.0 70.1	D E	N/A (no feasible improvements)			SU
66	Middlefield Road / Embarcadero Road	Palo Alto	LOS D	AM PM	55.0 68.1	D- E	58.8 72.8	E+ F	N/A (no feasible improvements)			SU
69	Middlefield Rd / Charleston Rd	Palo Alto	LOS D	AM PM	58.0 67.7	E+ E	58.5 69.8	E+ E	See MM 5.15-2 (Table 1A)	56.6 62.5	E+ E	LTS/SU
89	Central Expwy / Castro St-Moffett Blvd	Santa Clara Co. (SC CMP)	LOS E	AM PM	240.1 222.1	F F	244.2 226.1	F F	See MM 5.15-2 (Table 1F)	91.9 129.3	F F	LTS/SU
90	Foothill Expressway / Edith Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	55.9 105.5	E+ F	60.0 111.1	E+ F	N/A (no feasible improvements)			SU

Bold text indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak traffic hour, PM = evening peak traffic hour.

^d Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^e LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software program, which applies the methods described in the 2000 *Highway Capacity Manual*.

^f LTS/SU = less-than-significant with mitigation, but is either (1) located outside Santa Clara County where mitigation measures depend on funding and actions by other jurisdictions, or (2) located in Santa Clara County, but depends on other funding for the mitigation to be constructed, and thus the mitigation measure may not be implemented in a timely manner to avoid the impact. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection.

SU = significant and unavoidable.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Impact 7A.15-10: Implementation of Additional Housing Alternative A, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Additional Housing Alternative A conditions. (Significant)

Please note that only the freeway mainline segment impact analysis is provided for the Additional Housing Alternative A analysis. As described on Draft EIR page 5.15-58, freeway ramp queueing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions.

As described above, the results for the Cumulative (2035) No Project and 2035 Cumulative With Proposed Project conditions have been updated since publication of the Draft EIR to correct the assumed lane configuration on Page Mill Road under cumulative conditions. Modeling conducted for the Draft EIR assumed Page Mill Road would have six travel lanes based on VTA's 2040 traffic model. Subsequently, VTA staff indicated that inclusion of the 6-lane configuration had been an error on the part of VTA. The updated results are based on modeling that assumes no change to the existing 4-lane configuration for Page Mill Road.

The future operations of freeway mainline segments in Santa Clara County and San Mateo County are evaluated using volume-to-capacity ratios, with a V/C ratio greater than 1.00 indicating the volume/demand exceeds capacity. Under Cumulative (2035) With Additional Housing Alternative A Conditions, the following 16 freeway segments would meet the significance criteria, which is three more than under Cumulative (2035) with Project Conditions (four new segments meet the criteria, and one segment that meets the criteria under the Project would not meet the criteria under the alternative):

- Northbound SR 85
 - Saratoga Avenue to De Anza Boulevard (PM peak hour);
 - South De Anza Boulevard to Stevens Creek Boulevard (AM and PM peak hours);
 - Stevens Creek Boulevard to I-280 (AM peak hour);
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (AM and PM peak hours);
 - South De Anza Boulevard to Saratoga Avenue (PM peak hour);
- Northbound I- 280
 - Lawrence Expressway to Wolfe Road (PM peak hour);
 - Wolfe Road to De Anza Boulevard (AM peak hour);
 - SR 85 to Foothill Expressway (AM and PM peak hours);
 - Foothill Expressway to Magdalena Avenue (AM peak hour);
 - Sand Hill Road to Woodside Road (PM peak hour);
- Southbound I-280
 - Woodside Road to Sand Hill Road (AM peak hour);
 - Magdalena Avenue to Foothill Expressway (PM peak hour);

- Foothill Expressway to SR 85 (AM and PM peak hour);
- SR 85 to De Anza Boulevard (PM peak hour);
- De Anza Boulevard to Wolfe Road (PM peak hour)
- Wolfe Road to Lawrence Expressway (PM peak hour).

In addition, Additional Housing Alternative A would extend significant impacts on three freeway segments to both the AM and PM peak hours, whereas the proposed 2018 General Use Permit would result in a significant impact to those three freeway segments during only one of the two peak hours. One freeway segment with a significant impact under the proposed Project (Southbound I-280 from Sheep Camp Trail to Edgewood Road) would not have a significant impact under Additional Housing Alternative A due to the reduction in commuter trips traveling toward campus in the morning. Overall, Additional Housing Alternative A would not reduce the significant impacts of the proposed 2018 General Use Permit.

The revised assumption that Page Mill Road remains four lanes between I-280 and Junipero Serra Boulevard – Foothill Road in 2035 results in two additional freeway segments meeting the impact criteria under the proposed Project (the 2018 General Use Permit) compared to the number of freeway segments identified as meeting the criteria in the Draft EIR. The two additional freeway segments would be on I-280 southbound (Woodside Road to Sand Hill Road [AM Peak Hour], and SR 85 to De Anza Boulevard [PM Peak Hour]). The Draft EIR concludes that impacts to freeway segments would be significant and unavoidable under Cumulative (2035) with Project conditions. The addition of two more freeway segments to the list presented in the Draft EIR does not change the Draft EIR's conclusion.

There are limited options to widen freeway segments that meet the significance criteria due to right-of-way constraints. Mitigation of freeway impacts is considered beyond the scope of an individual development project, due to the inability of any individual project or local agency to (1) acquire right-of-way for freeway widening, and (2) fully fund a major freeway mainline improvement. Mitigation Measure 7A.15-2 would reduce impacts to freeways to the extent that trips to and from the campus are reduced to achieve the No Net New Commute Trips standard and through applying any fees from exceeding the No Net New Commute Trips standard to alternative programs that reduce vehicular trips. Nevertheless, because it is uncertain whether the No Net New Commute Trips standard would be achieved, the freeway impacts under Additional Housing Alternative A would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 7A.15-11: Implementation of Additional Housing Alternative A, in combination with other past, present, and reasonably foreseeable future, projects, would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

Generally, a project causes a significant impact to transit facilities and services if an element of it would conflict with existing or planned transit services, or would decrease the performance or

safety of such services. Similar to the proposed 2018 General Use Permit, Additional Housing Alternative A does not propose infrastructure changes outside the Project site and, thus, would not interfere with the ability of transit agencies to modify or expand service. Therefore, Additional Housing Alternative A's impact on transit services would be less than significant. Additional Housing Alternative A would add traffic along major transit corridors throughout the cities of Palo Alto and Menlo Park, which could affect operations of bus routes serving the area. However, as shown in **Table 7A.15-14**, Additional Housing Alternative A would not add substantial delays relative to the total route travel time to any of the transit routes assessed, although certain delays are higher under this alternative than under the proposed Project. The additional delay would be fewer than 30 seconds on all but seven of the routes and increase travel times by less than 60 seconds on all but four routes. Dumbarton Express 1 would experience a longer delay change, at 108.3 seconds in the westbound direction during the AM peak hour only and 86.6 seconds in the eastbound direction during the PM peak hour only, with Additional Housing Alternative A. For both peak hours, this delay constitutes less than three percent of the total travel time on that route.

Next to the Dumbarton Expressway 1 route, VTA Routes 104, 22, and 522 would experience delays greater than 60 seconds during the PM peak hour for this Alternative. VTA is studying the implementation of a Bus Rapid Transit (BRT) system on El Camino Real that would extend into the study area with a terminus at the Palo Alto Downtown Transit Center. The BRT system would be an update of the existing 522 service. Therefore, delays for the future BRT service would be similar to the delay for the existing 522 service. Of the seven alternatives presented in the El Camino Real BRT Draft EIR/EA (October 2014), only one would provide a dedicated BRT lane in Palo Alto extending from City of Mountain View city limits to Embarcadero Road. All other alternatives would require buses to operate within mixed-flow lanes or HOV lanes without signal modifications. Therefore, under the majority of the alternatives being considered, the delays to the future BRT service would be similar to the delays experienced by the existing 522 service.

Mitigation: None required.

Vehicle Miles Traveled Impacts

California has enacted a law (SB 743) that will phase out the traditional Transportation Impact Assessment as the approach used in documents prepared to comply with CEQA, and replace that methodology with an analysis of Vehicle Miles Traveled. A VMT Analysis evaluates vehicle trips made throughout the day, and focuses on the number and length of vehicle trips made by project employees and residents. Measures to reduce VMT include locating a project near major transit stops and high-quality transit corridors, improving bicycle and pedestrian facilities, and instituting programs to encourage travel by modes other than driving alone. Rather than increasing road capacity, a VMT analysis focuses on getting people out of their cars.

TABLE 7A.15-14
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE A TRANSIT ROUTE DELAYS^a

Route		Direction	Peak Hour	Additional Route Average Delay (seconds) ^b	
				Proposed Project ^c	Additional Housing Alternative A
22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	12.2 35.8	23.6 72.4
		Westbound	AM PM	20.9 17.4	14.6 33.6
35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	11.8 22.0	14.3 27.0
		Southbound	AM PM	16.7 13.2	12.5 18.6
89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0	< 5.0 14.3
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
102	South San Jose to Palo Alto	Northbound	AM	< 5.0	< 5.0
		Southbound	PM	16.7	60.4
104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0	64.3
		Westbound	AM	26.3	82.3
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	9.1 34.1	17.7 68.0
		Westbound	AM PM	20.9 17.4	14.6 33.6
281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	6.5 9.6	11.8 15.5
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 10.0	< 5.0 10.3
		Southbound	AM PM	< 5.0 < 5.0	5.5 9.3
DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 7.4	< 5.0 < 5.0
		Westbound	AM PM	22.6 9.2	48.6 26.3
DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	< 5.0 8.6	44.4 86.6
		Westbound	AM PM	31.1 26.2	108.3 79.3
U	Fremont BART to Stanford Oval	Eastbound	PM	29.4	49.4
		Westbound	AM	17.0	51.4
E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	5.9 14.2	12.2 19.3
		Westbound	AM PM	11.8 < 5.0	< 5.0 < 5.0
C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 8.9	< 5.0 9.8
		Westbound	AM PM	29.1 6.3	29.7 10.0

^a Transit route delay is calculated by summing each transit route movements through the study intersections. Some movements may experience large increases or decreases in delay as a result of the analysis software (Trafrix 8.0) redistributing green time for each phase.

^b Additional Housing Alternative A was not considered to have a measurable change in overall transit route delay if the increase in travel time was less than five seconds or the travel time improved slightly (due to changes in signal timing, critical movement changes, etc.).

^c Cumulative (2035) With Proposed 2018 General Use Permit presents the results from the Cumulative (2035) Conditions with Four-Lane Page Mill Road from I-280 to Junipero Serra Boulevard Memorandum (see Appendix PMR), which evaluated the effects of the proposed Project on the surrounding transportation network assuming that Page Mill Road remained two lanes in each direction. These results are provided for comparison purposes only.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

As was shown to be the case for the proposed Project (presented in the Draft EIR), the areas of the Stanford campus where development could occur under Additional Housing Alternative A are within 1/2 mile of an existing major transit stop or an existing stop along a high quality transit corridor. The revised draft CEQA Guidelines circulated by OPR in November 2017 continue to state that generally, projects located on sites within 1/2 mile of an existing major transit stop or an existing stop along a high quality transit corridor should be presumed to have a less-than-significant transportation impact. Nevertheless, a quantitative assessment of VMT generated by Additional Housing Alternative A is provided, similar to that provided for the proposed Project.

The County has not adopted a threshold or established a standard methodology for evaluating VMT. Like the proposed Project, Additional Housing Alternative A represents a unique and distinct set of circumstances compared to other development applications presented to the County and located in predominately rural unincorporated areas of the County because the proposed development that would occur on Stanford lands is predominantly in-fill in nature, inclusive of mixed uses (housing and academic space), and would be located near transit systems. Therefore, the approach used in the following impact discussion would not be applicable to a VMT evaluation of other development applications under consideration by the County.

The following discussion evaluates the VMT characteristics of Additional Housing Alternative A and is based on the information from the Vehicle Miles Traveled (VMT) Analysis. The evaluation reflects the stated intent of SB 743 and is informed by the draft proposals developed by the State Office of Planning and Research (OPR) for performing SB 743 assessments in CEQA documents.

Significance Criteria

In November 2017, OPR published proposed amendments to the CEQA Guidelines to address the analysis of impacts to transportation.⁴⁶ OPR proposes the following criteria for analyzing transportation impacts of land use projects:

Proposed New Section 15064.3. Determining the Significance of Transportation Impacts.

(a) Purpose.

This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding highway capacity), a project's effect on automobile delay does not constitute a significant environmental impact.

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit

⁴⁶ See http://opr.ca.gov/docs/20171127_Text_of_15064-3.pdf.

corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

Other than the two presumptions listed in proposed CEQA Guidelines section 15064.3(b)(1), OPR does not propose to establish numeric significance criteria through the CEQA Guidelines. OPR's Technical Advisory provides numeric thresholds that an agency could choose to use when assessing the significance of a project's additional vehicle miles traveled in the event that the presumptions in proposed CEQA Guidelines section 15064.3(b)(1) do not apply.

Based on OPR's Proposed Updates to the CEQA Guidelines (November 2017) and OPR's latest Technical Advisory on Evaluating Transportation Impacts in CEQA (April 2018), the following significance criteria were used to assess VMT for Additional Housing Alternative A:

1. Is the project within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor? If so, the project is presumed to result in a less-than-significant impact on VMT.
2. Alternatively, the proposed Project is considered to result in a significant impact to VMT if project-related VMT would exceed the following numeric thresholds:
 - Residential Per Capita Daily VMT: A project exceeding existing regional household daily VMT per capita minus 15 percent.⁴⁷
 - Worker Per Capita Daily VMT: A project exceeding a level of 15 percent below existing regional daily VMT per worker.

Approach to Analysis

OPR's Technical Advisory suggests that lead agencies can evaluate each component of a mixed-use project independently, and apply the significance threshold for each project type included in the mixed-use project. The analysis of each use may reflect credit for internal capture of trips within the project. Based on this guidance, residential and worker VMT for Additional Housing Alternative A were assessed independently, and the project-specific data used in the evaluation account for internal capture.

Populations Included in the Analysis

Stanford anticipates that Additional Housing Alternative A will continue to cover all of its lands in unincorporated Santa Clara County. However, the General Use Permit does not apply to land uses within those areas that are permitted as of right (e.g., the single-family and two-family residences in the faculty/staff subdivision), and therefore are not included in this VMT analysis. In addition, Stanford does not propose development under Additional Housing Alternative A in two areas zoned for medium-density faculty and staff housing (the Peter Coutts housing area and

⁴⁷ The Draft EIR expressed this criterion as follows: Residential Per Capita Daily VMT: A project exceeding *both* existing household daily VMT per capita in the aggregate of all incorporated jurisdictions in the County minus 15 percent, *and* existing regional household daily VMT per capita minus 15 percent. Because regional household daily VMT per capita was higher than the aggregate of all incorporated jurisdictions in the County, the Draft EIR used 15 percent below regional household daily VMT per capita as the benchmark for analysis. Use of a standard of 15 percent below regional household daily VMT per capita is consistent with OPR's updated Technical Advisory and the simplified criterion is used in this recirculated Draft EIR.

the Olmsted Terrace housing area). Nor does Stanford propose development outside the Academic Growth Boundary, including on the Stanford Golf Course. Therefore, these areas are not included in the VMT analysis.

Benchmarks Included in the Analysis

Based on the OPR guidance described above, the numeric benchmarks against which Additional Housing Alternative A worker and resident VMT were compared are:

- the Bay Area regional daily average home-based-work VMT per worker; and
- the Bay Area regional daily average home-based VMT per capita.
- The VTA transportation model is a trip-based model developed and validated for the estimation of trips made for home-based work, home-based non-work and non-home based trips. OPR's *Technical Advisory* states that home-based trips can be the focus for analysis of residential projects, and home-based-work trips can be the focus of the analysis for office projects. Therefore, the VTA model is a reliable source to establish the Bay Area and Santa Clara County average daily VMT per worker and per capita at an aggregate level.

OPR's April 2018 *Technical Advisory* continues to recommend that regional, not city or county-level, VMT averages should be used for judging impacts of employment-generating projects. The April 2018 *Technical Advisory* also continues to recommend that the benchmark for residential projects should be either regional averages or a weighted average of all cities within the county. In this case, the regional average represents the benchmark for residential VMT generation.

OPR's April 2018 *Technical Advisory* recommends setting thresholds of significance at 15 percent below the regional benchmark for average daily VMT per worker⁴⁸ or per capita. Taking all of these recommendations into account, **Table 7A.15-15** indicates the VMT generation thresholds to be applied to Additional Housing Alternative A.⁴⁹

⁴⁸ OPR's *Technical Advisory* does not address travel by college students. The omission of VMT from students traveling to and from the campus would leave a large gap in the VMT picture for Stanford; therefore, student trips are included in the assessment of Worker VMT. While student travel behavior is similar to that of faculty and staff, a sensitivity analysis was prepared for Worker VMT that did not include the student travel. This analysis was prepared to document that inclusion of the students did not overly influence or obscure the level of VMT per worker generated by the faculty and staff alone.

⁴⁹ In addition to numeric comparisons to regional benchmarks, OPR presents a third approach that can be used to assess the significance of VMT -- evaluation of the change in total VMT caused by the project. OPR states the third method is useful when a project is likely to divert or substitute trips. This method was considered for evaluation of trips by visitors to the Stanford campus; however, it was determined that the method does not appear to be well-suited to the specifics of Additional Housing Alternative A. OPR has not provided guidance as to how an agency should assess significance using this method if the relevant visitor trips are not of the type that would be redistributed from one location to another.

TABLE 7A.15-15
APPLICABLE BENCHMARKS AND NUMERIC SIGNIFICANCE THRESHOLDS

Traveller and Trip Type	Daily VMT per Capita	
	Benchmark (region-wide average)	Numeric Threshold of Significance (85% of benchmark)
Worker Home-Based-Work Daily VMT per Worker	16.18	13.75
Resident Home-Based Daily VMT per Capita	17.33	14.73

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

Campus Population

The typical weekday population on the Stanford campus is made up of students, faculty, staff, contractors and other onsite workers, visitors, and household members of students, faculty and staff residing on the campus. The provision of additional on-campus housing under Additional Housing Alternative A would not increase student enrollment or change the total number of employees on the campus in 2035. Additional Housing Alternative A would reduce the number of commuters traveling to the campus compared to the proposed 2018 General Use Permit. However, there would be a substantial increase in campus residential population under Additional Housing Alternative A compared to the proposed Project.

Table 7A.15-16 shows the changes in campus resident populations for Additional Housing Alternative A compared to the proposed Project. Additional Housing Alternative A would increase the total campus resident population by 6,246 persons compared to the campus resident population anticipated under the 2018 General Use Permit. Of this population, 3,694 new residents would be spouses and other household members in the added housing. Overall, campus residents would increase by 32 percent compared to the proposed Project.

TABLE 7A.15-16
CAMPUS RESIDENT POPULATIONS – ADDITIONAL HOUSING ALTERNATIVE A

Condition	Total Residents	Stanford Affiliates	Spouses & Other Household Members
Fall 2015 Existing Conditions	12,592	11,468	1,124
Fall 2018 Baseline	13,028	11,888	1,140
2018 General Use Permit (Project)	19,353	17,116	2,237
Additional Housing Alternative A	25,599	19,668	5,931
Change from 2018 General Use Permit	+6,246	+2,552	+3,694
	+32.3%	+15%	+165%

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

The additional Stanford affiliates living on campus would no longer commute from off-campus so worker trip lengths would be shortened. The additional campus residents, including Stanford affiliates, spouses and other household members, would make trips to and from the campus for a

variety of purposes, including work, school, recreation, shopping and entertainment. The campus resident populations presented in Table 7A.15-16 are limited to the study area defined by the SB 743 VMT Analysis prepared for the Draft EIR.

Fall 2035 VMT Generation - Additional Housing Alternative A

Using the methodology described in the Draft EIR (pages 5.15-153 to 5.15-154), estimates of worker and resident VMT for Fall 2035 were prepared for Additional Housing Alternative A using the following assumptions. Between Fall 2018 to Fall 2035, the campus is anticipated to add 6,288 employees and contractors with an increase in enrollment of 2,900 students. In 2035, the General Use Permit study area would include 29,915 employees and contractors and an enrollment of 19,513 students. The worker population including employees, contractors and students would be 49,428. These are the same growth assumptions used in the 2035 VMT analysis for the proposed Project.

However, under Additional Housing Alternative A, the campus resident population within the study area would increase by 12,571 persons including Stanford affiliates, spouses and other household members between Fall 2018 and Fall 2035. This represents an increase in resident population of 6,246 persons over the proposed Project.

In addition to an increase in the campus residents, the additional housing would create the need for more construction workers on the campus. For Additional Housing Alternative A, it was assumed that, on average an additional 50 construction workers would be on campus on a typical day.

The resulting Fall 2035 VMT for campus workers and residents is indicated in **Table 7A.15-17**. Additional Housing Alternative A home-based work VMT per worker, and home-based VMT per resident would be below the SB 743 thresholds, allowing a determination of less-than-significant impacts for Additional Housing Alternative A.

TABLE 7A.15-17
FALL 2035 TYPICAL WEEKDAY VMT – ADDITIONAL HOUSING ALTERNATIVE A

Traveler	Trip Purposes	Population	VMT	VMT per Person ^a	SB 743 Threshold VMT per Person (see Table 7A.15-15)	Finding
Workers	HBW	49,479	208,483	4.21	13.75	Less than Significant
Residents	HBW + HBO	25,599	316,926	12.38	14.73	Less than Significant

^a Worker HBW trips were adjusted by +2% and Resident HB trips were adjusted by +3% to reflect changes in trip length derived from the VTA model.

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

VMT Comparison and Conclusions

Table 7A.15-18 summarizes the SB 743 VMT calculations for the 2018 General Use Permit and Additional Housing Alternative A, focusing on average daily trips by Stanford-affiliated workers between their homes and the Stanford campus, and average daily trips by Stanford campus

residents to all destinations. SB 743 VMT calculations are expressed as VMT per worker and VMT per resident. Adding on-campus housing would reduce the average daily VMT per worker by 7.0% under Additional Housing Alternative A, as compared to the proposed Project. These reductions represent fewer trips by Stanford affiliates traveling to and from the campus for work and shorter trip lengths for those Stanford workers living on campus.

TABLE 7A.15-18
COMPARISON OF SB743 VEHICLE MILES TRAVELLED

Condition	Worker w/ Student		Residents	
	VMT	VMT/Worker	VMT	VMT/Resident
2018 General Use Permit (Project)	223,842	4.53	207,986	10.75
Additional Housing Alternative A	208,483	4.21	316,926	12.38
Change from 2018 General Use Permit	-15,359	-0.32	+108,940	+1.63
	-6.9%	-7.0%	+52%	+15%

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

The addition of on-campus housing would increase the average daily VMT per resident by 15% under Additional Housing Alternative A, as compared to the proposed Project. Campus residents include Stanford affiliates, spouses and other household members living in the campus housing units. The daily VMT of residents is for all trip types including work, shopping, recreational, school (K-12), etc. The increase in VMT per resident would be due to the change in the on-campus proportion of faculty/staff housing units as compared to student beds. Faculty/staff units generate higher VMT per resident than student beds.

Impact Evaluation

Impact 7A.15-12: Additional Housing Alternative A would be located within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor. (Less than Significant)

As explained above, OPR has proposed that lead agencies generally should presume that residential, retail, and office projects, as well as mixed-use projects that are a mix of these uses, proposed within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor have a less-than-significant impact on VMT. A major transit stop is a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor means a corridor with fixed route bus with service intervals no longer than 15 minutes during peak commute hours.

Given the major transit stops and stops along high quality transit corridors on and near the Stanford campus, and land area with ½ mile of such stops and corridors, development under Additional Housing Alternative A would constitute infill development that represents increased intensity and density compared to existing levels at Stanford. Stanford is located adjacent to

Caltrain stations, and is well-served by transit. Based on the *Revised Proposed Changes to the CEQA Guidelines* proposed by OPR for assessment of VMT, like the proposed Project, Additional Housing Alternative A can be presumed to result in a less-than-significant impact.

Mitigation: None required.

Impact 7A.15-13: Additional Housing Alternative A VMT would not exceed the numeric thresholds recommended by OPR. (Less than Significant)

Even though Additional Housing Alternative A would be presumed to result in a less-than-significant impact under OPR's proposed CEQA Guidelines amendments (see Impact 7A.15-12, above), this EIR also assesses Additional Housing Alternative A's consistency with the numeric significance thresholds suggested by OPR.

Worker and residential daily VMT per capita generated by Additional Housing Alternative A in 2035 and the VMT Thresholds of Significance are shown in Table 7A.15-17. Additional Housing Alternative A home-based work VMT per worker, and home-based VMT per resident are below the significance thresholds, resulting in a less-than-significant impact on VMT.

Mitigation: None required.

Utilities and Service Systems⁵⁰

Approach to Analysis

Water Supply

Project Water Demand

Similar to the WSA prepared for the proposed Project, the WSA for Additional Housing Alternative A used pre-drought conditions (Fiscal Year 2012-13) as the starting point because this captures pre-project conditions more accurately than subsequent years during which drought conditions temporarily but substantially affected campus water usage. The 2012-13 water usage were increased as appropriate to account for the remaining development that would occur under the 2000 General Use Permit, and the increase in water demand that would be associated with development under this alternative. Compared to the proposed Project, Additional Housing Alternative A included increased potable water demand with the additional student housing and faculty/staff housing, using the same housing water demand rates for these categories as used in the WSA for the proposed Project. Although it is possible that additional housing constructed for

⁵⁰ The Additional Housing Alternative A environmental analysis presented herein relies in part on a housing alternatives Water Supply Assessment (WSA) prepared by Schaaf & Wheeler Consulting Civil Engineers for Stanford (see Appendix ALT-WSA in this document), a wastewater analysis prepared by Stanford (see Appendix ALT-WAW); and a solid waste analysis prepared by Stanford (see Appendix ALT-SOL). These analyses were independently peer reviewed by ESA.

this alternative may replace some existing landscaping, the WSA conservatively assumed there would be no change in irrigation demand from the analysis for the proposed Project.

Total Projected Water Demand and Supply

Table 7A.16-1 presents a summary of actual water demands and supplies for FY 2012-13 and FY 2015-16, and the projected water demands and supplies in 2035 with buildout of Additional Housing Alternative A.

TABLE 7A.16-1
SUMMARY OF POTABLE AND NON-POTABLE WATER SUPPLY AND DEMAND (MILLION GALLONS/DAY) –
ADDITIONAL HOUSING ALTERNATIVE A

Water Use Category	FY 2012-13 (Pre-Drought) Actual	FY 2015-16 (Actual)	2035 Projected (with buildout of Additional Housing Alternative A)
Demand			
Potable	2.10	1.39	2.98
Non-Potable	1.23	0.81	1.35
Total	3.33	2.20	4.33
Supply			
Potable	2.91	2.91	3.03
Groundwater	1.52	1.52	1.52
Surface Water	1.12	1.12	1.12
Total	5.55	5.55	5.67

NOTES: Numbers are rounded.

SOURCE: Schaaf & Wheeler, 2018 (Appendix ALT-WSA)

Dry-Year Scenarios

In order to determine the adequacy of water supplies to meet project demand in non-normal or wet weather years, the WSA for Additional Housing Alternative A also considered Stanford's projected water demands and supplies for normal, single dry, and multiple dry water years; see Table 7A.16-2 with buildout of Additional Housing Alternative A in 2035. As was the case for the proposed Project, the projection of non-potable usage for this alternative assumes that surface water is the primary source of irrigation supply, and groundwater is used to meet the remaining demand.

With respect to dry years, in its 2015 UWMP, the SFPUC advises wholesale customers to anticipate seeing their supply allocations reduced to as low as 83 percent of normal for a single dry year. In multiple dry year scenarios, supply might be further reduced to 72 percent of normal. Therefore, as was assumed for this alternative's analysis, the assumed dry-year supply projections assumed for Additional Housing Alternative A are based on the 83 percent and 72 percent planning factors from the SFPUC.

TABLE 7A.16-2
SUMMARY OF PROJECTED DRY YEAR SUPPLY AND DEMAND - ADDITIONAL HOUSING ALTERNATIVE A

Water Use Category	Water Year Type				
	Normal Year	Single Dry Year	Multiple Dry Years		
			1	2	3
Supply					
Potable Supply (SFPUC)					
ISG ^a	3.03	2.51	2.51	2.18	2.18
ISL ^b	2.91	2.42	2.42	2.10	2.10
Surface Water Supply	1.12	0.94	0.94	0.06	0.06
Groundwater Supply	1.52	1.52	1.52	1.52	1.52
Total Supply (ISG)	5.67	4.97	4.97	3.76	3.76
Total Supply (ISL)	5.55	4.88	4.88	3.68	3.68
2035 Demands					
Potable Demand	2.98	3.00	3.00	2.53	2.23
met by ISL	2.98	2.51	2.51	2.18	2.18
met by groundwater	0.00	0.49	0.49	0.35	0.05
Non-potable Demand	1.35	1.42	1.42	1.08	1.08
met by surface water	1.12	0.94	0.94	0.06	0.06
met by ground water	0.23	0.48	0.48	1.02	1.02
Total Demand	4.33	4.42	4.42	3.61	3.31

NOTES: Numbers are rounded.

^a ISG = Individual Supply Guarantee allocation from SFPUC

^b ISL = Interim Supply Guarantee Limitation allocation from SFPUC

SOURCE: Schaaf & Wheeler, 2017 (Appendix ALT-WSA)

Impact 7A.16-1: Additional Housing Alternative A would result in the expansion of existing on-campus infrastructure, the construction of which could cause significant environmental effects. (Significant)

As with the proposed 2018 General Use Permit, Additional Housing Alternative A would accommodate construction of campus infrastructure improvements to support new development that would occur under the alternative, including water and wastewater improvements. Since this alternative would involve more on-campus housing development and infrastructure than the proposed Project, it would therefore, involve also more construction than would occur under the proposed Project.

These effects could be associated with construction, such as noise, archeological impacts, air quality impacts such as emissions of dust and other pollutants, including diesel exhaust, and temporary street closures or other traffic obstructions. As with the proposed Project, since on-campus utility improvements are part of the overall anticipated development program under the alternative, the associated construction-related impacts associated with new, relocated or

replaced recreational facilities are addressed in the construction impact analyses above under Air Quality, Biological Resources, Cultural Resources, Noise and Vibration, and Transportation and Traffic. Similar to those mitigation measures identified for the proposed Project, the mitigation measures outlined in these respective topics for this alternative to reduce construction related impacts would similarly apply to infrastructure improvements.

Mitigation: Implement the following mitigation measures, as needed for construction of infrastructure improvements:

Air Quality

Mitigation Measure 7A.2-2: Best Management Practices for Controlling Particulate Emissions during Construction.

Mitigation Measure 7A.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Biological Resources

Mitigation Measure 7A.3-1(a)-(e): Mitigation for nesting birds during construction.

Mitigation Measure 7A.3-2(a)-(d): Mitigation for special-status bat species during construction.

Mitigation Measure 7A.3-3(a)-(c): Mitigation for San Francisco dusky-footed woodrat during construction.

Mitigation Measure 7A.3-4(a)-(b): Mitigation for special-status plant species during construction.

Mitigation Measure 7A.3-6(a)-(c): Mitigation for steelhead during construction.

Mitigation Measure 7A.3-7(a)-(b): Mitigation for riparian habitat during construction.

Mitigation Measure 7A.3-8(a)-(b): Mitigation for native oak woodland during construction.

Mitigation Measure 7A.3-9(a)-(c): Mitigation for wetlands during construction.

Mitigation Measure 7A 3-11(a)-(c): Mitigation for protected trees during construction.

Cultural Resources

Mitigation Measure 7A.4-2(a)-(b): Mitigation for protection of archaeological resources during construction.

Mitigation Measure 7A.4-3: Mitigation for protection of paleontological resources during construction.

Hazardous Materials

Mitigation Measure 7A.8-2(a)-(c): Mitigation for potentially contaminated soils during construction.

Hydrology and Water Quality

Mitigation Measure 7A.9-1: Review historic wells survey.

Noise and Vibration

Mitigation Measure 7A.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors.

Mitigation Measure 7A.11-2: Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.

Mitigation Measure 7A.11-3: Construction Vibration Reduction Plan.

Transportation and Traffic

Mitigation Measure 7A.15-1: Construction Traffic Control Measures.

Significance after Mitigation: Less than Significant.

Impact 7A.16-2: Additional Housing Alternative A development would increase the demand for water, however it would be adequately supplied from existing entitlements and resources. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated water demand than the proposed 2018 General Use Permit. As discussed in Section 5.16, Utilities and Service Systems, Stanford receives its water from water purchased wholesale from the SFPUC, local surface water supplies, and groundwater. The WSA prepared for this alternative (see Approach to Analysis, above) evaluated if the total projected water supplies, determined to be available for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with this alternative.

With respect to normal years, as summarized in Table 7A.16-1, the WSA estimated that Stanford's total water demand upon buildout of this alternative would be approximately 4.33 mgd, consisting of a potable water demand of 2.98 mgd (an increase of 0.54 mgd over the proposed Project), and a non-potable water demand of 1.35 mgd (same as the proposed Project).

Consistent with the WSA prepared for the proposed Project, Stanford's overall water supply with buildout of this alternative would be similar to conditions at present. Stanford's potable water supply allocation from the SFPUC will be 3.03 mgd in 2018, when the ISL expires and the ISG is reinstated. During normal water years, this water allocation would be sufficient to accommodate the potable water demand through buildout of this alternative. Stanford would also maintain existing water rights for surface water diversion of non-potable water of up to 1.12 mgd. In addition, a sustainable groundwater supply of up to 1.52 mgd would be available to provide a supplemental source of non-potable water to serve the alternative. Together, the local surface and groundwater sources would be sufficient to accommodate the non-potable water demand through buildout of the alternative. Collectively, during normal water years, the total estimated water

supply 5.67 mgd would be more than adequate to accommodate the total projected water demand of 4.33 mgd with buildout of the alternative.

As shown in Table 7A.16-2, under this alternative, in single and multiple dry water year scenarios, Stanford would need to supplement its potable water supply from SFPUC with treated groundwater from its wells in order to accommodate the estimated increase in potable water demand from the additional on-campus housing.⁵¹ As under the proposed Project, in multiple dry year scenarios, Stanford would reduce its total potable water demand by 15 percent in the second year and 25 percent in the third year.

Similar to the proposed Project, under this alternative in a single dry year, Stanford's non-potable water demands for plant irrigation would be expected to increase slightly. However, as under the proposed Project, under this alternative, Stanford would implement water conservation measures to reduce non-potable water use by 20 percent in the second and third years of a multiyear drought.

In conclusion, as was the case with the proposed Project, there would be sufficient water supplies to accommodate the water demand from buildout of Additional Housing Alternative A through existing entitlements and resources under normal, single dry, and multiple dry water years. Thus, while this alternative would generate an increased demand for water compared to the Project, this impact would be similarly less than significant.

Mitigation: None required.

Impact 7A.16-3: Additional Housing Alternative A would increase demand for wastewater treatment, but would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated wastewater generation, and correspondingly, and increased need for wastewater treatment, than the proposed 2018 General Use Permit. As discussed in Section 5.16, wastewater generated by Stanford is conveyed off-site to the City of Palo Alto Regional Wastewater Quality Control Plant (RWQCP) for treatment. The RWQCP is owned and operated by the City of Palo Alto, and is funded by several partners, including Stanford.

The analysis of wastewater generation for the proposed Project presented in Section 5.16, Utilities and Service Systems, used a highly conservative methodology that assumed the entirety of the net increase in potable water demand for the proposed Project would become wastewater. However, new data provided by Stanford based on historic metering of Stanford's wastewater flows shows that Stanford's average annual wastewater demand is approximately 70 percent of its average annual domestic water usage. This is considered a more refined approach to estimate

⁵¹ In a single dry water year / multiple dry water year 1, multiple dry water year 2, and multiple dry water year 3, the WSA estimates Stanford would provide treated groundwater from its wells to supplement the amounts of 0.49 mgd, 0.35 mgd, and 0.05 mgd, respectively.

wastewater flows attributable to the proposed Project and additional housing alternatives. Use of the 70 percent factor for these scenarios would still be conservative, since it does not account for future conservation measures, such as improved connectivity to the campus recycled water system to these uses, which could serve to further reduce future wastewater flows from the campus.

Using this refined methodology for estimating wastewater generation for the proposed 2018 General Use Permit, Stanford's total projected potable wastewater generation in 2035 with the proposed 2018 General Use Permit would be 1.52 mgd wastewater (this includes wastewater flows from existing development, remaining development to be built under the 2000 General Use Permit plus new development under the proposed Project). These total flows would be within the 2.11 mgd capacity of the RWQCP owned by Stanford. Thus, while development under the proposed 2018 General Use Permit would increase demand for wastewater treatment, the increase would be within its authorized volumes, and would not exceed wastewater treatment requirements by the RWQCB. Consequently, similar to the finding reached in Section 5.16, the proposed Project would generate a less-than-significant impact to wastewater treatment.

Similarly, using this refined methodology for estimating wastewater generation for Additional Housing Alternative A, Stanford's total projected potable wastewater generation in 2035 with this alternative would be 1.90 mgd wastewater, an increase of 0.38 mgd over the proposed Project). These total flows would be within the 2.11 mgd capacity of the RWQCP owned by Stanford. Thus, similar to the proposed Project, while development under this alternative would increase demand for wastewater treatment, the increase would be within its authorized volumes, and would not exceed wastewater treatment requirements by the RWQCB. Consequently, as with the proposed Project, this alternative would generate a less-than-significant impact to wastewater treatment.

Mitigation: None required.

Impact 7A.16-4: Additional Housing Alternative A would discharge additional flows to the municipal sewer and drainage system, but not to an extent which would exceed the facilities' capacity in light of existing commitments. (Less than Significant)

Additional Housing Alternative A would involve more on-campus housing and associated wastewater generation than the proposed 2018 General Use Permit. Wastewater generated by Stanford is collected in its sanitary sewer system and then conveyed off-site to and through City of Palo Alto sewer lines to the RWQCP. Using the refined methodology for estimating wastewater generation presented in Impact 7A.16-3, above, for the proposed 2018 General Use Permit, an increase in Stanford wastewater generation of approximately 0.42 mgd (conservatively accounting for the proposed 2018 General Use Permit increase and contribution from any remaining unbuilt development under 2000 General Use Permit), would be equivalent to an average increase in daily flow of approximately 292 gpm. This increased flow added to measured dry weather peak flow of 1,700 gpm would remain well below this City sewer main's capacity at 4,370 gpm.

Using the same refined methodology for this alternative, an increase in Stanford wastewater generation of approximately 0.80 mgd (accounting for the alternative and contribution from any remaining unbuilt development under 2000 General Use Permit), would be equivalent to an average increase in daily flow of approximately 556 gpm (an increase of 264 gpm over the proposed Project). Similar to the proposed Project, this increased flow added to measured dry weather peak flow of 1,700 gpm would remain well below this City sewer main's capacity at 4,370 gpm.

Given these results, and considering that the City of Palo Alto indicates there are no capacity deficiency issues for any of the City collection mains that carry wastewater flows from the campus to the RWQCP, the increase in flow under this alternative, would not exceed the City of Palo's sewer collection capacity. Similar to the conclusion reached for the proposed Project, the impact under this alternative would be less than significant.

Mitigation: None required.

Impact 7A.16-5: Additional Housing Alternative A construction would result in an increased generation of solid waste, but would not exceed permitted capacity to accommodate the Project's solid waste disposal needs or conflict with federal, State, and local statutes and regulations related to solid waste. (Less than Significant)

Additional Housing Alternative A would involve more construction and demolition activities than the proposed 2018 General Use Permit and consequently, would generate more construction debris, some of which would require disposal. The alternative would be expected to result in an average of approximately 360,500 square feet of construction (an increase of 135,000 square feet over the proposed Project) and approximately 53,850 square feet of demolition (an increase of 3,550 square feet over the proposed Project) per year through 2035. Based on the most conservative construction and demolition waste estimates provided by the USEPA (similar to those estimated for the proposed Project in Section 5.16), the annual construction and demolition under this alternative would result in an estimated 5,045 tons of solid waste per year (an increase of 576 tons per year over the proposed Project). Assuming 50 percent of all construction waste is diverted from landfills through source reduction, recycling, and composting activities per Stanford procedures and policies, consistent with CCR Title 24, the Project would generate an estimated 2,523 tons of waste per year (an increase of 288 tons per year over the proposed Project) that would be disposed at a landfill.

As discussed in Section 5.16, as of 2012, Zanker Road Landfill (which currently receives construction/demolition debris from Stanford) had a total remaining capacity of 700,000 cubic yards with an expected closure date of 2029. In addition, other existing landfills are available that would remain operational could be utilized and would have more than adequate capacity to accommodate the construction debris generated by this alternative. As a result, similar to the proposed Project, construction debris generated under this alternative would not exceed permitted landfill capacity nor violate any state or federal regulation related to solid waste, and similar to the proposed Project, the impact from this alternative would be less than significant.

Mitigation: None required.

Impact 7A.16-6: Operation of Additional Housing Alternative A would comply with federal, state, and local statutes and regulations related to solid waste and would be adequately served by existing landfills with sufficient permitted capacity to accommodate the Project's solid waste disposal needs. (Less than Significant)

Additional Housing Alternative A would involve more housing development, and consequently, would generate more solid waste than the proposed 2018 General Use Permit requiring disposal. Using the same per capita generation rates as those used for the proposed Project in Section 5.16, this alternative would generate a net increase of approximately 9,115 tons of discards per year (an increase of 2,734 tons over the proposed Project), consisting of approximately 3,326 tons of landfill waste per year (an increase of 998 tons over the proposed Project), and 5,789 tons of recyclables per year (an increase of 1,736 tons over the proposed Project). When considered in combination with the existing waste generation, Stanford would generate approximately 33,800 tons of discards per year, consisting of 12,271 tons of landfill waste per year, and 21,529 tons of recyclables per year with this alternative.

As discussed in Section 5.16, the Newby Island Sanitary Landfill (which currently receives the majority of Stanford's solid waste) has maximum permitted throughput for up to 4,000 tons of waste per day. Similar to the proposed Project, the total operational solid waste that would be generated under this alternative that requires landfilling would represent less than one percent of the maximum daily permitted throughput at this landfill. Furthermore, this landfill has a remaining capacity of 21.2 million cubic yards, with an anticipated closure in January 2041; and therefore can accommodate solid waste disposal needs of the Project through the duration of this alternative.

Based on the existing disposal rates and continued waste diversion by residents and employees of Stanford, this alternative, similar to the proposed Project, would continue to allow Stanford be in compliance with CALGreen and AB 939. Given the above, operation of this alternative would not exceed available permitted landfill capacity and would comply with federal, state, and local statutes and regulations related to solid waste diversion; and similar to the proposed Project, the impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7A.16-7: Implementation of Additional Housing Alternative A, in combination with past, present, and future projects would contribute to cumulative increases in demand for water supplies. (Less than Significant)

The WSA for Additional Housing Alternative A demonstrates there, similar to that determined for the proposed Project, there are adequate water supplies to accommodate the water demand

from buildout of this alternative through existing entitlements and resources under normal and sequentially dry weather years.

As discussed in Section 5.16, Stanford provides usage statistics and demand projections to the SFPUC and SCVWD who incorporate this data into their respective UWMPs. The SFPUC and SCVWD UWMPs, as well as the City of Palo Alto's 2015 UWMP, indicate that each urban water supplier has sufficient water supply to meet demand in normal years and sequential dry-weather years. The SFPUC's 2015 UWMP considers that Stanford's purchase requests will increase, and the SCVWD UWMP also includes increases in Stanford's total water demand projections. The WSA prepared for this alternative determined that the Stanford's projected potable water demand for this alternative, while higher than the proposed Project, would still be met through Stanford's ISG under normal water years, and could be supplemented with treated groundwater in single or multiple dry water years. The WSA showed Stanford's non-potable water demand under this alternative would be similar to the Project, and would continue to be met by existing surface water entitlements and groundwater.

Similar to the proposed Project, the cumulative water supply needs of this alternative in combination with past, present, and reasonably foreseeable projects within the SFPUC wholesale service territory during normal, single-, and multiple-dry years could be met by 1) State voluntary and mandatory water conservation and water efficiency measures, 2) SFPUC voluntary and mandatory water conservation and water efficiency measures, 3) City water conservation measures called for in the municipal code and emergency conservation ordinance, 4) BAWSCA's long-term water supply strategy, and 5) SFPUC's WSIP improvements as identified in each of their UWMPs.

Cumulative projects would contribute to additional water demands. However, future projects would be subject to the same water conservation efforts, water efficiency measures, and water supply improvements to balance supply and demand as would this alternative required by the state and regional enforcement bodies. In particular, cumulative projects within the SFPUC wholesale service area would be subject to State and SFPUC voluntary and mandatory conservation measures to reduce usage, the BAWSCA's long-term water supply strategy to enhance supplies, and the SFPUC's WSIP projects to improve the regional water system reliability and capacity. There would be adequate water supplies to serve this alternative in combination with other reasonably foreseeable projects in the SFPUC wholesale service area.

Therefore, cumulative impacts to water supply would be less than significant.

Mitigation: None required.

Impact 7A.16-8: Implementation of Additional Housing Alternative A, in combination with past, present, and future projects would contribute to cumulative increases in demand for wastewater treatment. (Less than Significant)

The cumulative setting for wastewater treatment would extend to the entire service area of the RWQCP. Under each of the growth scenarios considered in the update to the City of Palo Alto's Comprehensive Plan, future wastewater generation would increase by less than five percent of the available treatment capacity at the RWQCP, which would be far below its design and permitted wastewater treatment capacity. As addressed under Impact 7A.16-3, similar to that determined for the proposed Project, the future increases in wastewater flows from this alternative would be within the 2.11 mgd capacity permitted by the RWQCP for Stanford's use.

Based on the cumulative wastewater treatment demand anticipated under buildout of the 2030 Comprehensive Plan, demand generated by residents within Palo Alto, Stanford, and the remaining service area for the RWQCP would be below the facility's excess capacity. As a partner in the RWQCP, Stanford pays its fair share of capital costs, and would continue to do so over the life of this alternative.

With adequate capacity for cumulative wastewater treated at RWQCB, treatment would be provided according to the wastewater treatment requirements documented in the NPDES permit for the RWQCP and enforced by the San Francisco RWQCB. Therefore, cumulative development combined with this alternative would not exceed wastewater treatment requirements, and cumulative impacts to wastewater treatment would be less than significant.

Mitigation: None required.

Impact 7A.16-9: Implementation of Additional Housing Alternative A, in combination with past, present, and future projects would contribute to cumulative increases in demand for landfill space. (Less than Significant)

While Stanford currently relies primarily on the Newby Island Sanitary Landfill and Zanker Road Class III landfill, countywide, there are 20 additional landfills for which capacity is available. All past, present, and foreseeable future projects have been and would be required to demonstrate that adequate landfill capacity is available to accommodate increased waste prior to any project approvals. Such projects have been and would also be required to comply with the recycling and reuse measures and targets established by CALGreen and AB 939 for construction and operational waste. Therefore, this alternative, in conjunction with other development, would not have a significant cumulative impact associated with solid waste, and this alternative's cumulative impact would be less than significant.

Mitigation: None required.

Environmental Consequences of Stanford Providing Off-Campus Housing under Additional Housing Alternative A

Impact 7A.17-1: Under Additional Housing Alternative A, the construction and/or operation of off-site housing by Stanford would result in off-site environmental impacts. (Significant)

Although Additional Housing Alternative A assumes that all new housing would be provided on-campus, under this alternative, Stanford could elect to, subject to approval by the County, offset some or all of the incremental off-campus housing demand by providing off-campus housing. The growth in Stanford student, faculty, staff, postdoctoral student, and other worker households that would live off-site would be distributed among many jurisdictions in the Bay Area. Assuming that future off-campus residents distribute in patterns similar to how current off-campus residents live, these jurisdictions are listed in Draft EIR Table 5.12-11.

With respect to affordable housing, as under the proposed Project, affordable housing impact in-lieu payments could be made under this alternative would support development of affordable housing within one-half mile of any major transit stop or a high-quality transit corridor in the Bay Area.

Based upon Stanford's historical development of off-campus housing projects in the cities of Palo Alto, Menlo Park, and Los Altos, and the location of residence of existing Stanford affiliates based on Stanford's 2016 Commute Survey, the potential indirect impacts of distributing the Additional Alternative A's off-campus housing demand within the cities of Palo Alto, Menlo Park, and Mountain View provide a representative analysis of the indirect impacts that would more broadly occur among the Bay Area jurisdictions. Specifically, as described in the Draft EIR, Palo Alto is currently home to approximately 19 percent of off-campus students, faculty, and staff; Menlo Park has 9 percent; and Mountain View has nearly 10 percent.⁵² Therefore, the potential effects of any off-campus housing development projects that Stanford would potentially provide under Additional Housing Alternative A would disproportionately affect these jurisdictions compared to other communities in the Bay Area that house Stanford affiliates.

All three cities have adopted updates to their respective general plans within the last six years. The effects of population growth expected to occur during the next several decades resulting from such growth, including from residential housing development that may be associated with Stanford off-campus housing demand, have been analyzed in the Final EIRs for each respective general plan. While there are differences regarding how the analyses were conducted and how they are described in the Final EIRs for each plan, significant impacts were identified for all three communities regarding air quality and transportation. It is reasonable to assume that the general plans for these communities accounted for the population growth associated with Stanford affiliates residing within each respective jurisdiction and that any off-campus housing provided by Stanford in more distant communities would have similar impacts as those identified below.

⁵² Stanford University 2018 General Use Permit Draft EIR Appendix PHD, Table 13.

Of course, the effects of population growth anticipated in those three Final EIRs include the impacts of all growth, only some of which could be growth caused indirectly by this alternative.

Any new off-campus housing constructed as result of this alternative, including affordable housing units, would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. For purposes of this EIR, the impacts associated with the demand for off-site housing units are being analyzed as indirect impacts of this alternative.

Palo Alto adopted an update to its general plan, *Comprehensive Plan 2030*, on November 13, 2017 (City of Palo Alto, 2017a). The Final EIR prepared for the update analyzed six unique scenarios for growth in Palo Alto through 2030 (City of Palo Alto, 2017b). The total number of new housing units constructed by 2030 under the six scenarios ranged from a low of 2,720 under the “business as usual” scenario to 6,000 units under the most aggressive housing scenario. The City Council developed a “Preferred Scenario” that would result in 3,545 to 4,420 new housing units in the city by 2030.

The effects of such growth anticipated to occur under the general plan update were considered in the Final EIR. Most impacts were determined to be less than significant through implementation of identified mitigation measures. However, several impacts related to air quality and transportation/traffic were determined to remain significant and unavoidable, as summarized below:

- AIR-2: Implementation of the proposed Plan could violate an air quality standard; contribute substantially to an existing or project air quality violation; and/or result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (All Six Scenarios)
- TRANS-1: Implementation of the project would cause an intersection to drop below its motor vehicle level of service standard, or deteriorate operations at representative intersections that already operate at a substandard level of service. (Six Scenarios)
- TRANS-3: Implementation of the project would cause a freeway segment or ramp to drop below its level of service standard, or deteriorate operations that already operate at a substandard level of service. (All Six Scenarios)
- TRANS-6: Implementation of the project would impede the operation of a transit system as a result of congestion. (All Six Scenarios).

Regarding air quality, implementation of the general plan under all scenarios would generate a substantial increase in criteria air pollutant emissions from on-site sources, vehicle trips, and energy use, which would result in a significant, unmitigable impact. Emissions generated during construction associated with individual development projects permitted under the proposed plan also would generate significant levels of criteria air pollutants and toxic air contaminants. Under all six scenarios, the plan would cause multiple intersections to drop below their motor vehicle

level of service standard, or deteriorate operations at intersections that already operate at a substandard level. Up to eight intersections were determined to have significant intersection impacts, and seven freeway segments or ramps on U.S. 101 and I-280 also would drop below level of service standards. In addition, the degradation in level of service would impede the operation of a transit system as a result of congestion.

City of Menlo Park

Menlo Park adopted its current general plan, *ConnectMenlo*, on November 29, 2016 (City of Menlo Park, 2016a). In addition to the proposed plan and no project alternatives, the Final EIR analyzed two reduced intensity scenarios (City of Menlo Park, 2016b). The number of housing units that could be constructed by 2040 ranged from 1,000 under the no project-business as usual alternative to 5,500 units under the proposed plan. The Final EIR prepared for the general plan identified significant and unavoidable impacts for air quality, GHG emissions, transportation and circulation, and population and housing (cumulative), as summarized below:

- AQ-2a: Despite implementation of the proposed project policies as identified in Chapter 4.2, Air Quality, Table 4.2-8, criteria air pollutant emissions associated with the proposed project would cause a substantial net increase in emissions that exceeds the Bay Area Quality Management District (BAAQMD) regional significance thresholds.
- AQ-2b: Despite implementation of the proposed project policies, criteria air pollutant emissions associated with the proposed project construction activities would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- AQ-5: Despite implementation of the General Plan policies, criteria air pollutant emissions associated with the General Plan would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- GHG-1: The proposed project would result in a substantial increase in GHG emissions from existing conditions by the proposed General Plan horizon year 2040 and would not achieve the 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Additional state and federal actions are necessary to ensure that state and federally regulated sources (i.e., sources outside the City's jurisdictional control) take similar aggressive measures to ensure the deep cuts needed to achieve the 2050 target.
- GHG-2: While the proposed project supports progress toward the long term-goals identified in Executive Order B-30-15 and Executive Order S-03-05, it cannot yet be demonstrated that Menlo Park will achieve GHG emissions reductions that are consistent with a 40 percent reduction below 1990 levels by 2030 or an 80 percent reduction below 1990 levels by the year 2050 based on existing technologies and currently adopted policies and programs.
- POP-4: Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to population and housing.

- TRANS-1a: Implementation of the proposed project would exceed the City's current impact thresholds under the 2040 Plus Project conditions at some roadway segments in the study area.
- TRANS-1b: Implementation of the proposed project would result in increased delay to peak hour motor vehicle traffic exceeding the significance threshold at some of the study intersections.
- TRANS-2: Implementation of the proposed project would result in impacts to Routes of Regional Significance.
- TRANS-6a: Implementation of the proposed project would not provide adequate pedestrian or bicycle facilities to connect to the area-wide circulation system.
- TRANS-6b: The project would generate a substantial increase in transit riders that cannot be adequately serviced by existing public transit services, and the project would generate demand for transit services at sites more than one-quarter mile from existing public transit routes.

Similar to the determination of Palo Alto's Final EIR, implementation of Menlo Park's general plan would result in generation of criteria air pollutant emissions that would result in significant impacts during construction and operation. GHG emissions were determined to be significant and unavoidable as the emissions generated would not achieve a 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Five significant impacts were identified for transportation: exceedances of impact thresholds at roadway segments; increased delay to peak hour motor vehicle traffic thresholds; impacts to Routes of Regional significance; inadequate provision of pedestrian or bicycle facilities; and generation of a substantial increase in transit riders that cannot be adequately served by existing public transit services.

City of Mountain View

Mountain View's 2030 General Plan (adopted July 10, 2012) determined that 8,970 new housing units could be developed in the city by 2030 (City of Mountain View, 2012a). The general plan Final EIR identified significant impacts for Air Quality, Noise, and Transportation, as summarized below (City of Mountain View, 2012b):

- TRANS-1: Implementation of the Draft General Plan and GGRP would result in increased daily land-use-based vehicle miles of travel (VMT) per service population in 2030 due to population and employment growth planned within the City.
- TRANS-2a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased roadway segment levels of service on one roadway study segment (39. San Antonio Road between SB US 101 Ramps and Charleston Road).
- TRANS-2b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased roadway segment levels of service on several roadway study segments.

- TRANS-3a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-3b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-4a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- TRANS-4b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- AIR-2: Implementation of the Draft General Plan and GGRP could contribute to or result in a violation of air quality standards in the existing and cumulative conditions by increasing VMT greater than the population increase.
- AIR-4: Implementation of the Draft General Plan and GGRP would result in a cumulatively considerable net increase in ozone and particulate emissions.
- NOI-1: Increased traffic from projected development under the Draft General Plan and GGRP would result in a significant increase in traffic noise levels compared to existing conditions in the 2030 and cumulative conditions along some roadway and freeway segments in the City.

Regarding air quality, impacts would result from violation of air quality standards by increasing VMT greater than the population increase, and the cumulatively considerable net increase in ozone and particulate emissions. Increased traffic noise levels along some roadway and freeway segments would be significant. Significant transportation impacts included the following: increased daily land-use-based VMT due to population and employment growth; increased motor vehicle traffic and congestion, which would result in decreased roadway and freeway segments level of service; and increased motor vehicle traffic and congestion outside the city.

Conclusion

Although the above analysis focuses on the impacts in three cities where housing locations are reasonably foreseeable, similar impacts would likely occur in other Bay Area jurisdictions where off-campus housing would be located. As discussed above, any new off-campus housing that may be developed by Stanford under Additional Housing Alternative A would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. As such, the implementation of any mitigation measures to reduce associated environmental impacts, in particular those included in or required by General Plan EIRs, would depend on the actions of those jurisdictions.

Mitigation Measure 7A.17-1: The local governmental agencies in which off-campus affordable housing that would be developed by Stanford would be located can and should mitigate the environmental impacts from off-campus housing to the extent feasible.

Significance after Mitigation: Significant and Unavoidable.

Given uncertainties in the specific location and type of off-campus housing that may occur under this alternative, it is also uncertain if feasible mitigation would exist to reduce all significant environmental impacts to a less than significant level. Further, the County cannot require or guarantee that local governments would implement mitigation measures for off-campus housing included in or required by General Plan EIRs. For these reasons, the impact is determined to be significant and unavoidable.

Ability to Meet Project Objectives

Additional Housing Alternative A would fail to achieve the primary project objective to develop the campus in a manner that reflects Stanford's historical growth rates and the growth assumptions in Stanford's approved Sustainable Development Study. The additional housing contemplated by this alternative would exceed Stanford's historic growth rates and the assumptions in the Sustainable Development Study, and would result in more intense development and construction activity than has occurred over the past several decades. The alternative would add approximately 2.5 million square feet of development to the Stanford campus above the square footage proposed by the 2018 General Use Permit.

This alternative also would also not fully achieve the following more specific project objectives to: continue to allow Stanford flexibility to develop its lands within a framework that minimizes potential negative effects on the surrounding community; enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique Escondido Village Graduate Student Residences Project; and prioritize use of campus lands within unincorporated Santa Clara County for academic and academic support facilities, student housing, and faculty housing.

7.4.5 Additional Housing Alternative B⁵³

Description

For the purposes of comparison and to assist the public and decision makers in understanding the implications of the construction of higher levels of housing on the Stanford campus, Additional Housing Alternative B considers the effects of provision of more on-campus housing than under the proposed Project, but less than under Additional Housing Alternative A. Except for provision of additional parking, all other components of the Proposed Project would remain the same for this alternative. For this reason, the analysis of Additional Housing Alternative B relies upon and incorporates by reference the description of the environmental setting, impact analyses, mitigation measures and significance conclusions for the proposed Project, in addition to analyzing the environmental effects of the increased housing included with this alternative.

⁵³ The Additional Housing Alternative B description presented herein relies in part on a housing alternatives description prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-PRD included in this document.

Additional Housing Alternative B assumes a new general use permit would be sought for the same level of academic and academic support development (i.e., 2.275 million net new square feet). As described below, in addition to the proposed on-campus housing that would be provided under the proposed 2018 General Use Permit (3,150 units/beds), this alternative would include a requirement that Stanford provide an additional 1,275 units/beds on-campus housing to accommodate the half net increase in off-campus housing demand that would occur under the proposed Project, for a total of 4,425 new on-campus housing units/beds.

Similar to Additional Housing Alternative A, under this alternative it is assumed that Stanford could instead elect to, subject to approval by the County, provide additional off-campus housing to meet the incremental demand created by the proposed 2018 General Use Permit. The specific amount, location and type of off-campus housing that would or could be provided are not known at this time. It would also represent a worst case as far as disclosure of reasonably foreseeable environmental effects of such housing. However, it is assumed that any portion of affordable off-campus housing provided by Stanford would be located within a six-mile radius of the campus. This is consistent with the 2000 General Use Permit Condition H.6(c).⁵⁴ Any new off-campus housing that could be proposed by Stanford under this option would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. Therefore, in order to conservatively assess the localized effects of meeting half the increase in housing demand of the proposed 2018 General Use Permit, this EIR assumes that all of the additional housing that would be developed under this alternative would be built on-campus. However, this EIR also provides a separate qualitative discussion of environmental consequences of Stanford providing additional off-campus housing under this alternative.

Similar to the proposed Project, this alternative also assumes the construction of 40,000 square feet of trip reduction amenities such as onsite childcare and mobility hubs; and up to 50,000 square feet of construction surge space. Additional Housing Alternative B assumes that, in addition to utilizing unbuilt parking authorized by the 2000 General Use Permit, 57 additional parking spaces would be needed for the 104 additional graduate student beds contemplated by this Alternative. As with the proposed Project, parking for faculty/staff housing would not count toward campus parking limits.

It is also expected that Stanford would request approval of infrastructure improvements that would be required to serve development under this alternative. Similar to the proposed Project, infrastructure improvements could include utilities and circulation improvements. As under the proposed Project, some utility and habitat improvements could occur outside the Academic Growth Boundary under this alternative.

Furthermore, the proposed adjustments to the No Net New Commute Trips compliance methodology that would occur under the Project would also occur under this alternative. However, it should be noted that because this alternative would shift a substantial number of commute trips to residential

⁵⁴ 2000 General Use Permit Condition H.6(c) required that cash payments made by Stanford in-lieu of providing affordable housing would be made to an escrow account established and maintained by the County for the purpose of funding affordable housing projects within a six-mile radius of the Stanford campus boundary.

trips, the No Net New Commute Trips standard may not be achieved because TDM measures are not as effective in reducing residential trips, compared to commute trips.

Sustainability practices and programs that would be implemented under the proposed Project are also assumed to be implemented under this alternative.

On-Campus Housing

Table 7B-1 estimates the net increase in housing units under Additional Housing Alternative B. Table 7-7 first shows the projected increase in the number of Stanford affiliates (students, faculty, staff, postdoctoral students, and other workers⁵⁵) who would live off campus during the 2018 General Use Permit period, and the estimates of the number of households that each of these increases in population would represent (see Section 5.12, Population and Housing, and Appendix PHD in the Draft EIR for additional detail). As shown in the Table 7B-1, the total projected daily population growth at Stanford predicted to occur during implementation of the 2018 General Use Permit is 8,162 Stanford affiliates. Of that number, 3,168 of those new Stanford affiliates would be housed in the proposed new on-campus housing. This leaves 4,994 new Stanford affiliates that would be housed outside the campus, which, after accounting for non-Stanford employed adults living in campus housing, would result in an estimated increase in demand for 2,425 off-campus housing units.

As shown in Table 7B-1, under Additional Housing Alternative B, half the off-campus housing demand generated under the proposed 2018 General Use Permit would instead be accommodated on campus, which would translate to an equivalent increase of 1,275 new on-campus housing units/beds (104 graduate student beds⁵⁶ and 1,171 units for postdoctoral students, faculty, staff, and/or other workers). When adding the 1,275 new on-campus housing units/beds to the new on-campus housing proposed under the proposed 2018 General Use Permit (i.e., 3,150 housing units/beds), this alternative would result in a total of 4,425 new on-campus housing units/beds. This alternative would achieve the housing linkage ratio that is proposed for the Project (and as with the Project, would have a greater number of housing units/beds than required by the housing ratio).

Distribution of Additional Housing

In order to assess the comparative effects of this alternative, it is necessary to make assumptions about the location on the campus of the additional increment of housing. As under the proposed Project, it is assumed that the additional increment of on-campus housing that would occur under this alternative would be located within the Academic Growth Boundary, and not within the Campus Open Space land use designation.

⁵⁵ This estimate does not include growth in non-matriculated students, estimated at 420 individuals under the proposed 2018 General Use Permit (see Draft EIR Table 5.12-9). Non-matriculated students are students taking courses or engaged in graduate-level research or training over the short term (ranging from a few hours to a few months), but who are not seeking a degree. They include students who complete courses entirely online, and students taking courses on a part-time basis. Consequently, while this population segment is accounted for in the overall population totals, it is not relevant to the anticipated demand for new housing.

⁵⁶ If the increase in off-campus graduate students were housed on campus, they would be housed in student beds. As a result, the increase in 42 off-campus graduate student housing units was converted to an estimated 104 on-campus student beds.

TABLE 7B-1
NET INCREASE IN HOUSING UNITS UNDER ADDITIONAL HOUSING ALTERNATIVE B

	Undergraduate Students	Graduate Students	Postdoctoral Students ^a	Faculty ^b	Staff ^c	Other Workers ^d	Total
Total Growth During 2018 General Use Permit (Daily)	1,700	1,200	961	789	2,438	1,074	8,162
Less: Number Housed on Campus ^e	(1,700)	(918)	N/A	(550)	N/A	N/A	(3,168)
Off-Campus Stanford Population Growth	0	282	961	239	2,438	1,074	4,994
Less: Non-Stanford Population in On-Campus Housing ^f	0	(72)	0	(418)	0	0	(490)
Net Increase in Off-Campus Population under 2018 General Use Permit	0	210	961	(179)	2,438	1,074	4,504
Calculation of Increase in Off-Campus Households under 2018 General Use Permit ^g	0	83	449	(102)	1,385	610	2,425
Calculation of One Half the Increase in Off-Campus Population ^g	0	42	224.5	(51)	692.5	305	1,213
Increase in Households if Beds are provided on Campus for Graduate Students rather than Off Campus Housing Units ^h		104					1,275
Household Adjustment Factor ^g	N/A	2.54/1.02	2.14	1.76	1.76	1.76	N/A

NOTES:

Totals shown may differ from the sums of individual numbers due to rounding.

N/A = Not applicable

^a Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^b Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^c Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^d Other worker populations includes casual, contingent, and temporary employees; non-employee academic affiliates; and third party contractors including janitorial staff and construction workers.

^e The on-campus housing included in the proposed 2018 General Use Permit is assumed to consist of housing for 1,700 undergraduate students and 918 graduate students along with 550 units for faculty or staff.

^f Stanford predicts 72 non-student spouses would occupy the graduate student housing that would be included in the proposed 2018 General Use Permit. In addition, each of the 550 staff and faculty units would accommodate at least one member of the staff or faculty, along with any other members of the faculty or staff household. The Draft EIR analysis assumes an average of 1.76 workers per staff or faculty household, per footnote (g) below, resulting in an average of one faculty or staff member and 0.76 other workers per faculty or staff unit.

^g For each population group, the Draft EIR makes a household adjustment factor in order to translate population growth into new households. For graduate students and post-doctoral scholars, the adjustment is based on the average number of employed adults per household, calculated from the 2016 Commute Survey conducted by the Stanford's Department of Parking and Transportation Services. For faculty and staff, the adjustment is based on the average number of employed residents per worker household for Santa Clara County, according to 2011-2015 American Community Survey data. The Draft EIR does not apply a household adjustment factor to the undergraduate population because the 2018 General Use Permit includes enough on-campus undergraduate beds to accommodate the entire increase in the number of undergraduate students.

^h Of the 105 graduate students that would require beds on campus, it is likely that 2 percent of them would be married to Stanford-student spouses; therefore, 104 beds would be demanded.

SOURCE: Stanford University Land Use and Environmental Planning Office (see Appendix ALT-PRD)

Other factors considered in the distribution of additional housing under this alternative are the goals to keep the interior of the campus compact and walkable, and, consistent with the 1985 Land Use Policy Agreement,⁵⁷ keep any new multi-family housing that is occupied by non-Stanford affiliates outside the academic campus lands. The campus must remain compact and walkable so that students and faculty can travel between classes. In addition, there is a benefit for education and discovery when academic buildings are located close to one another, promoting cross-discipline exchange of information. Placing faculty/staff housing in and near the Campus Center Development District could create a barrier, or gap between existing or future academic buildings. Stanford also states that any new faculty/staff housing is likely to be placed on the outer edge of the academic campus because it is difficult to predict future housing demand and needs. If housing constructed for Stanford affiliates later needed to be converted to housing occupied by the general public, the housing sites would be subject to annexation by Palo Alto under the provisions of the 1985 Land Use Policy Agreement. Additional factors that would limit additional housing in the Lagunita Development District under this alternative include constraints posed by the Stanford Habitat Conservation Plan for land adjacent to Lagunita, and existing oak woodlands in the Lathrop Development District that constrain additional development in this district. Accordingly, it is assumed that no additional increment in on-campus housing under this alternative would be placed in the Campus Center, Lagunita and Lathrop Development Districts.

Graduate Student Beds Distribution

It is assumed that the additional increment of on-campus graduate student beds that would be developed under this alternative (104 beds) would be located in the East Campus Development District. This is the same location on campus where the most recently approved EV Graduate Residences are being constructed, and also where the 900 new graduate student housing units proposed under the 2018 General Use Permit are expected to be developed.

Faculty/Staff/ Postdoctoral Students/Other Worker Housing Distribution

Table 7B-2 and Figure 7.B-1 present a summary of the distribution of development within the campus development districts assumed under Additional Housing Alternative B.

For the reasons described above in the section titled “Distribution of Additional Housing,” it is assumed that the additional increment of on-campus housing for faculty, staff, postdoctoral students and/or other workers that would be developed under this alternative (1,171 units) would be located at the edges of the Quarry, West Campus, DAPER and Administrative, and/or East Campus Development Districts. This is similar to the approach taken by Stanford for the recently constructed faculty/staff housing on El Camino Real and Stanford Avenue, and the housing that would be developed in the Quarry Development District under the proposed 2018 General Use Permit.⁵⁸

⁵⁷ Please see <https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/1985Policy.aspx>.

⁵⁸ This pattern is also similar to Stanford’s practice of building off-campus housing near the edges of the campus in other jurisdictions, such as the Stanford West apartments, Welch Road apartments, and University Terrace project in Palo Alto.

TABLE 7B-2
ADDITIONAL HOUSING ALTERNATIVE B DEVELOPMENT DISTRIBUTION BY DEVELOPMENT DISTRICT

Development District	Net New Academic and Academic Support Space (Net New Square Feet)	Net Addition Housing Development (Number of Units/Beds)
Quarry	200,000	1,100
Arboretum	0	0
DAPER ^a & Administrative	200,000	242
Campus Center	1,800,000	200
East Campus	20,000	1,841
West Campus	35,000	242
Lagunita	20,000	800
Lathrop	20,000	0
San Juan	0	0
Foothills	0	0
Total	2,275,000	4,425

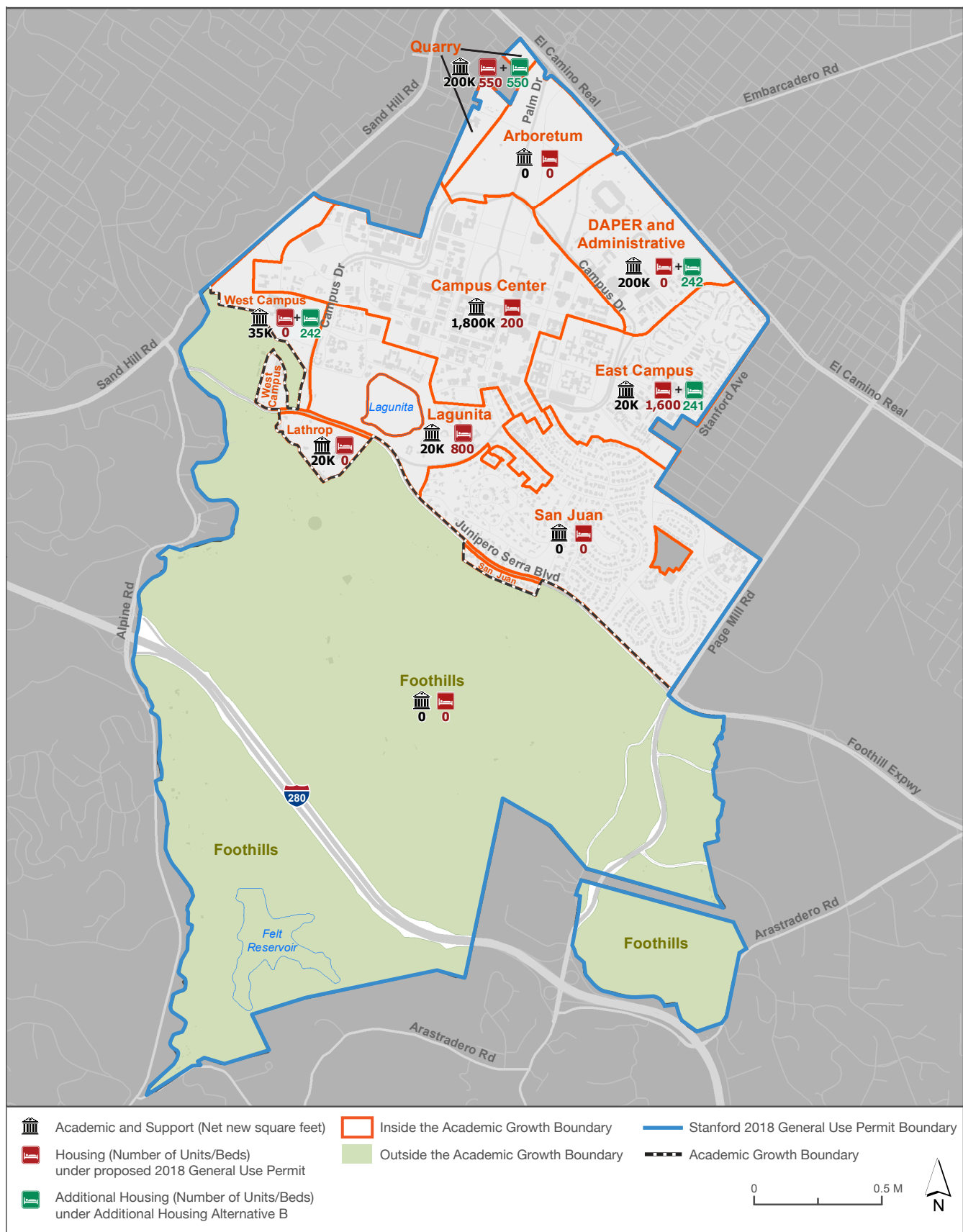
^a DAPER = Department of Athletics, Physical Education, and Recreation

SOURCE: Stanford University Land Use and Environmental Planning Office, 2018

- 550 additional faculty, staff, postdoctoral student and/or other worker units would be located in the Quarry Development District (for a total of 1,100 faculty/staff units in the Quarry Development District when added to the 550 units proposed by Stanford in the 2018 General Use Permit application);⁵⁹
- 137 faculty, staff, postdoctoral student and/or other worker units would be located in the East Campus Development District, located at the edge of the District near El Camino Real and Stanford Avenue (which equates to 241 additional housing units added to this district when combined with the 104 graduate student beds identified above);
- 242 faculty, staff, postdoctoral student and/or other worker units would be located in the DAPER and Administrative Development District, located at the edge of the district along El Camino Real; and
- 242 faculty, staff, postdoctoral student and/or other worker units would be located in West Campus Development District located at the edge of the district along Sand Hill Road.

Placement of additional housing in the East Campus Development District would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Further, placement of housing at the edges of the West Campus and DAPER and Administrative Development Districts could require development of lands that are currently used for recreation fields and/or detention basins located in these areas, which could in turn, need to be relocated

⁵⁹ This amount of additional housing in the Quarry District is the same as that assumed for Additional Housing Alternative A, recognizing that the Quarry housing sites are the only sites Stanford has identified for multi-family housing under the proposed 2018 General Use Permit, and that these sites benefit from a close proximity to transit services.



SOURCE: Stanford LBRE LUEP; ESA

Stanford 2018 General Use Permit . 160531

Figure 7.B-1

Development Districts and Assumed Distribution of Academic, Academic Support and Housing under Additional Housing Alternative B

elsewhere on the campus. Under this circumstance, Stanford would provide replacement stormwater detention facilities with an equivalent detention capacity. Although speculative and not considered in this analysis, Stanford has indicated that the need to relocate these facilities could lead to requests to modify the Arboretum, other Campus Open Space areas or lands outside the Academic Growth Boundary. Any such modifications would be required to comply with CEQA prior to consideration of approval.

Assumed Characteristics of Additional Housing Units

Assumptions about the potential characteristics of the additional on-campus housing under this alternative are informed by (a) the requirement in the Stanford Community Plan (Policy SCP-LU 3) that faculty/staff housing within the Academic Campus lands must be at least 15 units per acre; (b) the configuration and appearance of the EV Graduate Residences; and (c) the rough conceptual site planning Stanford has conducted for the proposed Quarry Road housing in support of the 2018 General Use Permit application.

Based on the Stanford Community Plan, and consistent with its policies promoting compact urban development, it is reasonable to assume that additional faculty/staff and/or other worker housing that would occur under this alternative within the Quarry, West Campus, DAPER and Administrative, and/or East Campus Development Districts would be multi-family housing.

The EV Graduate Residences project and Stanford's internal conceptual site planning for the proposed new housing at Quarry Road indicate that additional graduate student housing and/or multi-family housing buildings that would be developed under this alternative could range from about 50 feet tall to heights reaching approximately 100 to 135 feet.^{60,61} Based on planning for the Quarry Road housing sites proposed under the 2018 General Use Permit, densities for the additional multi-family housing under this alternative would range from about 40 to 80 units per acre.⁶² The higher range of these height and density estimates would be expected for all new multi-family housing that would occur in the Quarry Development District under this alternative.⁶³ These heights and densities also are assumed for purposes of analysis in the remaining Development Districts.

⁶⁰ While heights on both of the Quarry sites to be developed under the proposed 2018 General Use Permit are unknown and might be taller than 50 feet, Stanford assumed for conceptual planning purposes that 550 units could be achieved on these sites with buildings that are about 50 feet tall.

⁶¹ The EV Graduate Residences project currently under construction includes four residential buildings that are 116 feet to the top of the roof and 134 feet to the top of the mansard.

⁶² In its 2018 General Use Permit application, Stanford proposes to construct 550 units on two sites in the Quarry Development District, at a combined density of approximately 40 units/acre (on 13.5 acres).

⁶³ If twice as many units were constructed on the Quarry Development District housing sites, the density would double and it is reasonable to assume that building heights also would double. As a result, if a total of 1,100 housing units (550 housing units proposed under the 2018 General Use Permit and 550 housing additional units under this alternative) were assumed to be placed upon the combined 13.5-acres housing sites in the Quarry Development District, the density would be approximately 80 units per acre, and building heights would be 100 feet or more.

Under this alternative, on-campus housing developed in the DAPER and Administrative, Quarry, West Campus and East Campus Development Districts could exceed 50 feet in height (up to approximately 135 feet) and could be up to 80 units per acre. Under this alternative, construction of additional faculty/staff housing units in the Quarry Development District would necessitate modifications to the El Camino Real Frontage Plan. The Plan establishes a 20-foot setback along El Camino Real, and a 50 feet height limit within 100 feet of El Camino Real. The County and Stanford may determine that high density transit-oriented housing across from the Palo Alto Transit Station is an appropriate land use for this location, such that a reduced setback and increased height limits are appropriate. Construction of the additional faculty/staff units in the DAPER and Administrative Development District under this alternative could also necessitate modifications to the El Camino Frontage Plan. El Camino Real is a high-quality transit corridor. While it may be physically feasible to locate housing farther back from El Camino Real, the County may determine that retention of existing facilities and encouragement of high density housing along the transit corridor justify modifications to the El Camino Frontage Plan's setbacks and height limits.

On-campus Population

Under this alternative, as under the proposed Project, academic and academic support space would expand at a growth rate consistent with Stanford's historic growth rate for such facilities. The projected total/daily population growth (excluding campus residents) would be the same as that which would occur under the proposed 2018 General Use Permit (see Table 5.12-9 in Draft EIR Section 5.12, Population and Housing). However, since this alternative would provide additional on campus housing to accommodate half the net increase in off-campus population that would occur under the proposed Project, the anticipated population that would reside on the Project site under this alternative would be greater than under the proposed Project.

Table 7B-3 summarizes the anticipated population that would reside on the Project site in 2018, and in 2035 under this alternative. This includes the increase in on-campus residential population associated with remaining authorized housing that would be developed on-site by 2020 under the 2000 General Use Permit and the increase in on-campus residential population associated with new housing that would be authorized under the proposed 2018 General Use Permit (together amounting to 6,326), and the increase in on-campus residential population associated with the additional on-campus housing proposed under this alternative (3,125), for a total increase in on-campus residential population of 9,451. The total on-campus residential population in 2035 under this alternative would be 24,789.

TABLE 7B-3
STANFORD POPULATION RESIDING ON PROJECT SITE UNDER ADDITIONAL HOUSING ALTERNATIVE B

Affiliation	Residential Population Within Project Site Boundary in 2018	Residential Population Within Project Site Boundary under Proposed Project in 2035^a	Additional Change in Residential Population Within Project Site Boundary under Additional Housing Alternative B Compared to Project	Total Residential Population Within Project Site Boundary in 2035	Total Change in Residential Population Within Project Site Boundary 2018 to 2035
Undergraduate Students	6,617	8,317	0	8,317	1,700
Graduate Students	5,205	8,183	105	8,288	3,083
Non Student Spouses	660	894	9	903	243
Children	420	420	0	420	0
Faculty/Staff/Postdoctoral Students ^{b,c,d}	965	1,515	1,171 ^e	2,686	1,721
Other Family Members	1,471	2,335	1,840	4,175	2,704
Total	15,338	21,664	3,125	24,789	9,451

^a This includes increases in population associated with remaining authorized housing that would be developed on-site by 2020 under the 2000 General Use Permit, and population associated with new housing that would be authorized under the proposed 2018 General Use Permit.

^b Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^c Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^d Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^e The number of additional housing units in Table 7B-1 for this category was calculated based on housing demand from increased faculty, staff, and postdoctoral scholars, as well other workers. The actual occupancy of these additional units under this alternative is unknown, but assumed to be potentially occupiable by unspecified proportions of some or all of these groups.

SOURCE: Stanford University Land Use and Environmental Planning Office, in consultation with the Stanford University Residential and Dining Enterprises (see Appendix ALT-PRD)

Comparative Analysis of Environmental Effects⁶⁴

Visual and Scenic Resources

Impact 7B.1-1: Additional Housing Alternative B would not adversely affect scenic vistas. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and consequently, would have a greater potential to affect scenic vistas than the proposed Project. It is assumed that the additional increment of on-campus housing for faculty, staff, postdoctoral students and/or other workers that would be developed under this alternative (1,171 units) would be located in the Quarry, West Campus, DAPER and Administrative, and/or East Campus Development Districts (see Figure 7.B-1). As under the proposed Project, no new building square footage or housing would be constructed in the

⁶⁴ The following analysis assumes that all of the additional housing that would be developed under Additional Housing Alternative B would be built on-campus. Please see a separate discussion of environmental consequences of Stanford providing additional off-campus housing under this alternative that follows this analysis.

Foothills Development District; therefore, the existing scenic views from the Stanford hills would remain unchanged and this alternative would not adversely affect these scenic vistas.

As with the proposed Project, under this alternative, scenic views of the Stanford foothills and Santa Cruz Mountains are already limited by the topography, intervening existing buildings, and landscaping on the campus. As under the proposed Project, depending on the specific location, orientation, mass and height of the additional housing that would occur under this alternative, it would have the potential to block certain views of the foothills from areas immediately adjacent to the new buildings. Given the location of the four development districts in which the additional housing would be developed under this alternative relative to the central campus, the additional housing would not adversely affect scenic vistas of the foothills from the central campus.

Existing views of the East Bay Hills and San Francisco Bay from the central campus are similarly currently restricted due to topography and existing buildings and vegetation. Depending on specific location, orientation, mass and height of the additional housing development that would occur under this alternative, it would further block certain views of the East Bay Hills and San Francisco Bay from the central campus. However, similar to the proposed Project, the potential loss of certain limited views of the East Bay Hills due to individual additional housing projects constructed under this alternative would not significantly not adversely affect scenic vistas from the campus; therefore, similar to the proposed Project, the impact under this alternative would be less than significant.

Sand Hill Road, which borders the West Campus Development District, is recognized as a scenic route in Policy L-9.1 of the City of Palo Alto's general plan: *Comprehensive Plan 2030*. Views of the East Bay Hills and Stanford foothills along this portion of Sand Hill Road are mostly limited to the direct line of sight along the roadway due to the topography and existing vegetation. Although the additional housing development that would occur within the West Campus Development District under Additional Housing Alternative B could potentially remove or alter the landscaping along Sand Hill Road, scenic vistas of the East Bay Hills and Stanford foothills from this road would not be adversely affected and the impact would be less than significant.

Mitigation: None required.

Impact 7B.1-2: Additional Housing Alternative B could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and consequently, would have a greater potential to result in effects on scenic resources than the proposed Project.

As under the proposed Project, development that would occur under this alternative would not be located adjacent to any state scenic highway. Junipero Serra Boulevard and Page Mill Road are identified as scenic roads by the Santa Clara County General Plan. Most of the Foothills

Development District is subject to a scenic roads zoning overlay (Zoning Ordinance Chapter 3.30) that protects the visual character of scenic roads through special development and sign regulations.

Similar to the proposed Project, any development under this alternative along Junipero Serra Boulevard and Page Mill Road would be subject to the scenic roads overlay (Section 3.30.050). It should be noted that of the four development districts in which the additional housing under this alternative is assumed to be located, only two small areas of one of the development districts (West Campus) borders Junipero Serra Boulevard. Since both of these small areas are designated as Campus Open Space and similar to the proposed Project, no housing (or any other development under this alternative) would be placed on lands with this designation.

As under the proposed Project, damage to scenic resources occurring as a result of potential infrastructure projects constructed in the vicinity of I-280, Junipero Serra Boulevard, or Page Mill Road would be reduced to a less-than-significant level through compliance with the County's scenic roads overlay regulations. Therefore, similar to the proposed Project, this alternative would have a less than significant impact on scenic resources.

Mitigation: None required.

Impact 7B.1-3: Additional Housing Alternative B could degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

Similar to growth proposed by the Project, all academic and academic support and housing development under Additional Housing Alternative B would be located within the Academic Growth Boundary. Although no site-specific projects and locations have been identified for housing development under this alternative, the potential effects on visual character or quality are described below for the four development districts (DAPER and Administrative, Quarry, East Campus, and West Campus) where additional housing is proposed under this alternative. This alternative's effects on visual character in the other development districts would be the same as under the proposed Project.

DAPER and Administrative Development District

Development in the DAPER and Administrative Development District under this alternative includes the additional 242 faculty, staff, postdoctoral students and/or other worker units identified by this alternative, along with up to 200,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands that are located between Stanford Stadium and El Camino Real. Similar to the proposed Project, any new development that would be constructed in the interior portions of the site (i.e., along Campus Drive and Serra Street, which is currently occupied by several short administrative buildings, surface parking lots, and the Stanford Corporation Yard) would not affect the existing visual character of the area.

This alternative could include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the DAPER and Administrative Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. While it may be physically feasible to locate housing farther back from El Camino Real, the County may determine that retention of existing facilities and encouragement of high density housing along the transit corridor justify modifications to the plan's setbacks and height limits.

Placement of additional housing in the vicinity of El Camino Real could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. As under the proposed Project, any development on the existing athletic fields or the open area known as Masters Grove would degrade the relatively open quality of this area, and would be especially noticeable from off-site public vantage points if buildings are constructed in the fields adjacent to or nearby El Camino Real. Any existing fields within the DAPER and Administrative Development District that may be relocated elsewhere on campus for recreation and/or detention purposes would be of a similar type and scale as those that currently exist, and would not be considered features that would degrade visual character.

While no site-specific housing locations have been identified, each individual building or project that would be developed in this district pursuant to the proposed 2018 General Use Permit would require submittal of an application to the County at the time proposed to determine if the project would require review under the County's ASA process. The ASA application includes submittal of various types of information that would assist the County in evaluating whether specific housing development projects proposed under this alternative would affect the visual character and quality of the site and its surroundings. In the past, Stanford has submitted visual simulations of some proposed projects that could potentially be seen from public roads outside the General Use Permit boundary. The County also may require simulations for buildings constructed through the ASA or other approval processes.

Changes to the existing visual character or quality of Stanford lands in the DAPER and Administrative District under this alternative would occur in specific locations as new buildings are constructed during the lifetime of the Project. Visually, the district would become denser over the lifetime of the Project as new buildings are constructed in proximity to existing buildings. Portions of the DAPER and Administrative District that are devoid of existing buildings would undergo noticeable visual transformation if additional housing is constructed in these areas. In addition, this district currently does not include housing for students, faculty, staff, or other workers. The significance and potential for such development to degrade the visual character of the Project site is dependent on a number of factors, including the design, location, height, massing, and landscaping surrounding new buildings. Proposed development that would have the potential to affect visual character and quality under this alternative would be subject to review by the County through the ASA process described above. Prior to submittal of an ASA application, new housing projects would be designed in accordance with County and Stanford guidance and policy documents that would limit adverse aesthetic effects of such projects. Although changes in the appearance of lands within the DAPER and Administrative District would occur over the duration of the Project, compliance with the County's ASA or other

approval processes would not result in the degradation of the existing visual character or quality of the Project site. Thus, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

Quarry Development District

Development in the Quarry Development District under this alternative includes 1,100 new housing units (550 more faculty, staff, postdoctoral student and/or other worker units than under the proposed Project) and 200,000 square feet of academic and academic support space (same as the proposed Project). Because the Quarry Development District currently consists primarily of a construction staging yard and surface parking lots, any new development, whether proposed by the Project or Additional Housing Alternative B, would alter the visual character of this area. Additional housing proposed under this alternative would likely result in taller buildings and reduced open areas compared to the Project due to space limitations in this district. Stanford anticipates that the residential density in the Quarry District under this alternative would be approximately 80 units per acre and building heights could be up to 135 feet tall.

This alternative is assumed to include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the Quarry Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. The County and Stanford may determine that high density transit-oriented housing across from the Palo Alto Transit Station is an appropriate land use for this location, such that a reduced setback and increased height limits are appropriate. The development of additional housing in this district would be noticeable compared to that proposed by the Project, even considering that the urban context of the area includes multi-story buildings such as the Hoover Pavilion and the Lucile Packard Children's Hospital Stanford.

As discussed above under DAPER and Administrative District, above, proposed development that would have the potential to affect visual character and quality in the Quarry Development District would be subject to review by the County through the ASA process. Prior to submittal of an ASA application, new housing projects would be designed in accordance with County and Stanford guidance and policy documents that would limit adverse aesthetic effects of such projects. Although changes in the appearance of lands within the Quarry Development District would occur over the duration of the Project, compliance with the County's ASA or other approval processes would not result in the degradation of the existing visual character or quality of the Project site. Thus, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

East Campus Development District

Development in the East Campus Development District under this alternative includes 1,841 new housing units (241 more units than the proposed Project, including an additional 137 faculty, staff, postdoctoral student and/or other worker units as well as 104 graduate student units) and 20,000 square feet of academic and academic support space (same as the proposed Project). Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at

densities up to 80 units per acre. Stanford has indicated that placement of additional housing in this district would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Additional housing proposed in this development district would not change the existing visual character of this district as this district consists almost entirely of graduate and undergraduate housing, of varying building types and sizes. As shown on Figure 5.1-3 in Section 5.1 in the Draft EIR, views of the interior portion of the East Campus Development District, and thus possible building sites, would largely be hidden from public vantage points adjacent to the district. As under the proposed Project, new buildings would likely not be constructed along Stanford Avenue or El Camino Real, as those areas were recently developed with new faculty and staff housing. Similar to the proposed Project, development in the East Campus Development District would be designed in accordance with County and Stanford guidance and policy documents, and would be subject to review by the County through the ASA process. Therefore, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

West Campus Development District

Development in the West Campus Development District under this alternative includes the additional 242 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with 35,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands currently occupied by the Palo Alto Stock Farm Stable (Red Barn), and another narrow strip of land along Campus Drive near its intersection with Junipero Serra Boulevard. New housing proposed under this alternative would represent a noticeable increase in development intensity compared to the relatively small amount of academic and academic support space proposed for this district by the Project. Most of the West Campus Development District is currently devoid of building or structures, including along Sand Hill Road. Under this alternative, any new housing constructed in areas near Sand Hill Road could be visible from off-campus locations, depending on a number of factors related to specific development proposals, such as building placement and height, and screening provided by existing and/or proposed landscaping along Sand Hill Road. As noted above under Impact 7A.1-1, Sand Hill Road is recognized as a scenic route by the City of Palo Alto. Removal or alteration of the existing vegetation could degrade the existing visual quality of this portion of Sand Hill Road. As with the DAPER and Administrative Development District, placement of housing along Sand Hill Road could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. Any existing fields within the West Campus Development District that may be relocated elsewhere on campus for recreation and/or detention purposes would be of a similar type and scale as those that currently exist, and would not be considered features that would degrade visual character.

Other areas within the West Campus Development are currently occupied by the Central Energy Facility, the O'Donohue Family Stanford Educational Farm, the West Campus Tennis Courts, and a surface parking lot south of Searsville Road. Regardless of where new housing would be placed in the West Campus Development District under this alternative, the visual character of this area

would change from low-intensity, recreation-focused to include multi-unit residential housing, that would be potentially be visible from off-campus locations. Similar to the proposed Project, development in the West Campus Development District would be designed in accordance with County and Stanford guidance and policy documents, and would be subject to review by the County through the ASA process. Therefore, similar to the proposed Project, the impacts on existing visual character or quality in the district under this alternative would be less than significant.

Mitigation: None required.

Impact 7B.1-4: Additional Housing Alternative B could create a new source of substantial light or glare that would adversely affect nighttime views in the area. (Significant)

As under the proposed Project, new housing development proposed under Additional Housing Alternative B could increase ambient light levels due to light dispersion from the new buildings which may result in spillover lighting within the Project site or in adjacent neighborhoods, and could adversely affect nighttime views in the vicinity of the Project site. Because proposed housing development under this could be located on the periphery of the campus in the Quarry, West Campus, DAPER, and/or East Campus Development Districts, spillover lighting from new housing may increase in off-site areas of the City of Palo Alto (and to a lesser degree in the City of Menlo Park) that border these development districts. Increased ambient light levels under this alternative compared to the proposed Project would likely be most noticeable in the West Campus and DAPER Development Districts, where no housing is proposed for those districts under the Project. Construction of additional housing in the Quarry Development District under this alternative would necessitate modifications to the *Plan for the El Camino Real Frontage* such that buildings would be located closer to El Camino Real and also would be taller, potentially resulting in increased ambient light levels compared to the Project. Construction of additional housing units in the DAPER and Administrative Development District could also necessitate modifications to the plan that would reduce building setback and height restrictions.

As under the proposed Project, Stanford guidelines and policies that address exterior lighting, lighting of paths and pedestrian areas, vehicular and roadway lighting, landscape and entryway lighting, accent lights, and building-mounted lights would be applicable to new housing proposed under this alternative. The County also reviews development proposals through the ASA or other approval processes. In order to assure that new lighting constructed under this alternative would not adversely affect nighttime view in the area Implementation of Mitigation Measure 7B.1-4, which is the same as that identified for the proposed Project, would reduce the impact to a less than significant level. As with the proposed Project, by employing appropriate design standards, including those described in the ASA Guidelines, and minimizing the quantity of reflective material used in new construction, light and glare impacts related to lighting under this alternative would be reduced to less-than-significant levels.

Mitigation Measure 7B.1-4: Stanford shall submit a lighting plan for approval by the County Planning Office, as part of an ASA review, for each development project that would include exterior light sources. The plan shall show the extent of illumination that

would be projected from proposed outdoor lighting. State-of-the-art luminaries shall be used where necessary, with high beam efficiency, sharp cut-off, and glare and spill control. Upward glow shall not be allowed in residential or academic uses.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7B.1-5: Additional Housing Alternative B, in combination with past, present, and future projects could potentially contribute to cumulative visual and scenic resource impacts. (Significant)

The geographic scope of potential cumulative impacts to visual and scenic resources encompasses the Stanford lands within the General Use Permit boundary and areas outside the boundary from which viewers could see the Project in conjunction with views of other projects in the cumulative scenario.

As with the proposed Project, housing development under Additional Housing Alternative B would likely not be visible from Portola Valley, Los Altos Hills, Menlo Park, or unincorporated portions of San Mateo County. Therefore, no cumulative visual and scenic resource impacts would result from this alternative combining with impacts of past, present, or reasonably foreseeable future projects within these jurisdictions.

Any potential future Stanford projects on Stanford-owned lands in Palo Alto with views of housing development constructed under this alternative would be similarly designed in accordance with Stanford guidance and policy documents that would limit potentially adverse visual characteristics of such projects.

Past, present, and reasonably foreseeable future projects within those areas of Palo Alto not owned by Stanford have the potential to create new visual impacts that could be affected by the Project. However, these areas are either built-out as residential neighborhoods; institutional uses that are unlikely to be altered; or border areas of Stanford along El Camino Real that are designated as Campus Open Space, and thus would not be developed under this alternative.

Therefore, the less-than-significant impacts of Additional Housing Alternative B regarding scenic vistas, or visual character would not combine with impacts of past, present, or reasonably foreseeable future projects in areas of Palo Alto with views of housing development under this alternative and result in a cumulative impact for these environmental resources. Cumulative light and glare impacts would be significant pre-mitigation, but implementation of Mitigation Measure 7B.1-4 would reduce this alternative's contribution to a less than cumulatively considerable level. Projects constructed in Palo Alto would be subject to Section 18.23.030 of the City of Palo Alto Municipal Code, which includes measures to reduce off-site light spillage. Post-mitigation, the cumulative impact regarding light and glare would not be significant.

Mitigation: Implement Mitigation Measure 7B.1-4.

Significance after Mitigation: Less than Significant.

Air Quality⁶⁵

Construction Impacts

Impact 7B.2-1: Additional Housing Alternative B construction would not result in emissions of NO_x, PM, and ROG that would exceed BAAQMD significance thresholds. (Less than Significant)

Construction of individual projects developed under Additional Housing Alternative B would generate construction emissions from the same variety of sources as the proposed 2018 General Use Permit: off-road construction equipment; and on-road worker, vendor, and hauling vehicles. Construction-related emissions from Additional Housing Alternative B were calculated using the same methodology as discussed in the Draft EIR for the proposed Project.

However, the average construction scenario for Additional Housing Alternative B assumed an annual average of approximately 292,500 square feet of new building construction (an increase of 67,000 square feet over the proposed Project), approximately 51,500 square feet of demolition (an increase of 1,200 square feet over the proposed Project), and excavation of approximately 103,490 of cubic yards of soil (an increase of 41,430 cubic yards over the proposed Project).

Table 7B.2-1 presents a summary of the average daily construction-related emissions that would result under Additional Housing Alternative B under the average construction scenario. As shown in Table 7A.2-1, under the average construction scenario, emissions of ROG, NO_x, PM₁₀ and PM_{2.5} under this alternative would be higher than the proposed Project, however, as with the proposed Project, emissions would be below the respective thresholds for these pollutants.

Additional Housing Alternative B would have more total construction than the proposed Project. However, peak construction under both the proposed Project and Additional Housing Alternative A would be less than the scope and size of the Escondido Village project authorized under the 2000 General Use Permit, which served as the basis for the peak construction scenario analyzed in this EIR.⁶⁶ The largest new housing site under Additional Housing Alternative B would be the site at Quarry Road, which is assumed to accommodate a total of 1,100 new faculty/staff units at about 1,100,000 square feet of building development. The Escondido Village project consists of about 3 million square feet of building development including structured parking and housing replacement. Thus, even if the largest new housing complex under Additional Housing Alternative B were constructed over a duration similar to the Escondido Village project, the peak square footage would remain lower than the peak construction scenario analyzed in the Draft EIR. Consequently, as a conservative approach for Additional Housing Alternative B, and similar to the conservative

⁶⁵ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives air quality analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-AQT included in this document.

⁶⁶ As discussed in the Draft EIR, the Escondido Village project consists of 1,655,000 square feet of building development, demolition of 29 buildings, and net increase of 2,020 beds and supporting amenities.

approach taken for the proposed Project, the construction emissions for the peak construction year for this alternative are assumed to be consistent with that of the Escondido Village project. As a result, under the peak construction scenario for Additional Housing Alternative B, emissions of ROG, NOx, PM₁₀ and PM_{2.5} under this alternative would be similar to the proposed Project, and would be below the respective thresholds for these pollutants.

**TABLE 7B.2-1
ADDITIONAL HOUSING ALTERNATIVE B AVERAGE DAILY CONSTRUCTION EMISSIONS**

Pollutant	Average Daily Emissions (pounds/day)			
	ROG	NOx	Exhaust PM ₁₀ ^a	Exhaust PM _{2.5} ^a
	Average Construction Scenario			
2018 General Use Permit Emissions	14.9	22.0	2.8	1.3
Additional Emissions under Additional Housing Alternative B	4.4	10.2	0.24	0.15
Total with Additional Housing Alternative B Emissions	19.3	32.3	3.1	1.4
Significance Threshold	54	54	82	54
Above Threshold?	No	No	No	No

NOTES:

^a Exhaust PM for the Project average and peak construction scenarios includes tire wear and brake wear PM for on-road vehicles. The BAAQMD Thresholds do not include these sources so the comparison is conservative.

SOURCE: Ramboll, 2018 (see Appendix ALT-AQT)

Therefore, as under the proposed Project, the construction-related criteria air pollutant emissions under Additional Housing Alternative B would be less than significant.

Mitigation: None required.

Impact 7B.2-2: Additional Housing Alternative B construction would generate fugitive dust that could result in a localized increase in particulate matter. (Significant)

Similar to the proposed 2018 General Use Permit, demolition, excavation, grading, and other construction activities associated with individual projects developed under Additional Housing Alternative B may cause wind-blown dust that could contribute PM into the local atmosphere. Since that there would be an increase in total construction under this alternative compared to the proposed Project, there would be a corresponding increase in dust-generating activities under this alternative as well. As under the proposed Project, construction-related dust emissions under this alternative would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, dust generated from construction activities may result in significant adverse impacts on a temporary and intermittent basis during the construction period.

The BAAQMD's recommended approach to analysis of construction-related particulate impacts (other than exhaust PM) is to emphasize implementation of effective and comprehensive dust control measures rather than detailed quantification of emissions. The BAAQMD considers construction-related fugitive dust impacts of projects to be less than significant if a suite of recommended dust-control measures is implemented. Therefore, implementation of the BAAQMD-identified Best Management Practices for control of fugitive dust, the same mitigation as identified for the proposed Project, would reduce construction effects from fugitive dust generation under this alternative to a less than significant level.

Mitigation Measure 7B.2-2: Best Management Practices for Controlling Particulate Emissions. Stanford shall require all construction contractors to implement the following measures:

- 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 track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweepers is prohibited;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified visible emissions evaluator; and
- Post a publicly visible sign with the telephone number and person to be contacted regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Significance after Mitigation: Less than Significant.

Impact 7B.2-3: Additional Housing Alternative B construction would generate emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

Site preparation activities, such as demolition, excavation, grading, foundation construction, and other ground-disturbing construction activities associated with individual projects developed under Additional Housing Alternative B would affect localized air quality. Emissions from construction equipment during these site preparation activities would include directly emitted particulate matter (PM_{2.5} and PM₁₀) and TACs such as diesel particulate matter (DPM). The generation of these emissions during construction could expose sensitive receptors to substantial pollutant concentrations of TACs, resulting in a localized health risk. Given that there would be an increase in total construction activities, and an increase in total on-campus sensitive receptors, under this alternative compared to the proposed 2018 General Use Permit, this alternative would have a greater potential to expose sensitive receptors to substantial pollutant concentrations or health risks than the proposed Project.

Similar to the proposed Project, it is not possible to conduct a health risk assessment (HRA) for construction related to each individual project that would occur under Additional Housing Alternative B. Accordingly, the same screening tool that was developed for the proposed 2018 General Use Permit to ensure future construction activities would not result in emissions of toxic air contaminants exceeding BAAQMD health risk significance thresholds would similarly be applicable to Additional Housing Alternative B.⁶⁷ The screening tool provides minimum distances to site new projects depending on size and proximity to sensitive receptors such as children.

Table 7B.2-2 presents the screening distances developed to determine the circumstances in terms of construction project size and distance from receptors under which a significant construction-related health risk may occur. As under the proposed Project, although the precise location of future individual projects under this alternative is not known, because construction projects could occur closer to sensitive land uses than the screening distances shown in Table 7B.2-2, this alternative could result in a significant health risk impact.

Implementation of **Mitigation Measure 7B.2-3(a)**, the same mitigation identified for the proposed Project, would require Stanford to conduct a health risk screening of individual projects developed under the proposed 2018 General Use Permit. If applicable, **Mitigation Measure 7B.2-3(b)**, also the same as identified for the proposed Project, would require a project-specific health risk analysis to demonstrate that the project construction activities would not result in a significant acute, chronic non-cancer or cancer-related health risk to specific sensitive receptors. Implementation of Mitigation Measures 7B.2-3(a)-(b) would ensure potential exposure of sensitive receptors to substantial pollutant concentrations or health risk from construction activities under the Additional Housing Alternative B would be less than significant.

⁶⁷ The screening tool is based on the EV Graduate Residences project, which reflects the largest quantity of earth moving and the largest amount of above and below ground construction that Stanford has undertaken for a single project under the 2000 General Use Permit. The EV Graduate Residences construction project is likely to be larger than any individual project that would be constructed under either the proposed 2018 General Use Permit, or this alternative.

TABLE 7B.2-2
CONSTRUCTION HEALTH RISK SCREENING DISTANCES

Maximum Project Size	Minimum Distance (feet) to Nearest Receptor Type ^a		
	Childcare Facility	Child Resident	Adult Resident
3.27 million square feet with up to 900,000 CY of debris/soil export	460	165	33
540,000 square feet with up to 150,000 CY of debris/soil export	165	33	33
180,000 square feet with up to 50,000 CY of debris/soil export	100	33	33
45,000 square feet with up to 12,500 CY of debris/soil export	33	33	33

NOTES:

^a The screening tool stipulates that a 33-foot buffer must exist around the construction site fence line where no sensitive receptor resides. If a construction site is within the 33-foot buffer from sensitive receptors, or directly adjacent to a childcare facility, the project must both comply with the screening limits presented above and restrict diesel-powered operations to when children are not present in order to screen out of conducting a health risk analysis.

SOURCE: Ramboll Environ, 2017 (see Draft EIR Appendix AQT)

Mitigation Measure 7B.2-3(a): Health Risk Screening for Construction Projects. Prior to approval of an individual project, Stanford shall conduct a project-specific health risk screening using the screening distances presented in Table 5.2-8 and submit it to the County Planning Office for peer review and approval. If the individual project is located further from sensitive receptors than the minimum distance identified in Table 5.2-8, then no further construction health risk assessment or additional mitigation is required. If the construction project is closer than the specified minimum distance, then a project-specific Health Risk Assessment shall be prepared, as outlined in Mitigation Measure 7B.2-3(b).

Mitigation Measure 7B.2-3(b): Project-Specific Health Risk Analysis. If the screening criteria in Table 5.2-8 are not met, Stanford shall prepare and submit to the County Planning Office for peer review and approval a project-specific health risk analysis demonstrating that project construction activities will not result in a significant acute, chronic non-cancer or cancer-related health risk to sensitive receptors. As a performance standard, any subsequent project-specific health risk analysis must demonstrate an excess cancer risk level of 10-in-1 million or less, a non-cancer (i.e., chronic or acute) hazard index of 1.0 or less, and an incremental increase an annual average PM_{2.5} concentration of no more than 0.3 microgram per cubic meter.

Significance after Mitigation: Less than Significant.

Operational Impacts

Impact 7B.2-4: Additional Housing Alternative B operational emissions from new development would not result in emissions of criteria air pollutants at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants. (Less than Significant)

Similar to the proposed Project, Additional Housing Alternative B would generate operational emissions from a variety of sources, including new vehicle trips, operation of boilers, maintenance operation of diesel emergency generators; new laboratories; fueling stations; and off-road sources from Stanford maintenance equipment and construction activities. Additional Housing Alternative B would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the proposed Project, which would result in a net increase in criteria air pollutants compared to the proposed Project.

An air quality analysis of Additional Housing Alternative B is included in Appendix ALT-AQT, and includes a detailed inventory of operational emissions of this alternative. The operational criteria air pollutant inventory analysis for Additional Housing Alternative B used the same methodology that was developed for the proposed Project for all sources except entrained road dust from vehicle trips. These analytical methods include use of the same USEPA emission factors to estimate emissions from emergency generators and boilers, and the same EMFAC2014 emission factors from CARB to estimate emissions for vehicle trips. For entrained road dust, localized Santa Clara County-specific emission factors were applied using Method 7.9 of the California Air Resources Board and applied to the 2018 baseline, buildout of the proposed Project, and the additional housing alternative scenarios. Consequently, baseline and proposed Project values for PM₁₀ and PM_{2.5} reported below are slightly different than what was reported in the Draft EIR.⁶⁸

Table 7B.2-3, below, presents the net change in maximum annual and average daily criteria air pollutant emissions in the study area between the 2018 baseline and 2035 with buildout of Additional Housing Alternative B. Similar to the proposed Project, emissions of ROG and NOx would decrease by 2035 compared to the 2018 environmental baseline, largely as a result of improvements to the motor vehicle fleet due to more stringent emission standards; as well as the proposed electrification of Stanford's Marguerite bus fleet and 70 percent of its Lands, Buildings and Real Estate (LBRE) and Bonair vehicle fleets by 2035. Emissions of PM₁₀ and PM_{2.5} under this alternative are predicted to increase due primarily to entrained dust emissions that would result from increased VMT.

As shown in Table 7B.2-3, emissions of ROG, NOx, PM₁₀, and PM_{2.5} for Additional Housing Alternative B would all be below BAAQMD thresholds. Therefore, similar to the proposed Project, criteria air pollutants under Additional Housing Alternative B would result in a less than significant impact. Table 7B.2-3 also compares emissions under Additional Housing Alternative

⁶⁸ The operational mobile emissions presented in the Draft EIR Appendix AQT included vehicle emissions from the EMFAC2014 model, which contains PM₁₀ and PM_{2.5} from exhaust, brakewear, and tirewear, but not roadway dust. BAAQMD subsequently clarified that roadway dust should be included in the emissions to compare to the operational thresholds. The inclusion of roadway dust in operational mobile emissions did not change any significance conclusions in the Draft EIR for the proposed Project.

B to those generated by the proposed 2018 General Use Permit, with emissions ranging from 4 to 10 percent greater under Additional Housing Alternative B, depending on pollutant.

TABLE 7B.2-3
NET CHANGE IN MAXIMUM ANNUAL AND AVERAGE DAILY OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS
UNDER ADDITIONAL HOUSING ALTERNATIVE B

Pollutant:	ROG	NOx	PM ₁₀	PM _{2.5} ^a
Maximum Annual Emissions (Tons Per Year)				
Total 2018 Baseline Emissions ^c	47	82	33 ^c	10 ^c
Total Emissions in 2035 with Buildout of Additional Housing Alternative B	43	51	46 ^c	13
Net Change in Emissions of Additional Housing Alternative B Compared to Baseline ^b	-4	-31	+13	+3
Threshold	10	10	15	10
Above Threshold?	No	No	No	No
Total Emissions in 2035 with Buildout of proposed 2018 General Use Permit ^c	40	49	42 ^c	12 ^c
Increase in Emissions of Additional Housing Alternative B over proposed 2018 General Use Permit ^b	+3	+2	+4	+1
Average Daily Emissions (Pounds Per Day)				
Total 2018 Baseline Emissions ^c	256	447	181 ^c	55 ^c
Total Emissions in 2035 with Buildout of Additional Housing Alternative B	234	280	250	72
Net Change in Emissions of Additional Housing Alternative B Compared to Baseline ^b	-22	-167	+70	+17
Threshold	54	54	82	54
Above Threshold?	No	No	No	No
Total Emissions in 2035 with Buildout of proposed 2018 General Use Permit ^c	220	270	232 ^c	68 ^c
Increase in Emissions of Additional Housing Alternative B over proposed 2018 General Use Permit ^b	+13	+10	+19	+4

NOTES:

^a PM_{2.5} from non-mobile sources conservatively assumed to be equivalent to PM₁₀ value.

^b Emission totals may not appear to total due to rounding.

^c Baseline values for PM₁₀ and PM_{2.5} are different than those reported in the Draft EIR as they now reflect more recently available emission factors published in 2017.

SOURCE: Ramboll, 2018 (see Appendix ALT-AQT)

Mitigation: None required.

Impact 7B.2-5: Additional Housing Alternative B operation of development would generate emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

Similar to the proposed 2018 General Use Permit, Additional Housing Alternative B would result in development that would generate operational emissions of TACs and localized contributions to PM_{2.5} concentrations from a variety of sources, including emissions from passenger vehicles and delivery vehicles, diesel generators, laboratory fume hood stacks and, to a lesser extent, natural gas combustion. Given that there would be an increase on-campus sensitive receptors, under this alternative compared to the proposed 2018 General Use Permit, this alternative would have a greater potential to expose sensitive receptors to substantial pollutant concentrations or health risks than the proposed Project.

Mobile Source Air Toxics

Mobile source air toxics are emitted from vehicles and are compounds that are known or suspected to cause cancer or other serious health and environmental effects. Examples of mobile source air toxics include benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, polycyclic organic matter (POM), naphthalene, and diesel particulate matter (DPM). TAC emissions from mobile sources would be reduced under this alternative compared to 2018 environmental baseline conditions, resulting in a reduction of health risks from mobile sources.

As discussed in Impact 7B.2-4, Additional Housing Alternative B would result in a marginal increase in PM_{2.5} emissions, and incrementally more than the proposed Project. This increase would be a basin-wide increase primarily resulting from exhaust emissions resulting from increased VMT. Using El Camino Real as a proxy and the BAAQMD's screening calculator for roadway emissions, the predicted increase in vehicles along El Camino Real would result in an increased PM_{2.5} concentration of 0.03 µg/m³ at 100 feet (or 0.01 µg/m³ more than the proposed Project). This increase is below BAAQMD's significance threshold of 0.3 µg/m³ for project-level contributions to localized concentrations of PM_{2.5}. Consequently, similar to the proposed Project, Additional Housing Alternative B is considered to have a less-than-significant impact with regard to health risks from mobile sources.

Diesel Emergency Back-up Generators Air Toxics

Similar to the proposed Project, new diesel emergency back-up generators would be required for some buildings constructed under Additional Housing Alternative B as a safety requirement. Any new diesel generators larger than 50 horsepower would require a permit from the BAAQMD and must comply with the Air Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. As a practical matter, the BAAQMD will not issue a permit for a new generator that results in an operational cancer risk greater than 10 in one million. Accordingly, and similar to the proposed Project, health risk impacts from new emergency generators would be considered less than significant.

Laboratory Air Toxics

Because Additional Housing Alternative B would not change the allocation for development of academic space compared to the proposed Project, there would be no increase in on-campus

laboratory development, or chemical usage associated with those uses, under this alternative compared to the proposed Project, although as noted above, there would be a larger on-campus residential population.

TAC emissions dispersion predicted the incremental increase in cancer risk associated with the Project was estimated to be 4.5 in one million, which is well below the BAAQMD significance threshold of 10 in a million. The risk under Additional Housing Alternative B would be the same as for the proposed Project since there would be no additional laboratories under this alternative. As under the proposed Project, under this alternative acute and chronic hazard indices (HIs) would increase by 0.03 and 0.01, respectively, which are also below the BAAQMD significance threshold of 1.0. Therefore, as under the proposed Project, impacts on health risks from laboratory TAC emissions under this alternative would similarly be less than significant.

Similar to the proposed Project, limitations of the health risk assessment prepared at this stage may not account for development under Additional Housing Alternative B that may involve substantial amounts of laboratory space and fume hoods. BAAQMD's Rule 2-1 exempts teaching laboratories used exclusively for classroom experimentation and/or demonstration. Given the potential for future development under Additional Housing Alternative B to include both teaching laboratories as well as research laboratories, the potential exists that the requirements of Rule 2-1 may not apply. Consequently, similar to the proposed Project, the potential health risks from laboratory TAC emissions under Additional Housing Alternative B is considered significant. Accordingly, **Mitigation Measure 7B.2-5**, the same mitigation proposed for the Project, is identified to ensure that substantial amounts of laboratory space under this alternative would not result in a significant health risk.

Natural Gas Combustion

Natural gas combustion results in emissions of benzene, formaldehyde, and toluene. Under Additional Housing Alternative B, there would be an incremental increase in these TAC emissions due to an increase in natural gas combustion associated with residential and non-residential growth. However, these increases under this alternative compared to the 2018 baseline would be marginal [net change of 0.32 lb/yr of benzene (an incremental increase of 0.03 lb/yr over the proposed Project), 11.2 lb/yr of formaldehyde (an incremental increase of 1.0 lb/yr over the proposed Project), and 0.44 lb/yr of toluene (an incremental increase of 0.048 lb/yr over the proposed Project)], and any new natural gas boilers would need to be permitted and comply with any applicable BAAQMD standards (Appendix ALT-AQT). Therefore, health risk impacts from natural gas combustion resulting from development under Additional Housing Alternative B would be similar to those under the proposed Project, and similarly, would be less than significant.

Mitigation Measure 7B.2-5: Laboratory Fume Hood Emission Control. For any individual project that contains more than 25,000 square feet of emissions-generating laboratory space within a building and 50 fume hoods, Stanford shall conduct a health risk screening analysis and obtain a permit from the BAAQMD for the proposed individual project; this permit may be required either prior to or as a condition of approval of the proposed individual project. In accordance with BAAQMD Rules 2-1 and 2-5, new sources of emissions must implement Best Available Control Technology for

Toxics (T-BACT) if individual source risks exceed 1.0 in a million for cancer and/or chronic hazard index is greater than 0.20. Additionally, a permit will be denied if project cancer risk exceeds 10.0 in a million or if the chronic or acute hazard index exceeds 1.0. Compliance with BAAQMD rules will ensure that new laboratory operations will not result in a significant health risk impact.

Significance after Mitigation: Less than Significant.

Impact 7B.2-6: Additional Housing Alternative B operations would not result in local concentrations of carbon monoxide that would exceed State and federal standards. (Less than Significant)

Development under Additional Housing Alternative B would generate additional vehicle trips (over baseline and Project conditions) and associated emissions of CO along area roadways. BAAQMD provides a screening methodology based on peak hourly traffic volumes to evaluate potential impacts of CO emissions from mobile sources (BAAQMD CEQA Air Quality Guidelines, Updated May 2017). This preliminary screening procedure provides a conservative indication of whether the proposed Project would result in the generation of CO concentrations that would substantially contribute to an exceedance of the thresholds of significance. If all of the screening criteria are met, the proposed Project would result in a less-than-significant impact to air quality with respect to concentrations of local CO.

The screening methodology focuses on intersections with vehicle traffic exceeding 44,000 vehicles per hour after Project buildout (or 24,000 vehicles per hour in locations with limited vertical or horizontal air mixing) that could violate or contribute to a violation of ambient air quality standards for CO. Based on the study intersection analysed in Section 7.15, Transportation and Traffic, indicates that the greatest total intersection volumes would occur at the intersection of Page Mill Road with El Camino Real during the p.m. peak hour with 8,656 vehicles (an increase of less than 100 vehicles over the proposed Project). With buildout of Additional Housing Alternative B in 2035, all study intersection volumes would be below the 24,000 vehicles per hour screening threshold. Thus, similar to the proposed Project, Additional Housing Alternative B would not contribute to a violation of CO air quality standards.

Mitigation: None required.

Impact 7B.2-7: Additional Housing Alternative B operation of development would not create objectionable odors that would affect a substantial number of people. (Less than Significant)

The BAAQMD CEQA Guidelines identifies wastewater treatment plants, oil refineries, asphalt plants, chemical manufacturing, painting/coating operations, coffee roasters, food processing facilities, recycling operations and metal smelters as odor sources of particular concern, recommends buffer zones of one to two miles around them to avoid potential odor conflicts, and

requires a BAAQMD permit. There are no facilities of these types in the vicinity of the Project site, similar to the proposed Project, none are proposed or allowed under Additional Housing Alternative B. As under the proposed Project, Additional Housing Alternative B would provide for the development of new housing, academic, and academic support uses, and would not result in the development or operations of odor sources of concern. Consequently, similar to the proposed Project the potential for Additional Housing Alternative B to result in objectionable odors is less than significant.

Mitigation: None required.

Impact 7B.2-8: Additional Housing Alternative B operation of development could conflict with or obstruct implementation of the applicable air quality plan. (Potentially Significant)

In April 2017 the BAAQMD adopted the 2017 Clean Air Plan (BAAQMD, 2017d). The 2017 Clean Air Plan's primary goals are to protect public health and protect the climate, and it contains 85 measures some of which address reduction of GHGs. The 2017 BAAQMD CEQA Guidelines identify a methodology to assess consistency with the Clean Air Plan be used to evaluate plan-level projects. Specifically, the 2017 BAAQMD CEQA Guidelines recommend the consideration of three questions:

- Does the project support the primary goals of the air quality plan?;
- Does the project include applicable control measures from the air quality plan?; and
- Does the project disrupt or hinder implementation of any Clean Air Plan control measures?

With regard to the first question, the BAAQMD CEQA Guidelines provide a basis for assessing support of the primary goals. The primary goals of the 2017 Bay Area Clean Air Plan are to:

- Attain all state and national air quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Any project (i.e., project or plan) that would not support these goals would not be considered consistent with the 2017 Clean Air Plan. If approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the 2017 Clean Air Plan. Based on the discussion presented in Impacts 7B.2-1 through 7B.2-7 above, development under Additional Housing Alternative B would have a less-than-significant impact with regard to air quality with implementation of identified mitigation measures, similar to the proposed Project. As under the proposed Project, Additional Housing Alternative B is approved and the mitigation measures identified in this EIR are imposed through the adoption of a Mitigation Monitoring Plan (pursuant to State CEQA

Guidelines section 15097), Additional Housing Alternative B would be considered consistent with the 2017 Clean Air Plan.

The second question recommended in the 2017 BAAQMD CEQA Guidelines for evaluating consistency with the 2017 Clean Air Plan is whether the project includes applicable control measures from the air quality plan. The 2017 Clean Air Plan contains transportation control measures and measures related energy, green building, waste management, water control and control of short-lived GHGs. The measures applicable to criteria air pollutants, TACs, or greenhouse gases generated under Additional Housing Alternative B are the same as those identified for the proposed 2018 General Use Permit in **Table 5.2-11** of the Draft EIR. As discussed in Chapter 3, Project Description, in the Draft EIR, Stanford currently implements a number of programs and practices to promote sustainability at the campus, including Transportation Demand Management, energy supply and efficiency, water supply and conservation, and solid waste reduction and recycling. As with the proposed Project, under Additional Housing Alternative B, Stanford would commit to continue to implement, and update as needed, these sustainability programs and practices.

These mechanisms would be consistent with most, but not all, of the relevant control measures of the 2017 Clean Air Plan. As with the proposed Project, there are some control measures with which Additional Housing Alternative B, as proposed, may not be consistent, this impact is considered significant. Where an implementation mechanism does not currently exist or is not identified in Additional Housing Alternative B, mitigation measures identified in the EIR are identified to ensure consistency of Additional Housing Alternative B with the 2017 Clean Air Plan. With elements identified as part of Additional Housing Alternative B, and implementation of mitigation measures identified in this EIR, Additional Housing Alternative B would be consistent with applicable control measures from the 2017 Clean Air Plan, similar to the proposed Project.

The final basis for evaluation of consistency with the 2017 Clean Air Plan is whether Additional Housing Alternative B would disrupt or hinder implementation of any 2017 Clean Air Plan control measure. With elements identified as part of the proposed 2018 General Use Permit, along with implementation of mitigation measures identified in this EIR, Additional Housing Alternative B would not adversely affect implementation of any 2017 Clean Air Plan control measure. This is the same finding as under the proposed Project.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7B.15-2: *Mitigation either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements to fund transportation mitigation efforts.*

Mitigation Measures 7B.3-8(a)-(b): *Mitigation for native oak woodland*

Mitigation Measure 7B.3-9(a)-(c): *Mitigation for wetlands.*

Mitigation Measure 7B.3-11(a)-(c): *Mitigation for protected trees.*

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7B.2-9: Additional Housing Alternative B would not result in emissions of NO_x, PM, or ROG that are cumulatively considerable. (Less than Significant)

BAAQMD developed thresholds of significance for both construction and operation with consideration of individual project emission levels that would be cumulatively considerable. If a project exceeds the identified project significance levels, then its emissions would be cumulatively considerable. Table 7B.2-1 shows that construction emissions under Additional Housing Alternative B would not exceed emission thresholds for ROG, NO_x, PM₁₀ or PM_{2.5}. Table 7B.2-3 shows that operational emissions under Additional Housing Alternative B would not exceed emission thresholds for ROG, NO_x, PM₁₀ or PM_{2.5}. Therefore, as under the proposed Project, emissions of ROG, NO_x, PM₁₀ or PM_{2.5} from Additional Housing Alternative B would not result in a cumulatively considerable contribution to a cumulative air quality impact.

Mitigation: None required.

Impact 7B.2-10: Additional Housing Alternative B could considerably contribute to cumulative emissions of TACs and PM_{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks. (Significant)

As discussed in Impact 7B.2-3, because construction projects developed under Additional Housing Alternative B could occur closer to sensitive land uses than the screening distances shown in Table 7B.2-2, Additional Housing Alternative B could result in a significant health risk impact, similar to the proposed Project. Additionally, as discussed in Impact 7B.2-5, as with the proposed Project, the health risks from TACs from operation of laboratories under this alternative are considered significant. Similar to the proposed Project, these represent impacts where the contribution of Additional Housing Alternative B could also be cumulatively considerable. Consequently, mitigation measures are identified for Additional Housing Alternative B, the same mitigation as that identified for the proposed Project, to address these impacts of Additional Housing Alternative B.

Under the Community Air Risk Evaluation (CARE) program, the BAAQMD identified communities in the Bay Area subject to high TAC emissions, with sensitive populations that could be affected by them. The most recent CARE retrospective document indicates that there are no cumulatively impacted communities within five miles of the Project site. Similar to the proposed Project, given that Additional Housing Alternative B contributions to localized health risk would be less than significant with mitigation, as described in Impact 7B.2-3 and Impact 7B.2-5 for both construction and operations, and that there are no impacted CARE communities in the Project vicinity, Additional Housing Alternative B cumulative impact to local

health risk and hazards would be reduced to less than cumulative considerable, and therefore a less than significant level with identified mitigation.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7B.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Mitigation Measure 7B.2-5: Laboratory Fume Hood Emission Control

Significance after Mitigation: Less than Significant.

Biological Resources

Construction and Operational Impacts

Impact 7B.3-1: Additional Housing Alternative B activities could result in adverse effects on special-status and migratory birds. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction under this alternative, tree and shrub pruning or removal, or grading could directly impact nesting birds by damaging or destroying nests, causing adults to abandon nests, or directly killing or injuring nesting birds. Additionally, construction activity, such as elevated sound levels and vibrations from heavy construction equipment, could cause adult birds to abandon nests. Due to the greater level of on-campus construction and larger development footprint under this alternative, there would be a greater potential for these impacts to occur than under the proposed Project. Similar to the proposed Project, implementation of this alternative could result in significant impacts to special-status and migratory birds.

As with the proposed Project, indirect effects to birds under this alternative would be unlikely during operation of facilities because birds nesting in or near existing campus buildings and facilities would most likely be acclimated to the noise and activity associated with campus activity. Consequently, similar to the proposed Project, operational impacts on nesting birds under this alternative would be less than significant.

The mitigation identified for the proposed Project, the following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce impacts of construction on nesting birds, including raptors and other migratory bird species protected by the MBTA, to a level that is less than significant. If Mitigation Measure 7B.3-1(a) is implemented, no further mitigation measures are required. In the event that Mitigation Measure 7B.3-1(a) cannot feasibly be implemented, then implementation of Mitigation Measures 7B.3-1(b) through (e) would reduce this impact to a less-than-significant level.

Mitigation Measure 7B.3-1(a): Avoid tree removal and commencement of outdoor construction activities during nesting season. Tree removal or pruning associated with

project construction and commencement of outdoor project construction activities shall be avoided from February 1 through August 31, the primary local bird nesting season, to the extent feasible. If no tree removal or pruning associated with project construction is proposed during the nesting period and outdoor project construction activities will commence outside the nesting period, no surveys for active bird nests are required.

Or

Mitigation Measure 7B.3-1(b): *Survey for active bird nests within 250 feet of construction sites.* If the County Planning Office determines that compliance with Mitigation Measure 7B.3-1(a) is not feasible because the timing of a construction project necessitates construction-related tree removal/pruning during the nesting season and/or commencement of outdoor construction activities during the nesting season, within seven days prior to the proposed start of construction activities an independent, qualified biologist approved by the County shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits.

Mitigation Measure 7B.3-1(c): *Minimize impacts to active bird nests.* If any active nests are detected during the pre-construction survey, an independent, qualified biologist approved by the County shall recommend a work-exclusion buffer zone that shall be designated around the active nest to allow for both the successful fledging of the birds and initiation of work on some portions of the project site. The work-exclusion zone(s) shall be reviewed and approved by the County Planning Office prior to commencement of construction. A qualified biologist shall monitor any occupied nest located within a protective buffer zone in order to determine if the designated buffer zone is effective and when the buffer zone is no longer needed. If the buffer zone is determined to be ineffective, its size shall be increased until it is effective, or work shall cease until the young have fledged and are independent of the nest.

Mitigation Measure 7B.3-1(d): *Delay activity.* If no sufficient work-exclusion zone(s) are possible, then there shall be a delay in the start of construction until the active nest is no longer occupied. A qualified biologist shall monitor any occupied nest to determine when the nest is no longer used.

Mitigation Measure 7B.3-1(e): *Remove nest starts.* A qualified biologist can visit project sites at any time prior to tree removal or the initiation of outdoor construction work in order to find and remove nest starts which do not have eggs or nestlings present. This activity will minimize impacts to birds as they will generally move elsewhere and restart their nest building process.

Significance after Mitigation: Less than Significant.

Impact 7B.3-2: Additional Housing Alternative B activities could result in adverse effects on special-status bats. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on infill and redevelopment

sites, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction of individual projects under this alternative, activities such as building demolition, tree and shrub removal, grading, and new building construction could directly impact roosting special-status bats, and elevated sound levels from heavy construction equipment could cause adult bats to abandon maternity roosts. Due to the greater level of on-campus construction activity under this alternative compared to the proposed Project, there would be the potential for more disturbance to bats to occur under this alternative. Similar to the proposed Project, construction activities under this alternative could result in significant impacts to special-status bats.

As with the proposed Project, indirect effects to bats during operation of facilities under this alternative would be unlikely because bats roosting in or near existing campus facilities would be acclimated to light, noise and activity associated with campus operations. Consequently, similar to the proposed Project, operational impacts on special-status bats would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce construction impacts on special-status bats to a level that is less than significant. If Mitigation Measure 7B.3-2(a) is implemented, and no roosting bats are identified, no further mitigation measures are required. In the event that Mitigation Measure 7B.3-2(a) identifies roosting bats, then implementation of Mitigation Measures 7B.3-2(b), (c), and/or (d) would reduce this impact to a less-than-significant level.

Mitigation Measure 7B.3-2(a): Conduct pre-project survey. Prior to project construction, an independent, qualified bat biologist approved by the County shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned and structures to be demolished within the work area and within a 50-foot radius of the work area. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits. If no roosting bats are found, no further action is required. If a bat roost is found, Stanford shall implement the following measures to avoid impacts on roosting bats.

Mitigation Measure 7B.3-2(b): Evict non-maternal roosts. If a non-maternal roost of bats is found in a tree or structure to be removed or demolished as part of project construction, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity. Removal or demolition should occur no sooner than at least two nights after the initial minor site modification (to alter airflow). This action allows bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of disturbance. Departure of the bats from the construction area shall be confirmed with a follow-up survey by a qualified bat biologist prior to start of construction.

Mitigation Measure 7B.3-2(c): Avoid maternal roosting areas. If active maternity roosts are found in trees or structures that will be removed or demolished as part of project construction, tree removal or demolition of that structure shall commence and be completed before maternity colonies form (generally before March 1) or shall not commence until after young are flying (generally after July 31). Active maternal roosts shall not be disturbed.

Mitigation Measure 7B.3-2(d): Develop and employ bat nest box plan. If special-status bats are found in trees or structures to be removed or demolished as part of project construction, Stanford shall develop and implement a Bat Nest Box Plan for the Stanford campus employing current bat nest box technology. The design and placement of nest boxes shall be reviewed by an independent, qualified bat biologist and shall be consistent with Stanford's anticipated long-term planning and development activities.

Significance after Mitigation: Less than Significant.

Impact 7B.3-3: Additional Housing Alternative B activities could result in adverse effects on the San Francisco dusky-footed woodrat. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, during construction of individual projects under this alternative, construction activities in wooded or brushy habitats could result in direct impacts to dusky-footed woodrats. As with the proposed Project, direct impacts during construction of this alternative could include mortality of adults or young, as well as destruction of woodrat stick nests where construction takes place in the Lathrop or Lagunita Development Districts. It should be noted that none of the additional housing proposed under this alternative would be located within the Lathrop or Lagunita Development Districts; consequently, this alternative would have similar impacts to the dusky-footed woodrats in these areas as the proposed Project. Similar to the proposed Project, construction activities associated with this alternative could result in significant impacts to San Francisco dusky-footed woodrat.

As with the proposed Project, indirect impacts to dusky-footed woodrat due to increased predation caused by expanding the range of urban-adapted predators would not occur because development of new academic and academic support and residential uses within the Academic Growth Boundary would occur in an urban environment, where these predator species are already present. Similarly, this alternative would not introduce increased nighttime lighting, noise or other human disturbances in areas where such conditions do not already exist. Consequently, similar to the proposed Project, operational impacts on the dusky-footed woodrat under this alternative would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce the impacts of construction to San Francisco dusky-footed woodrats to a level that is less than significant. If Mitigation Measure 7B.3-3(a) is implemented, and no San Francisco dusky-footed woodrat nests are identified, no further mitigation measures are required. In the event that Mitigation Measure 7B.3-2(a) identifies active nests, then implementation of Mitigation Measures 7B.3-2(b) and/or (c) would reduce this impact to a less-than-significant level.

Mitigation Measure 7B.3-3(a): Surveys. Prior to any clearing of vegetation within the Lathrop Development District, Lagunita and adjacent uplands, jurisdictional waterways/wetlands, or lands on the Project site outside the Academic Growth Boundary,

an independent, qualified biologist approved by the County shall conduct a survey for San Francisco dusky-footed woodrat nests within the project area. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits.

Mitigation Measure 7B.3-3(b): Avoidance. Where feasible, an exclusion buffer of at least 10 feet from these nests shall be established and clearly demarcated to avoid moving or bumping the nests or the logs or branches on which the nests rest.

Mitigation Measure 7B.3-3(c): Mitigation. If establishing a buffer and avoiding the nests is not feasible, the nests shall be dismantled and the nesting material moved to a new location outside the project's impact areas so that it can be used by woodrats to construct new nests. Prior to nest deconstruction, each active nest shall be disturbed by a qualified wildlife biologist to the degree that all woodrats leave the nest and seek cover out of the impact area. Whether the nest is on the ground or in a tree, the nest shall be slightly disturbed (nudged) to cause the woodrats to flee. For tree nests, a tarp shall be placed below the nest and the nest dismantled using hand tools (either from the ground or from a lift). The nest material shall then be piled at the base of a nearby tree or large shrub outside of the impact area.

Significance after Mitigation: Less than Significant.

Impact 7B.3-4: Additional Housing Alternative B construction activities could result in adverse effects on special-status plant species. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, than would occur under the proposed Project. Natural areas within the Academic Growth Boundary contain potentially suitable habitat for rare, threatened or endangered plant species. Similar to the proposed Project, during construction of individual projects under this alternative, construction activities such as grading and ground-disturbing activity in these locations could result in loss of rare, threatened or endangered plant species. As with the proposed Project, construction activities under this alternative could result in significant impacts to special-status plant species. Since the additional housing that would be developed under this alternative would be located primarily on infill and redevelopment sites, potential impacts on special-status plant species under this alternative would similar to the proposed Project.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would reduce impacts to special-status plant species to a level that is less-than-significant. If Mitigation Measure 7B.3-4(a) is implemented, and no special-status plant species are identified, no further mitigation measures are required. In the event that Mitigation Measure 7B.3-4(a) identifies such species, then implementation of Mitigation Measures 7B.3-4(b) and/or (c) would reduce this impact to a less-than-significant level.

Mitigation Measure 7B.3-4(a): Surveys. If construction is proposed within any jurisdictional waterways/wetland areas, Lagunita basin and adjacent uplands, the Lathrop

Development District, or Project site lands outside the Academic Growth Boundary, an independent, qualified biologist approved by the County shall conduct a focused survey for special-status plant species prior to ground disturbance during the late winter/early spring period when most local native plant species are flowering and most easily identified. The survey results shall be provided to the County Planning Office prior to issuance of site demolition, grading or building permits. If special status plant surveying during flowering period is not possible, development within sensitive habitat areas shall be avoided unless approved by CDFW and the County Planning Office.

Mitigation Measure 7B.3-4(b): Avoidance. Construction activities shall avoid impacts to special-status plant species by establishing a buffer zone around the individuals in question. The buffer size shall be determined by an independent, qualified biologist approved by the County in order to avoid potential disturbance. The width of the buffer shall depend on a consideration of site-specific characteristics, including the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, soils, physical and chemical characteristics) and adjacent uses (e.g., sprinkler irrigation or shading from buildings or other structures). The buffer zone shall be clearly demarcated using exclusion fencing.

Mitigation Measure 7B.3-4(c): Mitigation if avoidance is not feasible. If the County Planning Office determines that establishing an avoidance buffer is not feasible, individual plants (including seeds) shall be transplanted to an area with suitable physical and biological conditions on the Project site outside of the Academic Growth Boundary and monitored and adaptively managed for five years. Transplantation may be accomplished by relocating individual plants or through seed collection and dispersal, or a combination of both, to be determined based on the species.

Significance after Mitigation: Less than Significant.

Impact 7B.3-5: Additional Housing Alternative B activities would not result in significant effects on federal and state protected species covered by the Stanford Habitat Conservation Plan. (Less than Significant)

Implementation of the Stanford Habitat Conservation Plan (HCP) satisfies the requirements of both the federal and state endangered species acts. The three species covered by the Stanford HCP and incidental take permit (ITP) are: California red-legged frog (CRLF); California tiger salamander (CTS); and San Francisco gartersnake. As is the case for the proposed Project, because Stanford is required by U.S. Fish and Wildlife Service (USFWS) to implement the HCP, impacts to Covered Species from construction and operation under this alternative would be less-than-significant. Impacts under this alternative would be similar to proposed Project impacts.

Mitigation: None required.

Impact 7B.3-6: Additional Housing Alternative B activities could result in significant effects on steelhead. (Potentially Significant)

Steelhead are found exclusively outside the Academic Growth Boundary within the San Francisquito Creek watershed. Similar to the proposed Project, while all new academic and residential development under Additional Housing Alternative B would occur within the Academic Growth Boundary, Stanford could also construct certain infrastructure improvements, as well as on-going habitat improvements and conservation projects, outside the Academic Growth Boundary under this alternative.

Similar for the proposed Project, the County approved a Special Conservation Area Plan that would protect steelhead from construction and operational activities at Stanford, including those activities that would occur under this alternative. As under the proposed Project, because construction of infrastructure, as well as on-going habitat improvement and conservation projects, could adversely affect steelhead by rendering habitat less hospitable in the short term due to increases in sediment loading and disturbance, construction activities under this alternative would have a significant impact on steelhead. Impacts under this alternative would be similar to proposed Project impacts.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would serve to further ensure that impacts to steelhead would be reduced to a level that is less-than-significant. If Mitigation Measure 7B.3-6(a) is implemented, and no work is conducted within 150 feet of top of bank of a creek, no further mitigation measures are required. In the event that implementation of Mitigation Measure 7B.3-6(a) is infeasible, then implementation of Mitigation Measures 7B.3-6(b) would reduce the significance of this impact under this alternative to a less-than-significant level.

Mitigation Measure 7B.3-6(a): Habitat avoidance. Grading or ground-disturbing activities within 150 feet of the top of bank of a creek that supports steelhead shall be avoided.

Mitigation Measure 7B.3-6(b): Protective measures. If the County Planning Office determines that avoidance of steelhead habitat is not feasible, Stanford shall obtain any required permits and approvals from federal and state wildlife agencies as well as a Streambed Alteration Agreement. Such permits and approvals shall specify the conditions under which construction activities may occur, including any applicable construction windows, installation of coffer dams or other measures necessary to protect steelhead.

Significance after Mitigation: Less than Significant.

Impact 7B.3-7: Additional Housing Alternative B activities could result in substantial loss or degradation of riparian habitat. (Potentially Significant)

Similar to the proposed Project, construction of infrastructure, habitat improvement and conservation projects under this alternative, including channel modifications and/or removal of

man-made facilities and barriers to steelhead migration could occur within riparian habitat on the Project site outside of the Academic Growth Boundary. Stanford's activities in riparian areas are subject to the USFWS-approved Stanford HCP and the County-approved Special Conservation Area Plan which state that Stanford will protect habitat and use effective mitigation measures. Nevertheless, similar to the proposed Project, under this alternative, potential construction activity within riparian habitats on the Project site outside the Academic Growth Boundary could result in a significant impact to riparian habitat. Impacts under this alternative would be similar to proposed Project impacts.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would mitigate impacts to riparian habitat to less-than-significant levels. If Mitigation Measure 7B.3-7(a) is implemented, and no work is conducted within 150 feet of riparian habitat, no further mitigation measures are required. In the event that implementation of Mitigation Measure 7B.3-7(a) is infeasible, then implementation of Mitigation Measures 7B.3-7(b) would reduce the significance of this impact to a less-than-significant level.

Mitigation Measure 7B.3-7(a): Grading or ground-disturbing activities within 150 feet of riparian habitat shall be avoided.

Mitigation Measure 7B.3-7(b): If the County Planning Office determines that avoidance is not feasible, Stanford shall obtain all appropriate permits for wetland or other work within the riparian area from the Corps, USFWS, NMFS and CDFW. As specified by agency permits, any riparian habitat areas lost as a result of project development would be replaced through the creation, preservation or restoration of equivalent habitat at an appropriate mitigation ratio or through other measures that the agencies deem appropriate and approve in order to adequately mitigate the impact.

Significance after Mitigation: Less than Significant.

Impact 7B.3-8: Additional Housing Alternative B activities could result in the loss of native oak woodland habitat. (Potentially Significant)

In Santa Clara County, a decrease of 0.5-acre or more in the native oak canopy of an individual oak woodland is considered a significant impact. Similar to the proposed Project, under this alternative, potential removal of oaks within the oak woodland/savannah community as a result of development and/or infrastructure improvements in the Lathrop Development District, or necessary infrastructure improvements that may occur outside the Academic Growth Boundary, would have the potential to result in a significant direct impact to oak woodland. None of the additional housing proposed by this alternative would be located within the Lathrop Development District or outside the Academic Growth Boundary areas; consequently, this alternative would have similar impacts to oak woodlands in these areas as the proposed Project.

As with the proposed Project, operational activities associated with this alternative would not be expected to result in indirect impacts to oak woodland because operations are not likely to introduce non-native plant species that outcompete native oak trees, or introduce Sudden Oak

Death into the oak woodlands. Consequently, similar to the proposed Project operational impacts on native oak woodland habitat under this alternative would be less than significant.

The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, and which are modeled on the Planning Office Guide to Evaluating Oak Woodlands Impacts, would reduce impacts to oak woodlands to a level that is less-than-significant.

Mitigation Measure 7B.3-8(a): Prior to oak tree removal within the Lathrop Development District, a tree removal plan and arborist report shall be submitted which identifies the species type, acreage, diameter, and amount of canopy of oak trees proposed for removal. The arborist report shall be prepared by an I.S.A. Certified Arborist, Registered Professional Forester, or another professional approved by the County Planning Office.

Mitigation Measure 7B.3-8(b): If the proposed oak tree removal would result in a decrease of 0.5-acre or more of native oak canopy on the project site, at least two of the following three mitigation measures shall be implemented:

- 1) *Planting Replacement of Oak Trees.* Pursuant to Public Resources Code Section 21083.4, the planting of oaks shall not fulfill more than 50 percent of the mitigation requirement for the project.

Tree replacement can be dependent upon the size of the canopy of the removed trees, the number of trees to be removed, the size of trees to be removed, the type of trees to be removed, the steepness of the slope on which trees will be removed, or the amount of room on a parcel in which trees can be planted. The objective of tree planting shall be to restore former oak woodland at a ratio of 2:1 or 3:1 based on the condition of the oak woodland habitat. 2:1 restoration is recommended for medium quality oak woodland habitat, and 3:1 restoration is recommended for high quality oak woodland habitat.

The following standard mitigation ratios shall be used, unless a different ratio is applied by the Planning Office based on site-specific characteristics:

- For the removal of one small tree (5-18 inches): two 24-inch boxed trees or three 15 gallon trees.
- For the removal of 1 medium tree (18-24 inches): three 24-inch boxed trees or four 15 gallon trees.
- For the removal of a tree larger than 24 inches: four 24-inch boxed trees or five 15 gallon trees.

All tree replacement shall be with in-kind species, unless alternate species are approved by the county. A Tree Planting and Maintenance Plan shall be submitted showing species, size, spacing and location of plantings and the location and species of established vegetation. Tree plantings shall be monitored for five years following planting and a survival rate of 75% will be required. Should the planted trees fail to meet the established performance and survival criteria, Stanford shall be responsible for additional plantings and management activities necessary to ensure the long-term success of planted mitigation trees.

- 2) Conservation Easement. Protect existing native oak trees on or off the project site from future development through a conservation easement or fee title dedication to the County or a land conservation group approved by the County.

Oak woodland offered as mitigation must be configured in such a manner as to best preserve the integrity of the oak ecosystem and minimize the ratio of edge to area. Priority should be given to conserving oak habitat adjacent to existing woodlands under conservation easements, public lands or open space lands. The protection of existing oak woodlands through conservation easements shall mitigate for the loss of oaks at a ratio equal to 2:1 (for medium quality oak woodland habitat) or 3:1 (for high quality oak woodland habitat) as determined by the County Planning Office. Land proposed as mitigation, when viewed with adjacent protected conservation land, should not result in conserved parcels of less than one acre.

- 3) Other Options. If the County Planning Office determines that there are no feasible sites for oak woodland mitigation on Stanford lands, then Stanford shall submit a plan for review and approval by the County Planning Office that provides for the conservation of oak woodlands elsewhere in Santa Clara County in the same manner as 7B.3-8(b)(2).

This plan must include protection of an existing oak ecosystem through a conservation easement or fee title dedication to the County or other local agency or organization responsible for the oak woodlands preservation.

Significance after Mitigation: Less than Significant.

Impact 7B.3-9: Additional Housing Alternative B construction activities could result in substantial adverse effects on jurisdictional waters and wetlands. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit and therefore, would involve more construction, than would occur under the proposed Project. Similar to the proposed Project, construction of new buildings and infrastructure, and on-going habitat enhancements/improvements and conservation projects under this alternative could necessitate filling or altering waters and wetlands through sediment delivery, discharge of contaminants, or interruption of hydrological flow. While, similar to the proposed Project, only a small quantity of jurisdictional waters or wetlands are located in areas upon which building development under this alternative could be constructed, infrastructure and habitat enhancement improvements could indirectly affect jurisdictional waters and wetlands in all locations in which such features are present. As under the proposed Project, construction activities under this alternative could result in significant impacts to jurisdictional waters and wetlands. Impacts under this alternative would be similar to proposed Project impacts. The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would mitigate impacts to jurisdictional waters and wetlands to less-than-significant levels.

Mitigation Measure 7B.3-9(a): Jurisdictional waters and wetland identification.
Stanford has provided a wetland delineation that covers the lands within the Academic

Growth Boundary. Prior to grading or ground-disturbing activities on lands outside the Academic Growth Boundary, the County shall determine whether the existing wetland delineation is adequate to assess the project's impacts and, if not, an independent, qualified wetland biologist approved by the County shall delineate jurisdictional waters or wetlands on and within 250 feet of the construction site.

Mitigation Measure 7B.3-9(b): Jurisdictional waters and wetlands avoidance. For all projects grading or ground-disturbing activities within 250 feet of jurisdictional waters or wetlands shall be avoided unless the County Planning Office determines that avoidance is not feasible.

Mitigation Measure 7B.3-9(c): Jurisdictional waters or wetland replacement. If the County Planning Office determines that avoidance of jurisdictional waters or wetlands is not feasible, Stanford shall obtain all appropriate permits for wetland work from the Corps or Regional Water Quality Control Board. As specified by the Corps or Regional Water Quality Control Board, any jurisdictional waters or wetlands that are filled as a result of project development shall be replaced through the creation, preservation or restoration of jurisdictional waters or wetlands or through other measures that the agencies deem appropriate through permit requirements to adequately mitigate the impact. Potential measures may include the following:

- For creek projects, remove hardscape features from the stream channel and stream banks.
- Stabilize exposed slopes or streambanks immediately upon completion of construction activities.
- To restore disturbed aquatic sites, a wetland mitigation and monitoring plan will be prepared that outlines the objectives to mitigate for construction impacts. At a minimum the plan will include thresholds of replanting success (e.g., 90 percent plant survival after one year, 80 percent second year, and 70 percent third year), monitoring requirements (e.g., at least once each year to confirm site stability, plant viability, and to schedule weeding, as needed), and shall specify resource agency reporting requirements.

Significance after Mitigation: Less than Significant.

Impact 7B.3-10: Implementation of Additional Housing Alternative B would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

Similar to the proposed Project, while construction activities associated with infrastructure improvements and on-going habitat enhancement improvements under Additional Housing Alternative B could temporarily impede wildlife movement, such improvements would not result in substantial long-term interference. Implementation of the required USFWS-approved Stanford HCP and County-approved Special Conservation Area Plan measures would ensure that impacts to movement corridors and nursery sites for fish and wildlife on Project site lands outside the Academic Growth Boundary and CTS movement corridors within the oak woodland/savannah

community within the Academic Growth Boundary would be less-than-significant. Impacts under this alternative would be similar to proposed Project impacts.

Mitigation: None required.

Impact 7B.3-11: Implementation of Additional Housing Alternative B could conflict with local Santa Clara County tree preservation ordinance. (Potentially Significant)

Similar to the proposed Project, construction of academic facilities, housing units and infrastructure improvements under Additional Housing Alternative B could result in the need to remove trees that are protected by the Santa Clara County tree preservation ordinance. Notwithstanding protections provided by the County tree preservation ordinance, construction activities under this alternative could result in significant impacts to protected trees, similar to the proposed Project. More trees may potentially be impacted under this alternative compared the proposed Project because there would be more construction and larger development footprint under this alternative. The following mitigation measures identified for this alternative, which are the same as those identified for the proposed Project, would ensure compliance with the County's tree preservation ordinance:

Mitigation Measure 7B.3-11(a): A "tree" is defined a woody plant having a single trunk measuring at least 37.7 inches in circumference (12 inches or more in diameter) or in the case of multi-trunk trees, a trunk size of 75.4 inches in circumference (24 inches in diameter). A protected tree on the Stanford campus is a:

- heritage tree (if included on the County's heritage resource inventory adopted by resolution of the Board of Supervisors);
- a tree planted or retained as required by conditions of approval of County permits;
- and a tree located within County rights-of-way and easements.

Stanford shall not remove a protected tree unless:

1. Removal of the protected tree is authorized by a County land use approval for which a grading or building permit has been issued.
2. Removal of the protected tree is authorized by a County-issued administrative permit or encroachment permit for tree removal; or
3. Removal of the protected tree is exempt. In addition to trees removed pursuant to a County land use approval, the ordinance currently exempts removal of a protected tree in the following circumstances:
 - the tree is diseased, dead, or dying or substantially damaged from natural causes;
 - tree cutting is needed to remove a hazard to life and personal property; and
 - maintenance work within public utility easements

Mitigation Measure 7B.3-11(b): Issuance of a land use permit, administrative permit or encroachment permit that authorizes removal of a protected tree shall be conditioned as follows:

1. Protected trees shall be replaced at a ratio of 3:1 for oaks and 1:1 for other protected trees; or
2. Stanford may submit a Vegetation Management Plan for the entire campus to the County Planning Office for review and approval. This plan must provide for the same or greater level of tree protection as the measures described in Mitigation Measure 7B.3-11(b)(1).

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7B.3-12: Implementation of Additional Housing Alternative B could cumulatively cause an adverse impact to biological resources. (Potentially Significant)

Cumulative impacts analysis considers the effects of Project implementation in combination with those of proximate past, present, and reasonably foreseeable future projects, and whether the project's contribution to the cumulative impact would be significant. Stanford's lands outside the Academic Growth Boundary in unincorporated Santa Clara County are relatively isolated, covering a large area adjacent to other largely undeveloped lands, including Stanford's 1,200-acre Jasper Ridge Biological Preserve, which is maintained for research and education and closed to recreational use. On the Stanford HCP lands, which include most of the Project site as well as adjacent Stanford-owned land in the City of Palo Alto, creek restoration, invasive species removal and vegetation management activities are ongoing. These activities may cause minor disturbance to habitat areas, but the long-term impact would be beneficial to sensitive natural communities and to special status plants and wildlife.

Stanford is also considering a range of alternatives at the Searsville dam and reservoir that could provide fish passage, allow natural annual sediment load to flow downstream, create a replacement water diversion downstream, and relocate Searsville water storage functions to an expanded Felt Reservoir. Stanford acknowledges that such improvements would require comprehensive and coordinated collaboration with federal, State and local agencies, including the San Francisquito Creek Joint Powers Authority (SFCJPA), its local government members, and local community and residents in the watershed. No specific alternative has been selected or approved at this time.

In addition, the SFCJPA is currently undergoing environmental review of a range of alternatives to address flow capacity deficiencies in San Francisquito Creek to reduce flooding potential, and enhance ecosystems and recreation. Alternatives include potential channel and/or potential bypass improvements within the creek downstream of Stanford; and constructing one or more detention basin improvements, including on Stanford lands within the Project site (e.g., Lagunita, Felt Reservoir) and outside the Project site (e.g. Searsville Reservoir and within the Jasper Preserve). No specific alternative has been selected or approved at this time.

Otherwise, urbanized areas of adjacent jurisdictions, including within Palo Alto, are adjacent to largely developed areas of the Project site (i.e., those areas within the Academic Growth Boundary). As discussed in Chapter 5.0 of the Draft EIR, Stanford is currently in the midst of constructing the remaining housing and academic and academic support facilities authorized under the 2000 General Use Permit within the Academic Growth Boundary. While the timing of construction has the potential to increase temporary impacts on biological resources from tree removal, noise disturbance, and other impacts, impacts would be limited to the immediate construction area within the Academic Growth Boundary, which has limited biological value. Additional non-Project cumulative development in adjacent jurisdictions would be expected to continue to occur over the duration of the 2018 General Use Permit and would be subject to applicable regulations and environmental review requirements of those jurisdictions.

Special Status Plants and Wildlife

As discussed above, activities under this alternative would result in potential impacts to special-status plants and wildlife. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measures 7B3-1(a)-(e), 7B.3-2(a)-(d), 7B.3-3(a)-(c), 7B.3-4(a)-(b), and 7B.3-6(a)-(c) identified for this alternative would require plant and nesting bird, bat, and dusky-footed woodrat surveys and avoidance and minimization of potential impacts to special-status species and their habitat, including corridors; and reduction of any potentially impacts to special-status plants and wildlife to a less than significant level. Other cumulative development projects outside the Project site would also be required to comply with applicable federal and State regulations protecting special-status species through implementation of similar mitigation measures during construction by those jurisdictions. Activities associated with this alternative would cause a small amount of loss of undeveloped habitat in the area, principally within the Academic Growth Boundary. However, similar to the proposed Project, with the implementation of these measures, this alternative would not have a cumulatively considerable contribution to impacts on special status species.

Nesting Birds

As discussed above, activities under this alternative could result in potential impacts to nesting migratory birds, including special-status species. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measure 7B.3-1(a)-(b) for this alternative would require preconstruction nesting bird surveys and avoidance of known nest sites, thereby minimizing this impact under this alternative to a less than significant level. Other cumulative projects for creek restoration, invasive species removal and vegetation management may also impact nesting birds, but would also be required to comply with applicable regulations protecting nesting birds, through implementation of similar mitigation measures during construction by those jurisdictions. Similar to the proposed Project, with the implementation of these measures, implementation of this alternative would not have a cumulatively considerable contribution to impacts on nesting birds.

Steelhead

The Project site contains a segment of San Francisquito Creek that provides habitat for steelhead. As discussed above, in addition to implementing the County Special Conservation Area Plan

guidelines to minimize disturbance to steelhead, Stanford must obtain permits and approvals from applicable federal and state wildlife and water quality agencies to perform work in creeks that support steelhead; see Mitigation Measure 7B.3-6(a)-(c). These permits, including a Streambed Alteration Agreement, specify the conditions under which construction activities may occur, including construction windows, cofferdams or other measures necessary to protect steelhead. Other cumulative projects would also be required to comply with applicable federal and State regulations protecting steelhead and other fish, through implementation of similar mitigation measures during construction by those jurisdictions. Similar to the proposed Project, with the implementation of these measures, this alternative would not have a cumulatively considerable contribution to impacts on steelhead.

Wetlands, Waters and Sensitive Riparian Communities

Construction under this alternative could result in impacts to riparian habitat or jurisdictional waters of the United States and waters of the State. As discussed above, Mitigation Measures 7B.3-7(a)-(b) and 7B.3-9(a)-(c) would minimize disturbance, and mitigate for necessary disturbance to sensitive riparian areas, wetlands and waters. As with special-status species, other cumulative projects would be required to comply with applicable federal and State regulations protecting riparian habitat and jurisdictional waters by those jurisdictions. Similar to the proposed Project, the potential impacts of this alternative in combination with other projects would not contribute to a cumulatively significant impact on riparian habitat, and jurisdictional waters of the United States and waters of the State, including drainages and seasonal wetlands.

Oak Woodlands

As discussed above, construction under this alternative could result in impacts to sensitive oak woodland habitat from ongoing and future development projects. Mitigation Measures 7B.3-8(a)-(b) and 5.3.11(a)-(c) would minimize disturbance and mitigate for necessary disturbance to oak woodlands, including protected trees. Other cumulative projects outside the Project site would also be required to comply with applicable federal and State regulations protecting oak woodlands of those jurisdictions. The potential impacts of this alternative in combination with other projects would not contribute to a cumulatively significant impact on oak woodland communities.

As discussed above, all biological impacts associated with construction and operation of Additional Housing Alternative B would be mitigated to a less than significant level. There are no biological impacts of this alternative that, when considered in combination with other cumulative development, would make a considerable contribution to cumulative effects.

Mitigation: Implement Mitigation Measures 7B.3-1(a)-(b), 7B.3-2(a)-(d), 7B.3-3 (a)-(c), 7B.3-4(a)-(b), 7B.3-6(a)-(c), 7B.3-7(a)-(b), 7B.3-8(a)-(b), 7B.3-9(a)-(c), and 7B.3.11(a)-(c).

Significance after Mitigation: Less than Significant.

Cultural and Paleontological Resources

Construction and Operational Impacts

Impact 7B.4-1: Additional Housing Alternative B development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. (Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on redevelopment and infill sites. As discussed in Section 5.4, the majority of historic resources within the Academic Growth Boundary are located in the Campus Center Development District. The additional housing proposed under this alternative would be located in the East Campus Development District, within which only two eligible collegiate buildings exist; the DAPER and Administrative Development District, within which the stadium embankment is the only identified eligible collegiate property, and the Quarry and West Campus Development Districts, within which no eligible collegiate buildings are identified. Consequently, this alternative could have an incrementally greater potential than the proposed Project to result in direct, physical impacts to historic resources and infill development that could alter the setting and surrounding environment of historic resources and result in indirect impacts.

Implementation of **Mitigation Measures 7B.4-1(a)-(e)** identified for this alternative, which are the same as those identified for the proposed Project, would provide a formal framework for conditions protecting historic resources. Similar to the proposed Project, while it is considered unlikely that Stanford would demolish any of its historic buildings and structures within the Project site or alter them in a manner that does not comply with the Secretary of Interior Standards under this alternative, if such actions were to occur, they would result in a significant and unavoidable impact to historic resources. Pursuant to the established regulatory framework, the County would review these projects and prepare the appropriate project-specific CEQA environmental review, and if a significant impact were to be identified additional feasible mitigation for these individual projects may be identified at that time to avoid or reduce the magnitude of the significant impact. The project-specific CEQA environmental review would include an evaluation of the feasibility of preserving the historic resource.

Mitigation Measure 7B.4-1(a): The Stanford University Historic Resources Survey dated April 2017 contains an evaluation of all buildings and structures located within the Stanford Community Plan's Academic Campus land use designation that were constructed prior to 1976. Prior to 2025, Stanford shall provide to the County Planning Office for the review and approval of the County Planning Director (or designated representative) an additional survey of structures built within the Academic Campus land use designation between 1976 and 1985 ("Survey Addendum"). At its discretion, the County Planning Office may require a peer review of the Survey Addendum by a qualified professional (Architect with preservation experience or Architectural Historian) at Stanford's expense.

Mitigation Measure 7B.4-1(b): For any building project that involves demolition of an historical resource that is listed or has been identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey or Survey Addendum, a project-specific analysis of the impact to historic resources and any feasible

alternatives and mitigation measures shall be prepared as part of the CEQA environmental review of the project. Consistent with the County's process the analysis of project impacts, alternatives and mitigation will be referred to the Santa Clara County Historical Heritage Commission for its recommendation prior to approval.

Mitigation Measure 7B.4-1(c): For any proposed building project that involves remodeling, alteration, or a potential physical effect on an historical resource that is listed or identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey or Survey Addendum, Stanford shall meet the following requirements:

- 1) The proposed building project shall be consistent with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995) ("Secretary of Interior's Standards"). Stanford shall submit documentation to the County prepared by a qualified professional to demonstrate consistency of the proposed project with the Secretary of the Interior's Standards. If the work to be performed constitutes basic maintenance, repair or replacement, Stanford shall mark the project plans with text stating: "Exterior work is limited to replacement of deteriorated materials with in-kind materials that match the old. Project plans have been reviewed by [Name of Architect], who has determined the work would comply with the Secretary of Interior's Standards." If the work to be performed is more extensive than basic maintenance, repair or replacement in kind, Stanford shall submit a letter along with the project plans explaining the basis for the University Architect's Office determination that the work would comply with the Secretary of Interior's Standards. The County Planning Office will review the marked plans or letter, and may require additional documentation.
- 2) The requirement that the building project must be consistent with the Secretary of the Interior's Standards shall be primarily limited to alterations to the exterior. Building interiors will be exempt from such a consistency requirement, except for interior spaces that are open to the general public on an ongoing basis. Such buildings are listed below along with their public interior spaces.

Historic Resource	Primary public space(s) subject to review (if integrity present)	Secondary space(s): no review required
Cantor Center/ Stanford Museum	Lobby and galleries on first and second floors of 1891 and 1902 wings	Restrooms, staff offices, collection storage areas, all basement areas and all spaces in 1999 addition
Memorial Church	Main sanctuary, entry vestibule, organ and choir lofts	Restrooms, offices and store rooms, all basement areas
Art Gallery	Vestibule and gallery space	Restrooms, offices and store rooms, all basement areas
Hoover Tower	Lobby, galleries, observation platform	Restrooms, offices and store rooms, all basement areas
Memorial Hall	Lobby, Pigott Theater, Auditorium	Restrooms, offices and store rooms, radio station
Frost Amphitheater	Terraces, stage	Restrooms, store rooms
Burnham Pavilion/ Ford Center	Lobby, main gym	Restrooms, locker rooms, offices, store rooms; all spaces in 1990 addition

- 3) The County Planning Office may require a peer review of the Secretary of the Interior's Standards consistency analysis by a qualified professional (Architect with preservation experience or Architectural Historian) at Stanford's expense.
- 4) If it is not feasible for the building project to be consistent with the Secretary of Interior's Standards, a project-specific analysis of the impact to historic resources and any feasible alternatives and mitigation measures shall be prepared as part of the CEQA environmental review. The analysis of impacts, alternatives and mitigation measures will be referred to the Santa Clara County Historical Heritage Commission for its recommendation prior to County approval.

Mitigation Measure 7B.4-1(d): For any building project that involves demolition, modification or significant alteration of a structure located outside of the Academic Campus land use designation that is 50 years old or more, Stanford may elect to follow the Secretary of Interior's Standards. If Stanford does not elect to follow the Secretary of Interior's Standards for such a project Stanford shall submit an assessment regarding its eligibility for listing on the California Register ("Eligibility Assessment") to the County Planning Office. If the County Planning Office determines that the building/structure is eligible for listing on the California Register, then Stanford shall comply with the provisions in Sections 2 and 3 above and the building/structure shall be treated as if it were identified as eligible for listing in the Stanford Historic Resources Survey or Addendum for purposes of those Sections. The County Planning Office may require a peer review of the Eligibility Assessment by a qualified professional (Architect or Architectural Historian) at Stanford's expense.

Mitigation Measure 7B.4-1(e): Proposed new buildings located within 75 feet of an historic resource that is identified as eligible for listing on the California Register in the Stanford University Historic Resources Survey, Survey Addendum or Eligibility Assessment, measured from the nearest exterior walls, shall be reviewed by the University Architect to ensure that the design does not negatively impact the historic resources surrounding it. Stanford shall prepare design guidelines and submit a letter to the County Planning Office confirming that the new building construction has been reviewed by the University Architect's Office and is compatible with any historic resources located within 75 feet of the proposed new building. The County Planning Director (or designated representative) will review the letter prior to County approval of the new building. The County Planning Office may require a peer review of the University Architect's evaluation prior to approval of the building.

Significance after Mitigation: Significant and Unavoidable.

Impact 7B.4-2: Additional Housing Alternative B development could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. Consequently, this alternative would require greater excavation of soils related to

underground utilities, construction of building foundations, and in some cases, to accommodate underground levels, than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to archaeological resources compared to the proposed Project.

Similar to the proposed Project, while no individual projects and specific locations have been identified for development under this alternative, if construction were to occur within the boundaries of a recorded prehistoric archaeological site, a project-specific analysis would be required to determine whether the site constituted a unique archaeological resource according to PRC Section 21083.2 or a historical resource according to PRC Section 21084.1, and if so, whether the site would be adversely affected, thus resulting in a significant impact. Also, similar to the proposed Project, it is possible that previously unknown prehistoric archaeological sites could be unearthed during excavation or earthmoving activities for an individual project under the alternative. As under the proposed Project, this could result in a significant impact to a unique archaeological resource or a historical resource under this alternative.

Existing County policies and regulatory mechanisms provide oversight at the County level to protect significant archaeological resources within the Project site. Individual projects under this alternative that would require a County building permit or other County approval would be subject to conditions of approval that include specific requirements addressing archaeological resources within the Project site. Implementation of **Mitigation Measure 7B.4-2(a)-(b)** identified for this alternative, which is the same as that identified for the proposed Project, would provide a formal framework for conditions providing protection of archaeological resources under this alternative. Similarly, implementation of this mitigation measure for this alternative would ensure that potential impacts to prehistoric and historic-period archaeological resources on the Project site would be reduced to a less-than-significant level.

Mitigation Measure 7B.4-2(a): Stanford has provided a map to the County Planning Office, maintained as a confidential record, that shows the location of all known prehistoric and historic archaeological resources in the unincorporated Santa Clara County portion of Stanford lands. Stanford shall conduct a Record Search at the Northwest Information Center of the California Historical Resources Information System and submit an updated map each year as part of the 2018 General Use Permit annual monitoring and compliance process. This annual update will be the basis for evaluating potential impacts of future projects that include ground disturbance.

At the discretion of the County Planning Office, project-related archaeological site assessments and monitoring shall be conducted and mitigation measures identified by either the Stanford University Archaeologist or an independent archaeologist retained by the County at Stanford's expense. All archaeological reports (including, but not limited to, site assessments, monitoring reports, Archaeological Treatment Plans) shall be forwarded to the County Planning Office for review at Stanford's expense. All work shall be performed by, or under the supervision of, an archaeologist that meets the Secretary of Interior Professional Qualifications Standards in Archaeology (36 CFR 61).

Significant impacts from projects on prehistoric and historic archaeological resources shall be addressed as specified below:

1. If a building project is proposed to be situated on a mapped archaeological site, a qualified archaeologist shall conduct further project-specific analysis to determine whether a significant impact would occur. If the site is determined to be eligible and cannot be avoided, an Archaeological Resources Treatment Plan shall be prepared and approved by the County Planning Office prior to the commencement of ground disturbing activities. If a Stanford archaeologist performs this work, the County may at its discretion require a peer review by an independent qualified archaeologist at Stanford's expense. Project-specific mitigation, if necessary, shall be identified in accordance with the provisions of Section 21083.2 of the Public Resources Code.
2. In the event that previously unidentified historic or prehistoric archaeological resources are discovered during construction, the contractor shall cease work in the immediate area and the County Planning Office and University Archaeologist shall be contacted immediately. The University Archaeologist shall provide and implement a proposed Archaeological Resources Treatment Plan. At the discretion of the County Planning Director (or designated representative) an independent qualified archaeologist may be retained by the County at the expense of Stanford to assess the significance of the find and the adequacy of the proposed Archaeological Resources Treatment Plan.
3. Archaeological monitoring shall be conducted at any time construction-related ground-disturbing activities (greater than 12 inches in depth) are taking place within 100 feet of known archaeological resources. A technical report including the results of all monitoring activities shall be prepared once monitoring is completed in accordance with professional standards and submitted to the University Archaeologist. The archaeological monitoring shall be conducted or supervised by an individual meeting the Secretary of Interior Professional Qualifications Standards in Archaeology (36 CFR 61).

Mitigation Measure 7B.4-2(b): In the event that human skeletal remains are encountered, Stanford is required by County Ordinance No. B6-18 to immediately notify the County Coroner. Work shall immediately stop within a 100-foot radius of the find. If the County Coroner determines that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to Health and Safety Code Section 7050.5(c), and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coroner. If artifacts are found in association with the human skeletal remains no further disturbance of the artifacts may be made until authorized by the County Planning Office. It is the responsibility of Stanford to provide for reburial of the human skeletal remains and associated artifacts following completion of the required Native American consultation process described Health and Safety Code section 7050.5(c) ; Stanford will file a State Record Form (DPR Series) documenting the reburial location with the California Historical Resources Information System and provide the location on the updated map provided for in Section 3 above.

Significance after Mitigation: Less than Significant.

Impact 7B.4-3: Additional Housing Alternative B development could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to paleontological resources during construction compared to the proposed Project.

Similar to the proposed Project, if excavation related to construction of development on the Project site under this alternative would uncover additional paleontological resources, this impact would be considered significant.

Existing County policies and regulatory mechanisms provide oversight at the County level to protect significant paleontological resources within the Project site. Individual projects under this alternative that would require a County building permit or other County approval would be subject to conditions of approval that include specific requirements addressing paleontological resources within the Project site. Implementation of **Mitigation Measure 7B.4-3** identified for this alternative, which are the same as those identified for the proposed Project, provides a formal framework for conditions providing protection of paleontological resources. Implementation of this mitigation measure would ensure that potential impacts to prehistoric and historic-period paleontological resources on the Project site for this alternative would be reduced to a less-than-significant level.

Mitigation Measure 7B.4-3: In the event that potentially significant fossilized shell or bone is uncovered during any earth-disturbing operation, contractors shall stop work within 100 feet of the find and notify the University Archaeologist and the County Building Inspector assigned to the project. The University Archaeologist shall visit the site and make recommendations for treatment of the find (including but not limited to consultation with a paleontologist and excavation, if warranted), which shall be sent to the County Building Inspection Office and the County Planning Office. If a fossil find is confirmed, it will be recorded with the United States Geological Survey and curated in an appropriate repository.

Significance after Mitigation: Less than Significant.

Impact 7B.4-4: Additional Housing Alternative B Development could disturb human remains, including those interred outside of dedicated cemeteries. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed

Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative could have a greater potential to result in impacts to undiscovered human remains during construction compared to the proposed Project.

Although unlikely, there is the possibility that human remains, including those interred outside of dedicated cemeteries, could be encountered during ground-disturbing activities associated with new development under this alternative. As with the proposed Project, this impact would be considered significant for this alternative.

In the event that human skeletal remains are discovered during construction, implementation of **Mitigation Measure 7B.4-2(b)** identified for this alternative, as described under Impact 7B.4-2, which is the same as that identified for the proposed Project, requires the contractor to cease work within 100 feet and notify the County coroner. If the coroner determines that the bones are Native American, the coroner shall contact the California Native American Heritage Commission. Implementation of this mitigation measure for this alternative would ensure potential impacts to human remains would be reduced to a less-than-significant level.

Mitigation: Implement Mitigation Measure 7B.4-2(b).

Significance after Mitigation: Less than Significant.

Impact 7B.4-5: Additional Housing Alternative B development could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. (Potentially Significant)

Based on the results of the NAHC Sacred Lands File search, there are no documented tribal cultural resources on the Project site. However, there are numerous prehistoric archaeological sites on the Project site, many of which may be considered tribal cultural resources. Similar to the proposed Project, potential impacts to archaeological sites that are considered tribal cultural resources as a result of development under this alternative would be considered significant.

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and would involve more subsurface construction than the proposed Project. Based on the results of the NAHC Sacred Lands File search, there are no documented tribal cultural resources on the Project site. However, there are numerous prehistoric archaeological sites on the Project site, many of which may be considered tribal cultural resources. Similar to the proposed Project, potential impacts to archaeological sites that are considered tribal cultural resources as a result of development under this alternative would be considered significant.

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve a larger overall construction footprint, and may involve more subsurface construction than the proposed Project. While much of proposed additional housing would likely be on infill and redevelopment sites, additional housing could also occur in undeveloped areas. As a result, this alternative would have a greater potential to result in impacts to tribal cultural resources during construction compared to the proposed Project.

As discussed in Impact 7B.4-2 above, **Mitigation Measure 7B.4-2(a)** identified for this alternative requires that if a project is proposed within 100 feet of the location of a recorded archaeological site, at the discretion of the County Planning Office, further site-specific analysis shall be conducted to determine whether a significant impact would occur and to identify appropriate mitigation. The mitigation measure also requires archaeological monitoring for ground-disturbing activities (greater than 12 inches in depth) would take place in the immediate vicinity of known archaeological resources. Additionally, in the event that a previously unidentified prehistoric archaeological resource is discovered during construction, Mitigation Measure 7B.4-2(b) requires the contractor to cease work within 100 feet and contact the County Planning Office and University Archaeologist, and in the event that human skeletal remains are encountered, notify the County Coroner. Similar to mitigation identified for the proposed Project, implementation of Mitigation Measure 7B.4-2 for this alternative would ensure potential impacts to tribal cultural resources would be reduced to a less-than-significant level.

Mitigation: Implement Mitigation Measure 7B.4-2(a)-(b).

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7B.4-6: Additional Housing Alternative B development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments, could contribute considerably to significant cumulative adverse changes in the significance of historical resources. (Potentially Significant)

The geographic scope for cumulative effects on historical resources includes unincorporated Santa Clara County, as well as the Stanford lands in unincorporated San Mateo County, the cities of Palo Alto and Menlo Park, and towns of Portola Valley and Woodside. Similar to the proposed Project, the potential impacts under this alternative when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on historic resources. A cumulatively considerable (significant) effect would occur if this alternative affected the same type of resource as one or more cumulative projects.

Similar to mitigation identified for the proposed Project, compliance with Mitigation Measure 7B.4-1(a)-(e) would require a protocol for the identification and protection of historic buildings and structures within the Project site and would generally reduce impacts to these types of resources as a category to the extent feasible. Similarly, cumulative projects located outside of the

Project site that involve historic resources, would be subject to applicable regulations and environmental review requirements of those jurisdictions. While these regulations, processes, and conditions reduce impacts to historic resources both on the Stanford lands and in Santa Clara County as a whole, demolition of historic resources would not be prohibited; therefore, the cumulative impact for this alternative, similar to the proposed Project, would be significant and unavoidable.

Mitigation: Implement Mitigation Measure 7B.4-1(a)-(e).

Significance after Mitigation: Significant and Unavoidable.

Impact 7B.4-7: Ground-disturbing activities undertaken as part of the Additional Housing Alternative B could cumulatively cause a substantial adverse change in the significance of an archaeological resource, paleontological resource, or tribal cultural resource, or disturb human remains during construction. (Potentially Significant)

The geographic scope for cumulative effects on cultural and paleontological resources includes the unincorporated Santa Clara County, as well as the Stanford lands in unincorporated San Mateo County, the cities of Palo Alto and Menlo Park, and the towns of Portola Valley and Woodside. The cumulative analysis combines archaeological resources, paleontological resources, tribal cultural resources, and human remains into a single, non-renewable resource base and considers the additive effect of potential project impacts to significant regional impacts on cultural resources. Similar to the proposed Project, the potential impacts under this alternative when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on cultural resources. A cumulatively considerable effect would occur if the Project affected the same type of resource as one or more cumulative projects. Impacts to archeological resources, tribal cultural resources, paleontological resources, and human remains interred outside of dedicated cemeteries would be mitigated to a less-than-significant level with compliance with **Mitigation Measure 7B.4-2(a)-(b)** and **Mitigation Measure 7A.4-3**, which would require implementation of protocol to follow in the event of a discovery and the appropriate treatment of human remains as well as site-specific studies and monitoring in locations of previously recorded sites. Similarly, cumulative projects located outside of the Project site that involve archeological resources, tribal cultural resources, paleontological resources, and human remains interred outside of dedicated cemeteries, would be subject to applicable regulations and environmental review requirements of those jurisdictions. Therefore, similar to the proposed Project with implementation of Mitigation Measure 7B.4-2 and Mitigation Measure 7B.4-3, this alternative's contribution to cumulative impacts would not be considerable, and the impact would be less than significant.

Mitigation: Implement Mitigation Measure 7B.4-2(a)-(b) and Mitigation Measure 7B.4-3.

Significance after Mitigation: Less than Significant.

Energy Conservation⁶⁹

Construction and Operational Impacts

Impact 7B.5-1: Additional Housing Alternative B development would not result in the use of fuel, water, or energy in wasteful or inefficient manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect. (Less than Significant)

Additional Housing Alternative B would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the proposed Project, which would result in a net increase in energy use compared to the proposed Project.

Similar to the proposed Project, each of the six potential impact areas identified for Appendix F of the CEQA Guidelines are assessed for Additional Housing Alternative B with respect to energy use.

Appendix F.1: Energy Requirements and Energy Use Efficiencies of Additional Housing Alternative B

Similar to the proposed Project, energy consumption under Additional Housing Alternative B would be associated with electricity and natural gas use for operations, fuel consumption for mobile sources and emergency generator use, as well as energy consumption for construction activities. **Table 7B.5-1** presents the total energy demand in 2035 that would occur in the study area with implementation of Additional Housing Alternative B, and the net change in energy demand as compared to the 2018 environmental baseline.

As can be seen from Table 7B.5-1, due to additional development and growth under Additional Housing Alternative B, demand for electricity and natural gas under this alternative would increase as compared to the 2018 baseline. Table 7B.5-1 also shows that demand for gasoline and diesel would decrease under Additional Housing Alternative B as compared to the 2018 baseline. Similar to the proposed Project, this is due to implementation of Stanford's alternative transportation programs, TDM program, and electric vehicle initiatives that would occur under this alternative; as well as from reasonable assumptions about increasing fuel efficiency of vehicles based on established State and federal regulatory standards.

Overall energy demand in 2035 with buildout of Additional Housing Alternative B is projected to increase approximately 12 percent over the 2018 baseline, although fuel consumption would be reduced as a result of the electrification of bus fleets. Energy demand in 2035 with buildout of Additional Housing Alternative B would also be approximately 3 percent greater than Project conditions in 2035 due to the additional energy and fuel demand generated by the additional on-campus residential units.

⁶⁹ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives energy analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-ENE included in this document.

TABLE 7B.5-1
NET CHANGE IN ENERGY CONSUMPTION UNDER PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE B

Energy Sector	Energy Demand in 2018 Baseline (MMBtu)	Total Energy Demand in 2035 with Proposed Project	Net Change in Energy Demand Project compared to 2018 Baseline (MMBtu)	Total Energy Demand in 2035 with Buildout of Additional Housing Alternative B (MMBtu)	Net Change in Energy Demand Additional Housing Alternative B compared to 2018 Baseline (MMBtu)
Electricity	1,095,088	1,355,768	+260,680	1,371,191	+276,103
Natural Gas	577,799	718,441	+140,642	732,841	+155,042
Mobile Gasoline Consumption	673,769	528,237	-145,532	576,515	-97,254
Mobile Diesel Consumption	63,490	22,687	-40,803	25,566	-37,924
Stationary Fuel Consumption	5,042	6,157	+1,115	6,157	+1,115
Construction Activities	5,240	5,240	0	8,135	+ 2,895
Total	2,420,428	2,636,532	+216,104	2,720,403	+299,975

NOTES:

MMBtu = million British Thermal Units

SOURCE: Ramboll, 2018 (see Appendix ALT-ENE)

However, as shown in **Table 7B.5-2**, the per capita energy demand under Additional Housing Alternative B would decrease, indicative of an overall improvement in energy efficiency compared to baseline conditions. Additional Housing Alternative B would also have a slightly lower per capita energy demand (37.8 MMBtu/service population) than the per capita energy demand of the proposed Project (38.3 MMBtu/service population) that results from the additional population serviced occupying the additional on-campus residential units. Similar to the proposed Project, the decrease in per capita energy demand under Additional Housing Alternative B compared to 2018 baseline conditions demonstrates that energy use efficiencies would increase under Additional Housing Alternative B, and resulting energy use from implementation would not be wasteful or inefficient.

TABLE 7A.5-2
NET CHANGE IN PER CAPITA ENERGY CONSUMPTION UNDER PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE B

Inventory Year	MMBtu Equivalents	Service Population	MMBtu/ Service Population
2018 Baseline	2,420,428	53,268	45.4
2035 with Buildout of Proposed Project	2,636,532	68,781	38.3
2035 with Buildout of Additional Housing Alternative B	2,720,403	71,930	37.8

NOTES:

MMBtu = million British Thermal Units

SOURCE: Ramboll, 2018 (see Appendix ALT-ENE)

Appendix F.2: The Effects of Additional Housing Alternative B on Local and Regional Energy Supplies and on Requirements for Additional Capacity

Similar to the proposed Project, use of the local and regional energy supply under Additional Housing Alternative B would be efficient as a result of use of renewable energy, energy efficiency standards, and the continued operation of the Stanford's CEF and implementation of the SESI program. Additionally, as under the proposed Project, while Stanford's proposed electrification of all Marguerite buses and 70 percent of its LBRE and Bonair vehicle fleets by 2035 would result in a small increase in calculated total electricity usage, the incremental electricity increase under this alternative would be more than offset by the associated decrease in diesel fuel consumption as shown in Table 7B.5-1. In addition, continued operation of the Stanford Solar Generating Station in Kern County and on-campus rooftop solar panels would provide campus electricity by renewable sources.

Over 98 percent of Stanford's electrical demand that is not met by the Solar Generating Station and on-campus rooftop solar panels is provided by a direct access provider which Stanford would, similar to the proposed Project, have the discretion to change throughout implementation of Additional Housing Alternative B. Electrical service providers including PG&E actively plan for anticipated increases in peak demand and actively plan to offset growth in peak demands by encouraging and deploying energy efficiency and conservation measures within their service area. Given that there are approximately 6,000 megawatts of pending power plant projects in the state, similar to the proposed Project, Additional Housing Alternative B's increase in electrical demand would not have a substantial impact on the local or regional electrical supplies or require additional capacity to be constructed.

As shown in Table 7B.5-1, under Additional Housing Alternative B, the annual natural gas consumption in the study area in 2035 is estimated to increase by approximately 155,042 MMBtu over the 2018 baseline (and an increase of 14,400 MMBtu over the proposed Project). However, it is projected that natural gas demand in California will decrease in 2030 to 2.23 trillion Btu/yr. Ninety percent of the State's natural gas is imported from the Rocky Mountain region, the Southwest, and Canadian basins. The United States produces 20 trillion cubic feet per year and had 340 trillion cubic feet of proven reserves in 2014. Similar to the proposed Project, Stanford's natural gas consumption under Additional Housing Alternative B would not be substantial in comparison to the national natural gas reserves and would comprise only 0.003 percent of annual national natural gas production. Consequently, given the ample regional natural gas supplies available, Additional Housing Alternative B, similar to the proposed Project, would not have a significant impact on local or regional natural gas supply or require additional capacity to be constructed.

Gasoline and diesel are provided by California's transportation fuel supplier network. As shown in Table 7B.2-1, implementation of Additional Housing Alternative A would result in a reduction of gasoline and diesel demand compared to the 2018 baseline. The total net reduction in fuel use under Additional Housing Alternative B (-134,063 MMBtu) would be less than that under the proposed Project (-185,219 MMBtu), however, due largely to a greater mobile gasoline use under this alternative. Regardless, similar to the proposed Project, Additional Housing Alternative B would not adversely affect local or regional supply of these fuels. As under the proposed Project,

overall, Additional Housing Alternative B would not have a substantial impact on the local or regional energy supplies or require additional capacity to be constructed.

Appendix F.3: The Effects of Additional Housing Alternative B on Peak and Base Period Demands for Electricity and Other Forms of Energy

Stanford's SESI program was designed to increase its energy efficiency and allow the CEF to meet both peak and base demand for heating and cooling. Specific features of the new CEF allow for renewable or sustainable options for meeting peak demand. Stanford's procurement of substantial amounts of renewable energy, including the new 73 MW off-site Kern County solar plant and the 4.9 MW of on-site rooftop solar panels, would help meet peak electricity demands on campus. Specifically, the off-site solar plant would meet Stanford's peak electricity demand of 42 MW. This generation of new renewable energy would reduce the strain on electricity production by reducing the demand for the grid resources, particularly during peak times when energy demand is the highest. Although Additional Housing Alternative B would increase electricity demand compared to the proposed Project, based on the availability of these resources, as with the proposed Project, Additional Housing Alternative B effects on peak and base period demands for electricity would not result in wasteful or inefficient use of energy, or require additional capacity to be constructed.

Appendix F.4: The Degree to which Additional Housing Alternative B Complies with Existing Energy Standards

As under the proposed Project, during implementation of Additional Housing Alternative B, Stanford would be required to adhere to applicable federal and State standards designed to minimize use of fuel in construction vehicles and ensure that buildings employ required energy efficiency techniques.

Stanford new building construction is subject to California's Title 24, which reduces energy use in residential and commercial buildings through progressive updates to both the Green Building Standards Code (Title 24, Part 11) and the Energy Efficiency Standards (Title 24, Part 6). Provisions added over the years include consideration and possible incorporation of new energy efficiency technologies and methods for building features such as space conditioning, water heating, and lighting, as well as construction waste diversion goals. Additionally, some standards focus on larger energy saving concepts such as reducing loads at peak periods and seasons, improving the quality of energy-saving installations, and performing energy system inspections. Development projects under the 2000 General Use Permit have often exceeded Title 24 requirements in construction and operation of new buildings.

With respect to transportation energy, existing energy standards are promulgated either through the regulation of fuel refineries and products, such as the low carbon fuel standard, or through light-duty vehicle greenhouse gas emissions standards and corporate average fuel economy standards established by USEPA. Further, construction projects at Stanford would comply with State requirements designed to minimize idling and associated emissions, which also minimizes use of fuel.

Appendix F.5: The Effects of Additional Housing Alternative B on Energy Resources

See the discussion above under Appendix F.2: The Effects of the Project on Local and Regional Energy Supplies and on Requirements for Additional Capacity.

Appendix F.6: The Projected Transportation Energy Use Requirements and Overall Use of Efficient Transportation Alternatives under Additional Housing Alternative B

As described further in the analysis of VMT presented in Transportation and Traffic, the per resident and per worker VMT generation under Additional Housing Alternative B, although higher than the proposed Project, would be substantially lower than the regional and countywide averages. The VMT rates would be supported by Stanford's TDM program and the ability for residents to commute to work or class without using personal vehicles due to the density of public transit near and on the campus. In addition, on-campus housing for faculty and students would lower commuting VMT. Lower VMT results in lower mobile fuel use per worker and per resident than the regionwide and countywide average.

Stanford's existing alternative transportation programs have resulted in the percentage of sustainable commuters (commuters traveling in modes other than single occupancy vehicles) at Stanford to increase from 31 percent in 2002 to 51 percent in 2016. The use of transit passes, bicycling, rideshares, and other alternative modes of transportation, demonstrate the efficient use of transportation systems at Stanford.

Although Additional Housing Alternative B's total VMT and consumption of mobile fuels is higher than the proposed Project's, Stanford's TDM measures and commute options that are currently in-place, including, but not limited to, Marguerite shuttle system, use of transit subsidies, Stanford's Commute Club and use of electric vehicles represent efficient transportation alternatives that would be utilized under Additional Housing Alternative B, similar to the proposed Project.

Conclusion

Overall energy demand in 2035 with buildout of Additional Housing Alternative B is projected to increase approximately 12 percent over the 2018 baseline (and approximately 3 percent greater than Project conditions in 2035). Electricity and natural gas demands would be higher than the proposed Project's, while the decrease in mobile fuels demand would be lesser than under the proposed Project. As shown in Table 7A.5-2, similar to the proposed Project, the per capita energy demand under Additional Housing Alternative B would decrease, indicative of an overall improvement in energy efficiency compared to baseline conditions. As under the proposed Project, the decrease in per capita energy demand under Additional Housing Alternative B demonstrates that energy use efficiencies would increase under this alternative, and resulting energy use from implementation of the alternative would not be wasteful or inefficient. Further, similar to the proposed Project, Additional Housing Alternative B would not have a substantial impact on the local or regional energy supplies or require additional capacity to be constructed.

Similar to the proposed Project, based on an evaluation of issues identified in CEQA Appendix F, Additional Housing Alternative B would not result in wasteful or inefficient consumption of fuel

or energy, and would not create demand on local and regional energy supplies that would require additional energy generation or transmission capacity. This impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7B.5-2: Additional Housing Alternative B development, in conjunction with other cumulative development and growth, would not contribute to cumulative increases in demand for energy which would result in the use of large amounts of fuel, water, or energy, or use these in wasteful manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect. (Less than Significant)

Electricity

Stanford is procuring the vast majority of electricity from Calpine through the direct access program. Calpine is one of many direct access electricity providers in the state and Stanford has the discretion to change providers over the implementation of the 2018 General Use Permit or Additional Housing Alternative B.

Continued growth throughout California's service areas could contribute to ongoing increases in demand for electricity. These anticipated increases would be countered, in part, by ongoing increases in national, statewide, and local requirements and incentives to support construction or retrofit of buildings with increased energy efficiency. Overall state-wide electricity supply during most conditions is adequate to meet demand. However, as demand continues to increase, temporary shortfalls could occur on portions of the statewide grid during temporary periods of high peak demand. Electricity providers such as Calpine and PG&E are actively planning for anticipated increases in peak demand through 2050. Given that California ranked first in electricity production from both solar and geothermal energy, and that there are approximately 6,000 megawatts of pending power plant projects in the state, similar to the proposed Project, development under Additional Housing Alternative B would not constitute a cumulatively considerable impact on the primary regional electricity distributors or sources.

Natural Gas

With respect to natural gas, PG&E sources natural gas from a combination of producers and suppliers located in Canada and the U.S. Southwest. The utility maintains contracts with producers and suppliers over daily, monthly, and longer term agreements. PG&E also maintains gas storage facilities and a network of conveyance and distribution pipelines within its service area. In order to address future increases in demand, PG&E maintains an active planning process to identify and deploy additional conservation measures to minimize increases in demand, to secure continued natural gas supply, and to maintain sufficient distribution system capacity within its service area. The latest California Gas Report indicates that predicted demand for Northern California during a high demand wintertime scenario in 2035 of 2,463 MMCF per day will be 79 percent of available capacity. Similar to the proposed Project, existing and planned

infrastructure is anticipated to be sufficient to maintain service to Additional Housing Alternative B and other cumulative scenario projects. Therefore, cumulative scenario impact on natural gas supply would not be cumulatively considerable.

Transportation Fuel

The cumulative context of transportation fuels involves both construction activities, which is predominantly a demand for diesel fuel; as well as operational demand, which is predominantly a demand for gasoline. Base gasoline demand dropped by about 13 percent between 2003 and 2013 and base diesel fuel demand remain unchanged between 2003 and 2013. Future statewide increases in gasoline demand associated with growth will likely continue to be offset by improvements to the vehicle fleet and programs such as low carbon fuel standard. As shown in Table 7B.5-1, implementation of Additional Housing Alternative B, similar to the proposed Project, would result in a net decrease in gasoline and diesel demand. Consequently, as under the proposed Project, Additional Housing Alternative B would not have a cumulatively considerable contribution to the demand for transportation fuels.

Mitigation: None required.

Geology and Soils

Construction Impacts

Impact 7B.6-1: Additional Housing Alternative B construction would not result in substantial soil erosion or loss of topsoil. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative could result in correspondingly greater disturbance of soils formerly protected with vegetation or covered by asphalt or concrete that could be exposed to winds and water flows that result in soil erosion or the loss of topsoil.

As under the Project, individual projects developed under this alternative would be required to implement construction best management practices (BMPs), as detailed in the Storm Water Pollution Prevention Plan (SWPPP) as required by the Construction General Permit from the National Pollution Discharge Elimination System (NPDES) program, which provide a benefit of preventing soil erosion and loss of topsoil at construction sites. Thus, with adherence to the required BMPs, potential construction-related erosion effects would be minimized.

As under the Project, following completion of construction activities for individual projects under this alternative, disturbed areas would be either revegetated through landscaping or covered by impervious surfaces such as structures or asphalt which limits the potential for erosion. Thus,

construction activities that would occur under the alternative would result in less-than-significant soil erosion impacts.

Mitigation: None required.

Operational Impacts

Impact 7B.6-2: Additional Housing Alternative B development would not expose people or structures to substantial adverse effects from ground shaking. (Less than Significant)

Additional Housing Alternative B would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more people and structures on the campus to potential effects of earthquake groundshaking. As with the proposed Project, as part of the County's approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all requirements of the California Building Code (CBC), the County Geologist, the County Building Inspection Office, the Stock Farm Monocline Agreement, and any other agreements defined during the term of the use permit under this alternative with regard to reduction of seismic risk. Similar to the proposed Project, site-specific geotechnical investigations for each project developed under this alternative, as required by the CBC, County and Stanford would be prepared for, and reviewed and approved by, the County Planning and Development Department prior to issuance of a building permit, ensuring that seismic design requirements are incorporated into construction specifications. As under the proposed Project, compliance with the building safety design standards of the CBC, the County and Stanford would reduce potential impacts associated with ground shaking in projects developed under this alternative to a less-than-significant level.

Mitigation: None required.

Impact 7B.6-3: Additional Housing Alternative B development would not expose people or structures to potential substantial adverse effects associated with liquefaction or lateral spreading, including the risk of loss, injury or death, in the event of a major earthquake on one of the regional active faults. (Less than Significant)

Additional Housing Alternative B would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more residential population and structures on the campus to potential effects of liquefaction or lateral spreading in the event of a major earthquake. Under this alternative, additional housing would be developed in certain development districts - West Campus, DAPER and Administrative and Quarry Development Districts – contain areas identified as being moderately susceptible to liquefaction; the East Campus Development District is identified as having a low susceptibility to liquefaction. Similar to the proposed Project, adherence to building code requirements using geotechnical design measures outlined in the final

design level geotechnical report prepared for individual projects under this alternative, and approved by the County, would minimize the potential for effects related to liquefaction and lateral spreading. As with the proposed Project, implementation of these building code requirements and geotechnical measures for individual projects developed under this alternative would ensure that seismically-induced ground failure, including liquefaction and lateral spreading, would be a less than significant impact.

Mitigation: None required.

Impact 7B.6-4: Additional Housing Alternative B development would not expose people or structures to potential substantial adverse effects associated with landslides, including the risk of loss, injury or death, in the event of a major earthquake on one of the other regional active faults. (Less than Significant)

Additional Housing Alternative B would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would expose more residential population and structures on the campus to potential effects of landslides in the event of a major earthquake. However, additional on-campus housing that would be developed under this alternative would not be located in areas of the Project site identified by CGS as being highly susceptible to seismically induced landslides; or susceptible to slope instability. In any case, similar to the proposed Project, compliance of individual projects under this alternative with applicable building safety design standards would reduce potential impacts associated with seismically induced landslides to a less-than-significant level.

Mitigation: None required.

Impact 7B.6-5: Additional Housing Alternative B development would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in correspondingly greater disturbance of soils and/or the loss of topsoil than the proposed Project. As discussed in Impact 7B.6-1, above, similar to the proposed Project, with implementation of construction BMPs included in the SWPPP as required by the Construction General Permit from the NPDES program, potential construction-related erosion effects associated with new development under this alternative would be minimized. As with the proposed Project, following construction, each project that would be developed under this alternative would be required to implement post-construction BMPs that include erosion control measures. Thus, as with the proposed Project, operation of the new development under this alternative would not result in substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

Mitigation: None required.

Impact 7B.6-6: Additional Housing Alternative B development would not result in substantial adverse effects from on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse as a result of being located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project development. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than would occur under the proposed 2018 General Use Permit. As a result, this alternative would have a greater potential than the proposed Project to be subject to effects from new development being located on an unstable geologic units or soils. As discussed in Impact 7A.6-3, above, certain development districts the proposed additional housing would be developed in - West Campus, DAPER and Administrative and Quarry Development Districts –contain areas identified as being moderately susceptible to liquefaction. However, as discussed in Impact 7A.6-4 above, none of the development districts in which additional on-campus housing would be developed are identified by CGS as being highly susceptible to seismically induced landslides; or susceptible to slope instability. As with the proposed Project, under this alternative, the potential for unstable soils to be present at the Project site would depend on site specific conditions and the scope of proposed improvements which would be evaluated as part of the required geotechnical investigations for individual projects. Site preparation measures would be recommended in a geotechnical report and incorporated into site design in accordance with building code requirements, and approved by the County. Therefore, similar to the proposed Project, with adherence to building code requirements, the potential for unstable soils to adversely affect new development under this alternative would be reduced to a less-than-significant level.

Mitigation: None required.

Impact 7B.6-7: Development under the Additional Housing Alternative B would not be located on expansive soils that would create substantial risks to life or property. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than would occur under the proposed 2018 General Use Permit. As a result, this alternative would have a greater potential than the proposed Project to for new development to be located on expansive soils. As under the proposed Project, as a requirement of the CBC, any development under this alternative would be required to complete a final geotechnical investigation that includes site-specific recommendations for the mitigation of potentially expansive soils. As under the proposed Project, geotechnical investigation and analysis of underlying soils would inform the recommended structural design of individual building projects under this alternative. Therefore, similar to the proposed Project, implementation of standard geotechnical engineering practices and adherence to building code requirements under this alternative would identify and reduce potential impacts from expansive soils on new development to a less-than-significant level.

Mitigation: None required.

Cumulative Impacts

Impact 7B.6-8: Development facilitated by the Additional Housing Alternative B, combined with past, present, and reasonably foreseeable probable projects, would not result in substantial adverse cumulative impacts to geology, soils, or seismic hazards. (Less than Significant)

The geographic scope of potential geology and soils impacts is restricted to the Project site and immediate vicinity because related risks are relatively localized or even site-specific. Accordingly, potential seismic related hazards, including groundshaking and earthquake-induced liquefaction and landslides, would not be considered cumulative in nature. Similarly, other potential geologic hazards such as unstable soils, expansive soils, and slope stability would also be localized or site-specific, and as a result, would not be cumulative in nature.

As under the proposed 2018 General Use Permit, for individual projects under Additional Housing Alternative B, construction activities at the Project site, similar to other cumulative development greater than one acre in size, would be required to comply with the NPDES Construction General Permit, which contain erosion control requirements that would minimize the potential for erosion. The NPDES program requires the preparation and implementation of SWPPPs for construction activities that include BMPs that ensure erosion control measures are included during construction. The individual projects under this alternative would be required to comply with these regulations, as would other cumulative development. Similarly, individual projects under this alternative would be required to implement post-construction BMPs that include erosion control measures, as would other cumulative development. Therefore, similar to the proposed Project, this alternative, in conjunction with other nearby cumulative development would not have a cumulatively significant impact associated with erosion.

Mitigation: None required.

Greenhouse Gas Emissions⁷⁰

Impact 7B.7-1: Additional Housing Alternative B would not generate greenhouse gas emissions, either directly or indirectly, that would have a cumulatively considerable contribution to global climate change. (Less than Significant)

Additional Housing Alternative B would involve more on-site development, a larger on-campus residential population and associated changes in traffic, and more on-site construction, than the

⁷⁰ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing GHG emissions analysis prepared by Ramboll for Stanford and independently peer reviewed by ESA; see Appendix ALT-GHG included in this document.

proposed Project, which would result in a net increase in greenhouse gas emissions compared to the proposed Project.

Similar to the GHG Impact analysis conducted for the proposed Project, an evaluation was conducted of the emissions inventory for the complete buildout of the development allowed in the study area under Additional Housing Alternative B. GHG operational emissions include electricity use, natural gas use, mobile sources, emergency generator use, solid waste, and water supply and wastewater; as well as GHG emissions from construction activities.

The total estimated GHG emissions in 2035 in the study area with buildout of Additional Housing Alternative B are presented in **Table 7B.7-1**, below. Development and growth under Additional Housing Alternative B would emit total GHG emissions of approximately 131,472 MTCO₂e per year in 2035 (6,060 MTCO₂e per year more than the proposed Project in 2035). The dominant GHG emissions sources would be almost evenly distributed between transportation, electricity imported to campus, and natural gas which contribute 36 percent, 29 percent, and 30 percent of the total inventory, respectively. This GHG emission rate is an approximate 5 percent increase over both the 2018 baseline emissions as well as the emissions under the proposed Project.

As with the 2035 inventory used for the proposed Project, the 2035 inventory for Additional Housing Alternative B was conservatively developed using 2030 emission factors. As a result, the electricity intensity factor, mobile emission factors, and other GHG sources are expected to continue to decrease after 2030 to meet California's long-term GHG reduction goals.

Additional Housing Alternative B would result in emissions of 1.8 MT of CO₂e per service population, similar to the proposed Project. This is below the 2.7 MT of CO₂e per service population threshold to determine consistency with the reduction goals established under SB 32 and EO B-30-15 for year 2030. The emissions of 1.8 MT of CO₂e per service population under Additional Housing Alternative B would also be below the 2.1 MT of CO₂e per service population threshold significance criterion developed for determining the GHG reduction trajectory toward 2050.

While the total GHG emissions under Additional Housing Alternative B would be 5 percent above the GHG emissions under the 2018 baseline (and Project) conditions, GHG emissions under Additional Housing Alternative B, similar to the proposed Project, would be below the significance thresholds that relate to consistency with GHG reduction goals for year 2030 and, to the extent feasible, year 2050. Similar to the proposed Project, Additional Housing Alternative B would not generate GHG emissions, either directly or indirectly, that would make a cumulatively considerable contribution to a significant impact on global climate change. Thus, this impact is less than significant.

Mitigation: None required.

TABLE 7B.7-1
TOTAL GHG EMISSIONS IN 2035 WITH BUILDOUT OF PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE B

GHG Source	GHG Emissions under the Proposed Project (metric tons CO2e per year)	GHG Emissions under Additional Housing Alternative B (metric tons CO2e per year)
Electricity		
PG&E Commercial	27	27
PG&E Searsville/Olmstead	37	37
New Faculty/Staff Housing	279	874
Direct Access	454	454
Imported to Campus and CEF	35,628	35,653
Non-Stanford Commercial	419	419
Subtotal	36,844	37,463
Natural Gas		
PG&E Residential	4,281	4,307
PG&E Commercial	20,559	20,559
PG&E Searsville/Olmstead	71	71
New Faculty/Staff Housing	347	1,085
Hot Water Generators	7,104	7,104
Replacement Process Steam Plant	5,770	5,770
Subtotal	38,131	38,895
Mobile Sources		
Worker Trips	15,524	15,013
Resident Trips	14,222	18,526
Campus Vehicles On-road	1,170	1,170
Campus Vehicles Off-road	235	235
Other Trips	11,767	11,830
Subtotal	42,919	46,776
Emergency Generators		
Subtotal	444	444
Solid Waste		
Subtotal	5,286	5,716
Water Transport and Treatment		
Domestic Water Use	320	367
Wastewater Treatment	121	139
Direct Wastewater Emissions	633	726
Subtotal	1,074	1,231
Miscellaneous Sources		
On-Campus Research and Fire Suppression	294	294
Construction Equipment	420	652
Subtotal	714	946

TABLE 7B.7-1 (CONTINUED)
TOTAL GHG EMISSIONS IN 2035 WITH BUILDOUT OF PROPOSED PROJECT AND
ADDITIONAL HOUSING ALTERNATIVE B

GHG Source	GHG Emissions under the Proposed Project (metric tons CO ₂ e per year)	GHG Emissions under Additional Housing Alternative B (metric tons CO ₂ e per year)
Total GHG Emissions 2035 with Buildout of Additional Housing Alternative B	125,412	131,472
Service Population	68,781	71,930
Emissions per Service Population	1.8	1.8
2030 Service Population Threshold	2.7	2.7
Exceeds 2030 Threshold?	No	No
2035 Service Population Threshold based on progress to 2050	2.1	2.1
Exceeds 2035 Threshold?		No

NOTES: The service population, comprised 49,479 workers, 25,599 residents and 19,668 workers who are residents, as derived from population estimates the SB 743 VMT Analysis prepared by Stanford for project alternatives.

SOURCE: Ramboll, 2018 (see Appendix ALT-GHG)

Impact 7B.7-2: Additional Housing Alternative B could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Significant)

The consistency of Stanford's operations with respect to state and local GHG reduction plans under the proposed 2018 General Use Permit was assessed in Section 5.7 of the Draft EIR. Plans, executive orders and regulations considered in this evaluation included:

- Assembly Bill 32 (AB32)
- The AB 32 Scoping Plan
- Plan Bay Area
- Executive Order B-30-15
- Senate Bill 32
- Executive Order No. S-3-05
- The 2017 Clean Air Plan
- Health Element of the County of Santa Clara General Plan

Additional Housing Alternative B's consistency with these plans, policies, and executive orders would essentially be the same as under the proposed Project, as discussed below.

Assembly Bill 32

The primary goal of AB 32 is the requirement for statewide GHG emissions to be reduced to 1990 levels by 2020. BAAQMD developed an efficiency metric of 4.6 MT of CO₂e per service population or less as indicative of a proposed plan or mixed use development as sufficient for achieving the year 2020 of AB32 (BAAQMD, 2009). As indicated in Table 7B.7-1, similar to the proposed Project, emissions under Additional Housing Alternative B would be well below this efficiency metric. Thus, as under the proposed Project, Additional Housing Alternative B would not conflict with the primary goal of AB 32.

CARB Scoping Plan

The AB 32 Scoping Plan identifies over 70 measures for reducing greenhouse gas emissions to 1990 levels by 2020. Specific measures discussed in the Scoping Plan that are relevant to the proposed Project include the Renewables Portfolio Standard (RPS) and Advanced Clean Cars program.

As discussed in the Environmental Setting of Section 5.7 in the Draft EIR, notable recent changes to Stanford's energy systems have occurred in combination with the renewable sources that utilities must use to comply California's Renewables Portfolio Standard (RPS), resulting in the anticipated total percentage of Stanford's electricity from renewable sources would be over 65 percent under Additional Housing Alternative B in 2035, similar to the proposed Project.

Vehicle GHG emission limits required by regulation combined with low carbon fuel standards will reduce the campus's vehicular GHG emissions on a per service population basis. As under the proposed Project, additional emissions reductions would result from Stanford's proposed electrification of all its Marguerite, LBRE and Bonair vehicle fleets by 2035 under Additional Housing Alternative B. Consequently, similar to the proposed Project, through its past and ongoing proactive actions, and with implementation of Additional Housing Alternative B, Stanford would be consistent with elements of the Scoping Plan relevant to its operations.

Plan Bay Area

MTC estimates increases in both residents and workers at Stanford in its 2040 growth projections under Plan Bay Area. Similar to the proposed Project, Additional Housing Alternative B is consistent with the SCS in terms of proposing additional residences and academic square footage in locations specified in the SCS for such development. In addition, the VMT analysis presented in Transportation and Traffic indicates that Additional Housing Alternative B would generate VMT per worker and VMT per capita rates that are below the regional averages, similar to the proposed Project.

As under the proposed Project, because Additional Housing Alternative B would locate residents and workers where envisioned by the SCS, and would generate less VMT per capita and VMT per worker compared to the existing regional averages, it would not conflict with the regional goals and targets expressed in the *Plan Bay Area Sustainable Communities Strategy*.

Executive Order B-30-15 and SB 32

Executive Order B-30-15 established a GHG emission reduction goal for California of 40 percent below 1990 levels by 2030. The GHG emissions total presented in Table 7B.7-1 conservatively represents the emissions inventory for Additional Housing Alternative B at full build-out in 2035. As explained in the preceding impact analysis, similar to the proposed Project, the emissions under Additional Housing Alternative B would be below the 2030 service population target calculated based on the GHG reduction goal established under SB 32 and EO B-30-15 (40 percent reduction below 1990 levels by 2030, taking into account the 1990 emissions levels and the projected 2030 statewide population and employment levels). Similar to the proposed Project, Additional Housing Alternative B would not conflict with SB 32 (or with the 2017 Scoping Plan that implements SB 32) and EO B-30-15, and Stanford's GHG emissions under Additional Housing Alternative B would be below the efficiency metric threshold derived for year 2030 reduction goals.

Executive Order S-3-05

Executive Order No. S-3-05 established a goal of reducing the State's GHG emissions to 80 percent below the 1990 level by the year 2050. Similar to the proposed Project, GHG emissions under Additional Housing Alternative B would be lower than the service population target calculated for 2035 based on the trajectory needed to achieve the GHG reduction goal established under EO S-3-05 (80 percent reduction below 1990 levels by 2050, taking into account the 1990 emissions levels and the projected 2030 statewide population and employment levels). Therefore, as under the proposed Project, Additional Housing Alternative B would not conflict with the attainment of the State's long-term GHG reduction goal for 2050.

BAAQMD 2017 Clean Air Plan

The 2017 Clean Air Plan contains transportation measures and measures related energy, green building, waste management, water control of short-lived GHGs. Those Clean Air Plan measures applicable to the Project are identified in **Table 5.2-11** in Section 5.2, Air Quality of the Draft EIR. Table 5.2-11 provides a brief description of the control measure and identifies any existing or proposed mechanism that Stanford and surrounding local jurisdictions and transit agencies would have in place to implement these measures. All existing mechanisms or those included in the proposed 2018 General Use Permit would also be part of Additional Housing Alternative B and, therefore, would be consistent with most, but not all, of the relevant control measures of the 2017 Clean Air Plan. Because there are some control measures with which the Project as proposed may not be consistent, this impact is also considered significant under Additional Housing Alternative B. Where an implementation mechanism does not currently exist or is not identified in Additional Housing Alternative B, mitigation measures are identified below to ensure its consistency with the 2017 Clean Air Plan.

County of Santa Clara General Plan

In 2015, the County of Santa Clara adopted a new Health Element of the General Plan. The Health Element contains five policies that may be interpreted to address climate change and GHG emissions. The first of these is Policy HE-G.5, which directs the County to support efforts to reduce transportation-related GHG emissions. Like the proposed Project, Additional Housing Alternative B

addresses this policy by Stanford's continued implementation of its TDM programs which are designed to achieve the Stanford Community Plan's No Net New Commute Trips standard.

Policy HE-G.10 directs the County to promote energy conservation and efficiency in homes, businesses, schools, and other infrastructure to reduce energy use and criteria pollutant and greenhouse gas emissions, and Policy HE-G.17 directs the County to promote energy retrofits and increase extreme heat resiliency for housing. Similar to the proposed Project, development under Additional Housing Alternative B would address these policies through implementation of Stanford's Climate and Energy Plan, which sets forth high-performance, whole-building energy performance targets specifically for each new building. As under the proposed Project, these requirements would ensure that development under Additional Housing Alternative B would be consistent with Policies HE-G.10 and HE-G.17.

Policy HE-G.11 directs the County to encourage renewable energy, such as solar and wind turbines on commercial, industrial and residential buildings. Similar to the proposed Project, under Additional Housing Alternative B, Stanford's updated campus-wide energy system, and heat recovery systems would provide renewable energy in addition to procuring electricity from its Solar Generating Station in Kern County as well as generating additional electricity from its on-campus rooftop solar installations, providing part of the campus's electricity demand. Therefore, as under the proposed Project, development under Additional Housing Alternative B would be powered and heated via these renewable energy sources, and hence would implement the intent of Policy HE-5.11.

Policy HE-G.16 directs the County to implement heat island mitigation by supporting urban greening and the use of green infrastructure to minimize the urban heat island effect. Stanford's Guidelines for Sustainable Buildings includes strategies for using microclimate and environmentally responsive design which include designing sites to reduce "heat island" effects, as discussed in the Draft EIR. Similar to the proposed Project, implementation of these strategies would make Additional Housing Alternative B consistent with Policy HE-G.16.

Mitigation: Implement the following mitigation measures:

Mitigation Measure 7B.15-2: Mitigation either through a program of "no net new commute trips" or through the contribution of funding equivalent to Stanford's proportionate share of the cost of improvements to fund transportation mitigation efforts.

Mitigation Measures 7B.3-8(a)-(b): Mitigation for native oak woodland

Mitigation Measure 7B.3-9(a)-(c): Mitigation for wetlands.

Mitigation Measure 7B.3-11(a)-(c): Mitigation for protected trees.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Climate change is the cumulative effect of all natural and anthropogenic sources of GHGs accumulated on a global scale. The GHG emissions from an individual project, even a very large development project, would not individually generate sufficient GHG emissions to measurably influence global climate change, and thus the assessment of GHG emissions impacts is inherently a cumulative analysis.

The analysis in Impact 7B.7-1 uses the BAAQMD CEQA Guidelines service population metric to assess the significance of the contribution to cumulative global GHG emissions under Additional Housing Alternative B. Consideration of a project's climate change impact, therefore, is essentially an analysis of a project's contribution to a cumulatively significant global impact through its emission of GHGs. While it is possible to examine the quantity of GHGs that would be emitted from individual project sources, it is not currently possible to link these GHGs emitted from a specific source or location to particular global climate changes.

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. Therefore, the evaluation of cumulative GHG impacts presented above evaluates whether Additional Housing Alternative B would make a considerable contribution to cumulative climate change effects. This is the same finding as under the proposed Project.

Hazards and Hazardous Materials

Construction Impacts

Impact 7B.8-1: Under Additional Housing Alternative B, demolition of existing structures that contain hazardous building materials would not create a significant hazard associated with exposure of workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. As a result, this alternative would result in more demolition and/or and modifications of existing improvements and structures on the Project site than under the proposed Project, and correspondingly, greater potential exposure of construction workers, the public, or the environment to hazardous materials such as lead-based paint (LBP), asbestos containing materials (ACMs), mercury and polychlorinated biphenyls (PCBs). However, as under the proposed Project, potential exposure to these hazardous building materials under this alternative would be eliminated or reduced to legally acceptable levels through compliance with abatement measures required as part of applicable federal, State and local regulations implemented through Stanford's Department of Environmental Health and Safety (EH&S) programs and overseen by County of Santa Clara Hazardous Materials Compliance Division (HMCD). Therefore, similar to the proposed Project, this impact for this alternative would be less than significant.

Mitigation: None required.

Impact 7B.8-2: Under Additional Housing Alternative B, construction projects could disturb soil and groundwater contaminated by historical hazardous material use, which could present risks the health of construction workers, the public, and/or the environment. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in overall greater soil disturbance on the Project site during construction compared to the proposed Project, and thus, would have a corresponding greater overall potential to disturb groundwater. Under this alternative, as under the proposed Project, if potential disturbance occurs in areas previously contaminated by hazardous materials, construction workers, the public, and/or the environment may be exposed to a localized release of compounds considered hazardous to human health or the environment, which would be a significant impact. However, implementation of **Mitigation Measure 7B.8-2(a)-(c)** identified for this alternative, which is the same as that identified for the proposed Project, establishes protocols for construction activities that would reduce or eliminate the potential risks to public or construction worker health, or the environment, reducing this impact to a less than significant level.

Mitigation Measure 7B.8-2(a): During construction within the Project site, any contractor shall cease any earthwork activities upon discovery of any suspect soils or groundwater (e.g., petroleum odor and/or discoloration) during construction. The contractor shall notify Stanford's Department of Environmental Health and Safety (EH&S) and the County of Santa Clara's Hazardous Materials Compliance Division (HMCD) of the Department of Environmental Health upon discovery of suspect soils or groundwater. EH&S will retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present.

Mitigation Measure 7B.8-2(b): If contamination is found to be present, any further proposed soil- or groundwater-disturbing activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a California state licensed professional. The contractor shall follow all procedural direction given by County HMCD and/or identified in a Soil and Groundwater Management Plan prepared for the site by a qualified environmental firm to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility (in coordination with EH&S).

Mitigation Measure 7B.8-2(c): If contaminated soil or groundwater is encountered and identified constituents exceed human health risk levels, it shall be delineated, removed, and disposed of offsite in compliance with the overseeing agency, either County HMCD or Regional Water Quality Control Board (RWQCB), as well as the receiving facilities' requirements.

Significance after Mitigation: Less than Significant.

Impact 7B.8-3: Improper handling or storage of hazardous materials during Additional Housing Alternative B construction activities could result in spills would not significantly increase public health and/or safety risks to future residents, maintenance workers, visitors, and the public and environment in the area surrounding the spill. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. As a result, this alternative would use more of certain hazardous materials such as fuels, oils, solvents, and glues during construction than the proposed Project, the inadvertent release of which could adversely impact workers, the public, soil, surface waters, or groundwater quality. Similar to the proposed Project, the use of construction best management practices implemented as part of a SWPPP as required by the NPDES General Construction Permit under this alternative would minimize the potential adverse effects to workers, the public, surface waters, groundwater and soils. Similar to the proposed Project, given the protective measures required to comply with federal, State, and local laws and regulations (i.e., best management practices) and the quantities of hazardous materials typically needed for construction projects, the potential exposure of construction workers or the public, or contamination of soil and/or groundwater, from construction-related hazardous materials under this alternative would be considered a less-than-significant impact.

Mitigation: None required.

Operational Impacts

Impact 7B.8-4: Operation of uses developed under the Additional Housing Alternative B that could involve the transportation, use, storage and disposal of hazardous materials, would not present significant public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit. As a result, this alternative would have a corresponding increase in transportation, use, storage and disposal of hazardous materials associated with operation of these uses compared to the proposed Project. As described for the proposed Project, residential uses would typically include use of familiar hazardous materials such as toners, paints, and household cleaning products; and any building maintenance and landscaping activities associated with residential uses commonly involve use of fuels, oils, paints, lubricants, solvents, and pesticides. These common types of materials are typically stored and used in small quantities, and used in accordance with manufacturer recommendations. As such, the routine transport, use, storage or disposal of these materials under this alternative would not be reasonably expected to cause an adverse impact to the public and the environment.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, impacts associated with transportation, use, storage and disposal of hazardous materials associated with operation of those facilities under this alternative would be similar to the proposed Project. Development and operation of those facilities under this alternative would be subject to the same applicable regulatory requirements, and same oversight by Stanford's EH&S and the County's HMCD, as the proposed Project, which would similarly ensure potential exposure of people or the environment to hazardous materials would be less than significant impact.

Mitigation: None required.

Impact 7B.8-5: Hazardous materials used at facilities operating under Additional Housing Alternative B could potentially be spilled through upset or accidental conditions, but would not significantly increase public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated infrastructure, than the proposed 2018 General Use Permit. Any potential accidental releases of hazardous materials or wastes associated with operation of additional on-campus residential uses would be small in scale; similar to the proposed Project, potential effects to residents, workers, the public or the environment under this alternative would be less than significant.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, potential accidental releases of hazardous materials or wastes associated with operation of those facilities, and related potential adverse effects to residents, workers, the public or the environment would be similar to the proposed Project. Operation of those facilities would be subject to the same applicable regulatory requirements and management programs, and same oversight by Stanford's EH&S and the County's HMCD, as the proposed Project; the potential impact to workers, residents, visitors, or the environment would therefore be reduced to a less-than-significant level.

Mitigation: None required.

Impact 7B.8-6: New development under Additional Housing Alternative B could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, thus, could result in a safety hazard to the public or environment. (Potentially Significant)

Additional Housing Alternative B would involve overall more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit, and therefore, would have a greater potential to develop in areas on the campus where residual hazardous materials may be present in the soil and cause significant impacts. However, implementation of **Mitigation Measures 7B.8-**

2(a), 7B.8-2(b), and 7B.8-2(c) identified for this alternative, which are the same as those identified for the proposed Project, would ensure that any earthwork activities that occur on the Project site that may encounter suspicious materials would be adequately addressed, and thus, the potential for residual contamination to significantly impact the public or environment would be less than significant post-mitigation.

Mitigation: Implement Mitigation Measure 7B.8-2(a)-(c).

Significance after Mitigation: Less than Significant.

Impact 7B.8-7: Implementation of Additional Housing Alternative B could result in hazardous emissions or handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school, but would not create a significant hazard to those facilities. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated infrastructure than the proposed 2018 General Use Permit that could be located within one-quarter mile of an existing or proposed school. As discussed above, operation of residential uses involves common hazardous materials that are typically stored and used in small quantities. Accordingly, there are no characteristics associated with operation of the additional housing that would result in substantial hazardous emissions or handling of hazardous or acutely hazardous materials, substance, or waste that would result in adverse exposure to hazardous emissions at nearby schools.

Given that this alternative would involve operation of the same level of academic and academic support facilities (including laboratory and research uses) as the proposed Project, this alternative would similarly not include a substantive change in hazardous emissions, and all transportation, use, storage, and disposal of hazardous materials would be conducted in accordance with applicable local, State, and federal requirements. Therefore, similar to the proposed Project, implementation of the alternative would not result in any adverse exposure to hazardous emissions to existing or future schools within, or in the vicinity of, the Project site.

Mitigation: None required.

Impact 7B.8-8: Development facilitated by Additional Housing Alternative B would not substantially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Additional Housing Alternative B would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit. Therefore, this alternative would increase the on-campus residential population that would be served by emergency response and evacuation plans. As with new development proposed under the Project, any changes to the circulation network that may occur to accommodate additional

housing under this alternative would be designed to accommodate appropriate emergency access to, and egress from, all areas of the Project site. Additionally, similar to the proposed Project, all project-specific designs, including private internal circulation and building site plans for the additional housing under this alternative would be subject to review and approval by emergency service providers, per Fire Code requirements. As with the proposed Project, under this alternative Stanford would continue to operate its Office of Emergency Management (OEM) and coordinate emergency response planning efforts with applicable jurisdictional emergency response providers, including County OEM; and also continue to maintain its emergency notification systems at Stanford via its AlertSU strategy. Therefore, similar to the proposed Project, these emergency response requirements would ensure this alternative would not substantially impair implementation of or physically interfere with any emergency response or evacuation plans. Impacts would be similar to those of the proposed Project.

Mitigation: None required.

Impact 7B.8-9: Development under Additional Housing Alternative B would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. (Less than Significant)

Additional Housing Alternative B would increase residential development and associated residential population on the campus compared to the proposed 2018 General Use Permit, and therefore, would increase the on-campus residential structures and residential population on the campus that would be exposed to risk involving wildland fires. This alternative would not introduce housing development or increase population within the foothills, designated by the County as a wildland/urban interface. Rather, and similar to proposed Project, all additional housing that would be developed under this alternative would be located within the Academic Growth Boundary, including on infill and redevelopment sites. Similar to the proposed Project, additional on-campus housing that would be developed under this alternative would be required to include fire suppression design requirements as specified in current adopted building codes and would be served by sufficient fire protection services. As with the proposed Project, implementation of applicable fire and building code standards would ensure that adequate fire and life safety measures are incorporated into the alternative in compliance with all applicable state and local fire safety regulations. Similar to the proposed Project, these factors would reduce the potential impact associated with exposure of people and property to risk involving wildland fires under this alternative to a less than significant level.

Mitigation: None required.

Cumulative Impacts

Impact 7B.8-10: Hazards at the Additional Housing Alternative B site, in combination with past, present, and future projects could potentially contribute to cumulative hazards. (Potentially Significant)

The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses primarily the Project site and immediate surrounding area. Cumulative hazardous materials effects could occur if activities that would occur under Additional Housing Alternative B at the Project site, and other past, existing and proposed development, together, would significantly increase risks in the vicinity of the Project site. As discussed above, the additional housing that would occur under this alternative would involve routine hazardous materials in relatively small quantities. As under the proposed Project, based on the existing management of hazardous materials and the continued oversight, guidance and compliance monitoring that would be conducted by Stanford's EH&S and/or County HMCD for all development on the campus, there would not be a substantial change in how hazardous materials are handled under this alternative. As a result of these existing regulatory requirements that apply to the Project site, and given that nearby off-site land uses would be subject to their own applicable regulations and internal standard operating procedures controlling the use, storage, and disposal of hazardous materials, the potential hazardous materials and hazard impacts would not combine to become cumulatively considerable.

Similar to the proposed Project, this alternative, as well as other past, present, and future projects would be required to adhere to existing regulatory requirements for the appropriate handling, storage, transportation, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. Cumulative increases in the transportation of hazardous materials and wastes would cause a less than significant impact because the probability of accidents is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents.

During construction, implementation of Mitigation Measure 7B.8-2(a)-(c) would also reduce any contribution from this alternative to potential cumulative disturbance of soil and groundwater. Given this and all the other factors discussed above, the cumulative impact of this alternative to hazards and hazardous materials would be less than significant.

Mitigation: Implement Mitigation Measures 7B.8-2(a)-(c).

Significance after Mitigation: Less than Significant.

Impact 7B.8-11: Additional Housing Alternative B, in combination with past, present, and future projects would not substantially impair implementation or physically interfere with emergency response or evacuation plans. (Less than Significant)

As discussed in Impact 7B.8-11, above, site review for individual building projects and existing emergency response requirements are sufficient to ensure that the alternative's effect on potential

impairment or implementation of any emergency response or evacuation plans would be considered a less-than-significant impact. Furthermore, regional plans such as the Local Hazard Mitigation Plan and the Santa Clara County Operational Area Emergency Operations Plan (EOP) are adaptive to changes in population and provide the inter-agency coordination to ensure that emergency response and evacuation can be effectively coordinated in an emergency. Therefore, the effects of the alternative would not combine to become cumulatively considerable.

Mitigation: None required.

Impact 7B.8-12: Additional Housing Alternative B, in combination with past, present, and future projects would not substantially contribute cumulatively to exposure to wildland fires. (Less than Significant)

Additional Housing Alternative B, as well as other land uses in the Project site vicinity would include the proper mechanisms to ensure the alternative's potential impacts to wildland fire hazards and emergency response access would be less than significant, and correspondingly, would also ensure the alternative's contribution to cumulative effects on wildland fires would also be less than significant.

Mitigation: None required.

Hydrology and Water Quality

Construction Impacts

Impact 7B.9-1: Additional Housing Alternative B construction could violate water quality requirements or waste discharge requirements, or otherwise degrade water quality. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction, including on infill and redevelopment sites, than would occur under the proposed Project. This alternative would also involve more subsurface construction requiring soil excavation than the proposed Project. As a result, this alternative would result in correspondingly greater earthwork activities during construction such as removal of surface vegetation, grading and excavation of soils, and potential placement of imported soil, which would could result in increased erosion and sedimentation. Similar to the proposed Project, as part of the approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, including implementation of construction BMPs, as detailed in a SWPPP, along with any additional use permit conditions that must be met regarding stormwater control and management during construction.

Similar to the proposed Project, inactive wells, if not abandoned appropriately, can present potential conduits for contamination from the surface to underlying groundwater resources. Unless the existing potential conduits are eliminated, this would be a significant impact under this alternative. Implementation of **Mitigation Measure 7B.9-1**, which is the same as that identified for the proposed Project, would require Stanford to refer to the well survey, prior to obtaining a demolition or grading permit for individual projects under this alternative to ensure that there are no wells within each building site that might need to be appropriately abandoned to eliminate this pathway for contamination.

Implementation of SWPPP requirements, as well as Mitigation Measure 7B.9-1, would prevent significant construction-related impacts to water quality, and ensure that all construction activities that would occur under the alternative would minimize the potential to adversely affect receiving waters. Therefore, during construction, the potential water quality impacts of this alternative would be less than significant post-mitigation, similar to the proposed Project.

Mitigation Measure 7B.9-1: Prior to issuance of a demolition or building permit, Stanford shall review its historic wells survey and confirm that no historic wells not properly closed are located at the project location to determine the potential for encountering any groundwater wells within the area of proposed improvements. If discovered, and the well is no longer part of operations and was not abandoned in accordance with SCVWD requirements, Stanford shall fulfill the well abandonment/destruction permit requirements. Stanford shall contact SCVWD to locate existing inactive wells and confirm adherence to well abandonment/ destruction requirements.

Significance after Mitigation: Less than Significant.

Impact 7B.9-2: Additional Housing Alternative B construction could include temporary dewatering, but would not substantially deplete groundwater supplies or cause a lowering of the water table. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. Consequently, this alternative would require greater excavation of soils related to underground utilities, construction of building foundations, and in some cases, to accommodate underground levels, than the proposed Project. Similar to the proposed Project, if shallow groundwater were to be encountered during construction, excavations could require temporary dewatering of groundwater to create a dry working environment in order to complete construction.

Similar to the proposed Project, to address the possibility of rising groundwater at the Project site in the future, in the event that any new subgrade construction under this alternative would encounter several vertical feet of groundwater necessitating dewatering, Stanford would, as standard practice, stipulate a geologic/geohydrologic analysis be conducted to assess the potential for any localized consolidation/settlement effects, and identify appropriate measures to protect adjacent structures and infrastructure during construction.

As with construction related to the proposed Project, potential construction dewatering associated with this alternative would only be required for the duration of a portion of the construction period of an individual project. As a result, similar to the proposed Project, construction dewatering under this alternative would not result in long-term, large volume groundwater withdrawal that would lead to substantive depletion of groundwater supplies, permanent lowering of groundwater levels, or seasonal basin recharge. Therefore, as with the proposed Project, the potential impact to groundwater supplies and the water table during construction of individual projects under this alternative would be less than significant.

Mitigation: None required.

Operational Impacts

Impact 7B.9-3: Operation of Additional Housing Alternative B would not violate water quality requirements or waste discharge requirements, or otherwise substantially degrade water quality. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would result in more on-campus impervious surfaces compared to the proposed Project. Any increases in paved areas, building rooftops and parking lots under this alternative would have the potential to generate more polluted stormwater during storm events than under the proposed Project. Similar to the proposed Project, if not managed appropriately, increases in polluted stormwater would have the potential to violate water quality standards. Relatedly, any potential increase in use of herbicides and pesticides under this alternative associated with additional landscaping could adversely affect the quality of receiving surface waters or groundwater.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, along with any additional use permit conditions that must be met, regarding stormwater control and management during operation. As with the proposed Project, adherence to stormwater control measures as a part of the RWQCB Municipal Regional MS4 Stormwater Permit would minimize the water quality impact from development that would occur under this alternative to a less-than-significant level by requiring all proposed development to include stormwater design measures that protect water quality.

Mitigation: None required.

Impact 7B.9-4: Additional Housing Alternative B operation could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (Potentially Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would result in more on-campus impervious surfaces compared to the proposed Project. As discussed in Section 5.9, Hydrology and Water Quality, the SCVWD has delineated an area known of the Project site known as the Unconfined Zone, where groundwater recharge by infiltration primarily occurs (as shown in Figure 5.9-4). Two of the four development districts which this alternative would add additional housing to – West Campus and East Campus – are located partially within the Unconfined Zone. The other two development districts which this alternative would add additional housing to – Quarry, and DAPER and Administrative Development Districts – are located completely outside the Unconfined Zone. If, under this alternative, increases in impervious surfaces from additional housing were introduced in this area of groundwater recharge, the amount of runoff that recharges into the underlying aquifer could be further reduced, a significant impact as with the proposed Project.

Similar to the proposed Project, new development under this alternative would be required to include on-site drainage plans designed to retain, capture and convey increased runoff in accordance with the SCVURPPP design standards and the Municipal Regional MS4 NPDES permit requirements that include Provision C.3 site control features. As a result, the additional housing associated with this alternative would be required to minimize the amount of stormwater discharge offsite. See also discussion of Stanford's detention facilities in Impact 7A.9-6, below, which encourage groundwater recharge.

Pursuant to the 2000 General Use Permit, Stanford implements a campus-wide plan for groundwater recharge to mitigate the loss of recharge areas from development that occurs within the Unconfined Zone; this involves the conveyance of a quantifiable amount of water from Stanford's irrigation water supply to Lagunita reservoir, and the percolation of that water as recharge into the Unconfined Zone. Similar to mitigation identified for the proposed Project, **Mitigation Measure 7B.9-4**, below, would require continued implementation of this groundwater recharge plan with annual reporting to the County would ensure that future development that would occur in the Unconfined Zone under this alternative would not result in adverse effects to underlying groundwater levels.

As under baseline and proposed Project conditions, under this alternative, Stanford's groundwater wells would be used to supplement local surface water sources for the non-potable landscape irrigation system and, if needed, for the Lagunita reservoir to maintain water levels. Also, as under baseline and proposed Project conditions, under this alternative, Stanford would operate within its secured water rights for surface water diversion for non-potable uses. The additional housing that would be developed on-campus under this alternative would consist of multi-family housing, which would minimize the demand for non-potable water required for landscaping. Additionally, as under the proposed Project, Stanford would use of low-water-demand native plants in landscaped areas of the campus, minimizing the non-potable water demand. As a result, total

landscape irrigation demand under this alternative would be similar to the proposed Project, and would not expected to substantively change from baseline conditions.

However, based on a Water Supply Assessment (WSA) prepared by Stanford for the Additional Housing Alternative B (see Utilities and Service Systems below for additional detail), in single and multiple dry water year scenarios, Stanford would need to supplement its potable water supply (i.e., its guaranteed allocation of potable water purchased wholesale from San Francisco Public Utilities Commission) with treated groundwater from its wells in order to accommodate the estimated increase in potable water demand from the additional on-campus housing. Under all water year scenarios, the total groundwater demand for this alternative would not exceed 1.35 mgd (see Utilities and Service Systems, below, for additional detail). As discussed in Section 5.16, Stanford can withdraw up to 1.52 mgd from its wells without adversely affecting groundwater conditions. As a result, similar to the proposed Project, the projected groundwater use for this alternative could be safely withdrawn without causing excessive drawdown in the aquifer. Additionally, Stanford could implement more stringent water conservation measures beyond those implemented historically to further minimize increases in groundwater use.

This alternative would also involve more subsurface construction than the proposed Project. While, as discussed in Section 5.16, Stanford reports that no subgrade building construction to date within the Project site has encountered groundwater, if needed to address the possibility of rising groundwater at the Project site in the future, Stanford would strengthen building foundations to withstand the hydrostatic pressures and waterproofing the structure appropriately. As with the proposed Project, this would avoid any potential localized effects on groundwater levels from conducting long-term groundwater dewatering via pumping for new buildings under this alternative, and correspondingly, avoid adding extracted groundwater to the storm drain system.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with any conditions that must be met regarding groundwater use and recharge during operation. Therefore, the drainage control requirements, the projected use of groundwater wells, and the implementation of the Groundwater Recharge plan as identified in Mitigation Measure 7B.9-4, would assure onsite infiltration such that development that would occur under this alternative would not substantively reduce the aquifer volume or lower the local groundwater level. Similar to the proposed Project, the potential impact under this alternative would therefore be less than significant.

Mitigation Measure 7B.9-4: Stanford Utilities shall review individual projects proposed under the Additional Housing Alternative B for changes in impervious surface area within the Unconfined Groundwater Zone. The accounting of the recharge effort shall be tracked to ensure that all future development will continue to result in an annual net positive recharge in the Unconfined Groundwater Zone. Record of monitored data shall be submitted to the County on an annual basis and Santa Clara Valley Water District and include both water volumes and water quality data.

Significance after Mitigation: Less than Significant.

Impact 7B.9-5: Additional Housing Alternative B development would potentially alter the drainage pattern of the Project site, but would not result in substantial erosion or siltation on or off the site. (Less than Significant)

Additional Housing Alternative B would involve more site development than the proposed Project, and consequently may involve greater alteration of drainage patterns on the Project site. As under the Project, if not managed properly, localized changes in drainage patterns for individual developments that would occur under this alternative could create new impervious surfaces that would increase the amount of surface run-off; and hence cause erosion of exposed soils resulting in sedimentation and siltation of discharge flows on- or off-site.

As discussed in Impact 7B.9-3, above, implementation of design features in accordance with drainage control requirements would be effective in controlling erosion potential and minimizing transport of siltation on or off site. Therefore, similar to the proposed Project, localized changes in on-site drainage patterns associated with development under this alternative would not result in substantial erosion or siltation, and with adherence to stormwater control measures as a part of the Municipal Regional NPDES MS4 stormwater permit, the potential impact is considered less than significant.

Mitigation: None required.

Impact 7B.9-6: Additional Housing Alternative B development would create runoff, but would not exceed the capacity of existing or planned stormwater infrastructure, or result in flooding on- or off-site. (Less than Significant)

Additional Housing Alternative B would involve more site development than the proposed Project, and consequently would involve more impervious surfaces on the Project site. Similar to the proposed Project, if any resulting increases in stormwater were not managed properly, this alternative could result in an increase in peak flows in, and potentially affecting the capacity of, the downstream storm drainage infrastructure, and potentially exacerbate existing or create new flooding conditions.

As under the proposed Project, in order to accommodate post-development increases in runoff from new development under this alternative, each individual project would be required to develop a drainage plan that complies with the County's drainage design standards and the requirements of the SCVURPPP including flow control, and NPDES Provision C.3 requirements for storm capacity minimums. The County's drainage design standards require that project stormdrainage infrastructure be designed to adequately convey all runoff from peak storm events. Any potential increases in stormwater runoff resulting from additional impervious surfaces must be detained to ensure peak flows do not result in on-site or downstream flooding.

As discussed in Section 5.9, Hydrology and Water Quality, as a condition of the 2000 General Use Permit, Stanford developed on-site detention facilities on a watershed basis to create sufficient capacity to offset increased runoff associated with all new impervious surfaces constructed under the 2000 General Use Permit. In 2018, the existing detention facilities are estimated to have the

capacity for accommodating an additional approximate 57.0 acres (2.48 million square feet) of impervious surfaces in the San Francisquito watershed, and an additional approximate 194.8 acres (8.52 million square feet) of impervious surfaces in the Matadero watershed. In accordance with Stanford Community Plan Policy SCP-HS 9, all development would require infrastructure improvements to accommodate runoff so as to achieve no increase in peak flow rate. Similar for the proposed Project, this remaining detention capacity would also be more than adequate to accommodate the net increase in impervious surfaces that would occur under this alternative.

As discussed in the Project Description for Additional Housing Alternative B, the placement of housing at the edges of the West Campus and DAPER Development Districts under this alternative could require development of lands that are currently used for existing recreation fields and/or detention basins located in these areas. Under this circumstance, Stanford would provide replacement stormwater detention facilities with an equivalent detention capacity.

Similar to the proposed Project, as part of the County approval process for individual projects under this alternative, the County would require Stanford to demonstrate compliance with all applicable regulatory requirements, along with any conditions that must be met, regarding stormwater control and management during operation. Pursuant to the County-approved Stanford Storm Drainage Master Plan, Stanford reports to the County annually regarding the remaining capacity for the existing detention facilities. The detention facilities are designed to accommodate the 100-year design storm flow. Mandatory compliance with the Storm Drainage Master Plan, the County's drainage design standards, SCVURPPP, and NPDES requirements, as required by law, would ensure that proposed development under the alternative would include adequate storm drainage control features, including potential detention facilities and features that promote onsite infiltration. As such, similar to the proposed Project, effects on increases in peak runoff and capacity of existing or planned stormwater infrastructure under this alternative would be considered less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7B.9-7: Additional Housing Alternative B, in combination with past, present, and future projects could potentially contribute to surface and groundwater quality impacts. (Potentially Significant)

The geographic scope of potential hydrology and water quality impacts are the study watersheds. Construction and operation of the development under this alternative, together with past, present and other reasonably foreseeable future projects in the vicinity could cumulatively increase stormwater runoff and pollutant loading in the study watersheds, and hence, to the San Francisco Bay. Construction related to alternative, in combination with other cumulative development, could also affect groundwater quality. As under the proposed Project, development associated with this alternative and other current and future projects in the watersheds would be required to comply with current construction, drainage and grading requirements intended to control runoff and regulate

water quality at each site. Similarly, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. As with the proposed Project, new development projects in the affected watersheds in Santa Clara and San Mateo Counties also would be required to comply with the regionally based MS4 NPDES permitting requirements. All construction work disturbing more than one acre in the surrounding areas would require permits from the RWQCB which require all activities to implement BMPs to minimize adverse effects to water quality. The NPDES permits, both the General Construction Permit and the MS4, are based upon addressing cumulative contributions to a watershed and as a result include requirements to implement BMPs that protect water quality to the maximum extent practicable. Further, Mitigation Measure 7B.9-1 would serve to minimize any contribution from this alternative to significant cumulative effects on groundwater quality. Therefore, similar to the proposed Project, the effect of this alternative on surface and groundwater quality, in combination with other cumulative projects, would be less than significant.

Mitigation: Implement Mitigation Measure 7B.9-1.

Significance after Mitigation: Less than Significant.

Impact 7B.9-8: Additional Housing Alternative B, in combination with past, present, and future projects could potentially contribute to depletion in groundwater supplies or interfere with groundwater recharge. (Potentially Significant)

As with the proposed Project, construction and operation of the proposed development under this alternative, together with past, present and other reasonably foreseeable future projects in the vicinity could cumulatively decrease groundwater supplies and interfere with groundwater recharge. As discussed in Section 5.9, Hydrology and Water Quality, the Santa Clara Valley Groundwater Basin is not currently in an overdraft condition and is actively managed by the SCVWD which has recently submitted an application to serve as the Groundwater Sustainability Agency (GSA) for the basin in accordance with the Groundwater Sustainability Management Act. A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. Under this alternative, Stanford would also continue implementation of the Campus-wide Plan for Groundwater Recharge, as specified in Mitigation Measure 7B.9-4, above, to ensure that any loss of recharge areas due to new development under this alternative is addressed through management of Lagunita reservoir as described above. Therefore, considering the projected use of groundwater for the alternative, the proposed landscaping vegetation, current and future management of the groundwater basin and continued adherence to the groundwater recharge plan as overseen by SCVWD, there would be a less than significant cumulative impact to groundwater levels or supplies under this alternative.

Mitigation: Implement Mitigation Measure 7B.9-4.

Significance after Mitigation: Less than Significant.

Impact 7B.9-9: Additional Housing Alternative B, in combination with past, present, and future projects would not result in substantial adverse cumulative surface hydrology impacts. (Less than Significant)

Implementation of this alternative, together with past present and other reasonably foreseeable future projects in the vicinity, could also expose people and/or property to flooding from a 100-year event. These effects could occur through increases in stormwater runoff volumes that overwhelm drainage infrastructure or during high tide in a 100-year storm event along with sea level rise in the Bay. This alternative and other cumulative projects in the vicinity would be required to comply with flood control requirements intended to provide flood protection. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. New development projects in the County also would be required to comply with County flood control requirements. As discussed above, as with the proposed Project, this alternative would include structural measures designed to convey stormwater flows through improvements to existing infrastructure such that runoff volumes do not exceed existing flows during peak storm events. Therefore, this alternative, in combination with other cumulative projects, would not result in a significant cumulative impact to people and/or property from a 100-year event. Similar to the proposed Project, this alternative would have a less than cumulatively considerable impact, and cumulative effects, therefore, would be less than significant.

Mitigation: None required.

Land Use and Planning

Impact 7B.10-1: Additional Housing Alternative B could conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

As under the proposed Project, it is assumed that the additional increment of on-campus housing that would occur under Additional Housing Alternative B would be located within the Academic Growth Boundary and would not be constructed within the Campus Open Space land use designation (including the Arboretum Development District). It is further assumed under this alternative that no additional increment in on-campus housing under this alternative would be placed in the Campus Center, Lagunita, Lathrop, or San Juan Development Districts. The additional housing (1,275 units) that would be developed under this alternative would be located in the East Campus, Quarry, DAPER and Administrative, and/or West Campus Development Districts.

Based on the Stanford Community Plan Policy SCP-LU 3 that faculty/staff housing within the Academic Campus must be at least 15 units per acre, and consistent with its policies promoting compact urban development, it is reasonable to assume that additional faculty/staff and/or other worker housing that would occur under this alternative would be multi-family housing. Stanford indicates that densities for the additional multi-family housing that would be developed under this alternative would range from about 40 to 80 units per acre. The effects on the four development districts where additional housing is proposed under this alternative are described below.

East Campus Development District

Development in the East Campus Development District under this alternative includes 1,841 new housing units/beds (241 more units than the proposed Project, including an additional 137 faculty, staff, postdoctoral student and/or other worker units as well as 104 graduate student beds) and 20,000 square feet of academic and academic support space (same as the proposed Project). Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. Stanford indicates that placement of additional housing in this district would likely require redevelopment and intensification of existing residential sites within the Escondido Village area. Proposed additional housing development under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

Quarry Development District

Development in the Quarry Development District under this alternative includes 1,100 new housing units (550 more faculty, staff, postdoctoral student and/or other worker units than under the proposed Project) and 200,000 square feet of academic and academic support space (same as the proposed Project). As noted above, Stanford anticipates that the housing density would be approximately 80 units per acre and building heights would be up to 135 feet in this district. In addition, this alternative is assumed to include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the Quarry Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. Proposed additional housing development under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

DAPER and Administrative Development District

Development in the DAPER and Administrative Development District under this alternative includes the additional 242 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with up to 200,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, Stanford would not construct housing within the Campus Open Space designated lands in the district that are located between Stanford Stadium and El Camino Real. Stanford indicated that placement of housing along El Camino Real could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. In addition, this alternative could include modification to the *Plan for the El Camino Real Frontage* for additional faculty/staff housing that would occur in the DAPER and Administrative Development District, which currently establishes a 20-foot setback from the property line along El Camino Real and building height limits of 50 feet within 100 feet of the El Camino Real right-of-way. New housing proposed under this alternative would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral

student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

West Campus Development District

Development in the West Campus Development District under this alternative includes the additional 242 faculty, staff, postdoctoral student and/or other worker units identified by this alternative, along with 35,000 square feet of academic and academic support space that was proposed under the Project. Additional housing proposed under this alternative could result in buildings up to 135 feet in height, at densities up to 80 units per acre. As under the Project, with this alternative Stanford would not construct housing within the Campus Open Space designated lands currently occupied by the Palo Alto Stock Farm Stable (Red Barn), and another narrow strip of land along Campus Drive near its intersection with Junipero Serra Boulevard. As with the DAPER and Administrative Development District, Stanford indicated that placement of housing along Sand Hill Road could require development of lands that are currently used for recreation fields and/or detention basins, which would need to be relocated elsewhere on the campus. New housing proposed under this alternative in this district would be consistent with the Academic Campus land use designation, provided any potential faculty, staff, postdoctoral student and/or other worker housing would meet or exceed the density requirements of Stanford Community Plan Policy SCP-LU 3.

Summary

As under the proposed Project, housing development proposed by Additional Housing Alternative B would be consistent with the Growth and Development policies of the Stanford Community Plan by reducing potential environmental effects that could result from development of Stanford lands outside the Academic Growth Boundary. The additional housing proposed by this alternative would be consistent with the existing land use designations for Stanford lands described in the Stanford Community Plan. Similar to the proposed Project, at the time individual housing projects are proposed under this alternative, the County would require Stanford to apply for project-specific approvals; these projects may be subject to additional environmental review prior to consideration of approval by the County. Similar to the proposed Project, this alternative would have a less-than-significant impact regarding consistency with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation: None required.

Cumulative Impacts

Impact 7B.10-2: Additional Housing Alternative B, in combination with past, present, and future projects could potentially contribute to cumulative land use impacts. (Less than Significant)

The geographic scope of potential cumulative land use impacts encompasses the Stanford lands within the General Use Permit boundary, Stanford lands adjacent to the boundary and not under County of Santa Clara jurisdiction, and adjacent, non-Stanford lands in other jurisdictions.

Lands that border the four development districts where additional housing would occur this alternative include Stanford lands within Palo Alto, such as the Stanford University Medical Center and Stanford Shopping Center, as well as non-Stanford lands within Palo Alto along El Camino Real and the College Terrace residential neighborhood. These areas are generally developed urban areas. Reasonably foreseeable growth within Palo Alto in areas adjacent to the development districts in which additional housing is proposed would represent intensification of existing land uses. Less than significant cumulative land use impacts would result from development under this alternative combining with impacts of past, present, or reasonably foreseeable future projects in areas of Palo Alto that border those development districts.

Mitigation: None required.

Noise and Vibration

Construction Impacts

Impact 7B.11-1: Additional Housing Alternative B could expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction. (Significant)

Additional Housing Alternative B would involve more on-campus construction compared to the proposed Project due to the additional on-campus housing under this alternative. Thus, Additional Housing Alternative B would have the potential for greater construction noise effects than the proposed Project over the duration of the use permit. Construction activities would involve the same sources of noise as that would occur for the proposed Project. Consequently, as presented in **Table 7B.11-1**, the estimated construction noise for various phases of construction activity at distances of 50, 100, 150 and 300 feet from the construction site, would be the same as for the proposed Project.

The Santa Clara County Ordinance Code establishes different construction noise limits for different land use areas. The most restrictive construction noise limit is 75 dBA for mobile equipment at single family residential areas, such as those off-site residences located across Stanford Avenue from the Project site. Although the County ordinance does not identify a construction noise limit for schools, it is reasonable to also apply this noise limit to nearby schools, day care facilities and other noise sensitive receptors. As can be seen from **Table 7B.11-1**, construction closer than 150 feet from off-site receptors would have the potential to result in noise levels in excess of the County's noise standard, which would be a significant impact under Additional Housing Alternative B, as under the proposed Project.

Similar to the proposed Project, during the life of Additional Housing Alternative B, Stanford would not conduct any impact pile driving on construction projects necessitating piles, but rather, would use alternative pile installation methods to minimize potential noise and vibration disruption.

TABLE 7B.11-1
NOISE LEVELS FROM CONSTRUCTION ACTIVITIES AT VARIOUS DISTANCES

Distance from Construction Site	Noise Levels in dBA (Hourly Leq)				
	Demolition	Site Preparation	Grading	Building Construction	Paving
50 feet	85.1	80.4	79.7	83.5	83.5
100 feet	79.1	74.4	73.7	77.5	77.5
150 feet	75.5	70.9	70.2	74.0	74.0
300 feet	69.5	64.9	64.2	68.0	67.9

SOURCE: Adapted from Bolt Baranek and Newman, 1971.

The County Ordinance Code establishes restrictions on the hours of noisy construction activity. The County Ordinance Code prohibits such activity on weekdays and Saturday between the hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, except for emergency work of public service utilities or by variance. As with the proposed Project, if construction activities under this alternative were to occur within these prohibited hours, this alternative would result in a significant impact, irrespective of whether a variance is granted. Implementation of **Mitigation Measure 7B.11-1**, the same mitigation proposed for the Project, would ensure that construction that occurs under Additional Housing Alternative B would be consistent with the County's noise ordinance. It is noted that the Palo Alto Municipal Code is slightly more restrictive, prohibiting such work between the hours of 6:00 p.m. and 8:00 a.m. Monday through Friday and between 6:00 p.m. and 9:00 a.m. on Saturday, or at any time on Sundays and holidays.

Mitigation Measure 7B.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors. If construction would be within 150 feet of off-site sensitive receptors, Stanford shall employ noise attenuation measures to reduce the generation of construction noise to achieve a performance standard of 75 dBA at the affected property line of the nearest off-site single family residential receptor and 80 dBA at the affected property line of the nearest off-site multi-family residential receptor. These measures shall be described in a Noise Control Plan that shall be submitted for review and approval by the County Planning and Development Department prior to issuance of a building permit to ensure that construction noise is consistent with the standards set forth in the County Ordinance Code.

Additional measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- For construction within the Project site that would be 150 feet of sensitive receptors located within the City of Palo Alto, hours of construction activity shall be restricted to those established in the City of Palo Alto Noise Ordinance (i.e., between the hours of eight a.m. to six p.m. Monday through Friday, and between nine a.m. and six p.m. on Saturday).

For construction within the Project site that would be 150 feet of sensitive receptors located within all other residential areas, hours of construction activity shall be restricted to those established in the Santa Clara County Noise Ordinance (i.e., between seven a.m. and seven p.m., Monday through Saturday).

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds). At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels to below 75 dBA;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible; and
- Stationary construction noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.

Emission of sound in the performance of emergency work is exempt from these requirements. In addition, variances to these restrictions may be allowed, with County approval, for certain utility work or other construction for which nighttime work would avoid secondary impacts (e.g., traffic impacts during commute periods); and where compliance with the noise thresholds is technically or economically infeasible. A variance may be granted only where the activity will not create a nuisance and will not be detrimental to the public health and safety.

Significance after Mitigation: Less than Significant.

Impact 7B.11-2: Additional Housing Alternative B construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity. (Significant)

Similar to the proposed Project, the potential exists for construction-related noise generated by Additional Housing Alternative B to be consistent with the standards established in the local general plan and noise ordinance assessed above in Impact 7B.11-1, and still result in a substantial temporary or periodic increase in ambient noise levels. Temporary increases in construction noise would potentially affect both on-site and off-site receptors.

Potential Construction-Related Noise Increases Impacts at Off-Site Receptors

This alternative would result in the additional housing development being located at the edges of the West Campus Development District (along Sand Hill Road), Quarry and DAPER and Administrative Development Districts (along El Camino Real), and/or East Campus Development District (along El Camino Real and Stanford Avenue). Consequently, this alternative could expose more off-site receptors to construction noise than the proposed Project. Similar to the proposed Project, off-site sensitive receptors near Stanford development districts designated for

development under Additional Housing Alternative B include those along Stanford Avenue (e.g., Escondido Elementary School and residences in the College Terrace neighborhood), across El Camino Real (e.g., residences in the Southgate neighborhood) and residences along the northwest side of Sand Hill Road. As indicated in Table 5.11-1 in Section 5.11, Noise and Vibration, in the Draft EIR, existing daytime noise levels at these sensitive receptor locations range from 60 to 64 dBA. The nearest off-site sensitive receptors are located as close as 80 feet from the Project site boundary. As shown in Table 7A.11-1, construction noise levels could be as high as 80 dBA at 100 feet. As under the proposed Project, for construction under Additional Housing Alternative B that would occur at or near the Project site boundary, construction noise levels would be 15 to 20 dBA above existing ambient noise levels at off-site sensitive receptors and potentially higher at on-site receptors, which would be a significant impact. Implementation of **Mitigation Measure 7B.11-1** identified above, which implements a performance standard, will reduce this impact, where it is technically and economically feasible to do so. As under the proposed Project, individual projects that would occur under Additional Housing Alternative B would be subject to additional review through the County's ASA or other approval processes, and additional noise reduction measures may be imposed at that time.

Nevertheless, given the proximity of impacted receptors may preclude a reduction of noise to a less than 15 dBA increase, and because it is unknown whether conditions justifying a variance might occur, it is possible that temporary or periodic increases in ambient noise in the vicinity of Additional Housing Alternative B would remain significant, even with implementation of noise reduction mitigation. Consequently, this impact is considered significant and unavoidable.

Potential Construction-Related Noise Increases Impacts at On-Site Receptors

Additional Housing Alternative B would result in more on-site construction than the proposed project, and would have a larger on-site residential population that could be exposed construction noise. As under the proposed Project, within the vicinity of the Project site under Additional Housing Alternative B, residential uses inclusive of on-site residential, day care or instructional classroom land uses would be considered noise sensitive to potential construction-related impacts of the proposed Project. These on-site receptors could be 50 feet or closer to construction activities that would occur under this alternative. Consequently, temporary construction-related noise increases to on-site receptors could be 15 dBA or greater, and thus would also be significant. As is done currently, and similar to the proposed Project, Stanford would manage and modify its instructional classroom activities under this alternative as needed to ensure temporary construction noise-related effects to instructional classroom land uses would be less than significant. Implementation of **Mitigation Measure 7B.11.2**, the same mitigation proposed for the Project, identifies a minimum construction noise performance standard for noise effects to on-site residential or day care land uses that will reduce construction noise impacts, where it is technically and economically feasible to do so. Similar to the proposed Project, it is expected that individual projects that would occur under Additional Housing Alternative B would be subject to additional review through the County's ASA or other approval processes, and additional noise reduction measures may be imposed at that time.

Nevertheless, given that the proximity of impacted receptors may preclude a reduction of noise to a less than 15 dBA increase, it is possible that temporary or periodic increases in ambient noise in

the Project site vicinity would remain significant, even with implementation of noise reduction mitigation. Consequently, similar to the proposed Project this impact under this alternative is considered significant and unavoidable.

Mitigation: Implement Mitigation Measure 7B.11-1 noise impacts at off-site receptors.

Mitigation Measure 7B.11-2: *Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.* For construction activities over two weeks in duration, and within 150 feet of on-site sensitive receptors, Stanford shall identify noise attenuation measures to reduce the generation of construction noise to achieve a minimum performance standard of 80 dBA, Leq over an 8-hour period at the nearest on-site residential or day care land use.⁷¹ These measures shall be described in a Noise Control Plan that shall be submitted for review and approval by the County Planning and Development Department prior to issuance of a building permit to ensure that construction noise is consistent with the standards.

If necessary to achieve the minimum performance standard stated above, measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds). At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels to below 80 dBA;
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible; and
- Stationary construction noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.

Significance after Mitigation: Significant and Unavoidable.

⁷¹ Consistent with noise criteria used by FTA for construction activities in vicinity of residential land uses (FTA, 2006).

Impact 7B.11-3: Additional Housing Alternative B construction could result in temporary exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels in the Project site vicinity. (Significant)

Additional Housing Alternative B would involve more on-campus construction compared to the proposed Project due to the additional on-campus housing under this alternative. Thus, Additional Housing Alternative B would have the potential for greater construction groundborne vibration and noise effects than the proposed Project over the duration of the use permit.

A variety of construction activities can propagate ground-borne vibration, demolition (e.g., use of hoe-rams for demolishing large concrete structures), grading activities (e.g., use of vibratory rollers for soil compaction) and pile installation for foundations. As with the proposed Project, under Additional Housing Alternative B, Stanford would not conduct any impact pile driving on construction projects necessitating piles, but rather, would use alternative pile installation methods (e.g., drilling to place piles) to minimize potential noise and vibration disruption.

As discussed for the proposed Project, the vibration threshold for architectural damage to historic buildings and structures is 0.12 PPV (in/sec), the vibration threshold for damage to all other structures is 0.3 in/sec, and the vibration threshold for an adverse human reaction is 0.1 in/sec. Similar to the approach taken for the proposed Project, this impact analysis conservatively assumes that construction under Additional Housing Alternative B could occur within the immediate vicinity of one or more of Stanford's historic structures.

Groundborne vibration from grading, excavation, and building construction could produce substantial temporary vibration levels at nearby sensitive receptors, as well as at nearby structures. The extent to which these receptors and structures would be affected by groundborne vibration depends largely on soil conditions, building design and materials, construction techniques employed, distance from the construction site to the receptor and structure, and the age and condition of the structure.

Typical reference vibration levels for various pieces of construction equipment are listed below in Table 7B.11-2.

TABLE 7B.11-2
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment/Activity	PPV at 25 ft (inches/second)^a
Jackhammer	0.035
Loaded Trucks	0.076
Caisson Drilling (represents Auger Drilling Pile Installation)	0.089
Large Bulldozer	0.089
Hoe Ram	0.089
Vibratory Roller	0.210

SOURCE: FTA, 2006 (Table 12-2, p. 12-12).

As shown in Table 7B.11-2, the use of vibratory rollers would have the potential to create the greatest vibration levels during construction. Based on the vibration velocities in Table 7A11-2, vibratory rollers would have the potential to cause damage to historic buildings and structures to if it were to occur within an estimated 40 feet of those structures. This would also be the distance from residential land uses at which the adverse human reaction of 0.1 in/sec would start to be exceeded. Construction activities would have the potential to cause damage to modern structures at a distance of 20 feet.

Similar to the proposed Project, due to the proximity of historic structures within the Project site to construction activities that would occur under Additional Housing Alternative B, construction vibration levels could exceed building damage and adverse human reaction threshold, resulting in a significant impact. Implementation of **Mitigation Measure 7B.11-3**, the same mitigation as that identified for the proposed Project, would address this impact, and ensure it would be reduced to a less-than-significant level.

Mitigation Measure 7B.11-3: Construction Vibration Reduction Plan. If construction involving vibratory rollers, hoe rams, or large bulldozers is proposed within 40 feet of an historic structure, Stanford shall develop a Vibration Reduction Plan in coordination with an acoustical consultant, geotechnical engineer, and/or construction contractor, for review and approval by the County Planning and Development Department. Measures and controls shall be identified based on project-specific final design plans, and may include, but are not limited to, either or both of the following:

1. Use non-vibratory excavator-mounted compaction wheels and small smooth drum rollers for final compaction of asphalt base and asphalt concrete. If needed to meet compaction requirements, smaller vibratory rollers will be used to minimize vibration levels during repaving activities where needed to meet vibration standards.
2. Implementation of buffers and the use of specific types of equipment to minimize vibration impacts during construction at nearby receptors in order to meet a performance standard of 0.12 inches per second PPV at historic buildings and 0.3 inches per second PPV at non-historic buildings.
3. Implementation of a vibration, crack, and line and grade monitoring program for identified historic buildings located within 40 feet of construction activities, in coordination with a geotechnical engineer and qualified architectural historian.

Significance after Mitigation: Less than Significant.

Operational Impacts

Impact 7B.11-4: Additional Housing Alternative B could increase long-term noise levels in the Project vicinity to levels in excess of applicable noise standards. (Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit and therefore, would have more on-site noise sources and more on-site noise-sensitive receptors than the proposed Project.

Similar to the proposed Project, new development under Additional Housing Alternative B would generate noise from heating, ventilating, and air conditioning mechanical equipment that would serve each building. Emergency backup generators, if required for new buildings, would be tested regularly and operated occasionally. Typically, the Bay Area Air Quality Management District (BAAQMD) permits emergency backup generators to operate for up to 50 hours per year, or on average about one hour per week.

While, as under the proposed Project, the specific location of new buildings (and associated building mechanical equipment) that would be developed, and the distance to the nearest sensitive receptors, is not known for this alternative at this time, development under Additional Housing Alternative B would occur on County lands and therefore would be required to comply with the noise restrictions of the Santa Clara County noise ordinance.

Future uses within the Project area could require loading docks. Noise levels of 80 dBA L_{max} and 60 dBA L_{eq} at a distance of 50 feet can be generated during loading dock activities (ESA, 2008).

Existing off-site sensitive receptors in the jurisdictions of Palo Alto and Menlo Park are located as close as 80 feet to the Project site. Consequently, as was assumed for the proposed Project, it is conservatively assumed that mechanical equipment operation and loading dock activity from new development under Additional Housing Alternative B could increase noise levels at the nearest off-site sensitive receptor by more than the 6 dBA allowed by the City of Palo Alto Noise Ordinance and create a noticeable increase in ambient noise levels above baseline noise levels. Similar to the proposed Project, increased noise from building mechanical equipment under Additional Housing Alternative B is identified as a significant impact.

Mitigation Measure 7B.11-4: Shield or Enclose HVAC Equipment and Emergency Generators. Noise levels from mechanical equipment within 150 feet of sensitive receptors shall be minimized by proper siting and selection of such equipment and through installation of sufficient acoustical shielding or noise emission controls. An acoustical analysis shall be prepared by a qualified professional to ensure that the new mechanical equipment achieves the following noise standards at the property line of an offsite sensitive land uses in Palo Alto or Menlo Park, or at the nearest on-site residential, day care or instructional classroom land use:

- The project shall not cause the average 24-hour noise level (L_{dn}) to increase by 5.0 dB or more in an existing residential area, even if the L_{dn} would remain below 60 dB;
- The project shall not cause the L_{dn} to increase by 3.0 dB or more in an existing residential area, thereby causing the L_{dn} in the area to exceed 60 dB;
- The project shall not cause an increase of 3.0 dB or more in an existing residential area where the L_{dn} currently exceeds 60 dB.

Noise levels from the periodic testing of emergency generators within 150 feet of sensitive receptors in the cities of Palo Alto or Menlo Park also shall be minimized by proper siting and through installation of acoustical shielding. Scheduled testing of an emergency generator must not occur before 7:00 a.m. or after 7:00 p.m.

Significance after Mitigation: Less than Significant.

Impact 7B.11-5: Additional Housing Alternative B traffic would not substantially increase traffic noise levels in the vicinity of the Project site. (Less than Significant)

As under the proposed Project, additional traffic generated by Additional Housing Alternative B would increase noise levels on the roadway network. A traffic-related ambient noise increase of either 3 or 5 dBA or more would be considered a significant impact, depending the existing roadway noise levels, where sensitive receptors are located along the affected roadway segments. Traffic noise levels at intersections most affected by traffic from Additional Housing Alternative B were modeled using the FHWA Traffic Noise Prediction Model and the turning movements for 2018 Baseline and 2018 Baseline plus Project conditions from the transportation analysis.

The roadway segments analyzed and results of the modeling are shown in Table 7B.11-3. As shown in Table 7B.11-3, under the 2018 Baseline plus Additional Housing Alternative B scenario, traffic noise would increase no more than 0.6 dBA (less than the minimum 3 dBA threshold) on all evaluated roadway segments. Therefore, development under Additional Housing Alternative B would result in a less than significant operational traffic noise impact. This is a similar conclusion that was reached for the proposed Project, where the traffic noise would increase between 0.1 and 0.5 dBA, and also less than the minimum 3 dBA threshold.

Mitigation: None required.

Cumulative Impacts

Impact 7B.11-6: Additional Housing Alternative B construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to cumulative noise impacts. (Significant)

Similar to the proposed Project, development under Additional Housing Alternative B may be constructed during the same time and duration as cumulative projects in the area, and could result in a contribution to construction noise levels. The geographic study area for cumulative construction impacts is defined as a 500-foot radius around the Project site.

The most notable off-site cumulative project that would generate construction noise within this screening distance would be the final stages of construction for the SUMC Renewal Project. Construction noise impacts associated with the SUMC Renewal Project were identified as significant and unavoidable at both the project-level and cumulative scenario in the *Stanford University Medical Center Facilities Renewal and Replacement Draft EIR*. The great majority of construction associated with the SUMC Renewal Project would be completed prior to commencement of construction under Additional Housing Alternative B. However, the SUMC Renewal Project's replacement buildings for the School of Medicine and some of that project's hospital/clinic square footage would be constructed during implementation of Additional Housing Alternative B and, consequently, similar to the proposed Project, could overlap with construction Additional Housing Alternative B. This could include housing construction that would occur within the Quarry and West Campus Development Districts under this alternative.

TABLE 7B.11-3
TRAFFIC ROADSIDE NOISE LEVELS IN THE PROJECT SITE VICINITY

	Baseline (2018)	Baseline Plus Additional Housing Alternative B (2018)	Difference between Additional Housing Alternative B and Baseline	Cumulative No Project (2035)	Cumulative Plus Additional Housing Alternative B (2035)	Difference between Cumulative Plus Additional Housing Alternative B 2018	Difference between Cumulative Plus Additional Housing Alternative B and Cumulative No
Roadway Segment	(A)	(B)	(B-A)	(C)	(D)	(D-A)	(D-C)
Sand Hill Road							
between Stock Farm Road and Pasteur Drive	70.3	70.6	0.3	70.6	70.8	0.5	0.2
between Santa Cruz Avenue and Stock Farm Road	70.9	71.2	0.3	70.9	71.2	0.3	0.3
between Saga Lane and Sharon Park Drive	70.9	71.1	0.2	70.7	70.9	0.0	0.2
El Camino Real							
between Churchill Avenue and Serra Street	71.2	71.6	0.4	72.4	72.7	1.5	0.3
Junipero Serra Boulevard							
between Campus Drive and Stanford Avenue	68.1	68.5	0.4	68.7	69.0	0.9	0.3
between Stanford Avenue and Page Mill Road	68.7	69.3	0.6	69.4	69.8	1.1	0.4
Foothill Expressway							
between Arastadero Road and Edith Avenue	72.3	72.5	0.2	74.2	74.3	2.0	0.1
Alpine Road							
between I-280 and Junipero Serra Boulevard	69.8	70.1	0.3	70.2	70.5	0.7	0.3
Oregon Expressway							
between El Camino Real and Middlefield Road	71.3	71.4	0.1	71.9	72.0	0.7	0.1
Embarcadero Road							
between Town & Country and Middlefield Road	65.9	66.2	0.3	67.1	67.3	1.4	0.2
Stanford Avenue							
between Bowdoin Avenue and El Camino Real	61.3	61.8	0.5	61.6	62.1	0.9	0.5

NOTES:

Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments. Noise levels were determined using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model.

SOURCE: FHWA, 2006 and ESA, 2018

Similar to the proposed Project, given that construction noise from development under Additional Housing Alternative B would be significant, as described under Impacts 7B.11-1 and 7B.11-2, and that construction noise from the SUMC Renewal Project would be significant, there could be a significant cumulative construction noise impact. Consequently, as with the proposed Project, mitigation measures are identified to limit the cumulative contribution of noise from construction under Additional Housing Alternative B. Additional Housing Alternative B contribution to cumulative construction noise impacts would be reduced with mitigation, but not to a level that is less than significant for the reasons provided in the discussion of Impact 7A.11-2. This is the same finding as under the proposed Project.

Mitigation: Implement Mitigation Measure 7B.11-1, *Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors*, and Mitigation Measure 7B.11-2, *Construction Noise Control Measures and Noise Control Plan for On-Site Receptors*.

Significance after Mitigation: Significant and Unavoidable.

Impact 7B.11-7: Additional Housing Alternative B traffic in combination with traffic from cumulative development would not contribute considerably to cumulative noise impacts. (Less than Significant)

Long-term noise from cumulative development would primarily occur from motor vehicle traffic. When considered alone, development under Additional Housing Alternative B would generate noise mainly by adding more traffic to area roads and streets. Other anticipated projects would also contribute increased traffic volumes that would generate noise in the area. Any project that would individually have a significant project level noise impact would also be considered to have a significant cumulative noise impact.

A permanent noise increase of 3 dBA or 5 dBA or more in ambient noise levels in the vicinity above levels existing without Additional Housing Alternative B would be considered to generate a significant impact. Traffic noise levels at intersections most affected by traffic from buildout of Additional Housing Alternative B were modeled using the FHWA Traffic Noise Prediction Model and the turning movements for the existing conditions, Cumulative No Project (2035) and Cumulative plus Additional Housing Alternative B (2035) conditions. The segments analyzed and the results of the noise modeling are shown in Table 7B.11-3.

As shown in Table 7B.11-3, the increase in traffic noise between the Baseline (2018) and Cumulative Plus Project (2035) scenario would be no more than 2.0 dBA (less than the minimum 3 dBA threshold) at all analyzed roadway segments. Therefore, the cumulative traffic noise impact under Additional Housing Alternative B would be less than significant. This is the same finding as for the proposed Project.

Mitigation: None required.

Population and Housing⁷²

Impact 7B.12-1: Additional Housing Alternative B would not directly induce substantial population growth by proposing new homes or businesses, and indirectly through the extension of infrastructure. (Less than Significant)

As noted in the proposed Project impact analysis, population and housing changes, in and of themselves, are not normally considered to be significant impacts (i.e., substantial, adverse impacts on the physical environment) under CEQA, but CEQA does allow inclusion of these effects as indicators of other impacts. More specifically, CEQA Guidelines section 15131 provides that social and economic effects may be considered to the extent that (1) they provide a linked connection between the proposed project and a physical environmental effect, or (2) they are useful in determining the significance of a physical environmental effect. The potential physical environmental impacts associated with changes in population and housing due to Additional Housing Alternative B are analyzed in other sections of this chapter (e.g., transportation, public services, air quality).

As shown in **Table 7B.12-1**, Additional Housing Alternative B would result in the same projected total/daily population growth as that which would occur under the proposed 2018 General Use Permit.

TABLE 7B.12-1
ANTICIPATED POPULATION GROWTH IN ALL POPULATION SEGMENTS UNDER
ADDITIONAL HOUSING ALTERNATIVE B

Affiliation	2018 Population	2035 Population under Additional Housing Alternative B	Change in Population between 2018 and 2035
Undergraduate Students	7,085	8,785	1,700
Graduate Students, including PhDs	9,528	10,728	1,200
Postdoctoral Students ^a	2,403	3,364	961
Faculty ^b	3,073	3,862	789
On-Campus Staff ^c	8,985	11,423	2,438
Nonmatriculated Students ^d	977	1,397	420
Other Workers (total / daily based on commute frequency) ^e	9,166 / 5,321	11,267 / 6,395	2,101 / 1,074
Total / Daily	41,217 / 37,372	50,827 / 45,955	9,610 / 8,583

NOTES:

^a Postdoctoral students are academics with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under mentorship of a Stanford faculty member.

^b Faculty refers to professorate faculty members and regular benefits-eligible employees in academic/instructor positions.

^c Staff refer to regular benefits-eligible employees generally in non-academic positions. Refers only to staff working within the area governed by the General Use Permit.

^d Non-matriculated students are students taking courses or engaged in graduate-level research or training but who are not seeking a degree.

^e Other worker populations includes casual, contingent, and temporary employees; non-employee academic affiliates; and third party contractors including janitorial staff and construction workers.

SOURCE: Stanford University Land Use and Environmental Planning Office, in consultation with Stanford Office of Institutional Research and Decision Support

⁷² The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives population and housing analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-PHD included in this document.

However, since this alternative would provide additional on campus housing to accommodate half the net increase in off-campus population that would occur under the proposed Project, the anticipated population that would reside on the Project site under this alternative would be greater than under the proposed Project.

The anticipated population that would reside on the Project site in 2035 is shown in Table 7B-3 in the Additional Housing Alternative B description. The increase in on-campus residential population associated with new housing that would be authorized under the proposed 2018 General Use Permit (6,326) combined with the increase in on-campus residential population associated with the additional on-campus housing proposed under this alternative (3,125), would result in a total increase in on-campus residential population of 9,451. The total on-campus residential population in 2035 under this alternative would be 24,789 compared to 21,664 under the proposed Project.

Additional Housing Alternative B assumes that Stanford would provide housing equal to half the increased housing demand generated by the proposed 2018 General Use Permit and that the additional demand would be met by constructing additional on-campus housing. Therefore, in addition to the proposed on-campus housing that would be provided under the proposed 2018 General Use Permit (3,150 units/beds), this alternative would also provide an additional 1,275 units/beds of on-campus housing, equivalent to half the net increase in off-campus housing demand that would occur under the proposed Project. Thus, Additional Housing Alternative B includes the provision of a total of 4,425 new on-campus housing units/beds.

As under the proposed 2018 General Use Permit, the growth of Stanford-affiliated population would result in an indirect housing demand beyond the Project site. However, the off-site housing demand under Additional Housing Alternative B would be slightly over half that of the proposed Project, or 1,251 off-site housing units. The estimated distribution of off-site housing in the Bay Area would be the same as the Project, and is likewise based on data from Stanford's 2016 Commute Survey. The household increase per jurisdiction attributable to Additional Housing Alternative B, relative to their respective projected growth from 2015 to 2040, would be about half that of the Project (shown in Table 5.12-11 in Section 5.12 in the Draft EIR). Thus, the off-site housing impacts associated with this alternative would be reduced compared to the proposed 2018 General Use Permit. It is assumed as well that Stanford would continue its contributions to the County-administered Stanford Affordable Housing fund to partially alleviate demand for affordable housing by Stanford affiliates. (Please note that, as described under Additional Housing Alternative B Description, Stanford could elect to, subject to approval by the County, to offset some or all of the incremental off-campus housing demand by providing off-campus housing; the potential environmental consequences of that option are addressed in Impact 7B.17-1, below.)

Similar to the proposed Project, this alternative would accommodate construction of campus infrastructure improvements to support proposed growth, including, but not limited to, utilities and circulation improvements such as pathways, underground pipelines, electrical transmission lines, water supply infrastructure, habitat improvements, and other similar types of improvements. Although most infrastructure would be constructed on vacant land, infill sites, and redevelopment sites within the Academic Growth Boundary, some improvements could occur outside the Academic Growth Boundary. Similar to the proposed Project, development under

Additional Housing Alternative B would include infrastructure improvements designed to accommodate Stanford's growth through 2035.

Based on the above analysis, similar to the proposed Project, Additional Housing Alternative B would not directly induce substantial population growth by proposing new homes or businesses, or indirectly through the extension of infrastructure, and the impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7B.12-2: Additional Housing Alternative B, in combination with past, present, and future projects would not result in substantial adverse cumulative population and housing impacts. (Less than Significant)

The geographic scope of potential population and housing impacts encompasses the Stanford lands within the proposed 2018 General Use Permit boundary as well as Bay Area communities that could be affected by population growth resulting from the Project.

Under this alternative, the total estimated direct increase in residential population within the Project site between 2018 and 2035 would be 9,451 people in 2035. As under the proposed Project, the construction of new off-site housing units would contribute to typical environmental impacts associated with housing development, although the number of new off-site households would be only slightly over half of that which would occur under the Project; and the contribution to the Bay Area's cumulative housing impact would likewise not be considerable. The impact would therefore be less than significant.

Mitigation: None required.

Public Services⁷³

Construction Impacts

Impact 7B.13-1: Additional Housing Alternative B could increase demand for fire protection, emergency medical service and police protection services but would not result in an adverse physical impact from the construction of additional fire protection, emergency medical, or police protection facilities in order to maintain acceptable performance standards. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more

⁷³ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives student generation analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-SCH included in this document.

construction than would occur under the proposed Project. As a result, this alternative could result in additional demand for public services during construction. Similar to construction under the proposed 2018 General Use Permit, construction of individual projects under this alternative would result in temporary increases in vehicle congestion, delays and potential conflicts in the construction site vicinities and/or along construction haul routes; as well as the potential for construction worker accidents and medical emergencies at the construction sites, potentially requiring associated temporary increases in responses from public fire protection, EMS and/or police protection services to these incidents.

As under the proposed Project, all construction activities that would occur at construction sites under this alternative would be required to be conducted in compliance with applicable regulations, including Cal/OSHA standards and practices for worker safety, minimizing the need for public fire protection and emergency service response to worker accidents at construction sites. In addition, similar to mitigation identified for the proposed Project, Mitigation Measure 7B.15-1 under Transportation and Traffic, below, would ensure appropriate construction traffic control measures would be implemented for individual construction projects under this alternative to minimize on- and off-site construction traffic effects, and further minimizing potential construction traffic incidents requiring public fire, EMS and police response. As under the proposed Project, Stanford would pay the City of Palo Alto a fair share contribution annually for PAFD fire protection services and for communication and emergency dispatch services from the PAPD.

While construction would periodically occur over the duration of this alternative, construction activities in and of themselves would not generate a significant additional demand for public fire protection, EMS and/or police services that would require new or physically altered facilities. Therefore, similar to the proposed Project, Additional Housing Alternative B would generate a less-than-significant construction impact related to fire protection, EMS and police protection services. See also Impacts 7B.13-2 and 7B.13-3, below.

Mitigation: None required.

Operational Impacts

Impact 7B.13-2: Operation of uses under Additional Housing Alternative B would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional fire protection facility in order to maintain acceptable performance standards. (Less than Significant)

Additional Housing Alternative B would increase housing development on the Project site, and associated residential population, above that proposed by the 2018 General Use Permit, and thus, would increase demand for public fire protection and EMS services beyond that generated by the Project. As under the proposed Project, the increase in development and population under this alternative would occur within existing urbanized areas of the campus, and consequently, would be served by the existing on-campus Fire Station 6. As discussed in Section 5.13 of the Draft EIR, Stanford DPS is relocating to the planned Public Safety Building and Departmental Operations

Center in Stanford's Bonair Corporation Yard, which will in turn serve to provide additional operational space for PAFD or another provider at Fire Station 6 to use, if needed.

Similar to the proposed Project, this alternative would allow for authorization of expanded or new academic support development, which could include additional on-campus fire protection/EMS facilities, if needed to serve the campus population in the future. All potential environmental effects associated with construction and operation of academic support development that would occur under this alternative are addressed throughout the analysis for other environmental topics presented for this alternative.

As with the proposed Project, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually for fire protection services from the PAFD. The City of Palo Alto and Stanford are currently in negotiation for a 3-5 year contract for PAFD to provide fire protection and EMS services to Stanford, with automatic renewal.

Similar to the proposed Project, new development that would occur on the Project site under this alternative would require fire and life safety code compliance, provided by the Stanford University Fire Marshal's Office (SUFMO). As under the proposed Project, as new individual developments are proposed under this alternative, the SUFMO would review building plans to ensure the project provides for adequate compliance with fire code requirements.

Given these factors, increases in development on the Project site, and increase in residential and commuter population under this alternative would increase demand for fire protection and emergency medical services, however, would not result in an adverse physical impact from the construction of additional fire protection or emergency medical service facilities. Therefore, similar to the proposed Project, operation of this alternative would generate a less-than-significant impact related to fire protection and EMS services.

Mitigation: None required.

Impact 7B.13-3: Operation of development under the proposed Additional Housing Alternative B would increase demand for police protection services. (Less than Significant)

Additional Housing Alternative B would increase housing development on the Project site, and associated residential population, above that proposed by the 2018 General Use Permit, and thus, would increase demand for police protection services beyond that generated by the Project. As discussed in Section 5.13 in the Draft EIR, the Stanford DPS will be relocating on-campus to the planned Public Safety Building and Departmental Operations Center. As under the proposed Project, this facility would provide adequate space for Stanford DPS to operate throughout the life of this alternative.

Similar to the proposed Project, this alternative would also allow for new and/or expanded academic support development, which could include additional Stanford DPS facilities, if needed, to serve the campus population in the future. All potential environmental effects associated with

construction and operation of academic support development that would occur under this alternative are addressed throughout the analysis for other environmental topics presented for this alternative.

As with the proposed Project, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually as compensation for the communication and emergency dispatch services it would receive from the PAPD.

As discussed in Section 5.13 in the Draft EIR, the City of Palo Alto is also planning a new Public Services Building (expected to be operational in 2021) that would house the PAPD, as well as its emergency dispatch center and other services, and will accommodate existing and future police and emergency planning facility needs of the City.

Given these factors, increases in development on the Project site and increase in resident and commuter population under this alternative would increase demand for police protection services, but would not result in an adverse physical impact from the construction of additional police protection facilities. Therefore, similar to the proposed Project, operation of this alternative would generate a less-than-significant impact to police protection services.

Mitigation: None required.

Impact 7B.13-4: Additional Housing Alternative B would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards. (Less than Significant)

Additional Housing Alternative B would increase residential development and the associated residential population on the campus compared to the proposed 2018 General Use Permit. Therefore, this alternative would increase on-campus school-aged children that would be served by PAUSD over that which would be generated by the proposed Project.

This analysis uses student generation rates based on children per household to estimate the number of school-age children that would be generated as a result of increased campus population under this alternative. Similar to the proposed Project, rates of 0.23 for elementary school, 0.12 for middle school, and 0.15 for high school were used for this alternative, for a total student generation rate of 0.50. These student generation rates used are consistent with the moderate student generation rates used by PAUSD's demographer, DecisionInsite, in its Fall 2016 Residential Research Summary Report.⁷⁴ The additional on-campus housing that would be developed under this alternative would be multi-family units, similar to that analyzed for the

⁷⁴ These rates are also consistent with the rates considered in the Comprehensive Plan Update Final EIR for the City of Palo Alto (City of Palo Alto, 2017b).

proposed Project; and consequently, the multi-family student generation rates would remain applicable.⁷⁵

Table 7B.13-1 summarizes the estimated enrollment in PAUSD schools from students generated under this alternative. Under this alternative, 1,721 new faculty/staff housing units (an increase of 1,171 units over the proposed Project) would be constructed on-campus that could be occupied by faculty and staff, including postdoctoral students and medical residents, and/or other workers. Application of the student generation ratios to the 1,721 new units results in an estimated increase of 861 additional school-age children (586 more school-age children than the proposed Project). As shown in Table 7B.13-1, similar to the proposed Project, the addition of school-age students to the PAUSD would be diffused over various grade levels and schools. As under the proposed Project, since buildout of this alternative, including new residential units, would occur incrementally over an approximate 17-year span, the school-age students generated by this alternative that would be added to PAUSD schools would also occur incrementally over this span.

TABLE 7B.13-1
ESTIMATED PAUSD ENROLLMENT FROM STANFORD 2018 GENERAL USE PERMIT FOR
ADDITIONAL HOUSING ALTERNATIVE B

Schools	Increase in Number of Units	Student Generation Rates ^a	Estimated Number of Students
Elementary	1,721	0.23	396
Middle School	1,721	0.12	207
High School	1,721	0.15	258
Total		0.50	861

NOTE:

^a Student generation rates from PAUSD, *Residential Research Summary*, Fall 2016 prepared by DecisionInsite, November 2016.

As described in the Draft EIR Section 5.13, currently PAUSD middle school enrollment exceeds PAUSD middle school capacity, whereas PAUSD elementary and high school enrollment are within PAUSD capacity. However, the PAUSD projected a decline in both its elementary and middle school student enrollment through its planning horizon of 2026/27. In addition, while PAUSD projected a near-term increase in its high school enrollment until 2020, it projected a decline in its high school enrollment thereafter through 2026/27. More recent PAUSD enrollment projections through school year 2022/23 indicate similar near-term enrollment trends, with the exception of PAUSD elementary school enrollment, which under the moderate projection may experience up to a six percent increase over the next five years (PAUSD, 2018b). The overall long-term projected decline in PAUSD enrollment could serve to lessen the effect of Project-generated school-age children that would attend PAUSD schools on student capacity.

⁷⁵ It should be noted that PAUSD has since completed a Winter 2018 Residential Research Summary Report that presents higher multi-family student generation rate for the moderate scenario (0.66) than from its prior report (PAUSD, 2018a). However, data provided by Stanford of its existing faculty/staff multi-family housing on and near the campus yields a student generation rate of no more than 0.38. Consequently, the continued use of a total student yield rate of 0.5 students/unit for the Project and housing alternatives is considered conservative.

Consistent with the analysis for the proposed Project in Section 5.13 of the Draft EIR, if conservatively assuming that all of the students generated under Additional Housing Alternative B would be added to the PAUSD schools prior to PAUSD's planning horizon of 2026/27, when considering the existing student capacities of PAUSD schools and the declining PAUSD enrollment forecasts through its 2026/27 planning horizon, similar to the proposed Project there would be sufficient remaining capacity in PAUSD elementary, middle and high school categories to accommodate all the estimated students added by this alternative in 2026/27.

On the other hand, if considering an even more conservative scenario that the entire increase in students generated under Additional Housing Alternative B would be added to the PAUSD schools prior to its current shorter planning horizon of 2022/23, and using the more recent PAUSD enrollment projections which show higher near-term enrollment, this alternative would result in exceedances in capacity of PAUSD elementary, middle and high schools. However, these results are unlikely because as discussed above, in actuality, the development of new on-campus residential units under this alternative, and thus, the increase in school-age students generated by this alternative that would be added to PAUSD schools, would not all be concentrated within the first five years of the general use permit, but rather, would occur incrementally over an approximate 17-year span between 2018 and 2035.

In any case, even if school enrollment were to increase such that more school capacity is needed, PAUSD would have multiple options to explore before building a new school. In addition to reactivating existing school sites owned by PAUSD, such as Cubberley, Greendell and Garfield, the PAUSD also has several school properties currently leased to private school providers, such as Athena Academy, Pinewood School and the Ventura site. PAUSD could also take advantage of schools that may be operating below capacity by redrawing lines designating which neighborhoods attend a given school or by adding modular classrooms. Given these circumstances, construction of a new school appears to be speculative even with the increases in student generation that could occur under this alternative. In the event any PAUSD school expansion occurs, PAUSD would be required to undergo site-specific environmental review, as appropriate, prior to consideration of approval by the PAUSD.

Pursuant to California Government Code Sections 65995.5 through 65997, and related impact fees established by the PAUSD, school impact fees are charged for new residential and commercial development that would be developed by Stanford under this alternative. Pursuant to Government Code section 65997, payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with this alternative.

When considering all the above factors, while Additional Housing Alternative B would increase enrollment in local public schools, this alternative would not result in adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards.

Mitigation: None required.

Cumulative Impacts

Impact 7B.13-5: Implementation of Additional Housing Alternative B in combination with past, present, and reasonably foreseeable projects, would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards. (Less than Significant)

This section analyzes potential impacts to fire protection services that could occur from this alternative in combination with reasonably foreseeable growth in the PAFD service area. As discussed in the Environmental Setting, the PAFD service area includes the jurisdictional boundaries of Palo Alto in addition to some of the unincorporated land surrounding the city limits, including the Project site.

As discussed in Impacts 7B.13-1 and 7B.13-2, above, the alternative's impact to PAFD's fire protection and EMS services is determined to be less than significant. Sufficient fire protection facilities would exist on campus to serve additional development and population under this alternative. Furthermore, under this alternative, Stanford would pay the City of Palo Alto a fair share contribution annually for fire protection services from the PAFD.

The City of Palo City is implementing a number of improvements to PAFD fire station facilities in its City, including improvements to Fire Station 1 by 2019, replacement of Fire Station 3 by 2019, and a planned replacement of Fire Station 4 by 2020. As discussed for the Project, PAFD indicates with these planned improvements, the PAFD can adequately serve the increased demand from increased growth and buildout of the City. Annual City reviews and monitoring of fire department services and performance metrics (including response times) that is conducted by the City would help to ensure that the PAFD would continue to adequately meet the demands of the city and accommodate growth not only by this alternative but from throughout the city.

Therefore, the cumulative impact under this alternative would be less than significant.

Mitigation: None required.

Impact 7B.13-6: Development of Additional Housing Alternative B in combination with past, present, and reasonably foreseeable projects would increase demand for police protection services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards. (Less than Significant)

Cumulative impacts are considered in the context of the growth and development under the alternative as they are within the service area of Stanford DPS, as well as that of the PAPD and the Santa Clara County Sheriff's Department.

As discussed in Impacts 7B.13-1 and 7B.13-3, above, the alternative's impact on police protection services, including Stanford DPS, PAPD and the Santa Clara County Sheriff's Department, is

determined to be less than significant. Stanford DPS is relocating on-campus to its planned Public Safety Building and Departmental Operations Center which will provide adequate space for Stanford DPS to operate under this alternative. In addition, the City of Palo Alto planned new PSB will house the PAPD, as well as its emergency dispatch center and other services, and will accommodate existing and future police and emergency planning facility needs of the City. Additionally, annual City reviews and monitoring of law enforcement services and performance metrics (including dispatch response times) that is conducted by the City of Palo Alto would help to ensure that the PAPD would continue to adequately meet the demands of the city and are able to accommodate growth not only by this alternative but from throughout the city.

Therefore, implementation of this alternative in combination with past, present, and reasonably foreseeable projects would have a less-than-significant cumulative effect with respect to police protection services.

Mitigation: None required.

Impact 7B.13-7: Development of Additional Housing Alternative B in combination with past, present, and reasonably foreseeable projects would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards. (Less than Significant)

This section analyzes potential impacts related to schools that could occur from implementation of this alternative in combination with reasonably foreseeable growth in PAUSD's service area. Cumulative development within the PAUSD service area would generate new students to PAUSD, which could result in the need for new or expanded school facilities.

As discussed in Impact 7B.13-4, above, when conservatively considering the existing student capacity of PAUSD schools and the declining PAUSD enrollment forecasts through its 2026/27 planning horizon, there would be sufficient remaining capacity in PAUSD elementary, middle and high school categories to accommodate all the estimated added students generated by this alternative in 2026/27. Impact 7B.13-4 also acknowledges that in an even more conservative scenario that the entire increase in students generated under Additional Housing Alternative B would be added to the PAUSD schools prior to its current shorter planning horizon of 2022/23, this alternative would result in exceedances in capacity of PAUSD schools; although, these results are unlikely given that new on-campus residential uses under alternative would be developed incrementally over an approximate 17-year span under the new general use permit. Nonetheless, Impact 7B.13-4 describes multiple options available to PAUSD to explore to increase school capacity if needed. Impact 7B.13-4 also discusses that Stanford's payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with the proposed alternative.

The City of Palo Alto recently completed environmental review for, and adopted an update to, its Comprehensive Plan, which considered a range of future growth scenarios. The selection of the preferred scenario by the City would result in 3,545 to 4,420 new housing units in the City that could generate between 1,773 and 3,632 new students. The Final EIR for the update to the Comprehensive Plan determined that this range of anticipated student growth would result in an exceedance of existing PAUSD capacity for its elementary, middle and high schools. The PAUSD is responsible for updating its enrollment forecasts as needed, including any increases that would be associated with growth under the City's Comprehensive Plan. However, the additional student growth under Additional Housing Alternative B combined with the cumulative growth anticipated under the Comprehensive Plan would result in a cumulative increase to enrollment of public schools within the PAUSD service area. As with the Additional Housing Alternative B, all other cumulative projects within the PAUSD service area would also be subject to the school development fees.

It is unknown where or how school facilities would be expanded to accommodate future students. It would therefore be speculative to analyze the impacts of potential future school construction projects in this EIR. As noted above under Impact 7.A.13-4, even if school enrollment were to increase such that more school capacity is needed, PAUSD would have multiple options to explore before building a new school. In addition to reactivating existing school sites owned by PAUSD, such as Cubberley, Greendell and Garfield, the PAUSD also has several school properties currently leased to private school providers, such as Athena Academy, Pinewood School and the Ventura site. PAUSD could also take advantage of schools that may be operating below capacity by redrawing lines designating which neighborhoods attend a given school or by adding modular classrooms, and/or developing two-story facilities. The PAUSD is currently preparing its 2018 Facilities Master Plan. As part of the development of the plan, the PAUSD is in the process of defining districtwide standards, and considering infrastructure needs at each of its school sites. The PAUSD Board is considering placing a bond measure on the November 2018, March 2020, or November 2020 ballot to provide funding for the next 20 years of PAUSD facilities improvements. Given these circumstances, construction of a new school appears to be speculative even with the increases in student generation that could occur under this alternative. Further, if it is determined that additional school facilities are needed as growth occurs, expansion and/or construction would be subject to separate environmental review, thereby providing an opportunity to identify and mitigate associated environmental impacts.

Therefore, Additional Housing Alternative B's contribution to cumulative impacts related to school facilities would be less than significant.

Mitigation: None required.

Recreation⁷⁶

Approach to Analysis

On-Campus Impacts

Consistent with the analysis prepared for the proposed Project, this alternative analysis also considers the number of all on-campus residents anticipated under Additional Housing Alternative B compared to the total acreage of designated Campus Open Space lands to determine whether there would be at least five acres of designated Campus Open Space per 1,000 campus residents.⁷⁷

Off-Campus Impacts

Similar to the approach used to consider off-campus impacts to parks and recreation facilities for the proposed Project, the analysis of Additional Housing Alternative B considers the neighboring public park and recreation facilities used by Stanford's residential population and the potential that an increase in use of off-site facilities under this alternative could contribute to substantial deterioration of those facilities.

Consistent with the approach used to analyze the proposed Project, a combined daily visit generation rate is used for faculty, staff and postdoctoral students to estimate the potential increase in visits to public park and recreation facilities identified in Palo Alto and Menlo Park. This data relies on visit generation rates calculated from a campus-wide survey conducted in 2016. Where other Workers are included in the on-campus resident population under this alternative, their household size and park usage behavior are assumed to be the same as that of faculty, staff and postdoctoral students. Similar to that assumed for the proposed Project, this analysis also assumes that spouses and dependents would have the same behavior as the primary affiliate.

Similar to the analysis of the proposed Project, Stanford also conducted a sensitivity analysis that conservatively considered the additive effect of any incidental use of nearby parks and recreation facilities associated with an increase in Stanford commuters that would occur under the alternative.

Using the same screening criteria as that used for the proposed Project, if growth in on-campus residents under this alternative is found to result in more than 12.5 daily visits per acre at a particular public park or recreation facility, additional site specific analysis would be performed to determine whether the increase in visitors might require replacement of turf or other recreation facilities substantially in advance of their expected life cycles. Alternately, an increase of less than 12.5 daily visits per acre at a particular park or recreation facility would indicate that substantial deterioration from increased use by campus residents would be highly unlikely, and no additional analysis would be necessary.

⁷⁶ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives park and recreation facilities analysis prepared by Stanford and independently peer reviewed by ESA; see Appendix ALT-REC included in this document.

⁷⁷ Campus residents include all residents on Stanford lands within the General Use Permit boundary, including students, faculty, staff, postdoctoral students and other workers. The resident population estimates also include the spouses and children of the population living on the campus.

Construction and Operational Impacts

Impact 7B.14-1: Additional Housing Alternative B would increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Significant)

Additional Housing Alternative B would result in a greater on-campus residential population compared to the proposed Project, and consequently, would create a greater demand for, and use of, on- and off-campus park and recreational facilities than the proposed Project.

On-Campus Park and Recreational Facility Deterioration

It is assumed that under this alternative, the location and amount of land designated as Campus Open Space in the Stanford Community Plan on the Project site would not change from baseline conditions. Table 7B.14-1, below, demonstrates that, with an estimated ratio of 10.7 acres of designated Campus Open Space per 1,000 campus residents, the lands designated Campus Open Space on the Project site would provide adequate space to support the estimated campus residents under this alternative. The ratio provided under this alternative would be less than that provided under the proposed Project (12.2 acres of designated Campus Open Space per 1,000 campus residents), however would still be well more than the minimum of five acres of designated Campus Open Space per 1,000 campus residents. Similar to the conclusion reached for the proposed Project, based on the availability of Campus Open Space, the increased residents under this alternative would not result in overuse that could lead to substantial degradation of parks and recreation facilities and would not create a need for construction of new onsite park, recreation and open space facilities.

TABLE 7B.14-1
STANFORD CAMPUS OPEN SPACE ACREAGE PER RESIDENT - ADDITIONAL HOUSING ALTERNATIVE B

	Fall 2018	Fall 2035 (with buildout of Additional Housing Alternative B)
Campus resident population	15,338	24,789
Designated Campus Open Space (approximate)	265	265
Ratio (acres per 1,000 residents, approximate)	17.3	10.7

SOURCE: Stanford, 2018 (see Appendix ALT-REC)

Off-Campus Park and Recreational Facility Deterioration

Table 7B.14-2 presents the estimated increase in usage in public park and recreation facilities in Palo Alto and Menlo Park by campus residents under Additional Housing Alternative B.

As shown in Table 7B.14-2, the increase in on-campus residents anticipated to occur under Additional Housing Alternative B would cause one neighborhood park (College Terrace parks) to experience an increase of visits over the screening threshold of 12.5 daily visits per acre. In addition, the sensitivity analysis conducted for Additional Housing Alternative B showed that with the inclusion of commuters in the analysis, Additional Housing Alternative B would also exceed the screening criteria at the Pearson-Arastradero Preserve in Palo Alto. In comparison, under the proposed Project, no public parks would experience an increase over the screening threshold.

TABLE 7B.14-2
ESTIMATED INCREASE IN USAGE IN PUBLIC PARK AND RECREATION FACILITIES BY
ON-CAMPUS RESIDENTS UNDER ADDITIONAL HOUSING ALTERNATIVE B

Figure ^a Reference	Name	Acres ^b	Growth in Daily Visits	Daily ^c Visits per Acre
PALO ALTO				
Regional/District Parks				
1	Foothills Park/Open Space Preserve	Total 1,400; Active 26.7	107	0.1; 4.0
2	Baylands Nature Preserve	Total 1,940; Active 9.2	86	0.0; 9.3
3	Pearson-Arastradero Preserve	Total 622; Active 6.2	67	0.1; 10.8
Neighborhood Parks and Recreation Facilities				
4	Neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks)	4.4	101	23.0
5	Mayfield (Stanford-Palo Alto) playing fields	5.9	40	6.8
6	El Camino Park	12.2	38	3.1
7	Baylands Athletic Center fields	10.0	17	1.7
8	Heritage Park	2.01	17	8.5
9	Rinconada Pool	NA	11	NA
10	Mitchell Park	21.4	9	0.4
11	Peers Park	4.7	16	3.4
12	Lawn Bowling Green	1.9	3	1.6
13	Avenidas Senior Center	NA	4	NA
14	Cubberley Community Center	NA	12	NA
MENLO PARK				
Regional/District Parks				
15	Bedwell Bayfront Park	Total 160; Active 7.0	3	0.0; 0.3
Neighborhood Park and Recreation Facilities				
16	Civic Center recreation facilities	9.3	33	3.5
17	Stanford Hills Park	3.1	28	9.0
18	Sharon Park	9.8	8	0.8
19	Sharon Hills Park	11.5	8	0.7
20	Nealon Park	9.0	6	0.7
21	Jack W. Lyle Park	4.6	5	1.1

NOTES:

^a Figure references are associated with recreation facilities shown on Figure 5.14-2 in the Draft EIR.

^b Acreages of all parks were obtained from Palo Alto or Menlo Park City websites and documents, except for Sharon Hills Park, which was calculated by Stanford. Please see Appendix REC in the Draft EIR for calculations on "actively used" park areas for regional/district parks.

^c Resulting daily visits per acre is calculated based on the total of growth in daily visits under the housing alternative, which includes the growth in campus residents under the proposed Project plus the additional growth assumed for the Additional Housing Alternative B.

SOURCE: Stanford, 2018 (see Appendix ALT-REC)

Following the approach to analysis described above, the next step was to consider whether the increase in visitors (exceeding 12.5 per acre per day) might require replacement of turf or other recreation facilities substantially in advance of their expected life cycles. Because there are turf areas identified at the neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks), in Palo Alto, additional study is required to determine monitoring.

The neighborhood parks in College Terrace do not have a reservation system in place to ensure adequate recovery time for the turf areas, therefore impacts to turf areas at these parks under Additional Housing Alternative B could be significant. Over the long term, cities plan for future turf replacement on a schedule that is needed to accommodate observed increases in park usage. However, the relatively large increase in turf usage that could occur under this alternative could necessitate an initial turf replacement more quickly than might have been planned. Because turf has a natural life, and must be replaced from time to time regardless of the increase in use caused by this alternative, a one-time turf replacement could offset the impact associated with possible acceleration of turf replacement. Therefore, mitigation for increased or accelerated physical deterioration to the turf areas due to implementation of this alternative would take the form of a contribution toward one-time turf replacement at these parks as included below.

Conclusion

Similar to the proposed Project, Stanford is expected to provide adequate on-campus sports, fitness and recreation facilities for faculty, staff and students under Additional Housing Alternative B. As under the proposed Project, new and expanded indoor recreation facilities would be authorized as needed as part of the academic and academic support space authorized by the General Use Permit for this alternative.

There are no turf areas at the Pearson-Arastradero Preserve in Palo Alto. The calculation of active areas at this park was based on the length and average width of trails, mostly paved trails.⁷⁸ However, increased visits to the trail system would not necessarily result in accelerated deterioration of the trails. According to research by the National Park Service, human-powered trail activities effectively have a minimal degradation on unsurfaced trails.⁷⁹ Therefore, the potential degradation of paved trails by an increased number of visitors at the Pearson-Arastradero Preserve is minimal, and no further analysis to this park is necessary.

However, as discussed above, the increase in campus residents anticipated to occur under the Additional Housing Alternative B would result in an increase in off-campus public park visits resulting in a significant impact to turfs at College Terrace parks. Project impacts related to deterioration of recreation facilities generated by this alternative would be offset with implementation of **Mitigation Measure 7B.14-1**, and thus, this impact would be reduced to less than significant with mitigation. Impacts related to deterioration of recreation facilities generated

⁷⁸ The calculation of turf areas and active areas is documented on Pages 16.73 and 16.74 of Appendix REC of the Draft EIR.

⁷⁹ Marion and Olive, 2006. *Assessing and Understanding Trail Degradation: Results from Big South Fork National River and Recreational Area*. Retrieved from California Department of Parks and Recreation: <https://www.parks.ca.gov/pages/1324/files/f10602%20marion&olive.pdf>.

by Additional Housing Alternative B would be offset with implementation of **Mitigation Measure 7B.14-1**, and thus, this impact would be reduced to less than significant with mitigation.

Furthermore, similar to the voluntary improvement measure identified for the proposed Project, Improvement Measure 7B.14-1 identified for this alternative would provide for park upgrade funds at the four College Terrace parks to ensure these parks remain in good condition.

Mitigation Measure 7B.14-1: Prior to occupancy of net new on-campus housing units exceeding 3,150, Stanford shall provide to the City of Palo Alto a one-time contribution equivalent to the capital budget needs to provide for one-time turf replacement at neighborhood parks in College Terrace (Cameron, Mayfield, Weisshaar, and Werry Parks). The amount of the contribution shall be determined by the County of Santa Clara based on an estimate from an independent contractor. The payment shall not be used for any purpose other than turf replacement at College Terrace parks.

Significance after Mitigation: Less than Significant.

Improvement Measure 7B.14-1: Stanford has proposed to provide to the City of Palo Alto a one-time contribution equivalent to the capital budget needs previously identified by the City of Palo Alto (approximately \$300,000) to provide for planned park upgrades and ensure that the four College Terrace parks remain in good condition. These improvements identified in the Palo Alto Capital Budget were as follows:

- Tennis court upgrade (\$215,000 planned for both Terman Park and Weisshaar Park, this good-neighbor offer assumes \$140,000 is for Weisshaar Park), planned for FY 2021.
- Planned infrastructure improvements to upgrade and renovate safety and accessibility of the playground and other features in Cameron Park, approximately \$160,000, planned for FY 2020.

Impact 7B.14-2: The construction of recreational facilities under Additional Housing Alternative B would cause physical effects on the environment. (Significant)

As with the proposed 2018 General Use Permit, under Additional Housing Alternative B Stanford would likely relocate or replace some of its existing campus recreation facilities, and would use a portion of authorized net new academic and academic support square footage for new or expanded athletic and recreation facilities. Under this alternative, the placement of additional housing at the edges of the West Campus and DAPER and Administrative Development Districts could require development of lands that are currently used for existing recreation fields, which could, in turn, need to be relocated elsewhere on the campus.

Similar to the proposed Project, the creation of new open spaces and construction of recreational amenities on the Project site would result in physical effects. These effects could be associated with construction, such as noise, archeological impacts, air quality impacts such as emissions of dust and other pollutants, including diesel exhaust, and temporary street closures or other traffic

obstructions. As with the proposed Project, since on-campus recreational improvements are part of the overall anticipated development program under the alternative, the associated construction-related impacts associated with new, relocated or replaced recreational facilities are addressed in the construction impact analyses above, including Section 7A.2 Air Quality, 7A.3 Biological Resources, 7A.4, Cultural Resources, 7A.8 Hazardous Materials, 7A.9 Hydrology and Water Quality, 7A.11 Noise and Vibration, and 7A.15 Transportation and Traffic. Similar to those mitigation measures identified for the proposed Project, the mitigation measures outlined in these respective topics for this alternative to reduce construction related impacts would similarly apply to on-campus park and recreation facility development.

Mitigation: Implement the following mitigation measures, as needed for construction of recreation facilities:

Air Quality

Mitigation Measure 7B.2-2: Best Management Practices for Controlling Particulate Emissions during Construction.

Mitigation Measure 7B.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Biological Resources

Mitigation Measure 7B.3-1(a)-(e): Mitigation for nesting birds during construction.

Mitigation Measure 7B.3-2(a)-(d): Mitigation for special-status bat species during construction.

Mitigation Measure 7B.3-3(a)-(c): Mitigation for San Francisco dusky-footed woodrat during construction.

Mitigation Measure 7B.3-4(a)-(b): Mitigation for special-status plant species during construction.

Mitigation Measure 7B.3-6(a)-(c): Mitigation for steelhead during construction.

Mitigation Measure 7B.3-7(a)-(b): Mitigation for riparian habitat during construction.

Mitigation Measure 7B.3-8(a)-(b): Mitigation for native oak woodland during construction.

Mitigation Measure 7B.3-9(a)-(c): Mitigation for wetlands during construction.

Mitigation Measure 7B.3-11(a)-(c): Mitigation for protected trees during construction.

Cultural Resources

Mitigation Measure 7B.4-2(a)-(b): Mitigation for protection of archaeological resources during construction.

Mitigation Measure 7B.4-3: Mitigation for protection of paleontological resources during construction.

Hazardous Materials

Mitigation Measure 7B.8-2(a)-(c): Mitigation for potentially contaminated soils during construction.

Hydrology and Water Quality

Mitigation Measure 7B.9-1: Review historic wells survey.

Noise and Vibration

Mitigation Measure 7B.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors.

Mitigation Measure 7B.11-2: Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.

Mitigation Measure 7B.11-3: Construction Vibration Reduction Plan.

Transportation and Traffic

Mitigation Measure 7B.15-1: Construction Traffic Control Measures.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 7B.14-3: Additional Housing Alternative B in combination with past, present, and reasonably foreseeable future projects would increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Significant)

The geographic area for the cumulative analysis of public park and recreation facilities is focused on facilities on campus and those within three miles of the Project site. The increased demand by the Project on public park and recreation facilities (as identified under Impact 7B.14-1 above), would be coupled with that generated by the increased populations of the cities of Menlo Park and Palo Alto. Under its Comprehensive Plan Update, the City of Palo Alto considered its local City and sphere of influence population increase from 2014 to 2030 to range from 92,045 to 94,06, which correlates to an increase of 13 to 16 percent. Palo Alto's Comprehensive Plan Update Final EIR considers this population increase and concluded that cumulative impacts to parks and recreation facilities would be less than significant through compliance with the City's Municipal Code which would ensure that in-lieu fees and impact fees are collected for the creation of new or physically altered parks and recreational facilities to the extent feasible, and with implementation of mitigation to evaluate and mitigate the construction impacts associated with park and recreational facility creation and expansion (City of Palo Alto, 2017b). Similarly, the City of Menlo Park's 2016 update of its Land Use Element identified a 24-year population growth of nearly 53 percent by 2040. Evaluation of cumulative impacts to parks also concluded that conformity with General Plan goals and policies would ensure that adequate parklands and recreational facilities would be provided (City of Menlo Park, 2016).

Ultimately, while there is expected to be a cumulative population increase in the Project area, this growth is not expected to generate a cumulative significant impact to park and recreation facilities with the use of established municipal fee structures of the local jurisdictions. However, because the neighboring plans do not include assumptions of growth under Additional Housing Alternative B, the deterioration of off-campus park and recreation facilities at Pearson-Arastradero Preserve and the College Terrace parks from this alternative would contribute significantly to a cumulative recreation impact. Implementation of Mitigation Measure 7B.14-1, for a one-time turf replacement at the College Terrace parks, would reduce Stanford's contribution to a cumulative impact. The potential degradation of paved trails by an increased number of visitors at Pearson-Arastradero Preserve is minimal, and no further mitigation for these parks are necessary. Given all these factors, the cumulatively considerable impact identified to park and recreation facilities would be less than significant with mitigation.

Similar to the improvement measure identified for the proposed Project, implementation of Improvement Measure 7B.14-1 to provide for park upgrade funds at the four College Terrace parks to ensure these parks remain in good condition would further reduce Stanford's contribution to a cumulative impact.

Mitigation: Implement Mitigation Measure 7B-14.1.

Significance after Mitigation: Less than Significant.

Improvement Measure: Implement Improvement Measure 7B.14-1.

Transportation and Traffic⁸⁰

Approach to Analysis

Vehicle Trip Generation

The trip generation was estimated for Additional Housing Alternative B using the same Stanford resident and commuter peak hour trip generation rates used for the proposed Project. It should be noted that the commuter trip generation rate is the average rate per Stanford commuter, which accounts for the fact that only a portion of the commuters drive to campus.

Table 7B.15-1 identifies the trip generation rates for campus commuters, campus residents living in student housing, and campus residents living in faculty/staff housing. A campus commuter is a Stanford affiliate who lives off campus. At Stanford, many commuters travel to the campus by taking public transit (Caltrain and buses) and/or Marguerite shuttles, bicycling, walking, vanpooling or carpooling. As a result, the vehicle trip generation rates for campus commuters are low. Table 7B.15-1 shows that in the morning peak hour, campus commuters generate 0.096 inbound trips per commuter and 0.041 outbound trips per commuter for a total of 0.137 morning

⁸⁰ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives transportation impact analysis and VMT analyses prepared by Fehr & Peers Transportation Consultants for Stanford and independently peer reviewed by ESA; see Appendices ALT-TIA and ALT-VMT included in this document.

peak hour trips per campus commuter. In the evening peak hour, campus commuters generate 0.084 inbound trips per commuter and 0.135 outbound trips per commuter for a total of 0.143 evening peak hour trips per campus commuter.

TABLE 7B.15-1
2018 GENERAL USE PERMIT VEHICLE TRIP GENERATION ESTIMATE

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Commuter (trips/Stanford affiliate living off campus)	0.096	0.041	0.137	0.051	0.084	0.135
Student Resident (trips/bed)	0.028	0.037	0.065	0.077	0.066	0.143
Faculty/Staff Resident (trips/unit)	0.150	0.280	0.430	0.260	0.190	0.450

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Table 7B.15-1 shows that the vehicle trip generation rates measured for on-campus faculty/staff housing units are higher than the trip generation rates for campus commuters in both the inbound and outbound directions in both the morning and evening peak hours. The residential rates are the measured trip generation rates on a per-bed or per-unit basis at Stanford student and faculty/staff housing sites. Residential rates include trips by Stanford affiliates as well as spouses and other household members. A campus resident travels between the campus and other destinations for a variety of purposes, including shopping, dining out, religion, clubs and activities, recreation and exercise, entertainment, socializing, daycare, school, and off-campus employment. These types of trips can generate both outbound and inbound trips during the morning or evening periods. Faculty/staff housing units can also house non-Stanford affiliates as well as Stanford affiliates. In addition, many of the residence-based trips are not as amenable to transit and other modes as commute trips such as vanpools. In the morning peak hour, on-campus faculty/staff housing residential units generate 0.150 inbound trips per unit and 0.280 outbound trips per unit for a total of 0.430 morning peak hour trips per faculty/staff residential unit. In the evening peak hour, on-campus faculty/staff residential units generate 0.260 inbound trips per unit and 0.190 outbound trips per unit for a total of 0.450 evening peak hour trips per residential unit.

Under Additional Housing Alternative B, 1,171 more faculty/staff units are assumed to be constructed on the campus, as compared to the proposed 2018 General Use Permit. These units would reduce the population that otherwise would commute to the campus under Project conditions by 1,171 individuals. Therefore, the trip generation estimation process starts by subtracting from Project conditions the commuters who would no longer commute to campus by multiplying 1,171 by the commuter trip generation rate and showing that result as a negative number. The trips associated with 1,171 new faculty/staff housing units are then added to that number to generate a net change in faculty/staff trips compared to Project conditions. The same process was used for the 105 graduate students who are assumed to be housed in new graduate student beds (incorporating a factor for two-student couples).

Table 7B.15-2 presents the trip generation for the proposed Project, for reference, and **Table 7B.15-3** summarizes the residential trips added, commute trips eliminated, and the net change for this alternative.

TABLE 7B.15-2
2018 GENERAL USE PERMIT VEHICLE TRIP GENERATION ESTIMATE

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Campus Trips (based on academic space growth)	751	428	1,179	600	779	1,379
Residents	153	250	403	343	277	620
Non-Residential Generators (Commuters, visitors, others)	598	178	776	257	502	759

SOURCE: Fehr & Peers, August 2017 (see Draft EIR Appendix TIA)

TABLE 7B.15-3
ADDITIONAL HOUSING ALTERNATIVE B TRIP GENERATION ESTIMATE
(COMPARED TO PROPOSED 2018 GENERAL USE PERMIT)

Trip Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Resident Trips Added	179	332	510	313	229	542
Commuter Trips Eliminated	(122)	(536)	(175)	(65)	(107)	(172)
Net Change Compared to Project	56	279	335	247	123	370

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Compared to the proposed Project, Additional Housing Alternative B would generate a net increase in vehicle trips entering and leaving campus during the peak hours, due to the higher vehicle trip generating characteristics of faculty/staff residential units as compared to Stanford commuters. These trips would be in addition to those of the proposed Project. The faculty/staff residential units could house singles, couples and families, generating the full range of housing-related trips by vehicle and other modes. As explained above, faculty/staff residential units generate both inbound and outbound vehicle trips during the morning and evening peak periods. The residential trips would have a different distribution than the commuter trips, as described below.

Vehicle Trip Distribution

The commuter and resident trip distribution patterns for Additional Housing Alternative B are the same as for the proposed project. The commuter distribution is based on Stanford off-campus resident locations, and the resident distribution is based on census data for the census tracts including the Stanford campus residential areas. These distribution patterns were used to distribute and assign the commuter trip reductions and residential bed/unit trip additions to the roadway network. In summary, Additional Housing Alternative B would contribute more trips to the local area when compared to the proposed Project.

Construction Impacts

Impact 7B.15-1: Additional Housing Alternative B would generate construction traffic that would cause a substantial reduction in mobility and in access to land uses. (Significant)

Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, and therefore, would involve more construction than would occur under the proposed Project. Consequently, Additional Housing Alternative B would generate more construction traffic than would occur under the proposed Project. Similar to the proposed Project, impacts could include reduction in off-campus on-street parking; reduction in pedestrian, bicycle and public transit access; additional peak-hour traffic; use of non-truck routes by construction traffic; and interference with special events. These impacts would be significant.

Implementation of the following mitigation measures, same as those identified for the proposed Project, would reduce impacts of construction traffic to mobility and access to less-than-significant levels:

Mitigation Measure 7B.15-1: Construction Traffic Control Measures. The following traffic control measures are required to address impacts from construction of individual projects for Additional Housing Alternative B.

- **Protection and Maintenance of Public Transit Access and Routes.** Stanford and its contractors shall be prohibited from limiting access to public transit, and from limiting movement of public transit vehicles, without prior approval from the VTA or other appropriate jurisdiction. Such approval shall require submittal and approval of a mitigation plan to reduce specific impacts to a less than significant level. Potential actions that would impact access to transit include, but are not limited to, relocating or removing public transit bus stops, limiting access to public transit bus stops or transfer facilities, or otherwise restricting or constraining public transit operations.
- **Maintenance of Pedestrian Access.** Stanford and its contractors shall be prohibited from substantially limiting pedestrian access to properties or facilities in those affected jurisdictions during construction of the project, without prior approval from those jurisdictions. Such approval shall require submittal and approval of specific construction management plans to mitigate the specific impacts to a less than significant level. Pedestrian access-limiting actions would include, but not be limited to, sidewalk closures, bridge closures, crosswalk closures or pedestrian re-routing at intersections, placement of construction-related material within pedestrian pathways or sidewalks, and other actions which may affect the mobility or safety of pedestrians during the construction period. If sidewalks are maintained along the construction site frontage, covered walkways shall be provided.
- **Maintenance of Bicycle Access.** Stanford and its contractors shall be prohibited from substantially limiting bicycle access to properties or facilities in those affected jurisdictions while constructing the project without prior approval from those jurisdictions. Such approval shall require submittal and approval of specific construction management plans to mitigate the specific impacts to a less than significant level. Bicycle access-limiting actions would include, but not be limited to, bike lane closures or narrowing, closing or narrowing of streets that are designated

bike routes, bridge closures, placement of construction-related materials within designated bike lanes or along bike routes, and other actions that may affect the mobility or safety of bicyclists during the construction period.

- **Protection and Maintenance of Emergency Service Access and Routes.** Stanford shall inform the Stanford Police and Palo Alto Police and Fire Departments of construction locations, and alternate evacuation and emergency routes shall be designated to maintain response times during construction periods.
- **Parking for Construction-Related Vehicles.** Stanford shall be required to provide adequate on-campus parking for all construction-related vehicles throughout the construction period. If adequate parking cannot be provided on the Stanford campus, a satellite parking area shall be designated, and a shuttle bus shall be operated to transfer construction workers to/from the job site.
- **Restriction on Construction Hours.** Stanford shall make feasible attempts to limit the number of construction material deliveries from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM on weekdays. When feasible, Stanford shall be required to prohibit or limit the number of construction employees arriving or departing the site between the hours of 4:30 PM and 6:00 PM.
- **Construction Truck Routes.** Stanford shall be required to deliver and remove all construction-related equipment and materials on truck routes designated by the Cities of Palo Alto and Menlo Park. Heavy construction vehicles shall be prohibited from accessing the site from other routes. Stanford shall provide written notification to all contractors regarding appropriate routes to and from construction sites and weight and speed limits for local roads used to access construction sites. A copy of all such written notifications shall be submitted to the County Planning Office.
- **Phone Number for Complaints.** Stanford shall post at least one sign no smaller than 1,296 square inches at all active construction sites. The sign shall contain the name and telephone number or e-mail address of the appropriate Stanford person the public may contact to report alleged violations of this mitigation measure or to register complaints about construction traffic associated with building projects under the 2018 General Use Permit. Stanford shall keep a written record of all such complaints and shall provide copies of these records to the County Planning Office as part of the annual report process.
- **Construction Impact Mitigation Plan.** In lieu of the above mitigation measures, Stanford may submit a detailed construction impact mitigation plan to the County for review and approval prior to commencing any construction activities with potential transportation impacts. This plan shall address in detail the activities to be carried out in each construction phase, the potential transportation impacts of each activity, and an acceptable method of reducing or eliminating significant transportation impacts. If Stanford determines that it is not feasible to comply with the “Restriction on Construction Hours” above, then the plan shall also explain the basis for this infeasibility determination. Details such as the routing and scheduling of materials deliveries, construction employee arrival and departure schedules, employee parking locations, and emergency vehicle access shall be described and approved.

- **Construction During Special Events.** Stanford shall implement a mechanism to prevent roadway construction activities from reducing roadway capacity during major athletic events or other special events, which attract a substantial number of visitors to the campus. This measure may require a special supplemental permit to be obtained to host such events during significant construction phases.

Significance after Mitigation: Less than Significant.

Operational Impacts

2018 Baseline With Additional Housing Alternative B Conditions

Impact 7B.15-2: Implementation of Additional Housing Alternative B could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Additional Housing Alternative B conditions. (Significant)

Impacts associated with Additional Housing Alternative B are identified by comparing the 2018 Baseline traffic volumes to the 2018 Baseline with Additional Housing Alternative B Conditions traffic volumes. Significant impacts are identified based on the applicable impact criteria, which include changes in the LOS from an acceptable to an unacceptable level or changes in critical delay and critical V/C ratios⁸¹ for intersections operating unacceptably. The results of the LOS analysis are summarized in **Table 7B.15-4**. Significant impacts would occur at five intersections under this alternative – the same five that would occur under the proposed Project.⁸² Generally, at the study intersections located closest to the campus, Additional Housing Alternative B would increase congestion compared to the proposed Project. At the study intersections located farther from the campus, this alternative would reduce congestion by a small degree compared to the proposed Project because peak-hour, peak-direction residence-based trips are assumed to start and end at destinations closer to the Stanford campus as compared to peak-hour, peak-direction commute trips. When compared to the proposed Project, Additional Housing Alternative B would add approximately 110 peak hour trips to intersections directly adjacent to the campus along El Camino Real and between 10 to 60 peak hour trips to intersections that border the campus along Sand Hill Road and Junipero Serra Boulevard. Overall, Additional Housing Alternative B would not reduce significant effects of the proposed 2018 General Use Permit under 2018 conditions.

⁸¹ V/C ratios (volume-to-capacity ratios) are calculated based on traffic volumes and capacity values for various types of roadways that comprise intersections.

⁸² The Draft EIR identified one additional intersection with a significant impact under the proposed 2018 General Use Permit, at Intersection #31, Foothill Expressway / San Antonio Road. However, that result was due to a volume error that has since been corrected. This correction will be reflected in the forthcoming Response to Comments Document.

TABLE 7B.15-4
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
1	I-280 NB On-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.4 12.5	B+ B	10.2 13.5	B+ B	0.015 0.032	-0.2 1.1	10.2 13.5	B+ B	0.021 0.032	-0.2 1.1
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	119.6 21.2	F C+	137.4 21.4	F C+	0.038 0.021	18.9 0.2	137.5 21.8	F C+	0.038 0.029	19.0 0.6
3	Addison Wesley / Sand Hill Rd	Menlo Park	LOS D	AM PM	32.4 21.0	C- C+	42.4 21.7	D C+	0.037 0.032	15.7 1.3	41.7 21.7	D C+	0.035 0.032	14.7 1.3
4	Saga Ln / Sand Hill Rd	Menlo Park	LOS D	AM PM	15.0 21.7	B C+	15.3 21.2	B C+	0.036 0.031	0.6 -0.5	15.3 21.2	B C+	0.034 0.031	0.5 -0.5
5	Sharon Park Dr / Sand Hill Rd	Menlo Park	LOS D	AM PM	16.7 16.6	B B	16.8 16.3	B B	0.036 0.032	0.4 -0.1	16.7 16.3	B B	0.034 0.032	0.3 -0.1
6	Alameda de las Pulgas / Santa Cruz Ave	San Mateo County	LOS D	AM PM	16.1 16.9	B B	16.0 16.8	B B	0.000 0.000	0.0 0.0	16.0 16.8	B B	0.000 0.000	0.0 0.0
7	Santa Cruz Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	48.9 48.1	D D	49.8 49.0	D D	0.031 0.038	1.4 1.7	50.3 49.1	D D	0.041 0.037	2.6 1.6
8	Oak Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.6 3.9	B+ A	10.5 3.9	B+ A	0.025 0.024	0.0 0.1	10.5 3.9	B+ A	0.028 0.029	0 0.1
9	Stock Farm Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	23.3 28.2	C C	24.3 29.2	C C	0.028 0.027	1.6 1.2	23.9 28.9	C C	0.030 0.031	1.3 1.0
10	Pasteur Dr / Sand Hill Rd	Palo Alto	LOS D	AM PM	20.9 27.3	C+ C	20.9 27.7	C+ C	0.009 0.017	0.3 0.7	20.8 27.6	C+ C	0.015 0.023	0.3 0.6
11	Arboretum Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	18.5 27.3	B- C	19.3 27.8	B- C	0.013 0.017	1.3 0.9	20.2 28.3	C+ C	0.026 0.027	2.6 1.7
12	El Camino Real / Sand Hill Rd	Palo Alto (SC CMP)	LOS E	AM PM	39.0 34.1	D C-	38.9 34.3	D+ C-	0.012 0.016	-0.1 0.3	39.0 34.3	D C-	0.014 0.015	0.1 0.3
13	I-280 SB Ramps / Page Mill Rd*	Santa Clara County	LOS E (warrant)	AM PM	151.7 85.9	F F	153.3 88.3	F F	N/A	N/A	153.5 88.6	F F	N/A	N/A
14	I-280 NB Ramps / Page Mill Rd*	Santa Clara County	LOS E (warrant)	AM PM	40.5 14.8	E B	41.5 14.9	E B	N/A	N/A	41.5 14.9	E B	N/A	N/A
15	Deer Creek Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	14.5 13.5	B B	15.4 13.7	B B	0.026 0.021	1.4 -0.3	15.4 13.7	B B	0.026 0.026	1.4 -0.3
16	Coyote Hill Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	7.5 9.0	A A	8.0 9.4	A A	0.014 0.021	0.0 -0.2	8.0 9.4	A A	0.020 0.026	0.0 -0.2
17	Junipero Serra Blvd - Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	97.2 97.0	F F	101.5 109.9	F F	0.029 0.063	7.2 19.3	104.7 111.0	F F	0.043 0.070	13.1 20.4

TABLE 7B.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
18	Peter Coutts / Page Mill Rd	Santa Clara County	LOS E	AM PM	20.9 29.7	C+ C	21.3 29.8	C+ C	0.020 0.015	0.6 0.0	21.7 30.2	C+ C	0.029 0.024	1.1 0.3
19	Hanover St / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	63.0 47.6	E D	65.7 48.2	E D	0.013 0.017	0.6 -0.1	67.2 48.5	E D	0.020 0.023	1.0 -0.3
20	El Camino Real / Page Mill Rd - Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	61.2 66.2	E E	66.1 68.8	E E	0.047 0.021	6.5 2.7	68.7 70.3	E E	0.063 0.019	11.8 5.4
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	63.6 58.5	E E+	64.2 58.9	E E+	0.009 0.012	1.0 0.5	64.4 59.1	E E+	0.011 0.014	1.2 0.6
22	Oregon Expy / West Bayshore Rd	Santa Clara County	LOS E	AM PM	20.7 18.9	C+ B-	20.7 19.1	C+ B-	0.003 0.008	0.1 0.2	20.7 19.2	C+ B-	0.007 0.012	0.1 0.4
23	I-280 SB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	40.2 16.1	E C	41.0 16.2	E C	N/A	N/A	40.8 16.2	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	27.2 26.8	D D	28.5 29.9	D D	N/A	N/A	28.8 29.9	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Rd	Menlo Park	LOS D	AM PM	43.8 48.8	D D	46.2 50.9	D D	0.049 0.048	3.0 2.4	46.1 50.8	D D	0.046 0.048	2.8 2.4
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	LOS E	AM PM	28.7 40.7	C D	30.5 45.4	C D	0.009 0.052	1.2 5.9	31.3 44.6	C D	0.025 0.045	3.0 4.9
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	LOS E	AM PM	14.1 16.3	B B	14.5 17.9	B B	0.020 0.036	0.8 2.8	14.5 17.8	B B	0.028 0.042	0.8 2.5
28	Junipero Serra Blvd / Stanford Ave	Santa Clara County	LOS E	AM PM	19.6 21.1	B- C+	21.0 25.1	C+ C	0.061 0.076	1.8 4.4	21.5 25.3	C+ C	0.071 0.090	2.4 4.9
29	Foothill Expy / Hillview Ave	Santa Clara County	LOS E	AM PM	35.0 34.9	C- C-	35.7 35.1	D+ D+	0.006 0.015	-0.3 0.2	35.7 35.2	D+ D+	0.007 0.014	-0.3 0.2
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	LOS E	AM PM	71.8 92.3	E F	74.7 95.8	E F	0.016 0.150	4.6 -1.0	74.3 95.4	E F	0.015 0.149	3.9 -1.8
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	LOS E	AM PM	18.7 75.8	B- E-	19.2 78.5	B- E-	0.016 0.022	0.6 4.7	19.1 78.0	B- E-	0.014 0.019	0.5 4.1
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	LOS E	AM PM	74.6 88.9	E F	79.0 89.9	E- F	0.014 0.004	9.5 1.3	78.3 89.8	E- F	0.012 0.003	8.1 1.1
33	Foothill Expy / Springer Road-Magdalena Ave	Santa Clara County (SC CMP)	LOS E	AM PM	62.6 71.9	E E	64.0 73.2	E E	0.015 0.010	1.9 2.3	63.8 73.2	E E	0.013 0.010	1.7 2.3
34	Bowdoin St / Stanford Ave*	Palo Alto	LOS E (warrant)	AM PM	14.4 18.5	B C	18.4 27.6	C D	N/A	N/A	18.6 29.7	C D	N/A	N/A

TABLE 7B.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
35	Arboretum Rd / Quarry Rd	Palo Alto	LOS D	AM PM	43.6 41.5	D	44.1 42.1	D D	0.040 0.039	1.2 1.4	45.0 43.2	D D	0.077 0.074	3.1 3.0
36	Arboretum Rd / Palm Dr	Palo Alto	LOS D	AM PM	29.9 28.6	C C	31.9 29.4	C C	0.085 0.044	3.3 1.3	33.0 30.2	C- C	0.101 0.064	4.8 2.1
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	17.2 29.9	B C	17.0 29.8	B C	0.011 0.015	-0.1 0.1	17.0 29.8	B C	0.010 0.014	-0.1 0.1
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	42.5 42.0	D D	42.4 42.2	D D	0.017 0.015	0.4 0.5	42.3 42.2	D D	0.015 0.015	0.3 0.5
39	El Camino Real / Oak Grove Ave	Menlo Park	LOS D	AM PM	31.3 35.6	C D+	31.0 35.4	C D+	0.018 0.017	-0.3 -0.1	31.0 35.4	C D+	0.016 0.016	-0.3 -0.1
40	El Camino Real / Santa Cruz Ave	Menlo Park	LOS D	AM PM	14.0 23.0	B C	13.8 22.7	B C+	0.018 0.016	-0.3 -0.4	13.8 22.7	B C+	0.016 0.015	-0.3 -0.3
41	El Camino Real / Ravenswood Rd	Menlo Park	LOS D	AM PM	43.7 47.0	D D	43.9 47.2	D D	0.022 0.020	0.6 0.7	43.9 47.3	D D	0.021 0.021	0.6 0.8
42	El Camino Real / Roble Ave	Menlo Park	LOS D	AM PM	14.4 14.7	B B	14.1 14.3	B B	0.014 0.013	-0.3 -0.3	14.1 14.3	B B	0.013 0.013	-0.3 -0.3
43	El Camino Real / Middle Ave	Menlo Park	LOS D	AM PM	27.2 27.5	C C	27.0 27.2	C C	0.014 0.009	-0.3 -0.2	27.0 27.2	C C	0.013 0.010	-0.3 -0.2
44	El Camino Real / Cambridge Ave	Menlo Park	LOS D	AM PM	13.6 19.6	B B-	13.4 19.5	B B-	0.014 0.009	-0.3 -0.2	13.4 19.5	B B-	0.013 0.010	-0.2 -0.2
45	El Camino Real / Quarry Rd	Palo Alto	LOS D	AM PM	14.3 33.2	B C-	15.8 34.2	B C-	0.029 0.031	1.6 1.6	16.6 34.9	B C-	0.037 0.048	2.4 2.6
46	El Camino Real (SB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	21.1 20.3	C+ C+	20.7 20.0	C+ C+	0.028 0.030	-0.2 -0.3	20.8 20.0	C+ B-	0.030 0.036	-0.2 -0.2
47	El Camino Real (NB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	19.5 26.3	B- C	20.0 26.4	B- C	0.030 0.033	0.4 0.8	20.0 26.3	C+ C	0.035 0.043	0.6 0.6
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	LOS E	AM PM	45.9 51.1	D D-	47.5 54.9	D D-	0.047 0.059	2.0 7.0	47.7 56.6	D E+	0.060 0.079	2.3 10.3
49	El Camino Real / Churchill Ave	Palo Alto	LOS D	AM PM	24.7 26.6	C C	24.4 26.4	C C	0.017 0.018	-0.1 -0.1	24.3 26.3	C C	0.027 0.032	-0.2 0.0
50	El Camino Real / Serra St	Palo Alto	LOS D	AM PM	24.5 28.0	C C	27.8 33.2	C C-	0.082 0.112	5.4 8.0	29.6 34.6	C C-	0.118 0.149	7.2 10.4
51	El Camino Real / Stanford Ave	Palo Alto	LOS D	AM PM	33.0 31.9	C- C	33.8 33.1	C- C-	0.060 0.054	11.5 2.0	33.6 33.3	C- C-	0.078 0.066	11.2 2.3

TABLE 7B.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
52	El Camino Real / California Ave	Palo Alto	LOS D	AM PM	24.0 28.8	C C	22.8 27.9	C+ C	0.029 0.031	-0.9 -0.7	22.5 27.7	C+ C	0.033 0.039	-1.0 -0.9
53	El Camino Real / Arastradero Rd - Charleston Rd	Palo Alto (SC CMP)	LOS E	AM PM	47.8 55.6	D E+	48.3 56.3	D E+	0.020 0.007	0.9 0.4	48.4 56.3	D E+	0.022 0.007	1.1 0.4
54	El Camino Real / San Antonio Rd	Mountain View (SC CMP)	LOS E	AM PM	53.4 53.6	D- D-	53.4 53.5	D- D-	0.008 0.007	0.0 -0.1	53.3 53.5	D- D-	0.007 0.007	0.0 -0.1
55	Alma St / Lytton Ave	Palo Alto	LOS D	AM PM	20.8 18.0	C+ B	21.8 18.6	C+ B-	0.016 0.015	1.5 0.8	22.0 18.9	C+ B-	0.022 0.024	1.8 1.4
56	Alma St / Hamilton Ave	Palo Alto	LOS D	AM PM	6.9 14.9	A B	7.1 15.3	A B	0.008 0.012	0.2 0.8	7.2 15.7	A B	0.012 0.021	0.3 1.6
57	Alma St / Churchill Ave	Palo Alto	LOS D	AM PM	28.2 48.3	C D	28.3 48.3	C D	0.005 0.005	0.1 0.0	28.4 48.5	C D	0.007 0.008	0.2 0.3
58	Alma St / Charleston Rd	Palo Alto	LOS D	AM PM	55.2 55.0	E+ D-	55.7 55.9	E+ E+	0.010 0.017	0.5 1.1	55.9 56.1	E+ E+	0.012 0.019	0.8 1.2
59	Middlefield Rd / Marsh Rd	Atherton	LOS D	AM PM	29.2 53.9	C D-	30.1 54.4	C D-	0.012 0.005	1.4 0.8	30.2 54.4	C D-	0.012 0.005	1.5 0.8
60	Middlefield Rd / Ravenswood Ave	Menlo Park	LOS D	AM PM	34.3 40.4	C- D	35.0 41.2	C- D	0.012 0.012	0.8 0.9	35.1 41.4	D+ D	0.013 0.015	0.9 1.1
61	Middlefield Rd / Ringwood Ave	Menlo Park	LOS D	AM PM	38.0 50.6	D+ D	38.1 50.7	D+ D	0.004 0.005	0.2 0.2	38.3 50.9	D+ D	0.006 0.008	0.4 0.4
62	Middlefield Rd / Willow Rd	Menlo Park	LOS D	AM PM	47.9 47.3	D D	48.0 47.5	D D	0.007 0.006	5.3 0.2	48.0 47.6	D D	0.007 0.008	5.3 0.2
63	Middlefield Rd / Lytton Ave	Palo Alto	LOS D	AM PM	38.0 45.9	D+ D	38.3 46.5	D+ D	0.018 0.016	0.4 0.6	38.4 46.6	D+ D	0.018 0.018	0.4 0.7
64	Middlefield Rd / University Ave	Palo Alto	LOS D	AM PM	30.0 35.6	C D+	30.3 36.1	C D+	0.019 0.031	0.3 0.9	30.4 36.1	C D+	0.019 0.031	0.3 0.9
65	Middlefield Rd / Hamilton Ave	Palo Alto	LOS D	AM PM	11.5 11.6	B+ B+	11.5 11.6	B+ B+	0.009 0.007	0.0 0.0	11.4 11.6	B+ B+	0.008 0.008	0 0
66	Middlefield Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	33.7 39.6	C- D	34.1 40.1	C- D	0.030 0.025	0.7 0.5	34.1 40.2	C- D	0.029 0.026	0.7 0.6
67	St. Francis Drive / Embarcadero Road	Palo Alto	LOS D	AM PM	23.6 17.5	C B	23.4 17.3	C B	0.015 0.014	0.0 -0.1	23.4 17.3	C B	0.014 0.014	0 -0.1
68	E. Bayshore Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	51.3 57.6	D- E+	51.6 58.1	D- E+	0.007 0.005	0.4 0.6	51.7 58.3	D- E+	0.007 0.007	0.5 0.9

TABLE 7B.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
69	Middlefield Rd / Charleston Rd	Palo Alto	LOS D	AM PM	50.5 52.6	D D-	50.6 52.7	D D-	0.004 0.006	0.0 0.2	50.6 52.8	D D-	0.006 0.008	0.1 0.4
70	US 101 SB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	32.6 33.9	C- C-	32.6 33.9	C- C-	0.000 0.000	0.0 0.0	32.6 33.9	C- C-	0.000 0.000	0.0 0.0
71	US 101 NB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	18.2 20.7	B- C+	18.2 20.7	B- C+	0.000 0.000	0.0 0.0	18.2 20.7	B- C+	0.000 0.000	0.0 0.0
72	Bay Rd / Willow Rd	Menlo Park	LOS D	AM PM	18.8 10.7	B- B+	18.8 10.7	B- B+	0.008 0.006	0.1 0.0	18.9 10.7	B- B+	0.008 0.007	0.1 0.1
73	Newbridge St / Willow Rd	Menlo Park	LOS D	AM PM	43.5 44.1	D D	43.4 44.1	D D	0.005 0.004	0.0 0.2	43.4 44.1	D D	0.006 0.006	0.0 0.3
74	O'Brien Dr / Willow Rd	Menlo Park	LOS D	AM PM	12.0 14.5	B+ B	11.9 14.5	B+ B	0.003 0.005	0.0 0.0	11.9 14.4	B+ B	0.005 0.005	0.0 0.0
75	Hamilton Ave / Willow Rd	Menlo Park	LOS D	AM PM	40.9 45.3	D D	41.5 45.5	D D	0.005 0.003	1.0 0.3	41.6 45.6	D D	0.006 0.005	1.1 0.4
76	Bayfront Expy / Willow Rd	Menlo Park (SM CMP)	LOS F	AM PM	40.3 57.8	D E+	40.3 58.0	D E+	0.000 0.004	0.0 0.2	40.3 58.0	D E+	0.000 0.004	0.0 0.2
77	Woodland Ave / University Ave	East Palo Alto	LOS D	AM PM	54.5 60.1	D- E	54.8 60.3	D- E	0.000 0.000	0.0 0.0	54.8 60.3	D- E	0.000 0.000	0.0 0.0
78	US 101 SB Ramps / University Ave	East Palo Alto	LOS D	AM PM	29.4 25.5	C C	29.4 25.5	C C	0.003 0.006	0.1 0.1	29.4 25.5	C C	0.004 0.006	0.1 0.1
79	Donohoe St / University Ave	East Palo Alto	LOS D	AM PM	72.4 44.3	E D	73.2 44.3	E D	0.005 0.004	1.3 0.1	73.1 44.3	E D	0.004 0.004	1.1 0.1
80	University Ave / Bay Rd	East Palo Alto	LOS D	AM PM	48.6 50.1	D D	48.7 50.6	D D	0.005 0.009	0.2 0.9	48.7 50.7	D D	0.004 0.011	0.1 1.1
81	University Ave / Bayfront Expy	Menlo Park (SM CMP)	LOS F	AM PM	23.6 94.4	C F	23.7 96.9	C F	0.008 0.007	0.2 3.1	23.7 97.1	C F	0.009 0.008	0.3 3.4
82	Town & Country Driveway / Embarcadero Rd	Palo Alto	LOS D	AM PM	28.9 28.4	C C	28.1 28.0	C C	0.031 0.021	-0.6 -0.3	28.1 27.9	C C	0.030 0.026	-0.6 -0.3
83	Charleston Rd / San Antonio Rd	Palo Alto (SC CMP)	LOS E	AM PM	61.6 62.5	E E	61.8 62.7	E E	0.001 0.002	0.3 0.4	61.8 62.7	E E	0.001 0.002	0.4 0.4
84	US 101 SB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	11.4 13.0	B+ B	11.5 13.0	B+ B	0.002 0.000	0.2 0.0	11.4 13.0	B+ B	0.002 0.000	0.2 0.0
85	US 101 NB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	21.1 23.5	C+ C	21.2 23.5	C+ C	0.000 0.002	0.0 0.1	21.2 23.5	C+ C	0.000 0.004	0.0 0.1

TABLE 7B.15-4 (CONTINUED)
BACKGROUND (2018) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	Background (2018) No Project ^d		Background (2018) With Proposed Project ^d				Background (2018) With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
86	Central Expy / Rengstorff Ave	Santa Clara County (SC CMP)	LOS E	AM PM	175.3 83.9	F F	177.4 86.1	F F	0.010 0.008	3.1 1.3	177.3 86.2	F F	0.009 0.009	2.9 1.4
87	Central Expy / Shoreline Blvd (N)	Santa Clara County (SC CMP)	LOS E	AM PM	3.6 7.0	A A	3.6 6.9	A A	0.003 0.007	0.0 -0.1	3.6 6.9	A A	0.005 0.007	0.0 -0.1
88	Central Expy / Shoreline Blvd (S)	Santa Clara County (SC CMP)	LOS E	AM PM	12.0 7.6	B+ A	11.9 7.5	B+ A	0.003 0.005	-0.1 0.0	11.9 7.5	B+ A	0.004 0.006	-0.2 0.0
89	Central Expy / Castro St-Moffett Blvd	Santa Clara County (SC CMP)	LOS E	AM PM	122.6 94.4	F F	125.1 97.1	F F	0.007 0.006	4.1 3.3	125.0 97.4	F F	0.006 0.006	3.9 3.7
90	Foothill Expy / Edith Ave	Santa Clara County	LOS E	AM PM	28.9 39.0	C D+	29.2 43.2	C D	0.016 0.288	0.6 22.9	29.1 42.7	C D	0.014 0.287	0.5 22.0
91	Foothill Expy / Main St	Santa Clara County (SC CMP)	LOS E	AM PM	23.0 24.3	C+ C	23.2 24.4	C C	0.016 0.009	0.5 -0.4	23.2 24.5	C C	0.014 0.009	0.4 -0.4
92	University Ave / O'Brien Dr	Menlo Park	LOS D	AM PM	9.2 12.7	A B	9.2 12.7	A B	0.005 0.006	0.0 0.0	9.2 12.7	A B	0.005 0.006	0.0 0.0
93	University Ave / Adams Dr*	Menlo Park	LOS E (warrant)	AM PM	76.3 30.7	F ¹⁰ D	79.8 31.9	F ¹⁰ D	N/A N/A	N/A N/A	80.2 32.1	F ¹⁰ D	N/A N/A	N/A N/A
94	University Ave / Runnymede St	East Palo Alto	LOS D	AM PM	15.3 19.9	B B-	15.3 19.8	B B-	0.005 0.005	0.0 0.0	15.3 19.8	B B-	0.005 0.005	0.0 0.0
95	University Avenue / Bell Street	East Palo Alto	LOS D	AM PM	14.8 18.2	B B-	14.7 18.1	B B-	0.005 0.005	0.0 -0.1	14.7 18.1	B B-	0.005 0.005	0.0 -0.1

NOTES: **Bold text** indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

In some cases, intersections may show a reduction in average delay with the addition of Project traffic, or with the addition of Additional Housing Alternative B traffic, which is counter-intuitive. However, average delay values are weighted averages, which will decrease when traffic is added to a vehicle movement that operates with low delay. Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.

* Indicates unsignalized intersection.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County, "(SM CMP)" indicates CMP intersection in San Mateo County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(Warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak hour, PM = evening peak hour.

^d Background (2018) With Proposed 2018 General Use Permit presents the results it was included in the Draft EIR. These results are provided for comparison purposes only.

^e Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^f LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

^g Change ("Δ") in critical volume to capacity ratio (V/C) between Background (2018) and Background (2018) With Project; and between Background (2018) and Background (2018) With Additional Housing Alternative B Conditions.

^h This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

ⁱ Change ("Δ") in average critical movement delay between Background (2018) and Background (2018) With Project; and between Background (2018) and Background (2018) With Additional Housing Alternative B Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^j A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

The intersections where Additional Housing Alternative B would have a significant impact under 2018 Baseline with Additional Housing Alternative B conditions, and the reason that the impact is considered significant, are documented in **Table 7B.15-5**. Measures/strategies to mitigate the significant impacts are described below.

TABLE 7B.15-5
2018 BASELINE WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#2 I-280 NB Off-Ramp / Sand Hill Road (AM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#13 I-280 SB Off-Ramp / Page Mill Road (AM and PM Peak Hours)	Unsignalized Intersection: Under unacceptable LOS F conditions without and with the project, peak-hour traffic signal warrant would be met.
#17 Junipero Serra Blvd – Foothill Expy / Page Mill Rd (AM and PM Peak Hours)	VTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#30 Foothill Expressway / Arastradero Road (PM Peak Hour)	VTA: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the critical volume-to-capacity ratio by 0.01 or more.
#58 Alma Street / Charleston Road (PM Peak Hour)	Palo Alto: Project-generated traffic would cause a degradation from an acceptable LOS D to an unacceptable LOS E.

Mitigation Measure 7B.15-2: Stanford shall mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections specified in Table 1B, which funds shall be expended by the County to fund transportation mitigation efforts.

1. As specified on page 64 and Policy C-1 of the Stanford Community Plan, the no net new commute trips standard is defined as no increase in automobile trips during peak commute times in the peak commute direction, as counted at defined cordon locations around the central campus. The peak commute period is defined as the one-hour period of time with the highest volume of traffic, as determined by the traffic counts.
2. The reasonable cost of all traffic counts conducted for determination of compliance with this mitigation measure shall be paid for by Stanford. The counts shall be performed by an independent consultant under the direction of the County Planning Office or provided to the County Planning Office through another County-approved methodology.
3. The baseline for measuring the no net new commute trips standard shall be the count that was established in 2001. However, during implementation of Additional Housing Alternative B, Stanford may propose to change the monitoring methodology based on new technology such as automation, subject to review and approval by the County Planning Office. If the monitoring methodology is updated, testing and calibration of the new methodology or equipment will require coordination with the County. The 2001 baseline data will be adjusted as needed to reflect any such calibration. Monitoring counts shall be performed each year using the County-approved methodology.

TABLE 1B
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE B

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alternative B	2035 Cumulative with Additional Housing Alternative B
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	Contribute fair share funding toward the addition of second northbound right-turn lane, as identified in the ConnectMenlo Final Environmental Impact Report.	X	X
13	I-280 SB Off-Ramp / Page Mill Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward the installation of a traffic signal.	X	
17	Junipero Serra Blvd – Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	Contribute fair-share funding toward the addition of a third westbound through lane on Page Mill Road and a receiving lane on the west leg of the intersection (resulting in three westbound lanes from Junipero Serra Boulevard to approximately Old Page Mill Road); installation of an overlap signal phase for northbound, southbound, and westbound right-turning vehicles; at the signalized intersection of Junipero Serra Boulevard – Foothill Expressway / Page Mill Road and widening of southbound Junipero Serra Boulevard to two lanes between Stanford Avenue and Page Mill Road to align with the existing designated right-turn lane	X	X
19	Hanover St / Page Mill Rd – Oregon Expressway	Santa Clara County (SC CMP)	Contribute fair share funding toward the installation of a second westbound left-turn lane, identified as an option in the Page Mill Expressway Corridor Study Report.		X
20	El Camino Real / Page Mill Rd - Oregon Expressway	Santa Clara County (SC CMP)	Contribute fair share funding toward the reconfiguration of the east leg of the intersection to include one right-turn lane, two through lanes, two extended left-turn lanes, two receiving lanes, and no on-street parking; and to the extension of the double left-turn lanes, identified in the Page Mill Expressway Corridor Study Report. Contribute fair-share funding toward the installation of a southbound right-turn lane and overlap phase.		X
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	No feasible mitigation measure.		X
29	Foothill Expy / Hillview Ave	Santa Clara County	No feasible mitigation measure.		X
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward a grade separation improvement project, as identified in the draft Santa Clara County Expressway Plan 2040. The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.	X	X

TABLE 1B (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE B

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alternative B	2035 Cumulative with Additional Housing Alternative B
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	Contribute fair share funding toward the addition of a third southbound through lane on Foothill Expressway between San Antonio Road and El Monte Avenue as identified in the draft Santa Clara County Expressway Plan 2040.		X
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	Contribute fair share funding toward the addition of a third northbound through lane and associated receiving lane that extends to San Antonio Avenue, as identified in the draft Santa Clara County Expressway Plan 2040.		X
33	Foothill Expy / Springer Road - Magdalena Ave	Santa Clara County (SC CMP)	Contribute fair share funding toward the following improvements, as identified as a Tier 2 improvement in the draft Santa Clara County Expressway Plan 2040: • Convert the signal to provide 8-phase phasing; • Change the lane configuration for the east leg to have two left-turn lanes, one through lane, and one right-turn lane; and • Change the configuration for the west leg to have one left-turn lane, two through lanes, and one right-turn lane.		X
37	El Camino Real / Encinal Ave	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane.		X
38	El Camino Real / Valparaiso Ave	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane.		X
41	El Camino Real / Ravenswood Rd	Menlo Park	Contribute fair share funding toward the conversion of the northbound right-turn lane to a shared through/right-turn lane. Contribute fair-share funding toward widening Menlo Avenue for an exclusive left-turn lane.		X
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	Contribute fair share funding toward the addition of a second northbound left-turn lane.		X
56	Alma St / Hamilton Ave	Palo Alto	Contribute fair share funding toward the reconfiguration of the westbound approach to have one left-turn lane and one right-turn lane, by removing a portion of the parking.		X
58	Alma St / Charleston Rd	Palo Alto	Contribute fair share funding toward the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements.	X	X

TABLE 1B (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER ADDITIONAL HOUSING ALTERNATIVE B

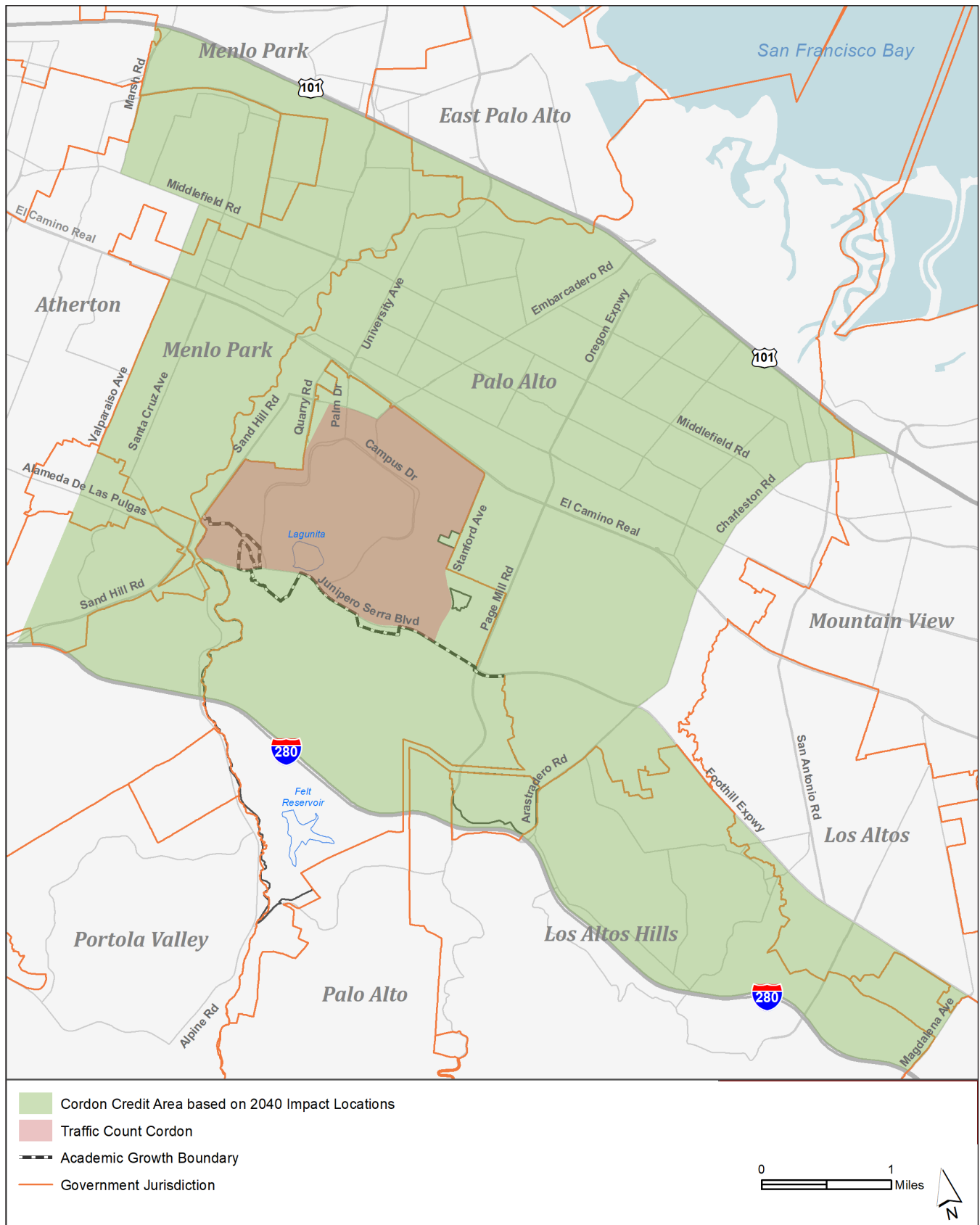
ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Additional Housing Alternative B	2035 Cumulative with Additional Housing Alternative B
59	Middlefield Rd / Marsh Rd	Atherton	Contribute fair share funding toward the addition of a second westbound left-turn lane and second receiving lane on the south leg.		X
63	Middlefield Rd / Lytton Ave	Palo Alto	No feasible mitigation measure.		X
66	Middlefield Rd / Embarcadero Rd	Palo Alto	No feasible mitigation measure.		X
89	Central Expy / Moffett Blvd	Mountain View	The City of Mountain View's planned closure of Castro Street at the train tracks to form a T-intersection of Central Expressway and Moffett Boulevard would mitigate Additional Housing Alternative B's impact (Mountain View Transit Center Master Plan). If the Castro Street closure project is not implemented, the secondary, back-up mitigation is to contribute fair-share funding toward the construction of a second southbound left turn lane from Central Expressway to Moffett Boulevard.		X
90	Foothill Expressway / Edith Avenue	Santa Clara County (SC CMP)	No feasible mitigation measure.		X

4. Traffic counts and determination of traffic volumes shall occur as described below, unless modifications are approved the County Planning Office.
 - a. Peak-hour traffic for a single year shall be determined through counts taken at two times during the year. All counts shall be conducted during the regular academic year, which does not include academic breaks or end-of-quarter finals. Homecoming or other irregular traffic patterns should be avoided. Specific dates for each count shall be determined by the County Planning Office. The two annual counts shall be averaged to determine the annual traffic level for each monitoring year.
 - i. During the AM peak hour and the PM peak hour, the total amount of traffic crossing the cordon line will be counted by travel direction. The monitoring will be from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. The peak hour within the two-hour count period will be calculated based on total volumes to determine the campus-wide peak hours.
 - ii. All counts shall be taken at the campus entry and exit points shown in Figure 5.15-2, which together form the defined cordon line.
 - a) Traffic counts shall include a methodology to determine the rate of cut-through traffic.
 - 1) All vehicles will need to be identified in order that cut-through trips can be removed from the total volume. Through trips will be identified through license plates on each vehicle or other means. Time will be noted in order to determine when a vehicle crosses the cordon in either direction.
 - 2) Matching license plates will be determined by comparing numbers that crossed both an entering and exiting cordon within a defined period (e.g., 20 minutes), or through other means. Vehicles that enter and exit the cordon within the time period will be cut-through trips across the campus without a campus-related purpose.
 - b) Cordon volumes will be adjusted to account for use of parking lots within the cordon line by hospital-related traffic and use of lots outside the cordon line by campus-related traffic. Parking areas change due to the evolving needs of campus and hospital operations. The lots used for hospital and university parking shall be confirmed prior to annual surveys.
 - 1) Hospital trips will be subtracted from the count and campus trips will be added to the count. The count adjustment will also need to factor in the potential for hospital trips to park in the campus lots and campus trips to park in the hospital lots. At the beginning and end of the peak hour, data will need to be collected from each lot. If campus parking occurs in lots outside the cordon, trips associated with those vehicles will be added back into the count. If hospital parking occurs inside the cordon, trips associated with those vehicles will be subtracted from the count. All vehicles without a parking permit will be assumed to be correctly parked in their respective lots, unless the County approves an alternate protocol for assigning such parking.

- c) Based on the counts, a peak hour will be identified for the campus. Peak hour traffic volume will be determined for the campus based on the count, adjusted for cut-through traffic and hospital parking as described above.
- 1) Total entering and exiting traffic will be summed for the 16 campus gateways. A single peak hour will be determined for the entire campus based on the traffic volumes. The percent of cut-through trips calculated by the license plate matching (or other technology) described above will be removed. The cut-through vehicles will be removed from both the inbound and the outbound traffic since they will have been observed crossing both an entering and exiting cordon boundary. Finally, the entering and exiting traffic for hospital uses inside the cordon boundary and the campus uses outside the cordon boundary calculated as described above will be subtracted from or added to the counts.
5. As specified by Community Plan Policy C-8, the County Planning Office will recognize participation by Stanford in off-campus trip reduction efforts and credit reduced trips towards Stanford's attainment of the no net new commute trips standard. Stanford shall receive credit commensurate with the actual number of trips reduced outside the cordon due to Stanford's efforts, and the proportion of the cost of the program that Stanford is contributing. A reduction of an off-campus trip can be recognized as long as at least one terminus for the trip is within the area shown on **Figure 7B.15-1**.⁸³ The County Planning Office will determine the appropriate trip credit and monitoring methodology for each program in which Stanford proposes to participate. Such proposals shall be submitted by Stanford to the County Planning Office for review, modification and consideration of approval. The proposals shall be presented to the Community Resource Group prior to any determination by the County Planning Office. Once the County Planning Office has accepted the proposal and the program implementation begins, the County Planning Office will factor a calculation of the trip reduction credit into its conclusion regarding Stanford's annual compliance with the no net new commute trips standard, with the continuing requirement that Stanford provide evidence of its participation in the program in a manner that can be independently verified.

Funding of off-campus circulation infrastructure improvements will qualify for trip credits as long as the improvements will enhance safety or increase mobility for pedestrians, bicyclists or transit users within the local impact area. For example, funding roadway widening or modifications to add transit vehicle or bicycle lanes or to add signals to improve pedestrian or bicycle safety could qualify for trip credits under this approach if approved by the County. Any proposal for such credits shall be accompanied by substantial evidence demonstrating how the infrastructure project would remove vehicular trips from the local impact area. Once the County Planning Office has approved infrastructure improvement project for a trip reduction credit, the project has been implemented, and the trip reductions have been verified, the trip reduction credit will be factored into the County's conclusion regarding Stanford's annual compliance with the no net new commute trips standard in each subsequent year.

⁸³ Please note this figure is identical to Figure 5.15-8 in the Draft EIR, and was not revised for Additional Housing Alternative B.



SOURCE: Stanford LBRE LUEP

Stanford 2018 General Use Permit . 160531

Figure 7B.15-1
Revised Cordon Credit Area

6. The County Planning Office shall monitor the counts using the procedures described above. If the cordon counts, as modified by trip reduction credits, exceed the baseline volume by 1% or more for any two out of three consecutive years, mitigation of impacts to intersections will be required, implementing Stanford Community Plan Implementation Recommendation C(i)(9). Table 1B identifies the intersection impacts that could occur if the no net new commute trips standard is not achieved, and the physical improvements that would substantially reduce each impact.

a. Prior to the first year of cordon count monitoring under Additional Housing Alternative B, the County Planning Office will: 1) determine, in consultation with the affected jurisdictions, the cost of the intersection improvements identified in Table 1B; 2) identify Stanford's fair share contributions to those improvements based on Stanford's proportionate contribution to the impact from development under the 2018 General Use Permit as compared to the contributions to the impact from background and cumulative traffic at the intersections; and 3) establish a cost-per-trip fee. This fee shall be increased annually to reflect changes in California construction costs (e.g., by applying the relevant Saylor or RS Means construction cost index).

i. Upon its determination that the no net new commute trips standard has been exceeded in two out of three years, the County will require Stanford to pay the cost-per-trip fee for each peak hour trip that exceeded the established no net new commute trips standard during the applicable two to three-year time period.

ii. To calculate the annual cost-per-trip fee, the total amount of Stanford's fair share contribution to all intersection improvements will be divided by 17, to reflect the number of years that the 2018 General Use Permit is expected to be in effect. The resulting quotient will then be divided by the total number of peak hour, peak direction vehicle trips anticipated in the EIR to occur absent the no net new commute trips standard.

iii. The annual cost-per-trip fee times the number of trips exceeding the no net new commute trips standard in each of the applicable years (i.e., calculated over two years if the goal is exceeded two out of three years) will constitute the trip payment that Stanford must provide to the County.

iv. In no event would Stanford be required to pay cumulatively over the time period of the 2018 General Use Permit more than the total amount of its fair share contribution toward improvements at adversely affected intersections and roadways.

b. The County Planning Office will use the trip fees collected from Stanford as follows:

i. The County Planning Office may elect to fund off-campus projects that encourage and improve use of alternative transportation modes or otherwise reduce peak period traffic, including but not limited to transit improvements that directly or indirectly would benefit the local impact area. This fund also could be used for transportation improvements that increase safety and mobility for pedestrians, bicyclists and transit users provided there is substantial evidence demonstrating how the improvements would remove vehicular trips from the local impact area.

- ii. The County Planning Office may elect to fund one or more of the intersection improvements identified in Table 1B. The priority order for funding such intersection improvements will be determined by the County Planning Office in consultation with the affected jurisdictions. If the County elects to fund an intersection improvement in another jurisdiction, it will enter into an agreement with such jurisdiction to address the timing for the County to provide the funding, the timing for the relevant jurisdiction to complete the improvement, and any other matters that the County determines to be appropriate.

Significance after Mitigation: Significant and Unavoidable.

This mitigation would substantially reduce traffic congestion impacts to intersections; however, this is considered a significant and unavoidable impact because it is uncertain whether it would be feasible to improve some of the affected intersections if the No Net New Commute Trips standard is not achieved, if there are not sufficient additional funds to complete the intersection impacts, or if there are not sufficient off-campus projects available to reduce peak hour traffic. As discussed in further detail below, many of the intersections adversely affected under 2018 Baseline with Additional Housing Alternative B conditions are located in other jurisdictions (i.e., other than County of Santa Clara, such as City of Palo Alto, Caltrans, etc.), and consequently, the improvements depend on the actions of those jurisdictions. In some cases, additional funding for intersection improvements may be required and is not yet identified, and consequently, it is not certain that these improvements would be implemented in a timely manner. For these reasons, the impact would remain significant and unavoidable.

CEQA Guidelines section 15126.4(1)(1)(D) states that if a mitigation measure would cause one or more significant effects in addition to those that would be caused by a project (in this case, Additional Housing Alternative B), the effects of the mitigation measure should be discussed. Because, as discussed below, the identified intersection improvements would have the potential to result in effects on bicycle and/or pedestrian conditions, these effects are evaluated below. In all cases, these effects of mitigation are determined to be less than significant.

- **Intersection #2: Contribute fair-share funding to the addition of a second northbound right-turn lane at the signalized intersection of I-280 Northbound Off-Ramp / Sand Hill Road, as identified in the *ConnectMenlo Final Environmental Impact Report*.**

To accommodate the construction of a second right-turn lane on the northbound off-ramp, the off-ramp would be widened from two to three lanes, which may require the acquisition of additional right-of-way.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the eastbound bicycle lane's StreetScore+ QOS, as it would remain unchanged at QOS 4. Right turns from the northbound off-ramp to Sand Hill Road are not permitted during a red light. The addition of a second northbound right-turn lane would not conflict with eastbound bicyclists if the No Right Turn on Red were to remain in-force. Therefore, the mitigation measure would not adversely affect the existing bicycle lane on Sand Hill Road. There are no pedestrian facilities at this intersection.

- **Intersection #13: Contribute fair-share funding to the installation of a traffic signal at the unsignalized intersection of I-280 Southbound Off-Ramp / Page Mill Road.**

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and requires additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the bicycle StreetScore+ QOS, as it would remain unchanged at QOS 3.7. There is no pedestrian access at this intersection.

It is noted that Santa Clara County's *Page Mill Expressway Corridor Study Report* describes improvements along the length of Page Mill Road from the I-280 Southbound Ramps to El Camino Real. The improvement concept at the I-280 Southbound Ramps intersection is a roundabout with a traffic signal at the I-280 Northbound Ramps intersection and a third eastbound and westbound through lane on Page Mill Road to the east of the I-280 Northbound Ramps intersection. The County would determine the ultimate improvement design and phasing for the corridor improvements. Additional Housing Alternative B's fair-share funding contribution identified for Intersection #13 may be applied toward a roundabout at the I-280 Southbound Ramps intersection if the County chooses, and the timing of this improvement would also be determined by the County.

Intersection #17: Contribute fair-share funding to the addition of a third westbound through lane on Page Mill Road and a receiving lane on the west leg of the intersection (resulting in three westbound lanes from Junipero Serra Boulevard to approximately Old Page Mill Road); installation of an overlap signal phase for northbound, southbound, and westbound right-turning vehicles; and widening of southbound Junipero Serra Boulevard to two lanes between Stanford Avenue and Page Mill Road to align with the existing designated right-turn lane.

This mitigation differs from the mitigation under the proposed Project. For the proposed Project, the impact at this intersection would be reduced to a less-than-significant level with the following mitigation: Contribute fair share funding toward:

- (1) the addition of a third through lane on Page Mill Road in the westbound direction (for a total of two left-turn lanes, three through lanes, and a right-turn lane plus a bike lane);

- (2) addition of a receiving lane to westbound Page Mill Road (resulting in three lanes from Junipero Serra Boulevard approximately to Old Page Mill Road); and
- (3) installation of an overlap phase for northbound and southbound right-turning vehicles and widening of the southbound approach to two lanes between Page Mill Road and Stanford Avenue to align with the existing designated right-turn lane.⁸⁴

For Additional Housing Alternative B, the impact at this intersection cannot be mitigated to a less-than-significant level with the mitigation measures identified for the proposed Project, and the additional mitigation described above (installation of an overlap phase for westbound right-turning vehicles) would be needed. Installation of the overlap phases would be accommodated through the modification of the existing traffic signal, which requires no additional right-of-way. Widening the southbound approach to two lanes between Page Mill Road and Stanford Avenue will likely require the acquisition of additional right-of-way. This improvement would allow southbound right-turning vehicles additional queuing space so southbound through vehicles do not block the right-turn lane. The new westbound improvements would require some right of way (10-12 feet) from the subdivision corner (northeast) and along the dish parcel for the receiving lane (northwest).

Implementation of this mitigation measure would reduce the impact to a less-than-significant level under Cumulative (2035) conditions (discussion below), but would not reduce the impact to a less-than-significant level under Background (2018) conditions. In addition, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

It is noted that there is a Tier 1 improvement identified for this intersection in the draft Santa Clara County Expressway Plan 2040 to widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. The Tier 1 improvement is fully funded through Measure B, but conservatively is not anticipated to be in place by 2035. This was evaluated as a potential mitigation measure and was determined not bring the impact to a less-than-significant level under 2018 Conditions.

Impacts of Mitigation: With the exception of construction-related impacts, the mitigation would not have a substantial adverse effect on bicycle and pedestrian QOS, which would remain at QOS 3.5 and 4.0, respectively.

⁸⁴ The third improvement was identified as a mitigation measure in the Draft EIR. Two additional improvements have been added to ensure the impact is mitigated to a less-than-significant level under the assumption that Page Mill Road is four lanes, rather than six lanes as previously assumed.

- **Intersection #30: Contribute fair-share funding to a grade-separation improvement project, at the signalized intersection of Foothill Expressway / Arastradero Road, as identified in the draft Santa Clara County Expressway Plan 2040 (if such project is approved and implemented). The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.**

Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construct this improvement. Due to the proximity of the Miranda Avenue / Arastradero Road intersection, additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle QOS, which would remain unchanged at QOS 3.5. Right-turn lanes and high vehicle speeds would continue to cause uncomfortable situations for bicyclists at the intersection. However, the mitigation would improve pedestrian QOS from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound approaches would be reduced from the existing 6+ lanes to an estimated 2 to 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #58: Contribute fair-share funding to the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements at the signalized intersection of Alma Street / Charleston Road.**

To accommodate the construction of a designated northbound right-turn lane, the northbound Alma Street approach would need to be widened and likely would require the acquisition of additional right-of-way. Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of the City of Palo Alto, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3

and QOS 3.5, respectively. With the proposed mitigation, pedestrian crossing distances would increase slightly on the south leg of the intersection and remain unchanged on all other approaches while maintaining the current QOS score at the intersection. Bicycle lanes on the eastbound and westbound approaches, and low right-turn speeds would remain, resulting in slightly better conditions compared to what bicyclists experience on the northbound and southbound approaches. The proposed mitigation measure would not conflict with the City of Palo Alto's proposed Class III bike route along Alma Street as identified in the City of Palo Alto Bicycle & Pedestrian Transportation Plan.

See **Table 7B.15-65** for mitigated LOS conditions.

Impact 7B.15-3: Implementation of Additional Housing Alternative B could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Additional Housing Alternative B conditions. (Significant)

Please note that only the freeway mainline segment impact analysis is provided for the Additional Housing Alternative B analysis. As described in Draft EIR page 5.15-58, freeway ramp queueing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions.

The future operations of freeway mainline segments in Santa Clara County and San Mateo County are evaluated using volume-to-capacity ratios, with a V/C ratio greater than 1.00 indicating the volume/demand exceeds capacity. Under 2018 Baseline with Additional Housing Alternative B Conditions, the following 6 freeway segments would meet the significance criteria, which is two more than under 2018 Baseline with Project Conditions:

- Northbound SR 85
 - South De Anza Boulevard to Stevens Creek Boulevard (AM peak hour);
 - Stevens Creek Boulevard to I-280 (AM peak hour);
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (PM peak hour);
 - South De Anza Boulevard to Saratoga Avenue (PM peak hour);
- Northbound I-280
 - Magdalena Avenue to El Monte Road (AM peak hour).
- Southbound I-280
 - El Monte Road to Magdalena Avenue (PM peak hour).

There are limited options to widen these freeway segments due to right-of-way constraints. Mitigation of freeway impacts is considered beyond the scope of an individual development project, due to the inability of any individual project or local agency to (1) acquire right-of-way for freeway widening, and (2) fully fund a major freeway mainline improvement. Mitigation Measure 7B.15-2 would reduce impacts to freeways to the extent that trips to and from the

TABLE 7B.15-6
2018 BASELINE WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Additional Housing Alternative B		Mitigation Measure	2018 Baseline With Additional Housing Alternative B (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	119.6 21.2	F C+	137.5 21.8	F C+	See MM 5.15-2 (Table 1B)	46.0 17.6	D B	LTS/SU
13	I-280 SB Ramps / Page Mill Road	Santa Clara County	LOS E (Warrant)	AM PM	151.7 85.9	F	153.5 88.6	F F	See MM 5.15-2 (Table 1B)	37.2 42.3	D+ D	LTS/SU
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	97.2 97.0	F F	104.7 111.0	F F	See MM 5.15-2 (Table 1B)	100.4 98.6	F F	SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	71.8 92.3	E F	74.3 95.4	E F	See MM 5.15-2 (Table 1B)	60.3 67.9	E E	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	55.2 55.0	E+ D-	55.9 56.1	E+ E+	See MM 5.15-2 (Table 1B)	54.8 55.0	D- D-	LTS/SU

Bold text indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak traffic hour, PM = evening peak traffic hour.

^d Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^e LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software program, which applies the methods described in the 2000 *Highway Capacity Manual*.

^f LTS/SU = less-than-significant with mitigation, but is either (1) located outside Santa Clara County where mitigation measures depend on funding and actions by other jurisdictions, or (2) located in Santa Clara County, but depends on other funding for the mitigation to be constructed, and thus the mitigation measure may not be implemented in a timely manner to avoid the impact. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection; SU = significant and unavoidable.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

campus are reduced to achieve the No Net New Commute Trips standard and through applying any fees from exceeding the No Net New Commute Trips standard to alternative programs that reduce vehicular trips. Nevertheless, because it is uncertain whether the No Net New Commute Trips standard would be achieved, the freeway impacts under Additional Housing Alternative B would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 7B.15-4: Implementation of Additional Housing Alternative B would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

Generally, a project causes a significant impact to transit facilities and services if an element of it would conflict with existing or planned transit services, or would decrease the performance or safety of such services. Similar to the proposed Project, Additional Housing Alternative B does not propose infrastructure changes outside the Project site and, thus, would not interfere with the ability of transit agencies to modify or expand service.

Additional Housing Alternative B would add traffic along major transit corridors throughout the cities of Palo Alto and Menlo Park, which could affect operations of bus routes serving the area. However, as shown in Table 7B.15-7, Additional Housing Alternative B would not add substantial delays relative to the total route travel time to any of the transit routes assessed, although delays are sometimes higher than proposed Project delays. The additional delay would be fewer than 30 seconds on all but one of the routes, and fewer than 60 seconds on all of the routes. Therefore, Additional Housing Alternative B's impact on transit services would be less than significant, as would the proposed Project.

Mitigation: None required.

Impact 7B.15-5: Implementation of Additional Housing Alternative B would not substantially increase intrusion by traffic in nearby neighborhoods. (Less than Significant)

Traffic impacts on residential streets were estimated using the Traffic Infusion on Residential Environment (TIRE) methodology, which empirically determines the potential impact on residential streets based on the premise that any increase in traffic that would cause an index increase of 0.1 or more would be noticeable to residents. The TIRE index is based on a logarithmic scale, and is a numerical representation of a resident's perception of the effect of street traffic on activities such as walking, cycling, or playing. The TIRE indices values range from zero (representing the least noticeable effect on traffic) to five (representing the most severe effect).

TABLE 7B.15-7
BACKGROUND (2018) WITH ADDITIONAL HOUSING ALTERNATIVE B TRANSIT ROUTE DELAY^a

Route		Direction	Peak Hour	Additional Route Average Delay (seconds) ^b	
				Proposed Project ^c	Additional Housing Alternative B
22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	< 5.0 14.3	< 5.0 17.9
		Westbound	AM PM	10.9 7.0	12.1 6.6
35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
102	South San Jose to Palo Alto	Northbound	AM	< 5.0	< 5.0
		Southbound	PM	7.1	13.0
104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0	< 5.0
		Westbound	AM	14.4	29.9
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	< 5.0 16.0	< 5.0 20.6
		Westbound	AM PM	10.9 7.0	12.1 6.6
281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	5.1 < 5.0	< 5.0 5.5
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	< 5.0 9.3	< 5.0 10.1
		Westbound	AM PM	20.8 13.3	36.4 26.0
U	Fremont BART to Stanford Oval	Eastbound	PM	12.3	18.9
		Westbound	AM	< 5.0	< 5.0
E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	< 5.0 5.3	< 5.0 6.2
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0

^a Transit route delay is calculated by summing each transit route movements through the study intersections. Some movements may experience large increases or decreases in delay as a result of the analysis software (Traffix 8.0) redistributing green time for each phase.

^b Additional Housing Alternative B was not considered to have a measureable change in overall transit route delay if the increase in travel time was less than five seconds or the travel time improved slightly (due to changes in signal timing, critical movement changes, etc.).

^c Background (2018) With Proposed 2018 General Use Permit presents the results as it was included in the Draft EIR. These results are provided for comparison purposes only.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-T1A)

Similar to what was analyzed for the proposed Project, two neighborhoods in Palo Alto (College Terrace and Crescent Park) were identified as locations where neighborhood traffic impacts might occur with the proposed growth in the 2018 General Use Permit, assuming the build-out of Additional Housing Alternative B for the following reasons:

- **College Terrace** – The neighborhood lies along the southern boundary of the campus and shares access with Stanford Avenue, which is a primary access route to the campus. Even though the traffic calming measures instituted in this neighborhood appear to have been effective, there remains a concern that there are routes through the neighborhood that drivers from Stanford might use to travel between Stanford Avenue and California Avenue to access Page Mill Road or El Camino Real.
- **Crescent Park** – The neighborhood lies along University Avenue, which is a major access route to regional roadways such as US 101 and SR 84 (Dumbarton Bridge), and is a road used by some drivers accessing Stanford. There is existing congestion on the corridor that includes spillover traffic to parallel roadways such as Hamilton Avenue.

TIRE Indices on Local Streets

Given that travel patterns throughout and surrounding the Stanford campus may change with Additional Housing Alternative B, variations to the methodology used for the proposed Project were used to calculate the total number of daily trips that may divert through the College Terrace and Crescent Park neighborhoods. Separate approaches were used to estimate the number of diverted daily trips for the two neighborhoods. For the College Terrace neighborhood, a ratio was developed between the number of peak hour trips accessing the University via Bowdoin Street and the total number of daily trips under the proposed Project conditions. This ratio was applied to the new number of peak hour trips using Bowdoin Avenue to determine the new number of daily trips that would potentially cut through the College Terrace neighborhood. This method was also applied to vehicle trips along University Avenue to estimate the number of daily trips that would potentially cut through the Crescent Park neighborhood.

College Terrace TIRE Analysis

As shown in **Table 7B.15-8**, TIRE indices for the local streets serving Stanford in the College Terrace neighborhood currently range from 2.6 to 3.1. Applying the ratio described above yields an estimate that 1,935 daily vehicles would use Bowdoin Street to access Stanford University for Additional Housing Alternative B.

Many of the daily trips that access the Stanford campus at Bowdoin Street do not pass through the College Terrace neighborhood, as there is a barrier at the entrance to the College Terrace neighborhood at Bowdoin Street, and all vehicles entering or exiting the campus at Bowdoin Street must also use Stanford Avenue. Vehicles traveling to or from the campus by way of the portion of Stanford Avenue that is to the west of Bowdoin Street do not pass through the College Terrace neighborhood. Vehicles traveling to or from the campus by way of the portion of Stanford Avenue that is to the east of Bowdoin Street can continue on Stanford Avenue directly to El Camino Real. These vehicles also do not pass through the College Terrace neighborhood. The only vehicles that travel through the College Terrace neighborhood are those that zig zag through the neighborhood by taking College Avenue or California Avenue to and from

TABLE 7B.15-8
COLLEGE TERRACE NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Volume that Equates to 0.1 Change ^a	Project Daily Trips ^b	Additional Housing Alt. B Trips ^b	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index				
Columbia Street, between College Avenue and California Avenue	2	640	2.8	140	57	58	No
Hanover Street, between Stanford Avenue and College Avenue	2	1,160	3.1	290	76	77	No
Harvard Street, between Stanford Avenue and College Avenue	2	430	2.6	97	28	29	No
Oberlin Street, between Stanford Avenue and College Avenue	2	850	2.9	170	55	57	No
Princeton Street, between College Avenue and California Avenue	2	610	2.8	140	54	55	No
Cornell Street, between College Avenue and California Avenue	2	370	2.6	97	33	33	No

^a Minimum daily traffic volume increase to produce an impact.

^b Assumes 20% of the added daily Stanford traffic east of Bowdoin Street on Stanford Avenue.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

El Camino Real, or by taking Hanover Street to or from Page Mill Road. Vehicles cannot travel directly from Stanford Avenue to Page Mill Road on Hanover Street; there is a barrier at the intersection of California Avenue and Hanover Street that prevents through traffic.

Morning and afternoon peak period turning movement counts collected at the Bowdoin Street / Stanford Avenue intersection were used to estimate trip distribution along Stanford Avenue. Of the 1,935 additional daily trips accessing the campus at Bowdoin Street, it is estimated that 650 daily trips would travel on Stanford Avenue to the east of Bowdoin Street, thereby having the potential to pass through the College Terrace neighborhood.

Existing daily traffic volumes collected throughout the College Terrace neighborhood where Stanford traffic may use neighborhood streets were used to estimate trip distribution throughout College Terrace neighborhood. Due to the existing street closures and traffic calming devices, relatively few drivers are likely to choose to negotiate the circuitous route, as well as multiple stop signs and speed humps, to pass through the neighborhood to access El Camino Real; the alternative (Stanford Avenue) is a direct route to El Camino Real with fewer stops. Similarly, it is unlikely that a large number of drivers would choose to travel from Stanford Avenue to Page Mill Road through the College Terrace neighborhood given that multiple turns and out-of-way travel would be needed. For example, if a driver were to leave the campus at Bowdoin Street, they would need to turn left on Stanford Avenue, right on Hanover Street, right on College Avenue, left on Columbia Street and left on California Avenue to access Page Mill Road. The other

options would be to use Stanford Avenue to access Peter Coutts to Junipero Serra Boulevard, or El Camino Real to access Page Mill Road.

While the traffic calming and circuitous routing minimizes the number of drivers electing to cut through the neighborhood, the analysis assumed (based on professional judgment and knowledge of the neighborhood traffic calming and routing) that approximately 20 percent of drivers who travel to and from the Stanford gateway via the east of Bowdoin Street might elect to pass through the neighborhood streets. Because the TIRE index is based on daily traffic volumes, and the greatest time savings for drivers cutting through the neighborhood would be during the morning or evening peak periods when El Camino Real, Page Mill Road and Junipero Serra Boulevard are congested, the 20 percent assumption is considered conservative.

While it is unlikely that even 20 percent of the added daily Stanford traffic traveling east of Bowdoin Street on Stanford Avenue would travel through the neighborhood, this percentage was used to demonstrate a conservatively-high analysis scenario. Additional Housing Alternative B trip estimates along Oberlin Street, Harvard Street, Hanover Street, Cornell Street, Princeton Street, and Columbia Street were distributed based on the relative existing daily volumes on these roadways. These values were compared to the volume changes needed to create a 0.1 TIRE index increase for each roadway to ascertain whether an impact would result. As shown in Table 7B.15-8, Additional Housing Alternative B would not surpass the 0.1 change in TIRE index on any of the local residential street segments evaluated in this analysis, and the impact on local streets, although higher than the proposed Project impact, would be less than significant, the same as the result of the analysis of the proposed 2018 General Use Permit.

Crescent Park TIRE Analysis

The percentage of trips using University Avenue that would be likely to divert to neighborhood roadways when passing through Downtown Palo Alto was calculated. The potential diversion of this volume to parallel routes within the Crescent Park neighborhood was based on an analysis of the relative existing daily traffic volumes on University Avenue, Lytton Avenue, and Hamilton Avenue for four different segments: east of Middlefield Road, west of Lincoln Avenue, east of Lincoln Avenue, and west of Woodland Avenue. The existing daily traffic volumes along each roadway in each segment were used to estimate potential daily trip distributions. For example, if the Stanford 2018 General Use Permit is estimated to contribute 15 trips on University Avenue, while University Avenue has an existing 100 daily trips and Hamilton Avenue has an existing 50 trips, then 10 additional Stanford trips would be assumed to use University Avenue and five trips would be assumed to use Hamilton Avenue. The estimated potential daily trip distributions of Additional Housing Alternative B trips in Crescent Park neighborhood are shown in Table 7B.15-9. These values were compared to the volume changes needed to create a 0.1 TIRE index increase for each roadway to ascertain whether an impact would result. As shown in Table 7B.15-10, TIRE indices for the local streets serving Stanford in the Crescent Park neighborhood currently range from 3.5 to 3.7, and Additional Housing Alternative B would not surpass the 0.1 change in TIRE index on any of the local residential street segments evaluated in this analysis, and the impact on local streets, although higher than the proposed Project impact, would be less than significant, the same as the result of the analysis of the proposed 2018 General Use Permit.

TABLE 7B.15-9
CRESCENT PARK NEIGHBORHOOD TRIP DISTRIBUTION CALCULATIONS

Roadway Description		Average Daily Traffic	Percent of Total Volumes	Estimated Daily Trips
Cordon 1	University Avenue East of Middlefield Road	20,640	71%	739
	Lytton Avenue East of Middlefield	2,940	10%	105
	Hamilton Avenue East of Middlefield Road	5,580	19%	200
	Total for Cordon 1	29,160	100%	1,044
Cordon 2	University Avenue West of Lincoln Avenue	19,500	84%	878
	Hamilton Avenue West of Lincoln Avenue	3,700	16%	167
	Total for Cordon 2	23,200	100%	1,044
Cordon 3	University Avenue East of Lincoln Avenue	20,920	86%	898
	Hamilton Avenue East of Lincoln Avenue	3,400	14%	146
	Total for Cordon 3	24,320	100%	1,044
Cordon 4	University Avenue West of Woodland Avenue	24,890	100%	1,044
	Total for Cordon 4	24,890	100%	1,044

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

TABLE 7B.15-10
CRESCENT PARK NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Volume that Equates to 0.1 Change ^a	Project Daily Trips	Additional Housing Alt. B Trips	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index				
Lytton Avenue, between Middlefield Road and Fulton Street	2	2,940	3.5	825	76	105	No
Hamilton Avenue, between Middlefield Road and Fulton Street	2	5,580	3.7	1,250	145	200	No
Hamilton Avenue, between Hamilton Court and Lincoln Avenue	2	3,700	3.6	1,025	121	167	No
Hamilton Avenue, between Lincoln Avenue and Crescent Drive	2	3,400	3.5	825	106	146	No

^a Minimum daily traffic volume increase to produce an impact.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

It should be noted that since the TIRE indices are based on the effect of Additional Housing Alternative B as a percentage of total traffic, that Alternative's A effect on cumulative traffic conditions would be even less, and similarly less than significant.

Mitigation: None required.

Impact 7B.15-6: Implementation of Additional Housing Alternative B would not substantially increase hazards due to a design feature or incompatible uses. (Less than Significant)

The potential safety impacts of Additional Housing Alternative B are evaluated based on whether any identified intersection mitigation measures would cause adverse safety effects for vehicles, transit, pedestrians, or bicyclists, and if Additional Housing Alternative B would introduce incompatible uses (i.e., types of vehicles that differ from those currently on area roadways). The intersection mitigation measures would be constructed according to the design standards of the relevant jurisdiction/agency (i.e., where the intersection is located), which conform to industry standards for roadway and intersection design and operations. In addition, the secondary effects of the intersection mitigations on pedestrians and bicyclists are described for each mitigation measure (Impact 7B.15-2, above, and Impact 7B.15-9, below). Lastly, the mix of vehicles on area roadways (trucks, autos, etc.) would not materially change from existing conditions. Therefore, the mitigation measures and increased traffic would not cause adverse safety effects for vehicles, transit, pedestrians or bicyclists under Additional Housing Alternative B and cumulative conditions, and impact of Additional Housing Alternative B on safety is less-than-significant.

It is also noted that Stanford's proposed mitigation approach aims to eliminate congestion impacts and the need for the intersection mitigation measures. The approach includes a combination of trip reduction measures for trips to and from the Stanford campus, and trip reduction measures for trips outside the Project site within the impact area, incorporating both infrastructure projects and programs supporting non-auto modes. If successful, this approach would avoid the need to construct any of the intersection capacity mitigations.

Mitigation: None required.

Impact 5.15-7: Implementation of Additional Housing Alternative B would not result in inadequate emergency access. (Less than Significant)

Emergency access can be impeded as a result of the construction of physical features that can block emergency access routes or make them more circuitous, or as a result of high levels of congestion that lengthen the response time of emergency providers. Additional Housing Alternative B would not result in any infrastructure changes outside the Project site, and thus would not create fixed physical barriers to, or impede, emergency access. The Additional Housing Alternative B traffic analyses (Impact 7B.15-2, above, and Impact 7B.15-9, below)

indicate significant impacts (increased congestion/delays) at intersections in both the 2018 with Additional Housing Alternative B and 2035 Cumulative with Additional Housing Alternative B conditions. As described in Impacts 7A.15-2 and Impact 7A.15-9, Additional Housing Alternative B would incrementally increase congestion/delays compared to the proposed Project, but similar to the Project, identifies intersection capacity mitigations, if feasible. Emergency responders are charged with developing fastest-response travel routes and assessing traffic conditions and developing alternate routes in real time to provide emergency services. Therefore, the identified significant impacts at area intersections would not result in inadequate emergency access within the traffic study area, and the impact on emergency access under Additional Housing Alternative B and cumulative conditions, and although effects would be incrementally greater than the proposed Project's impact, would be less-than-significant.

Mitigation: None required.

Impact 7B.15-8: Implementation of Additional Housing Alternative B would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

A significant impact to bicycle or pedestrian facilities could occur when Additional Housing Alternative B would create a hazardous condition that currently does not exist for pedestrians or bicyclists, or conflicts with planned facilities or local agency policies regarding bicycle and pedestrian facilities. Additional Housing Alternative B would not result in any infrastructure changes outside the Project site and would preclude implementation of planned bicycle or pedestrian facilities, and thus, would not create hazardous conditions where none exist today, nor conflict with planned facilities or local agency policies.

However, several intersection capacity mitigation measures are identified (for Impact 7B.15-2, above, and Impact 7B.15-9, below). Therefore, the analysis of potential impacts also focuses on the proposed mitigations, as these could be effects of Additional Housing Alternative B if they are constructed. The analysis of each mitigation location also includes the effect of the daily traffic volume with the additional trips generated by Additional Housing Alternative B. The analysis found that the identified intersection improvements would not substantially affect quality of service for pedestrians and bicyclists (i.e., no substantial worsening of QOS indices) in all but two cases. At one Cumulative (2035) mitigation location, Middlefield Road / Marsh Road (Intersection #59), the bicycle quality of service would decrease from QOS 2.7 to QOS 3 (the same result as under the Cumulative (2035) with Project Conditions).

While the rest of the traffic mitigation measures do not change the quality of service index at the mitigation location, in some cases the mitigations do add another vehicle lane to cross or navigate as a bicyclist. However, these changes do not affect the QOS rating because it is already at 4 (the worst rating). In several cases, the mitigation measures may result in a slight improvement for bicyclists by removing a right-turn conflict zone due to re-striping. As noted in the traffic mitigation discussions, the implementation of the traffic mitigation measures would ultimately be the decision of the responsible jurisdiction, and considerations for bicyclist and pedestrian

comfort and convenience may enter into those decisions, resulting in a modified improvement project that adds or enhances pedestrian and/or bicycle facilities, or rejection of the improvement project.

In some cases, the mitigations would add another vehicle lane to cross or navigate as a bicyclist. However, these changes would not affect the QOS rating because it is already at 4 (the worst rating). As noted in the traffic mitigation discussions, the implementation of the mitigation measures would ultimately be the decision of the responsible jurisdiction, and considerations for bicyclist and pedestrian comfort and convenience may enter into those decisions, resulting in a modified improvement that adds or enhances pedestrian and/or bicycle facilities, or rejection of the identified mitigation measure.

In addition, assessment of the bicycle facility capacity to serve future growth in bicycle commuters to the campus (based on existing bicycle counts at the campus gateways and estimates of future growth to 2018 and 2035 under the proposed 2018 General Use Permit) shows that the carrying capacities of bicycle paths and lanes in the various “bike shed” areas surrounding the campus exceed the estimated future growth in bicycle volumes.

For the above reasons, the impact of Additional Housing Alternative B on pedestrian and bicycle facilities under Additional Housing Alternative B and cumulative conditions, and although effects would be incrementally greater than the proposed Project’s impact, would be less than significant.

Separate from the above analysis, it is noted that under Additional Housing Alternative B, like the proposed Project, Stanford would construct improvements on its lands in unincorporated Santa Clara County that have been identified by the Palo Alto Unified School District (PAUSD) and the City of Palo Alto as the Suggested Routes to Schools shown on the Walkabout Maps for Nixon and Escondido Elementary Schools. These improvements would benefit both pedestrian and bicycle circulation in the immediate area of both schools. Circulation improvements on Stanford lands in unincorporated Santa Clara County, in and around Nixon Elementary School, could include such items as improved crosswalks with high-visibility yellow markings, pavement markings, additional signage, and wayfinding signs. Circulation improvements in and around Escondido Elementary School similarly could include such items as improved crosswalks with high-visibility yellow markings, pavement markings, additional signage, additional traffic control. Specific improvements on Stanford property could include an enhanced mid-block crosswalk on Escondido Road.

Mitigation: None required.

Cumulative Impacts

2035 Baseline With Additional Housing Alternative B Conditions

Impact 7B.15-9: Implementation of Additional Housing Alternative B, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Additional Housing Alternative B conditions. (Significant)

The results for the Cumulative (2035) No Project and 2035 Cumulative With Proposed Project conditions have been updated since publication of the Draft EIR to correct the assumed lane configuration on Page Mill Road under cumulative conditions. Modeling conducted for the Draft EIR assumed Page Mill Road would have six travel lanes based on VTA's 2040 traffic model. Subsequently, VTA staff indicated that inclusion of the 6-lane configuration had been an error on the part of VTA.⁸⁵ The updated results are based on modeling that assumes no change to the existing 4-lane configuration for Page Mill Road.⁸⁶

Cumulative impacts associated with Additional Housing Alternative B are identified by comparing 2035 Cumulative (no project) to 2035 Cumulative with Additional Housing Alternative B Conditions. Significant impacts are identified based on the applicable impact criteria, which include changes in the LOS from an acceptable to an unacceptable level or changes in critical delay and critical V/C ratios for intersections operating unacceptably. The results of the LOS analysis are summarized in **Table 7B.15-11**. The results for 2035 Cumulative No Project and 2035 Cumulative With Proposed Project (2018 General Use Permit) conditions are included in Table 7B.15-11 for comparison purposes.

Generally, at the study intersections located closest to the campus, Additional Housing Alternative B would increase congestion compared to the proposed Project. At the study intersections located farther from the campus, this alternative would reduce congestion by a small degree compared to the proposed Project because peak-hour, peak-direction residence-based trips are assumed to start and end at destinations closer to the Stanford campus as compared to peak-hour, peak-direction commute trips. When compared to the proposed Project, Additional Housing Alternative B would add approximately 110 peak hour trips to intersections directly adjacent to the campus along El Camino Real and between 10 to 60 peak hour trips to intersections that border the campus along Sand Hill Road and Junipero Serra Boulevard. Overall, Additional Housing Alternative B would not reduce significant effects of the proposed 2018 General Use Permit under 2035 conditions.

⁸⁵ Email dated 10/3/17 from George Naylor (Santa Clara County VTA) to Ananth Prasad (Santa Clara County Roads and Airports), forwarded via Dave Rader (Santa Clara County Planning Department) to Ellen Poling (Fehr & Peers) on 10/19/18.

⁸⁶ This updated results will also be reflected in the forthcoming Response to Comments Document.

TABLE 7B.15-11
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
1	I-280 NB On-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.3 12.6	B+ B	10.1 13.7	B+ B	0.015 0.032	-0.2 1.2	10.1 13.7	B+ B	0.021 0.032	-0.2 1.2
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	136.9 18.4	F B-	155.2 18.6	F B-	0.038 0.021	19.2 0.2	155.1 19.0	F B-	0.038 0.029	19.2 0.6
3	Addison Wesley / Sand Hill Rd	Menlo Park	LOS D	AM PM	37.9 21.5	D+ C+	49.6 22.3	D C+	0.037 0.032	18.3 1.4	48.6 22.2	D C+	0.034 0.032	17.0 1.4
4	Saga Ln / Sand Hill Rd	Menlo Park	LOS D	AM PM	19.4 30.1	B- C	19.6 29.8	B- C	0.036 0.031	0.5 -0.2	19.7 29.7	B- C	0.033 0.031	0.4 -0.2
5	Sharon Park Dr / Sand Hill Rd	Menlo Park	LOS D	AM PM	17.4 18.9	B B-	17.4 18.6	B B-	0.036 0.032	0.3 0.0	17.3 18.6	B B-	0.033 0.032	0.3 0.0
6	Alameda de las Pulgas / Santa Cruz Ave	San Mateo County	LOS D	AM PM	13.3 14.6	B B	13.3 14.5	B B	0.000 0.000	0.0 0.0	13.3 14.5	B B	0.000 0.000	0.0 0.0
7	Santa Cruz Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	51.3 46.2	D- D	52.8 47.2	D- D	0.030 0.038	2.1 1.7	53.3 47.3	D- D	0.035 0.037	2.8 1.5
8	Oak Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	10.5 3.9	B+ A	10.5 3.9	B+ A	0.025 0.024	0.1 0.1	10.4 3.9	B+ A	0.028 0.029	0.1 0.2
9	Stock Farm Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	24.3 29.4	C C	25.4 30.3	C C	0.028 0.022	1.7 0.9	25.0 29.7	C C	0.029 0.009	1.4 2.4
10	Pasteur Dr / Sand Hill Rd	Palo Alto	LOS D	AM PM	20.7 26.8	C+ C	20.8 27.4	C+ C	0.009 0.017	0.4 0.7	20.6 27.2	C+ C	0.015 0.023	0.3 0.6
11	Arboretum Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	25.3 31.7	C C	26.0 32.3	C C-	0.013 0.012	1.3 0.9	27.0 33.0	C C-	0.026 0.017	2.9 1.4
12	El Camino Real / Sand Hill Rd	Palo Alto (SC CMP)	LOS E	AM PM	43.8 39.8	D D	43.6 40.3	D D	0.019 0.013	-3.1 0.6	43.7 40.4	D D	0.021 0.017	-2.9 0.9
13	I-280 SB Ramps / Page Mill Rd**	Santa Clara County	LOS E (warrant)	AM PM	37.0 44.6	D+ D	37.2 45.0	D+ D	0.003 0.003	0.3 0.2	37.3 44.7	D+ D	0.003 0.001	0.3 0.1
14	I-280 NB Ramps / Page Mill Rd**	Santa Clara County	LOS E (warrant)	AM PM	15.2 12.4	B B	14.5 12.5	B B	0.005 0.004	0.6 0.7	15.3 12.6	B B	0.005 0.005	0.6 0.9
15	Deer Creek Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	17.5 11.5	B B+	19.1 11.8	B- B+	0.026 0.021	2.7 0.1	19.1 11.9	B- B+	0.026 0.026	2.7 0.1
16	Coyote Hill Rd / Page Mill Rd	Santa Clara County	LOS E	AM PM	8.9 8.5	A A	9.8 8.9	A A	0.014 0.021	0.0 -0.1	9.8 8.9	A A	0.020 0.026	0.0 -0.1
17	Junipero Serra Blvd - Foothill Expy / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	180.4 162.9	F F	186.9 175.2	F F	0.028 0.044	4.5 27.8	191.0 176.4	F F	0.043 0.049	9.8 29.0

TABLE 7B.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
18	Peter Coutts / Page Mill Rd	Santa Clara County	LOS E	AM PM	22.3 30.5	C+ C	22.9 30.8	C+ C	0.020 0.015	0.8 0.0	23.3 31.2	C C	0.029 0.024	1.3 0.4
19	Hanover St / Page Mill Rd	Santa Clara County (SC CMP)	LOS E	AM PM	85.6 51.9	F D-	92.1 52.8	F D-	0.025 0.018	11.2 0.6	94.3 60.1	F E	0.039 0.128	14.7 11.5
20	El Camino Real / Page Mill Rd - Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	75.1 83.1	E- F	84.9 90.2	F F	0.047 0.035	13.2 11.0	88.1 94.1	F F	0.077 0.058	28.1 18.4
21	Middlefield Rd / Oregon Expy	Santa Clara County (SC CMP)	LOS E	AM PM	122.7 101.5	F F	125.6 103.6	F F	0.014 0.012	4.7 3.1	125.5 103.5	F F	0.015 0.014	4.5 2.7
22	Oregon Expy / West Bayshore Rd	Santa Clara County	LOS E	AM PM	23.4 20.8	C C+	23.4 21.0	C C+	0.003 0.008	0.0 0.1	23.5 21.1	C C+	0.007 0.012	0.1 0.4
23	I-280 SB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	10.5 2.1	E C	42.7 16.9	E C	N/A	N/A	42.6 16.8	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Rd*	San Mateo County	LOS E (warrant)	AM PM	26.7 29.1	D D	27.8 32.5	D D	N/A	N/A	28.1 32.7	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Rd	Menlo Park	LOS D	AM PM	48.1 50.6	D D	51.6 52.8	D- D-	0.049 0.029	4.6 1.7	51.4 52.7	D- D-	0.045 0.030	4.2 1.7
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	LOS E	AM PM	30.1 44.1	C D	32.5 50.3	C- D	0.009 0.043	1.5 8.6	33.4 49.7	C- D	0.025 0.036	4.0 6.8
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	LOS E	AM PM	14 17.8	B B	14.4 19.5	B B-	0.020 0.037	0.7 2.8	14.4 19.4	B B-	0.028 0.042	0.8 2.6
28	Junipero Serra Blvd / Stanford Ave	Santa Clara County	LOS E	AM PM	20.6 24.9	C+ C	22.4 29.9	C+ C	0.061 0.084	2.5 6.8	22.9 30.6	C+ C	0.071 0.093	3.3 7.5
29	Foothill Expy / Hillview Ave	Santa Clara County	LOS E	AM PM	124.6 58.3	F E+	135.0 64.2	F E	0.024 0.015	16.1 9.0	133.5 63.7	F E	0.031 0.014	13.5 8.3
30	Foothill Expy / Arastradero Rd	Santa Clara County (SC CMP)	LOS E	AM PM	194.5 202.5	F F	201.2 208.9	F F	0.016 0.095	10.4 18.2	200.8 208.4	F F	0.015 0.093	9.8 17.0
31	Foothill Expy / San Antonio Rd	Santa Clara County (SC CMP)	LOS E	AM PM	38.8 165.8	D+ F	43.2 171.0	D F	0.016 0.021	6.7 8.1	42.7 170.4	D F	0.014 0.019	5.8 7.3
32	Foothill Expy / El Monte Ave	Santa Clara County (SC CMP)	LOS E	AM PM	142.6 133.5	F F	149.3 137.9	F F	0.014 0.004	13.5 1.9	148.5 137.4	F F	0.013 0.003	11.9 1.5
33	Foothill Expy / Springer Road-Magdalena Ave	Santa Clara County (SC CMP)	LOS E	AM PM	128.7 151.5	F F	131.9 154.4	F F	0.014 0.010	4.8 5.1	131.8 154.5	F F	0.013 0.009	4.7 5.2
34	Bowdoin St / Stanford Ave*	Palo Alto	LOS E (warrant)	AM PM	16.7 25.8	C D	22.8 43.2	C E	N/A	N/A	23.1 46.2	C E	N/A	N/A

TABLE 7B.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
35	Arboretum Rd / Quarry Rd	Palo Alto	LOS D	AM PM	46.8 43.3	D D	47.5 44.2	D D	0.040 0.039	1.3 1.8	48.4 45.4	D D	0.077 0.074	3.2 3.5
36	Arboretum Rd / Palm Dr	Palo Alto	LOS D	AM PM	31 31.1	C C	32.4 32.5	C- C-	0.080 0.049	2.1 2.5	32.9 33.6	C- C-	0.096 0.070	3.0 3.6
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	44.9 89.9	D F	45.4 92.9	D F	0.007 0.015	1.4 5.5	45.6 92.7	D F	0.008 0.014	1.8 5.2
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	53.5 56.0	D- E+	54.0 57.4	D- E+	0.017 0.015	1.9 2.7	54.0 57.3	D- E+	0.016 0.015	1.7 2.5
39	El Camino Real / Oak Grove Ave	Menlo Park	LOS D	AM PM	34.4 39.0	C- D+	34.1 38.9	C- D+	0.018 0.017	-0.2 0.0	34.1 38.9	C- D+	0.016 0.016	-0.2 0.0
40	El Camino Real / Santa Cruz Ave	Menlo Park	LOS D	AM PM	26.8 35.5	C D+	26.5 35.5	C D+	0.018 0.010	-0.1 0.0	26.7 35.5	C D+	0.016 0.011	-0.1 0.0
41	El Camino Real / Ravenswood Rd	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.7 65.8	D E	0.008 0.020	1.0 3.8	48.8 66.1	D E	0.012 0.020	1.4 3.9
42	El Camino Real / Roble Ave	Menlo Park	LOS D	AM PM	12.8 15.3	B B	12.7 15.2	B B	0.006 0.009	-0.1 -0.1	12.7 15.1	B B	0.008 0.010	-0.1 -0.2
43	El Camino Real / Middle Ave	Menlo Park	LOS D	AM PM	25.1 28.5	C C	24.9 28.3	C C	0.014 0.009	-0.2 0.1	24.9 28.4	C C	0.013 0.010	-0.2 0.1
44	El Camino Real / Cambridge Ave	Menlo Park	LOS D	AM PM	15.2 24.8	B C	15.0 24.8	B C	0.014 0.009	-0.2 0.2	15.0 24.8	B C	0.013 0.010	-0.2 0.2
45	El Camino Real / Quarry Rd	Palo Alto	LOS D	AM PM	11.9 33	B+ C-	13.3 34.8	B C-	0.029 0.032	1.6 2.7	14.1 35.8	B D+	0.036 0.048	2.4 4.3
46	El Camino Real (SB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	21 22.7	C+ C+	20.7 22.5	C+ C+	0.016 0.031	-0.1 0.0	20.6 22.4	C+ C+	0.026 0.036	-0.2 0.2
47	El Camino Real (NB) / University Ave	Palo Alto (SC CMP)	LOS E	AM PM	27.3 25.2	C C	28.6 26.1	C C	0.008 0.016	0.5 0.7	27.8 26.3	C C	-0.007 0.016	-1.6 0.6
48	El Camino Real / Embarcadero Rd	Palo Alto (SC CMP)	LOS E	AM PM	56.9 72.1	E+ E	60.4 82.2	E F	0.032 0.059	5.2 20.0	62.1 86.2	E F	0.052 0.078	8.9 27.4
49	El Camino Real / Churchill Ave	Palo Alto	LOS D	AM PM	25.4 26.7	C C	25.4 26.6	C C	0.017 0.018	0.1 0.1	25.4 26.7	C C	0.028 0.032	0.3 0.3
50	El Camino Real / Serra St	Palo Alto	LOS D	AM PM	24.6 29.3	C C	28.3 36.1	C D+	0.082 0.111	6.1 10.7	30.2 38.8	C D+	0.118 0.149	8.3 15.3
51	El Camino Real / Stanford Ave	Palo Alto	LOS D	AM PM	31.1 32.2	C C-	31.7 34.7	C C-	0.033 0.054	1.0 3.9	31.7 35.2	C D+	0.051 0.065	1.0 4.7

TABLE 7B.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
52	El Camino Real / California Ave	Palo Alto	LOS D	AM PM	22.8 27.8	C+ C	22.1 27.5	C+ C	0.029 0.031	-0.4 0.0	22.0 27.5	C+ C	0.033 0.039	-0.5 0.0
53	El Camino Real / Arastradero Rd - Charleston Rd	Palo Alto (SC CMP)	LOS E	AM PM	67.1 68.7	E E	70.2 70.3	E E	0.020 0.019	5.5 3.8	70.6 70.4	E E	0.023 0.021	6.3 4
54	El Camino Real / San Antonio Rd	Mountain View (SC CMP)	LOS E	AM PM	60.8 55.6	E E+	61.3 55.7	E E+	0.008 0.007	0.8 0.0	61.2 55.7	E E+	0.007 0.007	0.8 0.0
55	Alma St / Lytton Ave	Palo Alto	LOS D	AM PM	28.2 25.9	C C	30.9 27.1	C C	0.017 0.015	4.1 1.9	31.6 27.9	C C	0.022 0.023	5.3 3.0
56	Alma St / Hamilton Ave	Palo Alto	LOS D	AM PM	10.2 57.7	B+ E+	10.4 60.0	B+ E	0.007 0.012	0.3 5.0	10.5 62.0	B+ E	0.012 0.021	0.4 8.8
57	Alma St / Churchill Ave	Palo Alto	LOS D	AM PM	32.4 59.2	C- E+	32.5 59.8	C- E+	0.005 0.006	0.2 1.0	32.7 60.0	C- E	0.006 0.008	0.4 1.4
58	Alma St / Charleston Rd	Palo Alto	LOS D	AM PM	123.4 121.5	F F	127.3 126.7	F F	0.009 0.017	3.9 6.6	128.3 127.6	F F	0.012 0.019	5.1 7.5
59	Middlefield Rd / Marsh Rd	Atherton	LOS D	AM PM	76.9 76.0	E- E-	79.7 77.4	E- E-	0.012 0.000	4.6 0.0	79.8 77.5	E- E-	0.012 0.000	4.8 0.0
60	Middlefield Rd / Ravenswood Ave	Menlo Park	LOS D	AM PM	49.3 45.3	D D	51.0 46.7	D D	0.011 0.012	2.1 1.9	51.3 47.1	D- D	0.012 0.015	2.4 2.4
61	Middlefield Rd / Ringwood Ave	Menlo Park	LOS D	AM PM	43.2 52.6	D D-	43.4 52.9	D D-	0.004 0.006	0.2 0.4	43.5 53.1	D D-	0.007 0.009	0.4 0.6
62	Middlefield Rd / Willow Rd	Menlo Park	LOS D	AM PM	50.0 53.0	D D-	50.2 53.4	D D-	0.000 0.006	0.0 0.5	50.2 53.5	D D-	0.000 0.008	0.0 0.7
63	Middlefield Rd / Lytton Ave	Palo Alto	LOS D	AM PM	49.2 66.1	D E	51.1 70.1	D- E	0.018 0.017	2.1 4.4	51.1 70.4	D- E	0.018 0.018	2.2 4.8
64	Middlefield Rd / University Ave	Palo Alto	LOS D	AM PM	35.1 39.4	D+ D	35.6 40.8	D+ D	0.019 0.031	0.5 2.0	35.6 40.8	D+ D	0.019 0.031	0.5 2.0
65	Middlefield Rd / Hamilton Ave	Palo Alto	LOS D	AM PM	10.5 10.8	B+ B+	10.6 10.9	B+ B+	0.005 0.007	0.1 0.1	10.5 10.9	B+ B+	0.005 0.008	0.0 0.1
66	Middlefield Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	55.0 68.1	D- E	59.4 72.9	E+ E	0.030 0.025	5.8 6.4	59.2 73.1	E+ E	0.029 0.026	5.6 6.6
67	Saint Francis Dr / Embarcadero Rd	Palo Alto	LOS D	AM PM	23.0 19.3	C+ B-	23.0 19.1	C+ B-	0.015 0.014	0.2 -0.1	23.0 19.1	C+ B-	0.014 0.014	0.2 -0.1
68	E. Bayshore Rd / Embarcadero Rd	Palo Alto	LOS D	AM PM	98.5 77.7	F E-	99.0 78.7	F E-	0.006 0.004	0.5 0.9	99.4 79.0	F E-	0.007 0.005	1.0 1.2

TABLE 7B.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
69	Middlefield Rd / Charleston Rd	Palo Alto	LOS D	AM PM	58.0 67.7	E+ E	58.3 68.5	E+ E	0.004 0.007	0.4 1.6	58.3 69.0	E+ E	0.004 0.010	0.3 2.4
70	US 101 SB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	77.3 78.0	E- E-	77.2 77.9	E- E-	0.000 0.000	0.0 0.0	77.2 77.9	E- E-	0.000 0.000	0.0 0.0
71	US 101 NB Ramps / Marsh Rd	Menlo Park	LOS D	AM PM	23.2 41.1	C D	23.2 41.1	C D	0.000 0.000	0.0 0.0	23.2 41.1	C D	0.000 0.000	0.0 0.0
72	Bay Rd / Willow Rd	Menlo Park	LOS D	AM PM	19.7 11.3	B- B+	19.7 11.3	B- B+	0.008 0.006	0.1 0.1	19.8 11.3	B- B+	0.008 0.007	0.1 0.1
73	Newbridge St / Willow Rd	Menlo Park	LOS D	AM PM	42.7 53.6	D D-	42.7 53.9	D D-	0.005 0.004	0.1 0.6	42.7 54.0	D D-	0.006 0.006	0.1 0.9
74	O'Brien Dr / Willow Rd	Menlo Park	LOS D	AM PM	19.4 20.1	B- C+	19.4 20.0	B- C+	0.003 0.004	0.0 0.0	19.4 20.0	B- C+	0.005 0.005	0.1 0.0
75	Hamilton Ave / Willow Rd	Menlo Park	LOS D	AM PM	41.3 40.9	D D	42.0 41.1	D D	0.005 0.004	1.2 0.3	42.0 41.1	D D	0.006 0.005	1.3 0.4
76	Bayfront Expy / Willow Rd	Menlo Park (SM CMP)	LOS F	AM PM	51.1 64.9	D- E	51.1 65.3	D- E	0.000 0.004	0.0 0.6	51.0 65.4	D- E	0.000 0.004	0.0 0.7
77	Woodland Ave / University Ave	East Palo Alto	LOS D	AM PM	71.7 66.1	E E	72.7 66.4	E E	0.000 0.006	0.0 0.9	72.7 66.4	E E	0.000 0.006	0.0 0.9
78	US 101 SB Ramps / University Ave	East Palo Alto	LOS D	AM PM	27.9 25.8	C C	28.0 25.8	C C	0.004 0.006	0.2 0.1	28.0 25.8	C C	0.004 0.006	0.2 0.1
79	Donohoe St / University Ave	East Palo Alto	LOS D	AM PM	76.3 43.4	E- D	77.1 43.5	E- D	0.005 0.004	1.3 0.1	77.0 43.5	E- D	0.004 0.004	1.2 0.1
80	University Ave / Bay Rd	East Palo Alto	LOS D	AM PM	54.1 51.8	D- D-	54.4 52.4	D- D-	0.005 0.009	0.5 1.1	54.3 52.5	D- D-	0.004 0.010	0.4 1.3
81	University Ave / Bayfront Expy	Menlo Park (SM CMP)	LOS F	AM PM	26.4 137.3	C F	26.6 140.0	C F	0.008 0.007	0.5 3.3	26.7 140.3	C F	0.009 0.008	0.6 3.8
82	Town & Country Driveway / Embarcadero Rd	Palo Alto	LOS D	AM PM	27.8 28.3	C C	27.2 27.9	C C	0.031 0.021	-0.4 -0.3	27.2 27.9	C C	0.030 0.026	-0.4 -0.3
83	Charleston Rd / San Antonio Rd	Palo Alto (SC CMP)	LOS E	AM PM	79.2 68.3	E- E	79.4 68.6	E- E	0.001 0.002	0.4 0.5	79.4 68.6	E- E	0.001 0.002	0.5 0.5
84	US 101 SB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	11.1 12.8	B+ B	11.2 12.8	B+ B	0.003 0.000	0.2 0.0	11.2 12.8	B+ B	0.002 0.000	0.2 0.0
85	US 101 NB Ramps / Willow Rd	Menlo Park	LOS D	AM PM	25 24.2	C C	25.1 24.2	C C	0.000 0.003	0.0 0.1	25.1 24.2	C C	0.000 0.004	0.0 0.1

TABLE 7B.15-11 (CONTINUED)
CUMULATIVE (2035) NO PROJECT AND WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative ^d		2035 Cumulative With Proposed Project ^d				2035 Cumulative With Additional Housing Alternative B			
					Delay ^e	LOS ^f	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h	Delay ^e	LOS ^f	Δ in Crit. V/C ^g	Δ in Crit. Delay ^h
86	Central Expy / Rengstorff Ave	Santa Clara County (SC CMP)	LOS E	AM PM	447.1 248.1	F F	449.7 250.5	F F	0.010 0.008	2.2 2.6	449.8 250.7	F F	0.010 0.009	2.1 2.8
87	Central Expy / Shoreline Blvd (N)	Santa Clara County (SC CMP)	LOS E	AM PM	224.5 97.4	F F	223.6 97.1	F F	0.004 0.006	0.2 -0.1	223.4 96.7	F F	0.005 0.006	-0.5 -1.0
88	Central Expy / Shoreline Blvd (S)	Santa Clara County (SC CMP)	LOS E	AM PM	11.2 7.5	B+ A	11.2 7.5	B+ A	0.003 0.005	-0.1 0.0	11.2 7.5	B+ A	0.004 0.006	-0.1 0.0
89	Central Expy / Castro St-Moffett Blvd	Santa Clara County (SC CMP)	LOS E	AM PM	240.1 222.1	F F	243.7 225.7	F F	0.010 0.009	5.2 4.5	243.9 225.8	F F	0.009 0.010	4.8 4.5
90	Foothill Expy / Edith Ave	Santa Clara County	LOS E	AM PM	55.9 105.5	E+ F	61.5 112.6	E F	0.016 0.015	10.2 11.8	60.8 118.8	E F	0.014 0.013	8.9 10.6
91	Foothill Expy / Main St	Santa Clara County (SC CMP)	LOS E	AM PM	44.6 54.8	D D-	49.9 55.8	D E+	0.016 0.009	8.5 -1.3	49.2 55.7	D E+	0.014 0.009	7.4 -1.3
92	University Ave / O'Brien Dr	Menlo Park	LOS D	AM PM	9.1 13.4	A B	9.1 13.3	A B	0.005 0.006	0.0 0.0	9.1 13.3	A B	0.005 0.006	0.0 0.0
93	University Ave / Adams Dr*	Menlo Park	LOS E (warrant)	AM PM	425.5 39.6	F ¹⁰ E	456.2 41.4	F ⁸ E	N/A N/A	N/A N/A	457.4 41.7	F ¹⁰ E	N/A N/A	N/A N/A
94	University Ave / Runnymede St	East Palo Alto	LOS D	AM PM	15.3 19.1	B B-	15.3 19.1	B B-	0.005 0.005	0.0 0.0	15.3 19.1	B B-	0.005 0.005	0.0 0.0
95	University Avenue / Bell Street	East Palo Alto	LOS D	AM PM	14.8 17.3	B B	14.7 17.2	B B	0.005 0.005	0.0 0.0	14.7 17.2	B B	0.005 0.005	0.0 0.0

NOTES: **Bold text** indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

In some cases, intersections may show a reduction in average delay with the addition of Project traffic, or with the addition of Additional Housing Alternative B traffic, which is counter-intuitive. However, average delay values are weighted averages, which will decrease when traffic is added to a vehicle movement that operates with low delay. Conversely, relatively small volume increases to movements with high delays can substantially increase the weighted average delay.

* Indicates unsignalized intersection.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County, "(SM CMP)" indicates CMP intersection in San Mateo County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(Warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak hour, PM = evening peak hour.

^d Cumulative (2035) No Project and Cumulative (2035) With Proposed 2018 General Use Permit presents the results from the Cumulative (2035) Conditions with Four-Lane Page Mill Road from I-280 to Junipero Serra Boulevard Memorandum (see Appendix PMR), which evaluated the effects of the Draft EIR project description on the surrounding transportation network assuming that Page Mill Road remained two lanes in each direction. These results are provided for comparison purposes only.

^e Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^f LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

^g Change ("Δ") in critical volume-to-capacity ratio (V/C) between Cumulative (2035) and Cumulative (2035) With Additional Housing Alternative B Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^h Change ("Δ") in average critical movement delay between Cumulative (2035) and Cumulative (2035) With Additional Housing Alternative B Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

ⁱ A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-T1A)

TABLE 7B.15-12
2035 CUMULATIVE WITH PROJECT INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#2 I-280 NB Off-Ramp / Sand Hill Road (AM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#17 Junipero Serra Blvd – Foothill Expressway / Page Mill Road (AM and PM Peak Hours)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#19 Hanover Street / Page Mill Road (AM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#20 El Camino Real / Page Mill Road – Oregon Expressway (AM and PM Peak Hours)	VTa: During the AM peak hour, project-generated traffic would cause a degradation from an acceptable LOS E to an unacceptable LOS F. During the PM peak hour, under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#21 Middlefield Road / Oregon Expressway (AM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#29 Foothill Expressway / Hillview Avenue (AM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#30 Foothill Expressway / Arastradero Road (AM and PM Peak Hours)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#31 Foothill Expressway / San Antonio Road (PM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#32 Foothill Expressway / El Monte Avenue (AM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#33 Foothill Expressway / Springer Road – Magdalena Avenue (AM and PM Peak Hour)	VTa: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#37 El Camino Real / Encinal Avenue (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#38 El Camino Real / Valparaiso Avenue (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.
#41 El Camino Real / Ravenswood Road (PM Peak Hour)	Menlo Park: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average delay on a critical movement by more than 0.8 seconds.

TABLE 7B.15-12 (CONTINUED)
2035 CUMULATIVE WITH PROJECT INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#48 El Camino Real / Embarcadero Road (PM Peak Hour)	VTA: Project-generated traffic would cause a degradation from an acceptable LOS E to an unacceptable LOS F.
#56 Alma Street / Hamilton Avenue (PM Peak Hour)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#58 Alma Street / Charleston Road (PM Peak Hour)	Palo Alto: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#59 Middlefield Road / Marsh Road (AM Peak Hour)	Atherton: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#63 Middlefield Road / Lytton Avenue (PM Peak Hour)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#66 Middlefield Road / Embarcadero Road (AM and PM Peak Hours)	Palo Alto: Under unacceptable LOS E conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#89 Central Expwy / Castro St. – Moffett Blvd. (AM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.
#90 Foothill Expressway / Edith Avenue (PM Peak Hour)	Santa Clara County: Under unacceptable LOS F conditions without and with the project, project-generated traffic would increase the average critical delay by more than four seconds and would increase the critical volume-to-capacity ratio by 0.01 or more.

The intersections where there would be a significant impact under 2035 Cumulative with Additional Housing Alternative B conditions, and the reason that the impact is considered significant, are documented in Table 7B.15-12. Additional Housing Alternative B would make a cumulatively considerable contribution that differs from that for the proposed Project in terms of the time period(s) when the impact would occur, as follows:

- At Intersection #33 (Foothill Expressway/Springer Road- Magdalena Avenue) – Additional Housing Alternative B (AM peak hour) versus Proposed Project (AM and PM peak hours)
- Intersection #58 (Alma Street/Charleston Road) – Additional Housing Alternative B (AM and PM peak hours) versus Proposed Project (PM peak hour)
- Intersection #89 (Central Expressway/Castro Street-Moffett Boulevard) – Additional Housing Alternative B (PM peak hour) versus Proposed Project (AM peak hour)

Measures/strategies to mitigate the contribution of Additional Housing Alternative B to significant cumulative impacts are described below.

Mitigation Measure: Implement Mitigation Measure 7B.15-2.

As detailed in Mitigation Measure 7B.15-2, Stanford shall mitigate the transportation impacts of its additional development and population growth either through a program of “no net new commute trips” or through the contribution of funding equivalent to Stanford’s proportionate share of the cost of improvements for adversely affected intersections, which funds shall be expended by the County to fund transportation mitigation efforts.

Significance after Mitigation: Significant and Unavoidable.

This mitigation would substantially reduce Additional Housing Alternative B’s contribution to cumulative traffic congestion impacts to intersections; however, the contribution of Additional Housing Alternative B to the cumulative impact would be a significant and unavoidable impact because there is no feasible mitigation to improve some of the affected intersections, and for others it is uncertain whether it would be feasible to improve the intersections if the No Net New Commute Trips standard is not achieved or if there are not sufficient off-campus projects available to reduce peak hour traffic. As discussed in further detail below, many of the intersections adversely affected under 2035 Cumulative with Additional Housing Alternative B conditions identified in Table 1B in Mitigation Measure 7B.15-2 are located in other jurisdictions, and consequently, the improvements depend on the actions of those jurisdictions. In some cases, additional funding for intersection improvements may be required and is not yet identified, and consequently, it is not certain that these improvements would be implemented in a timely manner. At one intersection, the mitigation measure would improve LOS and delay, but would not mitigate impacts to a less-than-significant level. At other intersections, there are no feasible improvements to reduce the impact to a less-than-significant level. For these reasons, the impact would remain significant and unavoidable.

CEQA Guidelines section 15126.4(1)(1)(D) states that if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the proposed Project, the effects of the mitigation measure should be discussed. Because, as discussed below, the identified intersection improvements would have the potential to result in effects on bicycle and/or pedestrian conditions, these effects are discussed below. In all cases, these effects are determined to be less than significant.

- **Intersection #2: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative B conditions, which stipulates contribution of fair-share funding to the addition of a second northbound right-turn lane at the signalized intersection of I-280 Northbound Off-Ramp / Sand Hill Road, as identified in the *ConnectMenlo Final Environmental Impact Report*.**

To accommodate the construction of a second right-turn lane on the northbound off-ramp, the off-ramp would be widened from two to three lanes, which may require the acquisition of additional right-of-way.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement depends on the actions of Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of

Additional Housing Alternative B to the cumulative impact is reduced to less than considerable. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on the eastbound bicycle lane's StreetScore+ QOS, as it would remain unchanged at QOS 4. Right turns from the northbound off-ramp to Sand Hill Road are not permitted during a red light. The addition of a second northbound right-turn lane would not conflict with eastbound bicyclists if the No Right Turn on Red were to remain in-force. Therefore, the mitigation measure would not adversely affect the existing bicycle lane on Sand Hill Road. There are no pedestrian facilities at this intersection.

- **Intersection #17: Contribute fair-share funding to the addition of a third westbound through lane on Page Mill Road and a receiving lane on the west leg of the intersection (resulting in three westbound lanes from Junipero Serra Boulevard to approximately Old Page Mill Road); installation of an overlap signal phase for northbound, southbound, and westbound right-turning vehicles; and widening of southbound Junipero Serra Boulevard to two lanes between Stanford Avenue and Page Mill Road to align with the existing designated right-turn lane.**

This mitigation differs from the mitigation under the proposed Project. For the proposed Project, the impact at this intersection would be reduced to a less-than-significant level with the following mitigation: Contribute fair share funding toward:

- (1) the addition of a third through lane on Page Mill Road in the westbound direction (for a total of two left-turn lanes, three through lanes, and a right-turn lane plus a bike lane);
- (2) addition of a receiving lane to westbound Page Mill Road (resulting in three lanes from Junipero Serra Boulevard approximately to Old Page Mill Road); and
- (3) installation of an overlap phase for northbound and southbound right-turning vehicles and widening of the southbound approach to two lanes between Page Mill Road and Stanford Avenue to align with the existing designated right-turn lane.⁸⁷

For Additional Housing Alternative B, the impact at this intersection cannot be mitigated to a less-than-significant level with the mitigation measures identified for the proposed Project, and the additional mitigation described above (installation of an overlap phase for westbound right-turning vehicles) would be needed.⁸⁸ Installation of the overlap phases would be accommodated through the modification of the existing traffic signal, which requires no additional right-of-way. Widening the southbound approach to two lanes between Page Mill Road and Stanford Avenue will likely require the acquisition of additional right-of-way. This improvement would allow southbound right-turning vehicles additional queuing space so southbound through vehicles do not block the right-turn lane.

⁸⁷ The third improvement was identified as a mitigation measure in the Draft EIR. Two additional improvements have been added to ensure the impact is mitigated to a less-than-significant level under the assumption that Page Mill Road is four lanes, rather than six lanes as previously assumed.

⁸⁸ Note that the third westbound through lane and receiving lane on the east leg was added to the mitigation for the proposed project to address the impact at this intersection with the revised assumption that Page Mill Road would remain four lanes between Junipero Serra Boulevard and I-280.

The new westbound improvements would require some right of way (10-12 feet) from the subdivision corner (northeast) and along the dish parcel for the receiving lane (northwest).

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's impact is mitigated. Therefore, the impact would remain significant and unavoidable.

It is noted that there is a Tier 1 improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* to widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. The Tier 1 improvement is fully funded through Measure B, but conservatively is not anticipated to be in place by 2035. This was evaluated as a potential mitigation measure and was determined not to bring the impact to a less-than-significant level under 2035 Conditions.

Impacts of Mitigation: With the exception of construction-related impacts, the mitigation would not have a substantial adverse effect on bicycle and pedestrian QOS, which would remain at QOS 3.5 and 4.0, respectively.

Intersection #19: Contribute fair-share funding to installation of a second westbound left-turn lane, at the signalized intersection of Hanover Street / Page Mill Road, identified as an option in the *Page Mill Expressway Corridor Study Report*.

To accommodate the construction of a second westbound left-turn lane, the westbound approach would need to be widened from three to four lanes and may require the removal of the center median, reduction in lane width, and/or reduction in bicycle lane width at the intersection. There is adequate right-of-way to accommodate the dual westbound left-turn lanes and associated receiving lanes on Hanover Street.

Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to the cumulative impact is reduced to less than considerable. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 4 and QOS 3, respectively. With the proposed mitigation, limited bicycle facilities on Hanover Street would remain, as well as the intersection crossing distance, maintaining but not exacerbating the current uncomfortable conditions for bicyclists at the intersection. Pedestrian crossing distances would be unchanged on all approaches. The proposed mitigation measure would not create additional conflicts for the City of Palo Alto's proposed Class I facility on the south side of Page Mill Road as identified in their *Bicycle and Pedestrian Transportation Plan*.

It is noted that there is another Tier 1 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040*. The improvement would convert the signal phasing to an eight-phase signal. That improvement would not

reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. Therefore, it was not identified as a mitigation measure. The proposed mitigation measure for Intersection 19 would not conflict with the County's Tier 1 intersection improvement.

- **Intersection #20: Contribute fair-share funding to the reconfiguration of the north leg of the intersection to include a designated southbound right-turn lane with an overlap signal phase; the reconfiguration of the east leg of the intersection to include one right-turn lane, two through lanes, two extended left-turn lanes, two receiving lanes, and no on-street parking; and to the extension of the double left-turn lanes, at the signalized intersection of El Camino Real / Page Mill Road – Oregon Expressway, as identified in the *Page Mill Expressway Corridor Study Report*. In addition, a designated southbound right-turn lane with an overlap signal phase would be installed.**

This is the same mitigation measure identified for the proposed Project, except that the addition of a designated southbound right-turn lane with an overlap signal phase would be required under Additional Housing Alternative B to mitigate the significant impact to a less-than-significant level.

To accommodate the reconfiguration of the east leg of the intersection, parking would need to be removed along the south side of Page Mill Road, and the median island would need to be shifted to the south to accommodate the additional westbound lane. Little to no right-of-way would be needed to accommodate this improvement; however, an easement would be needed on the north side of the roadway to preserve the sidewalk width, and the bus stop on the southeast corner of the intersection on Oregon Expressway may need to be relocated or further addressed during design. To accommodate the southbound right-turn lane, parking would need to be removed and the eastbound U-turn movement would need to be restricted. This would limit the access to some of the parcels along Page Mill Road. These improvements are identified in Santa Clara County's *Page Mill Corridor Expressway Plan*, and the extension of the double westbound left-turn lanes is identified as a Tier 1 improvement in the draft *Santa Clara County Expressway Plan 2040* along with enhanced pedestrian facilities on the southwest and southeast corners of the intersection.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. The Tier 1 improvements are fully funded through Measure B. However, because this improvement depends on the actions of Caltrans, and the provision of the remaining improvements may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 4. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions assuming the parking is removed next to the eastbound receiving lanes, and right-turn slip lanes and/or high vehicle turning speeds would remain, maintaining the current uncomfortable conditions for bicyclists and pedestrians at the intersection. The proposed mitigation measure would not conflict with the City of Palo Alto's *Bicycle and Pedestrian Transportation Plan* to implement a Class III facility on Oregon Expressway east of the intersection.

- **Intersection #30: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative B conditions, which stipulates contribution of fair-share funding to a grade-separation improvement project, at the signalized intersection of Foothill Expressway / Arastradero Road, as identified in the draft Santa Clara County Expressway Plan 2040 (if such project is approved and implemented). The grade separation assumes inclusion of a separated through-way for vehicles on Foothill Expressway.**

Although the configuration of this proposed interchange has yet to be determined, additional right-of-way would be required to construction this improvement. Due to the proximity of the Miranda Avenue / Arastradero Road intersection, additional modifications to roadway alignment and turning movements would need to be evaluated along with adequate access for bicyclists and pedestrians.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. However, because this improvement has not undergone CEQA review, may not be approved, and would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle StreetScore+ QOS, which would remain unchanged at QOS 3.5. Right-turn lanes and high vehicle speeds would continue to cause uncomfortable situations for bicyclists at the intersection. However, the mitigation would improve pedestrian QOS from QOS 4 to QOS 2.5. With the proposed mitigation, the pedestrian crossing distances at the northbound and southbound approaches would be reduced from the existing 6+ lanes to an estimated 3 lanes, providing more comfortable pedestrian crossing conditions at the intersection.

- **Intersection #31: Contribute fair-share funding to the addition of a third southbound through lane on Foothill Expressway between San Antonio Road and El Monte Avenue.**

A third receiving lane would be added on the south leg of Foothill Expressway, as identified as a Tier 1 improvement in the draft Santa Clara County Expressway Plan 2040, to extend the southbound right-turn lane from El Monte Avenue to San Antonio Road, which likely would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle StreetScore+ QOS, as it would remain unchanged at QOS 4. With the proposed mitigation, right-turn slip lanes and high vehicle turning speeds would remain, maintaining the current uncomfortable environments for bicyclists at the intersection. The

proposed mitigation measure would have no effect on pedestrian quality of service as there is no pedestrian access at this intersection.

It is noted that the full Tier 1 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* includes widening Foothill Expressway from four to six lanes between San Antonio Road and El Monte Avenue. The mitigation measure identified above for Intersection #31 would implement the southbound widening.

- **Intersection #32: Contribute to fair-share funding to the addition of a third northbound through lane, and an associated receiving lane at the signalized intersection of Foothill Expressway / El Monte Avenue, as identified in the draft *Santa Clara County Expressway Plan 2040*.**

To accommodate the construction of a third northbound through lane, the northbound approach would be widened from two to three lanes and may require the acquisition of additional right-of-way. The receiving lanes on the north side of the intersection would also need to be widened, as identified as a Tier 1 improvement in the draft *Santa Clara County Expressway Plan 2040*, to extend the northbound right-turn lane from San Antonio Road to El Monte Avenue, which likely would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. The Tier 1 improvements are fully funded through Measure B. Because the remainder of these improvements would require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged, at QOS 4 (for both). The east-west bicycle and pedestrian crossing distances would increase slightly due to the additional through lane and continue to have right-turn slip lanes and high vehicle turning speeds, while maintaining the current QOS score.

It is noted that the full Tier 1 improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* includes widening Foothill Expressway from four to six lanes between San Antonio Road and El Monte Avenue. The mitigation measure identified above for Intersection #32 would implement the northbound widening, but while southbound widening would increase the available storage capacity, it would not be enough to reduce Additional Housing Alternative B's AM peak-hour impact to a less-than-significant level. Therefore, the southbound widening was not identified as a potential mitigation measure at this intersection.

- **Intersection #33: Contribute fair-share funding to the following improvements, at the signalized intersection of Foothill Expressway / Springer Road – Magdalena Avenue, as identified as a Tier 2 improvement in the draft *Santa Clara County Expressway Plan 2040*:**

- Convert the signal to provide 8-phase phasing;

- Change the lane configuration for the east leg to have two left-turn lanes, one through lane, and one right-turn lane; and
- Change the lane configuration for the west leg to have one left-turn lane, two through lanes, and one right-turn lane.

To accommodate an eight-phase signal, the eastbound and westbound left-turn movements would require designated left-turn lanes, and may require the acquisition of additional right-of-way. To accommodate the change to eastbound and westbound lane configurations, the center median on the west leg of the intersection would need to be shifted to incorporate a designated left-turn lane and remove one receiving lane from the west leg. The eastbound approach would require restriping to change the shared left-turn/through lane to a designated left-turn lane.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. However, because this improvement may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.5 and QOS 4, respectively. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions, with right-turn slip lanes and high vehicle turning speeds maintaining the current uncomfortable environment at the intersection. To construct the designated eastbound left-turn lane, the eastbound lanes will be narrowed and the center median may be reduced, resulting in the same curb-to-curb width, but increasing the number of travel lanes. The proposed mitigation would not adversely affect the City of Los Alto's existing Class II bicycle facilities at the intersection.

It is noted that the full Tier 2 intersection improvement identified for this intersection in the draft *Santa Clara County Expressway Plan 2040* includes converting to an eight-phase signal, operational/safety improvements at the County Club Drive intersection, and potentially adding a signal at the adjacent Berry Avenue intersection. The mitigation measure identified above for Intersection #33 would implement the eight-phase signal and associated lane configuration changes at the intersection.

- **Intersection #37: Contribute fair-share funding to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Encinal Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to the significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that

the contribution of Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 2.8 and QOS 2.7, respectively. The proposed mitigation would not alter the existing pedestrian crossing distances on all approaches. While the bicycle StreetScore+ QOS on the northbound approach would not improve, bicyclists would no longer move left across the right-turn conflict area, and instances of Right Turn On Red would be reduced because vehicles would no longer have a dedicated right-turn lane. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) proposes Class II bike lanes on El Camino Real between Valparaiso Avenue and Alejandra Avenue, and the City of Menlo Park El Camino Corridor Study (approved May 2016) proposes buffered Class II bike facilities (bicycle lanes) on El Camino Real between Encinal Avenue and Middle Avenue as part of the preferred alternative (Alternative 2). At Encinal Avenue, the northbound right-turn lane would allow for the conversion of a through/ right-turn lane while maintaining the City's goal to provide bicycle lanes up to the Encinal Avenue intersection. The proposed mitigation measure could conflict with a Class II bicycle lane if only on-street parking is removed in order to add a third through lane. However, if the center median were narrowed, space for a bicycle lane could be provided. The existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers if the proposed mitigation measure is constructed. However, this is typical for bus stops on El Camino Real and other major arterials.

- **Intersection #38: Contribute fair-share funding to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Valparaiso Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of the Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3 and QOS 4, respectively. The proposed mitigation would not alter the existing pedestrian crossing distances. While the bicycle StreetScore+ QOS on the northbound approach would not improve, bicyclists would no longer move left across the right-turn conflict area, and instances of Right Turn On Red would be reduced because vehicles would no longer have a dedicated right-turn lane. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) proposes Class II bike lanes on El Camino Real between Valparaiso Avenue and Alejandra Avenue, and the City of Menlo Park El Camino Corridor Study (approved May 2016) proposes buffered Class II bike facilities (bicycle lanes) on El Camino Real between Encinal Avenue and Middle Avenue as part of the preferred alternative (Alternative 2). At Encinal Avenue, the northbound right-turn lane

would allow for the conversion of a through/ right-turn lane while maintaining the City's goal to provide bicycle lanes up to the Encinal Avenue intersection. The proposed mitigation measure could conflict with a Class II bicycle lane if only on-street parking is removed in order to add a third through lane. However, if the center median were narrowed, space for a bicycle lane could be provided. The existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers if the proposed mitigation measure is constructed. However, this is typical for bus stops on El Camino Real and other major arterials

- **Intersection #41: Contribute fair-share funding reconfiguration of the eastbound approach on Menlo Avenue to include an exclusive left-turn lane, and to the conversion of the northbound right-turn lane to a shared through/right-turn lane, at the signalized intersection of El Camino Real / Ravenswood Road.**

This is the same mitigation measure identified for the proposed Project, except that the addition of an exclusive eastbound left-turn lane would be required under Additional Housing Alternative B to mitigate the significant impact to a less-than-significant level.

To accommodate the northbound lane reconfiguration within the existing right-of-way, on-street parking would be removed on the east side of El Camino Real; the widening of Menlo Avenue would require additional right-of-way.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.5 (for both). The proposed mitigation would not alter the existing pedestrian crossing distances, except on the west leg of the intersection, across which pedestrians would experience an additional 10-12 feet of exposure while in the intersection. The San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011) and the City of Menlo Park Comprehensive Bicycle Development Plan (2005) propose Class III bike routes on El Camino Real at Valparaiso Avenue. The proposed mitigation measure would not conflict with a Class III bikeway.

- **Intersection #48: Contribute fair-share funding to the addition of a second northbound left-turn lane, at the signalized intersection of El Camino Real / Embarcadero Road.**

To accommodate the construction of a second northbound left-turn lane, the northbound approach would be widened from four to five lanes by potentially reducing the lane widths, reducing the width of the center median, and/or removing on-street parking for the length of the additional left-turn pocket and taper. Addition right-of-way may be required to accommodate the second northbound left-turn lane.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Palo Alto and Caltrans, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.8 and QOS 4, respectively. With the proposed mitigation, bicycle and pedestrian crossing distances would remain unchanged in all directions, but would add an additional travel lane on the south leg of the intersection, with right-turn slip lanes and high vehicle turning speeds maintaining the current uncomfortable environment at the intersection. This proposed mitigation would not adversely affect the City of Palo Alto's proposed Class III bike routes as identified in their *Bicycle and Pedestrian Transportation Plan*. It should be noted that the City of Palo Alto is currently designing bicycle improvements at this intersection.

The VTA El Camino Real Bus Rapid Transit (BRT) Project would upgrade Rapid Bus Route 522 to have BRT status. The geometric alternatives included in the draft Environmental Impact Report for the BRT Project do not include a separate bus lane through this intersection. Some alternatives studied include the creation of outboard bus lanes through the removal of parking on the south side of El Camino Real. Because there is no final design for this intersection, and the BRT project completion date is uncertain, it is not possible to determine what, if any, effect this mitigation measure would have on the BRT Project. However, the existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers; this typical for bus stops on El Camino Real and other major arterials.

- **Intersection #56: Contribute fair-share funding to the reconfiguration of the westbound approach to have one left-turn lane and one right-turn lane, at the signalized intersection of Alma Street / Hamilton Avenue.**

To accommodate the lane reconfiguration within the existing right-of-way, on-street parking would be removed on the north side of Hamilton Avenue.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Palo Alto, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 2.5 and QOS 2, respectively. The proposed mitigation would not alter the existing pedestrian crossing distances. This proposed mitigation would not adversely affect the City of Palo Alto's proposed Class III bike routes as identified in their *Bicycle and Pedestrian Transportation Plan*.

- **Intersection #58: Implement the same mitigation identified for this intersection under 2018 Baseline with Additional Housing Alternative B conditions, which stipulates contribution of fair-share funding to the addition of a designated northbound right-turn lane and installation of an overlap phase for the northbound and southbound right-turn movements at the signalized intersection of Alma Street / Charleston Road.**

To accommodate the construction of a designated northbound right-turn lane, the northbound Alma Street approach would need to be widened and likely would require the acquisition of additional right-of-way. Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal.

Implementation of this mitigation measure would improve the level of service, and the impact would be reduced, but not to a less-than-significant level. Therefore, the contribution of Additional Housing Alternative B to this impact would remain considerable, and the impact would remain significant and unavoidable.

Impacts of Mitigation: The mitigation would not have a substantial adverse effect on bicycle and pedestrian StreetScore+ QOS, as they would remain unchanged at QOS 3.3 and QOS 3.5, respectively. With the proposed mitigation, pedestrian crossing distances would increase slightly on the south leg of the intersection, and remain unchanged on all other approaches, while maintaining the current QOS score at the intersection. Bicycle lanes on the eastbound and westbound approaches, and low right-turn speeds would remain, resulting in slightly better conditions compared to what bicyclists experience on the northbound and southbound approaches. The proposed mitigation measure for Intersection #58 would not conflict with the City of Palo Alto's proposed Class III bike route along Alma Street as identified in the City of Palo Alto Bicycle & Pedestrian Transportation Plan.

- **Intersection #59: Contribute fair-share funding to the addition of a second westbound left-turn lane and a second receiving lane on the south leg, at the signalized intersection of Middlefield Road / Marsh Road.**

The construction of a second westbound left-turn lane and a second receiving lane would require the acquisition of additional right-of-way. This mitigation measure is consistent with recommendations in the *ConnectMenlo Final EIR*, the *Middle Plaza at 500 El Camino Real Draft EIR*, the *Menlo Park Facebook Campus Expansion Project FEIR* and the *Menlo Gateway Final EIR*. The Town of Atherton has preliminary plans to redesign the intersection.

Implementation of this mitigation measure would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level. However, because this improvement depends on the actions of the City of Menlo Park and Town of Atherton, and may require additional funding that has not yet been identified, it is not certain that this improvement would be implemented in a timely manner such that the contribution of Additional Housing Alternative B to this significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The proposed mitigation would cause the bicycle StreetScore+ QOS to worsen from QOS 2.7 to QOS 3; the pedestrian StreetScore+ QOS would remain unchanged at QOS 3. With the proposed mitigation, a second receiving lane would be

added on the southbound approach, causing an uncomfortable situation where bicyclists travel along a four-lane roadway compared to a three-lane roadway existing today. Missing sidewalks and curb ramps cause uncomfortable situations for pedestrians at all intersection crossings.

- **Intersection #89: Close Castro Street at the train tracks to form a T-intersection of Central Expressway / Moffett Boulevard, consistent with recommendations in the May 2017 Mountain View Transit Center Master Plan.**

The City of Mountain View has approved plans to close Castro Street (the west leg) at the train tracks, which would change the current four-leg intersection to a T-intersection of Central Expressway and Moffett Boulevard. This improvement would not require any additional right-of-way if implemented by the City of Mountain View. Given that this is the City's preferred improvement and would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less-than-considerable level, the closure of Castro Street is the identified mitigation measure at this intersection; if Castro Street is independently closed by the City of Mountain View, Stanford would not need to contribute funding to any improvements at this intersection.

It is noted that there is a Tier 1 improvement identified for this intersection in the draft Santa Clara County Expressway Plan 2040, which would grade-separate the train tracks from the intersection, increasing the available capacity at the intersection and reducing Additional Housing Alternative B's impact to a less-than-significant level. However, because this improvement depends on the actions of the City of Mountain View, it is not certain that this improvement would be implemented in a timely manner such that Additional Housing Alternative B's contribution to the significant cumulative impact is mitigated. Therefore, the impact would remain significant and unavoidable.

Impacts of Mitigation: The proposed mitigation is anticipated to improve bicycle and pedestrian QOS; the bicycle QOS would shift from 3.3 to 1.7, and the pedestrian QOS would shift from 4 to 2. With the closure of Castro Street, pedestrian and bicycle crossings will be moved to a separated underground facility to cross Central Expressway and the Caltrain tracks with the exception of the east leg of the intersection where pedestrian crossings would still occur at-grade. Northbound and southbound bicyclists would continue to travel on Central Expressway, but bicyclists traveling from Moffett Boulevard to Castro Street would use the underground crossing.

Intersection #89 Alternative Mitigation: If the closure of Castro Street is not implemented in a timely manner and/or the City of Mountain View does not pursue the improvement, the following alternative (back-up) mitigation measure is proposed, which would reduce the contribution of Additional Housing Alternative B to this significant cumulative impact to a less than considerable level:

Intersection #89 Alternative Mitigation Measure: Contribute fair-share funding to the construction of a second southbound left-turn lane from Central Expressway to Moffett Boulevard.

To accommodate the construction of a second southbound left-turn lane, the Central Expressway center median would need to be reduced and/or removed; the improvement would not require any additional right-of-way. Given the existing and proposed geometry, signal timings may also need to be modified to provide lead-lag left turns (to account for

potential truck turn conflicts). With this mitigation, the contribution of Additional Housing Alternative B to the significant cumulative impact would be reduced to a less-than-considerable level. However, because this improvement depends on the actions of the City of Mountain View, it is not certain that this improvement would be implemented in a timely manner such that the contribution of the proposed Project to the significant cumulative impact is mitigated. In that case, the impact would remain significant and unavoidable.

Remaining Intersections: Due to physical constraints, no feasible mitigation measures have been identified at the following intersections, and the contribution of Additional Housing Alternative B to significant cumulative impacts would remain considerable, and the cumulative impacts would remain significant and unavoidable:

22. Middlefield Road / Oregon Expressway – the constraint is the proximity of the Oregon Avenue frontage road and the County’s desire to preserve the shoulder striping along Oregon Expressway for use by bicyclists.
30. Foothill Expressway / Hillview Avenue – the constraint is the proximity of the Miranda Avenue / Hillview Avenue intersection and lack of improvement identified in the draft Santa Clara County Expressway Plan 2040.
64. Middlefield Road / Lytton Avenue – the constraint is the proximity of the residential units near the intersection.
67. Middlefield Road / Embarcadero Road – the constraint is the proximity of the residential units near the intersection.
91. Foothill Expressway / Edith Avenue – the constraint is the proximity of the residential units and retail space near the intersection.

See Table 7B.15-13 for mitigated LOS conditions.

Impact 7B.15-10: Implementation of Additional Housing Alternative B, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Additional Housing Alternative B conditions. (Significant)

Please note that only the freeway mainline segment impact analysis is provided for the Additional Housing Alternative B analysis. As described on Draft EIR page 5.15-58, freeway ramp queueing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions.

As described above, the results for the Cumulative (2035) No Project and 2035 Cumulative With Proposed Project conditions have been updated since publication of the Draft EIR to correct the assumed lane configuration on Page Mill Road under cumulative conditions. Modeling conducted for the Draft EIR assumed Page Mill Road would have six travel lanes based on VTA’s 2040 traffic model. Subsequently, VTA staff indicated that inclusion of the 6-lane configuration had been an error on the part of VTA. The updated results are based on modeling that assumes no change to the existing 4-lane configuration for Page Mill Road.

TABLE 7B.15-13
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Additional Housing Alt. B		Mitigation Measure	2035 Cumulative With Additional Housing Alt. B (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
2	I-280 NB Off-Ramp / Sand Hill Rd	Menlo Park	LOS D	AM PM	136.9 18.4	F B-	155.1 19.0	F B-	See MM 5.15-2 (Table 1B)	67.3 16.0	E B	LTS/SU
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	180.4 162.9	F F	191.0 176.4	F F	See MM 5.15-2 (Table 1B)	150.5 162.4	F F	LTS/SU
19	Hanover Street / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	85.6 51.9	F D-	94.3 60.1	F E	See MM 5.15-2 (Table 1B)	74.5 57.9	E- E+	LTS/SU
20	El Camino Real / Page Mill Road – Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	75.1 83.1	E- F	88.1 94.1	F F	See MM 5.15-2 (Table 1B)	67.3 81.1	E F	SU
21	Middlefield Road / Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	122.7 101.5	F F	125.5 103.5	F F	N/A (no feasible improvements)			SU
29	Foothill Expressway / Hillview Avenue	Santa Clara County	LOS E	AM PM	124.6 58.3	F E+	133.5 63.7	F E	N/A (no feasible improvements)			SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	194.5 202.5	F F	200.8 208.4	F F	See MM 5.15-2 (Table 1B)	41.9 70.7	D E	LTS/SU
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	38.8 165.8	D+ F	42.7 170.4	D F	See MM 5.15-2 (Table 1B)	42.7 46.4	D D	LTS/SU
32	Foothill Expressway / El Monte Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	142.6 133.5	F F	148.5 137.4	F F	See MM 5.15-2 (Table 1B)	74.6 113.5	E F	LTS/SU
33	Foothill Expressway / Springer Road – Magdalena Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	128.7 151.5	F F	131.8 154.5	F F	See MM 5.15-2 (Table 1B)	122.7 147.7	F F	LTS/SU
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	44.9 89.9	D F	45.6 92.7	D F	See MM 5.15-2 (Table 1B)	35.6 67.1	D+ E	LTS/SU
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	53.5 56.0	D- E+	54.0 57.3	D- E+	See MM 5.15-2 (Table 1B)	52.5 52.3	D- D-	LTS/SU

TABLE 5.15-13 (CONTINUED)
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE B INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Additional Housing Alt. B		Mitigation Measure	2035 Cumulative With Additional Housing Alt. B (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
41	El Camino Real / Ravenswood Road	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.8 66.1	D E	See MM 5.15-2 (Table 1)B	46.6 59.5	D E+	LTS/SU
48	El Camino Real / Embarcadero Road	Palo Alto (SC CMP)	LOS E	AM PM	56.9 72.1	E+ E	62.1 86.2	E F	See MM 5.15-2 (Table 1B)	53.7 74.9	D- E	LTS/SU
56	Alma Street / Hamilton Avenue	Palo Alto	LOS D	AM PM	10.2 57.7	B+ E+	10.5 62.0	B+ E	See MM 5.15-2 (Table 1B)	10.1 40.3	B+ D	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	123.4 121.5	F F	128.3 127.6	F F	See MM 5.15-2 (Table 1B)	121.5 124.0	F F	SU
59	Middlefield Road / Marsh Road	Atherton	LOS D	AM PM	76.9 76.0	E- E-	79.8 77.5	E- E-	See MM 5.15-2 (Table 1B)	41.9 68.6	D E	LTS/SU
63	Middlefield Road / Lytton Avenue	Palo Alto	LOS D	AM PM	49.2 66.1	D E	51.1 70.4	D- E	N/A (no feasible improvements)			SU
66	Middlefield Road / Embarcadero Road	Palo Alto	LOS D	AM PM	55.0 68.1	D- E	59.2 73.1	E+ F	N/A (no feasible improvements)			SU
89	Central Expwy / Castro St-Moffett Blvd	Santa Clara Co. (SC CMP)	LOS E	AM PM	240.1 222.1	F F	243.9 225.8	F F	See MM 5.15-2 (Table 1B)	97.0 132.7	F F	LTS/SU
90	Foothill Expressway / Edith Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	55.9 105.5	E+ F	60.8 118.8	E F	N/A (no feasible improvements)			SU

Bold text indicates intersection operates at unacceptable level of service. **Bold and Shaded text** indicates a significant impact.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections. "(SC CMP)" indicates CMP intersection in Santa Clara County.

^b LOS Threshold is the threshold between acceptable and unacceptable level of service. "(warrant)" indicates that meeting Signal Warrant 3 (Peak Hour Volumes) is part of the threshold of a significant impact.

^c AM = morning peak traffic hour, PM = evening peak traffic hour.

^d Whole intersection weighted average control delay (signalized and all-way stop-controlled intersections) expressed in seconds per vehicle calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions for signalized intersections. For side-street stop-controlled intersections, delay and LOS are reported for the worst-case approach.

^e LOS = Level of Service. LOS calculations conducted using the TRAFFIX 8.0 analysis software program, which applies the methods described in the 2000 *Highway Capacity Manual*.

^f LTS/SU = less-than-significant with mitigation, but is either (1) located outside Santa Clara County where mitigation measures depend on funding and actions by other jurisdictions, or (2) located in Santa Clara County, but depends on other funding for the mitigation to be constructed, and thus the mitigation measure may not be implemented in a timely manner to avoid the impact. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection;

SU = significant and unavoidable.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-T1A)

The future operations of freeway mainline segments in Santa Clara County and San Mateo County are evaluated using volume-to-capacity ratios, with a V/C ratio greater than 1.00 indicating the volume/demand exceeds capacity. Under Cumulative (2035) With Additional Housing Alternative B Conditions, the following 13 freeway segments would meet the significance criteria, which is same as the number under Cumulative (2035) with Project Conditions⁸⁹:

- Northbound SR 85
 - South De Anza Boulevard to Stevens Creek Boulevard (AM peak hour);
 - Stevens Creek Boulevard to I-280 (AM peak hour);
- Southbound SR 85
 - Stevens Creek Boulevard to South De Anza Boulevard (PM peak hour);
 - De Anza Boulevard to Saratoga Avenue (PM peak hour);
- Northbound I- 280
 - Wolfe Road to De Anza Boulevard (AM peak hour);
 - SR 85 to Foothill Expressway (AM and PM peak hours);
 - Foothill Expressway to Magdalena Avenue (AM peak hour);
 - Sand Hill Road to Woodside Road (PM peak hour);
- Southbound I-280
 - Woodside Road to Sand Hill Road (AM peak hour);
 - Magdalena Avenue to Foothill Expressway (PM peak hour);
 - Foothill Expressway to SR 85 (AM and PM peak hours);
 - SR 85 to De Anza Boulevard (PM peak hour);
 - De Anza Boulevard to Wolfe Road (PM peak hour)

In addition, Additional Housing Alternative B would extend significant impacts on one freeway segment to both the AM and PM peak hours, whereas the proposed 2018 General Use Permit would result in a significant impact to that freeway segment during only the PM peak hour. Overall, Additional Housing Alternative B would not reduce the significant impacts of the proposed 2018 General Use Permit.

The revised assumption that Page Mill Road remains four lanes between I-280 and Junipero Serra Boulevard - Foothill Road in 2035 results in two additional freeway segments meeting the impact criteria under the proposed Project (the 2018 General Use Permit) compared to the number of freeway segments meeting this criteria in the Draft EIR. The two additional freeway segments would be on I-280 southbound (Woodside Road to Sand Hill Road [AM Peak Hour], and SR 85 to De Anza Boulevard [PM Peak Hour]). The Draft EIR concludes that impacts to freeway segments would be significant and unavoidable under Cumulative (2035) with Project conditions.

⁸⁹ Compared to the proposed Project, Additional Housing Alternative B would add one new freeway segment that would meet the significance criteria, but one freeway segment (Southbound I-280 from Sheep Camp Trail to Edgewood Road) that would meet that criteria under the proposed Project would not meet the criteria under Additional Housing Alternative B due to the reduction in commute trips travelling toward campus in the morning.

The addition of two more freeway segments to the list presented in the Draft EIR does not change the Draft EIR's conclusions.

There are limited options to widen freeway segments that meet the significance criteria due to right-of-way constraints. Mitigation of freeway impacts is considered beyond the scope of an individual development project, due to the inability of any individual project or local agency to (1) acquire right-of-way for freeway widening, and (2) fully fund a major freeway mainline improvement. Mitigation Measure 7B.15-2 would reduce impacts to freeways to the extent that trips to and from the campus are reduced to achieve the No Net New Commute Trips standard and through applying any fees from exceeding the No Net New Commute Trips standard to alternative programs that reduce vehicular trips. Nevertheless, because it is uncertain whether the No Net New Commute Trips standard would be achieved, the freeway impacts under Additional Housing Alternative B would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 7B.15-11: Implementation of Additional Housing Alternative B, in combination with other past, present, and reasonably foreseeable future, projects, would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities. (Less than Significant)

Generally, a project causes a significant impact to transit facilities and services if an element of it would conflict with existing or planned transit services, or would decrease the performance or safety of such services. Similar to the proposed 2018 General Use Permit, Additional Housing Alternative B does not propose infrastructure changes outside the Project site and, thus, would not interfere with the ability of transit agencies to modify or expand service. Therefore, Additional Housing Alternative B's impact on transit services would be less than significant. Additional Housing Alternative B would add traffic along major transit corridors throughout the cities of Palo Alto and Menlo Park, which could affect operations of bus routes serving the area. However, as shown in **Table 7B.15-14**, Additional Housing Alternative B would not add substantial delays relative to the total route travel time to any of the transit routes assessed, although certain delays are higher under this alternative than under the proposed Project. The additional delay would be fewer than 30 seconds on all but six of the routes and increase travel times by fewer than 60 seconds on all of the routes. For both peak hours, this delay constitutes less than three percent of the total travel time on that route.

Mitigation: None required.

TABLE 7B.15-14
2035 CUMULATIVE WITH ADDITIONAL HOUSING ALTERNATIVE B TRANSIT ROUTE DELAYS^a

Route		Direction	Peak Hour	Additional Route Average Delay (seconds) ^b	
				Proposed Project ^c	Additional Housing Alternative B
22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	12.2 35.8	16.3 48.8
		Westbound	AM PM	20.9 17.4	11.9 25.5
35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	11.8 22.0	14.2 24.7
		Southbound	AM PM	16.7 13.2	14.3 16.7
89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0	< 5.0 13.7
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
102	South San Jose to Palo Alto	Northbound	AM	< 5.0	< 5.0
		Southbound	PM	16.7	37.2
104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0	53.7
		Westbound	AM	26.3	52.2
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	9.1 34.1	11.7 46.0
		Westbound	AM PM	20.9 17.4	11.9 25.5
281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	6.5 9.6	9.6 13.5
		Westbound	AM PM	< 5.0 < 5.0	< 5.0 < 5.0
ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 10.0	< 5.0 9.8
		Southbound	AM PM	< 5.0 < 5.0	< 5.0 7.4
DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 7.4	< 5.0 10.2
		Westbound	AM PM	22.6 9.2	25.7 11.9
DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	< 5.0 8.6	< 5.0 59.2
		Westbound	AM PM	31.1 26.2	56.6 43.6
U	Fremont BART to Stanford Oval	Eastbound	PM	29.4	40.6
		Westbound	AM	17.0	16.8
E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	5.9 14.2	9.6 17.3
		Westbound	AM PM	11.8 < 5.0	6.3 < 5.0
C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 8.9	< 5.0 8.9
		Westbound	AM PM	29.1 6.3	29.3 8.0

^a Transit route delay is calculated by summing each transit route movements through the study intersections. Some movements may experience large increases or decreases in delay as a result of the analysis software (Traffix 8.0) redistributing green time for each phase.

^b Additional Housing Alternative B was not considered to have a measurable change in overall transit route delay if the increase in travel time was less than five seconds or the travel time improved slightly (due to changes in signal timing, critical movement changes, etc.).

^c Cumulative (2035) With Proposed 2018 General Use Permit presents the results from the Cumulative (2035) Conditions with Four-Lane Page Mill Road from I-280 to Junipero Serra Boulevard Memorandum (see Appendix PMR), which evaluated the effects of the proposed Project on the surrounding transportation network assuming that Page Mill Road remained two lanes in each direction. These results are provided for comparison purposes only.

SOURCE: Fehr & Peers, April 2018 (see Appendix ALT-TIA)

Vehicle Miles Traveled Impacts

California has enacted a law (SB 743) that will phase out the traditional Transportation Impact Assessment as the approach used in documents prepared to comply with CEQA, and replace that methodology with an analysis of Vehicle Miles Traveled. A VMT Analysis evaluates vehicle trips made throughout the day, and focuses on the number and length of vehicle trips made by project employees and residents. Measures to reduce VMT include locating a project near major transit stops and high-quality transit corridors, improving bicycle and pedestrian facilities, and instituting programs to encourage travel by modes other than driving alone. Rather than increasing road capacity, a VMT analysis focuses on getting people out of their cars.

As was shown to be the case for the proposed Project (presented in the Draft EIR), the areas of the Stanford campus where development could occur under Additional Housing Alternative B are within 1/2 mile of an existing major transit stop or an existing stop along a high quality transit corridor. The revised draft CEQA Guidelines circulated by OPR in November 2017 continue to state that generally, projects located on sites within 1/2 mile of an existing major transit stop or an existing stop along a high quality transit corridor should be presumed to have a less-than-significant transportation impact. Nevertheless, a quantitative assessment of VMT generated by Additional Housing Alternative B is provided, similar to that provided for the proposed Project.

The County has not adopted a threshold or established a standard methodology for evaluating VMT. Like the proposed Project, Additional Housing Alternative B represents a unique and distinct set of circumstances compared to other development applications presented to the County and located in predominately rural unincorporated areas of the County because the proposed development that would occur on Stanford lands is predominantly in-fill in nature, inclusive of mixed uses (housing and academic space), and would be located near transit systems. Therefore, the approach used in the following impact discussion would not be applicable to a VMT evaluation of other development applications under consideration by the County.

The following discussion evaluates the VMT characteristics of Additional Housing Alternative B and is based on the information from the Vehicle Miles Traveled (VMT) Analysis. The evaluation reflects the stated intent of SB 743 and is informed by the draft proposals developed by the State Office of Planning and Research (OPR) for performing SB 743 assessments in CEQA documents.

Significance Criteria

In November 2017, OPR published proposed amendments to the CEQA Guidelines to address the analysis of impacts to transportation.⁹⁰ OPR proposes the following criteria for analyzing transportation impacts of land use projects:

Proposed New Section 15064.3. Determining the Significance of Transportation Impacts.

⁹⁰ See http://opr.ca.gov/docs/20171127_Text_of_15064-3.pdf.

(a) Purpose.

This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding highway capacity), a project's effect on automobile delay does not constitute a significant environmental impact.

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

Other than the two presumptions listed in proposed CEQA Guidelines section 15064.3(b)(1), OPR does not propose to establish numeric significance criteria through the CEQA Guidelines. OPR's Technical Advisory provides numeric thresholds that an agency could choose to use when assessing the significance of a project's additional vehicle miles traveled in the event that the presumptions in proposed CEQA Guidelines section 15064.3(b)(1) do not apply.

Based on OPR's Proposed Updates to the CEQA Guidelines (November 2017) and OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (April 2018), the following significance criteria were used to assess VMT Additional Housing Alternative B:

1. Is the project within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor? If so, the project is presumed to result in a less-than-significant impact on VMT.
2. Alternatively, the proposed Project is considered to result in a significant impact to VMT if project-related VMT would exceed the following numeric thresholds:
 - Residential Per Capita Daily VMT: A project exceeding existing regional household daily VMT per capita minus 15 percent.⁹¹
 - Worker Per Capita Daily VMT: A project exceeding a level of 15 percent below existing regional daily VMT per worker.

⁹¹ The Draft EIR Expressed this criterion as follows: Residential Per Capita Daily VMT: A project exceeding both existing household daily VMT per capita in the aggregate of all incorporated jurisdictions in the County minus 15 percent, and existing regional household daily VMT per capita minus 15 percent. Because regional household daily VMT per capita was higher than the aggregate of all incorporated jurisdictions in the County, the Draft EIR used 15 percent below regional household daily VMT per capita as the benchmark for analysis. Use of a standard of 15 percent below regional household daily VMT per capita is consistent with OPR's updated Technical Advisory and the simplified criterion is used in this recirculated Draft EIR.

Approach to Analysis

OPR's Technical Advisory suggests that lead agencies can evaluate each component of a mixed-use project independently, and apply the significance threshold for each project type included in the mixed-use project. The analysis of each use may reflect credit for internal capture of trips within the project. Based on this account for internal capture.

Populations Included in the Analysis

Stanford anticipates that Additional Housing Alternative B will continue to cover all of its lands in unincorporated Santa Clara County. However, the General Use Permit does not apply to land uses within those areas that are permitted as of right (e.g., the single-family and two-family residences in the faculty/staff subdivision), and therefore are not included in this VMT analysis. In addition, Stanford does not propose development under Additional Housing Alternative B in two areas zoned for medium-density faculty and staff housing (the Peter Coutts housing area and the Olmsted Terrace housing area). Nor does Stanford propose development outside the Academic Growth Boundary, including on the Stanford Golf Course. Therefore, these areas are not included in the VMT analysis.

Benchmarks Included in the Analysis

Based on the OPR guidance described above, the numeric benchmarks against which Additional Housing Alternative B worker and resident VMT were compared are:

- the Bay Area regional daily average home-based-work VMT per worker; and
- the Bay Area regional daily average home-based VMT per capita.

The VTA transportation model is a trip-based model developed and validated for the estimation of trips made for home-based work, home-based non-work and non-home based trips. OPR's Technical Advisory states that home-based trips can be the focus for analysis of residential projects, and home-based-work trips can be the focus of the analysis for office projects. Therefore, the guidance, residential and worker VMT for Additional Housing Alternative B were assessed independently, and the project-specific data used in the evaluation

- VTA model is a reliable source to establish the Bay Area and Santa Clara County average daily VMT per worker and per capita at an aggregate level.

OPR's April 2018 Technical Advisory continues to recommend that regional, not city or county-level, VMT averages should be used for judging impacts of employment-generating projects. The April 2018 Technical Advisory also continues to recommend that the benchmark for residential projects should be either regional averages or a weighted average of all cities within the county. In this case, the regional average represents the benchmark for residential VMT generation.

OPR's April 2018 Technical Advisory recommends setting thresholds of significance at 15 percent below the regional benchmark for average daily VMT per worker⁹² or per capita.

⁹² OPR's Technical Advisory does not address travel by college students. The omission of VMT from students traveling to and from the campus would leave a large gap in the VMT picture for Stanford; therefore, student trips are included in the assessment of Worker VMT. While student travel behavior is similar to that of faculty and staff,

Taking all of these recommendations into account, **Table 7B.15-15** indicates the VMT generation thresholds to be applied to Additional Housing Alternative B.⁹³

TABLE 7B.15-15
APPLICABLE BENCHMARKS AND NUMERIC SIGNIFICANCE THRESHOLDS

Traveller and Trip Type	Daily VMT per Capita	
	Benchmark (region-wide average)	Numeric Threshold of Significance (85% of benchmark)
Worker Home-Based-Work Daily VMT per Worker	16.18	13.75
Resident Home-Based Daily VMT per Capita	17.33	14.73

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

Campus Population

The typical weekday population on the Stanford campus is made up of students, faculty, staff, contractors and other onsite workers, visitors, and household members of students, faculty and staff residing on the campus. The provision of additional on-campus housing under Additional Housing Alternative B would not increase student enrollment or change the total number of employees on the campus in 2035. Additional Housing Alternative B would reduce the number of commuters traveling to the campus compared to the proposed 2018 General Use Permit. However, there would be a substantial increase in campus residential population under Additional Housing Alternative B compared to the proposed Project.

Table 7B.15-16 shows the changes in campus resident populations for Additional Housing Alternative B compared to the proposed Project. Additional Housing Alternative B would increase the total campus resident population by 3,126 persons compared to the campus resident population anticipated under the 2018 General Use Permit. Of this population, 1,849 new residents would be spouses and other household members in the added housing. Overall, campus residents would increase by 16 percent compared to the proposed Project.

a sensitivity analysis was prepared for Worker VMT that did not include the student travel. This analysis was prepared to document that inclusion of the students did not overly influence or obscure the level of VMT per worker generated by the faculty and staff alone.

⁹³ In addition to numeric comparisons to regional benchmarks, OPR presents a third approach that can be used to assess the significance of VMT -- evaluation of the change in total VMT caused by the project. OPR states the third method is useful when a project is likely to divert or substitute trips. This method was considered for evaluation of trips by visitors to the Stanford campus; however, it was determined that the method does not appear to be well-suited to the specifics of Additional Housing Alternative B. OPR has not provided guidance as to how an agency should assess significance using this method if the relevant visitor trips are not of the type that would be redistributed from one location to another.

TABLE 7B.15-16
CAMPUS RESIDENT POPULATIONS – ADDITIONAL HOUSING ALTERNATIVE B

Condition	Total Residents	Stanford Affiliates	Spouses & Other Household Members
Fall 2015 Existing Conditions	12,592	11,468	1,124
Fall 2018 Baseline	13,028	11,888	1,140
2018 General Use Permit (Project)	19,353	17,116	2,237
Additional Housing Alternative B	22,479	18,393	4,086
Change from 2018 General Use Permit	+3,126	+1,277	+1,849
	+16.2%	+7%	+83%

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

The additional Stanford affiliates living on campus would no longer commute from off-campus so worker trip lengths would be shortened. The additional campus residents, including Stanford affiliates, spouses and other household members, would make trips to and from the campus for a variety of purposes, including work, school, recreation, shopping and entertainment. The campus resident populations presented in Table 7B.15-16 are limited to the study area defined by the SB 743 VMT Analysis prepared for the Draft EIR.

Fall 2035 VMT Generation - Additional Housing Alternative B

Using the methodology described in the Draft EIR (pages 5.15-153 to 5.15-154), estimates of worker and resident VMT for Fall 2035 were prepared for Additional Housing Alternative B using the following assumptions. Between Fall 2018 to Fall 2035, the campus is anticipated to add 6,288 employees and contractors with an increase in enrollment of 2,900 students. In 2035, the General Use Permit study area would include 29,915 employees and contractors and an enrollment of 19,513 students. The worker population including employees, contractors and students would be 49,428. These are the same growth assumptions used in the 2035 VMT analysis for the proposed Project.

However, under Additional Housing Alternative B, the campus resident population within the study area would increase by 9,451 persons including Stanford affiliates, spouses and other household members between Fall 2018 and Fall 2035. This represents an increase in resident population of 3,126 persons over the proposed Project.

In addition to an increase in the campus residents, the additional housing would create the need for more construction workers on the campus. For Additional Housing Alternative B, it was assumed that, on average an additional 23 construction workers would be on campus on a typical day.

The resulting Fall 2035 VMT for campus workers and residents is indicated in Table 7B.15-17. Additional Housing Alternative B home-based work VMT per worker, and home-based VMT per resident would be below the SB 743 thresholds, allowing a determination of less-than-significant impacts for Additional Housing Alternative B.

TABLE 7B.15-17
FALL 2035 TYPICAL WEEKDAY VMT – ADDITIONAL HOUSING ALTERNATIVE B

Traveler	Trip Purposes	Population	VMT	VMT per Person ^a	SB 743 Threshold VMT per Person (see Table 7B.15-15)	Finding
Workers	HBW	49,451	216,134	4.37	13.75	Less than Significant
Residents	HBW + HBO	22,479	262,899	11.70	14.73	Less than Significant

^a Worker HBW trips were adjusted by +2% and Resident HB trips were adjusted by +3% to reflect changes in trip length derived from the VTA model.

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

VMT Comparison and Conclusions

Table 7B.15-18 summarizes the SB 743 VMT calculations for the 2018 General Use Permit and Additional Housing Alternative B, focusing on average daily trips by Stanford-affiliated workers between their homes and the Stanford campus, and average daily trips by Stanford campus residents to all destinations. SB 743 VMT calculations are expressed as VMT per worker and VMT per resident. Adding on-campus housing would reduce the average daily VMT per worker by 3.4% under Additional Housing Alternative B, as compared to the proposed Project. These reductions represent fewer trips by Stanford affiliates traveling to and from the campus for work and shorter trip lengths for those Stanford workers living on campus.

TABLE 7B.15-18
COMPARISON OF SB743 VEHICLE MILES TRAVELLED

Condition	Worker w/ Student		Residents	
	VMT	VMT/Worker	VMT	VMT/Resident
2018 General Use Permit (Project)	223,842	4.53	207,986	10.75
Additional Housing Alternative B	216,134	4.37	262,899	11.70
Change from 2018 General Use Permit	-7,708	-0.16	+54,913	+0.95
	-3.4%	-3.5%	+26%	+9%

SOURCE: Fehr & Peers, May 2018 (see Appendix ALT-VMT)

The addition of on-campus housing would increase the average daily VMT per resident by 9% under Additional Housing Alternative B, as compared to the proposed Project. Campus residents include Stanford affiliates, spouses and other household members living in the campus housing units. The daily VMT of residents is for all trip types including work, shopping, recreational, school (K-12), etc. The increase in VMT per resident would be due to the change in the on-campus proportion of faculty/staff housing units as compared to student beds. Faculty/staff units generate higher VMT per resident than student beds.

Impact Evaluation

Impact 7B.15-12: Additional Housing Alternative B would be located within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor. (Less than Significant)

As explained above, OPR has proposed that lead agencies generally should presume that residential, retail, and office projects, as well as mixed-use projects that are a mix of these uses, proposed within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor have a less-than-significant impact on VMT. A major transit stop is a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor means a corridor with fixed route bus with service intervals no longer than 15 minutes during peak commute hours.

Given the major transit stops and stops along high quality transit corridors on and near the Stanford campus, and land area with ½ mile of such stops and corridors, development under Additional Housing Alternative B would constitute infill development that represents increased intensity and density compared to existing levels at Stanford. Stanford is located adjacent to Caltrain stations, and is well-served by transit. Based on the *Revised Proposed Changes to the CEQA Guidelines* proposed by OPR for assessment of VMT, like the proposed Project, Additional Housing Alternative B can be presumed to result in a less-than-significant impact.

Mitigation: None required.

Impact 7B.15-13: Additional Housing Alternative B VMT would not exceed the numeric thresholds recommended by OPR. (Less than Significant)

Even though Additional Housing Alternative B would be presumed to result in a less-than-significant impact under OPR's proposed CEQA Guidelines amendments (see Impact 7B.15-12, above), this EIR also assesses Additional Housing Alternative B's consistency with the numeric significance thresholds suggested by OPR.

Worker and residential daily VMT per capita generated by Additional Housing Alternative B in 2035 and the VMT Thresholds of Significance are shown in Table 7B.15-17. Additional Housing Alternative B home-based work VMT per worker, and home-based VMT per resident are below the significance thresholds, resulting in a less-than-significant impact on VMT.

Mitigation: None required.

Utilities and Service Systems⁹⁴

Approach to Analysis

Water Supply

Project Water Demand

Similar to the WSA prepared for the proposed Project, the WSA for Additional Housing Alternative B used pre-drought conditions (Fiscal Year 2012-13) as the starting point because this captures pre-project conditions more accurately than subsequent years during which drought conditions temporarily but substantially affected campus water usage. The 2012-13 water usage were increased as appropriate to account for the remaining development that would occur under the 2000 General Use Permit, and the increase in water demand that would be associated with development under this alternative. Compared to the proposed Project, this alternative included increased potable water demand with the additional student housing and faculty/staff housing, using the same housing water demand rates for these categories as used in the WSA for the proposed Project. Although it is possible that additional housing constructed for this alternative may replace some existing landscaping, the WSA conservatively assumed there would be no change in irrigation demand from the analysis for the proposed Project.

Total Projected Water Demand and Supply

Table 7B.16-1 presents a summary of actual water demands and supplies for FY 2012-13 and FY 2015-16, and the projected water demands and supplies in 2035 with buildout of Additional Housing Alternative B.

TABLE 7B.16-1
SUMMARY OF POTABLE AND NON-POTABLE WATER SUPPLY AND DEMAND (MILLION GALLONS/DAY) –
ADDITIONAL HOUSING ALTERNATIVE B

Water Use Category	FY 2012-13 (Pre-Drought) Actual	FY 2015-16 (Actual)	2035 Projected (with buildout of Additional Housing Alternative B)
Demand			
Potable	2.10	1.39	2.71
Non-Potable	1.23	0.81	1.35
Total	3.33	2.20	4.06
Supply			
Potable	2.91	2.91	3.03
Groundwater	1.52	1.52	1.52
Surface Water	1.12	1.12	1.12
Total	5.55	5.55	5.67

NOTES: Numbers are rounded.

SOURCE: Schaaf & Wheeler, 2018 (Appendix ALT-WSA)

⁹⁴ The Additional Housing Alternative B environmental analysis presented herein relies in part on a housing alternatives Water Supply Assessment (WSA) prepared by Schaaf & Wheeler Consulting Civil Engineers for Stanford (see Appendix ALT-WSA in this document), a wastewater analysis prepared by Stanford (see Appendix ALT-WAW); and a solid waste analysis prepared by Stanford (see Appendix ALT-SOL). These analyses were independently peer reviewed by ESA.

Dry-Year Scenarios

In order to determine the adequacy of water supplies to meet project demand in non-normal or wet weather years, the WSA for Additional Housing Alternative B also considered Stanford's projected water demands and supplies for normal, single dry, and multiple dry water years; see **Table 7B-16-2** with buildout of Additional Housing Alternative B in 2035. As was the case for the proposed Project, the projection of non-potable usage for this alternative assumes that surface water is the primary source of irrigation supply, and groundwater is used to meet the remaining demand.

TABLE 7B.16-2
SUMMARY OF PROJECTED DRY YEAR SUPPLY AND DEMAND - ADDITIONAL HOUSING ALTERNATIVE B

Water Use Category	Water Year Type				
	Normal Year	Single Dry Year	Multiple Dry Years		
			1	2	3
Supply					
Potable Supply (SFPUC)					
ISG ^a	3.03	2.51	2.51	2.18	2.18
ISL ^b	2.91	2.42	2.42	2.10	2.10
Surface Water Supply	1.12	0.94	0.94	0.06	0.06
Groundwater Supply	1.52	1.52	1.52	1.52	1.52
Total Supply (ISG)	5.67	4.97	4.97	3.76	3.76
Total Supply (ISL)	5.55	4.88	4.88	3.68	3.68
2035 Demands					
Potable Demand	2.71	2.73	2.73	2.31	2.03
met by ISL	2.71	2.51	2.51	2.18	2.03
met by groundwater	0.00	0.22	0.22	0.13	0.00
Non-potable Demand	1.35	1.42	1.42	1.08	1.08
met by surface water	1.12	0.94	0.94	0.06	0.06
met by ground water	0.23	0.48	0.48	1.02	1.02
Total Demand	4.33	4.42	4.42	3.61	3.31

NOTES: Numbers are rounded.

^a ISG = Individual Supply Guarantee allocation from SFPUC

^b ISL = Interim Supply Guarantee Limitation allocation from SFPUC

SOURCE: Schaaf & Wheeler, 2017 (Appendix ALT-WSA)

With respect to dry years, in its 2015 UWMP, the SFPUC advises wholesale customers to anticipate seeing their supply allocations reduced to as low as 83 percent of normal for a single dry year. In multiple dry year scenarios, supply might be further reduced to 72 percent of normal. Therefore, as was assumed for this alternative's analysis, the assumed dry-year supply projections assumed for Additional Housing Alternative B are based on the 83 percent and 72 percent planning factors from the SFPUC.

Impact 7B.16-1: Additional Housing Alternative B would result in the expansion of existing on-campus infrastructure, the construction of which could cause significant environmental effects. (Significant)

As with the proposed 2018 General Use Permit, Additional Housing Alternative B would accommodate construction of campus infrastructure improvements to support new development that would occur under the alternative, including water and wastewater improvements. Since this alternative would involve more on-campus housing development and infrastructure than the proposed Project, it would therefore, involve also more construction than would occur under the proposed Project.

These effects could be associated with construction, such as noise, archeological impacts, air quality impacts such as emissions of dust and other pollutants, including diesel exhaust, and temporary street closures or other traffic obstructions. As with the proposed Project, since on-campus utility improvements are part of the overall anticipated development program under the alternative, the associated construction-related impacts associated with new, relocated or replaced recreational facilities are addressed in the construction impact analyses above under Air Quality, Biological Resources, Cultural Resources, Noise and Vibration, and Transportation and Traffic. Similar to those mitigation measures identified for the proposed Project, the mitigation measures outlined in these respective topics for this alternative to reduce construction related impacts would similarly apply to infrastructure improvements.

Mitigation: Implement the following mitigation measures, as needed for construction of infrastructure improvements:

Air Quality

Mitigation Measure 7B.2-2: Best Management Practices for Controlling Particulate Emissions during Construction.

Mitigation Measure 7B.2-3(a)-(b): Mitigation for Construction TACs and PM_{2.5}.

Biological Resources

Mitigation Measure 7B.3-1(a)-(e): Mitigation for nesting birds during construction.

Mitigation Measure 7B.3-2(a)-(d): Mitigation for special-status bat species during construction.

Mitigation Measure 7B.3-3(a)-(c): Mitigation for San Francisco dusky-footed woodrat during construction.

Mitigation Measure 7B.3-4(a)-(b): Mitigation for special-status plant species during construction.

Mitigation Measure 7B.3-6(a)-(c): Mitigation for steelhead during construction.

Mitigation Measure 7B.3-7(a)-(b): Mitigation for riparian habitat during construction.

Mitigation Measure 7B.3-8(a)-(b): Mitigation for native oak woodland during construction.

Mitigation Measure 7B.3-9(a)-(c): Mitigation for wetlands during construction.

Mitigation Measure 7B.3-11(a)-(c): Mitigation for protected trees during construction.

Cultural Resources

Mitigation Measure 7B.4-2(a)-(b): Mitigation for protection of archaeological resources during construction.

Mitigation Measure 7B.4-3: Mitigation for protection of paleontological resources during construction.

Hazardous Materials

Mitigation Measure 7B.8-2(a)-(c): Mitigation for potentially contaminated soils during construction.

Hydrology and Water Quality

Mitigation Measure 7B.9-1: Review historic wells survey.

Noise and Vibration

Mitigation Measure 7B.11-1: Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors.

Mitigation Measure 7B.11-2: Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.

Mitigation Measure 7B.11-3: Construction Vibration Reduction Plan.

Transportation and Traffic

Mitigation Measure 7B.15-1: Construction Traffic Control Measures.

Significance after Mitigation: Less than Significant.

Impact 7B.16-2: Additional Housing Alternative B development would increase the demand for water, however it would be adequately supplied from existing entitlements and resources. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated water demand than the proposed 2018 General Use Permit. As discussed in Section 5.16, Utilities and Service Systems, Stanford receives its water from water purchased wholesale from the SFPUC, local surface water supplies, and groundwater. The WSA prepared for this alternative (see Approach to Analysis, above) evaluated if the total projected water supplies, determined to be available for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with this alternative.

With respect to normal years, as summarized in Table 7B.16-1, the WSA estimated that Stanford's total water demand upon buildout of this alternative would be approximately 4.06 mgd, consisting of a potable water demand of 2.71 mgd (an increase of 0.27 mgd over the proposed Project), and a non-potable water demand of 1.35 mgd (same as the proposed Project).

Consistent with the WSA prepared for the proposed Project, Stanford's overall water supply with buildout of this alternative would be similar to conditions at present. Stanford's potable water supply allocation from the SFPUC will be 3.03 mgd in 2018, when the ISL expires and the ISG is reinstated. During normal water years, this water allocation would be sufficient to accommodate the potable water demand through buildout of this alternative. Stanford would also maintain existing water rights for surface water diversion of non-potable water of up to 1.12 mgd. In addition, a sustainable groundwater supply of up to 1.52 mgd would be available to provide a supplemental source of non-potable water to serve the alternative. Together, the local surface and groundwater sources would be sufficient to accommodate the non-potable water demand through buildout of the alternative. Collectively, during normal water years, the total estimated water supply 5.67 mgd would be more than adequate to accommodate the total projected water demand of 4.06 mgd with buildout of the alternative.

As shown in Table 7B.16-2, under this alternative, in single dry year and multiple dry water year scenarios, Stanford would need to supplement its potable water supply from SFPUC with treated groundwater from its wells in order to accommodate the estimated increase in potable water demand from the additional on-campus housing.⁹⁵ As under the proposed Project, in multiple dry year scenarios, Stanford would reduce its total potable water demand by 15 percent in the second year and 25 percent in the third year.

Similar to the proposed Project, under this alternative in a single dry year, Stanford's non-potable water demands for plant irrigation would be expected to increase slightly. However, as under the proposed Project, under this alternative, Stanford would implement water conservation measures to reduce non-potable water use by 20 percent in the second and third years of a multiyear drought.

In conclusion, as was the case with the proposed Project, there would be sufficient water supplies to accommodate the water demand from buildout of Additional Housing Alternative B through existing entitlements and resources under normal, single dry, and multiple dry water years. Thus, while this alternative would generate an increased demand for water compared to the Project, this impact would be similarly less than significant.

Mitigation: None required.

⁹⁵ In a single dry water year / multiple dry water year 1, and multiple dry water year 2, the WSA estimates Stanford would provide treated groundwater from its wells to supplement the amounts of 0.22 mgd, and 0.13 mgd, respectively.

Impact 7B.16-3: Additional Housing Alternative B would increase demand for wastewater treatment, but would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated wastewater generation, and correspondingly, and increased need for wastewater treatment, than the proposed 2018 General Use Permit. As discussed in Section 5.16, wastewater generated by Stanford is conveyed off-site to the City of Palo Alto Regional Wastewater Quality Control Plant (RWQCP) for treatment. The RWQCP is owned and operated by the City of Palo Alto, and is funded by several partners, including Stanford.

The analysis of wastewater generation for the proposed Project presented in Section 5.16, Utilities and Service Systems, used a highly conservative methodology that assumed the entirety of the net increase in potable water demand for the proposed Project would become wastewater. However, new data provided by Stanford based on historic metering of Stanford's wastewater flows shows that Stanford's average annual wastewater demand is approximately 70 percent of its average annual domestic water usage. This is considered a more refined approach to estimate wastewater flows attributable to the proposed Project and additional housing alternatives. Use of the 70 percent factor for these scenarios would still be conservative, since it does not account for future conservation measures, such as improved connectivity to the campus recycled water system to these uses, which will serve to further reduce future wastewater flows from the campus.

Using this refined methodology for estimating wastewater generation for the proposed 2018 General Use Permit, Stanford's total projected potable wastewater generation in 2035 with the proposed 2018 General Use Permit would be 1.52 mgd wastewater (this includes wastewater flows from existing development, remaining development to be built under the 2000 General Use Permit plus new development under the proposed Project). These total flows would be within the 2.11 mgd capacity of the RWQCP owned by Stanford. Thus, while development under the proposed 2018 General Use Permit would increase demand for wastewater treatment, the increase would be within its authorized volumes, and would not exceed wastewater treatment requirements by the RWQCB. Consequently, similar to the finding reached in Section 5.16, the proposed Project would generate a less-than-significant impact to wastewater treatment.

Similarly, using this refined methodology for estimating wastewater generation for Additional Housing Alternative B, Stanford's total projected potable wastewater generation in 2035 with this alternative would be 1.71 mgd wastewater, an increase of 0.19 mgd over the proposed Project). These total flows would be within the 2.11 mgd capacity of the RWQCP owned by Stanford. Thus, similar to the proposed Project, while development under this alternative would increase demand for wastewater treatment, the increase would be within its authorized volumes, and would not exceed wastewater treatment requirements by the RWQCB. Consequently, as with the proposed Project, this alternative would generate a less-than-significant impact to wastewater treatment.

Mitigation: None required.

Impact 7B.16-4: Additional Housing Alternative B would discharge additional flows to the municipal sewer and drainage system, but not to an extent which would exceed the facilities' capacity in light of existing commitments. (Less than Significant)

Additional Housing Alternative B would involve more on-campus housing and associated wastewater generation than the proposed 2018 General Use Permit. Wastewater generated by Stanford is collected in its sanitary sewer system and then conveyed off-site to and through City of Palo Alto sewer lines to the RWQCP. Using the refined methodology for estimating wastewater generation presented in Impact 7B.16-3, above, for the proposed 2018 General Use Permit, an increase in Stanford wastewater generation of approximately 0.42 mgd (conservatively accounting for the proposed 2018 General Use Permit increase and contribution from any remaining unbuilt development under 2000 General Use Permit), would be equivalent to an average increase in daily flow of approximately 292 gpm. This increased flow added to measured dry weather peak flow of 1,700 gpm would remain well below this City sewer main's capacity at 4,370 gpm.

Using the same refined methodology for this alternative, an increase in Stanford wastewater generation of approximately 0.61 mgd (accounting for the alternative and contribution from any remaining unbuilt development under 2000 General Use Permit), would be equivalent to an average increase in daily flow of approximately 424 gpm (an increase of 132 gpm over the proposed Project). Similar to the proposed Project, this increased flow added to measured dry weather peak flow of 1,700 gpm would remain well below this City sewer main's capacity at 4,370 gpm.

Given these results, and considering that the City of Palo Alto indicates there are no capacity deficiency issues for any of the City collection mains that carry wastewater flows from the campus to the RWQCP, the increase in flow under this alternative, would not exceed the City of Palo's sewer collection capacity. Similar to the conclusion reached for the proposed Project, the impact under this alternative would be less than significant.

Mitigation: None required.

Impact 7B.16-5: Additional Housing Alternative B construction would result in an increased generation of solid waste, but would not exceed permitted capacity to accommodate the Project's solid waste disposal needs or conflict with federal, State, and local statutes and regulations related to solid waste. (Less than Significant)

Additional Housing Alternative B would involve more construction and demolition activities than the proposed 2018 General Use Permit and consequently, would generate more construction debris, some of which would require disposal. The alternative would be expected to result in an average of approximately 292,500 square feet of construction (an increase of 67,000 square feet over the proposed Project) and 51,500 square feet of demolition (an increase of 1,200 square feet over the proposed Project) per year through 2035. Based on the most conservative construction and demolition waste estimates provided by the USEPA (similar to those estimated for the proposed Project in Section 5.16), the annual construction and demolition under this alternative would result

in an estimated 4,710 tons of solid waste per year (an increase of 241 tons per year over the proposed Project). Assuming 50 percent of all construction waste is diverted from landfills through source reduction, recycling, and composting activities per Stanford procedures and policies, consistent with CCR Title 24, the Project would generate an estimated 2,355 tons of waste per year (an increase of 120 tons per year over the proposed Project) that would be disposed at a landfill.

As discussed in Section 5.16, as of 2012, Zanker Road Landfill (which currently receives construction/demolition debris from Stanford) had a total remaining capacity of 700,000 cubic yards with an expected closure date of 2029. In addition, other existing landfills are available that would remain operational could be utilized and would have more than adequate capacity to accommodate the construction debris generated by this alternative. As a result, similar to the proposed Project, construction debris generated under this alternative would not exceed permitted landfill capacity nor violate any state or federal regulation related to solid waste, and similar to the proposed Project, the impact from this alternative would be less than significant.

Mitigation: None required.

Impact 7B.16-6: Operation of Additional Housing Alternative B would comply with federal, state, and local statutes and regulations related to solid waste and would be adequately served by existing landfills with sufficient permitted capacity to accommodate the Project's solid waste disposal needs. (Less than Significant)

Additional Housing Alternative B would involve more housing development, and consequently, would generate more solid waste than the proposed 2018 General Use Permit requiring disposal. Using the same per capita generation rates as those used for the proposed Project in Section 5.16, this alternative would generate a net increase of approximately 7,749 tons of discards per year (an increase of 1,368 tons over the proposed Project), consisting of approximately 2,827 tons of landfill waste per year (an increase of 499 tons over the proposed Project), and 4,922 tons of recyclables per year (an increase of 869 tons over the proposed Project). When considered in combination with the existing waste generation, Stanford would generate approximately 32,434 tons of discards per year, consisting of 11,772 tons of landfill waste per year, and 20,662 tons of recyclables per year with this alternative.

As discussed in Section 5.16, the Newby Island Sanitary Landfill (which currently receives the majority of Stanford's solid waste) has maximum permitted throughput for up to 4,000 tons of waste per day. Similar to the proposed Project, the total operational solid waste that would be generated under this alternative that requires landfilling would represent less than one percent of the maximum daily permitted throughput at this landfill. Furthermore, this landfill has a remaining capacity of 21.2 million cubic yards, with an anticipated closure in January 2041; and therefore can accommodate solid waste disposal needs of the Project through the duration of this alternative.

Based on the existing disposal rates and continued waste diversion by residents and employees of Stanford, this alternative, similar to the proposed Project, would continue to allow Stanford be in compliance with CALGreen and AB 939. Given the above, operation of this alternative would

not exceed available permitted landfill capacity and would comply with federal, state, and local statutes and regulations related to solid waste diversion; and similar to the proposed Project, the impact would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 7B.16-7: Implementation of Additional Housing Alternative B, in combination with past, present, and future projects would contribute to cumulative increases in demand for water supplies. (Less than Significant)

The WSA for Additional Housing Alternative B demonstrates there, similar to that determined for the proposed Project, there are adequate water supplies to accommodate the water demand from buildout of this alternative through existing entitlements and resources under normal and sequentially dry weather years.

As discussed in Section 5.16, Stanford provides usage statistics and demand projections to the SFPUC and SCVWD who incorporate this data into their respective UWMPs. The SFPUC and SCVWD UWMPs, as well as the City of Palo Alto's 2015 UWMP, indicate that each urban water supplier has sufficient water supply to meet demand in normal years and sequential dry-weather years. The SFPUC's 2015 UWMP considers that Stanford's purchase requests will increase, and the SCVWD UWMP also includes increases in Stanford's total water demand projections. The WSA prepared for this alternative determined that the Stanford's projected potable water demand for this alternative, while higher than the proposed Project, would still be met through Stanford's ISG under normal water years, and could be supplemented with treated groundwater in single or multiple dry water years. The WSA showed Stanford's non-potable water demand under this alternative would be similar to the Project, and would continue to be met by existing surface water entitlements and groundwater.

Similar to the proposed Project, the cumulative water supply needs of this alternative in combination with past, present, and reasonably foreseeable projects within the SFPUC wholesale service territory during normal, single-, and multiple-dry years could be met by 1) State voluntary and mandatory water conservation and water efficiency measures, 2) SFPUC voluntary and mandatory water conservation and water efficiency measures, 3) City water conservation measures called for in the municipal code and emergency conservation ordinance, 4) BAWSCA's long-term water supply strategy, and 5) SFPUC's WSIP improvements as identified in each of their UWMPs.

Cumulative projects would contribute to additional water demands. However, future projects would be subject to the same water conservation efforts, water efficiency measures, and water supply improvements to balance supply and demand as would this alternative required by the state and regional enforcement bodies. In particular, cumulative projects within the SFPUC wholesale service area would be subject to State and SFPUC voluntary and mandatory conservation measures to reduce usage, the BAWSCA's long-term water supply strategy to

enhance supplies, and the SFPUC's WSIP projects to improve the regional water system reliability and capacity. There would be adequate water supplies to serve this alternative in combination with other reasonably foreseeable projects in the SFPUC wholesale service area.

Therefore, cumulative impacts to water supply would be less than significant.

Mitigation: None required.

Impact 7B.16-8: Implementation of Additional Housing Alternative B, in combination with past, present, and future projects would contribute to cumulative increases in demand for wastewater treatment. (Less than Significant)

The cumulative setting for wastewater treatment would extend to the entire service area of the RWQCP. Under each of the growth scenarios considered in the update to the City of Palo Alto's Comprehensive Plan, future wastewater generation would increase by less than five percent of the available treatment capacity at the RWQCP, which would be far below its design and permitted wastewater treatment capacity. As addressed under Impact 7B.16-3, similar to that determined for the proposed Project, the future increases in wastewater flows from this alternative would be within the 2.11 mgd capacity permitted by the RWQCP for Stanford's use.

Based on the cumulative wastewater treatment demand anticipated under buildout of the 2030 Comprehensive Plan, demand generated by residents within Palo Alto, Stanford, and the remaining service area for the RWQCP would be below the facility's excess capacity. As a partner in the RWQCP, Stanford pays its fair share of capital costs, and would continue to do so over the life of this alternative.

With adequate capacity for cumulative wastewater treated at RWQCB, treatment would be provided according to the wastewater treatment requirements documented in the NPDES permit for the RWQCP and enforced by the San Francisco RWQCB. Therefore, cumulative development combined with this alternative would not exceed wastewater treatment requirements, and cumulative impacts to wastewater treatment would be less than significant.

Mitigation: None required.

Impact 7B.16-9: Implementation of Additional Housing Alternative B, in combination with past, present, and future projects would contribute to cumulative increases in demand for landfill space. (Less than Significant)

While Stanford currently relies primarily on the Newby Island Sanitary Landfill and Zanker Road Class III landfill, countywide, there are 20 additional landfills for which capacity is available. All past, present, and foreseeable future projects have been and would be required to demonstrate that adequate landfill capacity is available to accommodate increased waste prior to

any project approvals. Such projects have been and would also be required to comply with the recycling and reuse measures and targets established by CALGreen and AB 939 for construction and operational waste. Therefore, this alternative, in conjunction with other development, would not have a significant cumulative impact associated with solid waste, and this alternative's cumulative impact would be less than significant.

Mitigation: None required.

Environmental Consequences of Stanford Providing Off-Campus Housing under Additional Housing Alternative B

Impact 7B.17-1: Under Additional Housing Alternative B, the construction and/or operation of off-site housing by Stanford would result in off-site environmental impacts. (Significant)

Although Additional Housing Alternative B assumes that half of the new housing demand would be provided on-campus, under this alternative, Stanford could elect to, subject to approval by the County, offset some or all of the incremental off-campus housing demand by providing off-campus housing. The growth in Stanford student, faculty, staff, postdoctoral student and other worker households that would live off-site would be distributed among many jurisdictions in the Bay Area. Assuming that future off-campus residents distribute in patterns similar to how current off-campus residents live, these jurisdictions are listed in Draft EIR Table 5.12-11.

With respect to affordable housing, as under the proposed Project, affordable housing impact in-lieu payments could be made under this alternative would support development of affordable housing within one-half mile of any major transit stop or a high-quality transit corridor in the Bay Area.

Based upon Stanford's historical development of off-campus housing projects in the cities of Palo Alto, Menlo Park, and Los Altos, and the location of residence of existing Stanford affiliates based on Stanford's 2016 Commute Survey, the potential indirect impacts of distributing the Additional Alternative B's off-campus housing demand within the cities of Palo Alto, Menlo Park, and Mountain View provide a representative analysis of the indirect impacts that would more broadly occur among the Bay Area jurisdictions. Specifically, as described in the Draft EIR, Palo Alto is currently home to approximately 19 percent of off-campus students, faculty, and staff; Menlo Park has 9 percent; and Mountain View has nearly 10 percent.⁹⁶ Therefore, the potential effects of any off-campus housing development projects that Stanford would potentially provide under Additional Housing Alternative B would disproportionately affect these jurisdictions compared to other communities in the Bay Area that house Stanford affiliates.

All three cities have adopted updates to their respective general plans within the last six years. The effects of population growth expected to occur during the next several decades resulting from such growth, including from residential housing development that may be associated with

⁹⁶ Stanford University 2018 General Use Permit Draft EIR Appendix PHD, Table 13.

Stanford off-campus housing demand, have been analyzed in the Final EIRs for each respective general plan. While there are differences regarding how the analyses were conducted and how they are described in the Final EIRs for each plan, significant impacts were identified for all three communities regarding air quality and transportation. It is reasonable to assume that the general plans for these communities accounted for the population growth associated with Stanford affiliates residing within each respective jurisdiction and that any off-campus housing provided by Stanford in more distant communities would have similar impacts as those identified below. Of course, the effects of population growth anticipated in those three Final EIRs include the impacts of all growth, only some of which could be growth caused indirectly by this alternative.

Any new off-campus housing constructed as result of this alternative, including affordable housing units, would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which this off-campus housing would be located. For purposes of this EIR, the impacts associated with the demand for off-site housing units are being analyzed as indirect impacts of this alternative.

City of Palo Alto

Palo Alto adopted an update to its general plan, *Comprehensive Plan 2030*, on November 13, 2017 (City of Palo Alto, 2017a). The Final EIR prepared for the update analyzed six unique scenarios for growth in Palo Alto through 2030 (City of Palo Alto, 2017b). The total number of new housing units constructed by 2030 under the six scenarios ranged from a low of 2,720 under the “business as usual” scenario to 6,000 units under the most aggressive housing scenario. The City Council developed a “Preferred Scenario” that would result in 3,545 to 4,420 new housing units in the city by 2030.

The effects of such growth anticipated to occur under the general plan update were considered in the Final EIR. Most impacts were determined to be less than significant through implementation of identified mitigation measures. However, several impacts related to air quality and transportation/traffic were determined to remain significant and unavoidable, as summarized below:

- AIR-2: Implementation of the proposed Plan could violate an air quality standard; contribute substantially to an existing or project air quality violation; and/or result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (All Six Scenarios)
- TRANS-1: Implementation of the project would cause an intersection to drop below its motor vehicle level of service standard, or deteriorate operations at representative intersections that already operate at a substandard level of service. (All Six Scenarios)
- TRANS-3: Implementation of the project would cause a freeway segment or ramp to drop below its level of service standard, or deteriorate operations that already operate at a substandard level of service. (All Six Scenarios)
- TRANS-6: Implementation of the project would impede the operation of a transit system as a result of congestion. (All Six Scenarios)

Regarding air quality, implementation of the general plan under all scenarios would generate a substantial increase in criteria air pollutant emissions from on-site sources, vehicle trips, and energy use, which would result in a significant, unmitigable impact. Emissions generated during construction associated with individual development projects permitted under the proposed plan also would generate significant levels of criteria air pollutants and toxic air contaminants. Under all six scenarios, the plan would cause multiple intersections to drop below their motor vehicle level of service standard, or deteriorate operations at intersections that already operate at a substandard level. Up to eight intersections were determined to have significant intersection impacts, and seven freeway segments or ramps on U.S. 101 and I-280 also would drop below level of service standards. In addition, the degradation in level of service would impede the operation of a transit system as a result of congestion.

City of Menlo Park

Menlo Park adopted its current general plan, *ConnectMenlo*, on November 29, 2016 (City of Menlo Park, 2016a). In addition to the proposed plan and no project alternatives, the Final EIR analyzed two reduced intensity scenarios (City of Menlo Park, 2016b). The number of housing units that could be constructed by 2040 ranged from 1,000 under the no project-business as usual alternative to 5,500 units under the proposed plan. The Final EIR prepared for the general plan identified significant and unavoidable impacts for air quality, GHG emissions, transportation and circulation, and population and housing (cumulative), as summarized below:

- AQ-2a: Despite implementation of the proposed project policies as identified in Chapter 4.2, Air Quality, Table 4.2-8, criteria air pollutant emissions associated with the proposed project would cause a substantial net increase in emissions that exceeds the Bay Area Quality Management District (BAAQMD) regional significance thresholds.
- AQ-2b: Despite implementation of the proposed project policies, criteria air pollutant emissions associated with the proposed project construction activities would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- AQ-5: Despite implementation of the General Plan policies, criteria air pollutant emissions associated with the General Plan would generate a substantial net increase in emissions that exceeds the Bay Area Air Quality Management District (BAAQMD) regional significance thresholds.
- GHG-1: The proposed project would result in a substantial increase in GHG emissions from existing conditions by the proposed General Plan horizon year 2040 and would not achieve the 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Additional state and federal actions are necessary to ensure that state and federally regulated sources (i.e., sources outside the City's jurisdictional control) take similar aggressive measures to ensure the deep cuts needed to achieve the 2050 target.
- GHG-2: While the proposed project supports progress toward the long term-goals identified in Executive Order B-30-15 and Executive Order S-03-05, it cannot yet be demonstrated that Menlo Park will achieve GHG emissions reductions that are consistent with a 40 percent reduction below 1990 levels by 2030 or an 80 percent reduction below

1990 levels by the year 2050 based on existing technologies and currently adopted policies and programs.

- POP-4: Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to population and housing.
- TRANS-1a: Implementation of the proposed project would exceed the City's current impact thresholds under the 2040 Plus Project conditions at some roadway segments in the study area.
- TRANS-1b: Implementation of the proposed project would result in increased delay to peak hour motor vehicle traffic exceeding the significance threshold at some of the study intersections.
- TRANS-2: Implementation of the proposed project would result in impacts to Routes of Regional Significance.
- TRANS-6a: Implementation of the proposed project would not provide adequate pedestrian or bicycle facilities to connect to the area-wide circulation system.
- TRANS-6b: The project would generate a substantial increase in transit riders that cannot be adequately serviced by existing public transit services, and the project would generate demand for transit services at sites more than one-quarter mile from existing public transit routes.

Similar to the determination of Palo Alto's Final EIR, implementation of Menlo Park's general plan would result in generation of criteria air pollutant emissions that would result in significant impacts during construction and operation. GHG emissions were determined to be significant and unavoidable as the emissions generated would not achieve a 2040 efficiency target, which is based on a trajectory to the 2050 goal of an 80 percent reduction from 1990 levels pursuant to Executive Order S-03-05. Five significant impacts were identified for transportation: exceedances of impact thresholds at roadway segments; increased delay to peak hour motor vehicle traffic thresholds; impacts to Routes of Regional significance; inadequate provision of pedestrian or bicycle facilities; and generation of a substantial increase in transit riders that cannot be adequately served by existing public transit services.

City of Mountain View

Mountain View's 2030 General Plan (adopted July 10, 2012) determined that 8,970 new housing units could be developed in the city by 2030 (City of Mountain View, 2012a). The general plan Final EIR identified significant impacts for Air Quality, Noise, and Transportation, as summarized below (City of Mountain View, 2012b):

- TRANS-1: Implementation of the Draft General Plan and GGRP would result in increased daily land-use-based vehicle miles of travel (VMT) per service population in 2030 due to population and employment growth planned within the City.
- TRANS-2a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would

result in decreased roadway segment levels of service on one roadway study segment (39. San Antonio Road between SB US 101 Ramps and Charleston Road).

- TRANS-2b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased roadway segment levels of service on several roadway study segments.
- TRANS-3a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-3b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion, which would result in decreased freeway segment levels of service on several freeway study segments.
- TRANS-4a: Under Existing Plus Draft General Plan Conditions 2009, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- TRANS-4b: Under Draft General Plan Conditions 2030, implementation of the proposed project would increase motor vehicle traffic and congestion outside the City of Mountain View.
- AIR-2: Implementation of the Draft General Plan and GGRP could contribute to or result in a violation of air quality standards in the existing and cumulative conditions by increasing VMT greater than the population increase.
- AIR-4: Implementation of the Draft General Plan and GGRP would result in a cumulatively considerable net increase in ozone and particulate emissions.
- NOI-1: Increased traffic from projected development under the Draft General Plan and GGRP would result in a significant increase in traffic noise levels compared to existing conditions in the 2030 and cumulative conditions along some roadway and freeway segments in the City.

Regarding air quality, impacts would result from violation of air quality standards by increasing VMT greater than the population increase, and the cumulatively considerable net increase in ozone and particulate emissions. Increased traffic noise levels along some roadway and freeway segments would be significant. Significant transportation impacts included the following: increased daily land-use-based VMT due to population and employment growth; increased motor vehicle traffic and congestion, which would result in decreased roadway and freeway segments level of service; and increased motor vehicle traffic and congestion outside the city.

Conclusion

Although the above analysis focuses on the impacts in three cities where housing locations are reasonably foreseeable, similar impacts would likely occur in other Bay Area jurisdictions where off-campus housing would be located. As discussed above, any new off-campus housing that may be developed by Stanford under Additional Housing Alternative B would be required to comply with CEQA prior to consideration of approval of the jurisdictional agency(ies) in which

this off-campus housing would be located. As such, the implementation of any mitigation measures to reduce associated environmental impacts, in particular those included in or required by General Plan EIRs, would depend on the actions of those jurisdictions.

Mitigation Measure 7B.17-1: The local governmental agencies in which off-campus affordable housing that would be developed by Stanford would be located can and should mitigate the environmental impacts from off-campus housing to the extent feasible.

Significance after Mitigation: Significant and Unavoidable.

Given uncertainties in the specific location and type of off-campus housing that may occur under this alternative, it is also uncertain if feasible mitigation would exist to reduce all significant environmental impacts to a less than significant level. Further, the County cannot require or guarantee that local governments would implement mitigation measures for off-campus housing included in or required by General Plan EIRs. For these reasons, the impact is determined to be significant and unavoidable.

Ability to Meet Project Objectives

Additional Housing Alternative B would fail to achieve the primary project objective to develop the campus in a manner that reflects Stanford's historical growth rates and the growth assumptions in Stanford's approved Sustainable Development Study. The additional housing contemplated by this alternative would exceed Stanford's historic growth rates and the assumptions in the Sustainable Development Study, and would result in more intense development and construction activity than has occurred over the past several decades. The alternative would add approximately 1.2 million square feet of development to the Stanford campus above the square footage proposed by the 2018 General Use Permit.

This alternative also would also not fully achieve the following more specific project objectives to: continue to allow Stanford flexibility to develop its lands within a framework that minimizes potential negative effects on the surrounding community; enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique Escondido Village (EV) Graduate Student Residences Project; and prioritize use of campus lands within unincorporated Santa Clara County for academic and academic support facilities, student housing, and faculty housing.

7.5 Summary Comparison of Alternatives

Table 7-4 provides a summary of comparison of impacts of the proposed Project and the Project Alternatives, and indicates whether the impacts of the Project Alternatives are more or less severe than those of the proposed Project.

TABLE 7-4
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.1 Visual and Scenic Resources							
5.1-1: The Project would not adversely affect scenic vistas.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.1-2: The Project could damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	LTS	- LTS	- LTS	- LTS	=/+ LTS	= LTS	= LTS
5.1-3: The Project could degrade the existing visual character or quality of the site and its surroundings.	LTS	- LTS	- LTS	- LTS	=/+LTS	+ LTS	+ LTS
5.1-4: The Project could create a new source of substantial light or glare that would adversely affect nighttime views in the area.	S/M	- LTS	- LTS	- LTS	=/+LTS	= LTS	= LTS
5.1-5: The Project, in combination with past, present, and future projects could potentially contribute to cumulative visual and scenic resource impacts.	S/M	- LTS	- LTS	- LTS	=/+ LTS	=/+ LTS	=/+ LTS
5.2 Air Quality							
5.2-1: Project construction would not result in emissions of NOx, PM, and ROGs that would exceed BAAQMD significance thresholds.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.2-2: Project construction would generate fugitive dust that could result in a localized increase in particulate matter.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.2-3: Project construction would generate emissions of TACs and PM2.5 that could expose sensitive receptors to substantial pollutant concentrations or health risks.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.2-4: Project operational emissions from new development would not result in emissions of criteria air pollutants at levels that would violate an air quality standard, contribute to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants.	LTS	- LTS	- LTS	- LTS	= LTS	S/U	+ LTS
5.2-5: Project operation of development would generate emissions of TACs and PM2.5 that could expose sensitive receptors to substantial pollutant concentrations or health risks.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.2-6: Proposed Project operations would not result in local concentrations of carbon monoxide that would exceed State and federal standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
S/U Significant and unavoidable impact S/M Significant impact, but mitigable to a less than significant level LTS Less than significant impact - Lesser impact than that of the proposed project. = Same (or similar) impact as that of the proposed project. =/+ Same or greater impact than that of the proposed project							

TABLE 7-4 (CONTINUED)
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.2 Air Quality (cont.)							
5.2-7: Project operation of development would not create objectionable odors that would affect a substantial number of people.	LTS	- LTS	- LTS	- LTS	= LTS	= <u>LTS</u>	= <u>LTS</u>
5.2-8: Project operation of development could conflict with or obstruct implementation of the applicable air quality plan.	S/M	- S/M	- S/M	- S/M	= S/M	<u>S/U</u>	+ <u>S/M</u>
5.2-9: The Project would not result in emissions of NOx, PM, or ROGs that are cumulatively considerable.	LTS	- LTS	- LTS	- LTS	= LTS	<u>S/U</u>	+ <u>LTS</u>
5.2-10: The Project could considerably contribute to cumulative emissions of TACs and PM _{2.5} that could expose sensitive receptors to substantial pollutant concentrations or health risks.	S/M	- S/M	- S/M	- S/M	= S/M	+ <u>S/M</u>	+ <u>S/M</u>
5.3 Biological Resources							
5.3-1: Project activities could result in adverse effects on special-status and migratory birds.	S/M	- S/M	- S/M	- S/M	= S/M	+ <u>S/M</u>	+ <u>S/M</u>
5.3-2: Project activities could result in adverse effects on special-status bats.	S/M	- S/M	- S/M	- S/M	= S/M	+ <u>S/M</u>	+ <u>S/M</u>
5.3-3: Project activities could result in adverse effects on the San Francisco dusky-footed woodrat.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>
5.3-4: Project construction activities could result in adverse effects on special-status plant species.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>
5.3-5: Project activities would not result in significant effects on federal and state protected species covered by the Stanford Habitat Conservation Plan.	LTS	- LTS	- LTS	- LTS	= LTS	= <u>LTS</u>	= <u>LTS</u>
5.3-6: Project activities could result in significant effects on steelhead.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>
5.3-7: Project activities could result in substantial loss or degradation of riparian habitat.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>
5.3-8: Project activities could result in the loss of native oak woodland habitat.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>
5.3-9: Project construction activities could result in substantial adverse effects on jurisdictional waters and wetlands.	S/M	- S/M	- S/M	- S/M	= S/M	= <u>S/M</u>	= <u>S/M</u>

S/U Significant and unavoidable impact

S/M Significant impact, but mitigable to a less than significant level

LTS Less than significant impact

- Lesser impact than that of the proposed project.

= Same (or similar) impact as that of the proposed project.

=/+ Same or greater impact than that of the proposed project

TABLE 7-4 (CONTINUED)
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.3 Biological Resources (cont.)							
5.3-10: Implementation of the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LTS	- LTS	- LTS	- LTS	= LTS	<u>= LTS</u>	<u>= LTS</u>
5.3-11: Implementation of the project could conflict with local Santa Clara County tree preservation ordinance.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.3-12: Implementation of the Project could cumulatively cause an adverse impact to biological resources.	S/M	- S/M	- S/M	- S/M	= S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.4 Cultural Resources							
5.4-1: Project development could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.	S/U	- S/U	- S/U	- S/U	- LTS	<u>+ S/U</u>	<u>+ S/U</u>
5.4-2: Project development could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.4-3: Project development could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.4-4: Project Development could disturb human remains, including those interred outside of dedicated cemeteries.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.4-5: Project development could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.4-6: Project development, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments, could contribute considerably to significant cumulative adverse changes in the significance of historical resources.	S/U	- S/U	- S/U	- S/U	- LTS	<u>+ S/U</u>	<u>+ S/U</u>

S/U Significant and unavoidable impact

S/M Significant impact, but mitigable to a less than significant level

LTS Less than significant impact

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TABLE 7-4 (CONTINUED)
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	<u>Additional Housing Alternative A</u>	<u>Additional Housing Alternative B</u>
		No Project/No Development	No Project / Individual Use Permits				
5.4 Cultural Resources (cont.)							
5.4-7: Ground-disturbing activities undertaken as part of the Project could cumulatively cause a substantial adverse change in the significance of an archaeological resource, paleontological resource, or tribal cultural resource, or disturb human remains during construction.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.5 Energy Conservation							
5.5-1: Project development would not result in the use of fuel, water, or energy in wasteful or inefficient manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.5-2: Project development, in conjunction with other cumulative development and growth, would not contribute to cumulative increases in demand for energy which would result in the use of large amounts of fuel, water, or energy, or use these in wasteful manner, or create demand on local and regional energy supplies that would require additional energy generation or transmission capacity, the construction of which would result in a substantial adverse environmental effect.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.6 Geology and Soils							
5.6-1: Project construction would not result in substantial soil erosion or loss of topsoil.	LTS	- LTS	- LTS	- LTS	=/+ LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.6-2: Project development would not expose people or structures to substantial adverse effects from ground shaking.	LTS	- LTS	- LTS	- LTS	=/+ LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.6-3: Project development would not expose people or structures to potential substantial adverse effects associated with liquefaction or lateral spreading, including the risk of loss, injury or death, in the event of a major earthquake on one of the regional active faults.	LTS	- LTS	- LTS	- LTS	=/+ LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.6-4: Project development would not expose people or structures to potential substantial adverse effects associated with landslides, including the risk of loss, injury or death, in the event of a major earthquake on one of the other regional active faults.	LTS	- LTS	- LTS	- LTS	=/+ LTS	<u>+ LTS</u>	<u>+ LTS</u>

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TABLE 7-4 (CONTINUED)
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.6 Geology and Soils (cont.)							
5.6-5: Project development would not result in substantial soil erosion or the loss of topsoil.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.6-6: Project development would not result in substantial adverse effects from on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse as a result of being located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project development.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.6-7: Development under the proposed Project would not be located on expansive soils that would create substantial risks to life or property.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.6-8: Development facilitated by the proposed Project, combined with past, present, and reasonably foreseeable probable projects, would not result in substantial adverse cumulative impacts to geology, soils, or seismic hazards.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.7 Greenhouse Gas Emissions							
5.7-1: The Project would not generate greenhouse gas emissions, either directly or indirectly, that would have a cumulatively considerable contribution to global climate change.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.7-2: The Project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.8 Hazards and Hazardous Materials							
5.8-1: Under the proposed Project, demolition of existing structures that contain hazardous building materials would not create a significant hazard associated with exposure of workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.8-2: Under the proposed Project, construction projects could disturb soil and groundwater contaminated by historical hazardous material use, which could present risks the health of construction workers, the public, and/or the environment.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M

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COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.8 Hazards and Hazardous Materials (cont.)							
5.8-3: Improper handling or storage of hazardous materials during Project construction activities could result in spills would not significantly increase public health and/or safety risks to future residents, maintenance workers, visitors, and the public and environment in the area surrounding the spill.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.8-4: Operation of uses developed under the proposed Project that could involve the transportation, use, storage and disposal of hazardous materials, would not present significant public health and/or safety risks to residents, visitors, and the surrounding area.	LTS	- LTS	- LTS	- LTS	= LTS	= LTS	= LTS
5.8-5: Hazardous materials used at facilities operating under the Project could potentially be spilled through upset or accidental conditions, but would not significantly increase public health and/or safety risks to future residents, workers, visitors, and the surrounding area.	LTS	- LTS	- LTS	- LTS	= LTS	= LTS	= LTS
5.8-6: New development under the proposed Project could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, thus, could result in a safety hazard to the public or environment.	S/M	- S/M	- S/M	- S/M	= S/M	+ LTS	+ LTS
5.8-7: Implementation of the Project could result in hazardous emissions or handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school, but would not create a significant hazard to those facilities.	LTS	- LTS	- LTS	- LTS	= LTS	= LTS	= LTS
5.8-8: Development facilitated by the Project would not substantially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.8-9: Development under the Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.8-10: Hazards at the Project site, in combination with past, present, and future projects could potentially contribute to cumulative hazards.	S/M	- S/M	- S/M	- S/M	= S/M	= S/M	= S/M
5.8-11: The Project, in combination with past, present, and future projects would not substantially impair implementation or physically interfere with emergency response or evacuation plans.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS

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COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.8 Hazards and Hazardous Materials (cont.)							
5.8-12: The Project, in combination with past, present, and future projects would not substantially contribute cumulatively to exposure to wildland fires.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.9 Hydrology and Water Quality							
5.9-1: Project construction could violate water quality requirements or waste discharge requirements, or otherwise degrade water quality.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.9-2: Project construction could include temporary dewatering, but would not substantially deplete groundwater supplies or cause a lowering of the water table.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.9-3: Operation of the Project would not violate water quality requirements or waste discharge requirements, or otherwise substantially degrade water quality.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.9-4: Project operation could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.9-5: Project development would potentially alter the drainage pattern of the Project site, but would not result in substantial erosion or siltation on or off the site.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.9-6: Project development would create runoff, but would not exceed the capacity of existing or planned stormwater infrastructure, or result in flooding on- or off-site.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS
5.9-7: The Project, in combination with past, present, and future projects could potentially contribute to surface and groundwater quality impacts.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.9-8: The Project, in combination with past, present, and future projects could potentially contribute to depletion in groundwater supplies or interfere with groundwater recharge.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.9-9: The Project, in combination with past, present, and future projects would not result in substantial adverse cumulative surface hydrology impacts.	LTS	- LTS	- LTS	- LTS	=/+ LTS	+ LTS	+ LTS

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TABLE 7-4 (CONTINUED)
COMPARISON OF IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.10 Land Use and Planning							
5.10-1: The Project could conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	- LTS	- LTS	- LTS	- LTS	+ LTS	+ LTS
5.10-2: The Project, in combination with past, present, and future projects could potentially contribute to cumulative land use impacts.	LTS	- LTS	- LTS	- LTS	- LTS	+ LTS	+ LTS
5.11 Noise and Vibration							
5.11-1: The Project could expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.11-2: Project construction could result in a substantial temporary or periodic increase in ambient noise levels in the Project site vicinity.	S/U	- S/U	- S/U	- S/U	=/+ S/U	+ S/U	+ S/U
5.11-3: Project construction could result in temporary exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels in the Project site vicinity.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.11-4: The Project could increase long-term noise levels in the Project vicinity to levels in excess of applicable noise standards.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.11-5: Project traffic would not substantially increase traffic noise levels in the vicinity of the Project site.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.11-6 Project construction noise, in combination with past, present, existing, approved, pending and reasonably foreseeable future developments could contribute considerably to cumulative noise impacts.	S/U	- S/U	- S/U	- S/U	=/+ S/U	+ S/U	+ S/U
5.11-7: Project traffic in combination with traffic from cumulative development would not contribute considerably to cumulative noise impacts.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.12 Population and Housing							
5.12-1: The proposed Project would not directly induce substantial population growth by proposing new homes or businesses, and indirectly through the extension of infrastructure.	LTS	- LTS	- LTS	- LTS	= LTS	- LTS	- LTS

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Impact	Proposed Project	No Project Alternative		Reduced Project	Historic Preservation	Additional Housing Alternative A	Additional Housing Alternative B
		No Project/No Development	No Project / Individual Use Permits				
5.12 Population and Housing (cont.)							
5.12-2: The Project, in combination with past, present, and future projects would not result in substantial adverse cumulative population and housing impacts.	LTS	- LTS	- LTS	- LTS	= LTS	- LTS	- LTS
5.13 Public Services							
5.13-1: Project construction could increase demand for fire protection, emergency medical service and police protection services but would not result in an adverse physical impact from the construction of additional fire protection, emergency medical, or police protection facilities in order to maintain acceptable performance standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.13-2: Operation of uses under the Project would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional fire protection facilities in order to maintain acceptable performance standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.13-3: Operation of development under the proposed Project would increase demand for police protection services.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.13-4: The proposed Project would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.13-5: Implementation of the proposed Project in combination with past, present, and reasonably foreseeable projects, would increase demand for fire protection and emergency medical services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.13-6: Development of the proposed Project in combination with past, present, and reasonably foreseeable projects would increase demand for police protection services, but would not result in an adverse physical impact from the construction of additional facilities in order to maintain acceptable performance standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS

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		No Project/No Development	No Project / Individual Use Permits				
5.13 Public Services (cont.)							
5.13-7: Development of the proposed Project in combination with past, present, and reasonably foreseeable projects would increase enrollment in public schools but would not result in an adverse physical impact from the construction of additional school facilities in order to maintain acceptable enrollment standards.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.14 Recreation							
5.14-1: The Project would not increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	- LTS	- LTS	- LTS	= LTS	S/M	S/M
5.14-2: The construction of recreational facilities under the proposed Project would cause physical effects on the environment.	S/M	- S/M	- S/M	- S/M	=/+ S/M	+ S/M	+ S/M
5.14-3: The Project in combination with past, present, and reasonably foreseeable future projects would not increase use of existing neighborhood and regional parks and other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	- LTS	- LTS	- LTS	= LTS	S/M	S/M
5.15 Transportation and Traffic							
5.15-1: The proposed Project would generate construction traffic that would cause a substantial reduction in mobility and in access to land uses.	S/M	- S/M	- S/M	- S/M	= S/M	+ S/M	+ S/M
5.15-2: Implementation of the proposed Project could increase traffic volumes at area intersections, creating adverse impacts under 2018 Baseline with Project conditions.	S/U	- LTS	- S/U	- S/U	= S/U	+ S/U	+ S/U
5.15-3: Implementation of the proposed Project could increase traffic volumes on area freeways, creating adverse impacts under 2018 Baseline with Project conditions.	S/U	- LTS	- S/U	- S/U	= S/U	+ S/U	+ S/U
5.15-4: Implementation of the proposed Project would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.15-5: Implementation of the proposed Project would not substantially increase intrusion by traffic in nearby neighborhoods.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS

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5.15 Transportation and Traffic (cont.)							
5.15-6: Implementation of the proposed Project would not substantially increase hazards due to a design feature or incompatible uses.	LTS	- LTS	- LTS	- LTS	= LTS	<u>= LTS</u>	<u>= LTS</u>
5.15-7: Implementation of the proposed Project would not result in inadequate emergency access.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.15-8: Implementation of the proposed Project would not conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.15-9: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes at area intersections, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.	S/U	- LTS	- S/U	- S/U	= S/U	<u>+ S/U</u>	<u>+ S/U</u>
5.15-10: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future projects, could increase traffic volumes on area freeways, contributing considerably to significant adverse impacts under 2035 Cumulative with Project conditions.	S/U	- LTS	- S/U	- S/U	= S/U	<u>+ S/U</u>	<u>+ S/U</u>
5.15-11: Implementation of the proposed Project, in combination with other past, present, and reasonably foreseeable future, projects, would not conflict with adopted policies, plans, or programs regarding public transit, or otherwise decrease the performance or safety of such facilities.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.15-12: The Project would be located within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.15-13: The proposed Project VMT would not exceed the numeric thresholds recommended by OPR.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>
5.16 Utilities and Service Systems							
5.16-1: The Project would result in the expansion of existing on-campus infrastructure, the construction of which could cause significant environmental effects.	S/M	- S/M	- S/M	- S/M	=/+ S/M	<u>+ S/M</u>	<u>+ S/M</u>
5.16-2: Project development would increase the demand for water, however it would be adequately supplied from existing entitlements and resources.	LTS	- LTS	- LTS	- LTS	= LTS	<u>+ LTS</u>	<u>+ LTS</u>

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5.16 Utilities and Service Systems (cont.)							
5.16-3: The Project would increase demand for wastewater treatment, but would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-4: The Project would discharge additional flows to the municipal sewer and drainage system, but not to an extent which would exceed the facilities' capacity in light of existing commitments.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-5: Project construction would result in an increased generation of solid waste, but would not exceed permitted capacity to accommodate the Project's solid waste disposal needs or conflict with federal, State, and local statutes and regulations related to solid waste.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-6: Operation of the Project would comply with federal, state, and local statutes and regulations related to solid waste and would be adequately served by existing landfills with sufficient permitted capacity to accommodate the Project's solid waste disposal needs.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-7: Implementation of the proposed Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for water supplies.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-8: Implementation of the Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for wastewater treatment.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.16-9: Implementation of the Project, in combination with past, present, and future projects would contribute to cumulative increases in demand for landfill space.	LTS	- LTS	- LTS	- LTS	= LTS	+ LTS	+ LTS
5.17 Environmental Consequences of Stanford Providing Off-campus Housing Under Proposed Project							
Impact 5.17-1: Under the proposed Project, the construction and/or operation of off-site housing would result in off-site environmental impacts.	S/U	- LTS	- LTS	- S/U	= S/U	=/+ S/U	=/+ S/U

SOURCE: Environmental Science Associates

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7.6 Environmentally Superior Alternative

Section 15126.6(e)(2) of the CEQA Guidelines requires the identification of an environmentally superior alternative to the proposed project. If the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

7.6.1 No Project/No Development Alternative

From the alternatives evaluated in this EIR, the environmentally superior alternative would be the No Project/No Development Alternative. The No Project /No Development Alternative would result in less new construction and new development than the proposed Project or the other alternatives. Consequently, the No Project/No Development Alternative’s impacts related to construction and operation of new development would also be less than the proposed Project or the other alternatives.

The No Project/No Development Alternative would eliminate four of the significant and unavoidable Project and/or cumulative transportation and traffic impacts: Impact 5.15-2 (increase in traffic at area intersections under 2018 Baseline with Project conditions); Impact 5.15-3 (increase in traffic on area freeways under 2018 Baseline with Project conditions); 5.15-9 (increase in traffic at area intersections under 2035 Cumulative with Project conditions); and 5.15-10 (increase in traffic on area freeways under 2035 Cumulative with Project conditions).

With less construction and development, the No Project/No Development Alternative would also reduce the potential for, but not eliminate, the two significant and unavoidable Project and/or cumulative construction noise impacts: Impact 5.11-2 (Project increase in temporary or periodic increase in ambient noise levels), and Impact 5.11-7 (cumulative increase in temporary or periodic increase in ambient noise levels).

On the other hand, given that all new development under this alternative would require a commensurate reduction in existing academic and academic support space and housing levels, there could be the potential under this alternative for more remodeling and/or demolishing of historic buildings on the Project site compared to the proposed Project; and therefore, there is the potential for this alternative to increase the potential for historic buildings to be significantly impacted compared to the proposed Project effects identified in Impact 5.4-1 (Project substantial adverse change in the significance of a historical resource), and Impact 5.4-6 (cumulative substantial adverse change in the significance of a historical resource). This alternative could, however, be combined with the Historic Preservation Alternative.

In any case, this alternative would fail to achieve the primary Project purpose and most of the basic Project objectives. This alternative would severely constrain Stanford’s ability to grow and develop the Project site in a manner that reflects the growth assumptions in the approved Sustainable Development Study. This alternative also would not accomplish the following more specific project objectives: enable Stanford to further its academic mission, provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond

quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities; enable Stanford to meet its needs to accommodate increasing enrollment and balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2018 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique EV Graduate Student Residences Project; enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by authorizing 550 transit-oriented high density housing units that can be occupied by faculty, staff, postdoctoral scholars and medical residents; and support existing and new academic, academic support and housing uses by authorizing new and improved parking facilities, roadway, utility and infrastructure improvements, child care centers, facilities designed to promote vehicle trip reduction, and temporary trailers for construction surge space.

7.6.2 Reduced Project Alternative

Of the remaining alternatives that are not the no project alternative: (Reduced Project Alternative, Historic Preservation Alternative, Additional Housing Alternative A, and Additional Housing Alternative B), the Reduced Project Alternative is considered the environmentally superior alternative. The Reduced Project Alternative would result in approximately 43 percent less academic and academic support development, and approximately 43 percent fewer housing units, than the proposed Project, and 43 percent less population.

The Reduced Project Alternative would reduce the severity of four of the significant and unavoidable Project and/or cumulative transportation and traffic impacts. Specifically, it would reduce the number of intersections significantly impacted under Cumulative Conditions in 2035 in Impact 5.15-9 (17 intersections impacted under this alternative versus 22 intersections impacted under the Project), and reduce the number of freeway segments significantly impacted in 2018 and/or under Cumulative 2035 conditions identified in Impacts 5.15-3 and 5.15-10 (5 freeway segments impacted under this alternative versus 12 freeway segments impacted under the Project).

With less construction and development, the Reduced Project Alternative would also serve to reduce the potential for, but not eliminate, the two significant and unavoidable Project and/or historic resource impacts (Impact 5.4-1 and Impact 5.4-6); and would also reduce the potential for, but not eliminate, the two significant and unavoidable Project and/or cumulative construction noise impacts (Impacts 5.11-2 and Impact 5.11-7).

However, this alternative would fail to fully achieve certain Project objectives, including, but not limited to, the objectives to provide state-of-the-art facilities for research and learning, encourage interdisciplinary collaboration, maintain flexibility to respond quickly to changes in educational or research technologies, and provide venues for athletic and cultural experiences by authorizing new and expanded academic and academic support facilities at a growth rate from 2028 through 2035 that is consistent with Stanford's historic annual growth rate for academic and academic support facilities; the objective of meeting its needs to accommodate increasing enrollment and

balance academic and academic support space growth with student housing growth by authorizing new and expanded student housing units/beds at a growth rate from 2028 through 2035 that is consistent with Stanford's historic annual growth rate for student housing, not including the unique EV Graduate Student Residences Project; and the objective of enabling enable Stanford to foster collaboration and learning, and recruit and retain world class scholars and faculty by authorizing 550 transit-oriented high density housing units that can be occupied by faculty, staff, postdoctoral scholars and medical residents.

7.6.3 Additional Housing Alternative A

Additional Housing Alternative A would result in the same academic and academic support development but an approximate 81 percent increase in on-campus housing unit/beds over the proposed Project (i.e., increase of 5,699 versus under this alternative versus 3,150 increase under the proposed Project), and a 99 percent increase in on-campus residential population over the proposed Project (i.e., an increase of 12,573 under this alternative versus 6,326 under the proposed Project).

Additional Housing Alternative A would result in three significant and unavoidable air quality impacts [operational emissions of criteria air pollutants (PM₁₀); and relatedly, conflict with the 2017 BAAQMD Clean Air Plan; and cumulatively considerable increases in PM₁₀], related to an additional on-campus residential population and associated increase in daily vehicle trips.

This alternative would also generally add peak-hour vehicle trips to, and further increase congestion at, the study intersections located closest to the campus under 2018 Baseline with Additional Housing Alternative A Conditions, and under Cumulative Conditions in 2035. As a result, this alternative would make a cumulatively considerable contribution to significant impacts at two additional study intersections in Cumulative Conditions in 2035. This alternative would also result in significant impacts at two additional freeway segments under 2018 Baseline with Additional Housing Alternative A Conditions, and result in significant impacts at three additional freeway segments under Cumulative Conditions in 2035.

The increase in campus residents anticipated to occur under the Additional Housing Alternative A would result in a further increase in off-campus public park visits resulting in a significant but mitigable impact, and contribution to cumulative impact, to turfs at the College Terrace parks, Heritage Park, and Stanford Hills Park, that would not occur under the proposed Project.

Since Additional Housing Alternative A would result in more on-campus construction, including along the campus perimeter, than the proposed Project, it would have the potential to exacerbate the significant and unavoidable impact associated with construction noise levels in excess of established noise standards (if construction activities were to occur during prohibited hours); and exacerbate the significant and unavoidable impact associated with cumulative construction noise.

Given that Additional Housing Alternative A would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on redevelopment and infill sites, it would have an incrementally greater potential than the proposed Project to result in significant and unavoidable direct or indirect impacts to historic resources.

7.6.4 Additional Housing Alternative B

Additional Housing Alternative B would result in the same academic and academic support development but an approximate 40 percent increase in on-campus housing unit/beds over the proposed Project (i.e., increase of 4,425 versus under this alternative versus 3,150 increase under the proposed Project), and a 49 percent increase in on-campus residential population over the proposed Project (i.e., an increase of 9,451 under this alternative versus 6,326 under the proposed Project).

This alternative would also generally add peak-hour vehicle trips to, and further increase congestion at, the study intersections located closest to the campus under 2018 Baseline with Additional Housing Alternative B Conditions, and under Cumulative Conditions in 2035, although would not result in any new significant and unavoidable transportation impacts.

The increase in campus residents anticipated to occur under the Additional Housing Alternative B would result in a further increase in off-campus public park visits resulting in a significant but mitigable impact, and contribution to cumulative impact, to turfs at College Terrace parks, that would not occur under the proposed Project.

Since Additional Housing Alternative B would result in more on-campus construction, including along the campus perimeter, than the proposed Project, it would have the potential to exacerbate the significant and unavoidable impact associated with construction noise levels in excess of established noise standards (if construction activities were to occur during prohibited hours); and exacerbate the significant and unavoidable impact associated with cumulative construction noise.

Given that Additional Housing Alternative B would involve more on-campus housing development and infrastructure than the proposed 2018 General Use Permit, including on redevelopment and infill sites, it would have an incrementally greater potential than the proposed Project to result in significant and unavoidable direct or indirect impacts to historic resources.

7.7 References

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PAUSD, *Residential Research Summary Report, Winter 2018*, DecisionInsite, submitted January 3, 2018a.

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