

Draft

STANFORD UNIVERSITY

2018 GENERAL USE PERMIT

Environmental Impact Report
State Clearinghouse No. 2017012022

Volume 2

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

October 2017



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CHAPTER 5

Environmental Setting, Impacts and Mitigation Measures (continued)

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5.15 Transportation and Traffic

5.15.1 Introduction

This section addresses the potential for implementation of the proposed 2018 General Use Permit to result in significant transportation and traffic impacts. The section includes a description of the existing and 2018 baseline environmental transportation settings and presents a discussion of applicable federal, State, and County regulations. The section addresses the impacts of the proposed 2018 General Use Permit on the surrounding transportation system, including critical study intersections, freeway segments and ramps, and neighborhood streets; transit service; bicycle and pedestrian facilities; safety and emergency access; and vehicle miles traveled. The section also includes information regarding transit and bicycle facility capacity; and on-campus parking supply and off-campus programs to limit parking in the community. Mitigation measures are identified to reduce potential impacts to less-than-significant levels where feasible. The section relies in part on four technical reports prepared by Stanford in support of the proposed 2018 General Use Permit: (1) a Transportation Impact Analysis (TIA) (see Appendix TIA); (2) a Vehicle Miles Traveled (VMT) Analysis (see Appendix VMT); a Transit and Bicycle Facility Analysis (see Appendix TBC); and a Parking Analysis (see Appendix PKG). The TIA and VMT technical reports were prepared by Fehr and Peers in support of the proposed 2018 General Use Permit and were independently peer reviewed by ESA and AECOM. The Transit and Bicycle Facility Analysis was prepared by Arup in support of the proposed 2018 General Use Permit and was independently peer reviewed by ESA. The Parking Analysis was prepared by Stanford in support of the proposed 2018 General Use Permit and was also independently peer reviewed by ESA.

Legal Requirements in Transition

The Transportation Impact Assessment is the study that typically is prepared to assess traffic impacts of development projects and to identify physical improvements to increase the capacity of roadways, intersections and other transportation infrastructure affected by the project. The Transportation Impact Assessment is prepared based on guidelines published by the Valley Transportation Authority. Because this type of study is concerned with road capacity, it focuses on the highest, or peak, impacts that are predicted to occur and identifies mitigation measures to increase maximum road capacity.

Traditionally, Transportation Impact Assessments under CEQA have focused on level of service analyses. In contrast, 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.

In 2013, California enacted a law (SB 743) that, among other things, directed the State Office of Planning and Research (OPR) to develop new CEQA Guidelines for analyzing significant

transportation impacts within transit priority areas¹ that focus on vehicle miles traveled, trip generation rates, and similar measures that promote the reduction of greenhouse gas emissions (PRC section 21099(b)(1)). After the new CEQA Guidelines take effect, “automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant effect on the environment” except in areas where the revised CEQA Guidelines so provide (PRC section 21099(b)(2)). OPR has issued draft CEQA Guidelines in response to SB 743, but those amendments have not been finalized or adopted.

Because the legal context for evaluating transportation impacts is in transition, both a Transportation Impact Analysis and a VMT Analysis have been prepared for the proposed 2018 General Use Permit. The County has not yet removed its congestion-based level of service criteria from its CEQA significance standards, so the traditional congestion-based approach to evaluating traffic impacts is still needed. However, a VMT-based approach will likely be required by State law during most of the time that the 2018 General Use Permit is in effect. Thus, a VMT analysis has also been included in this Program EIR to more fully describe the proposed Project’s impacts and to better enable the County to continue to rely on this Program EIR in the future when it reviews and evaluates individual projects implementing the 2018 General Use Permit.

Bases for Analysis

The following analysis scenarios are presented to determine Project impacts:

- 2016 Existing Conditions;
- 2018 Baseline Conditions: Year 2018 with the completion of development authorized under the 2000 General Use Permit [with the exception of Escondido Village (EV) Graduate Residences, which will not be occupied by 2018] and other local approved projects that would be built and fully occupied by Fall 2018;
- 2018 Baseline with Project Conditions: 2018 Baseline Conditions with full buildout of the proposed 2018 General Use Permit;
- 2035 Cumulative Conditions: Year 2035 with the completion of development authorized under the 2000 General Use Permit (including EV Graduate Residences), background growth and reasonably foreseeable projects; and
- 2035 Cumulative with Project Conditions: 2035 Cumulative Conditions with full buildout of the proposed 2018 General Use Permit.

The Stanford Community Plan establishes a standard for the Stanford campus of “No Net New Commute Trips” (specifically applied to vehicle trips in the peak hour and peak direction) compared to measured baseline conditions. To date, Stanford has achieved this standard each year

¹ Transit priority areas are areas within ½-mile of an existing or planned major transit stop (PRC section 21099(a)(7)). 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 (PRC section 21064.3).

through a combination of onsite trip reduction programs and offsite programs that have removed trips from the roads nearest to the campus.

In its Project application, Stanford has committed to continue to implement programs to achieve the No Net New Commute Trips standard during the remainder of the 2000 General Use Permit, and to expand those programs throughout the life of the proposed 2018 General Use Permit. However, to provide a conservative analysis similar to the analysis performed for the 2000 General Use Permit, this analysis assumes that Stanford does not increase its trip reduction efforts beyond the existing programs, and that growth in trips would occur with both the remaining development authorized under the 2000 General Use Permit and with buildout of the proposed 2018 General Use Permit.

5.15.2 Existing Environmental Setting

Primary regional automobile access to the Project site is provided by US Route 101 (US 101), Interstate 280 (I-280), and El Camino Real (State Route [SR] 82). Major arterials in the area include Junipero Serra Boulevard – Foothill Expressway, University Avenue – Palm Drive, Embarcadero Road – Galvez Street, Sand Hill Road, and Page Mill Road – Oregon Expressway. These roadways are described below and illustrated on **Figure 5.15-1**.

Regional Setting

US 101 (Bayshore Freeway) is an eight- to ten-lane freeway that runs from east San Jose to San Francisco along the west side of San Francisco Bay, connecting communities along the Peninsula. One or two High Occupancy Vehicle (HOV) lanes operate in both directions during extended morning and afternoon commute periods south of Whipple Avenue. Access to the Project site from US 101 is primarily provided via University Avenue and Embarcadero Road.

I-280 (Junipero Serra Freeway) is an eight-lane freeway that connects San Jose and San Francisco, east of the Santa Cruz Mountains. I-280 has interchanges serving Stanford at Sand Hill Road, Alpine Road, and Page Mill Road. One HOV lane operates in both directions during extended morning and afternoon commute periods south of Magdalena Avenue.

El Camino Real (SR 82) is a state highway that runs from San Francisco to San Jose. In the study area, El Camino Real is a six-lane road south of Ravenswood Avenue, and a four-lane divided road from Ravenswood Avenue north to the Atherton border. El Camino Real parallels US 101 and I-280. The major intersections within the study area are controlled by traffic signals, with the exception of the El Camino Real / Palm Drive / University Avenue interchange. This interchange is grade-separated and diamond-configured. The exit and entrance ramps at the interchange are controlled by traffic signals. In the City of Palo Alto's Comprehensive Plan, El Camino Real is classified as an arterial.

Local Setting

Junipero Serra Boulevard/Foothill Expressway is a two- to four-lane roadway that runs parallel to I-280 from Alpine Road to Page Mill Road as a two-lane undivided road, at which point it widens to a four-lane divided road, signed as Foothill Expressway. Junipero Serra Boulevard forms a portion of the southwesterly boundary of the Stanford central campus. Junipero Serra Boulevard and Foothill Expressway are County-maintained roads.

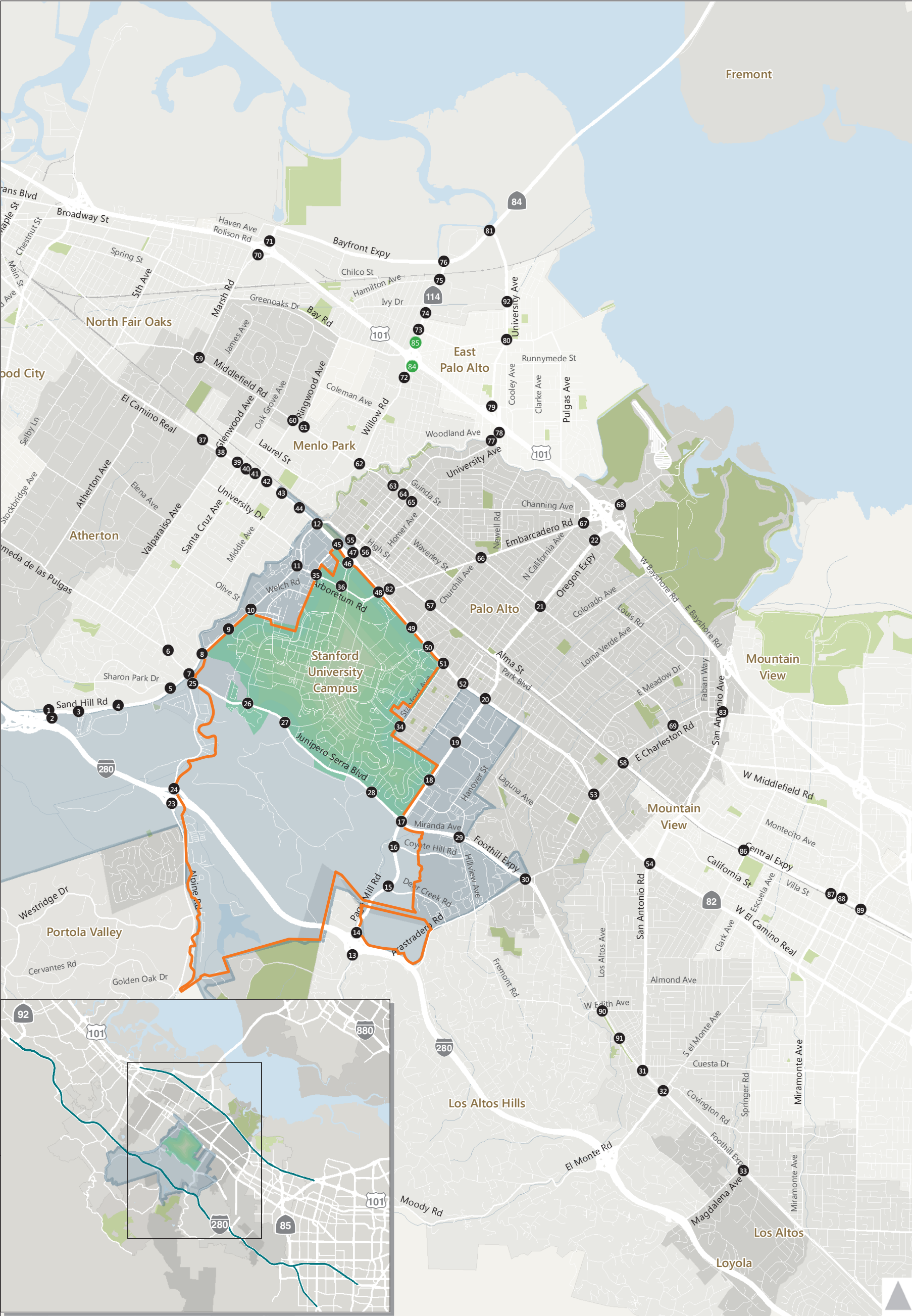
University Avenue/Palm Drive is a two- to four-lane road that runs from the Dumbarton Bridge (SR 84) to the El Camino Real grade-separated interchange, where it becomes Palm Drive. From SR 84 to US 101, University Avenue is a four-lane arterial within the cities of Menlo Park and East Palo Alto. South of US 101, in the City of Palo Alto, University Avenue is a two-lane arterial. Near the Caltrain overcrossing, University Avenue widens to four lanes. Palm Drive has four lanes until the intersection with Arboretum Road where it narrows to three lanes. At Campus Drive West, Palm Drive narrows again to two lanes until it terminates at the Stanford Main Quad. Within Palo Alto, University Avenue is classified as an arterial between El Camino Real and Middlefield Road, and a residential arterial between Middlefield Road and the City boundary. Within East Palo Alto, University Avenue is classified as an arterial.

Embarcadero Road/Galvez Street is a four-lane arterial that runs from the intersection of El Camino Real through the US 101 interchange, terminating near the Palo Alto Municipal Airport. West of El Camino Real, Embarcadero Road becomes Galvez Street, which provides a link to Arboretum Road and Campus Drive on the Stanford campus. A short segment of Embarcadero Road underneath the Caltrain tracks is narrowed to three lanes. Within Palo Alto, Embarcadero Road is classified as a residential arterial.

Sand Hill Road is a two- to four-lane arterial that runs from Portola Road in the Town of Woodside to El Camino Real near the Stanford Shopping Center in the City of Palo Alto. Sand Hill Road is a two-lane road from Portola Road to the I-280 interchange, then it widens to four lanes to Arboretum Road, and then narrows to a two-lane road until it terminates adjacent to the Stanford Shopping Center at El Camino Real (SR 82). Within the study area, Sand Hill Road provides connections to the cities of Menlo Park and Palo Alto, as well as access to Stanford. Within Palo Alto, Sand Hill Road is classified as an arterial.

Page Mill Road/Oregon Expressway is a two- to four-lane arterial which runs from Skyline Boulevard (SR 35) to Alma Street in Palo Alto, where it becomes Oregon Expressway, and continues east to terminate at US 101. From I-280 to Alma Street, Page Mill Road is Santa Clara County Road G3. From Skyline Boulevard to the I-280 interchange, Page Mill Road is a narrow winding two-lane road. From I-280 to US 101, Page Mill Road/Oregon Expressway is a four-lane divided road. Within Palo Alto, Page Mill Road is classified as an arterial.

Access to the campus is provided by sixteen “gateway” roadways ranging from two to four lanes (see **Figure 5.15-2**).

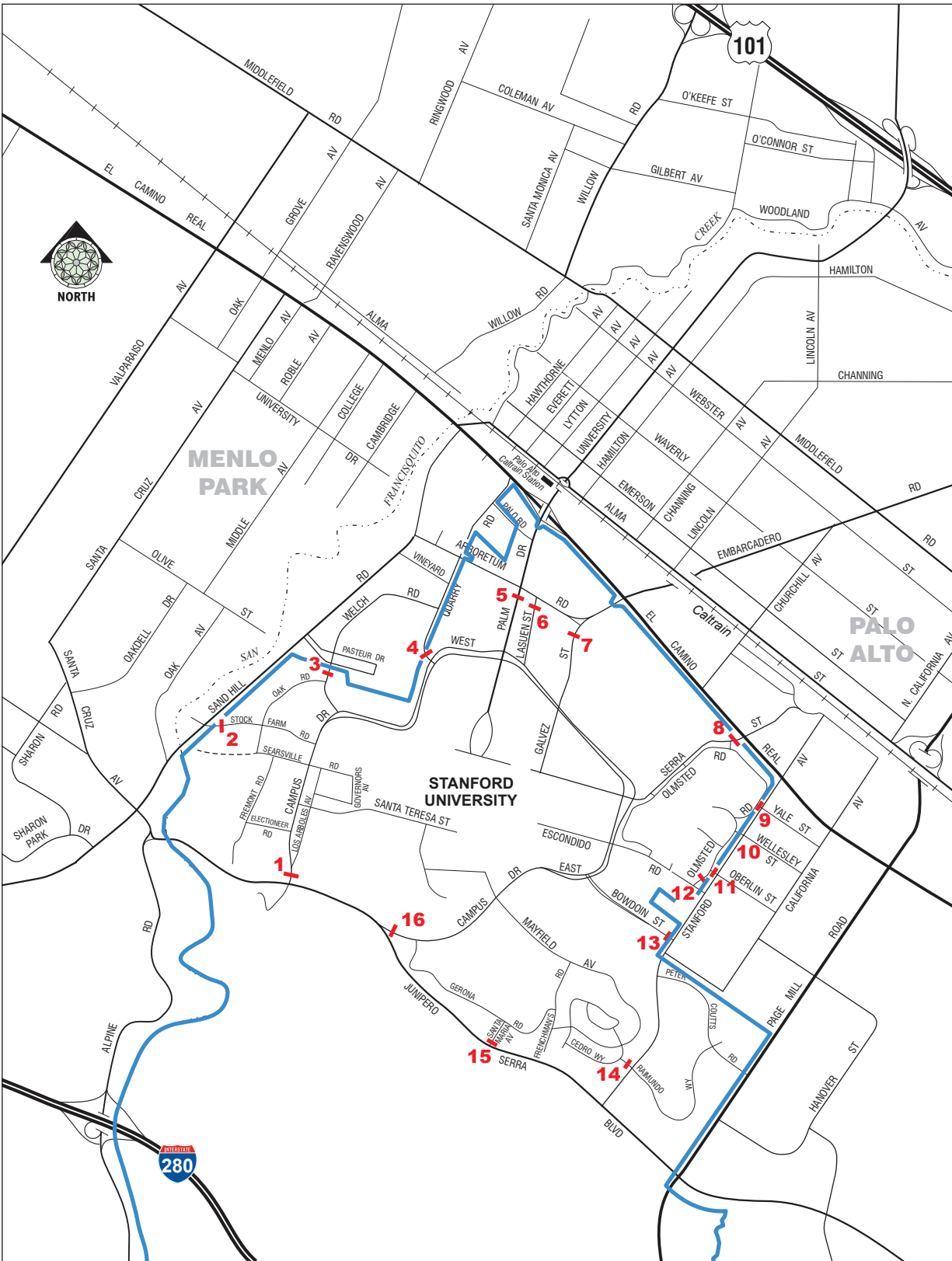


- #

 Study Intersection
- #

 Cumulative Study Intersection
- Study Freeway Segments
- Stanford University Campus
- Stanford Lands
- Stanford 2018 General Use Permit Boundary

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— Stanford 2018 General Use Permit Boundary

SOURCE: AECOM Stanford University Traffic Monitoring Report; Fehr & Peers

Stanford 2018 General Use Permit . 160531

Figure 5.15-2
Stanford University Campus Gateways

Traffic Study Area

For analysis of potential impacts of the proposed Project based on the traditional congestion-based methodology used in the Transportation Impact Analysis (TIA), study intersections, freeway segments, and freeway ramps were selected by identifying locations where the Project would contribute a noticeable amount of traffic, using a three-step screening process summarized below (a detailed description is provided in Section 1.2.1 of the TIA in Appendix TIA).

Methodology for Identifying Intersections for Study

Step 1: Project-related trips were assigned to the roadways that provide access to the Project site based on the estimated Project trip generation and distribution. The Santa Clara Valley Transportation Authority² (VTA) Guidelines recommend using a threshold of 10 or more new trips per lane to determine if an intersection should be included in a TIA. The resulting 125 intersections were then screened using a point system that considered key characteristics of each intersection including: if the intersection is on a state or regional transportation facility; proximity to campus/concentration of trips; type of cross-street traffic and access provided; and whether the intersection was previously studied in Stanford-related traffic studies. The point system is based upon professional judgment and incorporates typical factors that traffic engineers take into account to identify those intersections most likely to influence overall traffic flow and congestion within a local setting. This refinement resulted in *initial* identification of 79 study intersections.

Step 2: The 79 study intersections and selection criteria were circulated to the County, City of Palo Alto, City of East Palo Alto, and City of Menlo Park for review and feedback. Each jurisdiction requested at least one study intersection be added for inclusion in the traffic study.

Step 3: Each of the additional intersections requested by the jurisdictions was evaluated using the above-described Step 1, and additional weight was given to inclusion of the intersection based on the local knowledge of the relevant agency staff. If the intersection then met the minimum number of points to warrant evaluation, it was included as a study intersection. Intersections that did not meet the 10 trips per lane guideline or that otherwise did not meet the numeric screening criteria with additional weighting were removed from further evaluation. Based on the above evaluation process, 13 more intersections were identified for inclusion in the analysis, including two future intersections that will be built as part of the Willow Road interchange (starting in 2019). Three intersections requested by the City of East Palo Alto were included because they recently were studied in the Facebook Campus Expansion Environmental Impact Report, even those they did not meet the study intersection selection criteria. A list of the final 95 study intersections is provided in **Table 5.15-1** and Figure 5.15-1.

² The Santa Clara Valley Transportation Authority is the congestion management agency of Santa Clara County.

**TABLE 5.15-1
STUDY INTERSECTIONS**

ID No.	Intersection	Jurisdiction (CMP Network) ^a
1	I-280 Northbound On-Ramp / Sand Hill Road	Menlo Park
2	I-280 Northbound Off-Ramp / Sand Hill Road	Menlo Park
3	Addison Wesley / Sand Hill Road	Menlo Park
4	Saga Lane / Sand Hill Road	Menlo Park
5	Sharon Park Drive / Sand Hill Road	Menlo Park
6	Alameda de las Pulgas / Santa Cruz Avenue	San Mateo County
7	Santa Cruz Avenue / Sand Hill Road	Menlo Park
8	Oak Avenue / Sand Hill Road	Menlo Park
9	Stock Farm Road / Sand Hill Road	Palo Alto
10	Pasteur Drive / Sand Hill Road	Palo Alto
11	Arboretum Road / Sand Hill Road	Palo Alto
12	El Camino Real / Sand Hill Road	Palo Alto (SC CMP)
13	I-280 Southbound Ramps / Page Mill Road*	Santa Clara County
14	I-280 Northbound Ramps / Page Mill Road*	Santa Clara County
15	Deer Creek Road / Page Mill Road	Santa Clara County
16	Coyote Hill Road / Page Mill Road	Santa Clara County
17	Junipero Serra Blvd - Foothill Expressway / Page Mill Road	Santa Clara County (SC CMP)
18	Peter Coutts / Page Mill Road	Santa Clara County
19	Hanover Street / Page Mill Road	Santa Clara County (SC CMP)
20	El Camino Real / Page Mill Road - Oregon Expressway	Santa Clara County (SC CMP)
21	Middlefield Road / Oregon Expressway	Santa Clara County (SC CMP)
22	Oregon Expressway / West Bayshore Road	Santa Clara County
23	I-280 Southbound Ramps / Alpine Road*	San Mateo County
24	I-280 Northbound Ramps / Alpine Road*	San Mateo County
25	Junipero Serra Blvd / Alpine Road	Menlo Park
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County
28	Junipero Serra Blvd / Stanford Avenue	Santa Clara County
29	Foothill Expressway / Hillview Avenue	Santa Clara County
30	Foothill Expressway / Arastradero Road	Santa Clara County (SC CMP)
31	Foothill Expressway / San Antonio Road	Santa Clara County (SC CMP)
32	Foothill Expressway / El Monte Avenue	Santa Clara County (SC CMP)
33	Foothill Expressway / Springer Road-Magdalena Avenue	Santa Clara County (SC CMP)
34	Bowdoin Street / Stanford Avenue*	Palo Alto
35	Arboretum Road / Quarry Road	Palo Alto
36	Arboretum Road / Palm Drive	Palo Alto
37	El Camino Real / Encinal Avenue	Menlo Park
38	El Camino Real / Valparaiso Avenue	Menlo Park

TABLE 5.15-1 (CONTINUED)
STUDY INTERSECTIONS

ID No.	Intersection	Jurisdiction (CMP Network) ^a
39	El Camino Real / Oak Grove Avenue	Menlo Park
40	El Camino Real / Santa Cruz Avenue	Menlo Park
41	El Camino Real / Ravenswood Road	Menlo Park
42	El Camino Real / Roble Avenue	Menlo Park
43	El Camino Real / Middle Avenue	Menlo Park
44	El Camino Real / Cambridge Avenue	Menlo Park
45	El Camino Real / Quarry Road	Palo Alto
46	El Camino Real (Southbound) / University Avenue	Palo Alto (SC CMP)
47	El Camino Real (Northbound) / University Avenue	Palo Alto (SC CMP)
48	El Camino Real / Embarcadero Road	Palo Alto (SC CMP)
49	El Camino Real / Churchill Avenue	Palo Alto
50	El Camino Real / Serra Street	Palo Alto
51	El Camino Real / Stanford Avenue	Palo Alto
52	El Camino Real / California Avenue	Palo Alto
53	El Camino Real / Arastradero Road - Charleston Road	Palo Alto (SC CMP)
54	El Camino Real / San Antonio Road	Mountain View (SC CMP)
55	Alma Street / Lytton Avenue	Palo Alto
56	Alma Street / Hamilton Avenue	Palo Alto
57	Alma Street / Churchill Avenue	Palo Alto
58	Alma Street / Charleston Road	Palo Alto
59	Middlefield Road / Marsh Road	Atherton
60	Middlefield Road / Ravenswood Avenue	Menlo Park
61	Middlefield Road / Ringwood Avenue	Menlo Park
62	Middlefield Road / Willow Road	Menlo Park
63	Middlefield Road / Lytton Avenue	Palo Alto
64	Middlefield Road / University Avenue	Palo Alto
65	Middlefield Road / Hamilton Avenue	Palo Alto
66	Middlefield Road / Embarcadero Road	Palo Alto
67	Saint Francis Drive / Embarcadero Road	Palo Alto
68	E. Bayshore Road / Embarcadero Road	Palo Alto
69	Middlefield Road / Charleston Road	Palo Alto
70	US 101 Southbound Ramps / Marsh Road	Menlo Park
71	US 101 Northbound Ramps / Marsh Road	Menlo Park
72	Bay Road / Willow Road	Menlo Park
73	Newbridge Street / Willow Road	Menlo Park
74	O'Brien Drive / Willow Road	Menlo Park
75	Hamilton Avenue / Willow Road	Menlo Park
76	Bayfront Expressway / Willow Road	Menlo Park (SM CMP)

TABLE 5.15-1 (CONTINUED)
STUDY INTERSECTIONS

ID No.	Intersection	Jurisdiction (CMP Network) ^a
77	Woodland Avenue / University Avenue	East Palo Alto
78	US 101 Southbound Ramps / University Avenue	East Palo Alto
79	Donohoe Street / University Avenue	East Palo Alto
80	University Avenue / Bay Road	East Palo Alto
81	University Avenue / Bayfront Expressway	Menlo Park (SM CMP)
82	Town & Country Driveway / Embarcadero Road	Palo Alto
83	Charleston Road / San Antonio Road	Mountain View (SC CMP)
84	US 101 Southbound Ramps / Willow Road	Menlo Park
85	US 101 Northbound Ramps / Willow Road	Menlo Park
86	Central Expressway / Rengstorff Avenue	Santa Clara County (SC CMP)
87	Central Expressway / Shoreline Boulevard (N)	Santa Clara County (SC CMP)
88	Central Expressway / Shoreline Boulevard (S)	Santa Clara County (SC CMP)
89	Central Expressway / Moffett Boulevard	Santa Clara County (SC CMP)
90	Foothill Expressway / Edith Avenue	Santa Clara County
91	Foothill Expressway / Main Street	Santa Clara County (SC CMP)
92	University Avenue / O'Brien Drive	Menlo Park
93	University Avenue / Adams Drive*	Menlo Park
94	University Avenue / Rungymede Street	East Palo Alto
95	University Avenue / Bell Street	East Palo Alto

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections.
(SC CMP) = CMP intersection in Santa Clara County
(SM CMP) = CMP intersection in San Mateo County

* = Unsignalized intersection

SOURCE: Fehr & Peers, August 2017

Methodology for Identifying Freeway Segments and On-/Off-Ramps for Study

The freeway segments were selected in consultation with the County, and finalized based on VTA TIA Guidelines. Freeway segments were included for analysis if the proposed Project was expected to add traffic equal to or greater than one percent of the freeway segment's capacity.

Based on this criterion, the following freeway segments were analyzed for the weekday morning and evening peak hours:

- SR 85
 - Saratoga Avenue to South De Anza Boulevard
 - South De Anza Boulevard to Stevens Creek Boulevard
 - Stevens Creek Boulevard to I-280
- US 101 (Santa Clara County)
 - SR 37 to Moffett Boulevard
 - Moffett Boulevard to SR 85

- SR 85 to North Shoreline Boulevard
 - North Shoreline Boulevard to Rengstorff Avenue
 - Rengstorff Avenue to San Antonio Road
 - San Antonio Road to Oregon Expressway
 - Oregon Expressway to Embarcadero Road
- US 101 (San Mateo County)
 - Embarcadero Road to University Avenue
 - University Avenue to Willow Road (SR 114)
 - Willow Road (SR 114) to Marsh Road
 - Marsh Road to Woodside Road (SR 84)
- I-280 (Santa Clara County)
 - Lawrence Expressway to Wolfe Road
 - Wolfe Road to De Anza Boulevard
 - De Anza Boulevard to SR85
 - SR 85 to Foothill Expressway
 - Foothill Expressway to Magdalena Avenue
 - Magdalena Avenue to El Monte Road
 - El Monte Road to La Barranca Road
 - La Barranca Road to Page Mill Road
 - Page Mill Road to Alpine Road
- I-280 (San Mateo County)
 - Alpine Road to Sand Hill Road
 - Sand Hill Road to Woodside Road (SR 84)
 - Woodside Road (SR 84) to Farm Hill Boulevard
 - Farm Hill Boulevard to Cañada Road
 - Cañada Road to Edgewood Road
 - Edgewood Road to SR 92

The following freeway ramps, which provide direct access to and from the Project site via US 101 and I-280, were also selected for analysis:

- US 101 Southbound
 - Willow Road Off-Ramp
 - University Avenue Off-Ramp
 - Embarcadero Road On-Ramp
 - Oregon Expressway On-Ramp
- US 101 Northbound
 - Willow Road On-Ramp
 - University Avenue On-Ramp
 - Embarcadero Road Off-Ramp
- Interstate 280 Southbound
 - Sand Hill Road On-Ramp
 - Sand Hill Road Off-Ramp
 - Alpine Road Off-Ramp
 - Alpine Road On-Ramp
 - Page Mill Road Off-Ramp
 - Page Mill Road On-Ramp

- Interstate 280 Northbound
 - Page Mill Road Off-Ramp
 - Page Mill Road Off-Ramp
 - Alpine Road Off-Ramp
 - Alpine Road On-Ramp
 - Sand Hill Road On-Ramp
 - Sand Hill Road Off-Ramp

Methodology for Identifying Residential Streets for Study

Multiple neighborhoods were considered for analysis, including five in the City of Palo Alto, three in the City of Menlo Park, and three in the City of East Palo Alto. Based on the effectiveness of existing traffic calming strategies in those neighborhoods (described in Section 8.3 of the TIA in Appendix TIA), the current conditions within the neighborhoods, and the expected trip distribution and assignment of traffic from the proposed Project, two neighborhoods in Palo Alto (College Terrace and Crescent Park) were identified as locations where neighborhood traffic impacts might occur due to the Project. These locations were selected for the following reasons:

- **College Terrace** – The neighborhood lies along the southern boundary of the Project site 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 can 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). There is existing congestion on the corridor that includes spillover traffic to parallel roadways such as Hamilton Avenue. Because a sufficient number of the drivers accessing Stanford travel along University Avenue, this neighborhood was selected for further study.

Existing Level of Service Conditions – Intersections

Intersection turning movement counts were conducted primarily during October – November 2016. The counts were conducted during the weekday morning (7:00 to 10:00 AM) and afternoon/evening (4:00 to 7:00 PM) peak periods on clear days with area schools in session. The single hour during each count period with the highest traffic volumes at each intersection was identified as its peak hour. Existing intersection lane configurations, signal timings, and peak-hour turning movement volumes were used to calculate existing peak-hour levels of service (LOS) for the study intersections.³ As shown in **Table 5.15-2**, all except the following six intersections (delay/LOS shown in bold in the table) currently operate at acceptable service levels:

13. I-280 Southbound Ramps / Page Mill Road – LOS F, AM and PM peak hours (signal warrant met)
17. Junipero Serra Boulevard-Foothill Expressway / Page Mill Road – LOS F, AM and PM peak hours

³ The LOS analysis was performed using the TRAFFIX 8.0 software with the VTA-required analysis settings.

30. Foothill Expressway / Arastradero Road – LOS F, PM peak hour
32. Foothill Expressway / El Monte Avenue – LOS F, PM peak hour
77. Woodland Avenue / University Avenue – LOS E+, PM peak hour
79. Donohoe Street / University Avenue – LOS E, AM peak hour

**TABLE 5.15-2
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECOND PER VEHICLE)**

ID No.	Intersection	Jurisdiction (CMP Network) ^a	Peak Hour	Delay (sec/veh.) ^b	LOS
1	I-280 Northbound On-Ramp / Sand Hill Road	Menlo Park	AM PM	10.6 10.2	B+ B+
2	I-280 Northbound Off-Ramp / Sand Hill Road	Menlo Park	AM PM	39.1 17.2	D B
3	Addison Wesley / Sand Hill Road	Menlo Park	AM PM	18.8 19.4	B- B-
4	Saga Lane / Sand Hill Road	Menlo Park	AM PM	13.6 19.0	B B-
5	Sharon Park Drive / Sand Hill Road	Menlo Park	AM PM	16.5 15.8	B B
6	Alameda de las Pulgas / Santa Cruz Avenue	San Mateo County	AM PM	13.9 13.8	B B
7	Santa Cruz Avenue / Sand Hill Road	Menlo Park	AM PM	47.2 46.7	D D
8	Oak Avenue / Sand Hill Road	Menlo Park	AM PM	10.5 3.8	B+ A
9	Stock Farm Road / Sand Hill Road	Palo Alto	AM PM	20.0 25.9	C+ C
10	Pasteur Drive / Sand Hill Road	Palo Alto	AM PM	19.9 23.9	B- C
11	Arboretum Road / Sand Hill Road	Palo Alto	AM PM	21.5 27.8	C+ C
12	El Camino Real / Sand Hill Road	Palo Alto (SC CMP)	AM PM	32.8 32.1	C- C-
13	I-280 Southbound Ramps / Page Mill Road ^c	Santa Clara County	AM PM	93.4 72.0	F F
14	I-280 Northbound Ramps / Page Mill Road ^c	Santa Clara County	AM PM	14.2 13.4	D B
15	Deer Creek Road / Page Mill Road	Santa Clara County	AM PM	14.2 13.4	B B
16	Coyote Hill Road / Page Mill Road	Santa Clara County	AM PM	7.5 8.6	A A
17	Junipero Serra Blvd - Foothill Expressway / Page Mill Road	Santa Clara County (SC CMP)	AM PM	93.6 93.0	F F
18	Peter Coutts / Page Mill Road	Santa Clara County	AM PM	20.0 28.4	C+ C
19	Hanover Street / Page Mill Road	Santa Clara County (SC CMP)	AM PM	60.1 48.6	E D
20	El Camino Real / Page Mill Road - Oregon Expressway	Santa Clara County (SC CMP)	AM PM	57.9 62.2	E+ E

TABLE 5.15-2 (CONTINUED)
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECOND PER VEHICLE)

ID No.	Intersection	Jurisdiction (CMP Network) ^a	Peak Hour	Delay (sec/veh.) ^b	LOS
21	Middlefield Road / Oregon Expressway	Santa Clara County (SC CMP)	AM PM	62.3 57.5	E E+
22	Oregon Expressway / West Bayshore Road	Santa Clara County	AM PM	17.3 18.7	B B-
23	I-280 Southbound Ramps / Alpine Road ^c	San Mateo County	AM PM	36.6 15.7	E C
24	I-280 Northbound Ramps / Alpine Road ^c	San Mateo County	AM PM	25.1 24.2	D C
25	Junipero Serra Blvd / Alpine Road	Menlo Park	AM PM	41.9 47.4	D D
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	AM PM	26.9 37.8	C D+
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	AM PM	13.2 15.2	B B
28	Junipero Serra Blvd / Stanford Avenue	Santa Clara County	AM PM	18.8 19.9	B- B-
29	Foothill Expressway / Hillview Avenue	Santa Clara County	AM PM	33.5 34.2	C- C-
30	Foothill Expressway / Arastradero Road	Santa Clara County (SC CMP)	AM PM	66.9 83.6	E F
31	Foothill Expressway / San Antonio Road	Santa Clara County (SC CMP)	AM PM	17.9 67.2	B E
32	Foothill Expressway / El Monte Avenue	Santa Clara County (SC CMP)	AM PM	63.3 84.4	E F
33	Foothill Expressway / Springer Road- Magdalena Avenue	Santa Clara County (SC CMP)	AM PM	58.8 70.2	E+ E
34	Bowdoin Street / Stanford Avenue ^c	Palo Alto	AM PM	13.1 16.8	B C
35	Arboretum Road / Quarry Road	Palo Alto	AM PM	44.9 42.2	D D
36	Arboretum Road / Palm Drive	Palo Alto	AM PM	30.0 29.7	C C
37	El Camino Real / Encinal Avenue	Menlo Park	AM PM	16.8 29.5	B C
38	El Camino Real / Valparaiso Avenue	Menlo Park	AM PM	40.2 37.5	D D+
39	El Camino Real / Oak Grove Avenue	Menlo Park	AM PM	30.7 35.0	C D+
40	El Camino Real / Santa Cruz Avenue	Menlo Park	AM PM	13.6 19.7	B B-
41	El Camino Real / Ravenswood Road	Menlo Park	AM PM	41.2 44.6	D D
42	El Camino Real / Roble Avenue	Menlo Park	AM PM	12.9 13.4	B B
43	El Camino Real / Middle Avenue	Menlo Park	AM PM	27.1 27.1	C C

TABLE 5.15-2 (CONTINUED)
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECOND PER VEHICLE)

ID No.	Intersection	Jurisdiction (CMP Network) ^a	Peak Hour	Delay (sec/veh.) ^b	LOS
44	El Camino Real / Cambridge Avenue	Menlo Park	AM PM	13.2 19.1	B B-
45	El Camino Real / Quarry Road	Palo Alto	AM PM	15.2 33.1	B C-
46	El Camino Real (Southbound) / University Avenue	Palo Alto (SC CMP)	AM PM	21.0 20.0	C+ C+
47	El Camino Real (Northbound) / University Avenue	Palo Alto (SC CMP)	AM PM	18.7 26.3	B- C
48	El Camino Real / Embarcadero Road	Palo Alto (SC CMP)	AM PM	44.9 49.1	D D
49	El Camino Real / Churchill Avenue	Palo Alto	AM PM	23.1 25.9	C C
50	El Camino Real / Serra Street	Palo Alto	AM PM	22.3 25.8	C+ C
51	El Camino Real / Stanford Avenue	Palo Alto	AM PM	33.0 31.0	C- C
52	El Camino Real / California Avenue	Palo Alto	AM PM	23.6 28.5	C C
53	El Camino Real / Arastradero Road - Charleston Road	Palo Alto (SC CMP)	AM PM	47.2 53.0	D D-
54	El Camino Real / San Antonio Road	Mountain View (SC CMP)	AM PM	52.7 53.0	D- D-
55	Alma Street / Lytton Avenue	Palo Alto	AM PM	18.3 18.3	B- B-
56	Alma Street / Hamilton Avenue	Palo Alto	AM PM	6.7 13.3	A B
57	Alma Street / Churchill Avenue	Palo Alto	AM PM	26.9 46.5	C D
58	Alma Street / Charleston Road	Palo Alto	AM PM	53.5 50.9	D- D
59	Middlefield Road / Marsh Road	Atherton	AM PM	24.0 40.2	C D
60	Middlefield Road / Ravenswood Avenue	Menlo Park	AM PM	31.3 36.1	C D+
61	Middlefield Road / Ringwood Avenue	Menlo Park	AM PM	37.1 50.0	D+ D
62	Middlefield Road / Willow Road	Menlo Park	AM PM	47.3 46.6	D D
63	Middlefield Road / Lytton Avenue	Palo Alto	AM PM	36.3 43.7	D+ D
64	Middlefield Road / University Avenue	Palo Alto	AM PM	29.0 33.7	C C-
65	Middlefield Road / Hamilton Avenue	Palo Alto	AM PM	11.4 11.6	B+ B+
66	Middlefield Road / Embarcadero Road	Palo Alto	AM PM	33.2 36.6	C- D+

TABLE 5.15-2 (CONTINUED)
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECOND PER VEHICLE)

ID No.	Intersection	Jurisdiction (CMP Network) ^a	Peak Hour	Delay (sec/veh.) ^b	LOS
67	Saint Francis Drive / Embarcadero Road	Palo Alto	AM PM	23.6 17.5	C B
68	E. Bayshore Road / Embarcadero Road	Palo Alto	AM PM	44.1 53.6	D D-
69	Middlefield Road / Charleston Road	Palo Alto	AM PM	49.8 52.4	D D-
70	US 101 Southbound Ramps / Marsh Road	Menlo Park	AM PM	21.0 24.7	C+ C
71	US 101 Northbound Ramps / Marsh Road	Menlo Park	AM PM	16.3 14.9	B B
72	Bay Road / Willow Road	Menlo Park	AM PM	16.8 10.7	B B+
73	Newbridge Street / Willow Road	Menlo Park	AM PM	42.7 40.6	D D
74	O'Brien Drive / Willow Road	Menlo Park	AM PM	11.0 11.8	B+ B+
75	Hamilton Avenue / Willow Road	Menlo Park	AM PM	14.5 18.8	B B-
76	Bayfront Expressway / Willow Road	Menlo Park (SM CMP)	AM PM	39.0 56.8	D+ E+
77	Woodland Avenue / University Avenue	East Palo Alto	AM PM	48.1 58.9	D E+
78	US 101 Southbound Ramps / University Avenue	East Palo Alto	AM PM	26.7 25.0	C C
79	Donohoe Street / University Avenue	East Palo Alto	AM PM	65.3 42.5	E D
80	University Avenue / Bay Road	East Palo Alto	AM PM	38.0 47.1	D+ D
81	University Avenue / Bayfront Expressway	Menlo Park (SM CMP)	AM PM	21.7 85.0	C+ F
82	Town & Country Driveway / Embarcadero Road	Palo Alto	AM PM	29.2 27.9	C C
83	Charleston Road / San Antonio Road	Mountain View (SC CMP)	AM PM	54.5 51.6	D- D-
84	US 101 Southbound Ramps / Willow Road ^d	Menlo Park	AM PM	N/A ^d	N/A ^d
85	US 101 Northbound Ramps / Willow Road ^d	Menlo Park	AM PM	N/A ^d	N/A ^d
86	Central Expressway / Rengstorff Avenue	Santa Clara County (SC CMP)	AM PM	76.7 62.1	E- E
87	Central Expressway / Shoreline Boulevard (N)	Santa Clara County (SC CMP)	AM PM	3.2 5.4	A A
88	Central Expressway / Shoreline Boulevard (S)	Santa Clara County (SC CMP)	AM PM	8.1 7.4	A A
89	Central Expressway / Moffett Boulevard	Santa Clara County (SC CMP)	AM PM	62.6 63.4	E E

TABLE 5.15-2 (CONTINUED)
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECOND PER VEHICLE)

ID No.	Intersection	Jurisdiction (CMP Network) ^a	Peak Hour	Delay (sec/veh.) ^b	LOS
90	Foothill Expressway / Edith Avenue	Santa Clara County	AM PM	28.8 27.6	C C
91	Foothill Expressway / Main Street	Santa Clara County (SC CMP)	AM PM	22.3 22.5	C+ C+
92	University Avenue / O'Brien Drive	Menlo Park	AM PM	7.8 12.5	A B
93	University Avenue / Adams Drive ^c	Menlo Park	AM PM	62.4 21.4	F ^e C
94	University Avenue / Runnymede Street	East Palo Alto	AM PM	14.9 19.8	B B-
95	University Avenue / Bell Street	East Palo Alto	AM PM	14.5 17.7	B B

Bold text indicates intersection operates at unacceptable level of service.

^a Intersection jurisdiction and identification of CMP (Congestion Management Program) intersections.

(SC CMP) = CMP intersection in Santa Clara County

(SM CMP) = CMP intersection in San Mateo County

^b Weighted average control delay expressed in seconds per vehicle for the overall intersection for signalized intersections and all-way stop-controlled intersections. For side-street stop-controlled intersections, total delay for the worst movement is reported.

^c Unsignalized Intersection

^d The US 101 / Willow Road interchange reconfiguration is estimated to be constructed by 2020; hence does not exist now.

^e The signal warrant is not met at this intersection.

SOURCE: Fehr & Peers, August 2017

Existing Level of Service Conditions – Freeway Segments

San Mateo County

The San Mateo County City/County Association of Governments (C/CAG) is the congestion management agency of San Mateo County. The *San Mateo County Congestion Management Program 2015* report provides information on the worst-performing segments on each route. The LOS method used within the CMP report is based on calculated volume-to-capacity (V/C) ratios and LOS criteria described in the *1994 Highway Capacity Manual*. As shown in **Table 5.15-3**, within San Mateo County, I-280 between SR 92 and SR 84 currently exceeds C/CAG's LOS standard during the AM and PM peak hours.

TABLE 5.15-3
EXISTING FREEWAY SEGMENT LEVEL OF SERVICE IN SAN MATEO COUNTY

Freeway	Roadway Segment	LOS Standard	AM LOS	PM LOS
I-280	SR 92 to SR 84	D	E	E
	SR 84 to Santa Clara County Line	F	A	F
US 101	Whipple Avenue to Santa Clara County Line	F	F	F

SOURCE: Jacobs, *Level of Service and Performance Measure Monitoring Report – 2015*, September 2015.

Santa Clara County

Table 5.15-4 contains the existing freeway segments level of service for the mixed-flow and HOV lanes based on the segment densities (expressed in terms of passenger cars per mile per lane). The following freeway segments within Santa Clara County exceed VTA's LOS E standard during the specified peak hour:

SR 85 Northbound (AM Peak Hour)

- South De Anza Boulevard to I-280 US 101 Northbound (HOV lane, too)
- Moffett Boulevard to Rengstorff Avenue

SR 85 Southbound (PM Peak Hour)

- Stevens Creek Boulevard to Saratoga Avenue
- I-280 to Stevens Creek Boulevard (HOV lane only)

I-280 Northbound (AM Peak Hour)

- Lawrence Expressway to Foothill Expressway

I-280 Southbound (PM Peak Hour)

- Page Mill Road to Magdalena Avenue
- SR 85 to Lawrence Expressway

US 101 Northbound (PM Peak Hour)

- North Shoreline Boulevard to Embarcadero Road

US 101 Southbound (PM Peak Hour)

- Embarcadero Road to Rengstorff Avenue
- SR 85 to SR 237

Existing Level of Service Conditions – Freeway Ramps

Analysis of freeway ramp vehicle queuing was conducted for the proposed Project to evaluate any potential queues spillback onto the freeway (from off-ramps) or local streets (from on-ramps).

Freeway On-Ramp Operations

Within the study area, there are freeway on-ramps equipped with ramp meters. Ramp metering rates (vehicles per hour per lane [vphpl]) change based on queuing on the freeway and on the on-ramps. The evaluation of study area on-ramps used a Caltrans-provided range of metering rates of 250 to 900 vphpl for the US 101 Southbound On-Ramp from Oregon Expressway, and 420 to 900 vphpl for the US 101 Southbound On-Ramp from Embarcadero Road.

As shown in **Table 5.15-5**, queues remain within the storage length when the ramp metering rate operates at the maximum (900 vphpl). All queues exceed the available storage length when using the minimum ramp metering rate, although it is unlikely that the metering rate remains at the minimum rate, given the above-stated ability for the rate to change. **Table 5.15-6** shows the other (non-metered) on-ramps that provide access to Stanford.

**TABLE 5.15-4
EXISTING FREEWAY SEGMENT LEVEL OF SERVICE (LOS) AND DENSITY (IN SANTA CLARA COUNTY)**

Freeway	Direction	Segment	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
SR 85	NB	Saratoga Avenue to South De Anza Boulevard	AM PM	2	1	52 21	36 8	E C	D A
	NB	South De Anza Boulevard to Stevens Creek Boulevard	AM PM	2	1	65 22	64 9	F C	F A
	NB	Stevens Creek Boulevard to I-280	AM PM	2	1	124 13	108 6	F B	F A
	SB	I-280 to Stevens Creek Boulevard	AM PM	2	1	21 52	5 66	C E	A F
	SB	Stevens Creek Boulevard to South De Anza Boulevard	AM PM	2	1	18 90	5 47	B F	A E
	SB	South De Anza Boulevard to Saratoga Avenue	AM PM	2	1	21 62	8 52	C F	A E
US 101	NB	SR 237 to Moffett Boulevard	AM PM	3	1	49 36	35 22	E D	D C
	NB	Moffett Boulevard to SR 85	AM PM	3	1	66 52	33 16	F E	D B
	NB	SR 85 to N. Shoreline Boulevard	AM PM	4	1 ^a	79 47	34 15	F E	D B
	NB	N. Shoreline Boulevard to Rengstorff Avenue	AM PM	3	1 ^a	76 74	25 13	F F	C B
	NB	Rengstorff Avenue to San Antonio Road	AM PM	3	1 ^a	42 62	20 11	D F	C A
	NB	San Antonio Road to Oregon Expressway	AM PM	3	1 ^a	42 62	29 22	D F	D C
	NB	Oregon Expressway to Embarcadero Road	AM PM	3	1	46 62	38 36	D F	D D
	SB	Embarcadero Road to Oregon Expressway	AM PM	3	1	35 104	33 83	D F	D F
	SB	Oregon Expressway to San Antonio Road	AM PM	3	1 ^a	34 89	19 26	D F	C C
	SB	San Antonio Road to Rengstorff Avenue	AM PM	3	1 ^a	48 85	18 19	E F	B C
	SB	Rengstorff Avenue or N. Shoreline Boulevard	AM PM	3	1 ^a	40 49	21 20	D E	C C
	SB	N. Shoreline Boulevard to SR 85	AM PM	3	1 ^a	36 47	27 32	D E	D D
	SB	SR 85 to Moffett Boulevard	AM PM	3	1	31 103	28 35	D F	D D
	SB	Moffett Boulevard to SR 237	AM PM	3	1	33 70	22 36	D F	C D

TABLE 5.15-4 (CONTINUED)
EXISTING FREEWAY SEGMENT LEVEL OF SERVICE (LOS) AND DENSITY (IN SANTA CLARA COUNTY)

Freeway	Direction	Segment	Peak Hour	Number of Lanes		Density		LOS	
				Mixed	HOV	Mixed	HOV	Mixed	HOV
I-280	NB	Lawrence Expressway to Wolfe Road	AM PM	3	1	81 23	46 10	F C	D A
	NB	Wolfe Road to De Anza Boulevard	AM PM	3	1	62 25	57 7	F C	E A
	NB	De Anza Boulevard to SR 85	AM PM	3	1	73 23	45 7	F C	D A
	NB	SR 85 to Foothill Expressway	AM PM	3	1	70 22	58 8	F C	E A
	NB	Foothill Expressway to Magdalena Avenue	AM PM	3	1	37 22	53 13	D C	E B
	NB	Magdalena Avenue to El Monte Road	AM PM	4	0	48 25	n/a n/a	E C	n/a n/a
	NB	El Monte Road to La Barranca Road	AM PM	4	0	39 21	n/a n/a	D C	n/a n/a
	NB	La Barranca Road to Page Mill Road	AM PM	4	0	32 25	n/a n/a	D C	n/a n/a
	NB	Page Mill Road to Alpine Road	AM PM	4	0	32 36	n/a n/a	C D	n/a n/a
	SB	Alpine Road to Page Mill Road	AM PM	4	0	25 32	n/a n/a	C D	n/a n/a
	SB	Page Mill Road to La Barranca Road	AM PM	4	0	21 68	n/a n/a	C F	n/a n/a
	SB	La Barranca Road to El Monte Road	AM PM	4	0	20 67	n/a n/a	C F	n/a n/a
	SB	El Monte Road to Magdalena Avenue	AM PM	4	0	20 81	n/a n/a	C F	n/a n/a
	SB	Magdalena Avenue to Foothill Expressway	AM PM	3	1	23 37	12 18	C D	B C
	SB	Foothill Expressway to SR 85	AM PM	3	1	33 40	14 14	D D	B B
	SB	SR 85 to De Anza Boulevard	AM PM	3	1	24 103	9 19	C F	A E
	SB	De Anza Boulevard to Wolfe Road	AM PM	3	1	36 77	10 30	D F	A E
	SB	Wolfe Road to Lawrence Expressway	AM PM	3	1	35 81	16 19	D F	B E

^a Data is provided from the 2014 Conformance and Monitoring Report, which specifies one HOV lane on the identified segments in the year 2014.

SOURCE: VTA Monitoring and Conformance Report, 2014

**TABLE 5.15-5
EXISTING FREEWAY METERED ON-RAMP QUEUING EVALUATION**

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	Ramp Volume	Min. / Max. Queue (feet) ^c
Oregon Expressway (US 101 Southbound)	1,400	AM PM	1,297 1,275	30 / 18,090 30 / 64,260
Embarcadero Road (US 101 Southbound)	1,150	AM PM	803 720	30 / 17,940 690 / 23,490

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Minimum queues estimated using the maximum metering rates provided by Caltrans (see text above). Maximum queues estimated using the minimum metering rates provided by Caltrans (see text above). The minimum queue is one vehicle, which is equal to 30 feet.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

**TABLE 5.15-6
EXISTING FREEWAY NON-METERED ON-RAMP VOLUMES AND STORAGE CAPACITY**

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	Existing Ramp Volume
US 101 Northbound On-Ramps			
Willow Road	650	AM PM	361 232
University Avenue	880	AM PM	357 119
I-280 Northbound On-Ramps			
Sand Hill Road	1,460	AM PM	509 974
Alpine Road	1,000	AM PM	350 691
Page Mill Road	700	AM PM	666 1,374
I-280 Southbound On-Ramps			
Page Mill Road	1,500	AM PM	585 902
Alpine Road	650	AM PM	364 546
Sand Hill Road	800	AM PM	325 954

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

Freeway Off-Ramp Operations

Off-ramp queues that terminate at an intersection were evaluated using ramp-terminal intersection queue estimates from the intersection LOS calculations. Slip ramps where there is no control device (e.g., no signal or stop sign) and the ramp merges with the local street were evaluated using V/C ratios.

Table 5.15-7 presents the available storage and calculated queue lengths for the signalized turning movements that provide access to the Project site. Data for left-turning (and/or through) and right-turning vehicles are presented separately based on which turning movement serves the Project site. As shown in the table, all off-ramps serve vehicle queues within the available ramp storage. However, the following turn queues exceed the available turn-pocket storage queue:

- US 101 / University Avenue southbound loop off-ramp – right-turn queue exceeds pocket storage length during the AM and PM peak periods
- I-280 / Sand Hill Road northbound diagonal off-ramp – right-turn queue exceeds pocket storage length during the AM and PM peak periods
- I-280 / Page Mill Road southbound diagonal off-ramp – left-turn queue exceeds pocket storage length during the AM and PM peak periods

**TABLE 5.15-7
EXISTING FREEWAY OFF-RAMP QUEUING EVALUATION
(SIGNALIZED AND STOP-CONTROLLED TERMINAL INTERSECTIONS)**

Off-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	Ramp Volume ^c	Queue (feet) ^d
US 101 Southbound Off-Ramps				
University Avenue	1,870 / 190	AM PM	260 / 249 184 / 529	480 / 480 270 / 630
I-280 Northbound Off-Ramps				
Sand Hill Road	740 / 300	AM PM	93 / 494 49 / 182	90 / 930 90 / 330
Alpine Road ^f	1,360 / 280	AM PM	248 / 808 129 / 259	30 / ^e 30 / ^e
Page Mill Road	60 / 1,830	AM PM	131 / 1,810 50 / 288	60 / ^e 30 / ^e
I-280 Southbound Off-Ramps				
Alpine Road	1,370 / 450	AM PM	381 / 453 154 / 243	210 / ^e 30 / ^e
Page Mill Road ^f	150 / 1,940	AM PM	1,025 / 453 791 / 44	330 / ^e 270 / ^e

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements. Storage Capacity for a Controlled Ramp - #### = left-turn and (or) through pocket / right-turn pocket

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Ramp volume by turning movement - #### = left-turn and (or) through movement / right-turn movement

^d The queue indicated represents the 95th Percentile Queue for signalized movements and the Average Queue for stop-controlled movements - #### = left-turn and (or) through queue / right-turn queue

^e Only left-turn movement is stop-controlled. Free right-turn queues are not provided.

^f For all-way stop-controlled ramp intersections, the average queue is reported due to the limitations of the 2000 HCM.

SOURCE: Fehr & Peers, August 2017.

While these turn queues exceed the available turn pocket storage, the queue is served within the total ramp storage, and does not spillback into the freeway mainline.

As shown in **Table 5.15-8**, the V/C ratios for the off-ramps with uncontrolled terminal intersections are less than 1.00, indicating that the off-ramps have sufficient capacity to accommodate the exiting volumes at these locations.

**TABLE 5.15-8
EXISTING FREEWAY OFF-RAMP QUEUING EVALUATION
(UNCONTROLLED TERMINAL INTERSECTIONS)**

Off-Ramp	Maximum Vehicle Flow Rate (Capacity, vphpl) ^a	Peak Period ^b	Ramp Volume	Volume-to-Capacity Ratio
US 101 Northbound Off-Ramps				
Embarcadero Road (diagonal)	1,800	AM PM	727 409	0.40 0.23
US 101 Southbound Off-Ramps				
Willow Road (loop)	1,900	AM PM	423 394	0.22 0.21
I-280 Northbound Off-Ramps				
Alpine Road (loop) ^c	1,900	AM PM	808 259	0.43 0.14
Page Mill Road (loop) ^c	1,900	AM PM	1,810 288	0.95 0.15
I-280 Southbound Off-Ramps				
Sand Hill Road (diagonal)	1,800	AM PM	1,361 523	0.76 0.29
Alpine Road (loop) ^c	1,900	AM PM	453 243	0.24 0.13
Page Mill Road (loop) ^c	1,900	AM PM	41 44	0.02 0.02

^a Diagonal ramps were assumed to have a capacity of 1,900 vehicles per hour per lane (vphpl). Loop ramps were assumed to have a capacity of 1,800 vphpl.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c The right-turn movement is uncontrolled. Therefore, the right-turn volume and V/C is the only ramp movement reported in the table.

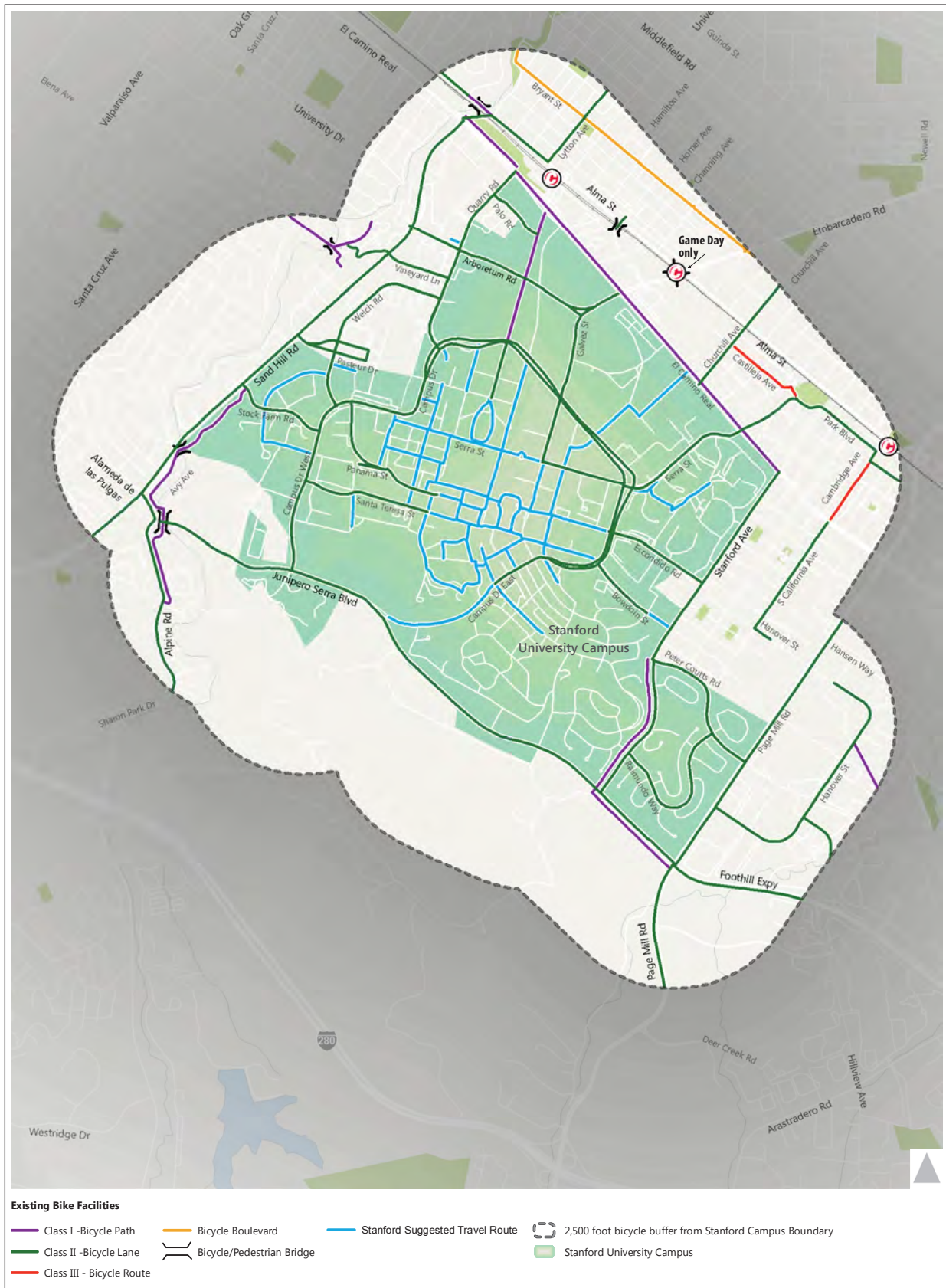
SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

Bicycle Facilities

Bicycle facilities on- and off-campus include a combination of Class I, II, and III bikeways (see **Figure 5.15-3**).

On-Campus Bicycle Facilities

A bicycle path (Class I) is present along Palm Drive between the El Camino Real southbound ramps intersection and Campus Drive. The Stanford Perimeter Trail is a shared-use recreational path that runs along Junipero Serra Boulevard, Stanford Avenue, and El Camino Real, providing connections to trails in adjacent jurisdictions, parks, schools, and other destinations commuting from off-campus residences or traveling to off-campus amenities.



SOURCE: Fehr & Peers

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Figure 5.15-3
Existing Bicycle Facilities

Bicycle lanes (Class II) are present along the following roads:

- Sand Hill Road
- Quarry Road
- Welch Road
- Galvez Street
- Serra Street
- Stanford Avenue
- Raimundo Way
- Palo Road
- Arboretum Road
- Vineyard Lane
- Pasteur Drive
- Stock Farm Road
- Panama Street
- Santa Teresa Street
- Escondido Road
- Bowdoin Street
- Peter Coutts Road

On Campus Drive, which forms a near-complete loop around the campus, bicycle lanes are provided everywhere except on Campus Drive East between Mayfield Avenue and Junipero Serra Boulevard. Escondido Road and Escondido Mall is a bicycle priority street connecting the East Campus residential areas to the campus core. Santa Teresa Street performs a similar function for the West Campus and Lagunita District residential areas. Bicycle roundabouts are present at the intersections of Escondido Mall/Lasuen Mall and Serra Mall/Lasuen Mall to accommodate these high bicycle volumes.

Several key roadways that provide vehicle access to parking lots and structures near Campus Drive convert to non-auto streets on-campus. These facilities include Escondido Mall, Serra Mall, Panama Mall, Lasuen Mall, Lomita Mall, and the pathway network through White Plaza and Meyer Green. In addition, there are several bicycle/pedestrian/transit only routes, such as Serra Mall, which runs in a north/south direction. The other key bicycle routes used to access the campus core include Mayfield Avenue, Via Ortega, and Panama Street.

Off-Campus Bicycle Facilities

The cities of Palo Alto and Menlo Park maintain a system of on- and off-road bicycle paths, lanes, and routes, which include underpasses or bridges. Bicycles are legal on all streets in Palo Alto and Menlo Park, except freeways, though there are some major streets with narrow lanes that are not easily shared by bicyclists and motor vehicles.

Among the gateways to the Stanford campus, bicycle lanes along Serra Street and Escondido Road, and the bike path on Palm Drive, provide connections to key off-campus bicycle and transit facilities, including Park Avenue, Hanover Street and the Palo Alto Transit Center. Other notable bicycle gateways include Welch Road, Stock Farm Road, Bowdoin Street and Quarry Road.

The City of Palo Alto has several bicycle paths within the study area, notably along portions of Sand Hill Road, Alpine Road, and along the Bol Park Bike Path, which provides connection to Stanford's Research Park and Arastradero Road. In addition, the Embarcadero Bike Path provides an east- west connection parallel to the Caltrain Corridor between facilities along Sand Hill Road, Palm Avenue, Embarcadero Road and Churchill Avenue.

Within the study area and the City of Palo Alto, bicycle lanes are present along the following corridors:

- Sand Hill Road
- Lytton Avenue
- Churchill Avenue
- California Avenue
- Page Mill Road
- Alpine Road
- Junipero Serra Boulevard/Foothill Expressway
- Alma Street
- Park Boulevard
- Hanover Street

Stanford Avenue is an important facility for commuters and local residents alike, and features bicycle lanes on both sides of the roadway with green bicycle lanes where potential conflict zones emerge.

The City of Palo Alto has designated certain streets as bicycle boulevards. Bike boulevards are bicycle routes with high bicycle usage and relatively low vehicle traffic, and often include special signs, traffic calming devices that slow vehicles, and partial roadway closures that permit only bicycles to travel through. Bryant Street is a bicycle boulevard that provides north/south connectivity through the City of Palo Alto. Several additional bicycle routes (Class III) exist within the study area, notably along Clark Way, and portions of California Avenue and Hanover Street.

The City of Menlo Park has several bike lanes within the study area, notably along Alma Street, Alpine Road, Santa Cruz Avenue, and Sand Hill Road. There are three bicycle and pedestrian overcrossings along San Francisquito Creek that connect Menlo Park and Palo Alto: on San Mateo Drive, Alma Street and Willow Place. These facilities provide important off-street connections for cyclists and pedestrians, allowing them to avoid the busy roadway crossings at Middlefield Road and El Camino Real. In addition, two undercrossings provide important connections for bicyclists in the study area. One undercrossing is located beneath Junipero Serra Boulevard just east of Alpine Road and adjacent to the Stanford Golf Course, providing a connection to Sand Hill Road. The Palo Alto Transit Center features another undercrossing to provide users of the system with a connection across the Caltrain Corridor.

Pedestrian Facilities

Pedestrian facilities consist of sidewalks, crosswalks, and shared use paths. Pedestrian connectivity immediately surrounding the Stanford campus is provided by a mostly-complete network of sidewalks and crosswalks. Sidewalks are present on both sides of University Avenue, Embarcadero Road, Churchill Avenue, Park Boulevard, Yale Street, Wellesley Street, Oberlin Street, Bowdoin Street, Peter Coutts Road, Stanford Avenue, Welch Road, Vineyard Lane, and Arboretum Road. Signalized crossings on El Camino Real, which have pedestrian signals to provide safe crossings, are provided at numerous locations in the study area, including Sand Hill Road, Quarry Road, University Avenue/Palm Drive, and Embarcadero Road.

Most of the pedestrian network surrounding the campus is mostly built-out, and there are only minor sidewalk gaps. Sidewalks are present in most parts of Palo Alto and Menlo Park. On the unincorporated Santa Clara County lands, Stanford recently constructed a new pedestrian

pathway along Junipero Serra Boulevard between Page Mill Road and Stanford Avenue. There is no sidewalk along Junipero Serra Boulevard between Stanford Avenue and Sand Hill Road due to right-of-way constraints. Palo Road provides a shared-use path on the east side of the road and directs foot traffic away from Stanford toward El Camino Real. Crosswalks are also present in many locations of the study area. High vehicle volumes and speeds, coupled with long distances between protected pedestrian crossings, create barriers for pedestrian connectivity to Stanford along portions of El Camino Real, Page Mill Road, and Sand Hill Road. Other major barriers for pedestrians in the study area include the Caltrain tracks that parallel Alma Street.

Existing Transit Services

An extensive public transit network of rail, buses, and ferries serves the greater San Francisco Bay Area; many of these transit providers offer service near Stanford. The Palo Alto Transit Center is a point of convergence for Caltrain and several bus lines operated by VTA, San Mateo County Transit (SamTrans), Alameda-Contra Costa Transit District (AC Transit), and Stanford Marguerite Shuttle. There are free shuttles operated by Stanford (the Marguerite), the City of Palo Alto, and the City of Menlo Park that offer service to Stanford and neighboring cities. **Figure 5.15-4** shows the existing transit facilities and routes in the study area, except the Marguerite Shuttle, which is shown in **Figure 5.15-5**. Details of bus routes are presented in Table 4-10 of the TIA in Appendix TIA, which summarizes the weekday destinations, hours of operation, and service frequencies for transit services within a 2,000-foot walking distance of the Stanford campus.

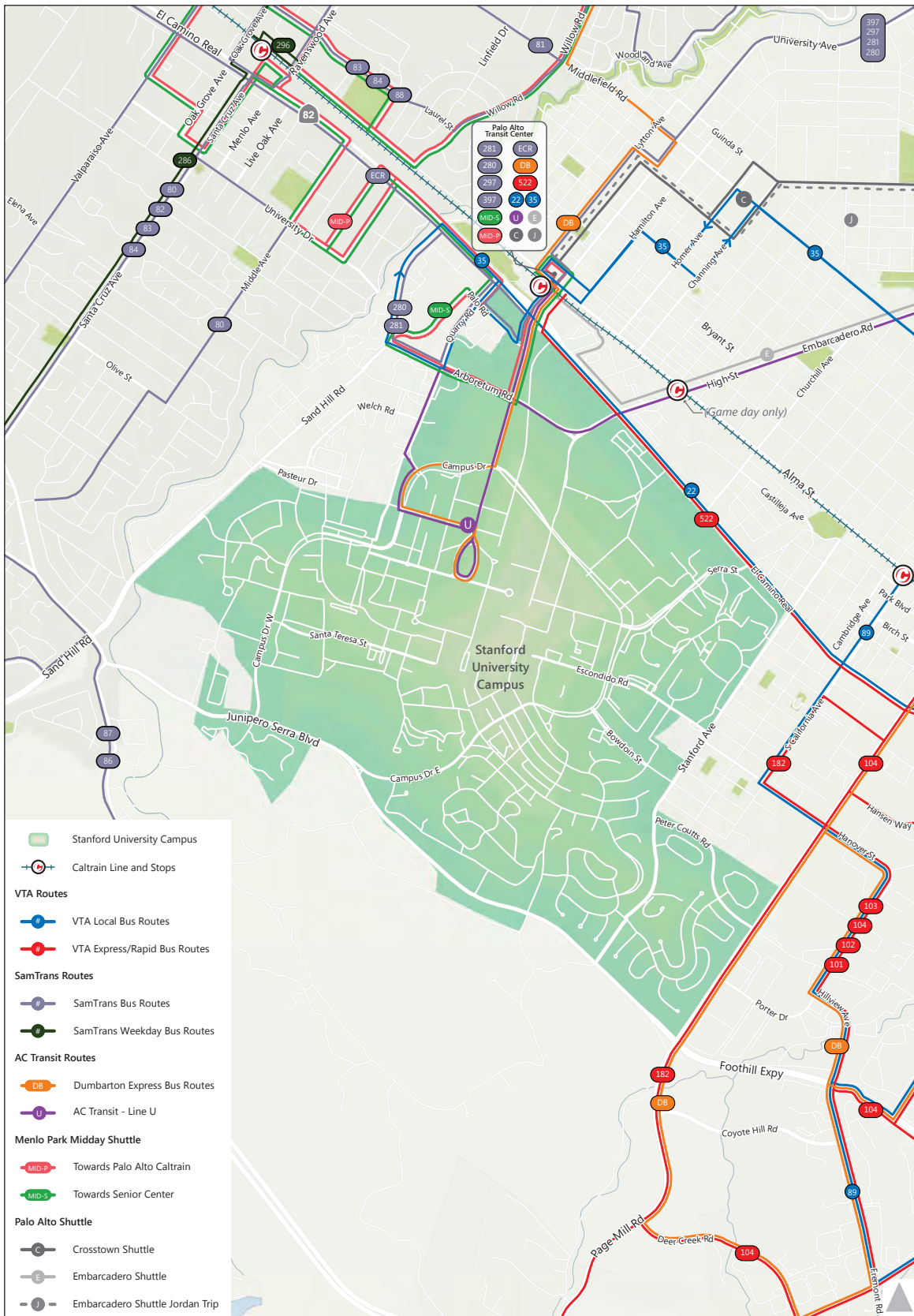
Caltrain

The Peninsula Corridor Joint Powers Board (JPB) rail service (aka Caltrain) runs north-south along the Peninsula from San Francisco to San Jose, with some service extending to Gilroy. Stanford is primarily served by stations at the Palo Alto Transit Center (east of El Camino Real at University Avenue) and at the California Avenue Station. There is an additional Caltrain station near Embarcadero Road that is only in service during days there is a Stanford football game and is not operational during typical peak periods.

The current weekday schedule consists of frequent train intervals (5 to 30 minutes) during commute hours, with hourly service provided during non-commute times. Northbound trains depart Palo Alto during the period from 5:02 AM to 11:04 PM. Southbound trains depart Palo Alto during the period from 5:51 AM to 12:59 AM. Caltrain provides Baby Bullet Express Service that allows under one-hour travel between San Jose and San Francisco. This service runs during both the AM and PM peak periods in both directions, a total of 22 trips each day. Six baby bullet trains stop at the Palo Alto Transit Center station in each of the northbound AM and PM, and southbound PM peak periods; five baby bullet trains stop at the Palo Alto Transit center in the southbound AM peak period. Baby bullet trains do not stop at the California Avenue Station.

Santa Clara Valley Transportation Authority (VTA)

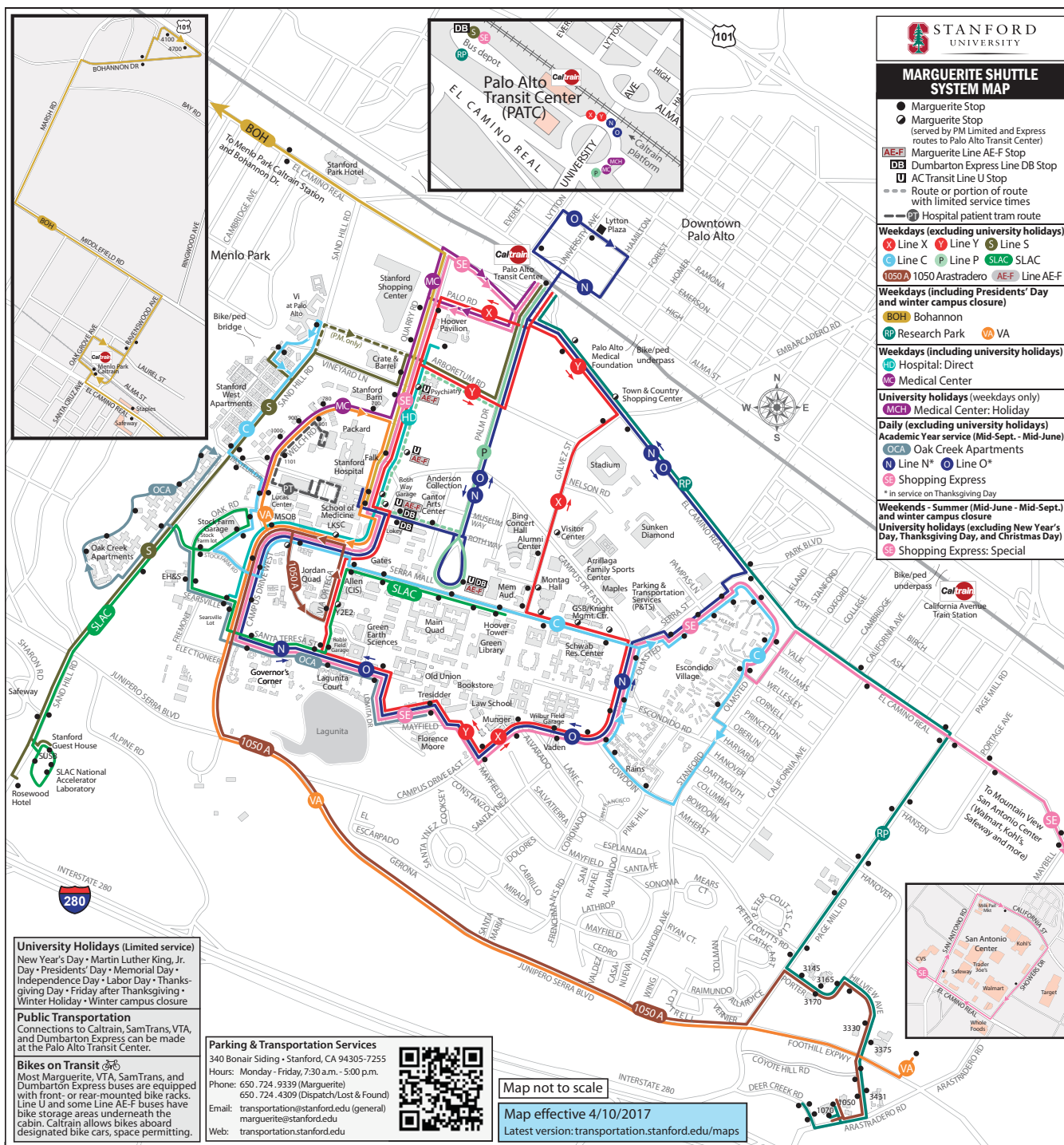
VTA operates fixed route, commuter, and paratransit bus service and light-rail service in Santa Clara County. VTA serves the Palo Alto Transit Center with local routes 22, 35 and the limited-stop Bus Rapid Transit route 522; route 35 also serves the Stanford Shopping Center. Route 89



SOURCE: Fehr & Peers

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Figure 5.15-4
Existing Regional Transit Routes



SOURCE: Stanford University; Fehr & Peers

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Figure 5.15-5
Existing Marguerite Shuttle Routes

provides service between the Palo Alto Veteran's Hospital and California Avenue Caltrain station along Hanover Street. Express bus routes 101, 102, and 103 provide service along Page Mill Road and Hansen Street. Express bus route 104 provides service between the Penitencia Creek Transit Center to Palo Alto along Page Mill Road. Express bus route 182 provides service between IBM/Bailey Avenue and Palo Alto along California Avenue and Hanover Street.

San Mateo County Transit (SamTrans)

SamTrans operates fixed route, commuter and paratransit bus service in San Mateo County, and serves the Palo Alto Transit Center with local lines 280, 281, the BART/Caltrain connector routes 297 and 397, and route ECR, which provides service along El Camino Real, making multiple stops at Caltrain and BART stations along the way. Connections to Stanford Shopping Center, which is located one-quarter mile northwest of the Palo Alto Transit Center, are provided by local lines 280, 281, and ECR.

Alameda-Contra Costa Transit District (AC Transit)

AC Transit operates fixed route, commuter, and paratransit bus services in the counties of Alameda and Contra Costa, and serves Stanford with the Dumbarton Express and Line U. The Dumbarton Express operates two lines, Line DB and Line DB1, which provide service between the Union City BART station and Palo Alto, utilizing the Dumbarton Bridge. Line DB serves the Palo Alto Caltrain station and the Stanford Oval, and Line DB1 serves the Stanford Research Park and Veterans Hospital. Line U provides connection between the Fremont BART station, the Stanford Oval and Stanford Shopping Center, with additional stops in the cities of Fremont, Palo Alto and Stanford's campus, including the Fremont/Centerville Amtrak Station and Ardenwood Park & Ride.

City of Palo Alto Shuttle

The free City of Palo Alto Shuttle provides two routes: the Embarcadero Shuttle and the Crosstown Shuttle. On weekdays, both routes serve the Palo Alto Transit Center. The Embarcadero Shuttle provides peak-hour service between the Palo Alto Caltrain Station and the Baylands Business Parks east of US 101/Embarcadero Road. It is coordinated with the Caltrain schedule, serving employers in the East Bayshore area, residents in the Embarcadero Road corridor, and students at Palo Alto High School and Castilleja School. The Crosstown Shuttle connects the University Avenue/Downtown to south Palo Alto and Charleston Road. The Crosstown Shuttle provides access residential neighborhoods, senior residences and services, libraries, recreation centers and commercial districts, and operates a Special School shuttle to help encourage more alternative transportation by students.

City of Menlo Park Shuttle

The free Midday Shuttle Service is operated by City of Menlo Park and provides service between the Palo Alto Transit Center and the Menlo Park Senior Center. Its key stops include Menlo Park Library, Belle Haven Library, Menlo Park Senior Center, downtown Menlo Park, Menlo Park Caltrain station, Menlo Medical Clinic, and Stanford Shopping Center. The Shuttle also connects with the Menlo Park Caltrain Station, SamTrans routes 296, ECR, and KX, and the Stanford Marguerite BOH and X lines.

Stanford Marguerite Shuttle

Stanford's Marguerite Shuttle provides free service to the public accessing many locations on the university campus, as well as the Medical Center, Stanford Shopping Center, SLAC National Accelerator Laboratory, Palo Alto Transit Center, California Avenue Caltrain Station and downtown Palo Alto. Figure 5.15-5 shows the existing Marguerite Shuttle routes, which are also described in more detail below.

- **1050 Arastradero** operates between the Li Ka Shing Center on Campus Drive and 1050/1070 Arastradero.
- **Bohannon (BOH)** provides service between 4100/4700 Bohannon Drive and the Stanford Medical Center (Quarry Extension).
- **East Bay Express** provides service between Campus Oval and the Fremont BART Station.
- **Hospital: Direct (HD)** travels between Searsville Lot on Searsville Road and Hoover Pavilion Garage inside Lot 1.
- **Line AE-F** operates between the Fremont BART station and the Stanford Campus Oval.
- **Line C** operates between Vi at Palo Alto on Sand Hill Road and Escondido Village. Line C Limited provides supplemental service between LKSC and Escondido Village via Serra Mall/Serra Street during morning and afternoon peak hours.
- **Line N** (counter-clockwise) and **Line O** (clockwise) travel around campus and Downtown Palo Alto.
- **Line P** provides service between the Palo Alto Transit Center and the Stanford Oval during morning and afternoon peak hours, plus mid-day service.
- **Line S** operates between the Rosewood Hotel and Palo Alto Transit Center.
- **Line X** serves the Palo Alto Transit Center and circulates counter-clockwise through campus. The Line X Limited shuttle provides supplemental service during the morning and afternoon peak times.
- **Line Y** serves the Palo Alto Transit Center and circulates clockwise through campus. The Line Y Limited shuttle provides supplemental service during the morning and afternoon peak times.
- **Medical Center (MC)** provides service between the Palo Alto Transit Center and Lucas Center on Welch Road. Peak hour service is designed to align with the majority of the northbound and southbound trains, and mid-day service is coordinated to trains arriving from between 10:00 AM and 3:00 PM.
- **Oak Creek Apartments (OCA)** operates between Tresidder Union on Lagunita Drive and the Oak Creek Apartments Club House.
- **Research Park** operates between the Palo Alto Transit Center and the Research Park during the AM commute times and brings riders back to the Palo Alto Transit Center during the PM commute times.

- **Shopping Express** operates between the Palo Alto Transit Center and the San Antonio Center.
- **SLAC** operates between SLAC National Accelerator Laboratory and Hoover Tower.
- **VA** provides service between Stanford Hospital and the Veterans Administration (VA) Hospital in Palo Alto.

5.15.3 2018 Baseline Environmental Setting

The proposed 2018 General Use Permit is not anticipated to be considered by the County for approval until 2018, after which implementation of the proposed 2018 General Use Permit would commence. As a result, 2018 serves as the baseline year against which environmental impacts of the proposed Project will be evaluated.

Stanford estimates that nearly all remaining academic and academic support development, and remaining housing, authorized under the 2000 General Use Permit will be built and occupied at the time of consideration of the proposed 2018 General Use Permit. The notable exception is the planned EV Graduate Residences, which are currently under construction; this housing would not be completed and occupied until approximately 2020. Because the EV Graduate Residences will not be occupied and operational until 2020, operational-related environmental impacts associated with this housing project are not included in the 2018 environmental baseline. Rather, EV Graduate Residences impacts are included in each of the 2035 cumulative scenarios.

There would be incremental increases in traffic on study area roads associated with increases in near-term cumulative development between the existing and 2018 baseline settings. Please refer to Approach to Analysis subsection in Section 5.15.5 for a detailed description for approach used to estimate 2018 trip growth, trip generation and distribution; transportation network improvements; and operating conditions.

5.15.4 Regulatory Setting

Federal

Federal Highway Administration

The Federal Highway Administration (FHWA) is a major agency within the U.S. Department of Transportation. In partnership with State and local agencies, FHWA carries out federal highway programs to meet the nation's transportation needs. FHWA administers and oversees federal highway programs to ensure that federal funds are used efficiently.

Surface Transportation Funding Program (FAST ACT)

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2020 for highway infrastructure, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials

safety, rail, and research, technology, and statistics programs. The FAST Act maintains the focus on safety, keeps intact the established structure of the various highway-related programs the FHWA manages, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects. With the enactment of the FAST Act, states and local governments are now moving forward with critical transportation projects with the confidence that they will have a federal partner over the long term.

Americans with Disabilities Act of 1990

The Americans with Disabilities Act of 1990 (ADA) (revised 2010) is a landmark civil rights law that prohibits discrimination based on disability. Titles I, II, III, and V of the ADA have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in “places of public accommodation” (businesses and non-profit agencies that serve the public) and “commercial facilities” (other businesses). The regulation includes Appendix 3.3-A to Part 36 (Standards for Accessible Design), which establishes minimum standards for ensuring accessibility for the disabled when designing and constructing a new facility or altering an existing facility, including roadways, parking lots, and sidewalks. Examples of key guidelines include detectable warnings for pedestrians when entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travel way, and a vibration-free zone for pedestrians.

State

California Department of Transportation

The California Department of Transportation (Caltrans) has authority over the State highway system, including freeways, interchanges, and arterial routes. Caltrans operates and maintains State highways in Santa Clara County. The Guide for the Preparation of Traffic Impact Studies (Caltrans 2001) provides information that Caltrans uses to review impacts on State highway facilities, including freeway ramps and segments. However, as the Congestion Management Agency for Santa Clara County, VTA is responsible for monitoring operations on Caltrans facilities within Santa Clara County.

State Transportation Improvement Program

The California Transportation Commission (CTC) administers transportation programming, which is the public decision-making process that sets priorities and funds projects that have been envisioned in long-range transportation plans. The CTC commits expected revenues for transportation projects over a multiyear period. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program for transportation projects both on and off the State Highway System. The STIP is funded with revenues from the State Highway Account and other funding sources. STIP programming typically occurs every two years. The current STIP was adopted in May 2016 and covers fiscal years 2016/17 – 2020/21.

California Transportation Plan

The California Transportation Plan (CTP) 2040 was adopted in June 2016. The CTP, which is overseen by the Caltrans, serves as a blueprint for California's transportation system, as defined by goals, policies, and strategies to meet the State's future mobility needs. The CTP 2040 identifies six goals:

- Improve multimodal mobility and accessibility for all people,
- Preserve the multimodal transportation system,
- Support a vibrant economy,
- Improve public safety and security,
- Foster livable and healthy communities and promote social equity, and
- Practice environmental stewardship.

The CTP 2040 is the first CTP to analyze theoretical statewide transportation scenarios intended to reduce greenhouse gas emissions. Based on this analysis, and the vision and goals of the plan, a set of policies and implementation measures to achieve each goal was developed. Implementation highlights include improving transit, reducing maintenance costs, improving highways and roads with management systems and technology, improving freight efficiency, improving communities through the Sustainable Communities Strategies (SCS), reducing transportation-related deaths and injuries, expanding the use and safety of bike and pedestrian facilities, making our vehicles and transportation fuels cleaner, improving public health and achieving climate and other environmental goals, and securing permanent stable and sufficient transportation revenue.

Senate Bill 375 (SB 375)

SB 375 provides guidance regarding curbing emissions from cars and light trucks to help the State meet its greenhouse gas emissions targets. There are four major components to SB 375. First, SB 375 requires regional greenhouse gas emissions targets for cars and light trucks. The California Air Resources Board's Regional Targets Advisory Committee will guide the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the State. These targets, which MPOs may propose themselves, must be updated every eight years in conjunction with the revision schedule of the housing and transportation elements of local general plans.

Second, MPOs are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an Alternative Planning Strategy that details an alternative plan for meeting the target.

Third, SB 375 requires regional housing elements and transportation plans to be synchronized on 8-year schedules. In addition, Regional Housing Needs Assessment (RHNA) allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within three years of adoption of the housing element.

Finally, MPOs must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the CTC. Regional Transportation Planning Agencies, cities, and counties are encouraged, but not required, to use travel demand models that are consistent with CTC guidelines.

This transportation analysis is based on regional land use forecasts in the Plan Bay Area Sustainable Communities Strategy that are projected to meet the region's SB 375 targets and the VTA-C/CAG 2040 travel demand model, consistent with the CTC RTP guidelines.

Complete Streets (Assembly Bill [AB] 1358)

AB 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as the redesign of corridors.

Senate Bill 743 (SB 743)

As explained above (5.15.1, *Introduction – Legal Requirements in Transition*), in 2013 the State enacted SB 743, which started a process intended to fundamentally change transportation impact analysis for purposes of CEQA. These changes include elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for transit priority areas and infill opportunity zones. The law also gives OPR the option of applying the new thresholds to other areas throughout the State. The State Office of Planning and Research (OPR) has issued draft CEQA Guidelines in response to SB 743, but those amendments have not been finalized or adopted.

SB 743 reflects a Legislative policy to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions. SB 743 requires the Governor's Office of Planning and Research (OPR) to prepare proposed revisions to the CEQA Guidelines for determining the significance of transportation impacts. Under SB 743, the criteria must promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.

SB 743 dictates that once the CEQA Guidelines are amended to include new thresholds, automobile delay, as described by level of service or similar measures of vehicular capacity or congestion, shall no longer be considered a significant impact under CEQA in all locations in which the new thresholds are applied. The Legislature gave OPR the option of applying the new thresholds only to transit priority areas, or more broadly to areas throughout the State.

A "transit priority area" is an area within one-half mile of a major transit stop. Public Resources Code section 21064.3 defines a "major transit stop" to mean 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.

Pursuant to SB 743, when the Guidelines are finalized, each jurisdiction will need to set new thresholds for transportation impacts based on VMT.

There is no date-certain for formal adoption of regulatory language changes to CEQA, and after formal adoption by the Natural Resources Agency, local jurisdictions/agencies will have a two-year period to transition to the new VMT-based approach. Already, some jurisdictions/agencies (such as Pasadena and San Francisco) have taken the initiative to adopt VMT metrics as the basis for CEQA analysis of transportation impacts.⁴

As an additional component of SB 743, aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area will not be considered significant impacts on the environment

Proposed Amendments to the CEQA Guidelines to Implement SB 743

OPR has issued proposed amendments to the State CEQA Guidelines to implement SB 743. OPR proposes to use automobile Vehicle Miles Traveled, or VMT, as the CEQA transportation metric and to apply the new VMT-based approach to all areas of the State. Agencies would have a two-year period to transition to the new VMT-based approach. Once this transition period ends, automobile delay can no longer be considered a significant adverse effect under CEQA.

The draft amendments to the CEQA Guidelines include a presumption that development projects that are located within one-half mile of an existing major transit stop or a stop along an existing high quality transit corridor will not cause a significant transportation impact. A high-quality transit corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. In its explanation document, OPR notes that this presumption encourages transit oriented development, and “transit-oriented development itself is a key strategy for reducing VMT, and thereby reducing environmental impacts and developing healthy, walkable communities.” The draft amendments to the CEQA Guidelines may be found in the OPR document *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (January 20, 2016).

OPR Technical Advisory on Evaluating Transportation Impacts in CEQA

Except for the presumption that projects near major transit stops and high-quality transit corridors will not result in significant impacts, the draft CEQA Guidelines themselves do not set forth specific standards to assess whether a project’s VMT effect is significant. Much of the detail is found in a draft Technical Advisory published by OPR.

Where a development project is not presumed to result in a less-than-significant impact, the draft Technical Advisory recommends thresholds for specific types of land uses, including the following:

⁴ Although VMT is not a formal impact topic for Santa Clara County CEQA analyses, potential impacts of the proposed 2018 General Use Permit were evaluated in terms of criteria proposed by OPR to implement SB 743.

- *Residential*: A project exceeding both existing city household daily VMT per capita minus 15 percent, and existing regional household daily VMT per capita minus 15 percent, may indicate a significant transportation impact.
- *Office*: A project exceeding a level of 15 percent below existing regional daily VMT per employee may indicate a significant transportation impact.
- *Retail*: A net increase in total VMT may indicate a significant transportation impact.
- *Mixed Use*: Lead agencies can evaluate each component independently, and apply the significance threshold for each project type included (e.g. residential and retail). In the analysis of each use, a project may take credit for internal capture.

OPR explains that 15 percent better than existing averages is roughly consistent with the reduction targets set by the California Air Resources Board for the larger metropolitan planning organizations pursuant to SB 375. For development in an unincorporated county, residential VMT that both exceeds 15 percent below existing daily VMT per capita in the aggregate of all incorporated jurisdictions in that county, and exceeds 15 percent below existing regional daily VMT per capita, may indicate a significant transportation impact.

In addition, the draft Technical Advisory suggests screening thresholds to determine whether a quantitative analysis is needed. Agencies could determine not to conduct additional analysis for projects that generate fewer trips than the threshold for studying consistency with a congestion management plan (typically 100 trips). Further, agencies may create maps that identify low-VMT areas and presume that projects in those areas that incorporate features similar to the existing low-VMT development will tend to exhibit similarly low VMT.

In public presentations, OPR has explained that the shift from level of service metrics to VMT will provide important benefits. Elimination of congestion-based metrics can remove a key barrier to infill development. Congestion-based analyses often result in measures to expand roadways and intersections, which result in high capital and maintenance costs. Further, level of service does not equate to quality of life. OPR has shown that level of service metrics do not measure the total amount of time that an individual spends commuting; rather the focus is on delay at a single intersection. Total travel time can be reduced by bringing housing and jobs closer together. According to OPR, VMT-based metrics attack regional congestion and overall driving behavior. Reducing VMT also will reduce greenhouse gas emissions. In addition, OPR has explained that VMT is easier to model than congestion-based approaches.

Regional

Metropolitan Transportation Commission (MTC)

The Metropolitan Transportation Commission (MTC) is the transportation planning, financing and coordinating agency for the nine-county San Francisco Bay Area. MTC collaborates with a network of other public agencies to help support the streets, highways, transit systems and other transportation resources that help millions of people travel every day. MTC developed and administers the region's long-term regional transportation plan, *Plan Bay Area*. *Plan Bay Area*

was adopted by MTC and the Association of Bay Area Governments (ABAG) in 2013 and projects out to Year 2040. The plan charts the course for transportation investment and land use priorities for the next 25 years. It is the first MTC regional plan to incorporate the state-mandated Sustainable Communities Strategy. On July 26, 2017, MTC and ABAG adopted an update to the plan, Plan Bay Area 2040, which is a limited and focused update of the 2013 plan.

County of Santa Clara

Santa Clara County is the governing jurisdiction for the Stanford academic campus. In addition, the Santa Clara County VTA acts as the County's transportation planning agency, transit services provider, and congestion management agency. The relevant planning documents of these agencies are described below.

Santa Clara County General Plan

The Santa Clara County General Plan strategies and policies relevant to transportation include:

Policy C-TR1 – Santa Clara County should develop and maintain an adequate, balanced, and integrated transportation system that is affordable and convenient to use and that is capable of meeting projected future demand.

Policy C-TR2 – An adequate transportation system for Santa Clara County should be considered essential for improving overall quality of life, including:

- a. continued economic development and increased living standards;
- b. enhanced environmental quality; and
- c. improved livability of urbanized areas.

Policy C-TR 3 – In order to safeguard future mobility and achieve other transportation-related goals and objectives stated in the Vision of the General Plan, the following set of coordinated strategies should guide decision-making and implementation efforts on a sub-regional basis:

- a. develop urban land use patterns that support travel alternatives;
- b. manage travel demand, system operation, and congestion levels;
- c. expand system capacity and improve system integration; and
- d. support new transportation technologies.

Strategy #1: Develop land use patterns that support travel alternatives.

Policy C-TR 4 – Overall transportation planning for Santa Clara County should be integral and consistent with the goals and objectives of comprehensive, countywide planning regarding urban growth management, compact and mixed use development patterns, environmental quality, and social and economic well-being.

Policy C-TR 5 – The transportation plans and the land use plans, specific plans, and redevelopment plans of local jurisdictions should be consistent and mutually reinforcing in order to enhance transportation infrastructure investment.

Policy C-TR 6 – Increase the proximity between housing and major employment areas to reduce commute distances and automobile-dependency by:

- a. increasing supply and affordability of units in northern portions of the county, as well as increasing employment-related land uses in the southern portion of the metropolitan area;
- b. applying the concepts of “balanced urban growth and development” in general to both the north and south valley areas;
- c. encouraging developers and employers to build on-site or near-site housing for potential workers at a planned commercial or industrial site, the cost of which is matched to the workers’ wages;
- d. encouraging developers to provide pedestrian and bicycle paths that connect housing and employment sites so as to encourage walking and bicycling.

Policy C-TR 7 – Appropriate urban densities, mixed-use development patterns, and other aspects of urban development which support use of travel alternatives and reduce auto-dependency should be employed along planned transportation corridors, within designated “urban activity centers,” and within redeveloping areas of existing cities.

Policy C-TR 8 – Urban design concepts and site development standards which facilitate use of transit and other travel alternatives should be adopted and implemented by local jurisdictions, to provide adequate:

- a. accessibility to transit and transit facilities;
- b. pedestrian and bicycle pathways and facilities, both on and between individual sites; and
- c. building design, orientation, on-site services and amenities which support the use of travel alternatives

Strategy #2: Manage travel demand, system efficiency, and congestion.

Policy C-TR 9 – Transportation Demand Management (TDM) measures should be employed to make more efficient use of existing road and highway capacity by increasing vehicle occupancy and reducing the need for commute and other trips. Such measures primarily include, but are not limited to the following:

- a. employer-based and school-based ridesharing programs;
- b. vanpooling;
- c. expanded use of flex-time and telecommuting; and
- d. transit subsidies, reduced parking, and other “market” approaches.

Policy C-TR 10 – Transportation System Management (TSM) measures should be employed to ensure maximum operating efficiency of the existing system of roads and highways, including but not limited to the following:

- a. signal synchronization, signal pre-emptions for transit vehicles;
- b. ramp metering; and
- c. traffic surveillance and traffic advisory signs.

Policy C-TR 11 – Santa Clara County shall participate in updating and implementing the Congestion Management Plan, the provisions of which as set forth by law:

- a. establish priority for air quality goals and objectives and development of alternatives to automobile travel; and
- b. allow additional road capacity to be created only when all feasible automobile travel demand measures have been implemented.

Policy C-TR 12 – It is the goal of this plan to achieve a level-of-service (LOS) no lower than D at peak travel periods on city streets, county roads, expressways and state highways. However, in certain instances, a lower level of service may be acceptable when LOS D cannot practically be achieved.

Policy C-TR 13 – Support and encourage the writing and implementation of deficiency plans for segments of the Congestion Management Plan designated transportation system that do not operate within the CMP LOS standard or are expected to not operate within the CMP LOS standard. Deficiency plans should focus on and give strong support to the use of existing and planned transit facilities.

Policy C-TR 14 – Reduce the number of workers who must drive by increasing the opportunities to telecommute; support and encourage the development and implementation of employer-based telecommuting programs.

Strategy #3: Expand system capacity and improve system integration.

Policy C-TR 15 – Increase the overall physical capacity of the transportation system to meet projected demand, primarily through the following means:

- a. increased transit system capacity and service levels for light rail, passenger rail, and bus transit;
- b. increased paratransit, bike and pedestrian facilities and service; and
- c. roadway capacity improvements to improve interchanges and complete the commuter lane network.

Policy C-TR 16 – Provide a balanced and integrated transportation system, which will allow for alternative means of travel and opportunities for transfer between alternative means.

Policy C-TR 17 – Development of the local transportation system should be coordinated with the regional and inter-regional transportation systems to ensure that they are fully integrated with each other.

Policy C-TR 18 – The entire transportation system should be fully accessible to and be planned and designed to be responsive to the special needs of seniors, school children, low-income, the physically challenged and transit disabled in accordance with the Americans with Disabilities Act of 1990.

Policy C-TR 21 – Local transit systems should be integrated with the local and regional transit systems of adjacent counties.

Policy C-TR 25 – Priority should be given to sustaining a base level of service on major grid bus lines.

Policy C-TR 26 – The County's bus system should be expanded as funding allows. Expansion of the bus system shall emphasize improving service on existing routes. It

should also emphasize express bus service to major employment centers, shuttle service to major activity centers, feeder buses to BART, Caltrain and light rail stations, and bus service to schools within urban service areas.

Policy C-TR 27 – Use and efficiency of the bus system should be maximized.

Policy C-TR 28 – Provide and maintain paratransit and fixed route transit services that fulfill the objectives of the Transit District Paratransit Plan and meet the requirements of the Americans with Disabilities Act of 1990.

Policy C-TR 29 – Improve transit accessibility to schools.

Policy C-TR 34 – Bicycling and walking should be encouraged and facilitated as energy conserving, nonpolluting alternatives to automobile travel.

Policy C-TR 35 – A bicycle transit system should be provided that is safe and convenient for the user and which will provide for the travel needs of bicyclists.

Policy C-TR 36 – Facilities should be provided to make bicycle and pedestrian travel more safe, direct, convenient and pleasant for commuting and other trips to activity centers and to support the use of other commute alternatives.

Strategy #4: Support new transportation technologies.

Policy C-TR 42 – Development and application of advanced transportation-related technologies should be supported to meet current and future travel demand, minimize economic productivity losses due to roadway congestion, and increase travel safety.

Stanford Community Plan

The Stanford Community Plan (December 2000) is a component of the Santa Clara County General Plan. The Stanford Community Plan provides the County General Plan policies for Stanford's academic campus. The Circulation chapter of the plan provides a description of the transportation network and services on the campus, and defines strategies, policies, and implementation steps related to transportation. The three strategies and associated policies and implementation steps are listed below.

Strategy #1: Achieve no net new commuter trips through land use and transportation demand management.

Policy SCP-C 1 – Apply a “no net new commute trips” standard for campus-related trips in the commute direction during peak hours to the fullest extent allowed by law.

Policy SCP-C 2 – Within the overall pattern of land uses on the campus, promote a development pattern that supports reduction in automobile dependency through the following approaches:

- New academic and residential development shall occur within the Academic Growth Boundary.
- Support services for campus residents and employees should be accommodated in close proximity to residential and academic facilities.

- New development should be located near existing transit services, particularly if extension of transit service to the new facilities would otherwise be infeasible or impractical.

Policy SCP-C 3 – Encourage addition of housing in locations convenient to jobs on Stanford land in other jurisdictions, such as near the Stanford Medical Center.

Policy SCP-C 4 – Enhance pedestrian and bicycle access to and through the campus.

Policy SCP-C 5 – Permit and encourage regular modification of Stanford’s Transportation Demand Management (TDM) program to allow for changes in user needs and in available services over time.

Policy SCP-C 6 – Continue to regulate parking supply as a mechanism for transportation demand management, while avoiding “spillover” of parking into neighborhoods adjacent to the campus. Over time, require Stanford to maintain a consistent level of parking in proportion to students, faculty and staff, as compared to the current ratio of 1.03 spaces per student, faculty and staff member.

Policy SCP-C 7 – In addition to meeting the no net new commute trips standard, encourage Stanford to reduce automobile travel at non-commute hours and in non-commute directions, such as traffic associated with lunchtime activities by employees or travel by families of on-campus residents

Policy SCP-C 8 – Credit participation in off-campus trip reduction efforts that benefit the streets surrounding the campus towards Stanford’s achievement of the “no net new commute trips” standard.

Implementation Recommendations:

SCP-C (i) 1 – Adopt and maintain zoning regulations that allow for a mix of land uses in academic and residential areas in order to reduce the need for automobile use on and off the campus.

SCP-C (i) 2 – Locate supporting services such as day care and convenience retail in new and existing graduate student and faculty/staff residential neighborhoods. Particularly review for provision of support services in applications for substantial new residential development.

SCP-C (i) 3 – Review development project applications for access to and integration with the overall system of pedestrian bikeways and pathways on the Stanford campus. Particularly consider this issue for development along the Quarry Road corridor with regard to enhancement of pedestrian access to the Palo Alto Intermodal Transit Center.

SCP-C (i) 4 – Establish a system for direct, independent, and verifiable monitoring of Stanford’s level of achievement with the “no net new commute trips” standard through the annual monitoring procedure.

SCP-C (i) 5 – Review the Transportation Demand Management system on an annual basis and consult with Stanford, and adjacent communities as appropriate, to ensure that new needs or opportunities are considered. Incorporate the following considerations into the review process:

- TDM strategies should serve to reduce the number of cars entering the campus during the morning peak hour and leaving during the evening peak hour.
- Programs serving intra-campus or off-peak travel should be primarily aimed at making it possible for employees and residents to conduct their daily activities without a car.

SCP-C (i) 6 – Encourage Stanford to identify opportunities and develop proposals for participation in off-campus trip reduction efforts. Assess the expected effectiveness of the proposed programs, and apply trip reduction credits to the annual calculation of Stanford’s compliance with the “no net new commute trips” standard.

Strategy #2: Alleviate local congestion in the context of commute trip reduction.

Policy SCP-C 9 – Maintain consistency with the procedures and adopted policies of the appropriate jurisdiction when evaluating local intersection service levels and defining mechanisms for addressing impacts.

Policy SCP-C 10 – Modify street and intersection capacity and configuration in a manner consistent with the street hierarchy and surrounding land uses.

Policy SCP-C 11 – Prioritize use and improvement of the internal campus circulation system over roadways on the campus edges.

Policy SCP-C 12 – Consult with jurisdictions surrounding the campus regarding the potential non-commute traffic impacts of new development and activities at Stanford, and work with the jurisdictions to reduce potential effects on neighborhoods surrounding the campus.

Policy SCP-C 13 – Identify opportunities to improve access and circulation for pedestrians, transit and bicycles instead of or in addition to system expansions that accommodate automobiles.

Implementation Recommendations:

SCP-C (i) 8 – Require street system expansions on the campus that will ease traffic flow and internal circulation, particularly in situations where such capacity expansion would make on-campus routes preferable to off-campus roadways.

SCP-C (i) 9 – If Stanford does not meet the “no net new commute trips” goal for new development on campus, require Stanford’s contribution toward intersection improvements at impacted locations or equivalent funding toward other transportation impact mitigation efforts, to a degree proportional to the effect of the new development on future traffic levels. If Stanford does not either meet the no net new commute trips goal or contribute proportional funding toward intersection improvements or equivalent funding for transportation mitigation efforts, do not grant additional development permits until Stanford meets the established requirements.

SCP-C (i) 10 – Negotiate renewal of agreements with the City of Palo Alto for the management of traffic associated with special events.

SCP-C (i) 11 – Cooperate with the Congestion Management Agency in implementing deficiency plans, where needed, for Congestion Management Program system roadways and intersections in proximity to the Stanford campus.

SCP-C (i) 12 – Consider redesign of Junipero Serra Boulevard in order to reduce speeding, enhance bicycle, pedestrian and motorist safety, recognize the needs of residents taking access from the street, improve migration opportunities for the California tiger salamander, and maintain the scenic character of the roadway, without substantially affecting traffic volumes. Pursue redesign through cooperative efforts among the County, Stanford, and local residents, as well as other agencies as appropriate.

SCP-C (i) 13 – Work cooperatively with surrounding jurisdictions to develop solutions to regional transportation problems.

Strategy #3: Alleviate local congestion from special events.

Policy SCP-C 14 – Identify opportunities to promote the use of public transit for special events at Stanford.

Policy SCP-C 15 – Work with neighboring jurisdictions to manage special event traffic.

Policy SCP-C 16 – Provide advance notification of events expected to draw large crowds to on-campus residents and the surrounding community.

Policy SCP-C 17 – Consult with jurisdictions surrounding the campus regarding the potential non-commute traffic impacts of new development and activities at Stanford, and work with the jurisdictions to reduce potential effects on neighborhoods surrounding the campus.

Implementation Recommendations:

SCP-C (i) 14 – Require Stanford to institute a special events hotline and website that on-campus residents and the general public can contact for information regarding upcoming special events.

SCP-C (i) 15 – Require Stanford to provide the public with notice of special events in two newspapers of local circulation in the Palo Alto and Menlo Park area.

SCP-C (i) 16 – Negotiate renewal of agreements with the City of Palo Alto for the management of traffic associated with special events.

Santa Clara County Valley Transportation Authority (VTA)

VTA is an independent special district that provides bus, light-rail, and paratransit services, and participates as a funding partner in regional rail service including Caltrain, Capital Corridor, and the Altamont Corridor Express. As the County's congestion management agency, VTA is responsible for countywide transportation planning, including congestion management, design and construction of specific highways, pedestrian, and bicycle improvement projects, as well as promotion of transit oriented development. VTA provides these services throughout the county, including the municipalities of Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga and Sunnyvale.

Valley Transportation Plan 2040

The VTA's current long-range transportation plan is the draft *Valley Transportation Plan (VTP) 2040*, adopted in October 2014. The three objectives of the plan are:

- To facilitate the creation and support of an integrated multimodal transportation system that serves all socio-economic groups efficiently and sustainably;
- To pursue, develop, and implement advances in technology, management practices, and policies; and
- To be the region's foremost advocate for transportation projects, programs, and funding.

The plan highlights the projects and programs that will be pursued in partnership with member agencies in the next 25 years. Some of the types of projects being pursued are complete streets, express lanes, bus rapid transit, and bicycle/pedestrian improvements.

Congestion Management Plan

VTA also functions as the County's congestion management agency, and maintains and implements the Congestion Management Program (CMP). The current document, the *2015 Congestion Management Plan*, was adopted in October 2015. This document includes updates to previous standards and practices, including an emphasis on multimodal analysis and the renaming of the Deficiency Plan Element to the Multimodal Improvement Plan Element to reflect the need to shift travelers from autos. The CMP System includes a roadway network, a transit network, and a bicycle network. The roadway network includes freeways, expressways and principal arterials. Within the transportation study area, CMP facilities include US 101, I-280, El Camino Real (SR 82), University Avenue, Alma Avenue, Junipero Serra Boulevard – Foothill Expressway, Page Mill Road – Oregon Expressway, and San Antonio Road (2015 CMP, Figures 1.2 and 1.3). Therefore, a portion of the study intersections in the transportation analysis are CMP intersections. The CMP transit network and bicycle network are shown in CMP Figures 1.4 and 1.5, respectively.

The CMP currently identifies 11 multimodal transportation system performance measures for the CMP networks, including:

- traffic level of service (LOS),
- modal split,
- VMT per person-trip,
- transit accessibility,
- air quality,
- duration of congestion,
- hours of delay per person trip,
- travel time and travel time index,
- transit sustainability policy,
- travel pattern (in person trips), and
- use of the VTA TIA Guidelines.

Most of these are applied and measured system-wide or in individual "travel markets"; the traffic LOS measure is measured for freeway segments, intersections, and rural highways.

Countywide Bicycle Plan

In 2008, VTA completed the *Santa Clara Countywide Bicycle Plan (SCCBP)*, which provides a foundation for maintaining and enhancing the countywide bicycle network. The County is in the

process of updating this document to incorporate the advances in bicycle infrastructure design and cultural shift toward bicycling. The vision of the SCCBP is to establish, protect, and enhance bicycling as a viable transportation mode and to assure that bicycling is a practical and safe mode of travel, by itself and in combination with other modes.

The VTA's Bicycle Expenditure Program (BEP) was created to provide a funding stream to implement the SCCBP. In May 2013, the VTA Board adopted the BEP Project List for inclusion in the 2040 Santa Clara County LRTP. The LRTP identifies seven specific bicycle infrastructure projects near the Stanford campus. These projects are:

- **Palo Alto Bicycle Boulevard Network Project:** Expand the Bicycle Boulevard Network pursuant to the adopted bicycle plan.
- **Palo Alto Transit Center/University Avenue Undercrossing:** Construct a new bicycle/pedestrian undercrossing of Caltrain tracks, near Everett Street or Lytton Street in order to connect Downtown with Stanford University and Medical Center, and the multi-modal transit center.
- **Sand Hill Road/I-280 Interchange Bicycle Improvements:** Provide general multi-modal access improvements at the Sand Hill Road / I-280 Interchange. This bicycle improvement project is taken from the Draft *Expressway Plan 2040*.
- **Page Mill Road/I-280 Interchange Modification:** Modify the ramp configurations from Old Page Mill Road to Arastradero Road in order to enhance safe passage for bicyclists through the interchange area.
- **California Avenue Caltrain Undercrossing:** Replace the California Avenue bicycle/pedestrian undercrossing of Caltrain tracks with a new ADA compliant structure.
- **South Palo Alto Caltrain Pedestrian/Bicycle Grade Separation:** Construct a grade separated bicycle/pedestrian crossing between the California Avenue Caltrain station and the at-grade crossing on East Meadow Drive.
- **US 101/Adobe Creek Bicycle-Pedestrian Bridge and Adobe Creek Trail Extension:** Construct a year-round, Class I overcrossing of Highway 101 to replace the existing, seasonal Lefkowitz Tunnel. Extend Adobe Creek Trail between West Bayshore Road and Louis Road.

Implementation timeframes for these projects vary based upon the agencies involved; however, all are anticipated to be fully programmed and/or completed by 2040, per the VTA's 2040 LRTP.

City/County Association of Governments of San Mateo County (C/CAG)

The C/CAG operates as a Joint Powers Authority and has members that include each of the 20 cities in the county as well as the County. C/CAG functions as the County's congestion management agency, and as such, maintains, implements and periodically updates the County's Congestion Management Program.

2015 Congestion Management Plan (CMP)

The first CMP for San Mateo County was adopted by C/CAG in 1991 and was last updated in 2015, with monitoring reports provided every two years. The overall goal is to help C/CAG promote countywide solutions to transportation problems based upon cooperation and mutual support.

The latest monitoring report, *Final San Mateo County Congestion Management Program, 2015* was adopted in November 2015. The CMP network in the TIA study area includes US 101, I-280, and El Camino Real (State Route 82). The LOS standards for these facilities within the study area range from LOS D to LOS F (2015 CMP, Figure 4). In addition to roadway segment standards, the CMP identifies key intersections on the network, two of which are included in the analysis: Bayfront Expressway/Willow Road and Bayfront Expressway/University Avenue. The CMP LOS standard for these intersections is LOS F (2015 CMP, Table 3).

San Mateo County Comprehensive Bicycle and Pedestrian Plan

C/CAG and the San Mateo County Transportation Authority (SMCTA) developed the 2011 San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) to address the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance. The CBPP identifies five specific bikeway and pedestrian network projects, which includes over/undercrossing, arterial crossing and interchange improvement projects, near the Stanford campus and in the City of Menlo Park. These projects were categorized based on criteria used to score and sort each project: collision history, transit access, population and employment density, and location in an underserved community. These projects are:

- **El Camino Real:** Construct a Class II linear bikeway along El Camino Real for 0.33 mile between Alejandra Avenue and Valparaiso Avenue.
- **El Camino Real:** Construct a Class III linear bikeway along El Camino Real for 1.05 miles between Valparaiso Avenue and Santa Clara County Line.
- **University Drive:** Construct a Class III linear bikeway along University Drive for 1.08 miles between Valparaiso Avenue to Santa Clara County.
- **Near Middle Avenue at Highway 82:** Construct an undercrossing near Middle Avenue at Highway 82/El Camino Real.
- **San Mateo Drive:** Construct a Class III linear bikeway along San Mateo Drive between Valparaiso Avenue to Santa Clara County Line.

Local Regulations

Most of the transportation study area falls within the Cities of Palo Alto, Menlo Park, and East Palo Alto. The following sections discuss the transportation policies of these cities.

City of Palo Alto Comprehensive Plan

The current *City of Palo Alto Comprehensive Plan* (which serves as the City's general plan) was last updated in 2007, with a land use map update in 2011. The City of Palo Alto is in the process of updating their Comprehensive Plan, a process that has been underway since 2014 and is

expected to conclude in 2017. The transportation element of the update has not yet been prepared. The 2007 Comprehensive Plan Transportation Element contains goals, policies and programs designed to guide the development, operations and maintenance of the transportation facilities. The ten goals are listed below:

Goal T-1: Less reliance on single-occupant vehicles

Goal T-2: A convenient, efficient public transit system that provides a viable alternative to driving

Goal T-3: Facilities, services, and programs that encourage and promote walking and bicycling

Goal T-4: An efficient roadway network for all users

Goal T-5: A transportation system with minimal impacts on residential neighborhoods

Goal T-6: A high level of safety for motorists, pedestrians, and bicyclists on Palo Alto streets

Goal T-7: Mobility for people with special needs

Goal T-8: Attractive, convenient public and private parking facilities

Goal T-9: An influential role in shaping and implementing regional transportation decisions

Goal T-10: A local airport with minimal off-site impacts

The Palo Alto Comprehensive Plan Transportation Element does not provide performance standards or significance thresholds for vehicle traffic operations or the performance of the systems serving other travel modes. However, the City has historically used Level of Service (LOS) D as the traffic LOS standard. The Transportation Element has the following policies regarding the development of the transportation network, which are relevant to the feasibility and design of mitigation that may be identified to address impacts of the proposed 2018 General Use Permit.

Policy T-14 – Improve pedestrian and bicycle access to and between local designations, including public facilities, schools, parks, open space, employment districts, shopping centers, and multimodal transit stations.

Policy T-25 – When constructing or modifying roadways, plan for usage of the roadway space by all users, including motor vehicles, transit vehicles, bicyclists and pedestrians.

Policy T-27 – Avoid major increases in street capacity unless necessary to remedy severe traffic congestion or critical neighborhood traffic problems. Where capacity is increased, balance the needs of motor vehicles with those of pedestrians and bicyclists.

Policy T-28 – Make effective use of the traffic-carrying capacity of Palo Alto's major street network without compromising the needs of pedestrians and bicyclists also using this network.

Policy T-31 – Evaluate smoothing and slowing traffic flow in commercial areas by reducing through-traffic lanes and trading the area for improved turning lanes, landscaping, and bicycle lanes.

Policy T-34 – Implement traffic calming measures to slow traffic on local and collector residential streets and prioritize these measures over congestion management. Include traffic circles and other traffic calming devices among these measures.

Policy T-39 – To the extent allowed by law, continue to make safety the first priority of citywide transportation planning. Prioritize pedestrian, bicycle, and automobile safety over vehicle level-of-service at intersections.

City of Menlo Park General Plan

Menlo Park recently completed a General Plan update (“*ConnectMenlo*”), initiated in March 2013 and finalized November 29, 2016. The updated Plan replaces the previous General Plan adopted in 1994 and last amended in 2013. *ConnectMenlo* contains circulation and transportation policies; a circulation plan diagram and standards; and circulation and transportation proposals and implications. One of the Guiding Principles was:

Great Transportation Options – “Menlo Park provides thoroughly-connected, sage and convenient transportation, adequate emergency vehicles access, and multiple options for people travelling by foot, bicycle, shuttle, bus, car, and train, including daily service along the Dumbarton Rail Corridor.”

The following seven circulation and transportation goals are included in the Circulation Element:

Goal CIRC-1 – Safe Transportation System. Provide and maintain a safe, efficient, attractive, user-friendly circulation system that promotes a healthy, safe, and active community and quality of life throughout Menlo Park.

Goal CIRC-2 – Complete Streets. Increase accessibility for and use of streets by pedestrians, bicyclists and transit riders.

Goal CIRC-3 – Sustainable Transportation. Increase mobility options to reduce traffic congestion, greenhouse gas emissions, and commute travel time.

Goal CIRC-4 – Health and Wellness. Improve Menlo Park’s overall health, wellness, and quality of life through transportation enhancements.

Goal CIRC-5 – Transit. Support local and regional transit that is efficient, frequent, convenient, and safe.

Goal CIRC-6 – Transportation Demand Management. Provide a range of transportation choices for the Menlo Park community.

Goal CIRC-7 – Parking. Utilize innovative strategies to provide efficient and adequate vehicle parking.

The Circulation Element describes the circulation plan diagram, which includes a description of the street classification system and mode priority and guidelines (Circulation Element Figure 2); bicycle standards and proposed improvements (Circulation Element Figure 3); and transit system improvements (Circulation Element Figure 4). The *ConnectMenlo* Environmental Impact Report (EIR) includes the mitigation that includes the preparation of Transportation Master Plan to identify needed roadway and other transportation improvements.

The Circulation Element contains Policy CIRC-3.4 which defines the City's intersection LOS standard as follows:

Policy CIRC-3.4 – Level of Service. Strive to maintain level of service (LOS) D at all City-controlled signalized intersections during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and at intersections along Willow Road from Middlefield Road to US 101. The City shall work with Caltrans to ensure that average stopped delay on local approaches to State-controlled signalized intersections does not exceed LOS E.

The Circulation Element has the following policies regarding the development of the transportation network, which are relevant to the feasibility and design of mitigation that may be identified to address impacts of the proposed 2018 General Use Permit.

Policy CIRC 1.7 – Bicycle Safety. Support and improve bicyclist safety through roadway maintenance and design efforts.

Policy CIRC-1.8 – Pedestrian Safety. Maintain and create a connected network of safe sidewalks and walkways within the public right of way ensuring that appropriate facilities, traffic control, and street lighting are provided for pedestrian safety and convenience, including for sensitive populations.

Policy CIRC-2.1 – Accommodating All Modes. Plan, design and construct transportation projects to safely accommodate the needs of pedestrians, bicyclists, transit riders, motorists, people with mobility challenges, and persons of all ages and abilities.

Policy CIRC-2.7 – Walking and Biking. Provide for the safe, efficient, and equitable use of streets by pedestrians and bicyclists through appropriate roadway design and maintenance, effective traffic law enforcement, and implementation of the City's Transportation Master Plan (following completion; until such time the Comprehensive Bicycle Development Plan, Sidewalk Master Plan and the El Camino Real/Downtown Specific Plan represent the City's proposed walking and bicycling networks).

Policy CIRC-2.8 – Pedestrian Access at Intersections. Support full pedestrian access across all legs of signalized intersections.

Policy CIRC-2.9 – Bikeway System Expansion. Expand the citywide bikeway system through appropriate roadway design, maintenance, effective traffic law enforcement, and implementation of the City's Transportation Master Plan (following completion; until such time the Comprehensive Bicycle Development Plan and the El Camino Real/Downtown Specific Plan represent the City's proposed bicycle network).

Policy CIRC-3.1 – Vehicle-Miles Traveled. Support development and transportation improvements that help reduce per service population (or other efficiency metric) vehicle miles traveled.

Policy CIRC-3.3 – Emerging Transportation Technology. Support efforts to fund emerging technological transportation advancements, including connected and autonomous vehicles, emergency vehicle pre-emption, sharing technology, electric vehicle technology, electric bikes and scooters, and innovative transit options.

City of East Palo Alto General Plan

The City of East Palo Alto just completed a General Plan update, as its previous General Plan was adopted in 1999. The *Vista 2035 – East Palo Alto General Plan Public Draft* was released in January 2016, and the Final EIR was released on August 2016. The City adopted the General Plan on October 6, 2016.

The updated General Plan Transportation Element contains the following transportation goals:

Goal T-1: Improve safety through the design and maintenance of sidewalks, streets, intersections, and other roadway improvements.

Goal T-2: Foster the creation of complete, multimodal streets.

Goal T-3: Create a complete, safe and comfortable pedestrian network for people of all ages and abilities.

Goal T-4: Build a comprehensive and well-used bicycle network that comfortably accommodates bicyclists of all ages and skill levels.

Goal T-5: Support local and regional transit that is efficient, frequent, convenient, and safe.

Goal T-6: Develop strategies to provide efficient and adequate vehicle parking.

Goal T-7: Adopt transportation performance measures.

Goal T-8: Adopt transportation demand management and roadway system efficiency strategies.

The Transportation element has the following two policies related to level of service standards and transportation performance measures:

Policy 7.1 – Automobile Level of Service Standards. Improve the East Palo Alto circulation system roadways in concert with land development to maintain adequate levels of service for automobile travel. Automobile Level of Service (LOS) performance can be measured using a volume-to-capacity (V/C) ratio. V/C ratios are calculated based on existing or future average daily traffic (ADT) volumes and daily capacity values for various types of roadways. A level of service scale is used to evaluate roadway performance based on V/C ratios. These levels range from “A” to “F”, with LOS A representing free flow conditions and LOS F representing severe traffic congestion. Descriptions of traffic flow for the different levels of service are provided in the table entitled Standards for Roadway Levels of Service. The performance criteria for evaluating volumes and capacities of the East Palo Alto roadway system is LOS D. At a signalized intersection, an impact is considered significant if it causes operations to degrade from LOS D or better to LOS E or F; or exacerbates LOS E or F conditions by increasing critical delay by more than 4 seconds and increasing V/C ratio by 0.01; or increases the V/C ratio by more than 0.01 at an intersection that exhibits unacceptable operations, even if the calculated LOS is acceptable. At an unsignalized intersection, an impact is considered significant if it: causes operations to degrade from LOS D or better to LOS E or F; or exacerbates LOS E or F conditions by increasing control delay; or causes volumes under project conditions to exceed the Caltrans Peak Hour Volume Warrant Criteria. Where the City determines that proposed development projects will cause LOS standards to be exceeded, appropriate mitigation will be required to improve roadways to meet LOS standards.

Policy 7.2 – Updating Transportation Performance Measures. Update the transportation performance measures in this Transportation Element, including Automobile Level of Service standards, once the State of California has amended the California Environmental Quality Act Guidelines to implement Senate Bill 743’s requirement to provide an alternative to automobile Level of Service for evaluating transportation impacts (See California Public Resources Code Section 21099(b)(1).) Additionally, designate appropriate infill opportunity zones within East Palo Alto, within which the automobile Level of Service standards prescribed by California Government Code Section 65089 shall not apply. (See Government Code Sections 65088.1 and 65088.4.)

The Transportation Element has the following policies regarding the development of the transportation network, which are relevant to the feasibility and design of mitigation that may be identified to address impacts of the proposed 2018 General Use Permit.

Policy 2.1 – Accommodating all modes. Plan, design and construct transportation projects to safely accommodate the needs of pedestrians, bicyclists, transit riders, motorists, people with disabilities, and persons of all ages and abilities.

Policy 2.2 – University Avenue. As the main transportation spine of East Palo Alto, ensure that any future redesign of University Avenue include improvements for all modes of travel, focusing on its local function as a community centerpiece for local activity and travel. Design options could include buffered and painted bicycle lanes, streetscape improvements such as benches and pedestrian scale lighting, and mid-block crossings, reversible lanes, and the reintroduction of on-street parking. The City shall maintain control of University Avenue (not Caltrans).

Policy 2.6 – Pedestrian and bicycle crossings. Encourage pedestrian and bicycle crossings at key locations and across existing barriers such as Highway 101 and to local employment and schools, such as Bay Road.

Policy 3.3 – Pedestrian network. Create a safe, comfortable and convenient pedestrian network that focuses on a) safe travel; b) improving connections between neighborhoods and commercial areas, and across existing barriers; c) providing places to sit or gather, pedestrian-scaled street lighting, and buffers from moving vehicle traffic; and d) includes amenities that attract people of all ages and abilities.

Policy 4.1 – Bicycle network. Improve facilities and eliminate gaps along the bicycle network to connect destinations across the city and create a network of bicycle facilities of multiple types that connect to neighboring cities, including a path along Newell Road between Highway 101 and San Francisquito Creek. The network should facilitate bicycling for commuting, school, shopping, and recreational trips by riders of all ages and levels of experience.

Policy 5.4 – Access to transit. Provide connecting bicycle and pedestrian infrastructure and amenities to improve access to transit stations and stops, and encourage new development projects near transit to improve transit stop amenities.

Policy 8.2 – Avoidance of street widening. When feasible, avoid widening streets to increase automobile capacity, focusing instead on operational improvements such as signal timing optimization, modern roundabouts and other Transportation Systems Management (TSM) strategies that aim to improve traffic conditions and reduce cut-through traffic by maximizing the efficiency of existing vehicle infrastructure.

5.15.5 Impacts and Mitigation Measures (Other than VMT)

Significance Criteria

Consistent with County of Santa Clara Environmental Checklist and Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact on transportation and traffic if it would:

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

Please see section 5.15-6, below, for a discussion of significance criteria pertaining to VMT. Also, please see sections 5.15-7 and 5.15-8, below, for information regarding transit and bicycle facility capacity, on-campus parking supply, and off-site parking restrictions.

Thresholds of Significance

Signalized Intersections

Operations and impacts are evaluated based on the appropriate jurisdiction's LOS standards (i.e., minimum threshold for acceptable operations) as shown in **Table 5.15-9**. An impact is significant if the addition of Project traffic causes an acceptable LOS to fall to an unacceptable LOS, or exceeds the thresholds in Table 5.15-9 for intersections that already would be at an unacceptable LOS without the Project.

There are signalized study intersections in ten different jurisdictions including six cities, two counties, and two congestion management programs. The level of service (LOS) operations of the signalized intersections were evaluated using the method described in the 2000 *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000). This LOS method, which is approved by Santa Clara County and VTA, analyzes a signalized intersection's operation based on average control delay per vehicle. LOS definitions are shown in **Table 5.15-10**.

**TABLE 5.15-9
SIGNALIZED INTERSECTION LEVEL OF SERVICE STANDARDS**

Jurisdiction	Intersection LOS Standards (minimum acceptable LOS)	Thresholds of Significance if LOS Standard is Exceeded Without the Project
Santa Clara County	LOS E	Increases the average critical delay by more than four seconds <u>and</u> increases the critical volume-to-capacity (V/C) ratio by 0.01 or more; OR increases the V/C ratio by 0.01 or more when the critical delay is decreased.
VTA Congestion Management Program (CMP)	LOS E	Increases the average critical delay by more than four seconds <u>and</u> increases the critical volume-to-capacity (V/C) ratio by 0.01 or more; OR increases the V/C ratio by 0.01 or more when the critical delay is decreased.
San Mateo County	- Outside dense urban areas: LOS C, with no individual movement at worse than LOS D. - Within dense urban areas: LOS D	- Increases the average critical delay by more than four seconds - Increases the average critical delay by more than four seconds
C/CAG Congestion Management Program (CMP)	LOS F for the two C/CAG CMP intersections within the study area	Increases the average critical delay by four seconds or more
City of Menlo Park	- LOS C for collector street intersections. - LOS D for all arterial streets or local approaches to State-controlled signalized intersections.	- Increases the average delay by more than 0.8 second on all critical movements for intersections on a collector or arterial. - Increases the average delay by more than 0.8 second on any critical movement that is located on the local approach to a State-controlled intersection. <u>Note:</u> Increases vehicle delay by 23 seconds or more at an intersection that would continue to operate at an acceptable LOS
Cities of Palo Alto, East Palo Alto, Mountain View and Los Altos, and Town of Atherton	LOS D	Increases the average critical delay by more than four seconds <u>and</u> increases the critical volume-to-capacity (V/C) ratio by 0.01 or more; OR increases the V/C ratio by 0.01 or more when the critical delay is decreased.

SOURCES: Santa Clara County General Plan, 1994;
Santa Clara County Annual Monitoring and Conformance Report, 2014; and Traffic Impact Study Requirements, 2013;
San Mateo County 2015 Congestion Management Program;
Palo Alto 2007 Comprehensive Plan working documents; and Staff Report #6805, 2016;
Menlo Park Transportation Impact Analysis Guidelines, 2014;
City of East Palo Alto General Plan Update EIR, 2016;
City of Mountain View 2030 General Plan and Greenhouse Gas Reduction Program EIR, 2012; and
City of Los Altos General Plan, 2002.

TABLE 5.15-10
DEFINITIONS FOR INTERSECTION LEVEL OF SERVICE

Unsignalized Intersections		Level of Service Grade	Signalized Intersections	
Description	Average Total Vehicle Delay (Seconds)		Average Control Vehicle Delay (Seconds)	Description
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCES: *Traffic Level of Service Analysis Guidelines*, VTA Congestion Management Program, June 2003; *Highway Capacity Manual*, Transportation Research Board, 2000.

Unsignalized Intersections

None of the applicable jurisdictions have an officially adopted significance criterion for unsignalized intersections. For purposes of this analysis, significant impacts are defined to occur when the addition of project traffic causes:

- the average intersection delay for all-way stop-controlled intersections or the worst movement for side-street stop-controlled intersections to degrade to LOS F, and
- the peak hour traffic signal warrant from the California Manual of Uniform Traffic Control Devices (CA MUTCD) to be satisfied at an unsignalized intersection already operating at LOS F.

There are six unsignalized study intersections in four different jurisdictions including two cities, and two counties. The operations of the unsignalized intersections were evaluated using the method described in the *2000 HCM*. LOS ratings for stop-sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At side-street stop-controlled intersections, the average control delay is calculated for each stopped movement [and for left turns on the uncontrolled approach(es) of the intersection], not for the intersection as a whole. At all-way stop-controlled intersections, the average control delay is calculated for the intersection as a whole. LOS definitions are shown in Table 5.15-10.

Additionally, the jurisdictions may apply the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) peak-hour volume signal warrant (Warrant 3) to intersections operating at LOS F.⁵ This warrant determines if the minor street traffic suffers undue delay when entering or crossing the major street for a minimum of one hour of an average day. This is based on the major street left- turn volume, the higher-volume minor-street approach volume, and calculated delay for vehicles on the higher-volume minor-street approach.

Freeway Segments

For the freeway impact analysis, the relevant jurisdiction's CMP LOS standards are used, as described below.

Santa Clara County

The LOS standard is LOS E for both mixed-flow and High Occupancy Vehicle (HOV) lanes (*Santa Clara County Annual Monitoring and Conformance Report 2014*, VTA, 2015). Under the Existing with Project Condition, a significant traffic impact would occur if freeway segment operations deteriorate from an acceptable level (LOS E or better) under Existing Conditions to an

⁵ Signal warrant analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared to a sub-set of the standard traffic signal warrants recommended in the 2012 California *Manual on Uniform Traffic Control Devices* (CA MUTCD) guidelines. While satisfying one or more of these warrants could justify the installation of a signal at an intersection, this analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated by an experienced engineer based on field-measured rather than forecast traffic data and a thorough study of traffic and roadway conditions. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals may lead to certain types of collisions.

unacceptable level (LOS F); or the project increases traffic of more than one percent of the capacity of the segments that operate at LOS F under Existing Conditions. Under Baseline (2018) and Cumulative (2035) Conditions, a traffic impact would occur if the addition of project traffic causes a freeway segment V/C ratio to increase from less than or equal to 1.00 to greater than 1.00; or the addition of project traffic increases traffic demand on the freeway segment already operating at a V/C ratio greater than 1.00 by an amount equal to one percent or more of the segment capacity.

San Mateo County

The LOS standards adopted by C/CAG for the freeway segments are presented below (*Final San Mateo County Congestion Management Program 2015*, C/CAG, November 2015).

- US 101
 - SR 92 to Whipple Avenue – LOS E
 - Whipple Avenue to Santa Clara County Line – LOS F
- I-280
 - SR 92 to SR 84 – LOS D
 - SR 84 to Santa Clara County Line – LOS F

A traffic impact would occur on a freeway segment in San Mateo County when one of the following happens:

- Freeway segment operations deteriorate from an acceptable level (a LOS equal to or better than the LOS threshold listed above) under No Project Conditions to an unacceptable level under with-project conditions; or
- On a freeway segment already operating at an unacceptable level under No Project Conditions, the addition of project traffic increases traffic demand on the freeway segment by an amount equal to one percent or more of the segment capacity, or causes the freeway segment V/C ratio to increase by one percent.

Freeway Ramps

With the addition of proposed Project traffic, there is the potential for increased queues on ramps. Queuing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions. Thus, this analysis summarizes the additional traffic and estimates the change in vehicle queue length compared to the existing available vehicle storage on each study ramp. Current ramp-metering rates provided by Caltrans were used to evaluate existing on-ramp queues and were set to match queues observed during field observations. Un-metered on-ramps are assessed based on the downstream freeway segment: if the segment is over-capacity, the on-ramp is assumed to have a queue exceeding capacity; if the segment is below-capacity, the on-ramp is determined to have a queue that is less than the ramp capacity. Off-ramp queues that terminate at an intersection were evaluated using ramp-terminal intersection queue estimates from the intersection LOS calculations, and off-ramps that with slip ramps onto local roadways were evaluated using a V/C ratio comparison.

Neighborhood Streets

Traffic impacts on residential streets within the City of Palo Alto are estimated using the Traffic Infusion on Residential Environment (TIRE) methodology. The TIRE index is a numerical representation of a resident's perception of the effect of street traffic on activities such as walking, cycling, or playing. TIRE is expressed by index values that range from zero (representing the least noticeable effect on traffic) to five (representing the most severe effect). This method assumes any change in traffic that would cause an index increase of 0.1 or more would be noticeable to residents.

Transit Services

While the VTA TIA Guidelines contains no CEQA-specific threshold of significance for transit impacts, the California Governor's OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* states that a project that blocks access to a transit stop or blocks a transit route may interfere with transit functions. By contrast, when evaluating multimodal transportation networks OPR advises:

[L]ead agencies generally should not treat the addition of new users as an adverse impact. Any travel-efficient infill development is likely to add riders to transit systems, potentially slowing transit vehicle mobility, but also potentially improving overall destination proximity. Meanwhile, such development improves regional vehicle flow generally by loading less travel onto the regional network than if that development were to occur elsewhere.

OPR recognizes that increased demand throughout a region may cause a cumulative impact requiring new or additional transit infrastructure. However, OPR states such impacts may be best addressed through a fee program that fairly allocates the cost of improvements not just to projects that locate near transit, but rather across a region to all projects that impose burdens on the entire transportation system.

The VTA TIA Guidelines requires analysis of transit network performance including transit access and facilities and transit vehicle delay (transit vehicle travel time/speed and service reliability). For the purposes of this study, transit network performance was analyzed during the AM and PM peak hours based on the average transit vehicle delay associated with congestion at signalized intersections along a specified corridor with and without the Project. The change in average transit vehicle delay was determined using the following process:

- Review the average delay, by movement, at each signalized intersection within a study corridor in the transit vehicle path of travel.
- Determine the transit vehicle average delay due to congestion at intersections by summing the movement delay for each signalized intersection along the study transit corridor.
- Compare without-project and with-project average transit vehicle delay associated with congestion at intersections (note that the transit vehicle dwell time at transit stops is not included in the analysis).

Per the VTA TIA Guidelines, if substantial increased transit vehicle delay is found, the Lead Agency [Santa Clara County] should work with VTA to identify feasible transit priority measures near the affected facility and include contributions to any applicable projects that improve transit speed and reliability in the TIA.

Please also see Section 5.15.7, below, for information regarding transit capacity.

Bicycle and Pedestrian Facilities

While the VTA TIA Guidelines contain no CEQA-specific threshold of significance for pedestrian and bicycle impacts, the VTA TIA Guidelines require analysis of bicycle and pedestrian facilities including the effects of site development and roadway improvements on bicycle/pedestrian infrastructure, circulation, quality of service (QOS), and conformance to existing plans and policies. The Guidelines state that the QOS analysis should include the following component:

- *Review how well transportation infrastructure and streetscape features support bicycling and walking. Any project proposing changes to intersection/roadway geometry or signal operations shall include a QOS analysis for bicyclists and pedestrians at the location of the proposed changes. A QOS analysis is also recommended along project frontages under Existing Conditions. Along with a QOS analysis, a descriptive analysis of the project's effect on pedestrian and bicycle conditions is required.*

StreetScore+, developed by Fehr & Peers, was chosen to evaluate QOS at signalized intersections that may be changed due to identified mitigation measures. StreetScore+ calculates pedestrian and bicyclist comfort based indices based on best design practices for active transportation users. This tool was used because it produces meaningful results without extensive data collection or inputs. Some of the considerations in the pedestrian QOS calculation include sidewalk width, presence of a buffer between the sidewalk and adjacent vehicle travel lanes, adjacent traffic speeds, lighting, and crosswalk frequency. Some of the considerations in the bicycle QOS calculation include the type of bicycle facility provided and adjacent traffic volumes and speeds.

The Bicyclist StreetScore+ scoring is on a 1-4 scale, defined as follows:

- **StreetScore+ 1 (SS 1)** – The lowest level of traffic stress and the design goal for a network that accommodates people of all ages and abilities. This level of traffic stress allows children trained in traffic safety to bicycle to school by themselves, as well as people interested in, but concerned about, bicycling.
- **StreetScore+ 2 (SS 2)** – The highest level of acceptable traffic stress for the “interested but concerned” segment of the population. This is the threshold for a “low traffic stress” bicycle network that accommodates people of all ages and abilities.
- **StreetScore+ 3 (SS 3)** – This level of traffic stress accommodates a much smaller segment of population (an “enthused and confident” segment of the population) who are excited and more familiar with biking and will therefore accept a higher level of traffic stress.

- **StreetScore+ 4 (SS 4)** – This is a very high level of traffic stress that does not work for approximately 99% of the population. Only people in the “strong and fearless” group will feel comfortable riding on these facilities.

The Pedestrian StreetScore+ has a parallel structure to the Level of Traffic Stress approach for bicyclists, using a 1-4 scale, defined as follows:

- **StreetScore+ 1 (SS 1)** – Highly comfortable, pedestrian-friendly, and easily navigable for pedestrians of all ages and abilities, including seniors or school-aged children walking unaccompanied to school. These streets provide an ideal “pedestrian-friendly” environment.
- **StreetScore+ 2 (SS 2)** – Generally comfortable for many pedestrians, but parents may not feel comfortable with children walking alone. Seniors may have concerns about the walking environment and take more caution. These streets may be part of a “pedestrian-friendly” environment where it intersects with a more auto-oriented roadway or other environmental constraints.
- **StreetScore+ 3 (SS 3)** – Walking is uncomfortable, but possible. Minimum sidewalk and crossing facilities may be present, but barriers are present that make the walking experience uninviting and uncomfortable.
- **StreetScore+ 4 (SS 4)** – Walking is a barrier and is very uncomfortable or even impossible. Streets have limited or no accommodation for pedestrians and are inhospitable and possibly unsafe environment for pedestrians.

Approach to Analysis

Traffic Forecasting Process

The traffic forecasting process included use of the Santa Clara VTA Countywide Travel Demand Model (VTA Model) as well as a direct (or “manual”) trip generation and distribution for Stanford trip growth. As stated at the start of this section, the following future scenarios were assessed:

- **2018 Baseline Conditions:** Year 2018 with the completion of development authorized under the 2000 General Use Permit (with the exception of EV Graduate Residences, which will not be occupied by 2018) and other local approved projects that would be built and fully occupied by Fall 2018;
- **2018 Baseline with Project Conditions:** 2018 Baseline Conditions with full buildout of the proposed 2018 General Use Permit;
- **2035 Cumulative Conditions:** Year 2035 with the completion of the development authorized under the 2000 General Use Permit (including EV Graduate Residences), background growth and reasonably foreseeable projects;
- **2035 Cumulative with Project Conditions:** 2035 Cumulative Conditions with full buildout of the proposed 2018 General Use Permit.

2018 Baseline and 2035 Cumulative Forecasts

The information presented below summarizes the forecasting process that is discussed in detail in the TIA in Appendix TIA. Note that, while the near-term and cumulative years are defined as 2018 and 2035, respectively, the VTA 2020 and 2040 models were used as approximations of those years, with adjustments to more accurately reflect the local study area network and land uses.

Travel Demand Model Validation/Calibration – Existing Conditions

The existing conditions (network geometry [roadways and number of travel lanes] and land uses) reflected in the base year (2013) VTA Model were reviewed and updated to represent 2016 conditions within the jurisdictions of Palo Alto, East Palo Alto and Menlo Park. Stanford land use was then refined at the Traffic Analysis Zone (TAZ) level to more-accurately represent current Stanford vehicular traffic, captured by cordon counts in 2015. A post-processing step was applied to the model-estimated trip generation for Stanford TAZs, using a “Fratar” factoring process, which takes into account the inbound and outbound vehicle trip generation as an input, and then factors the origins and destinations of trips generated by the model for each of the Stanford TAZs. This process allows for the relative distribution of trips generated by the model for Stanford TAZs to be maintained, and also allows the model to assign Stanford vehicular traffic to the model roadway network using standard model impedance functions that take into account delay from Stanford trips as well as non-Stanford trips.

With these changes, the 2016 model’s estimates of existing traffic volumes at study area intersections was compared to the Fall 2016 traffic counts, to validate the model’s accuracy and make necessary calibration adjustments to the input files to ensure that the model operates in accordance with industry standards. At the conclusion of this process, the 2016 model was considered validated and appropriate for use in preparing traffic forecasts for the study area.

2018 Baseline Model

In order to represent conditions on the date of the County’s consideration of the proposed Project (2018 Baseline Conditions), the VTA 2020 Model was used. The model land uses were developed with a straight-line interpolation between the 2016 and 2040 land use data sets because, while the 2020 model contains an official representation of transportation area-wide and regional transportation network improvements for that year, VTA does not maintain a 2020 land use data set. The 2040 land use data set was used for the interpolation because VTA does not maintain a 2035 land use data set. As part of this review, the land uses in specific TAZs were compared to approved and pending project lists submitted by the cities of Menlo Park and East Palo Alto, and checked against development projects described on the City of Palo Alto’s website. This was completed to ensure the TAZs contained at least as much new development as indicated by the cities (approved projects and pending projects with a completed traffic study were included).

The 2018 Baseline Stanford trip growth was modeled in a two-step process to estimate the extent of the 2000 General Use Permit that would be completed in 2018. First, the 2020 model land uses were adjusted to allow the model to approximate the trip generation expected with completion of development authorized under the 2000 General Use Permit (with the exception of the EV Graduate Residences, which are not be expected to be completed and occupied until 2020). Then,

a post-processing step was applied to the model-estimated trip generation for Stanford TAZs using the same “Fratar” factoring process described above.

After the VTA modeling step, all Stanford trips were removed from the model to determine the regional and local growth in the area aside from the Stanford trips. This regional and local growth was then added to the existing 2016 turning movement counts. The trips associated with the 2018 Baseline Stanford trip growth (i.e., 2000 General Use Permit completion excluding EV Graduate Residences) were added to these turning movement volumes by manual trip assignment via the TRAFFIX 8.0 software. The trips were assigned to regional “gateways” using the trip distribution information described in the TIA (see Appendix TIA). The 2018 Baseline results were reviewed for reasonableness and adjustments were made to the model input files to ensure traffic growth at the various intersections and freeway segments in the study area reasonably reflect the land use growth in the model.

2035 Cumulative (Without Project) Model

The VTA 2040 model was used to represent 2035 Cumulative Conditions, as 2035 is the planned horizon year for the proposed 2018 General Use Permit. The model incorporates the official regional projections by ABAG, MTC, and VTA of development growth under the *Plan Bay Area* Regional Transportation Plan and Sustainable Community Strategy. Because it includes five additional years of growth beyond 2035, this is considered a conservative evaluation of cumulative buildout conditions. The list of approved and pending projects with a completed traffic study provided by the cities of East Palo Alto and Menlo Park, and the projects listed on the City of Palo Alto’s website were verified to be included within the model. After these adjustments, the model’s citywide land use growth in these cities was also reviewed against ABAG *Projections 2013* forecasts, and the model land uses were found to be somewhat higher, and therefore more conservative, than ABAG projections for the three cities as a whole. The 2040 model network was also reviewed to ensure that the network improvements reflect roadway and transit projects expected to be complete by 2035.

The Stanford trip growth that would occur in the 2035 Cumulative case is based upon buildout of the 2000 General Use Permit, including the EV Graduate Residences project. The Cumulative (2035) Baseline Stanford trip growth was modeled in a two-step process. First, the land uses were adjusted to allow the model to approximate the trip generation expected with completion of the 2000 General Use Permit. Then, a post-processing step was applied to the model-estimated trip generation for Stanford TAZs, using the same “Fratar” factoring as described above.

Regional and local growth from the model was added to existing 2016 turning movement counts following the same procedure identified above for the VTA 2020 Model. For the freeway forecasts, raw model volumes were used because a consistent set of traffic counts was not available within the freeway study area. Stanford No Project trips were added manually via the TRAFFIX 8.0 software.

The 2035 Cumulative results were reviewed for reasonableness, and adjustments were made to the model input files to ensure traffic growth at the various intersections and freeway segments in the study area reasonably reflect the land use growth in the model.

Stanford Vehicle Trip Generation

This description focuses on vehicle (specifically, automobile) trip generation to and from off-campus destinations. Many off-campus trips are made by campus residents and commuters by other travel modes, including walking, bicycling, and transit. Furthermore, many internal campus trips are made by bicycling, walking, and the Marguerite shuttle; some internal campus trips are also made by automobile.

Existing Campus Vehicle Trip Generation Rates

The following inputs were used to estimate current Stanford vehicle trip generation rates and to project future traffic growth:

- 2015 peak-hour campus cordon vehicle counts conducted for the 2000 General Use Permit annual monitoring program;
- 2015 and 2016 vehicle trip counts of representative graduate student housing sites (EV) and faculty housing sites Peter Coutts Circle and Mears Court;
- 2015 student beds and housing units;
- 2015 academic and academic support square footage for the entire campus;
- Projections for changes in housing and academic and academic support square footage for the period from December 2015 through Fall 2018 under the 2000 General Use Permit, and from Fall 2018 through Fall 2035 under the proposed 2018 General Use Permit.

The method for estimating existing (2015) peak-hour vehicle trip generation rates for the campus (see **Table 5.15-11**) used total academic and academic support square footage as the overall vehicle trip generation variable, with an additional step that separates resident vehicle trip generation out so that resident and non-resident vehicle trip generation can be distributed to the roadway network using unique trip distribution patterns for each type of trips.

TABLE 5.15-11
CAMPUS VEHICLE TRIP GENERATION RATES – 2015

Component (variable)	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
All Campus Trips (per 1,000 sf of academic and academic support space)	0.330	0.188	0.264	0.342
Student Residents (per bed)	0.028	0.037	0.077	0.066
Faculty/Staff Residents (per residential unit)	0.15	0.28	0.26	0.19

SOURCE: Fehr & Peers, August 2017

Vehicle Trip Generation: Remaining Development under 2000 General Use Permit

The Stanford Community Plan establishes a standard for the Stanford campus of “No Net New Commute Trips” (specifically applied to vehicle trips in the peak hour and peak direction) compared to measured baseline conditions. To date, Stanford has achieved this standard each year

through a combination of onsite trip reduction programs and offsite programs that have removed trips from the roads nearest to the campus.

Stanford has committed to continue to implement programs to achieve the No Net New Commute Trips standard during the remainder of the 2000 General Use Permit, and to expand those programs throughout the life of the proposed 2018 General Use Permit. However, to provide a conservative analysis similar to the analysis performed for the 2000 General Use Permit, this analysis assumes Stanford does not increase its trip reduction efforts beyond the existing programs, and growth in trips would occur with both the remaining development authorized under the 2000 General Use Permit and with buildout of the proposed 2018 General Use Permit.

The vehicle trip generation associated with remaining development authorized under the 2000 General Use Permit was calculated separately for 2018 Baseline Conditions and 2035 Cumulative Conditions because the EV Graduate Residences project would not be completed and occupied by 2018, but would be completed and occupied in 2035. The following discussion describes the process for estimating the No Project trips for both time horizons.

The number of residential and non-residential vehicle trips for the period between December 2015 and fall 2018/fall 2035 were estimated via the following four-step process:

- Step A:** Total new vehicle trip generation = (Growth in academic and academic support square footage) x (2015 campus trip generation rates)
- Step B:** Faculty/staff resident vehicle trip generation = (New residential units) x (2015 faculty/staff residential trip generation rates)
- Step C:** Student resident vehicle trip generation = (New student beds) x (2015 student residential trip generation rates)
- Step D:** Non-resident vehicle trip generation = Total campus trip generation – resident trip generation

Table 5.15-12 presents the remaining development authorized under the 2000 General Use Permit and assumed to be constructed by fall 2018 (when the 2018 General Use Permit is anticipated to commence). This analysis assumes that the net new academic and academic support square footage generates trips at the existing trip generation rate.

**TABLE 5.15-12
DECEMBER 2015 – FALL 2018 DEVELOPMENT SUMMARY
(REMAINING DEVELOPMENT UNDER 2000 GENERAL USE PERMIT CONSTRUCTED BY FALL 2018)**

Component	Beds / Units ^a	Academic Space (1,000 sf) ^a
Academic and Academic Support Space	---	769.354
Student (Beds)	416	---
Faculty / Staff (Dwelling Units)	0	---

^a This land use will be completed by fall 2018 and is therefore included in the 2018 Baseline and 2018 Baseline with Project Conditions.

SOURCE: Stanford, February 2017.

Table 5.15-13 presents the remaining development authorized under the 2000 General Use Permit, including the EV Graduate Residences project. This is the development level that is assumed to be in place under the 2035 Cumulative Conditions.

**TABLE 5.15-13
DECEMBER 2015 – FALL 2035 DEVELOPMENT SUMMARY
(REMAINING DEVELOPMENT UNDER 2000 GENERAL USE PERMIT CONSTRUCTED BY FALL 2035)**

Component	Beds / Units ^a	Academic Space (1,000 sf) ^a
Academic and Academic Support Space	---	769.354
Student (Beds)	2,436	---
Faculty / Staff (Dwelling Units)	0	---

^a This land use will be completed by Fall 2035 and is therefore included in the 2035 Cumulative Baseline and 2035 Cumulative with Project Conditions.

SOURCE: Stanford, February 2017.

Tables 5.15-14 and **5.15-15** present the total trip generation for 2018 and 2035 conditions using the trip generation rates presented in Table 5.15-11.

**TABLE 5.15-14
DECEMBER 2015 – FALL 2018 VEHICLE TRIP GENERATION ESTIMATE
(REMAINING DEVELOPMENT UNDER 2000 GENERAL USE PERMIT CONSTRUCTED BY FALL 2018)**

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Campus Trips (based on academic space growth)	254	145	399	203	263	466
Student Residents	11	15	26	32	27	59
Faculty / Staff Residents	0	0	0	0	0	0
Non-Residential Generators (Commuters, visitors, others)	243	130	373	171	236	407

SOURCE: Fehr & Peers, August 2017.

**TABLE 5.15-15
DECEMBER 2015 – FALL 2035 VEHICLE TRIP GENERATION ESTIMATE
(REMAINING DEVELOPMENT UNDER 2000 GENERAL USE PERMIT CONSTRUCTED BY FALL 2035)**

Generator	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Campus Trips (based on academic space growth)	254	145	399	203	263	466
Student Residents	66	90	156	188	161	349
Faculty / Staff Residents	0	0	0	0	0	0
Non-Residential Generators (Commuters, visitors, others)	188	55	243	15	102	117

SOURCE: Fehr & Peers, August 2017.

Vehicle Trip Generation: 2018 General Use Permit

The number of residential and non-residential vehicle trips generated by the proposed 2018 General Use Permit (expected to be built out by 2035) were estimated using the same process described above for remaining development under the 2000 General Use Permit. The 2018 General Use Permit development proposal is shown in **Table 5.15-16**. The resulting AM and PM peak-hour vehicle trip generation using the 2015 trip rates is shown in **Table 5.15-17**.

TABLE 5.15-16
2018 GENERAL USE PERMIT DEVELOPMENT PROPOSAL

Component	Beds / Units ^a	Academic Space (1,000 sf)
Academic and Academic Support Space	---	2,275
Student (Beds)	2,600	---
Faculty / Staff (Dwelling Units)	550	---

SOURCE: Stanford, November 2016.

TABLE 5.15-17
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
Student Residents	70	96	166	200	172	372
Faculty / Staff Residents	83	154	237	143	105	248
Non-Residential Generators (Commuters, visitors, others)	598	178	776	257	502	759

SOURCE: Fehr & Peers, August 2017.

As with the trip generation estimate for remaining development under the 2000 General Use Permit, the 2018 General Use Permit trip generation estimates are based on the conservative assumption that the net new academic and academic support square footage would generate trips at the existing 2015 trip generation rates (i.e., there would be no further expansion of existing programs to reduce external vehicle trips). This is a conservative assumption given that Stanford has committed to continue to achieve the No Net New Commute Trips standard and intends to add to and expand its existing TDM programs under the 2018 General Use Permit. With this conservative assumption, the proposed 2018 General Use Permit would be expected to generate a total of about 751 additional inbound vehicle trips in the AM peak hour and about 779 additional vehicle outbound trips in the PM peak hour (see Table 5.15-17).

Stanford Vehicle Trip Distribution

Off-Campus Commuter Vehicle Trip Distribution

Stanford's 2015 commuter travel survey and information on commuter place of residence were used to develop a commuter vehicle trip distribution for the campus. The commuter mode choice

(drive-alone or rideshare) by geography was combined with the total number of commuters within a geographic area to estimate the number of drivers from each area. The resulting vehicle trip distribution for Stanford off-campus commuters is shown in **Figure 5.15-6** (with boxes with the white background showing the primary directions of the trips, and boxes with the green background indicating the percent of the trips assigned to the local roadways). After review of potential changes in commuter residences by 2035, the vehicle trip distributions shown in Figure 5.15-6 were also used for the 2035 Cumulative analysis.

Campus Resident Vehicle Trip Distribution

The vehicle trip distribution for Stanford residents (faculty, staff and students) was developed using data from the Census Transportation Planning Package (CTPP) for three (primarily housing) census tracts surrounding Stanford. The data for these census tracts were combined to develop an off-campus vehicle distribution for all Stanford resident trips (see **Table 5.15-18**). The off-campus travel trip distribution was calculated by removing internal trips between the Stanford campus census tracts, which represented approximately 44 percent of the total trips. After making that off-campus adjustment, approximately 55 percent of the remaining resident vehicle trips were assigned to destinations (four geographic areas) within the City of Palo Alto based on CTPP data regarding the trips to specific census tracts within the City of Palo Alto, as follows:

- Downtown and northern Palo Alto – north of Oregon Expressway and east of El Camino Real
- Southeast Palo Alto – south of Oregon Expressway and east of El Camino Real
- Southwest Palo Alto – south of the campus and west of El Camino Real (includes research park)
- Medical center and shopping center

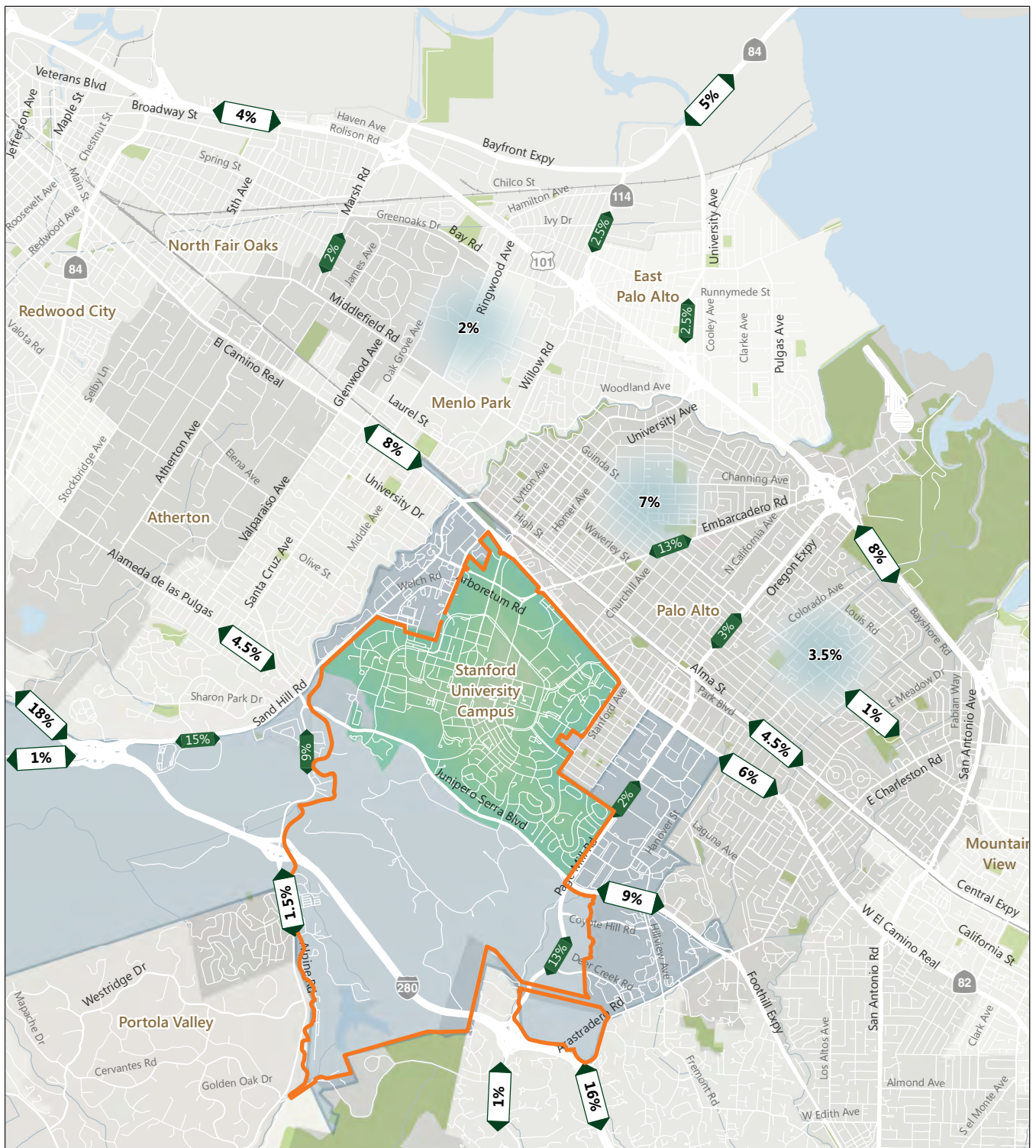
The “Roadway” column in Table 5.15-18 identifies the primary roadways that would be used by Stanford residents. These roadways were selected based on engineering judgment and local knowledge of area congestion. **Figure 5.15-7** shows the vehicle trip distribution for Stanford residents. This distribution is used for both the 2018 and 2035 Cumulative analyses.

Impact Evaluation

Construction Impacts

Impact 5.15-1: The proposed Project would generate construction traffic that would cause a substantial reduction in mobility and in access to land uses. (*Significant*)

In general, the type and intensity of construction activities under the proposed 2018 General Use Permit, and the associated level of construction traffic, would be similar to that which has occurred under the 2000 General Use Permit. 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 potentially significant.



— Stanford 2018 General Use Permit Boundary



SOURCE: Fehr & Peers

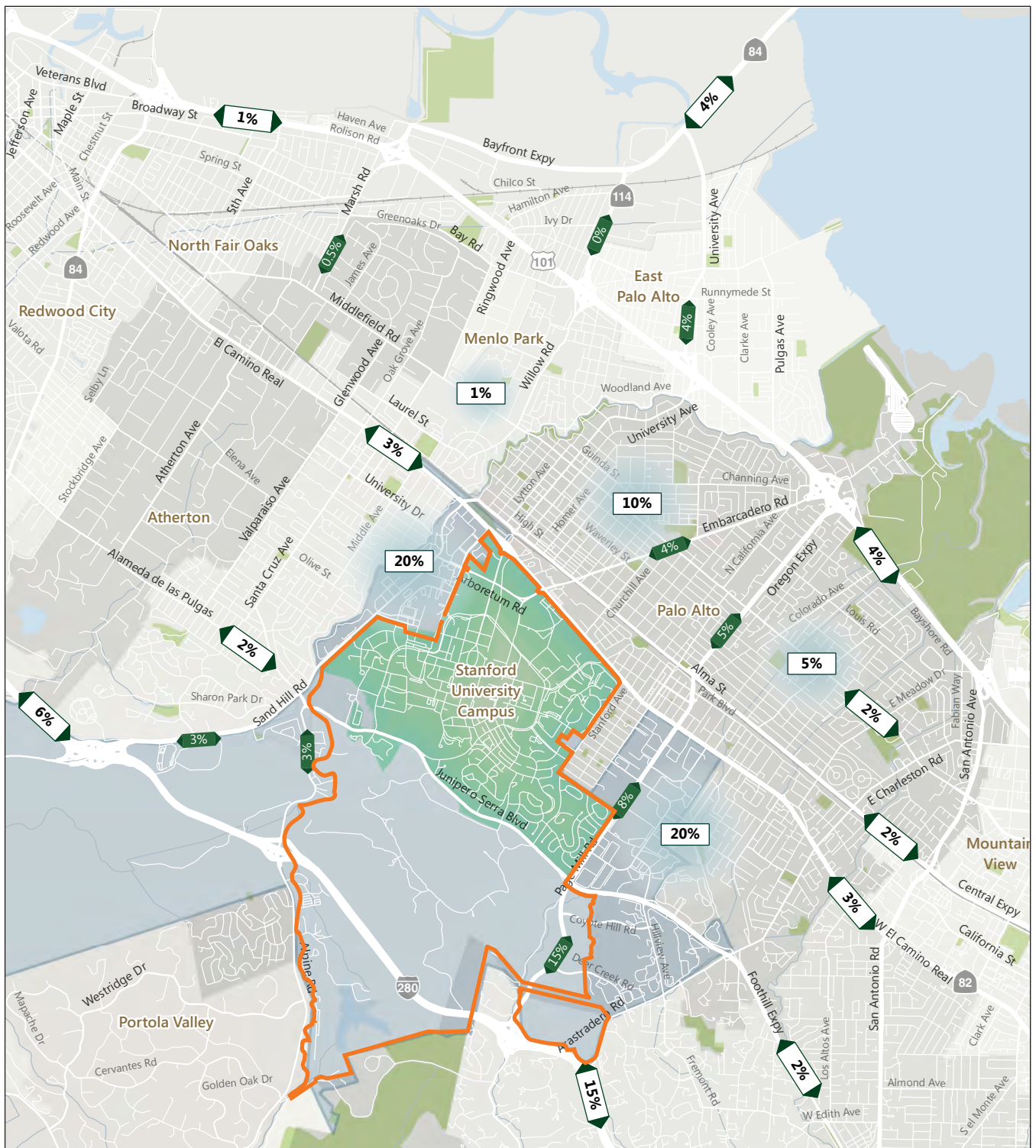
Stanford 2018 General Use Permit . 160531

Figure 5.15-6
Distribution of Stanford Commuters
Using Auto Trip Place-of-Residence

**TABLE 5.15-18
STANFORD RESIDENTS – OFF-CAMPUS DESTINATIONS**

Location	Roadway	Percent	
Palo Alto	Local		55.0%
Palo Alto – Downtown	University, Embarcadero	10.0%	
Palo Alto – Medical Center / Shopping Center	Campus, El Camino Real (ECR), Junipero Serra	20.0%	
Palo Alto – South of Oregon / East of ECR	Oregon, ECR, Alma	5.0%	
Palo Alto – California Avenue / Research Park	ECR, Foothill	20.0%	
North of Campus	Local		7.3%
Menlo Park, Atherton	ECR North	3.9%	
Redwood City / San Carlos	ECR North, Santa Cruz	3.4%	
North of Campus	Regional		6.5%
Northern Peninsula – Belmont to Millbrae	I-280, Alpine, Sand Hill	1.8%	
San Francisco	I-280	4.1%	
South San Francisco / Daly City	I-280, Alpine, Sand Hill	0.6%	
South of Campus	Local		7.2%
Los Altos	Foothill	0.4%	
Mountain View	ECR South, Foothill, Alma Street/Central Expressway	6.8%	
South of Campus	Regional		18.1%
Santa Clara County	I-280, US 101	0.8%	
Santa Cruz County	I-280, US 101	1.0%	
Santa Clara, Sunnyvale, North San Jose	US 101, Alma Street, ECR South	6.2%	
Campbell / Central San Jose	I-280	0.2%	
Cupertino / Saratoga / Los Gatos	I-280, Foothill	1.1%	
Downtown – East San Jose	US 101, I-280	8.3%	
South San Jose	I-280	0.5%	
East of Campus	Local		0.6%
East Palo Alto	University, Embarcadero	0.6%	
East of Campus	Regional		5.1%
Alameda County	Dumbarton, US 101	3.3%	
Contra Costa County	Dumbarton, US 101	1.1%	
Fremont / Milpitas	Dumbarton, US 101	0.7%	
West of Campus	Local		0.4%
Portola Valley, Woodside	Alpine Road, Sand Hill	0.4%	
TOTAL		100%	100%

SOURCE: US Census Transportation Planning Products (CTPP) and Fehr & Peers, March 2017.



XX% } Project Trip Distribution (Equals 100%)
XX%
XX% Internal Trip Distribution

— Stanford 2018 General Use Permit Boundary

↑
 NORTH

SOURCE: Fehr & Peers

Stanford 2018 General Use Permit . 160531

Figure 5.15-7
 Distribution of Stanford Residents
 Using Auto Off-Campus

Project impacts of construction traffic to mobility and access would be mitigated to less-than-significant levels through implementation of the following mitigation measures:

Mitigation Measure 5.15-1: *Construction Traffic Control Measures.* The following traffic control measures are required to address impacts from construction of individual 2018 General Use Permit projects.

- ***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 Fire Department 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 Project Conditions

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. (Significant)

Project impacts are identified by comparing the 2018 Baseline traffic volumes to the 2018 Baseline with Project Conditions traffic volumes. Significant impacts are identified based on the impact criteria presented in Table 5.15-9, which include changes in the LOS from an acceptable to an unacceptable level or changes in critical delay⁶ and critical V/C ratios for intersections operating unacceptably.⁷ Levels of service for Baseline (2018) conditions, without and with the proposed Project, were calculated using the TRAFFIX 8.0 software, which uses the 2000 HCM methodology and is consistent with VTA TIA guidelines. The results of the LOS analysis are summarized in **Table 5.15-19**.

The intersections where the proposed Project would have a significant impact under 2018 Baseline with Project conditions, and the reason that the impact is considered significant, are documented in **Table 5.15-20**. Measures/strategies to mitigate the significant impacts are described below.

Mitigation Measure 5.15-2: 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 1, 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.

⁶ Critical delay represents the delay associated with the critical movements of the intersection, or the movements that require the most “green time” and have the greatest effect on overall intersection operations.

⁷ As stated above, it is Stanford’s intent to avoid the need for intersection capacity improvements, by achieving the Stanford Community Plan’s No Net New Commute Trips standard. However, to ensure that potential impacts are not understated, this analysis conservatively assumes that Stanford does not achieve the Plan’s standard.

TABLE 5.15-19
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
1	I-280 NB On-Ramp / Sand Hill Road	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
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
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
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
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
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
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
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
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
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
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
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
13	I-280 SB Ramps / Page Mill Road *	Santa Clara County	LOS E (Warrant)	AM PM	151.7 85.9	F F	153.3 88.3	F F	N/A	N/A

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
14	I-280 NB Ramps / Page Mill Road *	Santa Clara County	LOS E (Warrant)	AM PM	40.5 14.8	E B	41.5 14.9	E B	N/A	N/A
15	Deer Creek Road / Page Mill Road	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
16	Coyote Hill Road / Page Mill Road	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
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (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
18	Peter Coutts Road / Page Mill Road	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
19	Hanover Street / Page Mill Road	Santa Clara Co. (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
20	El Camino Real / Page Mill Road – Oregon Expressway	Santa Clara Co. (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
21	Middlefield Road / Oregon Expressway	Santa Clara Co. (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
22	Oregon Expressway / 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
23	I-280 SB Ramps / Alpine Road *	San Mateo County	LOS E (Warrant)	AM PM	40.5 16.1	E C	41.0 16.2	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Road *	San Mateo County	LOS E (Warrant)	AM PM	27.2 26.8	D D	28.5 29.9	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Road	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
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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
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
28	Junipero Serra Blvd / Stanford Avenue	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
29	Foothill Expressway / Hillview Avenue	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
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (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
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	18.7 79.6	B- E-	19.2 82.7	B- F	0.016 0.022	0.6 4.7
32	Foothill Expressway / El Monte Avenue	Santa Clara Co. (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
33	Foothill Expressway / Springer Road – Magdalena Avenue	Santa Clara Co. (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
34	Bowdoin Street / Stanford Avenue *	Palo Alto	LOS E (Warrant)	AM PM	14.4 18.5	B C	18.4 27.6	C D	N/A	N/A
35	Arboretum Road / Quarry Road	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
36	Arboretum Road / Palm Drive	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
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
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
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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
40	El Camino Real / Santa Cruz Avenue	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
41	El Camino Real / Ravenswood Road	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
42	El Camino Real / Roble Avenue	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
43	El Camino Real / Middle Avenue	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
44	El Camino Real / Cambridge Avenue	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
45	El Camino Real / Quarry Road	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
46	El Camino Real (SB) / University Avenue	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
47	El Camino Real (NB) / University Avenue	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
48	El Camino Real / Embarcadero Road	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
49	El Camino Real / Churchill Avenue	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
50	El Camino Real / Serra Street	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
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
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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
53	El Camino Real / Arastradero Road - Charleston Road	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
54	El Camino Real / San Antonio Road	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
55	Alma Street / Lytton Avenue	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
56	Alma Street / Hamilton Avenue	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
57	Alma Street / Churchill Avenue	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
58	Alma Street / Charleston Road	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
59	Middlefield Road / Marsh Road	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
60	Middlefield Road / Ravenswood Avenue	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
61	Middlefield Road / Ringwood Avenue	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
62	Middlefield Road / Willow Road	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
63	Middlefield Road / Lytton Avenue	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
64	Middlefield Road / University Avenue	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
65	Middlefield Road / Hamilton Avenue	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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
66	Middlefield Road / Embarcadero Road	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
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
68	E. Bayshore Road / Embarcadero Road	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
69	Middlefield Road / Charleston Road	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
70	US 101 SB Ramps / Marsh Road	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
71	US 101 NB Ramps / Marsh Road	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
72	Bay Road / Willow Road	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
73	Newbridge Street / Willow Road	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
74	O'Brien Drive / Willow Road	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
75	Hamilton Avenue / Willow Road	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
76	Bayfront Expy / Willow Road	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
77	Woodland Avenue / University Avenue	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
78	US 101 SB Ramps / University Avenue	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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
79	Donohoe Street / University Avenue	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
80	University Avenue / Bay Road	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
81	University Avenue / Bayfront Expressway	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
82	Town & Country Driveway / Embarcadero Road	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
83	Charleston Road / San Antonio Road	Mountain View (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
84	US 101 SB Ramps / Willow Road	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
85	US 101 NB Ramps / Willow Road	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
86	Central Expressway / Rengstorff Avenue	Santa Clara Co. (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
87	Central Expressway / Shoreline Blvd (N)	Santa Clara Co. (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
88	Central Expressway / Shoreline Blvd (S)	Santa Clara Co. (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
89	Central Expressway / Moffett Boulevard	Santa Clara Co. (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
90	Foothill Expressway / Edith Avenue	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
91	Foothill Expressway / Main Street	Santa Clara Co. (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

TABLE 5.15-19 (CONTINUED)
2018 INTERSECTION LEVELS OF SERVICE
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
92	University Avenue / O'Brien Drive	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
93	University Avenue / Adams Drive *	Menlo Park	LOS E (warrant)	AM PM	76.3 30.7	F^h D	79.8 31.9	F^h D	N/A	N/A
94	University Avenue / Runnymede Street	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
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 -0.1

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, 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 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 Change ("Δ") in critical volume-to-capacity ratio (V/C) between Background (2018) and Background (2018) With Project Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^g Change ("Δ") in average critical movement delay between Background (2018) and Background (2018) With Project Conditions. This ratio is not applicable for side-street stop controlled intersections and is denoted by "N/A".

^h A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, August 2017.

TABLE 5.15-20
2018 BASELINE 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.
#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.
#31 Foothill Expressway / San Antonio Road (PM Peak Hour)	VTa: Project-generated traffic would cause a degradation from an acceptable LOS E to an unacceptable LOS F.
#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.

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 2018 General Use Permit, 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 and in accordance with County requirements. 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.
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.

TABLE 1
STUDY INTERSECTION MITIGATION MEASURES UNDER 2018 GENERAL USE PERMIT

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Project Conditions	2035 Cumulative with Project Conditions
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 installation of an overlap signal phase for northbound and southbound right-turning vehicles and widening of the 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.		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	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 1 (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER 2018 GENERAL USE PERMIT

ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Project Conditions	2035 Cumulative with Project Conditions
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.		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

TABLE 1 (CONTINUED)
STUDY INTERSECTION MITIGATION MEASURES UNDER 2018 GENERAL USE PERMIT

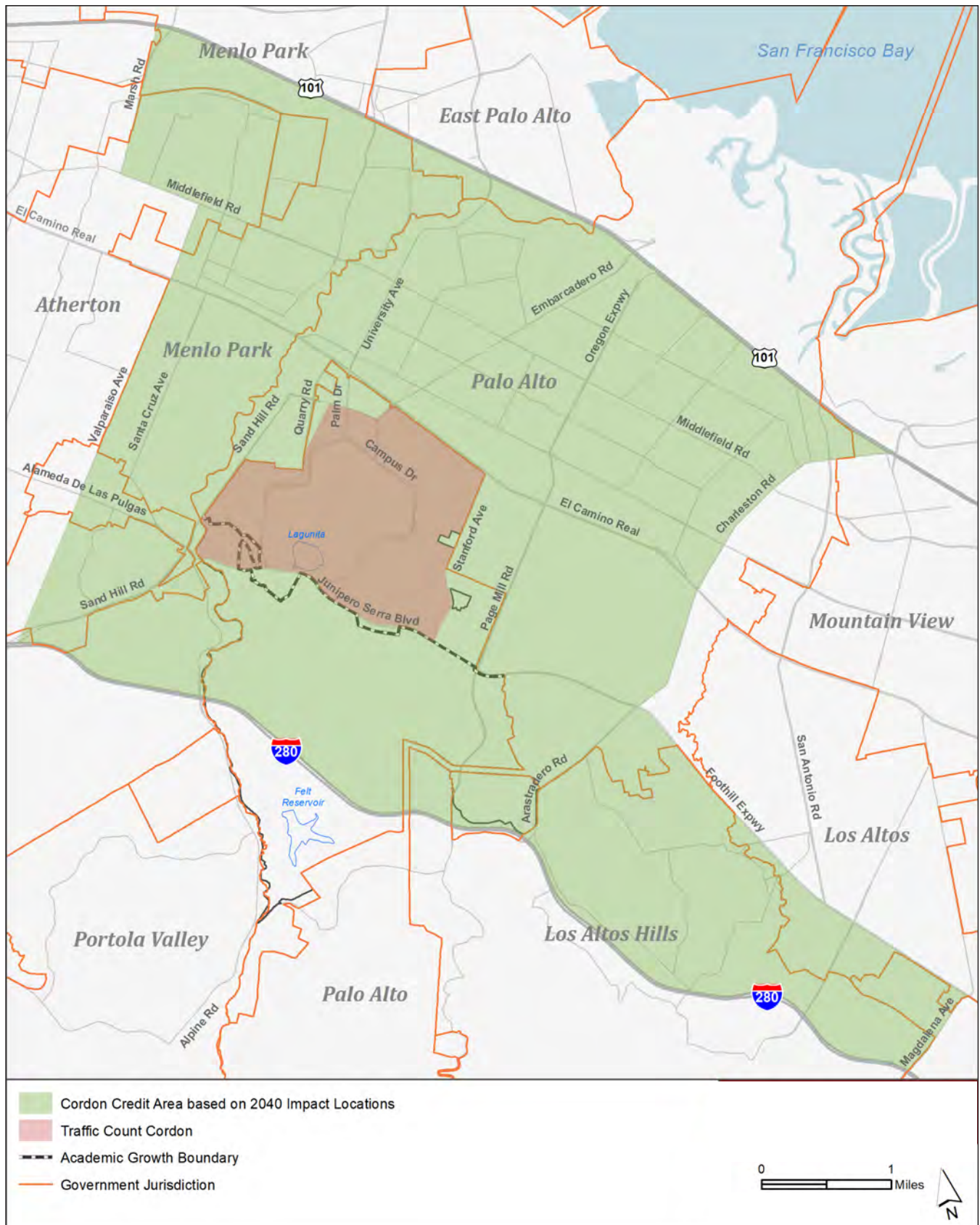
ID No.	Intersection	Jurisdiction/ Congestion Management Program (CMP)	Mitigation Measure	2018 Baseline with Project Conditions	2035 Cumulative with Project Conditions
89	Central Expy / Moffett Blvd	Mountain View	The City of Mountain View's planned closure of Castro Street at the train tracks to form a T-intersection of Central Expressway and Moffett Boulevard would mitigate the Project impact (Mountain View Transit Center Master Plan). The effects of this project are shown in the mitigation columns to the right. 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

- 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 5.15-8**. 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.

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 1 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 the 2018 General Use Permit, the County Planning Office will: 1) determine, in consultation with the affected jurisdictions, the cost of the intersection improvements identified in Table 1; 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).



SOURCE: Stanford LBRE LUEP

Stanford 2018 General Use Permit . 160531

Figure 5.15-8
Revised Cordon Credit Area

- 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 1. 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 Project conditions identified in Table 1, above, 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. For these reasons, the impact would remain significant and unavoidable.

CEQA Guidelines section 15126.4(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 the proposed Project'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 proposed Project'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. The proposed Project'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 installation of an overlap signal phase for northbound and southbound 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.**

Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal. Widening southbound Junipero Serra Boulevard to two lanes between Stanford Avenue and Page Mill Road likely would 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.

Implementation of this mitigation measure would improve the LOS and delay under AM and PM peak hours, but it would not mitigate impacts to a less-than-significant level. 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. The proposed mitigation would not alter the existing intersection configuration (only lengthening the existing right-turn lane). The pedestrian crossing distances would remain unchanged in all directions.

It is noted that there are improvements identified for this intersection in the draft *Santa Clara County Expressway Plan 2040*. The first improvement, which is a Tier 1 (highest priority) improvement, would widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. This improvement is fully funded through Measure B and is anticipated to be in place by 2035.

The second improvement, which is a Tier 3 (lowest priority) improvement, is to eliminate the intersection by grade-separating Page Mill Road above Junipero Serra Boulevard – Foothill Expressway. The grade separation improvements were not identified as

mitigation for the proposed 2018 General Use Permit because the mitigation measure identified for Intersection #17, which is a smaller project and would have fewer secondary environmental effects, mitigates the Project's impact to a less-than-significant level by 2035. In addition, the grade separation project has not completed CEQA review, may not be approved, and may not receive funding.

- **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 the proposed Project'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 #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 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 proposed Project'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 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 for Intersection #31 would implement the southbound widening.

- **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 the proposed Project'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 5.15-21** for mitigated LOS conditions.

TABLE 5.15-21
2018 BASELINE WITH PROJECT INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2018 Baseline		2018 Baseline With Project		Mitigation Measure	2018 Baseline With Project (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+	137.4 21.4	F C+	See MM 5.15-2 (Table 1)	46.5 18.3	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	153.3 88.3	F F	See MM 5.15-2 (Table 1)	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	101.5 109.9	F F	See MM 5.15-2 (Table 1)	98.6 103.8	F F	SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	71.8 92.3	E F	74.7 95.8	E F	See MM 5.15-2 (Table 1)	60.2 67.9	E E	LTS/SU
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	18.7 79.6	B- E-	19.2 82.7	B- F	See MM 5.15-2 (Table 1)	19.2 21.1	B- C+	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	55.2 55.0	E+ D-	55.7 55.9	E+ E+	See MM 5.15-2 (Table 1)	54.7 54.8	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, August 2017.

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. (Significant)

Freeway Segments

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. Freeway segments with significant Project impacts under 2018 Baseline with Project Conditions are:

- 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);
- 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. For these reasons, the proposed Project's freeway impacts would remain significant and unavoidable. However, Mitigation Measure 5.15-2 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.

Freeway Ramps

A freeway ramp analysis was conducted to assess increases in peak period ramp queue lengths with the addition of proposed Project traffic and the effects of those increased queues on freeway and local street operations. Ramp queuing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions. Thus, the results presented here are provided for information purposes only.

Freeway On-Ramps

As described above, there are freeway on-ramps equipped with ramp meters within the study area. Caltrans operates dynamic ramp metering rates based on queues on the freeways and on the ramps. Therefore, the on-ramp queues were evaluated at the minimum and maximum ramp metering rates to show the potential range of queues at the given ramp. As shown in **Table 5.15-22**, the Embarcadero Road on-ramp queue would surpass the available storage when the ramp metering rate operates at the maximum (900 vphpl) rate during the PM peak period under 2018 Baseline and 2018 Baseline With Project Conditions. All other queues would remain within the available storage

when operating at the maximum ramp metering rate. All queues would exceed the available storage when using the minimum ramp metering rate, although it is unlikely that the metering rate remains at the minimum rate, given the above-stated ability for the rate to change. **Table 5.15-23** shows the other (non-metered) on-ramps that provide access to Stanford.

TABLE 5.15-22
2018 FREEWAY METERED ON-RAMP QUEUING EVALUATION
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	2018 Baseline		2018 Baseline With Project	
			Ramp Volume	Min. / Max. Queue (feet) ^c	Ramp Volume	Min. / Max. Queue (feet) ^c
Oregon Expressway (US 101 Southbound)	1,400	AM PM	1,383 1,305	30 / 20,280 30 / 67,140	1,389 1,308	30 / 20,400 30 / 68,370
Embarcadero Road (US 101 Southbound)	1,150	AM PM	817 803	30 / 18,630 1,890 / 31,770	833 835	30 / 19,500 2,490 / 35,010

NOTES: **Bold** text indicates conditions where the queue exceeds the available storage capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Minimum queues estimated using the maximum metering rates provided by Caltrans. Maximum queues estimated using the minimum metering rates provided by Caltrans. The minimum queue is one vehicle, which is equal to 30 feet.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

TABLE 5.15-23
2018 FREEWAY NON-METERED ON-RAMP VOLUMES AND STORAGE CAPACITY
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	2018 Baseline Volume	2018 Baseline With Project Volume
US 101 Northbound On-Ramps				
Willow Road	650	AM PM	372 243	374 249
University Avenue	880	AM PM	381 202	383 206
I-280 Northbound On-Ramps				
Sand Hill Road	1,460	AM PM	631 1,516	675 1,617
Alpine Road	1,000	AM PM	360 710	360 710
Page Mill Road	700	AM PM	740 430	756 459
I-280 Southbound On-Ramps				
Page Mill Road	1,500	AM PM	606 948	650 1,037
Alpine Road	650	AM PM	377 563	377 563
Sand Hill Road	800	AM PM	390 1,200	398 1,211

NOTES: **Bold** text indicates conditions where the queue exceeds the available storage capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

Freeway Off-Ramps

Off-ramp queues that terminate at an intersection were evaluated using ramp-terminal intersection queue estimates from the intersection LOS calculations (see **Table 5.15-24**). Slip ramps where there is no control device (e.g., no signal or stop sign) and the ramp merges with the local street were evaluated using V/C ratios (see **Table 5.15-25**).

TABLE 5.15-24
2018 FREEWAY OFF-RAMP QUEUING EVALUATION (2018 BASELINE AND 2018 BASELINE WITH PROJECT):
SIGNALIZED AND STOP-CONTROLLED TERMINAL INTERSECTIONS

Off-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	2018 Baseline		2018 Baseline With Project	
			Ramp Volume ^c	Queue (feet) ^d	Ramp Volume ^c	Queue (feet) ^d
US 101 Southbound Off-Ramps						
University Avenue	1,870 / 190	AM PM	262 / 360 191 / 560	480 / 630 300 / 660	265 / 360 194 / 560	480 / 630 300 / 690
I-280 Northbound Off-Ramps						
Sand Hill Road	740 / 300	AM PM	100 / 710 50 / 300	90 / 1,740 60 / 510	100 / 713 50 / 305	90 / 1,860 60 / 540
Alpine Road ^f	1,360 / 280	AM PM	250 / 881 130 / 272	30 / ^e 30 / ^e	250 / 911 130 / 293	30 / ^e 30 / ^e
Page Mill Road	60 / 1,830	AM PM	140 / 1,839 50 / 341	90 / ^e 30 / ^e	140 / 1,926 50 / 406	90 / ^e 30 / ^e
I-280 Southbound Off-Ramps						
Alpine Road	1,370 / 450	AM PM	390 / 520 160 / 270	240 / ^e 60 / ^e	390 / 520 160 / 270	240 / ^e 60 / ^e
Page Mill Road ^f	150 / 1,940	AM PM	1,140 / 50 820 / 100	810 / ^e 330 / ^e	1,143 / 50 827 / 100	810 / ^e 330 / ^e

Bold text indicates conditions where the queue exceeds the turn pocket capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements. Storage Capacity for a Controlled Ramp - #### = left-turn and (or) through pocket / right-turn pocket

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Ramp volume by turning movement - #### = left-turn and (or) through movement / right-turn movement

^d The queue indicated represents the 95th Percentile Queue for signalized movements and the Average Queue for stop-controlled movements - #### = left-turn and (or) through queue / right-turn queue

^e Only left-turn movement is stop-controlled. Free right-turn queues are not provided.

^f For all-way stop-controlled ramp intersections, the average queue is reported due to the limitations of the 2000 HCM.

SOURCE: Fehr & Peers, August 2017.

TABLE 5.15-25
2018 FREEWAY OFF-RAMP QUEUING EVALUATION (2018 BASELINE AND 2018 BASELINE WITH PROJECT):
UNCONTROLLED TERMINAL INTERSECTIONS

Off-Ramp	Maximum Vehicle Flow Rate (Capacity, vphpl) ^a	Peak Period ^b	2018 Baseline		2018 Baseline With Project	
			Ramp Volume	Volume-to-Capacity Ratio	Ramp Volume	Volume-to-Capacity Ratio
US 101 Northbound Off-Ramps						
Embarcadero Road	1,800	AM PM	644 510	0.36 0.28	681 530	0.38 0.29
US 101 Southbound Off-Ramps						
Willow Road	1,900	AM PM	433 402	0.23 0.21	440 405	0.23 0.21
I-280 Northbound Off-Ramps						
Alpine Road ^c	1,900	AM PM	881 272	0.46 0.14	911 294	0.48 0.15
Page Mill Road ^c	1,900	AM PM	1,839 341	0.97 0.18	1,926 406	1.01 0.21
I-280 Southbound Off-Ramps						
Sand Hill Road	1,800	AM PM	2,065 722	1.15 0.40	2,179 782	1.21 0.43
Alpine Road ^c	1,900	AM PM	520 270	0.27 0.14	520 270	0.27 0.14
Page Mill Road ^c	1,900	AM PM	50 100	0.03 0.05	50 100	0.03 0.05

Bold text indicates the off-ramp does not have sufficient capacity to accommodate the exiting volumes.

^a Diagonal ramps were assumed to have a capacity of 1,900 vehicles per hour per lane (vphpl). Loop ramps were assumed to have a capacity of 1,800 vphpl.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c The right-turn movement is uncontrolled. Therefore, the right-turn volume and V/C is the only ramp movement reported in the table.

SOURCE: Fehr & Peers, August 2017.

As shown in Table 5.15-24, all off-ramps would accommodate vehicle queues within the available ramp storage, with the exception of the I-280 / Sand Hill Road northbound off-ramp, on which excessive queues would result in a queue spillback onto the freeway mainline of 1,000 feet and 1,120 feet under 2018 Baseline and 2018 Baseline with Project Conditions, respectively. Additionally, the following queues would exceed the available turn-pocket storage queue:

- US 101 / University Avenue southbound loop off-ramp – right-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the Project
- I-280 / Sand Hill Road northbound diagonal off-ramp – right-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the Project
- I-280 / Page Mill Road northbound diagonal off-ramp – left-turn queue would exceed pocket storage length during the AM peak period, without and with the Project

- I-280 / Page Mill Road southbound diagonal off-ramp – left-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the Project

While these turn queues would exceed the available turn pocket storage, the queues would still be served within the total ramp storage, and would not spillback into the freeway mainline.

As shown in Table 5.15-25, most of the V/C ratios (for 2018 Baseline and 2018 Baseline With Project Conditions) for the off-ramps with uncontrolled terminal intersections for the AM and PM peak periods would be less than 1.00, indicating that the off-ramps have sufficient capacity to accommodate the exiting volumes at these locations, with the following exceptions:

- I-280 / Page Mill Road northbound off-ramp (No Project V/C is 0.97, With Project V/C is 1.01, in the AM peak period);
- I-280 / Sand Hill Road southbound off-ramp (No Project V/C is 1.15, With Project V/C is 1.21, in the AM peak period).

Mitigation Measure: Implement Mitigation Measure 5.15-2.

Significance after Mitigation: Significant and Unavoidable.

As stated above, there are limited options to widen these freeway segments due to right-of-way constraints, and 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 5.15-2 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 implementation of the improvements would occur, the proposed Project's freeway impacts would remain significant and unavoidable.

Impact 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. (*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. The proposed 2018 General Use Permit 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.

The proposed Project 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 5.15-26**, the proposed Project would not add substantial delays relative to the total route travel time to any of the transit routes assessed. The additional delay would be fewer than 15 seconds on all but two of the routes, and fewer than 21 seconds in all cases.

TABLE 5.15-26
2018 BASELINE WITH PROJECT TRANSIT ROUTE DELAYS

Route		Direction	Peak Hour	Increased Average Delay with Project (seconds)
VTA 22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	< 5.0 14.3
		Westbound	AM PM	10.9 7.0
VTA 35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0
VTA 89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0
VTA 102	South San Jose to Palo Alto	Northbound	AM	< 5.0
		Southbound	PM	7.1
VTA 104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0
		Westbound	AM	14.4
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	< 5.0 16.0
		Westbound	AM PM	10.9 7.0
SamTrans 281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	5.1 < 5.0
		Westbound	AM PM	< 5.0 < 5.0
SamTrans ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0
AC Transit DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0
AC Transit DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	< 5.0 9.3
		Westbound	AM PM	20.8 13.3
AC Transit U	Fremont BART to Stanford Oval	Eastbound	PM	12.3
		Westbound	AM	< 5.0
Palo Alto Shuttle E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	< 5.0 5.3
		Westbound	AM PM	< 5.0 < 5.0
Palo Alto Shuttle C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 < 5.0
		Westbound	AM PM	< 5.0 < 5.0

SOURCE: Fehr & Peers, August 2017.

Therefore, the proposed Project's impact on transit services would be less than significant.

Mitigation: None required.

Impact 5.15-5: Implementation of the proposed Project would not substantially increase intrusion by traffic in nearby neighborhoods. (*Less than Significant*)

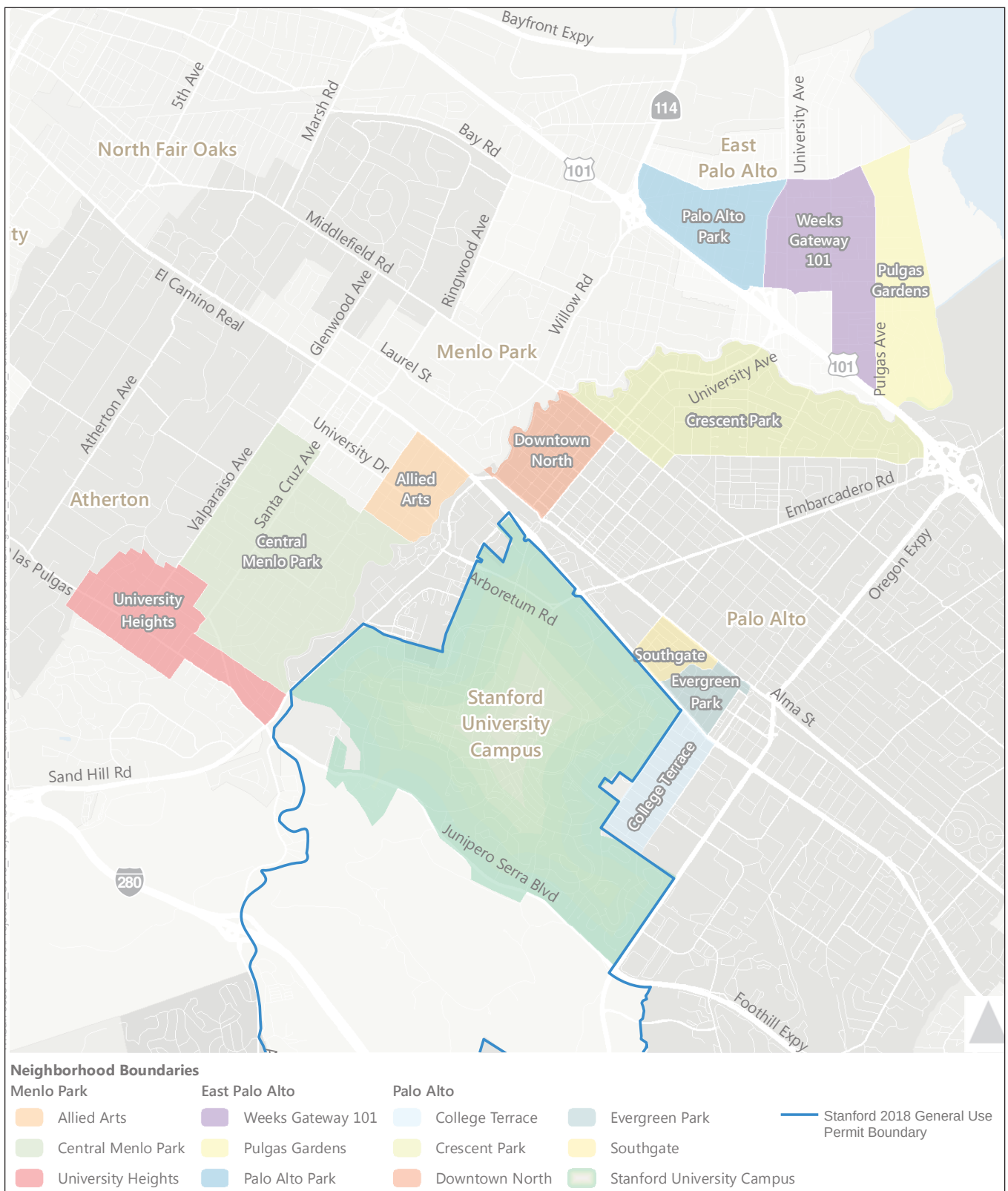
Traffic impacts on residential streets were estimated using the Traffic Infusion on Residential Environment (TIRE) methodology, which empirically determines the potential impact on residential streets based on the premise that any increase in traffic that would cause an index increase of 0.1 or more 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). The index and associated traffic thresholds relative to existing volumes are included in Appendix N of the TIA, in Appendix TIA in in this EIR).

Stanford is surrounded by residential neighborhoods located in the cities of Palo Alto (College Terrace, Southgate, Evergreen Park, Downtown North, and Crescent Park) and Menlo Park (University Heights, Central Menlo Park, and Allied Arts) that currently experience some level of neighborhood traffic congestion, and are shown in **Figure 5.15-9**. In addition to these nearby neighborhoods in Menlo Park and Palo Alto, there are three neighborhoods in the City of East Palo Alto (Palo Alto Parks, Weeks – Gateway 101, and Pulgas Gardens) that currently experience cut-through traffic due to the volume of regional traffic using the Dumbarton Bridge. Due to the existing congestion on University Avenue and Willow Road, these neighborhoods are potential cut-through traffic locations.

Since the approval of the 2000 General Use Permit, there have been a number of efforts to reduce and/or eliminate travel through these neighborhoods generated by Stanford. These efforts include the following actions:

- **Sand Hill Road Corridor Project (2003)** – The Sand Hill Road Corridor Project resulted in widening and realignment of Sand Hill Road between Santa Cruz Avenue and Arboretum Road, and an extension from Arboretum Road to El Camino Real. Also, Santa Cruz Avenue was widened and realigned from Sand Hill Road to Alpine Road, with a realignment of the Alpine Road/Junipero Serra Boulevard intersection.

Prior to the construction of the Sand Hill Road Corridor Project, there was a two-lane bridge over San Francisquito Creek that created a bottleneck on Sand Hill Road during both the morning and evening peak travel periods. In addition, Sand Hill Road did not extend to El Camino Real. These two conditions limited both the accessibility and capacity of Sand Hill Road for trips between Santa Cruz Avenue and El Camino Real, and as a result, drivers chose alternative routes that passed through downtown Menlo Park. The combination of improvements within the corridor reduced the need for drivers to seek alternative routes through the University Heights, Central Menlo Park, and Allied Arts neighborhoods. For this reason, these neighborhoods are not included in the present Neighborhood Streets assessment.



SOURCE: Fehr & Peers

Stanford 2018 General Use Permit . 160531
Figure 5.15-9
 Location of Neighborhoods Considered
 for Street Assessment

- **Downtown North Traffic Calming Study (2004)** – This was an effort to restrict through movements and turning movements during peak traffic periods to reduce or eliminate neighborhood traffic impacts in downtown Palo Alto between Middlefield Road and Alma Street. Based on input from the neighborhood, a plan was implemented that included the following traffic calming elements:
 - Street closure at Middlefield Road/Palo Alto Avenue
 - Traffic circles at the intersections of Everett Avenue/Emerson Street, Hawthorne Avenue/Cowper Street, and Everett Avenue/Webster Street
 - Speed tables on Palo Alto Avenue and Hawthorne Avenue between Alma Street and Emerson Street
 - Time-limited left-turn restrictions during the morning and evening peak periods from Alma Street to Hawthorne Avenue and Everett Avenue
 - Time-limited right-turn restrictions during the morning peak period from Middlefield Road to Hawthorne Avenue and Everett Avenue

These improvements have been effective at reducing through traffic in Downtown North while allowing access and mobility to the residents. For this reason, this neighborhood has not been included in the Neighborhood Streets assessment.

- **College Terrace Traffic Calming Project (2004)** – A traffic calming study was conducted for the neighborhood to develop additional traffic calming measures to reduce the potential for neighborhood traffic impacts from through traffic. College Terrace had a number of street closures that were designed to reduce through traffic in the neighborhood prior to the 2004 study. A new traffic calming plan was tested that included the installation of five traffic circles and five speed tables within the neighborhood. Four traffic circles were constructed on College Avenue at Yale Street, Oberlin Street, Hanover Street, and Columbia Street. A fifth traffic circle was constructed at Yale Street and Cambridge Avenue. Four speed humps were constructed on Stanford Avenue and three speed humps on California Avenue. Following a test period, the traffic calming plan was refined to include the following improvements:
 - Traffic circles on Yale Street at College Avenue and Cambridge Avenue
 - Four speed humps on Stanford Avenue at Wellesley Street, Oberlin Street, Dartmouth Street, and Amherst Street
 - Three speed humps on California Avenue at Wellesley Street, Oberlin Street, and Dartmouth Street
 - Four speed humps on College Avenue at Wellesley Street, Princeton Street, Harvard Street and Dartmouth Street
 - Center median islands were added at Oberlin Street/College Avenue, Hanover Street/College Avenue and Columbia Street/College Avenue

The before-and-after studies of the neighborhood indicated that the traffic calming program has reduced the number and speed of vehicles in the neighborhood.

While there have not been any new traffic calming studies in the Southgate and Evergreen Park neighborhoods since the preparation of the 2000 General Use Permit, these neighborhoods have some existing traffic calming features that reduce the potential for vehicle trips through the neighborhood. Even without the existing traffic calming, the location and design of the roadway network eliminates any advantage in traveling through the neighborhood to access the Stanford campus. In addition, there are existing barriers in the Southgate and Evergreen neighborhoods that make it difficult to use the roadways to pass through the neighborhood, as follows:

- The vehicle barrier at the intersection of Castilleja Way and Park Boulevard prevents vehicles from cutting through the neighborhood using Serra Street, Park Boulevard, Castilleja Way, and Mariposa Avenue to access Churchill Avenue;
- A partial barrier on Park Boulevard east of Oxford Avenue prevents westbound cut through traffic; and
- A road closure on Ash Avenue east of Stanford Avenue prevents pass through trips in either direction.

Instead of passing through the Southgate and Evergreen Park neighborhoods, travelers accessing the Stanford campus use Churchill Avenue along the northern edge of the Southgate neighborhood or Oregon Expressway and El Camino Real to the south and west, respectively. As these roadways are located on the edge of the neighborhoods, through traffic is not expected to travel within the neighborhoods. Therefore, these neighborhoods were not included in the Neighborhood Streets assessment, which focuses on pass through trips.

The three above-cited East Palo Alto neighborhoods are experiencing increased cut-through traffic during the economic recovery over the past few years. The Palo Alto Parks neighborhood lies between Willow Road and University Avenue and extends between US 101 on the south and Newbridge-Bay Road on the north. This neighborhood experiences cut-through by commuters traversing between Willow Road and University Avenue in order to avoid congestion on the arterials. The Weeks-Gateway 101 and Pulgas Garden neighborhoods, located east of University Avenue, experience cut-through traffic on Clarke Avenue and Pulgas Avenue between East Bayshore and Bay Road. These roadways parallel University Avenue and serve as bypasses of the congestion on University Avenue. Traffic using these roadways typically cross US 101 at Embarcadero Road. The level of cut-through traffic in the East Palo Alto neighborhoods is related to the growth in both local and regional traffic combined with the limited available capacity on the major roadways that serve the Dumbarton Bridge. However, the potential for traffic generated by the proposed 2018 General Use Permit on the area is small based on the trip generation and trip distribution analyses prepared for this Project, and further analysis of cut-through traffic in East Palo Alto neighborhoods is not warranted because the number of trips potentially generated by the Project would be too low to exceed the TIRE index significance threshold.

Based on the effectiveness of prior mitigation strategies described above, the current conditions within the neighborhoods, and the expected trip distribution and assignment under the proposed 2018 General Use Permit, 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. These locations were selected 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.

Neighborhood Descriptions

College Terrace Neighborhood

The College Terrace neighborhood is a primarily residential neighborhood bounded by Stanford Avenue on the north, California Avenue on the south, El Camino Real on the east, and Amherst Street on the west. The neighborhood is 12 blocks long and 2 blocks wide. Stanford Avenue forms a boundary between College Terrace and Stanford. The principal roadway connecting College Terrace to the Stanford campus is Bowdoin Street. College Avenue parallels Stanford Avenue and forms the central east-west street in the neighborhood. Several other smaller roadways connect Stanford Avenue to the residential campus community, Escondido Village, located on the north side on Stanford Avenue.

College Terrace was designed as a grid roadway network; however, in the 1970s, the grid pattern was modified with a number of road closures to discourage travel between Stanford Avenue and California Avenue. By 2012, additional permanent traffic calming strategies were implemented within the neighborhood, including traffic circles at two locations on Yale Street, multiple speed tables on Stanford Avenue, College Avenue, and California Avenue, and several locations where bollards prevent through vehicle traffic. These devices were designed to slow vehicles and further deter travel through the neighborhood.

Daily traffic counts were collected on Columbia Street, Hanover Street, Harvard Street, Oberlin Street, Princeton Street and Cornell Street to understand the extent of traffic diversion within the neighborhood. As there were no obvious signs of neighborhood traffic impacts in these counts, Stanford traffic was not observed to use these neighborhood streets to access the campus.

Crescent Park Neighborhood

The Crescent Park residential neighborhood straddles University Avenue and is bounded by Middlefield Road, Channing Avenue, Newell Road, Woodland Avenue, and San Francisquito Creek. University Avenue is a residential arterial within the Crescent Park neighborhood, providing access to and from Stanford, US 101, and the East Bay via the Dumbarton Bridge.

Daily traffic counts were collected on University Avenue, Hamilton Avenue, and Lytton Avenue to understand the extent of traffic diversion off University Avenue within the neighborhood. These counts show that, during the PM peak period, Hamilton Avenue sees an increase in traffic due to congestion on University Avenue. On a daily basis, Hamilton Avenue, just west of Lincoln

Avenue, carries about 16 percent of the combined volume (University Avenue plus Hamilton Avenue); however, between 4:00 – 7:00 PM, it carries about 67 percent. This higher percent is due to a combination of factors, including commuters destined for US 101 and points east diverting from University Avenue, and local traffic that avoids University Avenue due to the congestion.

College Terrace TIRE Analysis

As shown in **Table 5.15-27**, TIRE indices for the local streets serving Stanford in the College Terrace neighborhood range from 2.6 to 3.1.

TABLE 5.15-27
COLLEGE TERRACE NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Project Daily Trips ^a	Volume that Equates to 0.1 Change ^b	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index			
Columbia Street, between College Avenue and California Avenue	2	640	2.8	57	140	No
Hanover Street, between Stanford Avenue and College Avenue	2	1,160	3.1	76	290	No
Harvard Street, between Stanford Avenue and College Avenue	2	430	2.6	28	97	No
Oberlin Street, between Stanford Avenue and College Avenue	2	850	2.9	55	170	No
Princeton Street, between College Avenue and California Avenue	2	610	2.8	54	140	No
Cornell Street, between College Avenue and California Avenue	2	370	2.6	33	97	No

^a Assumes 20% of the added daily Stanford traffic east of Bowdoin Street on Stanford Avenue.

^b Minimum daily traffic volume increase to produce an impact.

SOURCE: Fehr & Peers, August 2017.

A driver traveling through the College Terrace neighborhood on his or her way to the Stanford campus would most likely access the campus at the Bowdoin Street gateway because Oberlin Street, Wellesley Street and Yale Street primarily serve the graduate student residents in Escondido Village, and access to the main campus is blocked at Escondido Road. Based on traffic counts presented in the *Stanford University Traffic Monitoring Report (2015)*, about ten percent of Stanford-related trips travel in and out of the campus at Bowdoin Street. Based on the 2018 General Use Permit's proposed distribution of development on campus, this percentage is not expected to change substantially under the proposed 2018 General Use Permit. Applying this percentage to the new daily trips estimated for the proposed 2018 General Use Permit yields an estimate that about 1,892 vehicles per day would use Bowdoin Street to access Stanford.

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 1,892 additional daily trips accessing the campus at Bowdoin Street, it is estimated that 795 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.

To determine the likelihood that an upward or downward shift in this 20-percent assumption would affect the analysis results, a sensitivity analysis was completed to determine the percent of added Stanford traffic east of Bowdoin Street that would need to travel through the College Terrace streets in order to surpass the 0.1 TIRE index threshold. It was found that more than 50 percent of added daily Stanford traffic traveling east of Bowdoin Street on Stanford Avenue

would need to travel through the neighborhood in order to surpass the 0.1 TIRE index threshold. Given the extent of the existing traffic calming throughout the College Terrace neighborhood and the more direct routes that are available, it is not considered to be reasonably foreseeable that 50 percent of drivers would choose to pass through the College Terrace neighborhood.

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. Project 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 5.15-27, the Project 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 would be less than significant.

Crescent Park TIRE Analysis

As shown in **Table 5.15-28**, TIRE indices for the local streets serving Stanford in the Crescent Park neighborhood range from 3.5 to 3.7.

TABLE 5.15-28
CRESCENT PARK NEIGHBORHOOD TIRE INDEX RESULTS

Segment	Existing Conditions			Project Daily Trips	Volume that Equates to 0.1 Change ^a	Surpass the 0.1 Threshold?
	Lanes	Daily Traffic Volume	TIRE Index			
Lytton Avenue, between Middlefield Road and Fulton Street	2	2,940	3.5	76	825	No
Hamilton Avenue, between Middlefield Road and Fulton Street	2	5,580	3.7	145	1,250	No
Hamilton Avenue, between Hamilton Court and Lincoln Avenue	2	3,700	3.6	121	1,025	No
Hamilton Avenue, between Lincoln Avenue and Crescent Drive	2	3,400	3.5	106	825	No

^a Minimum daily traffic volume increase to produce an impact.

SOURCE: Fehr & Peers, August 2017.

A driver traveling through the Crescent Park neighborhood on his or her way to the Stanford campus may be expected to access the campus at the University Avenue gateway. While the annual monitoring data from the *Stanford University Traffic Monitoring Report (2015)* was used for the College Terrace roadway analysis, the campus monitoring data could not be used for the Crescent Park neighborhood because of its distance from the campus. For the Crescent Park neighborhood analysis, an estimated four percent of Stanford-related trips was applied to University Avenue between downtown Palo Alto and US 101, based on the existing travel patterns to and from the campus. The percentage of trips using University Avenue that would be likely to divert to neighborhood roadways when passing through Downtown Palo Alto was then

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 proposed 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 ten additional Stanford trips would be assumed to use University Avenue, and five trips would be assumed to use Hamilton Avenue. 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 5.15-28, the effect of the proposed Project 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 would be less than significant.

Mitigation: None required.

Impact 5.15-6: Implementation of the proposed Project would not substantially increase hazards due to a design feature or incompatible uses. (*Less than Significant*)

The potential safety impacts of the proposed 2018 General Use Permit are evaluated based on whether any identified intersection mitigation measures would cause adverse safety effects for vehicles, transit, pedestrians, or bicyclists, and if the proposed Project 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 5.15-2, above, and Impact 5.15-9, 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, and the Project's impact 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 the proposed Project 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. The proposed 2018 General Use Permit 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 proposed Project traffic analyses (Impact 5.15-2 above, and Impact 5.15-9 below) indicate significant impacts (increased congestion/delays) at intersections in both the 2018 with Project and 2035 Cumulative with Project conditions, and 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 is less-than-significant.

Mitigation: None required.

Impact 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. (*Less than Significant*)

A significant impact to bicycle or pedestrian facilities could occur when the proposed Project 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. The proposed 2018 General Use Permit 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 5.15-2, above, and Impact 5.15-9, below). Therefore, the analysis of potential impacts also focuses on the proposed mitigations, as these could be effects of the Project if they are constructed. The analysis of each mitigation location also includes the effect of the daily traffic volume with the additional Project trips. The analysis found that none of the identified intersection improvements would substantially affect quality of service for pedestrians and bicyclists (i.e., no substantial worsening of QOS indices). 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 as described in Section 5.15.7, below, 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 proposed Project’s impact on pedestrian and bicycle facilities would be less than significant.

Separate from the above analysis, it is noted that the Project 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

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. (Significant)

Project traffic congestion impacts are identified by comparing Cumulative 2035 Cumulative to 2035 Cumulative with Project Conditions. Significant impacts are identified based on the impact criteria presented in Table 5.15-9, 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.⁸ Levels of service for 2035 Cumulative and 2035 Cumulative with Project conditions were calculated using the TRAFFIX 8.0 software, which uses the 2000 HCM methodology and is consistent with VTA TIA guidelines. The results of the LOS analysis are summarized in **Table 5.15-29**.

⁸ As stated above, it is Stanford’s intent to avoid the need for intersection capacity improvements, by achieving the Stanford Community Plan’s No Net New Commute Trips standard. However, to ensure that potential impacts are not understated, this analysis conservatively assumes that Stanford does not achieve the Plan’s standard.

TABLE 5.15-29
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
1	I-280 NB On-Ramp / Sand Hill Road	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
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
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
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 0.032	0.5 -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
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
7	Santa Cruz Ave / Sand Hill Rd	Menlo Park	LOS D	AM PM	50.6 45.9	D D	52.1 46.9	D- D	0.030 0.038	2.0 1.7
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
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
10	Pasteur Dr / Sand Hill Rd	Palo Alto	LOS D	AM PM	20.8 26.9	C+ C	20.8 27.7	C+ C	0.009 0.021	0.4 1.4
11	Arboretum Rd / Sand Hill Rd	Palo Alto	LOS D	AM PM	25.2 31.6	C C	25.9 32.3	C C-	0.013 0.012	1.2 0.9
12	El Camino Real / Sand Hill Rd	Palo Alto (SC CMP)	LOS E	AM PM	43.7 39.8	D D	43.6 40.3	D D	0.016 0.013	-3.1 0.6
13	I-280 SB Ramps / Page Mill Road	Santa Clara County	LOS E	AM PM	32.5 47.1	C- D	32.7 47.8	C- D	0.002 0.005	0.1 0.2

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
14	I-280 NB Ramps / Page Mill Road	Santa Clara County	LOS E	AM PM	9.3 11.7	A B+	9.3 12.2	A B	0.004 0.007	0.1 1.8
15	Deer Creek Road / Page Mill Road	Santa Clara County	LOS E	AM PM	15.9 13.8	B B	16.6 13.9	B B	0.021 0.016	1.2 -0.3
16	Coyote Hill Road / Page Mill Road	Santa Clara County	LOS E	AM PM	8.0 8.7	A A	8.5 9.0	A A	0.011 0.016	0.0 -0.2
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	163.6 152.6	F F	169.5 166.9	F F	0.026 0.063	4.2 20.3
18	Peter Coutts Road / Page Mill Road	Santa Clara County	LOS E	AM PM	22.7 30.6	C+ C	23.3 30.9	C C	0.020 0.015	0.9 0.0
19	Hanover Street / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	90.7 52.7	F D-	97.6 53.8	F D-	0.025 0.018	11.6 0.7
20	El Camino Real / Page Mill Road – Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	76.4 83.1	E- F	86.3 90.7	F F	0.047 0.035	13.4 10.8
21	Middlefield Road / Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	122.6 101.6	F F	125.3 103.7	F F	0.014 0.012	4.4 3.1
22	Oregon Expressway / West Bayshore Rd	Santa Clara County	LOS E	AM PM	23.6 20.9	C C+	23.6 21.0	C C+	0.003 0.008	0.0 0.1
23	I-280 SB Ramps / Alpine Road *	San Mateo County	LOS E (Warrant)	AM PM	42.0 16.7	E C	42.7 16.9	E C	N/A	N/A
24	I-280 NB Ramps / Alpine Road *	San Mateo County	LOS E (Warrant)	AM PM	26.3 26.7	D D	27.4 29.7	D D	N/A	N/A
25	Junipero Serra Blvd / Alpine Road	Menlo Park	LOS D	AM PM	47.8 50.4	D D	50.7 52.6	D D-	0.049 0.029	4.3 1.6
26	Junipero Serra Blvd / Campus Drive West	Santa Clara County	LOS E	AM PM	29.9 43.7	C D	32.2 49.9	C- D	0.009 0.043	1.4 8.2

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
27	Junipero Serra Blvd / Campus Drive East	Santa Clara County	LOS E	AM PM	14.0 18.1	B B-	14.3 19.7	B B-	0.020 0.037	0.7 2.7
28	Junipero Serra Blvd / Stanford Avenue	Santa Clara County	LOS E	AM PM	20.6 25.9	C+ C	22.4 31.3	C+ C	0.061 0.084	2.5 7.3
29	Foothill Expressway / Hillview Avenue	Santa Clara County	LOS E	AM PM	121.1 48.2	F D	131.6 52.4	F D-	0.024 0.015	16.1 6.7
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	293.4 211.5	F F	298.6 217.3	F F	0.016 0.013	7.8 -2.0
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	36.0 156.3	D+ F	40.1 161.2	D- F	0.016 0.021	6.1 7.6
32	Foothill Expressway / El Monte Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	142.1 123.9	F F	148.9 128.4	F F	0.014 0.004	13.5 1.8
33	Foothill Expressway / Springer Road – Magdalena Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	128.7 148.3	F F	131.9 151.1	F F	0.014 0.010	4.8 5.1
34	Bowdoin Street / Stanford Avenue *	Palo Alto	LOS E (Warrant)	AM PM	16.7 25.8	C D	22.8 43.2	C E	N/A	N/A
35	Arboretum Road / Quarry Road	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
36	Arboretum Road / Palm Drive	Palo Alto	LOS D	AM PM	31.0 31.1	C C	32.4 32.5	C C	0.080 0.049	2.1 2.5
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
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
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

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
40	El Camino Real / Santa Cruz Avenue	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
41	El Camino Real / Ravenswood Road	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.7 65.8	D F	0.008 0.020	1.0 3.8
42	El Camino Real / Roble Avenue	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
43	El Camino Real / Middle Avenue	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
44	El Camino Real / Cambridge Avenue	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
45	El Camino Real / Quarry Road	Palo Alto	LOS D	AM PM	12.0 33.0	B+ C-	13.3 34.8	B C-	0.029 0.032	1.6 2.7
46	El Camino Real (SB) / University Avenue	Palo Alto (SC CMP)	LOS E	AM PM	21.0 22.7	C+ C+	20.7 22.5	C+ C+	0.016 0.031	-0.1 0.0
47	El Camino Real (NB) / University Avenue	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
48	El Camino Real / Embarcadero Road	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
49	El Camino Real / Churchill Avenue	Palo Alto	LOS D	AM PM	25.4 27.1	C C	25.3 27.1	C C	0.017 0.018	0.1 0.1
50	El Camino Real / Serra Street	Palo Alto	LOS D	AM PM	25.2 29.0	C C	28.8 35.8	C D+	0.082 0.111	6.0 10.8
51	El Camino Real / Stanford Ave	Palo Alto	LOS D	AM PM	31.0 32.3	C C-	31.7 34.8	C C-	0.033 0.054	1.0 4.0
52	El Camino Real / California Ave	Palo Alto	LOS D	AM PM	22.7 27.7	C+ C	22.1 27.5	C+ C	0.029 0.031	-0.4 0.0

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
53	El Camino Real / Arastradero Road - Charleston Road	Palo Alto (SC CMP)	LOS E	AM PM	68.5 71.6	E E	71.7 74.0	E E	0.020 0.010	5.5 2.0
54	El Camino Real / San Antonio Road	Mountain View (SC CMP)	LOS E	AM PM	60.9 55.7	E E+	61.4 55.8	E E+	0.008 0.005	0.8 0.1
55	Alma Street / Lytton Avenue	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
56	Alma Street / Hamilton Avenue	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
57	Alma Street / Churchill Avenue	Palo Alto	LOS D	AM PM	32.4 59.2	C- E+	32.5 59.8	C- E+	0.005 0.005	0.2 1.0
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	123.7 117.4	F F	127.5 122.5	F F	0.009 0.017	3.9 6.6
59	Middlefield Road / Marsh Road	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
60	Middlefield Road / Ravenswood Avenue	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
61	Middlefield Road / Ringwood Avenue	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
62	Middlefield Road / Willow Road	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
63	Middlefield Road / Lytton Avenue	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
64	Middlefield Road / University Avenue	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
65	Middlefield Road / Hamilton Avenue	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

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
66	Middlefield Road / Embarcadero Road	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
67	St. Francis Drive / Embarcadero Road	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
68	E. Bayshore Road / Embarcadero Road	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
69	Middlefield Road / Charleston Road	Palo Alto	LOS D	AM PM	56.9 66.5	E+ E	57.2 67.2	E+ E	0.004 0.007	0.3 1.4
70	US 101 SB Ramps / Marsh Road	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
71	US 101 NB Ramps / Marsh Road	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
72	Bay Road / Willow Road	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
73	Newbridge Street / Willow Road	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
74	O'Brien Drive / Willow Road	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
75	Hamilton Avenue / Willow Road	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
76	Bayfront Expy / Willow Road	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
77	Woodland Avenue / University Avenue	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
78	US 101 SB Ramps / University Avenue	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

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
79	Donohoe Street / University Avenue	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
80	University Avenue / Bay Road	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
81	University Avenue / Bayfront Expressway	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
82	Town & Country Driveway / Embarcadero Road	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
83	Charleston Road / San Antonio Road	Mountain View (SC CMP)	LOS E	AM PM	79.2 66.8	E- E	79.4 67.0	E- E	0.001 0.002	0.4 0.5
84	US 101 SB Ramps / Willow Road	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
85	US 101 NB Ramps / Willow Road	Menlo Park	LOS D	AM PM	25.0 24.2	C C	25.1 24.2	C C	0.000 0.003	0.0 0.1
86	Central Expressway / Rengstorff Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	449.7 247.6	F F	452.3 250.0	F F	0.010 0.008	2.3 2.5
87	Central Expressway / Shoreline Blvd (N)	Santa Clara Co. (SC CMP)	LOS E	AM PM	227.3 97.6	F F	226.4 97.4	F F	0.004 0.006	0.2 -0.1
88	Central Expressway / Shoreline Blvd (S)	Santa Clara Co. (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
89	Central Expressway / Moffett Boulevard	Santa Clara Co. (SC CMP)	LOS E	AM PM	241.9 221.4	F F	245.4 225.0	F F	0.010 0.009	5.2 4.5
90	Foothill Expressway / Edith Avenue	Santa Clara County	LOS E	AM PM	52.2 92.8	D- F	57.5 99.7	E+ F	0.016 0.015	9.6 11.6
91	Foothill Expressway / Main Street	Santa Clara Co. (SC CMP)	LOS E	AM PM	41.1 53.8	D D-	46.0 54.2	D D-	0.016 0.009	7.7 -1.3

TABLE 5.15-29 (CONTINUED)
2035 INTERSECTION LEVELS OF SERVICE
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project			
					Delay ^d	LOS ^e	Delay ^d	LOS ^e	Δ in Crit. V/C ^f	Δ in Crit. Delay ^g
92	University Avenue / O'Brien Drive	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
93	University Avenue / Adams Drive *	Menlo Park	LOS E (warrant)	AM PM	425.5 39.6	F^h E	456.2 41.4	F^h E	N/A	N/A
94	University Avenue / Runnymede Street	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
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 -0.1

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, 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 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 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".

^g 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".

^h A signal warrant is not met for this intersection.

SOURCE: Fehr & Peers, August 2017.

The intersections where the proposed Project would have a significant impact under 2035 Cumulative with Project conditions, and the reason that the impact is considered significant, are documented in **Table 5.15-30**. Measures/strategies to mitigate the contribution of the proposed Project to significant cumulative impacts are described below.

Mitigation Measure: Implement Mitigation Measure 5.15-2.

TABLE 5.15-30
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.

TABLE 5.15-30 (CONTINUED)
2035 CUMULATIVE WITH PROJECT INTERSECTION SIGNIFICANT IMPACTS

Intersection	Significance Criteria (Threshold of Significance) Exceeded
#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.
#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.

As detailed in Mitigation Measure 5.15-2, 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 the Project’s contribution to cumulative traffic congestion impacts to intersections; however, the Project’s contribution 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 Project conditions identified in Table 1 in Mitigation Measure 5.15-2 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)(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 Project 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 proposed Project 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 Project conditions, which stipulates contribution of fair-share funding to the installation of an overlap signal phase for northbound and southbound 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.**

Installation of an overlap phase for northbound and southbound right-turning vehicles would be accommodated through the modification of the existing traffic signal. Widening southbound Junipero Serra Boulevard to two lanes between Stanford Avenue and Page Mill Road likely would require the acquisition of additional right-of-way. This improvement would allow southbound right-turning vehicles additional queuing space so that southbound through vehicles do not block the right-turn lane.

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 the proposed Project 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 3.5 and QOS 4, respectively. The proposed mitigation would not alter the existing intersection configuration (only lengthening the existing right-turn lane). The pedestrian crossing distances would remain unchanged.

It is noted that there are improvements identified for this intersection in the draft *Santa Clara County Expressway Plan 2040*. The first improvement, which is a Tier 1 (highest priority) improvement, would widen Page Mill Road from just east of Junipero Serra Boulevard-Foothill Expressway to the I-280 ramps. This improvement is fully funded through Measure B and is anticipated to be in place by 2035.

The second improvement, which is a Tier 3 (lowest priority) improvement, is to eliminate the intersection by grade-separating Page Mill Road above Junipero Serra Boulevard – Foothill Expressway. The grade separation improvements were not identified as a mitigation for the proposed 2018 General Use Permit project because the mitigation measure for Intersection #17 which is a smaller project and would have fewer secondary environmental effects, mitigates the proposed Project's contribution to the cumulative

impact to a less-than-considerable level by 2035. In addition, the grade separation project has not completed CEQA review, may not be approved, and may not receive funding.

- **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 the proposed Project 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 the proposed Project 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 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*.**

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 the proposed Project 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 the Project'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 Project 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 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 contribution of the proposed Project 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 proposed Project'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: Implement the same mitigation identified for this intersection under 2018 Baseline with Project conditions, which stipulates contribution of 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 the proposed Project 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 the proposed Project 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 proposed Project 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 the proposed Project 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 Project'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 the proposed Project 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 the proposed Project 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 the proposed Project 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 the proposed Project 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 *Comprehensive Bicycle Development Plan* (2005) proposed Class III bike routes on El Camino Real at Encinal Avenue. 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 proposed mitigation measure would not conflict with a Class III bikeway. In addition, the existing bus stop on the northeast corner on El Camino Real may block through traffic when boarding and alighting passengers, but 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 the proposed Project 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 proposed Project 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) 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 #41: 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 / Ravenswood Road.**

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 the proposed Project 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 proposed Project 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. 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 the proposed Project 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 the proposed Project 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 the proposed Project 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 the proposed Project 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 Project 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 the proposed Project 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 the proposed Project 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 the proposed Project 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 the proposed Project 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 the Project'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 the proposed Project'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 the proposed Project 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 the proposed Project 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 the proposed Project 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 5.15-31** for mitigated LOS conditions.

TABLE 5.15-31
2035 CUMULATIVE WITH PROJECT INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project		Mitigation Measure	2035 Cumulative With Project (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-	155.2 18.6	F B-	See MM 5.15-2 (Table 1)	68.1 15.7	E B	LTS/SU
17	Junipero Serra Blvd – Foothill Expy / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	163.6 152.6	F F	167.7 163.7	F F	See MM 5.15-2 (Table 1)	130.1 150.4	F F	LTS/SU
19	Hanover Street / Page Mill Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	90.7 52.7	F D-	97.6 53.8	F D-	See MM 5.15-2 (Table 1)	76.6 50.9	E- D	LTS/SU
20	El Camino Real / Page Mill Road – Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	76.4 83.1	E- F	86.3 90.8	F F	See MM 5.15-2 (Table 1)	70.7 83.0	E F	LTS/SU
21	Middlefield Road / Oregon Expressway	Santa Clara Co. (SC CMP)	LOS E	AM PM	122.6 101.6	F F	125.5 103.7	F F	N/A (no feasible improvements)			SU
29	Foothill Expressway / Hillview Avenue	Santa Clara County	LOS E	AM PM	121.1 48.2	F D	131.6 52.4	F D-	N/A (no feasible improvements)			SU
30	Foothill Expressway / Arastradero Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	293.4 211.5	F F	298.6 217.3	F F	See MM 5.15-2 (Table 1)	41.4 74.0	D E	LTS/SU
31	Foothill Expressway / San Antonio Road	Santa Clara Co. (SC CMP)	LOS E	AM PM	36.0 156.3	D+ F	40.1 161.2	D F	See MM 5.15-2 (Table 1)	40.1 45.4	D D	LTS/SU
32	Foothill Expressway / El Monte Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	142.1 123.9	F F	148.9 128.4	F F	See MM 5.15-2 (Table 1)	74.1 110.3	E F	LTS/SU
33	Foothill Expressway / Springer Road – Magdalena Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	128.7 148.3	F F	131.9 151.1	F F	See MM 5.15-2 (Table 1)	123.0 144.9	F F	LTS/SU
37	El Camino Real / Encinal Ave	Menlo Park	LOS D	AM PM	44.9 89.9	D F	45.4 92.9	D F	See MM 5.15-2 (Table 1)	35.5 67.2	D+ E	LTS/SU
38	El Camino Real / Valparaiso Ave	Menlo Park	LOS D	AM PM	53.5 56.0	D- E+	54.0 57.4	D- E+	See MM 5.15-2 (Table 1)	52.5 52.3	D- D-	LTS/SU
41	El Camino Real / Ravenswood Road	Menlo Park	LOS D	AM PM	48.0 63.8	D E	48.7 65.8	D F	See MM 5.15-2 (Table 1)	47.6 63.7	D E	LTS/SU

TABLE 5.15-31 (CONTINUED)
2035 CUMULATIVE WITH PROJECT INTERSECTION LEVELS OF SERVICE
(MITIGATED CONDITIONS)

ID	Intersection	Jurisdiction/ CMP ^a	LOS Threshold ^b	Peak Hour ^c	2035 Cumulative		2035 Cumulative With Project		Mitigation Measure	2035 Cumulative With Project (Mitigated)		Impact Significance with Mitigation ^f
					Delay ^d	LOS ^e	Delay ^d	LOS ^e		Delay ^d	LOS ^e	
48	El Camino Real / Embarcadero Road	Palo Alto (SC CMP)	LOS E	AM PM	56.9 72.1	E+ E	60.4 82.2	E F	See MM 5.15-2 (Table 1)	53.1 71.1	D- E	LTS/SU
56	Alma Street / Hamilton Avenue	Palo Alto	LOS D	AM PM	10.2 57.7	B+ E+	10.4 60.0	B+ E	See MM 5.15-2 (Table 1)	10.0 39.3	B+ D	LTS/SU
58	Alma Street / Charleston Road	Palo Alto	LOS D	AM PM	123.7 117.4	F F	127.5 122.5	F F	See MM 5.15-2 (Table 1)	121.7 119.9	F F	SU
59	Middlefield Road / Marsh Road	Atherton	LOS D	AM PM	76.9 76.0	E- E-	79.7 77.4	E- E	See MM 5.15-2 (Table 1)	41.7 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 70.1	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	60.2 73.7	E F	N/A (no feasible improvements)			SU
89	Central Expwy / Castro St-Moffett Blvd	Santa Clara Co. (SC CMP)	LOS E	AM PM	249.9 221.4	F F	245.4 225.0	F E	See MM 5.15-2 (Table 1)	85.9 93.0	F F	LTS/SU
90	Foothill Expressway / Edith Avenue	Santa Clara Co. (SC CMP)	LOS E	AM PM	52.2 92.8	D- F	57.5 99.7	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, August 2017.

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. (Significant)

Freeway Segments

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. Freeway segments with significant Project impacts under 2035 Cumulative with Project conditions are:

- 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);
- 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
 - Sheep Camp Trail to Edgewood Road (AM peak hour);
 - Magdalena Avenue to Foothill Expressway (PM peak hour);
 - Foothill Expressway to SR 85 (PM peak hour);
 - De Anza Boulevard to Wolfe Road (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. For these reasons, the contribution of the proposed Project to significant cumulative freeway impacts would remain considerable, and the impacts would remain significant and unavoidable. Mitigation Measure 5.15-2 would reduce the Projects' contribution to significant cumulative 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 for exceeding the No Net New Commute Trips standard to alternative programs to reduce trips. Nevertheless, because it is uncertain whether implementation of the improvements would occur, the proposed Project's freeway impacts would remain significant and unavoidable.

Freeway Ramps

A freeway ramp analysis was conducted to assess increases in peak period ramp queue lengths with the addition of Project traffic and the effects of those increased queues on freeway and local street operations. Ramp queuing is not considered an environmental impact, but rather an operational consideration that is managed over time by Caltrans and local jurisdictions. Thus, the results presented here are provided for information purposes only.

Freeway On-Ramps

As described above, there are freeway on-ramps equipped with ramp meters within the study area. Caltrans operates dynamic ramp metering rates based on queues on the freeways and on the ramps. Therefore, the on-ramp queues were evaluated at the minimum and maximum ramp metering rates to show the potential range of queues at the given ramp. As shown in **Table 5.15-32**, all queues would remain within the available storage when the ramp metering rate operates at the maximum (900 vphpl) rate under 2035 Cumulative and 2035 Cumulative with Project conditions. All queues would exceed the available storage when using the minimum ramp metering rate, although it is unlikely that the metering rate remains at the minimum rate, given the above-stated ability for the rate to change. **Table 5.15-33** shows the other (non-metered) on-ramps that provide access to Stanford.

Freeway Off-Ramps

Off-ramp queues that terminate at an intersection were evaluated using ramp-terminal intersection queue estimates from the intersection LOS calculations. Slip ramps where there is no control device (e.g., no signal or stop sign) and the ramp merges with the local street were evaluated using V/C ratios.

As shown in **Table 5.15-34**, all off-ramps would accommodate vehicle queues within the available ramp storage, with the exception of the I-280 / Sand Hill Road northbound off-ramp, on which excessive queues would result in a queue spillback onto the freeway mainline of 940 feet and 1,030 feet without and with the proposed Project, respectively. Additionally, the following queues would exceed the available turn-pocket storage queue:

- US 101 / University Avenue southbound loop off-ramp – right-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the Project
- I-280 / Sand Hill Road northbound diagonal off-ramp – right-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the Project
- I-280 / Page Mill Road northbound diagonal off-ramp – left-turn queue would exceed pocket storage length during the AM and PM peak period, without and with the proposed Project
- I-280 / Page Mill Road southbound diagonal off-ramp – left-turn queue would exceed pocket storage length during the AM and PM peak periods, without and with the proposed Project
- While these turn queues would exceed the available turn pocket storage, the queues would still be served within the total ramp storage, and would not spillback into the freeway mainline.

TABLE 5.15-32
2035 FREEWAY METERED ON-RAMP QUEUING EVALUATION
(2018 BASELINE AND 2018 BASELINE WITH PROJECT)

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	2035 Cumulative No Project		2035 Cumulative with Project	
			Ramp Volume	Min. / Max. Queue (feet) ^c	Ramp Volume	Min. / Max. Queue (feet) ^c
Oregon Expressway (US 101 Southbound)	1,400	AM PM	1,304 1,416	30 / 18,300 30 / 77,610	1,310 1,429	30 / 18,390 30 / 78,870
Embarcadero Road (US 101 Southbound)	1,150	AM PM	813 726	30 / 18,450 750 / 24,120	829 758	30 / 19,290 1,080 / 27,270

Bold text indicates conditions where the queue exceeds the available storage capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Minimum queues estimated using the maximum metering rates provided by Caltrans. Maximum queues estimated using the minimum metering rates provided by Caltrans. The minimum queue is one vehicle, which is equal to 30 feet.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

TABLE 5.15-33
2035 FREEWAY NON-METERED ON-RAMP VOLUMES AND STORAGE CAPACITY
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)

On-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	Cumulative (2035) No Project Volume	Cumulative (2035) with Project Volume
US 101 Northbound On-Ramps				
Willow Road	650	AM PM	411 352	413 358
University Avenue	880	AM PM	391 121	393 125
I-280 Northbound On-Ramps				
Sand Hill Road	1,460	AM PM	648 1,526	692 1,627
Alpine Road	1,000	AM PM	360 710	360 710
Page Mill Road	700	AM PM	923 1,445	939 1,474
I-280 Southbound On-Ramps				
Page Mill Road	1,500	AM PM	706 1,189	750 1,278
Alpine Road	650	AM PM	376 561	376 561
Sand Hill Road	800	AM PM	330 1,130	338 1,141

Bold text indicates conditions where the queue exceeds the available storage capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

SOURCE: Caltrans, April 2017; and Fehr & Peers, August 2017.

TABLE 5.15-34
2035 FREEWAY OFF-RAMP QUEUING EVALUATION
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT):
SIGNALIZED AND STOP-CONTROLLED TERMINAL INTERSECTIONS

Off-Ramp	Storage Capacity (feet) ^a	Peak Period ^b	Cumulative (2035) No Project		Cumulative (2035) with Project	
			Ramp Volume ^c	Queue (feet) ^d	Ramp Volume ^c	Queue (feet) ^d
US 101 Southbound Off-Ramps						
Willow Road	1,025/1,025	AM PM	160 / 432 470 / 401	150 / 510 480 / 420	160 / 440 470 / 404	150 / 510 480 / 420
University Avenue	1,870 / 190	AM PM	262 / 250 190 / 590	540 / 510 300 / 690	267 / 250 193 / 590	540 / 510 300 / 720
I-280 Northbound Off-Ramps						
Sand Hill Road	740 / 300	AM PM	100 / 630 50 / 230	90 / 1,680 90 / 450	100 / 633 50 / 235	120 / 1,770 90 / 450
Alpine Road ^f	1,360 / 280	AM PM	250 / 821 130 / 269	30 / ^e 30 / ^e	250 / 850 130 / 291	30 / ^e 30 / ^e
Page Mill Road	60 / 1,830	AM PM	240 / 1,839 50 / 312	840 / ^e 150 / ^e	240 / 1,926 50 / 377	840 / ^e 210 / ^e
I-280 Southbound Off-Ramps						
Alpine Road	1,370 / 450	AM PM	390 / 550 160 / 320	240 / ^e 60 / ^e	390 / 550 160 / 320	240 / ^e 60 / ^e
Page Mill Road ^f	150 / 1,940	AM PM	1,612 / 50 1,256 / 50	1,710 / ^e 1,140 / ^e	1,615 / 50 1,263 / 50	1,740 / ^e 1,170 / ^e

Bold text indicates conditions where the queue exceeds the turn pocket capacity.

^a Vehicle storage capacity is defined as the length of the longest mixed-flow lane available for vehicle queuing. Length is measured from gore point to gore point or where any queue spillback has the potential to block other movements. Storage Capacity for a Controlled Ramp - ###/### = left-turn and (or) through pocket / right-turn pocket

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c Ramp volume by turning movement - ###/### = left-turn and (or) through movement / right-turn movement

^d The queue indicated represents the 95th Percentile Queue for signalized movements and the Average Queue for stop-controlled movements - ###/### = left-turn and (or) through queue / right-turn queue

^e Only left-turn movement is stop-controlled. Free right-turn queues are not provided.

^f For all-way stop-controlled ramp intersections, the average queue is reported due to the limitations of the 2000 HCM.

SOURCE: Fehr & Peers, August 2017.

As shown in **Table 5.15-35**, most of the V/C ratios (for Cumulative (2035) Conditions without and with the Project) for the off-ramps with uncontrolled terminal intersections for the AM and PM peak periods would be less than 1.00, indicating that the off-ramps have sufficient capacity to accommodate the exiting volumes at these locations, with the following exceptions:

- I-280 / Page Mill Road northbound off-ramp (No Project V/C is 0.97, with Project V/C would be 1.01, in the AM peak period);
- I-280 / Sand Hill Road southbound off-ramp (No Project V/C is 1.03, with Project V/C would be 1.10, in the AM peak period).

TABLE 5.15-35
2035 FREEWAY OFF-RAMP QUEUING EVALUATION
(2035 CUMULATIVE AND 2035 CUMULATIVE WITH PROJECT)
(UNCONTROLLED TERMINAL INTERSECTIONS)

Off-Ramp	Maximum Vehicle Flow Rate (Capacity, vphpl) ^a	Peak Period ^b	2035 Cumulative		2035 Cumulative with Project	
			Ramp Volume	Volume-to-Capacity Ratio	Ramp Volume	Volume-to-Capacity Ratio
US 101 Northbound Off-Ramps						
Embarcadero Road (diagonal)	1,800	AM PM	714 601	0.41 0.33	778 621	0.43 0.35
I-280 Northbound Off-Ramps						
Alpine Road (loop) ^c	1,900	AM PM	821 269	0.43 0.14	850 291	0.45 0.15
Page Mill Road (loop) ^c	1,900	AM PM	1,839 312	0.97 0.18	1,926 377	1.01 0.20
I-280 Southbound Off-Ramps						
Sand Hill Road (diagonal)	1,800	AM PM	1,860 720	1.03 0.40	1,974 780	1.10 0.43
Alpine Road (loop) ^c	1,900	AM PM	550 320	0.29 0.17	550 320	0.29 0.17
Page Mill Road (loop) ^c	1,900	AM PM	50 50	0.03 0.03	50 50	0.03 0.03

Bold text indicates the off-ramp does not have sufficient capacity to accommodate the exiting volumes.

^a Diagonal ramps were assumed to have a capacity of 1,900 vehicles per hour per lane (vphpl). Loop ramps were assumed to have a capacity of 1,800 vphpl.

^b AM peak period – 6:00 AM to 9:00 AM. PM peak period – 3:00 PM to 7:00 PM.

^c The right-turn movement is uncontrolled. Therefore, the right-turn volume and V/C is the only ramp movement reported in the table.

SOURCE: Fehr & Peers, August 2017.

Mitigation Measure: Implement Mitigation Measure 5.15-2.

Significance after Mitigation: Significant and Unavoidable.

As stated above, there are limited options to widen these freeway segments due to right-of-way constraints, and 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 5.15-2 would reduce cumulative 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 implementation of the improvements would occur, the Project's contribution to cumulative freeway impacts would remain significant and unavoidable.

Impact 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. (*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. The proposed 2018 General Use Permit 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, the proposed Project's impact on transit services would be less than significant. The Project 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 5.15-36**, the Project would not add substantial delays relative to the total route travel time to any of the transit routes assessed.

**TABLE 5.15-36
2035 CUMULATIVE WITH PROJECT TRANSIT ROUTE DELAYS**

Route		Direction	Peak Hour	Increased Average Delay with Project (seconds)
VTA 22	Palo Alto Transit Center to Eastridge Transit Center via El Camino	Eastbound	AM PM	12.3 36.5
		Westbound	AM PM	21.4 18.6
VTA 35	Downtown Mountain View to Stanford Shopping Center	Northbound	AM PM	16.6 13.4
		Southbound	AM PM	11.7 22.1
VTA 89	California Avenue Caltrain Station to Palo Alto Veterans Hospital	Northbound	AM PM	< 5.0 < 5.0
		Southbound	AM PM	< 5.0 < 5.0
VTA 102	South San Jose to Palo Alto	Northbound	AM	< 5.0
		Southbound	PM	29.7
VTA 104	Penitencia Creek Transit Center to Palo Alto	Eastbound	PM	< 5.0
		Westbound	AM	26.6
522	Palo Alto Transit Center to Eastridge Transit Center	Eastbound	AM PM	9.2 34.8
		Westbound	AM PM	21.4 18.6
SamTrans 281	Onetta Harris Center to Stanford Shopping Center	Eastbound	AM PM	6.4 9.7
		Westbound	AM PM	< 5.0 < 5.0
SamTrans ECR	Daly City BART to Palo Alto Transit Center	Northbound	AM PM	< 5.0 9.8
		Southbound	AM PM	< 5.0 < 5.0

TABLE 5.15-36 (CONTINUED)
2035 CUMULATIVE WITH PROJECT TRANSIT ROUTE DELAYS

Route		Direction	Peak Hour	Increased Average Delay with Project (seconds)
AC Transit DB	Dumbarton Express - Union City BART to Stanford Oval	Eastbound	AM PM	< 5.0 7.4
		Westbound	AM PM	22.6 9.2
AC Transit DB1	Dumbarton Express 1 - Union City BART to Stanford Research Park	Eastbound	AM PM	<5.0 13.1
		Westbound	AM PM	28.4 26.0
AC Transit U	Fremont BART to Stanford Oval	Eastbound	PM	29.4
		Westbound	AM	17.0
Palo Alto Shuttle E	University Avenue Caltrain Station to Baylands Business Parks	Eastbound	AM PM	5.9 13.9
		Westbound	AM PM	11.8 < 5.0
Palo Alto Shuttle C	University Avenue/Downtown to South Palo Alto at Charleston Road	Eastbound	AM PM	< 5.0 8.7
		Westbound	AM PM	29.1 6.1

SOURCE: Fehr & Peers, August 2017.

The additional delay would be fewer than 30 seconds on all but two of the routes. The VTA Route 22 would experience a longer delay change, at 36.5 seconds (eastbound direction in the PM peak hour only), and VTA Route 522 would experience a longer delay change, at 34.8 seconds (eastbound direction in the PM peak hour only). This is a less than significant impact.

Mitigation: None required.

5.15.6 Vehicle Miles Traveled Impacts

As explained above (5.15.1 *Introduction – Legal Requirements in Transition*), 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.

The County has not yet removed its congestion-based level of service criteria, and the traditional congestion-based approach to evaluating traffic impacts is still needed. However, the VMT

approach outlined in this Program EIR will most likely be required by the State law beginning at some point in time during the horizon of the 2018 General Use Permit. The VMT analysis has been included in this Program EIR to more fully describe the proposed Project's impacts and to facilitate the County's continued use of this Program EIR when it reviews and evaluates individual projects implementing or modifying the 2018 General Use Permit. As of the date of the publication of this Draft EIR, OPR's VMT guidelines are still in draft form. Consequently, the County has not adopted a threshold or established a standard methodology for evaluating VMT. The proposed 2018 General Use Permit 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 the proposed 2018 General Use Permit and is based on the information from the Vehicle Miles Traveled (VMT) Analysis (see Appendix VMT). 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 its January 2016 *Revised Proposed Changes to the CEQA Guidelines*, 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.

Section 15064 contains general rules governing the analysis, and the determination of significance of, environmental effects. Specific considerations involving transportation impacts are described in this section. Generally, vehicle miles traveled is the most appropriate measure of a project's potential 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 and safety of all travelers. A project's effect on automobile delay does not constitute a significant environmental impact.

(b) Criteria for Analyzing Transportation Impacts.

Lead Agencies may use thresholds of significance for vehicle miles traveled recommended by other public agencies or experts provided the threshold is supported by substantial evidence.

(1) Vehicle Miles Traveled and Land Use Projects. A development project that results in vehicle miles traveled exceeding an applicable threshold of significance

may indicate a significant impact. Generally, development projects that locate within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor may be presumed to cause a less-than-significant transportation impact. Similarly, development projects that decrease vehicle miles traveled in the project area compared to existing conditions may be considered to have a less than significant transportation impact. (Section II, Page II: 7)

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 January 2016 draft *Technical Advisory on Evaluating Transportation Impacts in CEQA* 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 January 2016 *Revised Proposed Changes to the CEQA Guidelines* and OPR's draft *Technical Advisory on Evaluating Transportation Impacts in CEQA*, the following significance criteria were used to assess VMT for the proposed 2018 General Use Permit:

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 *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.
 - 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 draft *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 the proposed 2018 General Use Permit were assessed independently, and the project-specific data used in the evaluation account for internal capture.

Populations Included in the Analysis

Stanford anticipates that the 2018 General Use Permit 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 the 2018 General Use Permit 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.

The daily VMT analysis includes all of the Academic Campus and Campus Open Space lands, including the Stanford Driving Range, which Stanford proposes to designate as Academic Campus rather than medium-density residential. Thirty-eight existing faculty/staff housing units are included in the study area for the 2018 GUP. These units are located in the Searsville and Olmsted staff rental subdivision and were included in the daily VMT analysis.

Benchmarks Included in the Analysis

Based on the OPR guidance described above, the numeric benchmarks against which the proposed 2018 General Use Permit worker and resident VMT were compared are:

- the Bay Area regional daily average home-based-work VMT per worker; and
- both the Bay Area regional daily average and the Santa Clara County 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 draft *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.

The draft *Technical Advisory* recommends that the benchmark for residential projects should be the higher of the county-level (aggregate of all incorporated jurisdictions) and regional averages. In this case, the regional average is higher and thus represents the benchmark for residential VMT generation.

OPR's draft *Technical Advisory* recommends setting thresholds of significance at 15 percent below the regional benchmark for average daily VMT per worker⁹ or per capita. Taking all of these recommendations into account, **Table 5.15-37** indicates the VMT generation thresholds to be applied to the proposed 2018 General Use Permit.¹⁰

⁹ OPR's draft 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.

¹⁰ 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 the proposed 2018 General Use Permit. 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 5.15-37
APPLICABLE BENCHMARKS AND NUMERIC SIGNIFICANCE THRESHOLDS

Traveler 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, 2017

Methodology for Calculating 2018 General Use Permit VMT

This VMT analysis uses the VTA model to establish the regional benchmarks for average daily home-based work trips per worker and all average daily home-based trips per resident (home-based-work and home-based-other trips). The Stanford-specific analysis uses the same categories of inputs and approach as the VTA model for calculating these same trip types; however, for improved accuracy in calculating Stanford-specific VMT, trip generation rates, trip origins and destinations, and trip lengths (for home-based work and home-based other trips) directly measured and monitored by Stanford and peer reviewed by Santa Clara County were used. The Stanford home-to-work trips were adjusted to be consistent with the VTA VMT calculation by using the VTA model's assumption regarding the percentage of work trips that travel directly from home to work. When Stanford-specific data was available, it was used in the project-specific model including trip rates, travel modes, and trip length. When Stanford-specific data was not available, the assumptions were based on values from the VTA model or California Household Transportation Survey (CHTS), which is a source used by the VTA.

Campus Population

An understanding of the campus population is relevant both to developing an inventory of contributors to worker and resident VMT, and determining the total numbers of workers and residents to use as the denominators in arriving at daily VMT per capita. The worker VMT calculations include students, faculty, staff, contractors and other onsite workers. The resident VMT calculations include students, faculty, staff, and other household members living on campus within the study area.

Stanford proposes to increase the amount of on-campus housing for students and faculty/staff. The change to where students, faculty and staff live is reflected in the VMT calculation methodology for workers and residents. Compared to 2018, by Fall 2020, Stanford will add another 2,020 student beds as part of the EV Graduate Residences project approved under the 2000 General Use Permit. The addition of these beds will reduce Stanford's off-campus student population, which will reduce worker VMT because moving off campus students to campus eliminates home-based work vehicle trips (on-campus students commute to class by bike or walking). Once the proposed 2018 General Use Permit is fully implemented, Stanford estimates there would be an additional 1,700 undergraduate beds, 900 graduate beds, and 550 faculty/staff dwelling units.

General Methodology for Counting VMT

Based on the data available to conduct this analysis and the methodologies of the VTA travel model, a trip-based assessment for both the worker and resident populations at Stanford was completed. OPR states in its draft *Technical Advisory* that where a trip-based approach is used for residential and office projects, “home based trips can be the focus for analysis of residential projects; home-based work trips can be the focus of the analysis for office projects.”

To perform the analysis, data collected by Stanford Parking & Transportation Services (P&TS) in its annual transportation survey was relied upon. The annual survey includes all university faculty and staff, undergraduate and graduate students, post-doctoral students, and affiliates of Stanford. The survey collects a wide range of travel characteristics including key data on mode of travel, time of travel, and frequency - days per week on campus.

These surveyed travel characteristics, along with data for Santa Clara County from the California Household Travel Survey (CHTS) and the VTA travel demand model, were used to calculate the VMT for campus workers and residents.

Worker Analysis

Worker VMT is focused on trips that start at home and end at work, or start at work and end at home. Trips with an intermediate stop between home and work, such as the grocery store or cleaners, are not included in the calculation of Worker VMT, nor in the regional and countywide benchmarks to which they are compared.

Based on available site-specific data, data from the CHTS, and assumptions from the VTA model, the home-based work trips for those Stanford workers who travel directly between their residences and their work sites within the study area were determined, including trips from the Stanford campus to other destinations and internal to the Stanford campus during the workday. The Worker VMT calculation was based on the worker population on the campus, their place of residence, and their travel behavior (mode choice and vehicle occupancy) on their daily commute.

Resident Analysis

Resident VMT includes all trips that originate at the home, including trips related to work, shopping, recreation, or school. Many of home-based trips are relatively short, but there is a larger number of trip types included in the Resident VMT as compared to the Worker VMT.

Based on available site-specific data, data from the CHTS, and assumptions from the VTA model, the home-based trips for Stanford residents (students, faculty, staff and family members) were calculated. The VMT per campus resident was determined based on the sum of all home-based trips, including both home-based trips to and from work (home-based work trips) and home-based trips to and from other destinations (home-based other trips).

For household members who are Stanford workers (faculty, staff and students), site-specific assumptions were made regarding the frequency, length, and mode of home-based work trips as described above. For other home-based work trips by other household members and for home-based other trips for all residents, default assumptions were used from the CHTS and the VTA model.

Because Resident VMT includes all trip types, including work commutes, shopping, recreation and school, Resident VMT on a per capita basis may be larger than Worker VMT per capita. In addition, daily VMT per worker at Stanford is low due to Stanford's TDM program that provides incentives that reduce the number of drive-alone commuters. By contrast, Resident daily VMT per capita at Stanford is largely calculated based average defaults from the CHTS given that little information is available with regard to non-Stanford employee household members' trips and home-based other trips.

Fall 2015 Campus VMT Generation

The worker population within the study area in Fall 2015 was approximately 38,850 people, and the total resident population was approximately 12,590 people. The weekday vehicle trip generation per capita (for residents) and per worker are indicated in **Table 5.15-38**. As a sensitivity test, worker VMT excluding students has been provided.

**TABLE 5.15-38
FALL 2015 TYPICAL WEEKDAY VMT**

Traveler	Trip Purposes	Population	VMT	VMT per Capita
Workers (Including Students)	HBW	38,851	181,196	4.66
Workers (Excluding Students)	HBW	22,661	163,631	7.22
Study Area Residents	HBW + HBO	12,592	116,748	9.24

SOURCE: Fehr & Peers, 2017

Fall 2018 Campus VMT Generation

Continued growth under the 2000 General Use Permit is anticipated until 2018. In Fall 2018, the General Use Permit study area is anticipated to have a worker population of approximately 40,240 people and a resident population of approximately 13,030 people. The estimated daily VMT per capita for workers and residents is shown in **Table 5.15-39**. Similar to the 2015 analysis, worker VMT excluding students has been provided as a sensitivity analysis.

**TABLE 5.15-39
FALL 2018 TYPICAL WEEKDAY VMT**

Traveler	Trip Purposes	Population	VMT	VMT per Capita
Workers (Including Students)	HBW	40,240	186,739	4.64
Workers (Excluding Students)	HBW	23,627	169,326	7.17
Residents	HBW + HBO	13,028	121,192	9.27

SOURCE: Fehr & Peers, 2017

Between Fall 2015 and Fall 2018 daily VMT per worker will be reduced. The reasons for the reduction in the daily VMT per worker are that the University Terrace housing development, located in Palo Alto adjacent to the campus, will add 180 faculty housing units. Due to the proximity to campus, a substantial portion of these workers will choose to use alternative modes of travel (bike, walk, or use Marguerite) to campus. For those that do choose to drive to campus their average trip length would be reduced from over 11 miles to less than 2 miles. During this same time period Stanford plans to add 416 student beds to the campus, while increasing enrollment by only 423 undergraduate and graduate students.

Daily VMT per capita for residents will increase slightly between Fall 2015 and 2018, but will remain at a level that is well below regional averages. Stanford will have added a similar number of undergraduate student beds (216) and graduate student beds (200). The increase in resident daily VMT per capita is due to the fact that graduate student housing generates higher VMT per capita than undergraduate student housing.

Fall 2020 Campus VMT Generation (with Escondido Village Graduate Residences)

Stanford has received approval to construct a new housing complex in Escondido Village, which is expected to be completed in 2020 (shifting students from off-campus to on-campus housing); the additional beds will increase the Stanford residential population, which will add home-based trips. Adding these student beds will reduce the number of graduate students currently living off-campus and commuting to the campus, which will reduce the student commute VMT. This 2020 analysis assumes the same number of workers as the 2018 analysis. In Fall 2020, the study area is expected to have a resident population of approximately 15,250 people. The estimated daily VMT per capita for workers and residents is shown in **Table 5.15-40**. Similar to the 2015 analysis, Worker VMT excluding students has been provided as a sensitivity analysis.

**TABLE 5.15-40
FALL 2020 TYPICAL WEEKDAY VMT**

Traveler	Trip Purposes	Population	VMT	VMT per Capita
Workers (Including Students)	HBW	40,240	179,362	4.46
Workers (Excluding Students)	HBW	23,627	169,326	7.17
Residents	HBW + HBO	15,250	154,296	10.09

SOURCE: Fehr & Peers, 2017

Between Fall 2018 and Fall 2020 daily VMT per worker will be reduced. The reason for the reduction in the daily VMT per worker is the addition of 2,020 new graduate student beds in Escondido Village. The new housing reduces the number of students commuting to the campus.

Daily VMT per resident will increase between Fall 2018 and 2020, but remains at a level that is well below regional averages. The increase in resident daily VMT per capita is due to the fact that

the Escondido Village Graduate Student Residences project will add a large number of graduate student beds, which will increase the ratio of graduate student to undergraduate beds on the campus. Because graduate student housing generates higher VMT per capita than undergraduate student housing, this proportionate shift will slightly increase daily VMT per capita for campus residents.

Impact Evaluation

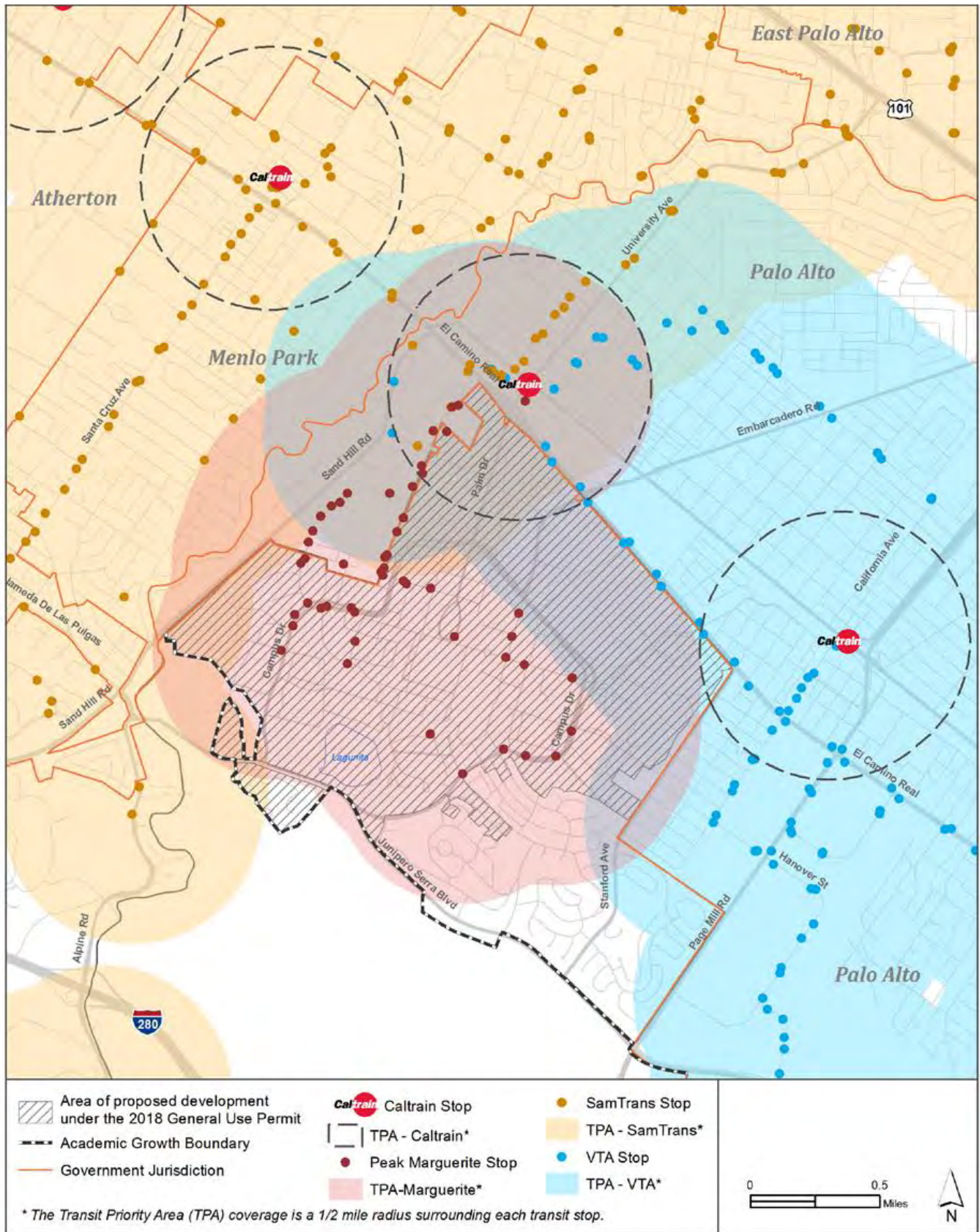
Impact 5.15-12: The Project would be located within one-half mile of an existing major transit stop or an existing stop along a high quality transit corridor. (*Less than Significant*)

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.

Figure 5.15-10 shows the major transit stops and stops along high quality transit corridors on and near the Stanford campus, and land area within 1/2 mile of such stops and corridors. Caltrain stations are major transit stops, and the El Camino Real corridor served by VTA and SamTrans is a high-quality transit corridor. In addition to these three public transit systems, Stanford operates its own private transit system called the Marguerite Shuttle. One of the key aspects of the Marguerite Shuttle service is the provision of “last mile” service between the Stanford campus and the Downtown Palo Alto Intermodal Transit Center where all three public transit systems provide high-quality transit service. The Marguerite Shuttle service operates approximately 20 routes to various destinations on- and off-campus. During the morning peak period, buses are scheduled to meet each train. This service includes the provision of multiple buses on some routes in the morning to ensure sufficient capacity is available when large numbers of users arrive on the Bullet and Express trains. In the afternoon, the Marguerite Shuttle service is designed to provide sufficient capacity to get Caltrain users to the station ahead of train departures.

Based on the operations described above, Figure 5.15-10 shows the bus stops on the Stanford campus that receive four or more buses per hour, during the morning and evening peak periods, for routes that connect to the Downtown Palo Alto Intermodal Transit Center. Most of these bus stops have five or more buses, and some in the Quarry Road corridor have as many as 20 buses per hour. Therefore, Marguerite users have multiple, frequent opportunities to travel between the campus and the Caltrain Station and, the frequency of service at these stops meets, or exceeds, the level of service standard of providing 15-minute fixed route service.

Development under the proposed 2018 General Use Permit 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.



SOURCE: Fehr & Peers

Stanford 2018 General Use Permit . 160531

Figure 5.15-10
Transit Priority Areas for Nearby Transit Agencies

Based on the January 2016 *Revised Proposed Changes to the CEQA Guidelines* proposed by OPR for assessment of VMT, the proposed 2018 General Use Permit can be presumed to result in a less-than-significant impact.

Mitigation: None required.

Impact 5.15-13: The proposed Project VMT would not exceed the numeric thresholds recommended by OPR. (*Less than Significant*)

Even though the proposed Project would be presumed to result in a less-than-significant impact under OPR's proposed CEQA Guidelines amendments (see Impact 5.15-12, above), this EIR also assesses the proposed Project's consistency with the numeric standards suggested by OPR.

Fall 2035 Campus VMT Generation

In 2035, the study area would include approximately 29,915 faculty, employees, postdoctoral students and contractors and an enrollment of approximately 19,515 undergraduate and graduate students. The worker population including faculty, employees, postdoctoral students, contractors and undergraduate and graduate students would be approximately 49,430 people. The campus resident population would be approximately 13,350 people including spouses and families.

Trip lengths for the 2035 calculations were adjusted from the 2015 levels (increased by 2 to 3 percent) based on the projected changes in the 2040 VTA travel model, taking into account the regional forecasts of growth patterns, future distribution of Bay Area housing and jobs, and improvements and transportation system and services, and their effects on travel mode choice. The resulting Fall 2035 daily VMT per capita for campus workers and residents is indicated in the **Table 5.15-41**. Similar to the previous scenarios, worker VMT excluding students has been provided as a sensitivity analysis.

**TABLE 5.15-41
FALL 2035 TYPICAL WEEKDAY VMT**

Traveler	Trip Purposes	Population	VMT	VMT per Capita ^a
Workers (Including Students)	HBW	49,428	223,842	4.53
Workers (Excluding Students)	HBW	29,915	212,555	7.11
Residents	HBW + HBO	19,353	207,986	10.75

^a Worker HBW VMT were adjusted by +2%, and Resident HB VMT were adjusted by +3% to reflect changes in trip lengths derived from the VTA model.

SOURCE: Fehr & Peers, 2017

Between Fall 2018 and Fall 2035, daily VMT per worker will increase primarily due to the projected increase in trip length for the Bay Area. The amount of the increase in daily VMT per worker is reduced by adding 550 faculty housing units on the campus. Since these units would be in the core area of the campus, these workers would choose to use alternative modes of travel including bicycling, walking, or riding the Marguerite.

Resident daily VMT per capita is expected to increase from Fall 2018 to Fall 2035 because the ratio of graduate student housing to undergraduate student housing will change. Prior to the EV Graduate Residences project, Stanford housed approximately 55 percent of its graduate students on the campus. With the EV Graduate Residences, Stanford will house approximately 70 percent of its graduate students on campus. Graduate students have a higher daily VMT per capita than undergraduate students. Some spouses of graduate students are assumed to generate home-based work trips off-campus and both the graduate students and spouses generate more home-based-other trips than undergraduate students. Further, by Fall 2035, Stanford is proposing to add up to 550 new housing units occupied by faculty/staff. These new faculty and staff would generate additional home-based trips at a per capita rate that is higher than the addition of student housing units.

Primary reasons that Stanford's Worker VMT generation is so low compared to the regional average are: an aggressive and successful TDM program, and the provision of on-campus housing for faculty and students. The primary reason that Stanford's Resident VMT generation per capita is so low compared to the regional average is that Stanford campus residents can commute to work or class without using personal vehicles.

Worker and residential daily VMT per capita generated by the project in 2035 and the VMT Thresholds of Significance are shown in **Table 5.15-42**. The proposed 2018 General Use Permit 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.

TABLE 5.15-42
FALL 2035 WITH PROJECT VMT COMPARED TO SIGNIFICANCE THRESHOLDS

Traveler	Trip Purposes	Fall 2035 VMT per Capita	Significance Threshold VMT per Capita (85% of Regional Average)	Finding
Workers	HBW	4.53	13.75	Less than Significant
Residents	HBW + HBO	10.75	14.73	Less than Significant

SOURCE: Fehr & Peers, 2017

Mitigation: None required.

5.15.7 Transit and Bicycle Facility Capacity

OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA* states that a project that blocks access to a transit stop or blocks a transit route may interfere with transit functions. By contrast, when evaluating multimodal transportation networks OPR advises:

[L]ead agencies generally should not treat the addition of new users as an adverse impact. Any travel-efficient infill development is likely to add riders to transit systems, potentially slowing transit vehicle mobility, but also potentially improving overall destination proximity. Meanwhile, such development improves regional vehicle flow generally by loading less travel onto the regional network than if that development were to occur elsewhere.

OPR recognizes that increased demand throughout a region may cause a cumulative impact requiring new or additional transit infrastructure. However, OPR states such impacts may be best addressed through a fee program that fairly allocates the cost of improvements not just to projects that locate near transit, but rather across a region to all projects that impose burdens on the entire transportation system.

Even though the addition of new users to transit facilities are not treated as an adverse impact in this EIR, this section provides information regarding the capacity of the public transit system to accommodate growth in ridership resulting from the proposed Project. This section also addresses the potential for growth in bicycle trips resulting from the proposed Project to exceed the capacity of local bicycle facilities.

The analyses presented earlier in this section conservatively assume that Stanford continues its existing TDM programs, but does not expand those programs to achieve the No Net New Commute Trips standard. That assumption produced a reasonable worst-case methodology for purposes of analyzing congestion-based traffic impacts and vehicle miles traveled.

The transit and bicycle facility capacity analysis identifies the increase in transit riders and bicyclists that would be expected to be generated under the 2018 General Use Permit if Stanford were to expand its TDM programs in order to meet the No Net New Commute Trips standard because that assumption results in a reasonable worst-case analysis for evaluating traffic capacity.¹¹

New Stanford Transit Users and Bicyclists

For both transit users and bicyclists, estimated numbers were developed for Existing Conditions, Baseline Conditions (2018) and Expanded TDM Conditions (2035). The number of commuters for transit and bicycle modes for each year and scenario is determined by applying commuter mode shares (percentages) as shown in **Figure 5.15-11** to estimated commuter populations, which have been projected for the three analyzed years. The transit and bicycle capacity analyses utilize these estimates to calculate peak hour transit commuters and bicycle commuter estimates, distributing them and measuring their impact by comparing them with existing and anticipated capacity.

¹¹ Appendix TBC also includes an analysis of transit and bicycle capacity assuming Stanford does not achieve the No Net New Commute Trips standard.

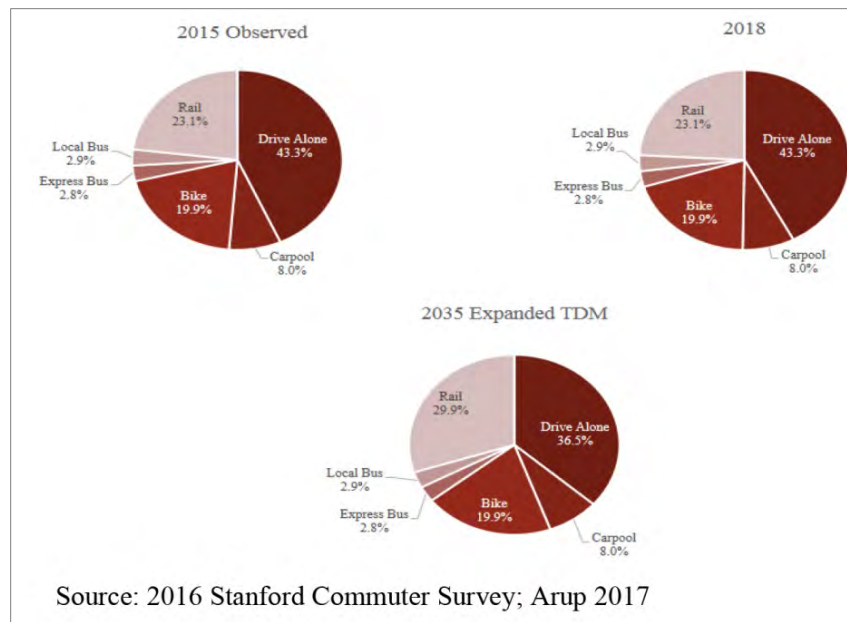


Figure 5.15-11
Existing and Forecasted Stanford Mode Share

For Existing Conditions, mode shares were calculated directly from the 2016 Stanford Transportation Survey, and these were held constant for the Background Conditions year (2018). For Expanded TDM Conditions (2035), mode shares were adjusted to reflect a shift from drive alone commuters to rail commuters.

The Expanded TDM scenario reduces the drive alone mode share from 43.2% to 36.5% between 2018 and 2035, which is the amount necessary to achieve the No Net New Commute Trips standard given the population increases projected to occur during the 2018 General Use Permit and assuming Stanford receives no trip reduction credits for improvements that take non-Stanford campus trips off the road. For purposes of this analysis, drive alone commuters have been shifted to the rail mode. Rail mode share is assumed to increase from 23.1% in 2015 and 2018 to 29.9% in 2035.

The Expanded TDM scenario reduces the drive alone mode share from 43.2% to 36.5% between 2018 and 2035, which is the amount necessary to achieve the No Net New Commute Trips standard given the population increases projected to occur during the 2018 General Use Permit and assuming Stanford receives no trip reduction credits for improvements that take non-Stanford campus trips off the road. For purposes of this analysis, drive alone commuters have been shifted to the rail mode. Rail mode share is assumed to increase from 23.1% in 2015 and 2018 to 29.9% in 2035.

All other modes have been kept constant. Although Stanford may choose to provide additional bus service, this would be provided by Stanford and would not place pressure on public transit providers. Bicycle mode share may increase under an Expanded TDM scenario, but not to a degree that is likely to have a substantial adverse effect on bicycle facility capacity.

Under the Expanded TDM scenario, the greatest pressure on transit services and bicycle infrastructure would occur in the AM and PM peak hours (i.e., 7:00 to 8:00 AM, and 5:00 to 6:00 PM).

The focus of this analysis is on commuters rather than on campus residents. The Stanford Transportation Survey, conducted by Stanford Parking & Transportation Services every year, yields robust data on transit and bicycle use by Stanford commuters. However, little information is available regarding mode choice by campus residents other than their single occupant vehicle trip generation.

Transit Capacity

A transit impact analysis was completed to evaluate the ability of local and regional transit infrastructure and services to accommodate increased Stanford transit ridership anticipated to occur under the proposed 2018 General Use Permit. This analysis was completed for Existing Conditions (2015), Background Conditions (2018) and Cumulative Conditions (2035), to determine what share of peak ridership comprises Stanford University affiliates, and whether peak ridership exceeds capacity standards.

Three transit modes were separately analyzed to determine the ridership of Stanford affiliates. These three transit modes analyzed were commuter rail (Caltrain), express buses serving the campus (Dumbarton Express Line DB, Line AE-F, and AC Transit Line U), and local bus routes operated by the Santa Clara Valley Transportation Authority (VTA) and San Mateo County Transit (SamTrans) that serve the campus.

Caltrain

Approach

To assess the future ridership growth generated by the 2018 General Use Permit and the capacity of Caltrain to accommodate that ridership, the analysis compared the anticipated Caltrain capacity with forecasted ridership growth at peak load stations and determined the share of future ridership attributable to Stanford affiliates.

The three factors considered are capacity, total load, and Stanford campus load. Estimates of each of these factors were generated for 2015, 2018, and 2035. It was assumed that the Caltrain modernization project, which includes electrification in 2021 and further capacity improvements thereafter, will be fully implemented by 2035. This means that 2018 will have no capacity improvements over 2015. Electrification would convert Caltrain rolling stock from diesel locomotive-hauled trains to electric multiple unit (EMU) trainsets between the 4th and King Street Station in San Francisco and the Tamien Station in San Jose. The electrification project would involve the installation of new infrastructure, including traction power supply substations and overhead catenary. After electrification, the number of peak hour trains will increase from the existing 5 trains to 6 trains. Another important improvement that will significantly expand capacity is a platform expansion and train program that would allow trains to increase from 5 cars per train to 8 cars per train.

Table 5.15-43 shows the capacity assumptions for Caltrain. This analysis defines full train capacity as 120% of seats, allowing for some standees.

**TABLE 5.15-43
CALTRAIN CAPACITY ASSUMPTIONS**

	2018	2035
Train type	Diesel Locomotive	Electrical Multiple Unit
Seats per car	130	112
Train length	5 cars	8 cars
Trains per peak hour	5	6
Seated capacity	3,250	5,370
Total capacity (120% of seats)	3,900	6,444

NOTE: capacity numbers are rounded

SOURCE: Arup, Core Capacity Study, Caltrain Short Range Transit Plan: FY2015-2024

Total anticipated Caltrain ridership growth during the peak hour is based on Caltrain 2015 passenger load data along with two separate growth rates that have been applied to future years. The 2015 Caltrain ridership data includes Stanford riders. As shown in **Figure 5.15-12**, the overall annual growth in Caltrain ridership is assumed to be 4.9% from 2015-2021 based on the 20-year historical trend. From 2021-2035, the growth in ridership is assumed to be 1.6% annually based on ridership forecasts in the Peninsula Corridor Electrification Project EIR.

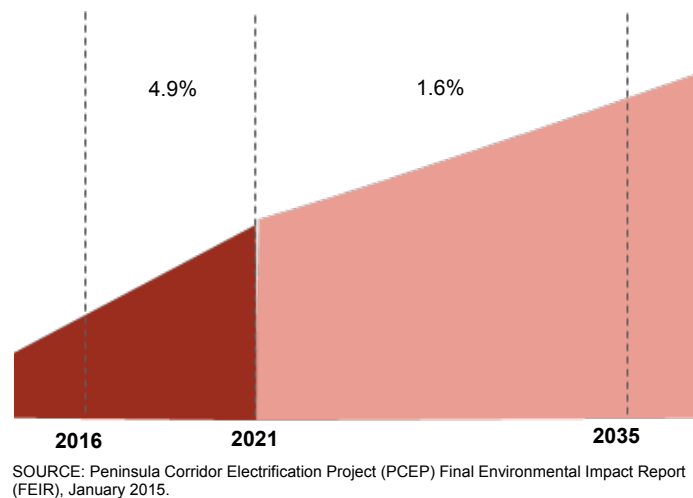


**Figure 5.15-12
Caltrain Annual Growth Rate**

During the AM peak of 7:00-8:00 AM, the northbound and southbound peak load Caltrain stations that Stanford commuters affect are California Avenue and San Carlos. During the PM peak of 5:00-6:00 PM this trend reverses, with the San Carlos Station being the northbound peak load point and the California Avenue Station being the southbound peak load point. Only passengers boarding, rather than alighting, at peak load stations during the peak hour were counted in the ridership estimate. It is also important to note that these peak load points represent the highest passenger load point that Stanford commuters affect. Both the AM and PM system wide peak load, peak direction load points are at San Mateo Station, and is not affected by Stanford commuters.

Analysis

This section analyzes growth in Stanford rail commuters on Caltrain, assuming that expanded TDM strategies designed to achieve the no net new commute trips standard are implemented through 2035. As mentioned, it was conservatively assumed that these strategies shifted all drive alone commuters to rail.

Table 5.15-44 shows how Stanford commuters were estimated for the AM and PM peak hours. To determine the proportion of Stanford-affiliated Caltrain riders during the peak hour, estimates of daily Stanford rail commuters were adjusted to eliminate a small proportion of rail commuters that use other services (e.g., BART, ACE) as their primary mode. It was assumed that of the Stanford affiliates that commute via Caltrain, 85% ride Caltrain every day. Based on the 2016 Commuter Survey, 40% of Stanford Caltrain commuters ride Caltrain during the AM peak hour and 36% ride Caltrain during the PM peak hour.

TABLE 5.15-44
STANFORD ESTIMATED PEAK HOUR PASSENGER LOAD (ACADEMIC CAMPUS ONLY)
EXPANDED TDM SCENARIO

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Rail Mode Share (%)	23.1%	23.1%		29.9%	
Adjustment for sick days, vacation, etc.	85%	85%		85%	
% of rail commuters on Caltrain*	96%	96%		96%	
Daily Caltrain Commuters	3,672	3,420	-252	5,494	+2,074
Percentage of Stanford-bound commute trips in peak hour**	40%	40%		40%	
Total AM peak hour trips - Caltrain	1,469	1,368	-101	2,197	+829
Percentage of home-bound commute trips in peak hour**	36%	36%		36%	
Total PM peak hour trips - Caltrain	1,322	1,231	-91	1,978	+747

* 4% of Stanford rail commuters use ACE, BART, or another rail system as their primary mode

** From 2015 Stanford Transportation Survey

SOURCE: Arup, 2017

Table 5.15-45 and **Table 5.15-46** allocate Stanford commuters by their direction of travel, either south or north of campus and thus traveling northbound or southbound in the morning or afternoon. A minority of commuters do not affect the peak load points as they are not on the train at that load point. AM peak hour Stanford Caltrain trips are projected to decrease from 1,469 in 2015 to 1,368 in 2018, a result of a temporary reduction of Stanford's commuter population. It is then projected to grow from 1,368 passenger trips in 2018 to 2,197 trips in 2035, an increase of 829. During the PM peak hour, Stanford passenger trips are projected to decrease from 1,322 in 2015 to 1,231 in 2018. Stanford PM peak ridership on Caltrain would increase from 1,231 passenger trips in 2018 to 1,978 riders in 2035, an increase of 747 passengers.

**TABLE 5.15-45
TOTAL STANFORD COMMUTERS ON CALTRAIN DURING AM PEAK HOUR (ACADEMIC CAMPUS ONLY)
EXPANDED TDM SCENARIO**

	2015	2018	2035
All AM Peak Hour Stanford Commuters	1,469	1,368	2,197
Northbound at peak load point (51%)	749	698	1,121
Southbound at peak load point (43%)	632	588	945

SOURCE: 2015 Stanford Commuter Survey; Arup, 2017

**TABLE 5.15-46
TOTAL STANFORD COMMUTERS ON CALTRAIN DURING PM PEAK HOUR (ACADEMIC CAMPUS ONLY)
EXPANDED TDM SCENARIO**

	2015	2018	2035
All PM Peak Hour Stanford Commuters	1,322	1,231	1,978
Northbound at peak load point (43%)	568	529	816
Southbound at peak load point (51%)	674	628	968

SOURCE: 2015 Stanford Commuter Survey; Arup, 2017

Figure 5.15-13 and **Figure 5.15-14** show the excess Caltrain capacity at the California Avenue/ San Carlos stations in 2015 for the AM peak hour in the northbound and southbound direction, respectfully, and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

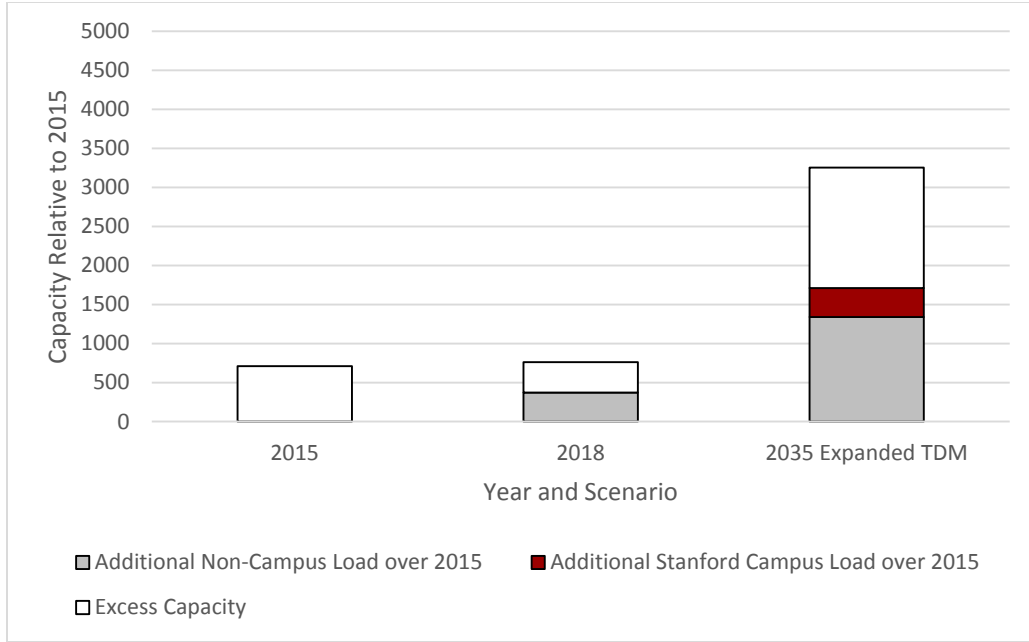


Figure 5.15-13
Caltrain AM Peak Hour Northbound Passenger Load by User Type at California Avenue Station – Expanded TDM Scenario

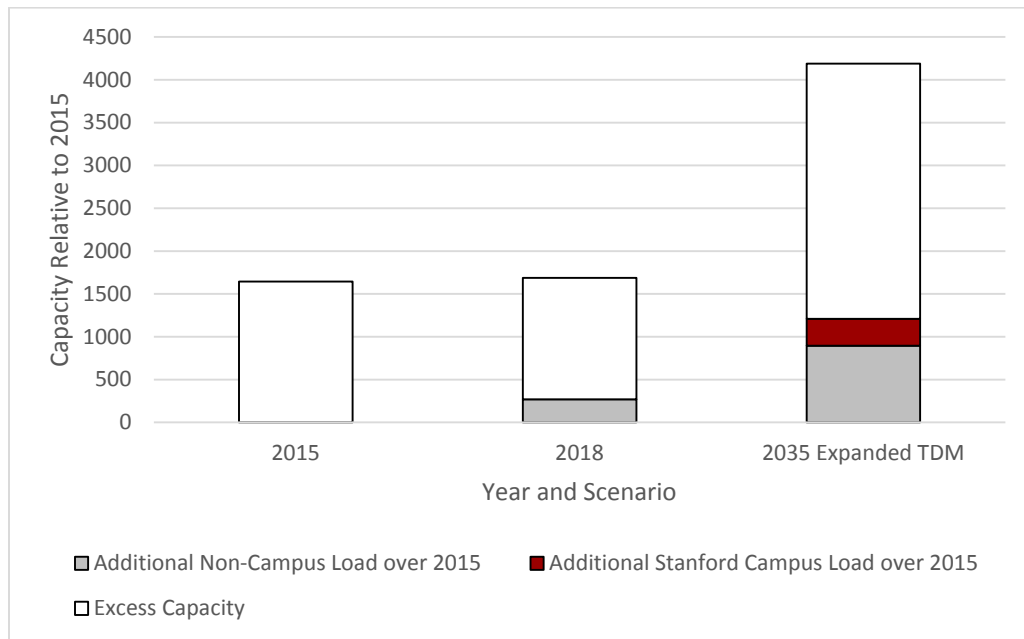


Figure 5.15-14
Caltrain AM Peak Hour Southbound Passenger Load by User Type at the San Carlos Station – Expanded TDM Scenario

Figure 5.15-15 and **Figure 5.15-16** show the excess Caltrain capacity at the San Carlos/ California Avenue stations in 2015 for the PM peak hour in the northbound and southbound direction, respectively, and how much of that capacity is taken up in 2018 and 2035.

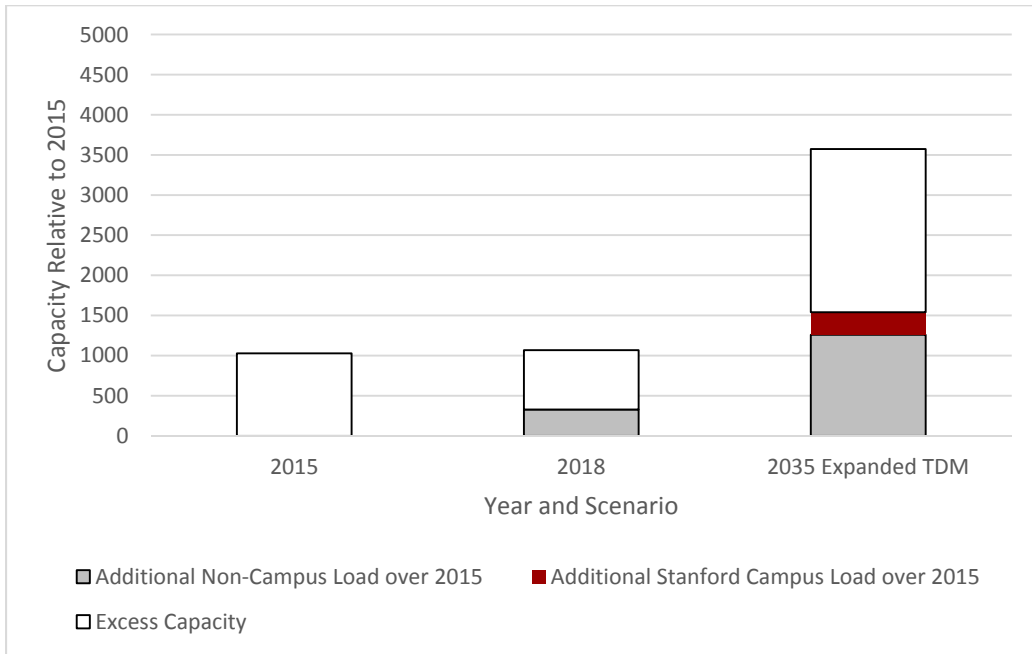


Figure 5.15-15
Caltrain PM Peak Hour Northbound Passenger Load by User Type
at the San Carlos Station – Expanded TDM Scenario

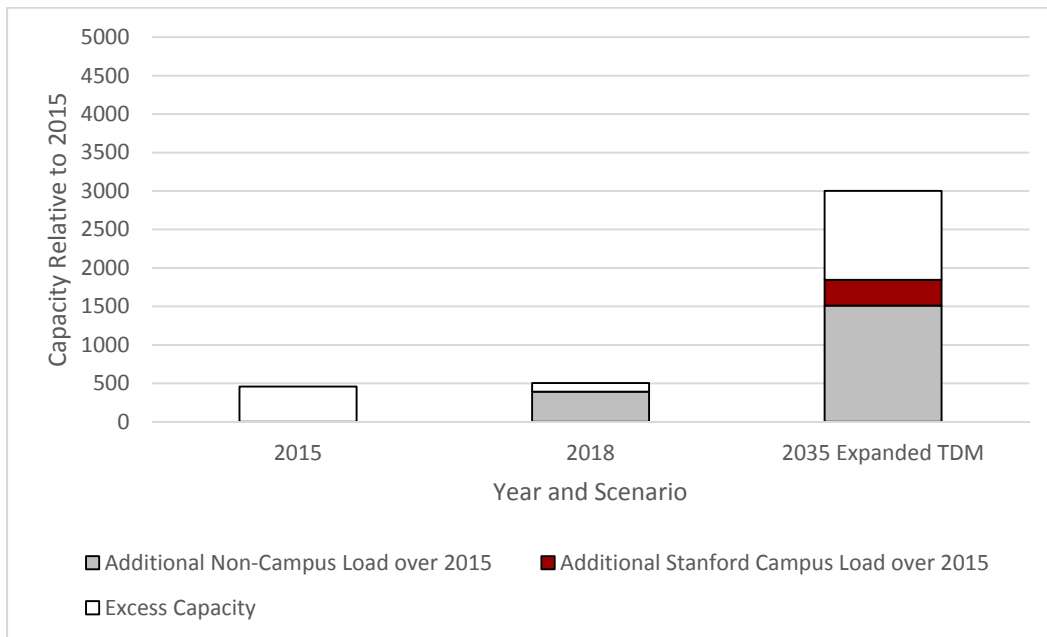


Figure 5.15-16
Caltrain PM Peak Hour Southbound Passenger Load by User Type
at California Avenue Station – Expanded TDM Scenario

In sum, growth in overall Caltrain ridership, including Stanford ridership, would not exceed capacity at any of the peak load points analyzed, which only include those that are affected by Stanford commuters. Between 2015 and the 2018 General Use Permit baseline year, capacity is expected to remain unchanged, but growth in demand would not result in capacity to be exceeded at any of the peak load loading points. During the 2018 General Use Permit, capacity is expected to increase with electrification and other modernizations allowing for an additional peak hour train trip and, even more significantly, an expansion from five-car to eight-car trains. These improvements would provide enough capacity at the peak load points affected by Stanford to meet demand.

Express Bus

Approach

To assess the future ridership growth from the 2018 General Use Permit and the capacity of express bus routes to accommodate that ridership, the analysis compares the anticipated capacity with forecasted ridership growth at peak load points and determines the share of future ridership (and if applicable, the share of the ridership impact) attributable to Stanford affiliates.

The three express bus transit routes considered in this analysis serve the Stanford campus are the Marguerite Line AE-F, AC Transit Line U, and Dumbarton Express Line DB which all provide service to and from the East Bay via the Dumbarton Bridge.

- The Line AE-F operates Monday through Friday serving Stanford, the Fremont BART station, Fremont Wells Fargo park-and-ride lot, ACE/Amtrak Fremont station, Kaiser park-and-ride lot, Ardenwood park-and-ride lot, Embarcadero Road and Wildwood Avenue, and Embarcadero Road and N. California Avenue.
- Line U operates during the weekday serving the Stanford campus with stops at the Fremont BART, Fremont ACE/AMTRAK station, and Ardenwood park-and-ride lot.
- Dumbarton Express operates Line DB during the weekday serving the Stanford campus with stops in the Eastbay along the route between Union City BART and the Ardenwood park-and-ride lot. Another Dumbarton Express bus route, Line DB1, was not considered as it does not serve the Stanford academic campus.

It is possible that an Expanded TDM scenario would include extensions to Stanford's Marguerite bus routes. However, these routes would be provided by Stanford and therefore would not affect transit capacity for surrounding communities or the region as a whole. It is also possible that by 2035 there could be additional public transit routes that serve the campus from VTA, SamTrans or another provider which could help to accommodate Stanford commuter demand. However, it is conservatively assumed that this would not occur.

As with the Caltrain analysis, the three factors considered are capacity, total load, and Stanford campus load. Estimates of each of these factors were generated for 2015, 2018, and 2035. Peak hour express bus capacity was determined by multiplying the number of vehicles by the seats per bus.

Table 5.15-47 shows estimated capacity for all three routes in 2015. Line AE-F currently has significantly greater capacity than the other routes as it provides an additional peak hour trip and operates with a combination of 45 foot over the road coaches and double-deck buses (an average vehicle capacity of 65 passengers). Total capacity for express bus routes is considered to be 100% of seats (i.e., no standees) per VTA standards, with the exception of line DB, which utilizes standard urban transit buses with seating plans designed for standees (120% of seated capacity is used for line DB). AC Transit plans to employ higher capacity double-deck buses on line U, as reflected in the 2018 capacity assumptions. By 2035 additional capacity increases over 2018 levels are highly probable though exact levels are difficult to predict and not currently programmed. SamTrans' Dumbarton Transportation Corridor Study recently recommended significant enhancements to transbay bus routes, including both the introduction of new routes and increased frequency on existing routes (e.g., Dumbarton Express). To be conservative, an increase of one peak hour trip for each service was assumed, or an increase from seven to ten trips overall.

**TABLE 5.15-47
EAST BAY EXPRESS PEAK-HOUR BUS CAPACITY**

Bus Line	2015			2018			2035		
	Trips	Per vehicle	Total	Trips	Per vehicle	Total	Trips	Per vehicle	Total
Line AE-F	3	65	195	3	65	195	4	65	260
Line U	2	57	114	2	81	162	3	81	243
Line DB (Dumbarton Express)	2	50	84	2	50	121	3	50	181
Total	7	172	430	7	196	478	10	196	684

SOURCE: Arup, 2017

Analysis

Average daily ridership for each of the three express bus lines was obtained for 2015/2016. Factors were then applied to estimate the peak hour ridership. The nature of these services are such that the total ridership is equivalent to the total load. This analysis focuses on the lines crossing the Dumbarton Bridge. The peak load point is at the Dumbarton Bridge both in the westbound and eastbound directions, as westbound riders all board in the east bay, and eastbound riders all board at Stanford or other stops on the peninsula.

Table 5.15-48 shows the total estimated peak load for each time period. To estimate future passenger load, a 1.1% annual growth rate was applied. This represents the overall ridership trends for DB and Line U service between 2007 and 2016.

As in the Caltrain analysis, Stanford passenger load is calculated by multiplying commuter populations and estimated express bus mode share. **Table 5.15-49** shows how peak hour Stanford express bus commuters were estimated for the AM and PM peak hours.

**TABLE 5.15-48
TOTAL PASSENGER LOAD**

Time Period	Direction	2015	2018	Change 2015-18	2035	Change 2018-35
AM peak (8– 9)	Westbound	284	294	+10	353	+59
PM peak (5 -6)	Eastbound	284	294	+10	353	+59

SOURCE: Arup, 2017

**TABLE 5.15-49
STANFORD ESTIMATED PEAK HOUR PASSENGER LOAD**

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Express Bus Mode Share (%)	2.8%	2.8%		2.8%	
Assumes 85% commute each day	85%	85%		85%	
Total Express Bus Trips (Daily One-Way)	465	433	-32	537	+104
AM Peak Hour (One-Way)	144	134	-10	166	+32
PM Peak Hour (One-Way)	153	143	-10	177	+34

SOURCE: Arup, 2017

Figure 5.15-17 shows the excess express bus capacity in 2015 for the AM peak hour and peak direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. Between 2015 and 2018, a small addition in non-Stanford passenger load is expected, and additional bus capacity is also expected to be available, resulting in sufficient capacity for both Stanford and non-Stanford passengers. Between 2018 and 2035, increases in Stanford and non-Stanford passenger load are expected. However, demand would not exceed capacity, which is also higher due to an assumption of additional service.

Figure 5.15-18 shows the excess express bus capacity for the PM peak hour and peak direction in 2015 and how much of that capacity is taken up in 2018 and 2035.

In sum, existing excess express bus capacity in 2015 is sufficient to handle additional demand in 2018 and 2035 projected from modest growth trends in Stanford and non-Stanford ridership. However, this analysis assumes that there would be an additional peak hour bus added to each of the three East Bay express services during the lifetime of the 2018 General Use Permit as well as some adjustments to vehicle capacity. These changes would add a capacity buffer should ridership grow more than anticipated.

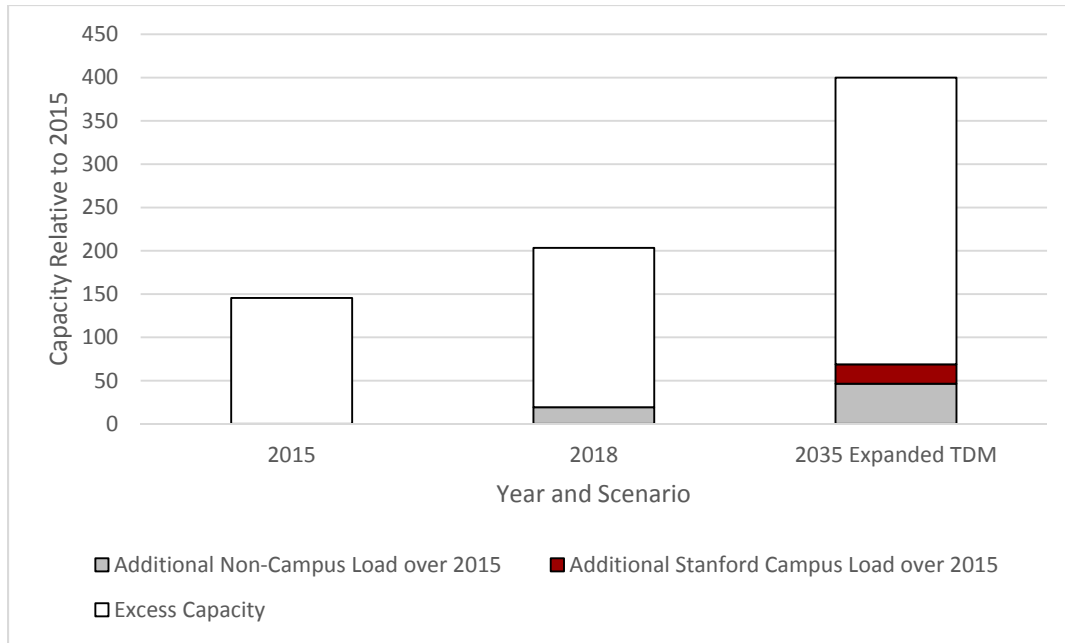


Figure 5.15-17
AM Westbound Peak Hour Express Bus Peak Load

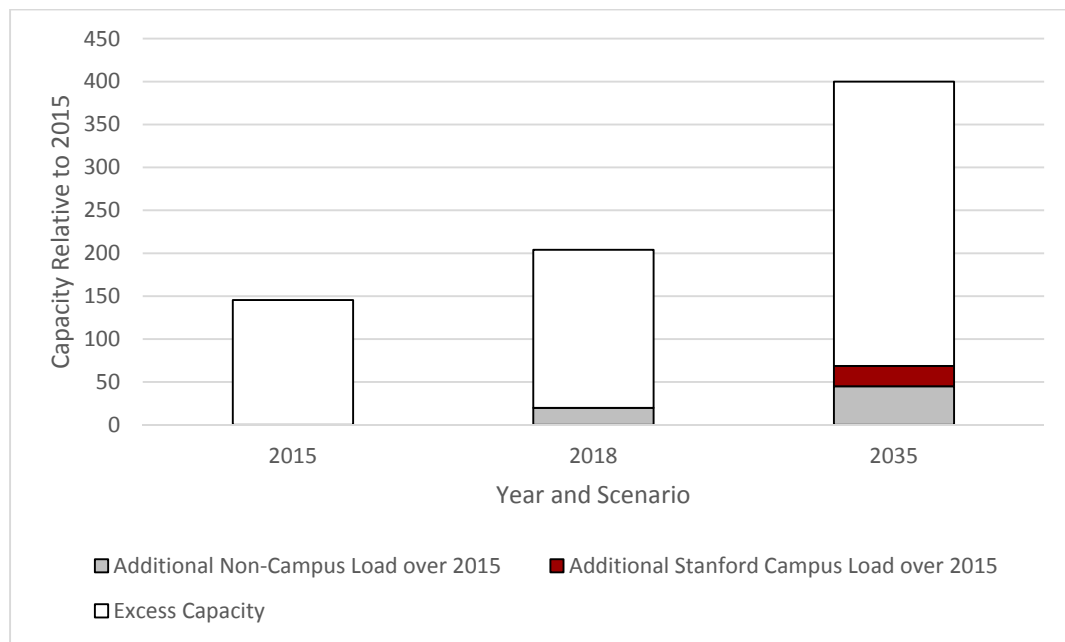


Figure 5.15-18
PM Eastbound Peak Hour Express Bus Peak Load

Local Bus

There are seven VTA and SamTrans routes that serve the Stanford campus. These local buses are currently a relatively minor mode for Stanford commuters. None of these routes directly serve the campus, and commuters living close by to campus tend to drive or bike to avoid a transfer at the Palo Alto Transit Center.

The change in Stanford local bus ridership was calculated between 2015 and 2018, and between 2018 and 2035, based on Stanford campus population growth and an assumption of no change to local bus mode share. **Table 5.15-50** shows these projections. There would be a reduction in local bus commuters from 2015 to 2018, and an increase of 38 AM peak hour passengers and 37 PM peak commuters from 2018 to 2035.

**TABLE 5.15-50
STANFORD LOCAL BUS COMMUTER PROJECTIONS**

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Local Bus Mode Share (%)	2.9%	2.9%		2.9%	
Total Bus Trips (Daily)	561	526	-35	652	+126
AM Peak Hour (7-8 AM)	168	158	-10	196	+38
PM Peak Hour (5-6 pm)	163	153	-10	189	+37

SOURCE: Arup, 2017

The additional Stanford campus trips were allocated to bus routes proportionate to the overall existing ridership levels of those buses. The only route that would gain more than 10 peak hour trips between 2018 and 2035 from the Stanford campus would be the VTA 22 bus route, with an additional 23 Stanford campus riders in the AM peak hour and 22 additional Stanford campus riders in the PM peak hour. These increases are not judged to be significant enough to warrant further analysis.

Bicycle Facility Capacity

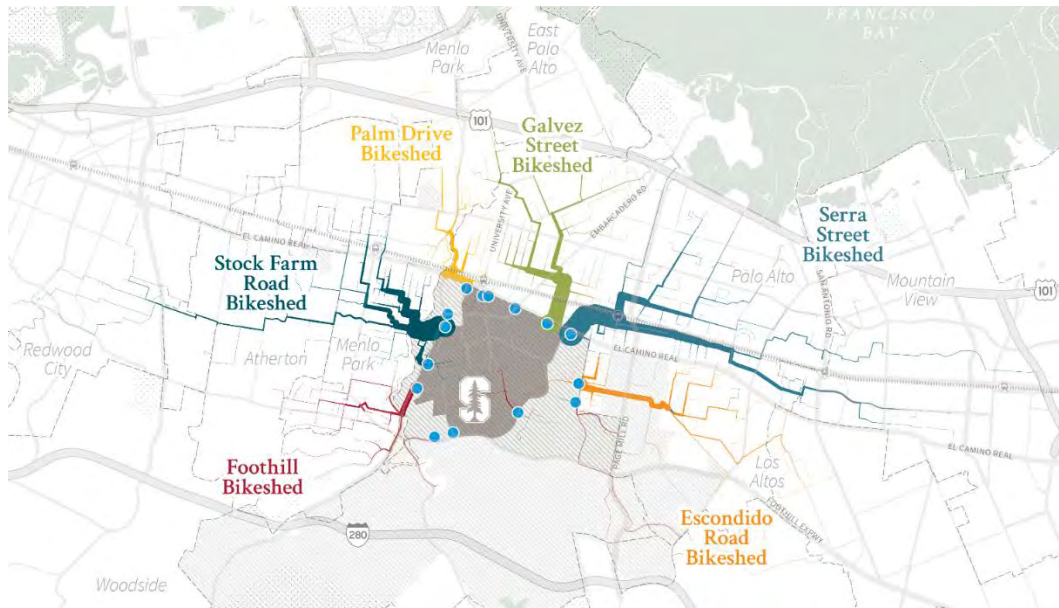
A bicycle facility analysis was completed to examine the growth in future commuter cyclists on community roads and bicycle facilities as they increase with Stanford population growth.

Approach

The analysis evaluates the capacity of roads and facilities to accommodate Stanford bicycle commuters at the locations that would be most affected by growth in bicycle ridership under the 2018 General Use Permit, using estimates of existing and future cyclists on bike corridors leading into campus. Peak hour bicycle volumes were converted into cyclists per minute to provide an indication of how intensely the corridors are being utilized and whether these additional bicycle volumes could reasonably be expected to have an impact on the capacity of the corridors.

Analysis

Figure 5.15-19 shows bicycle gateways to the Stanford campus. The thickness of the travel paths shown on Figure [same as above] corresponds to the proportional number of Stanford bicyclists who use that path to commute to campus. Estimates of existing bicycle commuters on gateways serving the Stanford campus were derived from bicycle counts conducted at entry points into the campus in May 2015.



SOURCE: Alta 2017

Figure 5.15-19
Bicycle Gateway Locations

Table 5.15-51 shows AM and PM peak hour bicycle volumes for each gateway location for 2015, 2018, and 2035. 2015 data represents actual counts, while 2018 and 2035 are projected counts based on Stanford commuter population growth. This is then translated into cyclists per minute. Existing estimated bicycle frequencies during the peak commute hour in 2035 range from 0.1 cyclists to 3.1 cyclists per minute.

The campus gateways contain Class I (bike path) and Class II (bike lanes) bicycle facilities. Both types of bicycle facilities are capable of handling many more than 3.1 cyclists per minute without cyclists needing to ride side by side. A Class I facility can accommodate approximately 1,500 bicyclists per hour and a Class II facility can accommodate approximately 1,000 bicyclists per hour. Therefore, the bicycle capacity analysis indicates that anticipated growth in bicycle commuters under the 2018 General Use Permit would not exceed bicycle infrastructure capacity. Even if the bicycle mode share were to increase significantly due to improvements that encourage more cycling, capacity would not be a concern.

**TABLE 5.15-51
ESTIMATED PEAK HOUR BIKES PER MINUTE**

Bicycle Gateway	Peak Hour Bikes						Peak Hour Bikes Per Minute					
	2015		2018		2035		2015		2018		2035	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Serra St SW of El Camino Real	144	118	134	110	166	136	2.4	2.0	2.2	1.8	2.8	2.3
Palm Dr S of Arboretum Rd	132	159	123	148	152	184	2.2	2.7	2.0	2.5	2.5	3.1
Escondido Rd W of Olmsted Rd	117	94	109	88	135	109	2.0	1.6	1.8	1.5	2.3	1.8
Stock Farm Rd E of Sand Hill Rd	91	93	85	87	105	107	1.5	1.6	1.4	1.4	1.8	1.8
Welch Rd N of Oak Rd	55	41	51	38	64	47	0.9	0.7	0.9	0.6	1.1	0.8
Bowdoin W of Stanford Ave	40	40	37	37	46	46	0.7	0.7	0.6	0.6	0.8	0.8
Path Entrance W of El Camino at Churchill Rd	33	35	31	33	38	40	0.6	0.6	0.5	0.5	0.6	0.7
Quarry Rd N of Campus Dr	29	27	27	25	33	31	0.5	0.5	0.5	0.4	0.6	0.5
Yale St W of Stanford Ave	28	29	26	27	32	33	0.5	0.5	0.4	0.5	0.5	0.6
Olmsted Rd N of Escondido Rd	28	19	26	18	32	22	0.5	0.3	0.4	0.3	0.5	0.4
Campus Dr West N of Junipero Serra Blvd	25	23	23	21	29	27	0.4	0.4	0.4	0.4	0.5	0.4
Galvez St S of Arboretum Rd	22	40	20	37	25	46	0.4	0.7	0.3	0.6	0.4	0.8
Lasuen St S of Arboretum Rd	22	29	20	27	25	33	0.4	0.5	0.3	0.5	0.4	0.6
Oberlin St W of Stanford Ave	22	13	20	12	25	15	0.4	0.2	0.3	0.2	0.4	0.3
Wellesley St W of Stanford Ave	14	15	13	14	16	17	0.2	0.3	0.2	0.2	0.3	0.3
Campus Dr East E of Junipero Serra Blvd	10	9	9	8	12	10	0.2	0.2	0.2	0.1	0.2	0.2
Raimundo W of Stanford Ave	5	7	5	7	6	8	0.1	0.1	0.1	0.1	0.1	0.1
Santa Maria Ave N of Junipero Serra Blvd	2	2	2	2	2	2	0.0	0.0	0.0	0.0	0.0	0.0

SOURCE: Gateway Bicycle Counts, May 2015; Arup, 2017

5.15.8 On-Campus Parking Supply and Off-Campus Parking Restrictions

This section provides information regarding Stanford's on-campus parking supplies and the surrounding communities' off-campus parking restrictions. The information is intended to respond to concerns raised by community members regarding the potential for Stanford commuters and residents to park in off-campus residential neighborhoods. The analysis demonstrates that substantial off-campus parking is not anticipated to occur.

On-Campus Parking

Existing Parking Supply and Utilization

Parking is distributed throughout the Stanford campus, with the exception of the pedestrian campus core. The campus includes six parking structures and several dozen surface lots. Paid visitor parking is provided in most of the larger lots and structures. All but two parking structures (Via Ortega and the Roble Field) are located directly off Campus Drive or outside the Campus Drive loop.

While there have been new parking structures constructed under the 2000 General Use Permit, they have largely replaced other parking facilities on campus. Stanford has been replacing surface parking in the campus core with structures outside the campus core, with the goal of removing vehicles from the pedestrian areas of campus, and maximizing opportunities for infill development. For example, in Academic Year 2014/15, 395 parking spaces in lots along Santa Teresa were removed for construction projects. These spaces were replaced in the Roble Field Garage that opened in 2017.

Based on data from the P&TS parking inventory for Fall 2015, approximately 86 percent of campus spaces were occupied on a typical day (i.e., Monday and Thursday) when Stanford was in session, which indicates that there is enough supply to minimize spillover parking in the areas surrounding the campus. Stanford's parking condition is not static; a wide array of visitors associated with meetings, special events, performances, cultural attractions, and athletic events causes parking occupancy to fluctuate by day, time, and location.

The total number of active campus commuter and residential permits has declined from a high of nearly 21,000 permits sold in 2004-2005 to fewer than 18,000 sold in 2015-2016. During this time frame, enrollment in the Commute Club has steadily increased, more than doubling since 2004-2005. These two trends reflect Stanford's development of a robust TDM program to contain traffic growth in response to the No Net New Commute Trips standard. Most notably, permit sales have declined, even as the square footage of the campus has increased under the 2000 General Use Permit.

Based on data from October 2015 through January 2016, Stanford saw an average of around 2,300 daily visitor transactions for pay-by-space parking at the 1,871 spaces designated for visitor use. During campus holidays, these numbers were much lower. These transactions do not include

parking at reserved spaces, paid directly to mechanical parking meters, or from individuals using scratch-off event permits (i.e., E Scratchers).

Figure 5.15-20 shows that as of August 2016, the total supply of parking outside the Campus Residential zoning districts was 18,125 spaces, mostly due to a net decrease in spaces resulting from removal of surface lots and construction of parking structures. Projects in the pipeline through Fall 2018 are expected to bring this total to 19,325 spaces, which is 2,326 spaces under the parking authorization established by the 2000 General Use Permit. With the parking constructed in association with the EV Graduate Residences and other development under the 2000 General Use Permit, this total is expected to increase to 20,171, leaving 1,480 spaces remaining under the 2000 General Use Permit authorization.

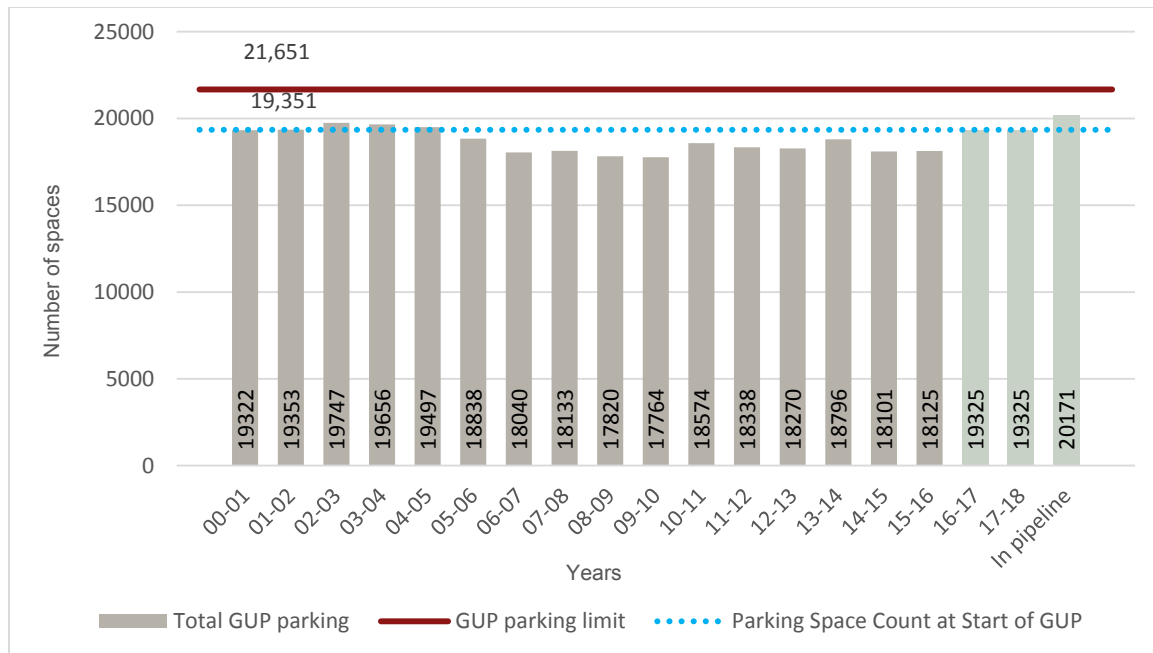


Figure 5.15-20
2000 General Use Permit Parking Supply and Limit

Project Approach to Accommodating Parking Demand

Stanford has remained well beneath its 2000 General Use Permit parking allocation for two reasons. First, car ownership by Stanford students has been trending downward. Second, permit purchases by faculty and staff has declined over time, although that rate of decline has flattened out. Both of these reductions are due in part to Stanford's extensive TDM programs. In addition, parking permit rates associated with student housing likely have declined due to shifting preferences among the millennial generation away from automobile ownership.

Stanford proposes to accommodate future demand for parking under the 2018 General Use Permit by carrying over the remaining authorization from the 2000 General Use Permit. Consistent with the 2000 General Use Permit, the total authorized number of spaces would be 21,651 spaces. However, Stanford proposes two changes in approach.

First, Stanford has requested that certain types of parking not count toward the numeric parking limit:

- To support Stanford’s transportation demand management efforts, Stanford proposes that spaces used for trip-reducing programs not be counted. Current examples of spaces used for trip-reducing programs include spaces dedicated to rental cars and zip cars.
- To support reduction in greenhouse gas emissions and to recognize that electric vehicle charging stations require turnover such that other spaces are needed for the same cars when they are not charging, Stanford proposes that Electric Vehicle (EV) charging stations not be counted.
- Stanford proposes that spaces dedicated to police or fire department use not be counted. These spaces are not associated with commute trips to and from the campus.
- Stanford proposes that parking for high-density housing to be occupied by faculty and staff not be counted. 2000 General Use Permit Condition H.1 states that “Parking constructed as part of and to serve new faculty/staff housing in the areas designated Campus Residential – Low Density and Campus Residential – Medium Density shall not count toward the limits. ...” Stanford proposes that the high-density faculty/staff housing allowed within the Academic Campus land use designation be subject to this same exemption.

Second, Stanford has requested Santa Clara County approval for a 2,000-space parking supply reserve. This number of spaces is based on applying the current (2015) parking demand rate to the number of student housing units and amount of academic square footage proposed under the 2018 General Use Permit.

Table 5.15-52 shows that Stanford’s current parking demand rates result in a total demand for 3,479 net new parking spaces, including a 15% vacancy factor to allow a sufficient number of empty spaces distributed over the campus to prevent unnecessary circulation to locate an available space. Subtraction of the 1,480 spaces anticipated to remain after completion of the academic and academic support facilities and housing authorized by the 2000 General Use Permit results in a remaining forecasted demand for 1,999 spaces.

TABLE 5.15-52
2018 GENERAL USE PERMIT PARKING DEMAND
BASED ON EXISTING PARKING RATES

	Development Proposal	Existing Parking Demand Rates	Number of Spaces
Academic and Support Space	2,275,000 net new square feet	0.94 spaces per 1,000 square feet ^a	2,139
Graduate Student Housing	900 beds	0.55 spaces per bed	495
Undergraduate Student Housing	1,700 beds	0.23 spaces per bed	391
Subtotal			3,025
Plus 15% vacancy factor			454
Total Demand			3,479

^a The parking ratio is the estimated commuter and visitor demand from the utilization counts conducted in Fall 2015 (9,025 parking spaces) divided by the academic and support space in Fall 2015 (9,462,000 square feet).

SOURCE: Stanford, 2017

Stanford does not seek initial authorization for this parking supply reserve because Stanford seeks to discourage automobile ownership and use. Stanford intends to continue to expand its TDM programs to meet the No Net New Commute Trips standard, which in turn should reduce demand for both residential and commuter parking permits. However, Stanford recognizes that it may be necessary to provide more parking than it has initially requested if car ownership by campus residents does not continue to decrease over time or if unforeseen circumstances occur.

Stanford has requested that the 2018 General Use Permit allow Stanford to request Planning Commission approval to construct parking spaces in the parking supply reserve under one of three circumstances:

- Stanford is achieving the No Net New Commute Trips standard;
- The proposed additional parking spaces serve a purpose that is not likely to result in a substantial increase in peak hour commute trips (such as visitor and/or residential demand); or
- Unforeseen circumstances occur due to changes in background conditions such as prolonged or permanent disruption of transit service that requires provision of additional parking.

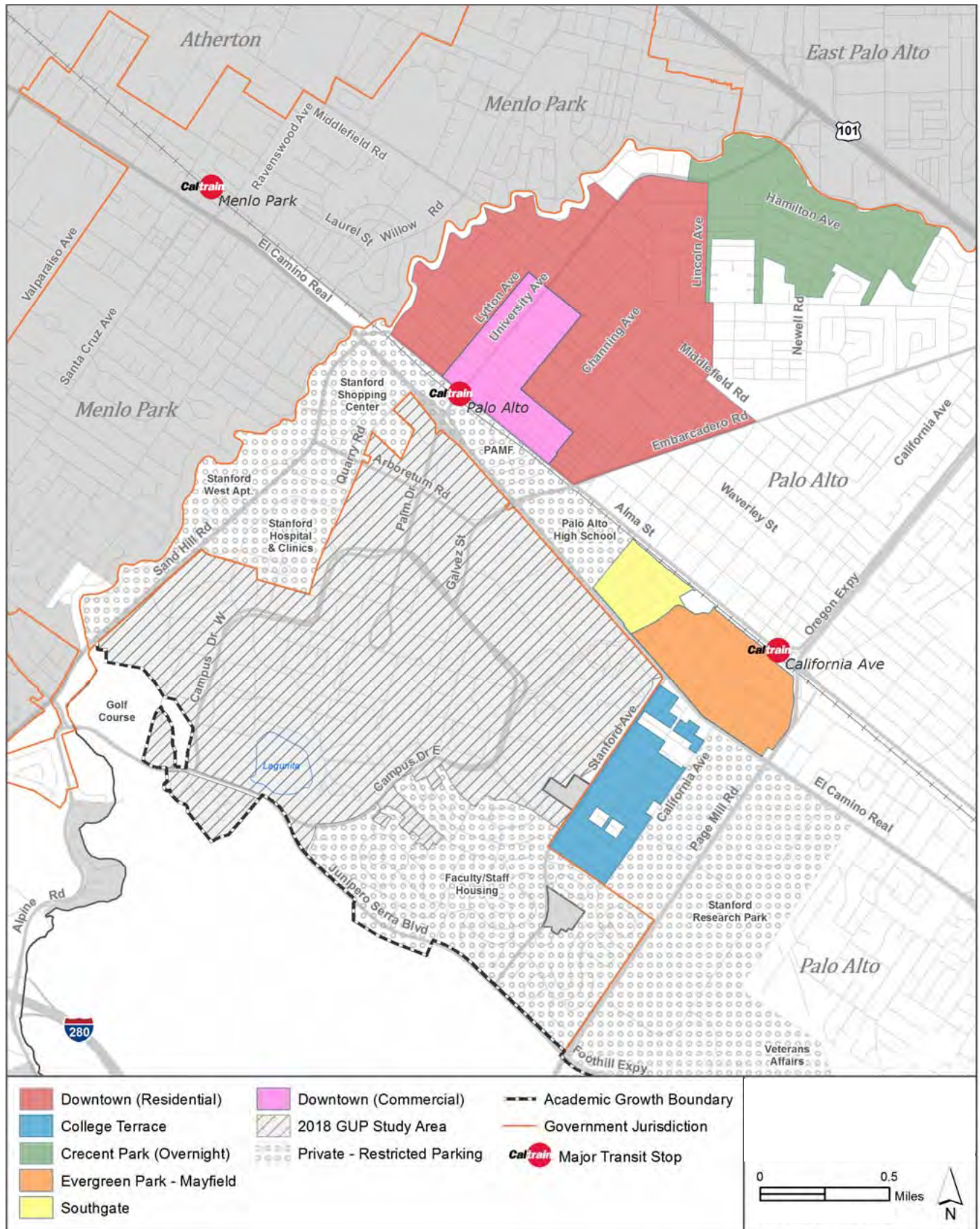
Off-Campus Parking Restrictions

Community outreach for the 2018 General Use Permit generated comments from nearby residents who state that Stanford affiliates may be parking off-campus to avoid the cost of parking on-campus. This section summarizes Palo Alto's current programs to restrict all day parking in the neighborhoods surrounding the campus. It also addresses the concern that Stanford affiliates parking on El Camino Real are avoiding the No Net New Commute Trip standard cordon counts. Based on the geographic extent of existing and planned off-site parking restrictions and observations about the use of parking along El Camino Real, it does not appear that a substantial number of Stanford affiliates will be able to park in nearby neighborhoods under the 2018 General Use Permit or that they will be able to avoid No Net New Commute Trip cordon counts.

Residential Parking Programs

Under the 2000 General Use Permit, Stanford was required as a Condition of Approval to participate in residential parking permit programs in neighborhoods within the City of Palo Alto that are immediately adjacent to the campus. Condition H.2 required Stanford to allocate \$100,000 to Palo Alto for consideration and initiation of a residential parking permit program in College Terrace. If there was any remaining money, it could be used to fund a parking study in the Southgate or Evergreen Park neighborhoods. Stanford paid the \$100,000 to Palo Alto, who used it for a parking permit program experiment in College Terrace in 2008-2009.

The following summarizes the City of Palo Alto's Residential Parking Permit (RPP) Programs. The location of the parking permit program areas described below are illustrated in **Figure 5.15-21**.



SOURCE: Stanford, 2017

Stanford 2018 General Use Permit . 160531

Figure 5.15-21
Palo Alto Residential Parking Program (RPP) Zones

These programs were initiated in response to increasing concern that non-resident parking in general (not necessarily parking by Stanford affiliates) was affecting the quality of life in Palo Alto. In response, the Palo Alto City Council approved a City-wide Residential Parking Permit (RPP) ordinance to establish uniform procedures to develop RPP districts.

Generally, the programs impose 2-hour daily limits for non-residents. In terms of the residential programs immediately adjacent to Stanford in Palo Alto there are two programs that are in place (Downtown and College Terrace), and two that are in early implementation (Evergreen Park-Mayfield and Southgate). The Crescent Park neighborhood has an overnight parking restriction.

Downtown Palo Alto Residential Preferential Parking. The downtown Palo Alto commercial district has 2-hour on-street parking and 3-hour lot/garage parking restrictions. These time restrictions have caused downtown employee parking to shift into the residential areas surrounding the downtown. To protect the residential neighborhoods, the City passed an ordinance to develop the Downtown Palo Alto RPP program which requires all downtown residents to have a permit to park on the street for more than 2 hours between the hours of 8:00 AM and 5:00 PM, Monday through Friday.

College Terrace Residential Parking Permit Program. The College Terrace RPP program was implemented in 2009 and includes the area generally bounded by Stanford Avenue, Yale Street, California Avenue, and Amherst Street. The RPP allows vehicles displaying a resident permit, guest permit, or day permit, to use on-street parking, Monday through Friday from 8:00 AM to 5:00 PM. The College Terrace RPP covers the majority of the streets in the College Terrace neighborhood other than a few short block on Dartmouth Street and some multifamily areas on Williams Street.

Evergreen Park – Mayfield RPP. The Evergreen Park- Mayfield RPP area is located adjacent to South Gate and generally bounded by Park Avenue, El Camino Real, Page Mill Road and the Caltrain railroad tracks. The RPP was initiated as a one-year pilot in April 2017, and restricts parking by persons without a permit to a 2-hour time limit between 8:00 AM and 5:00 PM. Like in the Downtown RPP, permits are available to all residents and to a limited number of employees. And like the Downtown RPP, the Evergreen Park-Mayfield RPP is only enforced on the weekdays, during working hours.

Southgate RPP. The Southgate neighborhood began its process for an RPP in July 2016. Council approved Southgate RPP in June 2017 and it is expected to take effect in October 2017. The Southgate RPP includes the area generally bounded by Churchill Avenue, El Camino Real, Park Avenue, and the Caltrain railroad tracks. The parking concern is from spill over from Palo Alto High School. The community is considering implementing a 1-hour time restriction on school days for non-permit holders, similar to what is enforced near Gunn High School. A time period of 9:00 AM to 1:00 PM is being considered.

Crescent Park No Overnight Parking. The Crescent Park No Overnight Parking program was initiated in September 2015 as a response to resident concerns about non-Palo Alto residents parking within the neighborhood. A no-overnight restriction was implemented to eliminate parking from outside sources. The Crescent Park RPP includes the area generally bounded by

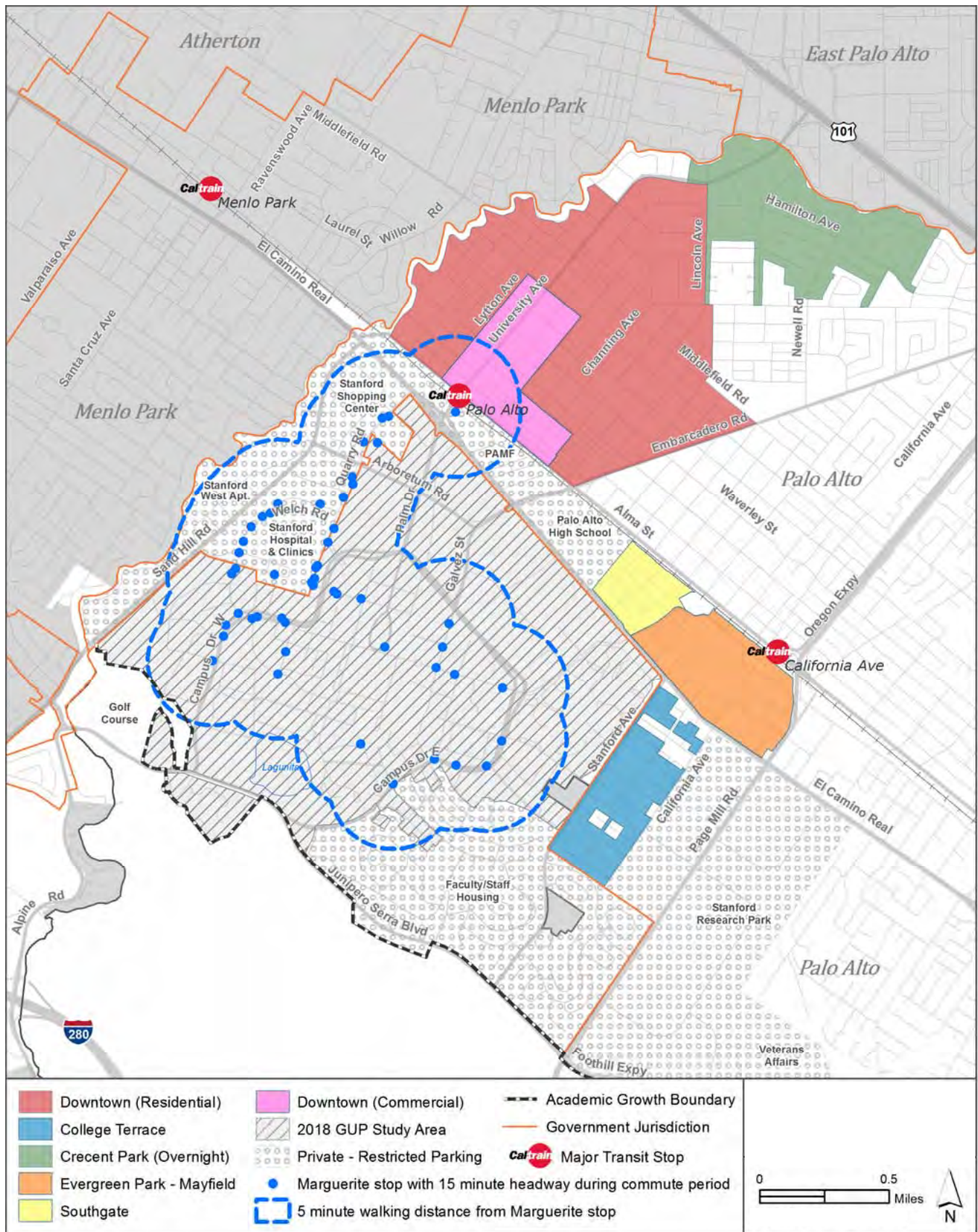
San Francisquito Creek, Lincoln Avenue, Channing Avenue, and Rhodes Drive. The Crescent Park No Overnight Parking program restricts parking by non-residents during the hours of 2:00 AM to 5:00 AM.

Stanford Affiliates Parking Off-Campus

Some community members have posited that Stanford affiliates could be parking in the community and either walking or taking a Marguerite shuttle to campus. **Figure 5.15-22** presents the parking permit areas with a 5-minute walkshed around those Marguerite shuttle stops that are served by a shuttle with 15 minutes headways or less during the morning and evening peak commute periods. As illustrated, the RPP areas cover the neighborhoods where accessing a Marguerite stop would be most likely to occur. The RPPs are expected to prevent parking in these neighborhoods; anecdotal observations to the contrary may pre-date initiation of the RPPs. Substantial amounts of Stanford-affiliate parking in neighborhoods near shuttle routes with longer commute period headways also is unlikely to occur.

While there is no way to control the individual behavior of each of member of its community, Stanford reports that it makes a number of efforts to minimize this occurrence. When members of the Stanford community join the Commute Club, a program that pays employees to forgo parking on campus in favor of taking alternative transit options, the Stanford affiliates must sign an agreement that says that they will not park in the surrounding community. When violations occur, Stanford removes the employee from the Commute Club and works with the local jurisdiction to identify the responsible party and take action to remedy the situation. Further, when employees are reported to be parking off-site in the surrounding community, their department heads are made aware, so they can directly address the problem and curtail it.

There is not an abundance of on-street parking that is not time restricted adjacent to the campus. The exception is along El Camino Real between Encinal Avenue and Stanford Avenue. The on-street parking occupies both the Stanford and the Palo Alto side of El Camino Real, and extends south to Grant Avenue. There are approximately 150 parking spaces on the Stanford side of El Camino Real fronting the Stanford campus. These on-street spaces are essentially filled before the traditional peak hour of 8:00-9:00 AM. Thus, drivers using these spaces are not traveling during the peak hour, and therefore are not parking in this location to avoid cordon counts.



SOURCE: Stanford, 2017

Stanford 2018 General Use Permit . 160531

Figure 5.15-22
Average 5 Minute Walking Distance from Marguerite Shuttle Stops

5.15.9 References

- City/County Association of Governments of San Mateo County (C/CAG), *2015 San Mateo County Congestion Management Program*, November 2015.
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- Santa Clara Valley Transportation Authority (VTA), *2015 Congestion Management Program*, October 2015.
- Santa Clara VTA, *2014 Santa Clara County Annual Monitoring and Conformance Report*, 2015.
- Santa Clara VTA, *Santa Clara Countywide Bicycle Plan*, August 2008.
- Transportation Research Board, *2000 Highway Capacity Manual*, 2000.

5.16 Utilities and Service Systems

5.16.1 Introduction

This section evaluates potential environmental effects associated with implementation of the proposed 2018 General Use Permit on utilities and service systems, including water supply and conveyance, wastewater conveyance and treatment, and solid waste disposal. The section includes a description of the existing and 2018 baseline environmental settings, criteria used to determine impact significance, a discussion of potential impacts to utilities and service systems; and identifies regulatory mechanisms and/or potentially feasible mitigation measures, as necessary, to reduce potential significant impacts.

The section relies in part on reports prepared by Stanford in support of its 2018 General Use Permit application, and independently peer reviewed by ESA: a Water Supply Assessment (WSA) prepared by Schaaf & Wheeler Consulting Civil Engineers (see Appendix WSA), and a Background Conditions Report (see Appendix BCR). In addition, the section relies on utility related reports available from the City of Palo Alto with regard to wastewater and solid waste services, as well as information available from Stanford's Water Resources and Civil Infrastructure Group (WRCI Group).

Please also see Section 5.9, Hydrology and Water Quality, which addresses stormwater, water quality, groundwater supplies and recharge, runoff and erosion, detention capacity and flooding hazards. Though, elements of these topics are incorporated in this section by reference where relevant.

5.16.2 Existing Environmental Setting

Water Services

Stanford receives its water from three sources: 1) water purchased wholesale from the San Francisco Public Utilities Commission (SFPUC), 2) local surface water supplies, and 3) groundwater.

Stanford's water infrastructure is made up of a network of supplies, storage and distribution facilities for domestic (potable), and non-potable sources. Specific components of Stanford's water service system include wells, reservoirs, pump stations, and creek diversion facilities, in addition to pipe networks. These water systems are managed by Stanford's WRCI Group within the Department of Sustainability and Energy Management (SEM).

SFPUC Water

Stanford receives the majority of its total water, and the entirety of its potable water, as a wholesale purchase from the SFPUC, which provides most of the potable water to the City of

San Francisco and 28 other agencies in the Bay Area.¹ SFPUC's water supply consists primarily of diverted Tuolumne River flows conveyed through the Hetch Hetchy Project (approximately 85 percent of supply), with local sources making up the remaining 15 percent (Appendix WSA). Stanford's domestic water supply has multiple connections to this system.

The SFPUC provides water to its wholesale customers under the terms of a 2009 Water Supply Agreement. Under this Agreement, Stanford holds a long-term "Individual Supply Guarantee" (ISG) of 3.03 million gallons per day (mgd) overall annual average, which represents approximately 1.6 percent of SFPUC's total wholesale deliveries. The 2009 Agreement also contains an "Interim Supply Limitation" (ISL) allocation of 2.91 mgd for Stanford in effect until 2018. Thus, Stanford holds an allocation from the SFPUC of 2.91 mgd until 2018, and an allocation of 3.03 mgd thereafter.² The 2009 Agreement has a 25-year term (through 2034), however, the SFPUC's 2015 Urban Water Management Plan (UWMP) assumes that the amount that is allocated to wholesalers (including Stanford) under the Agreement will continue through the year 2040.

Between fiscal year (FY) 2010/11 and 2015/16, Stanford's daily domestic water use was approximately 1.96 mgd, fluctuating between a low of 1.39 mgd in FY 2015/16 and a high of 2.16 mgd in FY 2011/12 (Appendix WSA). Reduced water demands in FY 2014/15 and FY 2015/16 are reflective of reduced water use as a result implementation of the Stanford Energy System Innovations (SESI) project, and additional mandatory conservations (beyond Stanford's typical water conservation program) in response to the recent drought (Appendix WSA). See also description of Stanford's water conservation efforts, below.

Surface Water

As described in Section 5.9, Hydrology and Water Quality, Subsection Local Surface Water, the Project site is located within the San Francisquito Creek and Matadero Creek watersheds. Stanford holds a combination of riparian rights, and pre-1914 appropriative rights reported under four Statements of Water Diversion and Use, and one appropriative right licensed by the SWRCB within these watersheds that support Stanford's surface water diversion. These rights provide water for landscape irrigation, stockwatering, recreation, fire protection, and habitat purposes.

The non-potable water system, consisting of diversion structures, reservoirs, pump stations and pipelines, is referred to as Stanford's Lake water system, and is illustrated in **Figure 5.9-2**. Diverted surface water supplies Stanford's non-potable Lake water system via seasonal storage (during periods of high flow). Surface water diversion occurs in three locations: in Los Trancos Creek located at the south end of the Project site where Creek water is directed to Felt Reservoir; in San Francisquito Creek near the Stanford Golf Course where water is pumped to either Felt Reservoir or Lagunita; and at Searsville Reservoir located upstream of the Project site where water is pumped to the campus. Lake water is not treated to meet domestic water quality

¹ The SFPUC acts as a "public water system" with respect to its retail customers in the City and County of San Francisco, but it does not serve as a "public water agency" when it provides water to its wholesale customers such as Stanford, who are responsible for supplying water to the ultimate end users.

² Note that although expressed in units of mgd, both the ISG and ISL are overall annual average targets. Daily or monthly usage may exceed these targets, and this is not uncommon during the summer months.

standards. However, if needed in the case of an emergency, Stanford Lake water can be treated to domestic standards, and made available for potable use.

Together, Stanford's rights to diverted surface waters can yield over 1,250 acre-feet per year (AFY) (or 1.12 mgd) to the Lake water system. Between calendar year 2010 and 2015, Stanford's annual average surface water diversion was 704 acre-feet, fluctuating between a low of 85 acre-feet in 2015 and a high of approximately 1,005 acre-feet in 2012³ (Appendix WSA).

Groundwater

Stanford pumps groundwater into its Lake water system primarily to supplement its non-potable landscape irrigation system; groundwater is relied upon for landscape irrigation most heavily during dry years. Groundwater is also pumped into the Lake water system if needed to provide supplemental water to maintain the water level in Lagunita reservoir for the benefit of the California tiger salamander and also to provide groundwater recharge. Stanford can also treat and pump groundwater into the domestic water system, but only does so in the event of an emergency or other operational need.

These wells withdraw groundwater from the San Francisquito Cone, a region of the Santa Clara Valley Groundwater Basin. The Santa Clara Valley Water District (SCVWD) oversees groundwater resources within the County.

Stanford's wells currently have a combined total pumping capacity of approximately 4,450 acre-feet per year (AFY). Stanford can withdraw up to 1,700 AFY (1.52 mgd) from its wells without adversely affecting groundwater conditions. Between calendar year 2010 and 2015, Stanford's annual average groundwater use was 584 acre-feet, fluctuating between a low of 127 acre-feet in 2011 and a peak of 1,359 acre-feet in 2014⁴ (Appendix WSA).

As discussed further in Section 5.9, Hydrology and Water Quality, the Santa Clara Valley groundwater basin is not identified as an overdrafted basin by the Department of Water Resources (DWR), is not projected to enter a state of overdraft, and has not been adjudicated. See Section 5.9, Hydrology and Water Quality, for additional detail.

Water Conservation and Recycled Water

Between 2000 and 2015, Stanford decreased its potable water use by 30 percent through a comprehensive program to identify and implement water conservation measures and through replacement of the campus-wide heating and cooling system.⁵ Stanford developed a Water

³ The amount of Stanford's surface water diversion, and relatedly, groundwater use, can differ substantially from year to year. Both the quantity and timing of wet-season rainfall are highly variable, directly affecting both surface water availability and plant irrigation needs. During wet years, Stanford diverts more surface water from local streams, when plant irrigation needs are less than average, particularly if the rainy season extends into the fall or spring. In wet years, Stanford might meet most irrigation needs with surface water, relying very little on groundwater. In drier years, plants require more irrigation, and streamflows may be too low for Stanford to meet these demands with surface water; so Stanford pumps additional groundwater to meet its landscape irrigation needs (Appendix WSA).

⁴ Ibid.

⁵ 2.73 million gallons a day (mgd) in 2000/2001 to 1.89 mgd in 2014/2015.

Conservation, Reuse and Recycling Master Plan in 2001, and is currently developing a Sustainable Water Management Plan to guide its long-term water supply development, water conservation, wastewater and storm-water management, and habitat conservation programs. Stanford also implements a Water Efficiency Program to decrease domestic water and improve water efficiency at the campus.

In addition, many buildings on campus are equipped to use recycled water for toilet flushing with the use of “dual plumbing” using “purple pipe;” examples of existing dual plumbed buildings include the Science and Engineering Quad, School of Medicine, and the Knight Management Center complex. While Stanford’s recycled water system is currently fed by domestic water, as new sources of recycled water emerge, Stanford anticipates that the dual plumbed buildings will be among the first to implement recycled water use (Stanford, 2017e).

Wastewater

Collection System

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 City of Palo Alto-owned and -operated Harold L. May Regional Wastewater Quality Control Plant (RWQCP), located on the north side of the city, where it is treated. The Stanford campus sanitary sewer system consists of 43 miles of pipe and is owned by Stanford and managed by its WRCI Group. The City of Palo Alto Utilities Department (CPAU) oversees the City’s wastewater collection system.

Stanford sanitary sewer flow discharges to the City main that runs parallel to El Camino Real. This main is 21 inches in diameter and has a calculated maximum flow capacity of approximately 4,370 gallons per minute (gpm). Stanford’s measured daily dry weather peak flows to this sewer main in 2016 ranged between 1,000-1,700, gpm dependent on the time of year (Stanford, 2017h).

Wastewater Treatment

The RWQCP is a Class V advanced secondary treatment facility featuring primary treatment, secondary treatment, and filtration and disinfection treatment. The RWQCP is funded by and serves six partners: Palo Alto, Stanford, Mountain View, East Palo Alto Sanitary District, Los Altos, and Los Altos Hills. Approximately 220,000 people live in the RWQCP service area, and about 60 percent of the wastewater generated in this service area is from residences, 10 percent from industries, and 30 percent from commercial businesses and institutions. The Palo Alto Public Works Department is responsible for treatment of sewage at the RWQCP (City of Palo Alto, 2016).

The RWQCP removes approximately 99 percent of ammonia, organic pollutants, and solid pollutants from the wastewater, and the quality of the water leaving the plant approaches the standards for drinking water (City of Palo Alto, 2016). The RWQCP discharges treated effluent to the San Francisco Bay. The City, serving as discharger, operates under an NPDES permit to discharge treated wastewater to the Bay. The NPDES permit requires the City to evaluate its local limits, such as those established by the other entities contributing to the RWQCP, to ensure

compliance with updated effluent limits. The RWQCP is required to monitor the permitted discharges into the collection system in order to evaluate compliance with the RWQCP's permit conditions (see Regulatory Description below, also).

The RWQCP is designed to have an average dry weather flow (ADWF) capacity of 39 mgd and an average wet weather flow capacity of 80 mgd (City of Palo Alto, 2016). The RWQCP treated 21 mgd of effluent from all the partner agencies before the drought (2012-2013), and just under 18 mgd in the July 2015-June 2016 plant fiscal year (City of Palo Alto, 2016; Stanford, 2017h).

The City of Palo Alto indicates the RWQCP does not experience any major treatment system constraints and capacity is sufficient for current dry and wet weather loads and for future load projections (City of Palo Alto, 2016).

Stanford Wastewater Discharge

The City of Palo Alto reports that Stanford's average daily sewer discharge is 1.1 mgd, about 2.8 percent of the RWQCP's total ADWF capacity (Stanford, 2017h).⁶ Stanford owns capacity in the RWQCP of up to 2.11 mgd ADWF, just over 5 percent of the plant's capacity.

Stanford has separate sanitary sewer and stormwater systems. Therefore, any increases in sanitary sewer flow during wet weather days are minimal, and are related to infiltration and inflow, and not conveyed storm drainage flows.

Solid Waste

Waste Management

In 2016, unincorporated areas of Santa Clara County generated solid waste which was directed to 22 different landfills (CalRecycle, 2017a). Solid waste generated at the Project site is managed exclusively by Peninsula Sanitary Service, Inc. (PSSI), which has partnered with Stanford for over 50 years to provide recycling, composting, and solid waste management services. PSSI operates all collection services at the Project site, including the collection, processing, and/or marketing of recyclables, food and compostable materials, and trash. PSSI provides dumpster and roll-off debris box service; provides recycling and composting bins for campus buildings, and recycling, compost and landfill bins for special events; collects construction and demolition material; and provides street sweeping services. PSSI operates the Stanford's Recycling Drop-Off Center at 70 Serra Street. PSSI also provides community education and trainings for how to reduce waste, and promote increased reuse, recycling, and composting at the campus (Stanford, 2017f, g). PSSI delivers solid waste from the Project site to the Newby Island Sanitary Landfill, the Zanker Road Class III Landfill, or Sims Metal Management (PSSI, 2017).

PSSI generally delivers residential landfill waste collected at the Project site to the 342-acre Newby Island Sanitary Landfill located in Milpitas, California. This landfill has a capacity of

⁶ Actual metered sanitary sewer flows between 2010 and 2016 at Stanford ranged from approximately 0.5 mgd to 1.6 mgd, as flows vary based on activities, and whether students are on campus.

57.5 million cubic yard, and is permitted to collect the following waste categories: construction/demolition, industrial, mixed municipal, sludge (biosolids), tires, green materials, and contaminated soil at a maximum permitted throughput of 4,000 tons per day. As of October 2014, this landfill had a remaining capacity of 21.2 million cubic yards, with an anticipated cease operation date of January 2041 (CalRecycle, 2017b).

PSSI generally delivers construction and demolition-related waste generated at the Project site to the 70-acre Zanker Road Class III Landfill in San Jose, California. As of 2012, the Zanker Road Landfill had a total remaining capacity of 700,000 cubic yards in two units that collectively process construction and demolition waste, green materials, and industrial waste, with an expected closure date of 2029. Overall the facility has maximum throughput of 2,600 tons per day (landfill tonnage is limited to 300 tons per day, compost at 400 tons per day, with the remaining amount permitted recyclables) (CalRecycle, 2012). As of 2017, the facility recorded throughput at 1,500 tons per day (CalRecycle, 2017c).

PSSI generally delivers recyclable metal collected at the Project site to Sims Metal Management in Redwood City. Sims is a scrap metal yard, which purchases and processes ferrous scrap metal with an onsite shredder and logistics to support off-site shipment (Sims, 2017).

Waste Generation

Over the last 30 years, the Stanford's Waste Reduction, Reuse, Recycling and Composting program has been expanded and improved in response to demands from the campus community, recycling markets and new legislation. Stanford has increased its landfill diversion rate from 39 percent in 1998 to 64 percent in 2016. In 2016 Stanford generated a total of 24,685 tons of solid waste, of which 8,945 tons were sorted as landfilled waste and 15,740 tons were diverted through recycling and reduction.⁷ In FY 2015-16 this represents a total discard generation rate of 0.74 tons per person per year. This included landfill waste at a generation rate of 0.27 tons per person per year and recycled waste at a generation rate of 0.47 tons per person per year (Stanford, 2017i). The solid waste total includes all demolition and construction waste, which in 2016, accounted for nearly 4,100 tons or approximately 16 percent of total waste (Stanford, 2017j).

5.16.3 2018 Baseline Environmental Setting

As discussed in Chapter 5, Introduction to Environmental Analysis, the proposed 2018 General Use Permit is not anticipated to be considered by the County for approval until 2018, after which implementation would commence. As a result, 2018 serves as the baseline year against which environmental impacts of the proposed Project are evaluated.

Also as discussed in Section 5.0, Stanford estimates that nearly all remaining academic and academic support development, and remaining housing, authorized under the 2000 General Use Permit will be built and occupied at the time of approval of the 2018 General Use Permit. The notable exception is the planned Escondido Village (EV) Graduate Residences, which are

⁷ Based on an estimated Stanford on-campus and affiliated commuter population.

currently under construction; this housing is not expected to be completed and occupied until approximately 2020.

The incremental increase in academic, academic support and student housing, and the associated increase in on-campus population, would result in a proportional increase in potable and non-potable water demand and distribution. It would also result in a proportional increase in wastewater and solid waste generation at the Project site, which would result in a correlating incremental increase in conveyance of wastewater off-site for treatment; and disposal of solid waste off-site, by Fall 2018.

As discussed above, with respect to potable water, Stanford's water supply allocation from SFPUC will increase slightly from 2.91 to 3.03 mgd in 2018, when the ISL expires and the ISG is reinstated. No substantial change in RWQCP treatment capacity or off-site landfill capacity would occur between the existing environmental setting and the 2018 environmental baseline. Consequently, apart from these changes noted, the conditions described above for the existing environmental setting are also largely representative of the 2018 environmental baseline as it relates to utilities and service systems.

5.16.4 Regulatory Setting

Federal Regulations

Clean Water Act

Please see Section 5.9, Hydrology and Water Quality.

Federal Safe Drinking Water Act

The U.S. Environmental Protection Agency (USEPA) administers the Safe Drinking Water Act (SDWA), the primary federal law that regulates the quality of drinking water and establishes standards to protect public health and safety. The California Department of Health Services (DHS) implements the SDWA and oversees public water system quality statewide. DHS establishes legal drinking water standards for contaminants that could threaten public health.

National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved State NPDES program. The San Francisco Bay Regional Water Quality Board (RWQCB) regulates water quality in the Project site and surroundings. Under this system, municipal and industrial facilities are required to obtain an NPDES permit that specifies allowable limits, based on available wastewater treatment technologies, for pollutant levels in their effluent. Specific industries and public facilities, including wastewater treatment plants, that have direct stormwater discharges to navigable waters, are also required to obtain either an individual permit or obtain coverage under the statewide General Industrial Stormwater Permit.

Operation of the Palo Alto RWQCP and its wastewater collection system is regulated by Waste Discharge Requirements (WDRs; NPDES No. CA0037834), found in Regional Water Quality Control Board (RWQCB) Order No. R2-2014-0024, effective August 1, 2014, and expiring July 31, 2019. The effluent from the RWQCP also is subject to two other NPDES permits: 1) the WDRs for mercury and polychlorinated biphenyls (PCBs) from municipal and industrial wastewater discharges to San Francisco Bay (NPDES No. CA0038849); and 2) waste discharge requirements for nutrients from municipal wastewater discharges to San Francisco Bay (NPDES No. CA0038873). The three NPDES permits enable Palo Alto to discharge treated wastewater into San Francisco Bay and Matadero Creek (City of Palo Alto, 2016).

See also Section 5.9, Hydrology and Water Quality for additional discussion.

State Regulations

California Porter-Cologne Water Quality Control Act

Please see Section 5.9, Hydrology and Water Quality.

Water Quality Control Plan for the San Francisco Region (Basin Plan)

Please see Section 5.9, Hydrology and Water Quality.

California Safe Drinking Water Quality Act

Effective in July 2014, the California Safe Drinking Water Act strengthens the federal Safe Drinking Water Act by authorizing the State's Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminants levels (MCLs) that are at least as stringent as those developed by the U.S. EPA.

Senate Bill 610

Senate Bill 610 (SB 610) precludes projects from being approved without specific evaluations being performed and documented by the local water provider that indicate that water is available to serve the project. The provisions of SB 610 amend the Water Code sections 10910 through 10915.

SB 610 requires the preparation of a Water Supply Assessment (WSA) for certain large-scale development projects.⁸ The WSA evaluates the water supply available for new development based on anticipated demand. The Water Code Section 10910(b) indicates that if a county determines that a project that is subject to this law requires an EIR, and if there is no identified public water system that may serve the project, then the county, as lead agency for the project,

⁸ All projects that meet any of the following criteria require a WSA: 1) a proposed residential development of more than 500 dwelling units; 2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 ft² of floor space; 3) a proposed commercial office building employing more than 1,000 persons or having more than 250,000 ft² of floor space; 4) a proposed hotel or motel, or both, having more than 500 rooms; 5) a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; 6) a mixed-use project that includes one or more of the projects specified in this subdivision; or 7) a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

shall prepare the WSA. In such case, Water Code Section 10910(c)(4) indicates the WSA for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county 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 the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

California Urban Water Management Planning Act

Through the Urban Water Management Planning Act of 1983, certain urban water suppliers within California must prepare and adopt a UWMP and update it every five years. The Act is intended to support conservation and efficient use of urban water supplies at the local level. The Act requires that total projected water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single and multiple dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses. In September 2014 the Act was amended by SB 1420 to require urban water suppliers to provide descriptions of their water demand management measures and similar information.

California Water Conservation Act

The Water Conservation Act of 2009 (SBx7-7) requires each urban water supplier to select one of four water conservation targets contained in California Water Code Section 10608.20 with the statewide goal of achieving a 20 percent reduction in urban per-capita water use by 2020.

Water Conservation in Landscaping Act of 2006

In September 2009 the State adopted Assembly Bill 1881 (AB 1881), the Water Conservation in Landscaping Act of 2006, which directs local governments to require the use of low-flow plumbing fixtures and the installation of drought-tolerant landscaping in all new development. As of January 2010, all jurisdictions were required to implement this law.

CALGreen Building Code

The California Code of Regulations (CCR) Title 24, Part 11, or the California Green Building Standards Code (CALGreen), is designed to reduce impacts by providing guidelines and requirements on the following categories; planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and, environmental quality.

With regards to solid waste, CALGreen requires that at least 50 percent of weight of non-hazardous job site debris generated by new construction be recycled, reused, or otherwise diverted from landfill disposal. CalGreen requires submission of plans and verifiable post-project documentation to demonstrate compliance.

Assembly Bill 939 and Senate Bill 1016

The California Integrated Waste Management Act of 1989, or Assembly Bill 939 (AB 939), established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures to assist in reducing these impacts to less-than-significant levels. With the passage of Senate Bill 1016 (SB 1016, the Per Capita Disposal Measurement System) in 2006, only per capita disposal rates are measured to determine if a jurisdiction's efforts are meeting the intent of AB 939.

Public Resources Code Section 41780

The California State Legislature set the policy goal for the state that not less than 75 percent of solid waste generated be source reduced, recycled or composted by the year 2020. Furthermore, a 50 percent diversion rate will be enforced for local jurisdictions.

Assembly Bill 341

In an effort to reduce greenhouse gas emissions from disposing of recyclables in landfills, AB 341 requires local jurisdictions to implement commercial solid waste recycling programs. Businesses that generate four cubic yards or more of solid waste per week or multifamily dwellings of five units or more must arrange for recycling services. In order to comply with AB 341, jurisdictions' commercial recycling programs must include education, outreach and monitoring of commercial waste generators and report on the process to CalRecycle. Jurisdictions may enact mandatory commercial recycling ordinances to outline how the goals of AB 341 will be reached. For businesses to comply with AB 341, they must arrange for recyclables collection through self-haul, subscribing to franchised haulers for collection, or subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable source separation.

Assembly Bill 1826

In order to further reduce greenhouse gas emissions from disposing of organics materials in landfills, AB 1826 requires businesses to recycle their organic waste beginning on April 1, 2016, depending on the amount of solid waste they generate per week. Similar to AB 341, jurisdictions are required to implement an organic waste recycling program that includes the education, outreach and monitoring of businesses that must comply. Organic waste refers to food waste, green waste, landscaping and pruning waste, nonhazardous wood waste, and food-soiled paper that is mixed with food waste.

County of Santa Clara

Santa Clara County General Plan

Utility and service system policies relating to the proposed Project are contained in the Santa Clara County General Plan, and are most concentrated in the chapters on Resource Conservation and Safety and Noise. The Santa Clara County General Plan Resource Conservation and Health

and Safety chapters contain strategies and policies relevant to water supply and solid waste management and wastewater disposal. The General Plan also includes policies relevant to water quality and watershed management, though the Stanford Community Plan provides more campus specific requirements, these are addressed under Section 5.9 Hydrology and Water Quality. The General Plan strategies and policies relevant to utilities and service systems at Stanford include:

Resource Conservation

Water Supply Resources

Policy C-RC 5 – An adequate, high quality water supply for Santa Clara County should be considered essential to the needs of households, business and industry.

Policy C-RC 6 –A comprehensive strategy for meeting long term projected demand for water should at a minimum include the following:

- a. Continued conservation and increased reclamation;
- b. Securing additional sources as supplemental supply;
- c. System and local storage capacity improvements; and
- d. Drought contingency planning and groundwater basin management programs.

Policy C-RC 7 – Countywide land use and growth management planning should be coordinated with overall water supply planning by the SCVWD in order to maximize dependability of long term water supply resources.

Policy C-RC 8 – Environmental impacts of all state and local water supply planning and decision-making should be taken into full consideration.

Strategy #1: Conserve and Reclaim Water

Policy C-RC 9 – Conservation should continue to be considered an integral component of local water “supply” resources, effectively minimizing the amount of supplemental supplies which must be obtained from other sources.

Policy C-RC 10 – Educational measures should be continued/increased in order inform the public of the need for conservation over the long term, rather than as a temporary response to periodic drought.

Policy C-RC 11 – Domestic conservation should be encouraged throughout Santa Clara County by a variety of means, including reduced flow devices, drought-resistant landscaping, and elimination of wasteful practices.

Policy C-RC 12 – More efficient use of water for agricultural irrigation and industrial processes should be promoted through improved technology and practices.

Policy C-RC 13 – Use of reclaimed wastewater for landscaping and other uses, including groundwater recharge if adequately treated, should be encouraged and developed to the maximum extent possible.

Strategy #2: Obtain Additional Imported Water Sources

Policy C-RC 14 – Reforms of the state-wide system of water allocation and distribution should be encouraged which facilitate the ability of urban area water suppliers to purchase needed supplies through market mechanisms.

Strategy #3: Make System and Local Storage Capacity Improvements

Policy C-RC 15 – Potential for new and/or expanded local reservoirs should be thoroughly examined as a part of any long term strategy for assuring adequate water supply, taking into full account environmental and financial feasibility.

Policy C-RC 16 – Seismic safety considerations for new and existing reservoirs should be addressed in order to ensure water supply and public safety in the event of earthquake.

Strategy #4: Maintain Drought Contingency and Groundwater Basin Management Plans

Policy C-RC 17 – Drought contingency plans and groundwater basin management programs should be reviewed and updated to prepare for the likelihood of future periods of short-term drought and to minimize:

- a. the potential adverse impacts of drought upon households, business, and industry, and
- b. the possibility of groundwater overdraft and land subsidence.

Solid Waste Management

Policy C-RC 63 – Santa Clara County shall strive to reduce the quantity of solid waste disposed of in landfills and to achieve or surpass the requirements of state law (the law currently specifies 25 percent reduction of landfilled wastes by 1995, and 50 percent by 2000).

Policy C-RC 64 – Countywide solid waste management efforts shall be guided by the hierarchy of strategies outlined below, emphasizing resource recovery in accordance with state law:

- a. Source reduction and reuse,
- b. Recycling and composting,
- c. Transformation, and
- d. Landfilling as final option.

Policy C-RC 65 – All solid waste management services and facilities shall conform to applicable federal, state, and local regulations and standards.

Strategy #1: Encourage Source Reduction and Reuse

Policy C-RC 66 – Santa Clara County shall seek innovative and effective means of reducing the primary components of solid waste generated by homes and businesses, including but not limited to such efforts as reducing waste paper, junk mail, unnecessary product containers, and yard waste.

Implementation Recommendations:

C-RC(i) 39 – Explore how to implement innovative source reduction and reuse strategies that have proven successful in other jurisdictions (e.g.: neighborhood centers for reuse of construction materials).

Strategy #2: Facilitate Recycling and Promote Composting Strategy

Policy C-RC 67 – Adequate solid waste collection and recycling services shall be provided to all county residents. Recycling services for all commercial and industrial establishments shall be evaluated and expanded wherever feasible.

Policy C-RC 68 – Santa Clara County shall consider efforts to increase markets for goods produced from recycled/reused materials as an essential feature of all efforts to manage solid waste and conserve landfill capacity and shall include such considerations in policies regarding acquisition of materials, equipment, and facilities.

Policy C-RC 70 – Neighborhood and community composting centers should be explored and evaluated for purposes of reducing landfilled yard waste.

Strategy #3: Explore Transformation Opportunities Strategy

Policy C-RC 71 – Potential applications for waste transformation and energy generation technologies should be explored and encouraged.

Strategy #4: Plan for Adequate Landfill Capacity

Policy C-RC 72 – Decision-making regarding the siting of new landfills, the expansion of existing sites, and the location of other solid waste management facilities shall balance the need for such facilities with the full range of environmental quality issues involved.

Policy C-RC 73 – Santa Clara County acknowledges the need for long term disposal capacity and will strive to maintain 20 to 30 years of ongoing collective disposal capacity.

Policy C-RC 74 – Expansion of existing landfill sites should be encouraged and explored thoroughly in preference to siting new landfills.

Implementation Recommendations:

C-RC(i) 40 – Implement countywide public education efforts to support local recycling and waste reduction programs.

C-RC(i) 41 – Implement countywide programs to support the development and implementation of recycling programs in commercial/industrial facilities.

C-RC(i) 42 – Support legislative and other measures to develop markets for recyclable materials.

Health and Safety

Waste Water Disposal

Strategy #1: Prevent Waste Water Contamination of Groundwater Supplies

Policy C-HS 42 – The long-term viability and safety of underground aquifers and groundwater systems countywide shall be protected to highest degree feasible.

Policy C-HS 46 – Hazardous materials, whether commercial, industrial, agricultural, or residential in character, should not be disposed of in any wastewater or on-site wastewater treatment system.

Stanford Community Plan

The Stanford Community Plan is a component of the Santa Clara County General Plan and refines the goals, strategies, and policies for Stanford lands in unincorporated Santa Clara County. The Stanford Community Plan regards the Santa Clara County General Plan's treatment of water supply, solid waste and wastewater as adequate, and does not provide more specific detail.

Local Jurisdictions

The Bay Area Water Supply and Conservation Agency

The Bay Area Water Supply and Conservation Agency (BAWSCA) was enabled by AB 2058 and was created in 2003 to represent the interests of 24 cities and water districts, and two private utilities, in Alameda, Santa Clara and San Mateo counties that purchase water on a wholesale basis from the San Francisco Regional Water System. BAWSCA is governed by a 26-member Board of Directors comprised of respected community leaders representing the 24 cities and water districts that are member agencies of BAWSCA, and two private utilities that also have appointees to the board, Stanford and California Water Service Company.

BAWSCA is the only entity having the authority to directly represent the needs of the cities, water districts and private utilities (wholesale customers) that depend on the regional water system. BAWSCA provides the ability for the customers of the regional system to work with San Francisco on an equal basis to ensure the water system gets fixed, and to collectively and efficiently meet local responsibilities.

BAWSCA is developing the Long-Term Reliable Water Supply Strategy to quantify the water supply reliability needs of the BAWSCA member agencies through 2040, identify the water supply management projects and/or programs (projects) that could be developed to meet those regional water reliability needs, and develop an implementation plan for the Strategy. In February 2015, BAWSCA published the Long-Term Reliable Water Supply Strategy Phase II Final Report. The Phase II Final Report identifies water management actions that provide long-term water supply reliability for the region. For the Phase II Final Report, BAWSCA performed an assessment of the regional water supply reliability needs through the year 2040, evaluated potential water supply reliability projects that could be implemented to meet these needs, and identified actions to achieve increased regional reliability.

5.16.5 Impacts and Mitigation Measures

Significance Criteria

Consistent with County of Santa Clara Environmental Checklist and Appendix G of the CEQA Guidelines, the Project would have a significant impact on utilities and service systems if it would:

- a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- c) Not have sufficient water supplies available to serve the project from existing entitlements and resources, such that new or expanded entitlements would be needed;
- d) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- e) Be served by landfills without sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- f) Fail to comply with federal, state, and local statutes and regulations related to solid waste.

Approach to Analysis

Water Supply

A Water Supply Assessment (WSA) was prepared for the 2018 General Use Permit (see Appendix WSA) pursuant to the requirements of Senate Bill 610, which requires a WSA for any "project" as defined in Section 10912 of the Water Code that requires an EIR. Since there is no "public water system" serving the Stanford campus, the County of Santa Clara, as the CEQA Lead Agency for the 2018 General Use Permit, prepared the WSA. See Water Code Section 10910(b).

The purpose of the WSA is to evaluate whether "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 the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses." See Water Code Section 10910(c)(4).

Project Water Demand

The WSA 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 the proposed 2018 General Use Permit. The increased potable water demand was estimated for the categories of academic and academic support buildings, student housing, faculty/staff housing, and energy system. In addition, the increase in non-potable water demand associated with landscape irrigation was assessed.

Academic and Academic Support Buildings Potable Water Demands

The potable water demands for academic and academic support facilities include both domestic indoor usage, as well as use of potable water for outdoor landscape irrigation for certain buildings. Based on metering of the 2012-13 potable water use for the academic and academic support uses, a unit water demand of 0.072 gallons/square foot/day was estimated. This unit demand for was then used to extrapolate from the 2012-13 potable water use to project the future potable water demand resulting from additional academic and academic support growth. A total potable water demand of 0.91 mgd was estimated for all academic and academic support uses in 2035 with buildout of the proposed 2018 General Use Permit.

Student Housing Potable Water Demands

Student housing is measured in units of “beds” and represents a mixture of medium- to high-density dormitories and apartment-style units. Dining halls and other associated facilities were also included for estimating potable water demand in this land use category. Based on metering of the 2012-13 potable water use for the student housing, a water demand rate of 40.6 gallons/bed/day was estimated. This unit water demand was then used to extrapolate from the 2012-13 potable water use to project the future potable water demand resulting from additional student housing. A total potable water demand of 0.69 mgd was estimated for all student housing in 2035 with buildout of the proposed 2018 General Use Permit.

Faculty/Staff Housing Potable Water Demands

These housing units represent a mixture of medium- to high-density single family homes, townhomes and apartment-style units. The water demand for this use category included domestic indoor usage, as well as use of potable water for outdoor landscape irrigation. Based on metering of the 2012-13 potable water use for the faculty and staff housing, a 2012-13 water demand rate of 555 gallons/unit/day was estimated. Since the proposed 550 faculty/staff housing units that would be developed under the 2018 General Use Permit would be a higher-density type where less outdoor watering would occur, a lower water rate of 225 gallons/per day was used for those units.⁹ A total potable water demand of 0.64 mgd would be associated with all faculty/staff housing in 2035 with buildout of the proposed 2018 General Use Permit.

Energy System Water Demands

In 2015, Stanford completed an overhaul of its campus heating and cooling system, known as SESI, which replaced Stanford’s steam-based heating system with a hot-water based heating

⁹ The 225 gallons/unit/day was based on usage statistics for existing comparable faculty/staff housing units in Stanford’s Olmsted Terrace, Pearce Mitchell, and Peter Coutts areas. It should be noted that Stanford may consider using non-potable sources to meet some of the new housing’s outdoor landscape irrigation needs, depending on location, in which case potable water use demand would be even less.

system, and replaced its cogeneration plant with a more efficient Central Energy Facility (CEF) that resulted in a substantial decrease in water usage to serve campus energy needs. The total water demand for Stanford's energy system water demand is projected to reach 0.20 mgd at buildout of the 2018 General Use Permit in 2035. This represents a reduction of 0.46 mgd from FY 2012-13 levels.

Landscape Irrigation

New development that would replace currently landscaped areas with buildings and/or pavement would cause irrigation needs to decrease, whereas similar development that would replace paved surface parking lots or non-landscaped areas with landscaping would require increased irrigation. While, as discussed in the Environmental Setting, non-potable irrigation usage fluctuates from year to year at Stanford, over time this usage remained relatively constant as the 2000 General Use Permit was implemented. New landscaping added as part of the 2018 General Use Permit would rely heavily on native plants that require low-water-demands, particularly in dry-seasons. For purposes of the WSA, irrigation demand was conservatively projected to increase by 10 percent with buildout the 2018 General Use Permit in 2025, to an estimated 1.35 mgd.

Total Projected Water Demand and Supply

Table 5.16-1 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 the 2018 General Use Permit.

**TABLE 5.16-1
SUMMARY OF POTABLE AND NON-POTABLE WATER SUPPLY AND DEMAND (MILLION GALLONS/DAY)**

Water Use Category	FY 2012-13 (Pre-Drought) Actual	FY 2015-16 (Actual)	2035 Projected (with buildout of 2018 General Use Permit)
Demand			
Potable	2.10	1.39	2.44
Non-Potable	1.23	0.81	1.35
Total	3.33	2.20	3.80
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, 2017 (Appendix 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 also considered Stanford's projected water demands and supplies for normal, single dry, and multiple dry water years; see **Table 5-16-2** with buildout of the 2018

General Use Permit Project in 2035. The projection of non-potable usage assumes that surface water is the primary source of irrigation supply, and groundwater is used to meet the remaining demand.

**TABLE 5.16-2
SUMMARY OF PROJECTED DRY YEAR SUPPLY AND DEMAND**

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	2.44	2.46	2.46	2.07	1.83
met by ISL	2.44	2.46	2.46	2.07	1.83
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 surface water	0.23	0.48	0.48	1.02	1.02
Total Demand	3.79	3.87	3.87	3.15	2.91

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 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, the assumed dry-year supply projections are based on the 83 percent and 72 percent planning factors from the SFPUC.

Impact Evaluation

Impact 5.16-1: The Project would result in the expansion of existing on-campus infrastructure, the construction of which could cause significant environmental effects. (Significant)

The proposed Project would accommodate construction of campus infrastructure improvements to support new development that would occur under the proposed 2018 General Use Permit, including water and wastewater improvements.

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. Since on-campus utility improvements are part of the overall anticipated development program under the 2018 General Use Permit, the associated construction-related impacts associated with new, relocated or replaced recreational facilities are addressed in the construction impact analyses in other sections of this EIR, including Section 5.2 Air Quality, 5.3 Biological Resources, 5.11 Noise and Vibration, and 5.15 Transportation and Traffic. Mitigation measures outlined in their respective sections 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 5.2-2: *Best Management Practices for Controlling Particulate Emissions during Construction.*

Mitigation Measure 5.2-3(a)-(b): *Mitigation for Construction TACs and PM_{2.5}.*

Biological Resources

Mitigation Measure 5.3-1(a)-(e): *Mitigation for nesting birds during construction.*

Mitigation Measure 5.3-2(a)-(d): *Mitigation for special-status bat species during construction.*

Mitigation Measure 5.3-3(a)-(c): *Mitigation for San Francisco dusky-footed woodrat during construction.*

Mitigation Measure 5.3-4(a)-(b): *Mitigation for special-status plant species during construction.*

Mitigation Measure 5.3-6(a)-(c): *Mitigation for steelhead during construction.*

Mitigation Measure 5.3-7(a)-(b): *Mitigation for riparian habitat during construction.*

Mitigation Measure 5.3-8(a)-(b): *Mitigation for native oak woodland during construction.*

Mitigation Measure 5.3-9(a)-(c): *Mitigation for wetlands during construction.*

Mitigation Measure 5.3-11(a)-(c): *Mitigation for protected trees during construction.*

Hazardous Materials

Mitigation Measure 5.8-2(a)-(c): *Mitigation for potentially contaminated soils during construction.*

Hydrology and Water Quality

Mitigation Measure 5.9-1: *Review historic wells survey.*

Noise and Vibration

Mitigation Measure 5.11-1: *Construction Noise Control Measures and Noise Control Plan for Off-Site Receptors.*

Mitigation Measure 5.11-2: *Construction Noise Control Measures and Noise Control Plan for On-Site Receptors.*

Mitigation Measure 5.11-3: *Construction Vibration Reduction Plan.*

Transportation and Traffic

Mitigation Measure 5.15-1: *Construction Traffic Control Measures.*

Significance after Mitigation: Less than Significant.

Impact 5.16-2: Project development would increase the demand for water, however it would be adequately supplied from existing entitlements and resources. (*Less than Significant*)

Under the proposed 2018 General Use Permit, additional development and growth would increase demand for both potable and non-potable water. Stanford receives its water from water purchased wholesale from the SFPUC, local surface water supplies, and groundwater. As discussed under Approach to Analysis, above, a WSA was prepared for the proposed 2018 General Use Permit pursuant to the requirements of the California Water Code enacted in Senate Bill 610. The WSA 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 the proposed project.

With respect to normal years, as summarized in Table 5.16-1, the WSA estimated that Stanford's total water demand upon buildout of the 2018 General Use Permit would be approximately 3.80 mgd, consisting of a potable water demand of 2.44 mgd, and a non-potable water demand of 1.35 mgd.

The WSA determined that Stanford's overall water supply with buildout of the proposed 2018 General Use Permit to be similar to conditions at present. Stanford's potable water supply allocation from the SFPUC will increase slightly from 2.91 to 3.03 mgd in 2018, when the ISL expires and the ISG is reinstated. This water allocation would be sufficient to accommodate the

potable water demand through buildout of the 2018 General Use Permit. 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 Project. Together, the local surface and groundwater sources would be sufficient to accommodate the non-potable water demand through buildout of the 2018 General Use Permit. Collectively, the total estimated water supply 5.67 mgd would be more than necessary to accommodate the projected water demand of 3.80 mgd with buildout of the 2018 General Use Permit.

As presented in Table 5.16-2, in a single dry-year scenario, Stanford's SFPUC allocation would remain sufficient to meet all potable water demands of the 2018 General Use Permit. SFPUC potable water is deemed highly reliable. Storage and redundancy built into the SFPUC system ensure that even during periods of drought, the SFPUC can provide wholesale customers with at least 80 percent of their ISGs.

In a single dry year or the first of multiple dry years, Stanford's plant irrigation demands would be expected to increase slightly. However, in multiple dry years, Stanford would implement water conservation measures to ensure that Stanford's potable and non-potable water use would not exceed the available supply. In multiple dry year scenarios, Stanford would reduce its potable water demand by 15 percent in the second year and 25 percent in the third year. Stanford achieved such reductions during the most recent drought under the 2000 General Use Permit. Feasible water conservation measures that Stanford has successfully implemented include, but are not limited to, two-day per week watering with potable water, and modified irrigation practices to avoid waste and cut back on watering of non-functional turf areas.

Although groundwater supplies would be adequate to meet non-potable demand during multi-year drought periods, Stanford would implement irrigation demand reduction measures, and similarly reduce non-potable water use by 20 percent in the second and third years of a multiyear drought. Stanford achieved such reductions during the most recent drought under the 2000 General Use Permit.

In conclusion, there would be sufficient water supplies to accommodate the water demand from buildout proposed 2018 General Use Permit through existing entitlements and resources under normal, single dry, and multiple dry water years. Thus, while the proposed 2018 General Use Permit would generate an increased demand for water, this impact would be less than significant.

Mitigation: None required.

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. (*Less than Significant*)

Under the proposed 2018 General Use Permit, additional development and growth would generate an increase in wastewater requiring treatment. As discussed in the Environmental

Setting, 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.

In order to provide a conservative analysis of Project wastewater generation, it is assumed the entirety of the net increase in potable water demand for the proposed 2018 General Use Permit as estimated in the WSA would become wastewater. This is a conservative assumption since it does not account for future conservation measures, such as improved connectivity to the campus recycled water system to these uses. The estimated net increase in wastewater generation at buildout associated with development under the proposed 2018 General Use Permit would be approximately 0.40 mgd.

As discussed in the Environmental Setting, the RWQCP has an average dry weather flow (ADWF) capacity of 39 mgd and an average wet weather flow capacity of 80 mgd, and does not currently experience any major treatment system constraints. Of this capacity, Stanford owns up to 2.11 mgd ADWF, which is just over 5 percent of the plant's capacity. Average daily flows at the RWQCP are approximately 20 mgd. Stanford's current average daily sewer discharge (2010-2016) is 1.1 mgd, which represents about 2.8 percent of the plant's total ADWF capacity.

When considering the proposed Project generated increase of 0.4 mgd, and if conservatively adding another estimated 0.2 mgd contribution from any remaining development to be built under 2000 General Use Permit, together would increase Stanford's reported average discharge from 1.1 mgd to 1.7 mgd. 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, the proposed Project would generate a less-than-significant impact to wastewater treatment.

Mitigation: None required.

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. (*Less than Significant*)

As discussed above, under the proposed 2018 General Use Permit, additional development and growth would generate an increase in wastewater. As discussed in the Environmental Setting, 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.

As discussed in the Environmental Setting, 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. Stanford sanitary sewer flow discharges to a 21-inch City main that runs parallel to

El Camino Real. Consistent with Impact 5.16-3, above, an increase in Stanford wastewater generation of 0.6 mgd (accounting for the proposed Project and contribution from any remaining unbuilt development under 2000 General Use Permit), would be equivalent to an average increase in daily flow of approximately 417 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.

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 (City of Palo, Alto, 2017). Given these factors, the increase in flow under the proposed 2018 General Use Permit would not exceed the City of Palo's sewer collection capacity. The impact would be less than significant.

Mitigation: None required.

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. (*Less than Significant*)

Over the duration of the proposed 2018 General Use Permit, construction and demolition activities would generate construction debris at the Project site, some of which would require disposal. The construction debris scenario used in this EIR is based on the average annual construction and demolition that occurred on the Project site under the 2000 General Use Permit from 2001 to 2015. When projecting this constant annual construction activity forward from 2018 to 2035, the total construction square footage would be similar to that anticipated in the proposed 2018 General Use Permit.

The proposed 2018 General Use Permit would be expected to result in an average of approximately 225,500 square feet of construction and 50,300 square feet of demolition per year through 2035. Based on the most conservative construction and demolition waste estimates provided by the USEPA, the annual construction and demolition under the 2018 General Use Permit would result in an estimated 4,469 tons of solid waste per year (USEPA, 2009).¹⁰ 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 2,235 tons of waste per year that would be disposed at a landfill.

As described in the Environmental Setting above, Stanford's solid waste manager, Peninsula Sanitary Service, Inc. (PSSI), currently delivers construction and demolition related waste generated at the Project site to the Zanker Road Class III Landfill in San Jose. As of 2012, the

¹⁰ The most conservative generation rates of 4.39 pounds per square foot for construction, and 158 pounds per square foot for demolition were used for this calculation. Annual construction generated waste was calculated based on: [(225,500 square feet of new construction * 4.39 pounds/square foot + 50,300 square feet of demolition * 158 pounds/square foot) / 2,000 pounds/ton = 4,469 tons].

Zanker Road Landfill had a total remaining capacity of 700,000 cubic yards with an expected closure date of 2029. While this landfill is projected to close in 2029 - prior to full buildout of the 2018 General Use Permit in 2035 – other existing landfills are available, such as Newby Island, that would remain operational could be utilized and would have more than adequate capacity to accommodate the Project construction debris. Additionally, PSSI may identify additional neighboring landfills at future points in time. Therefore, Project construction would not exceed permitted landfill capacity nor violate any state or federal regulation related to solid waste, and the impact from construction would be less than significant.

Mitigation: None required.

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. (*Less than Significant*)

Operation of additional development and growth under the proposed 2018 General Use Permit would increase generation of solid waste and recyclables at the Project site. Applying existing waste generation rates¹¹ described in the Environmental Setting, and the net increase in Stanford population in 2035 with buildout of the 2018 General Use Permit (that is, 7,509 students, faculty, and staff, along with 1,114 family members), the Project would generate a net increase of approximately 6,381 tons of discards per year, consisting of approximately 2,328 tons of landfill waste per year, and 4,053 tons of recyclables per year. When considered in combination with the existing waste generation, Stanford would generate approximately 31,066 tons of discards per year, consisting of 11,273 tons of landfill waste per year, and 19,793 tons of recyclables per year.

As described in the Environmental Setting above, Stanford's solid waste manager currently delivers the majority of its solid waste generated at the Project site to the Newby Island Sanitary Landfill. The Newby Island Sanitary Landfill has maximum permitted throughput for up to 4,000 tons of waste per day. The total operational solid waste that would be generated under the 2018 General Use Permit 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 the proposed 2018 General Use Permit.

Based on the existing disposal rates and continued waste diversion by residents and employees of Stanford, the Project would continue to be in compliance with CALGreen and AB 939. Given the above, operation of the Project would not exceed available permitted landfill capacity and would comply with federal, state, and local statutes and regulations related to solid waste diversion; the impact would be less than significant.

¹¹ These operational waste generation rates are conservative in that they included construction and demolition debris. Project construction waste impacts are also separately addressed in Impact 5.16-5.

Mitigation: None required.

Cumulative Impacts

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. (Less than Significant)

The WSA for the proposed 2018 General Use Permit demonstrates there are adequate water supplies to accommodate the water demand from buildout of the proposed 2018 General Use Permit through existing entitlements and resources under normal and sequentially dry weather years.

Stanford provides usage statistics and demand projections to the SFPUC and SCVWD who incorporate this data into their respective UWMPs. The SFPUC and SCVWD each adopted their respective 2015 UWMPs in 2016, and which project demands for those agencies through the year 2040.¹² While, the SFPUC and SCVWD's 2015 UWMPs do not specifically address the water demands of the proposed 2018 General Use Permit, the future water demands projected in the UWMPs are nonetheless consistent with the 2018 General Use Permit WSA. The SFPUC's 2015 UWMP considers that Stanford's purchase requests will increase, and the 2018 General Use Permit WSA projected water demand is within the limits of Stanford's ISG and ISL. The SCVWD UWMP also includes increases in Stanford's total water demand projections. The 2018 General Use Permit WSA's water demand calculations were generally consistent with those identified for Stanford by neighboring public water districts. Each of these 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.

Similarly, the cumulative water supply needs of the proposed 2018 General Use Permit 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 the proposed 2018 General Use Permit 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

¹² The SCVWD coordinates with City of Palo Alto Utilities as a planning partner and potential future service provider.

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 the proposed Project 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 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. (Less than Significant)

The cumulative setting for wastewater treatment would extend to the entire service area of the RWQCP.

The RWQCP serves Stanford as part of a service area of approximately 220,000 people. 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 5.16-3, the future increases in Project wastewater flows 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.

There are no current plans for expansion of the plant. However, in 2012, the Palo Alto City Council approved the RWQCP Long Range Facilities Plan (LRFP) which determined that while the RWQCP facilities have been well maintained, much of the RWQCP unit processes and equipment are nearing the end of their useful life and will be considered for replacement or major rehabilitation over the next 15 years (City of Palo Alto, 2016). As a partner in the RWQCP, Stanford pays its fair share of capital costs, and would continue to do so over the life of the 2018 General Use Permit.

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 the proposed 2018 General Use Permit would not exceed wastewater treatment requirements, and cumulative impacts to wastewater treatment would be less than significant.

Mitigation: None required.

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. (*Less than Significant*)

The geographic scope of the cumulative solid waste analysis is focused on the service areas of the landfills that would serve the 2018 General Use Permit. 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 (CalRecycle, 2017a).

Many past, and all present and reasonably foreseeable future development projects, which have or would generate construction and operational solid waste and, depending on the volumes and end uses, have been or would be required to implement recycling and waste reduction measures.

Of the Project generated waste, a large source would be attributed to the demolition and construction required for new buildings. Assuming no improvements are made to current diversion rates, the Project would divert over 60 percent of all waste including demolition and construction from landfills through use of recycling or reuse and thereby exceeding the requirements of CALGreen and AB 939.

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, the proposed Project, in conjunction with other development, would not have a significant cumulative impact associated with solid waste, and the Project's cumulative impact would be less than significant.

Mitigation: None required.

5.16.6 References

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CHAPTER 6

Other CEQA Issues

6.1 Introduction

Section 15126 of the CEQA Guidelines requires that when evaluating its impact on the environment all phases of a project must be considered, including planning, construction, and operation, taking account of both the short-term and long-term. More specifically, section 15126.2 requires disclosure of (1) Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented (CEQA Guidelines section 15126.2(b)), (2) Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented (CEQA Guidelines section 15126.2(c)), and (3) Growth-Inducing Impact of the Proposed Project (CEQA Guidelines section 15126.2(d)).

Chapter 1, Summary of Environmental Effects, and Chapter 5, Sections 5.1 through 5.16 provide a comprehensive presentation of the environmental effects of the proposed Project, proposed mitigation measures, and conclusions regarding the level of significance of each impact before and after mitigation. Chapter 7, Alternatives, presents a comparative analysis of alternatives to the proposed Project. Other CEQA-required analyses described above are presented below.

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.

6.3 Significant Irreversible Environmental Effects

Under CEQA, an EIR must analyze the extent to which a project's primary and secondary effects would commit future generations to the allocation of nonrenewable resources and to irreversible environmental damage (CEQA Guidelines Section 15126.2(c)). Specifically, Section 15126.2(c) states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- The primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve a large commitment of nonrenewable resources;

- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy); and/or
- The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project.

With respect to the proposed Project potential to commit future generations to similar uses, Stanford's Founding Grant already requires that University lands "shall be devoted to the foundation and maintenance of the University."¹ The proposed 2018 General Use Permit would not alter the types of land uses and activities conducted at the Project site. As discussed in Chapter 3, Project Description, all new academic, academic support and residential uses developed under the proposed Project would be contained within the largely developed areas within the Academic Growth Boundary. As determined in Section 5.10, Land Use and Planning, the proposed land uses would be consistent with the existing land use designations for Stanford lands described in the Stanford Community Plan. As discussed in Section 5.3, Biological Resources, the proposed Project would not conflict with applicable plans and policies protecting sensitive resources within and outside the Academic Growth Boundary, including but not limited to, the Stanford Habitat Conservation Plan and Stanford Conservation Area Plan.

With respect to the Project relationship to commitment of non-renewable resources, and consumption of resources, these would occur during both construction and operation of the proposed 2018 General Use Permit. Construction of new development under the proposed 2018 General Use Permit would require the use of fossil fuel, construction materials and water. During operation, the proposed Project would also require in an irreversible commitment of energy, primarily in the form of fossil fuels for heating and cooling of buildings, for vehicle fuel, and for energy production; as well as potable and non-potable water for consumption, landscaping and other uses.

However, as discussed in Section 5.5, Energy Conservation, while overall energy demand is projected to increase approximately nine percent over the 2018 baseline, the per capita energy demand under the proposed 2018 General Use Permit would decrease, indicative of an overall improvement in energy efficiency compared to existing conditions. The decrease in per capita energy demand under the 2018 General Use Permit demonstrates that energy use efficiencies would increase under the proposed Project, and resulting energy use from Project implementation would not be wasteful or unnecessary. Furthermore, 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).

As described further in the Vehicle Miles Traveled (VMT) analysis presented in Section 5.15, Transportation and Traffic, the per resident and per worker VMT generation under the proposed Project would be substantially lower than the regional and countywide averages. The VMT rates

¹ Stanford University Founding Grant (Nov. 11, 1885).

would be supported by Stanford's Transportation Demand Management 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.

In addition, as described in Section 5.7, Greenhouse Gas (GHG) Emissions, the total GHG emissions under the proposed 2018 General Use Permit would be at or below those GHG emissions under the 2018 baseline. Further, GHG emissions under the proposed 2018 General Use Permit would be below the significance thresholds that relate to consistency with GHG reduction goals for year 2030 and, to the extent feasible, year 2050.

With respect to the Project involving uses in which irreversible damage could result from any potential environmental accidents associated with the Project; these potential effects are discussed in detail in Section 5.8, Hazards and Hazardous Materials. The implementation of the proposed 2018 General Use Permit would involve operation of academic and academic support facilities, including laboratories, research facilities and other uses that may include transport, handling, storage and disposal of hazardous materials. If not handled appropriately, upset and accident conditions could result in releases of hazardous materials or wastes that could result in adverse effects to residents, workers, the public or the environment. However, with Stanford's adherence to these existing regulatory requirements and management programs, as overseen by its Environmental Health & Safety Department and the County's Hazardous Materials Compliance Division, the potential impact to workers, residents, visitors, or the environment would be reduced to a less-than-significant level.

6.4 Growth-Inducing Effects

As required under CEQA, an EIR must include a discussion of the ways in which the proposed Project could directly or indirectly foster economic or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2(d)). Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in population growth or development unforeseen at the time of project approval. Under CEQA, growth is not necessarily considered beneficial, detrimental, or of little significance to the environment.

6.4.1 Direct Population and Employment Growth

As discussed in Section 5.12, Population and Housing, the proposed 2018 General Use Permit would directly result in development and associated population and employment growth. Stanford anticipates that it would grow by approximately 7,509 students, faculty, and staff between 2018 and 2035, which reflects an approximate 1.2 percent Compound Annual Growth Rate (CAGR). This growth includes 1,700 undergraduate students; 1,200 graduate students; 961 postdoctoral students; 420 nonmatriculated students; and 3,227 faculty and staff.

In order to accommodate the increased enrollment in students, faculty, and staff under the proposed 2018 General Use Permit, Stanford would construct up to 3,150 net new housing units/beds on the Project site, of which up to 550 units would be available for faculty, staff, postdoctoral scholars, and medical residents. This housing also would accommodate an increase of other family members of approximately 1,298 people.

Further, Stanford estimates there would be an increase of 2,101 persons in other worker populations at Stanford between 2018 and 2035 resulting from the proposed Project, which also reflects an approximate CAGR of 1.2 percent. This group would include casual, contingent, and temporary hourly employees working less than 50 percent of a full-time equivalent (FTE) employee, affiliated teaching staff, adjunct professors, visiting scholars, third-party contract workers, janitorial contract workers, and construction contract workers. Based on their estimated commute frequency, the total daily population of these other workers would increase by 1,074 workers between 2018 and 2035.

The growth of Stanford-affiliated populations, including the other worker populations, would not be entirely accommodated by housing within the Project site, and therefore would result in an indirect housing demand (and associated population growth) beyond the Project site. The proposed 2018 General Use Permit would result in demand for 2,425 off-site housing units (Stanford, 2017). It is estimated that approximately 52 percent of these households would reside in Santa Clara County, 27 percent in San Mateo County, 10 percent in Alameda County, and 8 percent in San Francisco, with the remainder in other counties in the Bay Area (Stanford, 2017). Stanford would support housing construction in Santa Clara County through its proposed continuing contribution to the County-administered Stanford Affordable Housing Fund, which was established pursuant to 2000 General Use Permit Condition F.6.

The potential physical environmental impacts associated with the direct population growth and associated housing development on the Project site anticipated under the proposed 2018 General Use Permit are evaluated in the environmental analysis sections of this EIR (e.g., Section 5.2, Air Quality; Section 5.5, Energy Consumption; Section 5.13, Public Services; Section 5.15, Transportation and Traffic; and 5.16 Utilities and Service Systems). New off-site housing that would be constructed for the additional Stanford-affiliated populations would likely result in some environmental impacts; however, it would be speculative to characterize the site-specific environmental effects resulting from the development of such off-site housing.² The General Plans of jurisdictions where new off-site housing would be developed contain policies and other measures that address the environmental effects of new housing development. Specific housing development projects also would be subject to the environmental review process of affected jurisdictions.

In general, the potential effects of this population growth could include: increased traffic congestion; increased air pollutant emissions; loss of agricultural land and open space; loss of

² CEQA Guidelines section 15145 states that “[i]f, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.”

habitat and associated flora and fauna; increased demand on public utilities and services, such as fire and police protection, water, recycled water, wastewater, solid waste, energy, and natural gas; and increased demand for housing. An increase in population growth would also require governmental services including, but not limited to, public schools, libraries, and parks.

6.4.2 Indirect Economic Growth

In addition to the employment growth generated by the proposed Project, additional local employment could be generated through what is commonly referred to as the “multiplier effect.” The multiplier effect refers to the secondary economic effects caused by spending from project-generated residents and employees.

The multiplier effect also calculates *induced* employment. Induced employment follows the economic effect of employment beyond the expenditures of the employees within the Project site to include jobs created by the stream of goods and services necessary to construct the proposed Project. For example, when a manufacturer buys products or sells products, the employment associated with those inputs or outputs are considered *induced* employment. As an additional example, when an employee from the project goes out to lunch, the person who serves the project employee lunch holds a job that was *indirectly* caused by the proposed project. When the server then goes out and spends money in the economy, the jobs generated by this third-tier effect are considered induced.

The multiplier effect tends to be greater in regions with larger diverse economies (such as the Bay Area) due to a decrease in the requirement to import goods and services from outside the region, as compared to the effects of spending in smaller economies where goods and services must be imported from elsewhere.

Indirect economic growth would result under the proposed 2018 General Use Permit from non-Stanford jobs that might be induced by the growth in Stanford-affiliated populations. Indirect jobs that would be generated by the Project include those of suppliers of goods and services to Stanford and induced jobs are created through the household expenditures of Stanford and supplier workers. For example, when a Stanford faculty members purchase goods or services at local businesses, additional employees are hired.

The number of indirect and induced jobs generated by a university is commonly calculated by applying a ratio, or job multiplier, to the number of jobs provided directly by such an institution. The projected increase in jobs under the proposed 2018 General Use Permit of 5,262 positions includes not only faculty and staff, but also postdoctoral students and the other worker populations. By comparison, ABAG projects 225,740 new jobs in Santa Clara County during the 2015-2040 timeframe. Stanford jobs would comprise 2.3 percent of this increase (Stanford, 2017). Using a job multiplier of 0.73³, an additional 3,843 jobs elsewhere in the Bay Area could

³ Multipliers identified in studies of other college campuses range from 0.33 to 1.36. At 0.73 indirect and induced workers per University of San Francisco worker, the study conducted for USF may provide the best “order of magnitude” estimate for regional impacts for Stanford, as it is in the same Bay Area region with the same range of available local goods and services. (Stanford, 2017)

be indirectly caused by or induced by growth under the proposed 2018 General Use Permit (Stanford, 2017).

6.4.3 Environmental Effects of Indirectly Caused and Induced Growth

The residence location for people working at indirect and induced jobs is unknown. For example, equipment and goods purchased by Stanford could be manufactured and distributed anywhere in the United States. Expenditures by Stanford students and employees could support businesses throughout the Bay Area. ABAG projects an increase of 835,240 jobs in the Bay Area from 2015 to 2040 (Stanford, 2017). Indirect and induced job growth (3,843 jobs) resulting from increased employment at Stanford would thus represent a small fraction of the regional projections. It would be speculative to conclude where such workers would reside or be employed in the Bay Area (or beyond), or to determine any associated environmental effects.

Growth induced directly and indirectly by the proposed Project would likely affect the greater Bay Area region. While it is acknowledged above that the precise nature, location, and magnitude of effects of indirect and induced growth is speculative, the proposed Project would likely increase overall demand in the region for housing, commercial and industrial space, and associated infrastructure. Potential effects could include: increased traffic congestion; increased air pollutant emissions; loss of agricultural land and open space; loss of habitat and associated flora and fauna; increased demand on public utilities and services, such as fire and police protection, water, recycled water, wastewater, solid waste, energy, and natural gas; and increased demand for housing. An increase in housing demand in the Bay Area region would also require governmental services including, but not limited to, schools, libraries, and parks to serve new commercial and residential development.

Indirect and induced employment and population growth could further contribute to the loss of open space because it would encourage conversion to urban uses for housing, commercial space, and infrastructure, although most jurisdictions have adopted smart-growth policies that discourage or prohibit this type of development.

6.4.4 Removal of Obstacles to Growth

The elimination of physical obstacles to growth is considered a growth-inducing effect. The proposed Project would result in development on the Project site, within the Academic Growth Boundary. As discussed in Section 5.12, Population and Housing, the proposed 2018 General Use Permit would include infrastructure improvements designed to accommodate Stanford's growth through 2035. Possible improvements include underground pipelines, electrical transmission lines, water supply infrastructure, habitat improvements, pathways, and other similar types of improvements. The scale and nature of these improvements would be to accommodate the growth and development on the Stanford campus directly attributable to the proposed 2018 General Use Permit. The infrastructure improvements undertaken as part of the proposed Project would not be designed to support growth outside the Academic Growth Boundary of the Project site, and thus

would not remove an obstacle to growth elsewhere on the Stanford campus, or in adjacent jurisdictions.

6.5 References

Stanford University; *2018 General Use Permit Application*, Technical Data to Address Population and Associated Housing Demand, July 25, 2017.

CHAPTER 7

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.

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

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
		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
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
- 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
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
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
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
Creation of a parking reserve	Yes	No	No	Yes, but proportionally reduced in relation to reduced academic development	Similar to Project
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

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
		No Project/No Development Alternative	No Project/Individual Use Permits Alternative		
No Net New Trips Standard					
Existing					
Implement, and update as needed, its TDM programs designed to achieve No Net New Commute Trips	Yes	Yes	No	Yes	Yes
Implement off-campus trip reduction programs as contemplated by the Stanford Community Plan's trip credit policy	Yes	Yes	No	Yes	Yes
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
Proposed Additional					
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
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

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
		No Project/No Development Alternative	No Project/Individual Use Permits Alternative		
Other Commitments (cont.)					
<i>Proposed Additional Sustainability Programs and Practices</i>					
Stanford would meet final Tier 4 standards for all construction equipment, except for chainsaws and paving phase equipment	Yes	No	No ^a	Yes	Yes
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
All Marguerite buses would be electric by 2035	Yes	No	No ^a	Yes	Yes
70 percent of Stanford Land Buildings and Real Estate and Bonair fleet vehicles would be electric by 2035	Yes	No	No ^a	Yes	Yes
Stanford would rely heavily on low-water-demand, native plants for new landscaping	Yes	No	No ^a	Yes	Yes
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

^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.

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.¹ 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

¹ 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.

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 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 (NO_x) 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.² 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

² 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.

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.³

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.

³ 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.

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.

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).⁴ Of that total square footage, approximately 1.3 million net new square feet would be used to construct academic and academic support space.⁵ 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.⁶ 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.

⁴ 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.

⁵ *Sustainable Development Study* Figure 3-30 and Additional Infill Development, pp. 56 and 57.

⁶ *Sustainable Development Study* Figure 3.31, p. 57.

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**.

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 be 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.⁷ 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 Alternative, this alternative would further restrict the ability to meet those Project objectives identified above.

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.

⁷ An exception would be the unsignalized intersection of I-280 Southbound Off-Ramp / Page Mill Road which would remain significant in the 2018 scenario.

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.

7.5 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
		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
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
5.1-3: The Project could degrade the existing visual character or quality of the site and its surroundings.	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
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
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
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
5.2-3: Project construction would generate 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
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
5.2-5: Project operation of development would generate 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
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
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
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

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
		No Project/ No Development	No Project / Individual Use Permits		
5.2 Air Quality (cont.)					
5.2-9: The Project would not result in emissions of NOx, PM, or ROGs that are cumulatively considerable.	LTS	- LTS	- LTS	- LTS	= LTS
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
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
5.3-2: Project activities could result in adverse effects on special-status bats.	S/M	- S/M	- S/M	- S/M	= S/M
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
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
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
5.3-6: Project activities could result in significant effects on steelhead.	S/M	- S/M	- S/M	- S/M	= S/M
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
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
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
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
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
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

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
		No Project/ No Development	No Project / Individual Use Permits		
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
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
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
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
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
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
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
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
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

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
		No Project/ No Development	No Project / Individual Use Permits		
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
5.6-2: Project development would not expose people or structures to substantial adverse effects from ground shaking.	LTS	- LTS	- LTS	- LTS	=/+ LTS
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
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
5.6-5: Project development would not result in substantial soil erosion or the loss of topsoil.	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
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
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
5.8 Hazards and Hazardous Materials (cont.)					
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
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
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
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
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
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
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
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
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
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
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
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
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
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
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
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
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
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
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
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
5.11-5: Project traffic would not substantially increase traffic noise levels in the vicinity of the Project site.	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
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
5.13 Public Services (cont.)					
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
5.13-3: Operation of development under the proposed Project would increase demand for police protection services.	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
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
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
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
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
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
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
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
5.15-5: Implementation of the proposed Project would not substantially increase intrusion by traffic in nearby neighborhoods.	LTS	- LTS	- LTS	- LTS	= LTS
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
5.15-7: Implementation of the proposed Project would not result in inadequate emergency access.	LTS	- LTS	- LTS	- LTS	= LTS
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
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
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
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

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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
		No Project/ No Development	No Project / Individual Use Permits		
5.15 Transportation and Traffic (cont.)					
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
5.15-13: The proposed Project VMT would not exceed the numeric thresholds recommended by OPR.	LTS	- LTS	- LTS	- LTS	= LTS
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
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
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
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
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
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
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
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
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

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 and Historic Preservation Alternative), 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 less 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.

7.7 References

Fehr and Peers, *Stanford 2018 General Use Permit: Reduced Project Alternative Intersection LOS Analysis*, October 2, 2017.

CHAPTER 8

Special Considerations

8.1 Stanford Funding of Off-site Bicycle Improvements

8.1.1 Introduction

Stanford is proposing to fund certain off-site bicycle facility improvements in several communities surrounding Stanford, including the cities of East Palo Alto, Palo Alto and Menlo Park; and unincorporated San Mateo County. As discussed further below, because Stanford would partially fund, but not build and operate these off-site improvements, they are not proposed specifically as part of the proposed 2018 General Use Permit; however these improvements would work in connection with Stanford's trip reduction program and would assist Stanford in achieving the Stanford Community Plan's No Net New Commute Trips standard over the life of the proposed 2018 General Use Permit.¹

The proposed off-site bicycle facility improvements are intended to reduce the potential for local vehicle congestion effects by encouraging use of alternative modes of transportation, and thereby reducing Stanford commuter and other local vehicular trips that contribute to local congestion. The reductions in the other local trips component are proposed to be credited toward Stanford's No Net New Commute Trips standard on an annual basis commencing upon completion of each of the improvement projects. Under this proposal, Stanford would only receive credits toward the No Net New Commute Trips goal if and once the improvements are approved and constructed. As specified by the Stanford Community Plan, the methodology for determining trip credits for these improvements would be subject to the County for review and approval.

It should be noted that bicycle facilities, if and when implemented, would directly benefit the communities in which they are located regardless of whether trip reduction credits would be needed to achieve No Net New Commute Trips standard.

8.1.2 Relationship to Proposed Project

The proposed funding of the off-site bicycle facility improvements would serve to facilitate the implementation of these facilities. However, these off-site improvements are not themselves part of the Project, and are not within the scope of this EIR (see also discussion of Environmental

¹ Stanford Community Plan Policy C-8 indicates the County recognizes participation by Stanford in off-campus trip reduction efforts and the County credits reduced trips towards Stanford's attainment of the No Net New Commute Trips standard.

Considerations, below) given that 1) Stanford's role would be limited to the funding of these off-site improvements, 2) the off-site improvements would not be approved as part of the County approval of the proposed 2018 General Use Permit; 3) the off-site improvements may be subject to further design refinement; 4) the off-site improvements would be considered for approval by the jurisdictional agencies in which these off-site improvements are located; and 5) if approved, the off-site improvements would be constructed and maintained by those applicable agencies.

8.1.3 Description of Proposed Off-Site Bicycle Facility Improvements

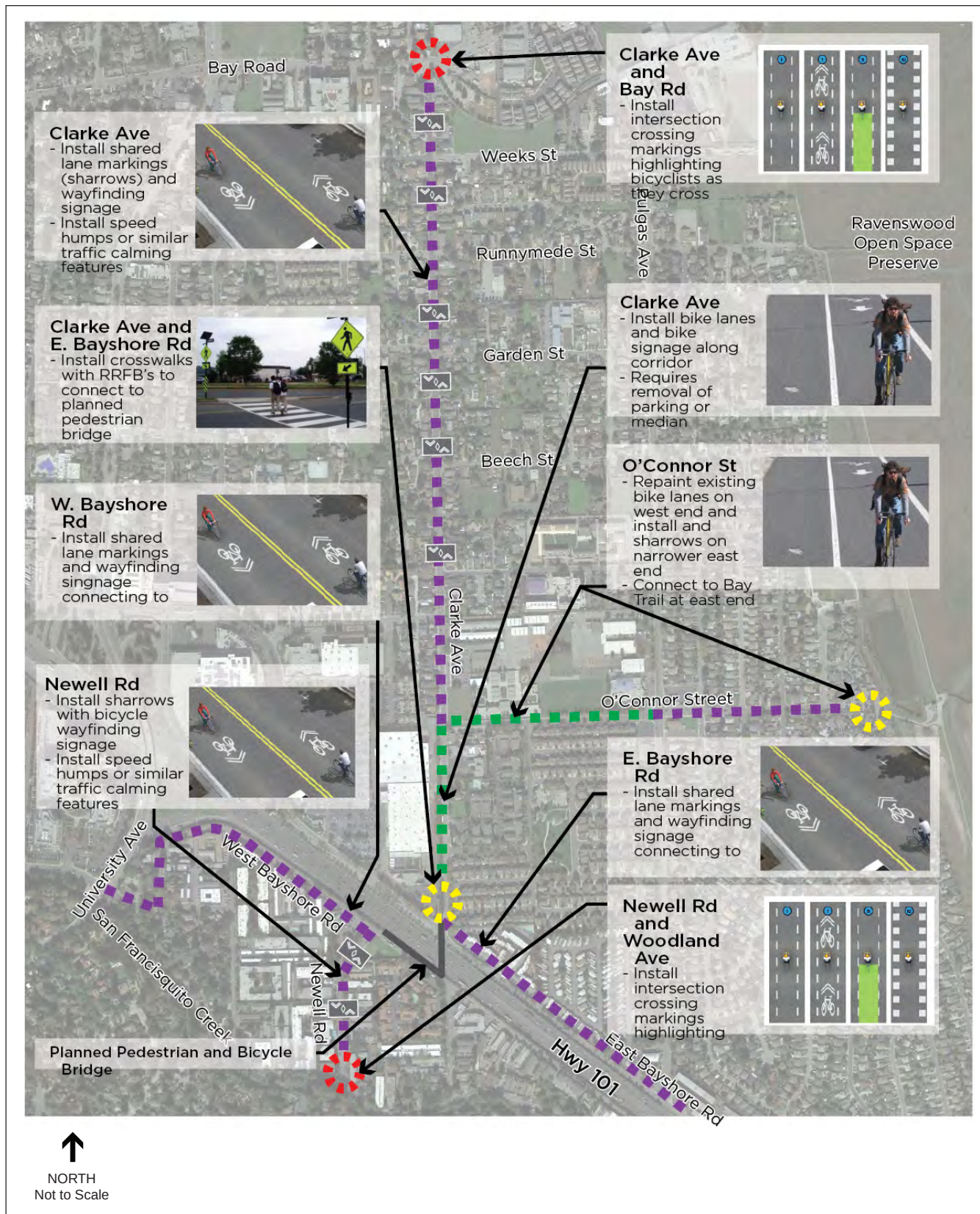
Stanford proposes funding toward off-site bicycle infrastructure improvements in the cities of East Palo Alto, Palo Alto, Menlo Park and unincorporated San Mateo County that would serve these communities and provide new connections to the Stanford campus.

The proposed off-site bicycle improvements would address gaps in the bike networks between existing or proposed infrastructure projects. Access to local destinations through connected bicycle facilities, such as shared-use paths, buffered bicycle lanes, bike boulevards, and intersection treatments, would serve to increase bicycle use as a mobility choice. Stanford consulted with transportation staff in August 2017 from each of these jurisdictions to receive their preliminary input and recommendations related to these off-site improvements (Alta, 2017). It is expected that these off-site improvements would be subject to further refinement and environmental evaluation by the applicable jurisdictional agencies as part of their design, review, and approval processes for these projects.

Proposed Off-site Bicycle Improvements - East Palo Alto: Clarke Avenue-Newell Road Connections

Stanford would fund the design and implementation of improved connections to the planned bicycle and pedestrian overcrossing of US 101 in East Palo Alto between Clarke Avenue and Newell Road. The Clarke-Newell bicycle and pedestrian overcrossing is currently approved, with construction anticipated to being in fall 2017. While this overcrossing would remove a key barrier to bicycle travel and provide a critical link in the bicycle network, gaps would remain in the bicycle network on the local roadways connecting to the new bridge. Stanford proposes to fund improvements to support bicycle travel on both sides of the new overcrossing. The improvements would include, subject to local agency approval, the following (see **Figure 8-1**):

- A bike boulevard on Clarke Avenue between Bay Road and O'Connor Street, including speed humps, chicanes, or other similar traffic calming treatments;
- Bike lanes on Clarke Avenue between O'Connor Street and the landing of the US 101 bicycle/pedestrian bridge;
- Bike lanes and sharrows along O'Connor Street from Clarke Avenue to the San Francisco Bay Trail;
- Intersection improvements at Clarke Avenue and Bay Street, including markings indicating locations for bicyclists in the intersection;



SOURCE: Alta Planning and Design

Stanford 2018 General Use Permit . 160531

Figure 8-1
Identified Off-site Bicycle Improvements - East Palo Alto:
Clarke Avenue-Newell Road Connections to Bicycle/Pedestrian Overcrossing

- Flashing beacon or similar improvement at the landing of the US 101 bicycle/pedestrian bridge;
- A Class III bike route on Newell Road from West Bayshore Avenue to the San Francisquito Creek Bridge at Woodland Drive, including road markings (sharrows) and signage;
- Intersection improvements at Newell Road and Woodland Avenue, connecting bicyclists to the bridge of San Francisquito Creek;
- A Class III bike route on West Bayshore Road, Capitol Avenue, and Scofield Road to University Avenue, providing connections to bike lanes on University Avenue in Palo Alto; and
- A Class III connection along East Bayshore Road from Clarke Avenue to Pulgas Avenue, providing a secondary connection for bicyclists accessing the overcrossing.

Stanford would contribute \$450,000 in funding toward the design and implementation of bicycle connections to the bridge, which is the full estimated cost of these improvements.

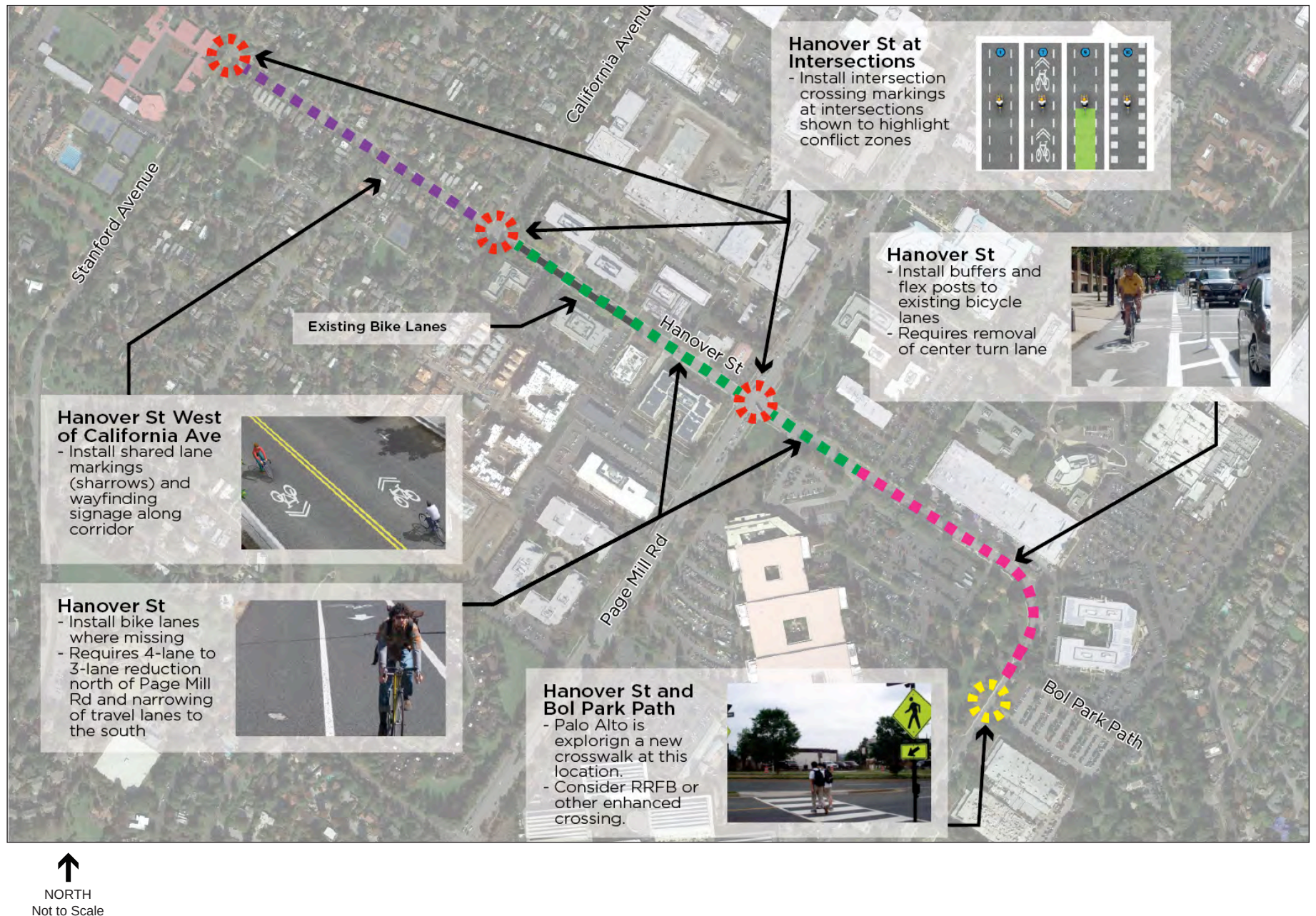
Proposed Off-site Bicycle Improvements - Palo Alto: Hanover Street/ Bol Park

Stanford would fund bicycle infrastructure improvements in Palo Alto to connect existing bicycle facilities at Bol Park and the Stanford Perimeter Trail. The improvements would be installed along Hanover Street, which would provide a continuous route through southern Palo Alto neighborhoods and the Stanford Research Park to the Stanford campus.

The Bol Park Path is a heavily used bicycling and walking route that serves travelers to Escondido Elementary School, Terman Middle School, Gunn High School, the Stanford Research Park, and the Stanford campus. However, after exiting the path on Hanover Street, there is a non-ideal connection through the Stanford Research Park to reach Escondido Elementary School and the Stanford campus, and a crossing of Page Mill Road.

Stanford would fund improvements on Hanover Street to connect the Bol Park Path with the Stanford Perimeter Trail through either on-street or off-street bicycle facilities. Further, Stanford would fund improved lighting and landscaping of Bol Park, which would facilitate the multi-use path in the commute hours during the shorter daylight hours. The improvements would include, subject to local agency approval, the following (see **Figure 8-2**):

- Bike lanes along Hanover Street, continuous from the Bol Park Path to the Page Mill Road intersection, potentially requiring removal of the center turn lane;
- Continuation of bike lanes through the Page Mill Road intersection using intersection treatments like green paint or similar;
- Continuous buffered bike lanes on Hanover Street from Page Mill Road to California Avenue, potentially removing one northbound traffic lane;
- Crossing improvements at California Avenue, indicating continuation of bicycle route along Hanover Street through the existing diverter; and
- Signage and sharrows along Hanover Street from California Avenue to Stanford Avenue.



SOURCE: Alta Planning and Design

Stanford 2018 General Use Permit . 160531

Figure 8-2
Identified Off-site Bicycle Improvements - Palo Alto:
Hanover Street Connection from Bol Park Path to Stanford

These improvements would support Santa Clara County Roads and Airports and the City of Palo Alto's efforts to make improvements to the intersection of Page Mill Road and Hanover Street, and may need to be adapted to accommodate final design of the intersection.

Stanford would contribute up to \$250,000 in funding towards the design and implementation of bicycle improvements in this corridor, which is the full estimated cost of these improvements.

Proposed Off-site Bicycle Improvements – Menlo Park: Oak Grove Avenue Connection

The City of Menlo Park is constructing buffered bike lanes and bike boulevards on Oak Grove Avenue, University Drive, and Crane Street as a pilot bicycle improvement. Stanford would fund an extension of the City of Menlo Park's project along Middle Avenue and San Mateo Drive to Sand Hill Road connections to create a bicycle commute route to the Stanford hospitals, shopping center and the campus.

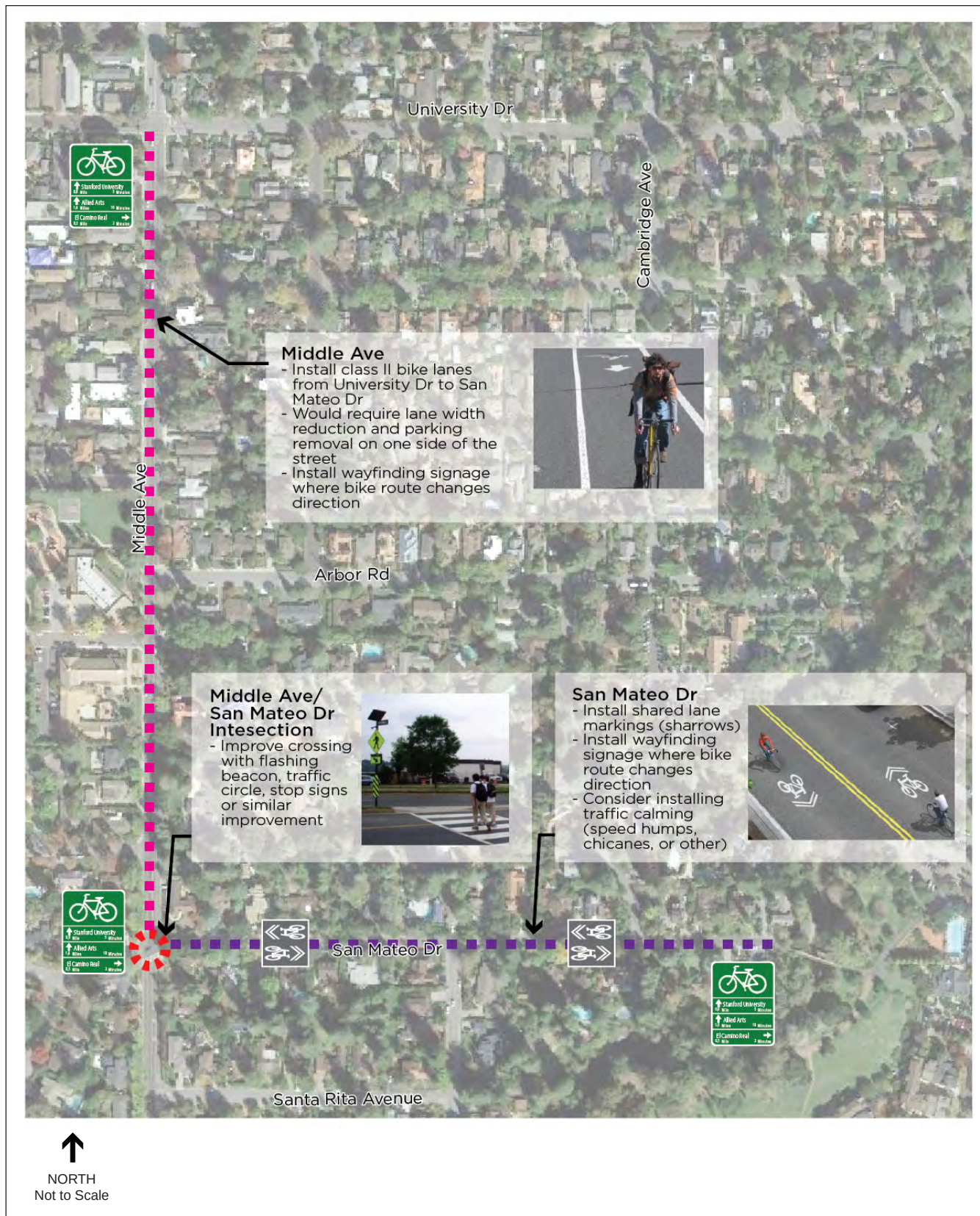
On the western side of Menlo Park (west of El Camino Real), there is an existing bike/pedestrian bridge over San Francisquito Creek from San Mateo Drive in Menlo Park to Durand Way in Palo Alto, but limited bicycle routes or wayfinding to the Stanford campus. The City of Menlo Park's Oak Grove University Crane Bicycle Improvement Project installed a bicycle facility that connects key destinations in the city including schools, the downtown and residential neighborhoods. The City's project includes buffered bike lanes on each side of the street on Oak Grove Avenue and University Drive, with a connecting bicycle route marked with sharrows on Crane Street, Santa Cruz Avenue, and Live Oak Avenue. While this City's project will improve connections within Menlo Park, it will not extend to the Stanford campus.

Stanford would fund additions to the City's bicycle improvement project to extend those improvements to the Stanford campus. The improvements would include, subject to local agency approval, the following (see **Figure 8-3**):

- Adding bike lanes on Middle Avenue from University Drive to San Mateo Drive;
- Adding Class III Bicycle boulevard improvements on San Mateo Drive from Middle Avenue to the bridge over San Francisquito Creek, including sharrows and speed humps, chicanes, or other similar traffic calming improvements;
- Improving the intersection of Middle Avenue and San Mateo Drive to include flashing beacons, a mini-roundabout, or other improvements to increase safety for bicyclists using the route; and
- Providing wayfinding along the entire route.

The improvements would connect to the new street connection that will be constructed at Durand Way as part of the Stanford University Medical Center Renewal Project, which will include new bicycle lanes.

Stanford would contribute up to \$250,000 in funding towards the design and implementation of bicycle improvements in this corridor, which is the full estimated cost of these improvements.



SOURCE: Alta Planning and Design

Stanford 2018 General Use Permit . 160531

Figure 8-3
Identified Off-site Bicycle Improvements – Menlo Park:
Connection to Oak Grove Avenue

Proposed Off-site Bicycle Improvements – Unincorporated San Mateo County: Santa Cruz Avenue – Alameda de Las Pulgas

Stanford would fund improvements identified in a study that San Mateo County recently has undertaken. In its Santa Cruz Avenue/Alameda de las Pulgas Corridor Improvement Study, San Mateo County is evaluating possible roadway configuration alternatives along Santa Cruz Avenue from Sand Hill Road to Alameda de las Pulgas and along Alameda de las Pulgas between Santa Cruz Avenue and Sharon Road, to determine what safety and connectivity improvements could be achieved for bicycles, pedestrians, and vehicles. The study is led by the County of San Mateo Public Works Department in collaboration with the City of Menlo Park. The County is currently conducting the technical analysis to identify feasible solutions on the corridor. As part of a short-term solution, the County recently installed sharrows.

There is a substantial gap in bike lanes in San Mateo County along Alameda de las Pulgas and Santa Cruz Avenue. Traffic volumes and high speeds create safety issues for cyclists.

Stanford would fund implementation of the County's identified solution to enhance mobility and safety. These improvements would help fill a gap in the network for bicyclists traveling from Menlo Park, Atherton, Woodside, and unincorporated San Mateo County. The improvements would include, subject to local agency approval, the following (see **Figure 8-4**):

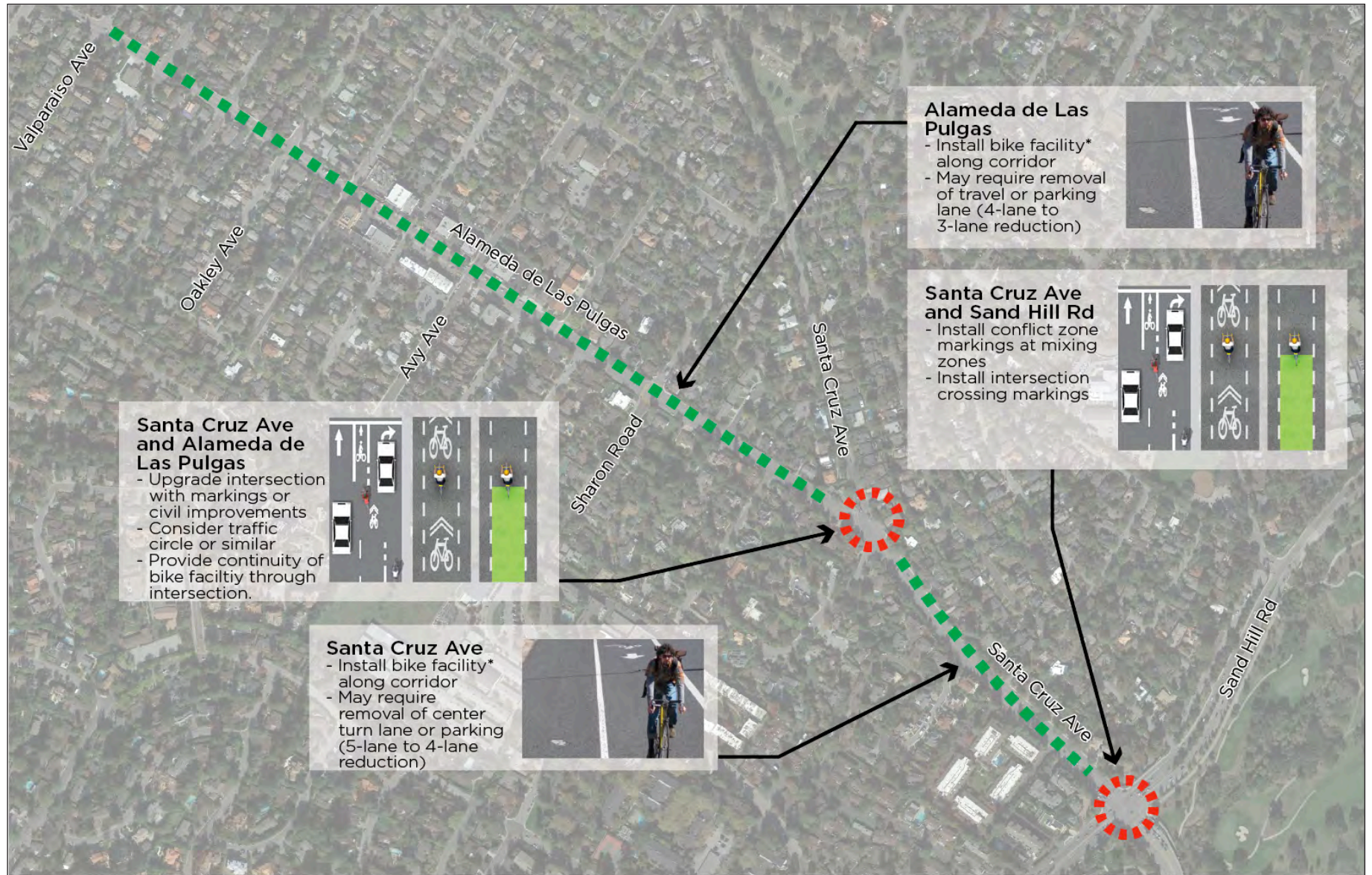
- A bike facility on Alameda de las Pulgas from Valparaiso Avenue to Santa Cruz Avenue, which may require removal of either a travel lane (4-lane to 3-lane road diet) or parking or some combination of each;
- An improved crossing on the east side of Santa Cruz Avenue and Alameda de Las Pulgas;
- A bike facility on Santa Cruz Avenue from Alameda de las Pulgas to Sand Hill Road, which may require removing the center turn lane or parking or combination of both (e.g., retain turn lanes at street intersections or major driveways and remove parking); and
- Potential crossing improvements, such as two-stage turn boxes or other similar improvements, at Sand Hill Road.

These improvements would be refined in Santa Cruz Avenue/Alameda de las Pulgas Corridor Improvement Study, but given traffic volumes and speeds, maximizing separation for bicyclists or reducing automobile speeds may be needed to achieve an adequate bicycle facility.

Stanford would contribute \$250,000 in funding towards the implementation of bicycle improvements in this corridor, which is the full estimated cost of these improvements.

8.1.4 Environmental Considerations

As discussed above, the proposed off-site bicycle facility improvements are intended to reduce the potential for local vehicle congestion effects by encouraging use of alternative modes of transportation, thereby reducing Stanford commuter and other local vehicular trips that contribute to local congestion. However, it is expected the construction of these off-site improvements would result in short-term construction-related environmental effects. The implementation of



SOURCE: Alta Planning and Design

Stanford 2018 General Use Permit . 160531

Figure 8-4

Identified Off-site Bicycle Improvements – Unincorporated San Mateo County:
Alameda de Las Pulgas / Santa Cruz Avenue Gap Closure

these off-site improvements would also have other potential for long-term environmental consequences, including localized changes in vehicular flow, circulation and access to adjacent land uses associated with the addition of bike lanes and removal of vehicular travel lanes; removal of on-street parking; potential incremental changes in roadside noise levels experienced at adjacent land uses from realigned vehicular travel lanes, and effects on visual resources.

All of these proposed funded improvements projects would be required to comply with CEQA prior to consideration of approval by the jurisdictional agencies in which these off-site improvements are located.

8.2 References

Alta Planning + Design, Fehr and Peers, *Bicycle Improvement Project Meetings*, August 14, 2017.

CHAPTER 9

Report Preparers

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APPENDIX NOP

Notice of Preparation



**NOTICE OF PREPARATION OF AN
ENVIRONMENTAL IMPACT REPORT
FOR THE
STANFORD UNIVERSITY "2018 GENERAL USE PERMIT"**

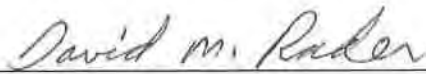
Project Applicant: Stanford University
File Number: 7165-16P-16GP-16Z-16EIR
Application For: Major Modification to Stanford University's General Use Permit, Community Plan Amendment, Zoning Amendment

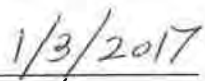
As the Lead Agency, the County of Santa Clara will prepare an Environmental Impact Report (EIR) for the proposed project and would like your views regarding the scope and content of the environmental information to be included in the EIR. On November 21, 2016, Stanford University submitted an application to the County to update its General Use Permit (hereafter collectively referred to as the "2018 General Use Permit"), amend the Stanford Community Plan, and amend zoning designations for some parcels to conform to existing conditions on the ground. A brief description of the proposed project, its site boundary, and a summary of the potential environmental effects are attached. The EIR may be used by your agency when considering approvals for the project. The County will make the ultimate determination regarding what level and type of development is approved under the project and what conditions of approval and mitigation measures and/or project alternatives may be imposed.

A Public Scoping/Community Meeting to solicit comments for the Notice of Preparation will be held at the Palo Alto Arts Center auditorium located at 1313 Newell Road, Palo Alto, on Wednesday, February 8th, 2017, from 6:00 p.m. and 8:00 p.m. The deadline for your response is February 17th. However, an earlier response, if possible, would be appreciated. Please send your response to:

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

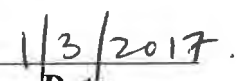
Prepared by:
David Rader, Senior Planner


Signature


Date

Approved by:
Manira Sandhir,
Principal Planner, AICP


Signature


Date

Introduction

The purpose of an Environmental Impact Report (EIR) is to inform decision-makers and the general public of the environmental effects of a proposed project that an agency may implement or approve. The EIR process is intended to provide information sufficient to (a) evaluate a proposed project and its potential for significant impacts on the environment, (b) to examine methods of reducing adverse impacts; and (c) to consider alternatives to the project.

The EIR for the proposed project will be prepared and processed in accordance with the California Environmental Quality Act (CEQA) of 1970, as amended. In accordance with the requirements of CEQA, the EIR for the Stanford University 2018 General Use Permit and related approvals will include the following:

- A summary of the project;
- A project description;
- A description of the existing environmental setting, potential environmental impacts, and mitigation measures;
- A cumulative impact discussion;
- Alternatives to the proposed project; and
- CEQA required environmental consequences, including (a) any significant environmental effects which cannot be avoided if the project is implemented; (b) any significant irreversible and irretrievable commitment of resources; (c) the growth inducing impacts of the proposed project; and (d) effects found not to be significant.

Project Location

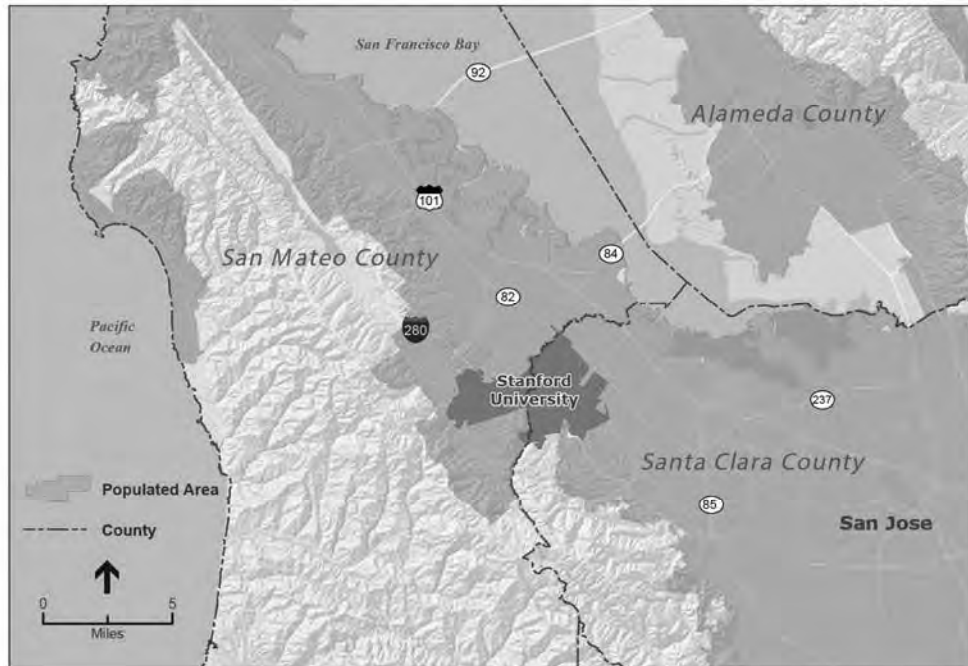
Stanford University (Stanford) is located on the San Francisco Peninsula, approximately 35 miles southeast of San Francisco, and 20 miles northwest of San Jose (see **Figure 1**). Stanford owns approximately 8,180 contiguous acres across six governmental jurisdictions, including unincorporated areas of Santa Clara County and San Mateo County, and the cities of Palo Alto, Menlo Park, Portola Valley and Woodside (see **Figure 2**).

The proposed 2018 General Use Permit would apply only to the 4,017 acres of Stanford lands that are located within unincorporated Santa Clara County, and thus, subject to the land use jurisdiction and regulatory authority of the County of Santa Clara (see **Figure 3**). As shown in Figure 3, the project area is generally located southeast of Sand Hill Road, southwest of El Camino Real, northwest of Stanford Avenue and Page Mill Road, north of Arastradero Road, and east of Alpine Road. Stanford's core campus area, including academic and academic support facilities and housing, is concentrated north of Junipero Serra Boulevard and located within Stanford's Academic Growth Boundary. The largely undeveloped Stanford lands within the foothills south of Junipero Serra Boulevard are located outside of Stanford's Academic Growth Boundary.

Project Description

Background

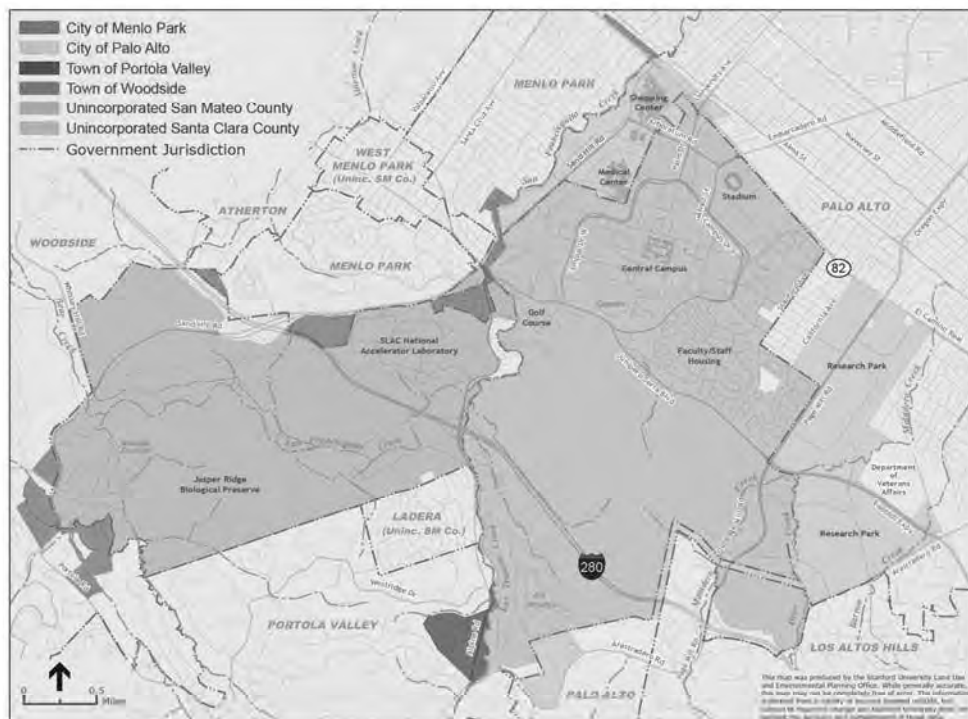
The County of Santa Clara regulates land uses on the Stanford lands within its jurisdiction through several mechanisms, including the General Use Permit adopted in 2000 (hereafter referred to as the 2000 General Use Permit), the Stanford Community Plan (adopted in 2000 as part of the Santa Clara County General Plan), the County Zoning Code, and the 1985 Land Use Policy Agreement between the County of Santa Clara, City of Palo Alto and Stanford University.



SOURCE: Stanford LBRE LUEP, ESA

Stanford 2018 General Use Permit . 160531

Figure 1
 Regional Map



SOURCE: Stanford LBRE LUEP, ESA

Stanford 2018 General Use Permit . 160531

Figure 2
 Stanford University Lands



Stanford 2018 General Use Permit . 160531
SOURCE: Stanford LBRE LUEP; ESA
Figure 3
Stanford University Land Subject to
Proposed 2018 General Use Permit

The Stanford Community Plan serves as the General Plan for the campus and maps the goals, strategies, and policies for Stanford lands in unincorporated Santa Clara County. It is guided by six core principles:

- compact urban development;
- academic growth boundary for minimum of 25 years;
- conservation of natural resources;
- housing concurrent with academic development;
- flexibility and accountability; and
- goal of no net new commute trips.

The General Use Permit is the implementation document that permits additional academic facilities and housing units, and establishes conditions of approval, consistent with the goals, strategies, and policies of the Community Plan.

The 2000 General Use Permit as amended allowed the construction of 2,035,000 net new square feet¹ of new academic and academic support uses, 3,018 net new housing units/beds for students, faculty and staff, 2,300 net new parking spaces, and associated infrastructure. In May 2016, the County authorized an additional 1,450 housing units to be constructed under the 2000 General Use Permit (for a total of 4,468 housing units/beds authorized under the 2000 General Use Permit). Stanford estimates that approximately 1.4 million net square feet of the academic and academic support uses, and all of the housing, allowed in the 2000 General Use Permit has been built or approved; and that all remaining authorized development under the 2000 General Use Permit will be exhausted between 2018 and 2020.

Proposed 2018 General Use Permit

On November 21, 2016, Stanford submitted an application to the County to update its General Use Permit (hereafter referred to as the 2018 General Use Permit). The 2018 General Use Permit application, as well as relevant plans, reports and other documents, are located on the County's website at:

<https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/Stanford.aspx>

The proposed 2018 General Use Permit would authorize an increment of campus growth and land use development, anticipated to take place over a period that would extend from approximately 2018 through 2035. The requested amount of growth corresponds to the 2035 Moderate Growth Scenario included in Stanford's Sustainable Development Study, approved by the County in 2009. **Table 1** presents a summary of existing authorized development and parking at Stanford, and additional development and parking proposed under the 2018 General Use Permit.

TABLE 1: Summary of Existing Authorized Development and Parking at Stanford University, and Additional Development and Parking Proposed Under the 2018 General Use Permit

Development	Academic and Academic Support Space (Net Square Feet)	Housing (Units/Bed)	Parking
Authorized Prior to 2000 General Use Permit	8,220,000	9,832	19,351
Authorized Under 2000 General Use Permit	2,035,000	4,468 ^a	2,300
Additional Proposed under 2018 General Use Permit	2,275,000	3,150	0 ^b
Total	12,530,000	17,450	21,651
^a Revised as of May 2016.			
^b See, however, proposed 2000-space parking reserve discussed under Proposed Parking, below.			
Source: Stanford LRBE LUEP, 2016			

Proposed Development

Similar to the 2000 General Use Permit, the proposed 2018 General Use Permit would apply to all land uses within unincorporated Santa Clara County that would require a conditional use permit, Architecture and Site Approval (ASA), or Planning Commission approval under the County Zoning Code. The 2018 General Use Permit would not apply to uses on Stanford lands that are permitted by right under the County Zoning Code.

Under the 2018 General Use Permit, Stanford proposes new academic and academic support space, and housing subject to the following development limits:

- 2,275,000 net new square feet of net new academic and academic support facilities; and
- 3,150 net new housing units/beds, of which up to 550 units would be available for faculty, staff, postdoctoral scholars, and medical residents.

¹ Refers to gross square footage pursuant to Government Code Section 65995-65998.

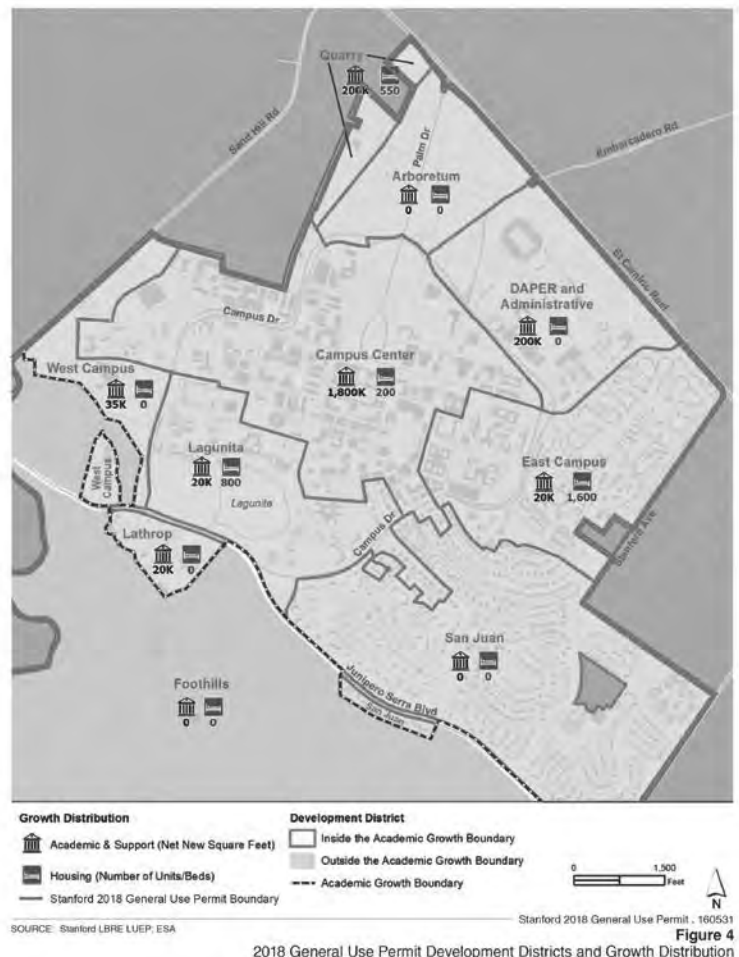
The proposed academic and academic support space and housing units would be constructed on vacant land, infill sites and redevelopment sites within the Academic Growth Boundary (see Figure 3). No site-specific projects and locations have been identified for development under the 2018 General Use Permit. Each individual building or project that would be developed under the 2018 General Use Permit would require submittal of an application to the County at the time proposed, and may be subject to additional review prior to consideration of approval by the County.

Stanford proposes that any remaining unbuilt academic and academic support space square footage that was authorized by the 2000 General Use Permit would be carried over to the 2018 General Use Permit in the event that Stanford does not receive approval for construction of all the remaining square footage by the time the 2018 General Use Permit takes effect.

In the 2000 General Use Permit Stanford identified development districts to estimate the distribution of development within the campus. **Figure 4** presents the proposed distribution of academic and academic support space and housing that is proposed to occur under the 2018 General Use Permit, by development district. Stanford proposes modifications to the district boundaries to better comport to existing zoning boundaries and conditions on the ground. In addition, Stanford proposes minor amendments to Community Plan and zoning designations on some parcels to conform to existing conditions on the ground.

Housing Linkage

As with the 2000 General Use Permit, under the proposed 2018 General Use Permit the development of academic and academic support space would be linked to the development of housing units. **Table 2** presents the proposed housing linkage under the 2018 General Use Permit, and proposed interim milestones for development.² Interim milestones would be required to be met for each increment of 500,000 square feet of academic and academic support space to ensure proposed housing keeps pace with academic and academic support facility growth. Similar to the 2000 General Use Permit Condition F.7, under the 2018 General Use Permit, Stanford seeks a condition that would allow it to build additional housing beyond the proposed development limit of 3,150 housing units/beds, subject to additional environmental review and approval by the Planning Commission.



² As shown in Table 2, under the proposed project, Stanford would use the same housing linkage ratio as was identified in Condition F.8 in the 2000 General Use Permit.

TABLE 2: 2018 General Use Permit Housing Linkage

Academic and Academic Support Space (Net New Square Feet)	Housing Units/Beds at 1/826 (Net New Square Feet)	Cumulative # of Housing Units/Beds
0 – 0.5 M	605	605
0.5 – 1.0 M	605	1,210
1.0 – 1.5 M	605	1,815
1.5 – 2.0 M	605	2,240
2.0 - 2.275 M	333	2,753
Note: This table represents the minimum housing required per the housing linkage ratio. However, the 2018 General Use Permit proposes a greater number of housing units/beds (3,150) than that required by the housing linkage ratio. Source: Stanford LRBE LUEP, 2016		

Stanford has proposed that certain specific types of development not be counted towards the proposed development limits. This exempted development would include 40,000 net new square feet of child care and community center space. Stanford also proposes to continue to be allowed to utilize up to 50,000 net new square feet of construction surge space that was authorized in the 2000 General Use Permit. Surge space is used to temporarily house uses that may be displaced during a construction project.

As proposed, the 2018 General Use Permit would also accommodate construction of campus infrastructure improvements to support development proposed under the 2018 General Use Permit, including, but not limited to, utilities and circulation improvements.

Proposed Parking

Under the 2018 General Use Permit the authorized amount of parking would be unchanged from the limits established by the 2000 General Use Permit. Stanford proposes to exempt certain types of parking at the campus from inclusion in its authorized parking limit, including parking associated with trip-reduction programs, electric vehicles, police and fire department use, and high-density faculty and staff housing. In addition, Stanford University proposes that the 2018 General Use Permit include an option to allow Stanford to construct a 2,000-space parking supply reserve, subject to Planning Commission review and approval, if any one of the following conditions apply: 1) Stanford is achieving its No Net New Commute Trip goal; 2) such parking would not result in a substantial increase in peak-hour commute trips; or 3) unforeseen circumstances occur due to changes in background conditions would require provision of additional parking.

County Approvals

Stanford seeks the following approvals from the County:

- Certification of the 2018 General Use Permit EIR;
- Adoption of a new 2018 General Use Permit;
- Approval of amendments to the County Zoning Map (zoning designation changes are proposed for specific parcels within the campus); and
- Approval of amendments to the Stanford Community Plan.

Potential Environmental Effects of the Project

The County will prepare a program level EIR for the proposed 2018 General Use Permit pursuant to CEQA Guidelines Section 15168. It should be noted that project-specific CEQA review may be required for individual buildings or other projects that would be developed pursuant to the proposed 2018 General Use Permit. Prior to consideration of approval, the County would examine each individual development at

the time they are proposed to determine whether the environmental effects of the specific project were disclosed in the 2018 General Use Permit EIR.

The EIR will identify the significant environmental effects anticipated to result from implementation of the proposed 2018 General Use Permit. Specific environmental topics addressed will include:

- **Aesthetics** – The EIR will describe the existing visual and aesthetic conditions of the project site and the study area, and will evaluate the effect of the proposed changes envisioned by the proposed project on scenic views, visual character and quality, and light and glare. Mitigation measures will be identified to reduce any potential significant aesthetic impacts will be identified and analyzed, as appropriate.
- **Air Quality.** The air quality analysis presented in the EIR will discuss current air quality conditions and air-pollutant sensitive land uses or activities in the vicinity of the project area; describe the regulatory context for air pollution in the Bay Area; and assess the potential for the project to conflict with the Clean Air Plan, violate any air quality standards, result in cumulatively considerable increase in criteria pollutants, cause emissions of substantial pollutant concentrations, or create objectionable odors. Stanford University has submitted an Air Quality Technical Report for the proposed project, which will be peer-reviewed and, if appropriate, included in the Air Quality section. As needed, mitigation measures to reduce any potential significant air quality impacts will be identified and analyzed.
- **Biological Resources** – The EIR will present information on applicable biological resources in the project area, including special-status wildlife and plant species, natural communities, and wetlands; describe the regulatory framework for biological resources; and evaluate potential for implementation of the proposed project to impact biological resources and/or conflict with Stanford's Habitat Conservation Plan. As needed, mitigation measures to reduce any potentially significant biological resource impacts will be identified and analyzed.
- **Cultural Resources** –The EIR will present relevant cultural resources information, including data from Stanford's Archaeological Resources Map and other sources; and will assess the potential for the proposed project to cause a substantial adverse change in the significance of historical resources, archaeological and unique paleontological resources, tribal cultural resources, or potential disturbance of human remains. In addition, Stanford University has submitted an Historic Resources Survey for the proposed project, which will be peer-reviewed and, if appropriate, included in the Cultural Resources section. As needed, mitigation measures to reduce any potentially significant impacts to historic and archaeological resources will be identified and analyzed.
- **Energy Conservation** –Consistent with CEQA Guidelines Appendix F, the EIR will evaluate the potential energy impacts of operation, construction, and transportation associated with the proposed 2018 General Use Permit. Stanford has submitted an Energy Technical Analysis for the proposed project, which will be peer-reviewed and, if appropriate, included in the Energy Conservation section. If needed, mitigation measures that would avoid or reduce the wasteful, inefficient, and unnecessary consumption of energy will be identified and analyzed.
- **Geology and Soils** – The EIR will present relevant information on existing soils and geologic conditions at Stanford. The EIR will address the potential for implementation of the proposed 2018 General Use Permit to result in soil erosion or exacerbate conditions related to unstable soils or slopes. If needed, mitigation measures to reduce any potential significant impacts related to geology and soils will be analyzed and described.
- **Greenhouse Gas Emissions** – The EIR will report greenhouse gas (GHG) emissions associated with implementation of the proposed 2018 General Use Permit, and will assess any conflict with applicable policies or regulations adopted for the purpose of reducing emissions of GHGs. As needed, relevant

policies and features that may serve to minimize GHG emissions will be identified. Stanford University has submitted a GHG Emissions Technical Report for the proposed 2018 General Use Permit, which will be peer-reviewed and, if appropriate, included in the GHG Emissions section of the EIR. If needed, mitigation measures to reduce any potential significant impacts related to GHG emissions will be identified and analyzed.

- **Hazards and Hazardous Materials** – The EIR will discuss existing conditions as it relates to the potential past releases of hazardous materials within the General Use Permit area, describe existing hazardous materials and waste use, storage, and disposal operations at the campus, and discuss the regulatory requirements governing these operations. The EIR will assess whether implementation of the proposed project would have the potential to emit hazardous emissions, exacerbate hazard conditions through ground disturbance, or interfere with emergency evacuation plans. If needed, mitigation measures to reduce any potential significant impacts related to hazards and hazardous materials will be identified and analyzed.
- **Hydrology and Water Quality** – The EIR will generally describe the hydrology and water quality conditions in and around the General Use Permit area, and describe the applicable regulatory agencies and regulations governing water resources at the campus. The EIR will address the potential for implementation of the proposed project to substantially degrade water quality or violate water quality standards, deplete groundwater supplies or substantially interfere with groundwater recharge, substantially increase surface runoff or erosion, or exacerbate flooding hazards from new development. Stanford has prepared a draft Water Supply Assessment for the proposed 2018 General Use Permit, which will be peer-reviewed and, if appropriate, included in the Hydrology and Water Quality section of the EIR. If needed, mitigation measures to reduce any potential significant impacts related to hydrology and water quality will be identified and analyzed.
- **Land Use** – The EIR will describe existing land uses and development trends within the project area; discuss potential inconsistencies of the proposed 2018 General Use Permit with relevant County and other applicable planning documents; analyze potential programmatic land use changes that could occur, and evaluate the compatibility with neighboring land uses. If needed, mitigation measures to reduce any potential significant impacts related to land use will be identified and analyzed.
- **Noise and Vibration.** The EIR will describe the existing ambient noise environment in and around the General Use Permit area; identify applicable noise guidelines and regulations; assess the noise compatibility of the proposed project with existing land uses, and assess construction and operational noise and vibration impacts on existing and proposed future land uses. If needed, mitigation measures to reduce any potential significant impacts related to noise and vibration will be identified and analyzed.
- **Population and Housing** – The EIR will describe the magnitude of potential changes in population and housing associated with the proposed 2018 General Use Permit. The EIR will describe whether the housing demand associated with increased campus population under the proposed project would be met by the existing or future housing supply. The EIR will evaluate if implementation of the proposed project would displace housing and population, from both the Stanford campus and, indirectly, from nearby areas. If needed, mitigation measures to reduce any potential significant impacts related to population and housing will be identified and analyzed.
- **Public Services** – The EIR will describe local police and fire services, as well as primary and secondary schools in districts serving the General Use Permit area and surrounding communities; and assess whether implementation of the proposed 2018 General Use Permit would require the construction of new or expanded public facilities that would result in substantial adverse physical impacts. If needed,

mitigation measures to reduce any potential significant impacts related to public services will be described.

- **Recreation** –The EIR will describe the environmental setting for parks and recreation; discuss the potential for the anticipated population increases and proposed 2018 General Use Permit development to result in a corresponding increases in the use of non-Stanford recreational facilities such that substantial impacts could occur; and assess whether the construction of any proposed recreational facilities would have a significant effect on the environment. Stanford University has submitted a Parks and Recreation Facilities Analysis for the proposed project, which will be peer reviewed and, if appropriate, included in the EIR Recreation section. If needed, mitigation measures to reduce any potential significant impacts related to recreation will be identified and analyzed.
- **Transportation & Circulation** –The EIR will describe existing multi-modal transportation and circulation conditions at study intersections, on freeways, and transit facilities, as well as transit service and bicycle/pedestrian facilities; describe Stanford’s current and proposed transportation demand management programs; present forecasted future conditions using the VTA/CCAG travel demand model; estimate trip generation, trip distribution and vehicle miles traveled associated with the 2018 General Use Permit; and analyze near-term and cumulative transportation conditions with and without the proposed 2018 General Use Permit. Stanford University is submitting a Traffic Impact Study for the proposed 2018 General Use Permit, which will be peer reviewed and, if appropriate, included in the EIR Transportation & Circulation section of the EIR. If needed, mitigation measures to reduce any potential significant impacts related to transportation and circulation will be identified and analyzed.
- **Utilities and Services Systems** –The EIR will describe existing utilities and service systems, including water, wastewater and solid waste services that serve Stanford, calculate increased demand for water and generation of wastewater and solid waste under the proposed 2018 General Use Permit; and assess whether implementation the proposed project would require new or expanded public utilities, the construction or operation of which would have a substantial adverse impact on the environment. The EIR will also consider whether the proposed project would comply with applicable regulations related to solid waste. The evaluation of water demand will be based on a draft Water Supply Assessment prepared by Stanford for the proposed 2018 General Use Permit, and peer reviewed and ultimately approved by the County. The EIR will evaluate if there are sufficient water supplies available to serve the project from existing entitlements and resources. If needed, mitigation measures to reduce any potential significant impacts related to utilities and service systems will be identified and analyzed.
- **Cumulative Impacts.** The EIR will evaluate, issue by issue, the potential for the proposed project, when combined with other development identified in the cumulative setting, to either result in new, or contribute to existing, cumulatively considerable adverse effects on the environment.
- **Alternatives.** CEQA requires that an EIR describe a range of reasonable alternatives to a project (or project location) that feasibly attain most of the objectives, but could avoid or reduce at least one environmental impact (see CEQA Guidelines Section 15126.6).
- **Growth Inducement.** This section will qualitatively evaluate the project’s potential to induce growth and any subsequent environmental impacts that would occur (pursuant to CEQA Guidelines Section 15126[d]).

APPENDIX SCO

Responses to Notice of Preparation

Written Responses to Notice of Preparation

PUBLIC UTILITIES COMMISSION

320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013



January 17, 2017

David Rader
Santa Clara County
70 W. Hedding Street, 7th Floor, East Wing
San Jose, CA 95112

Dear David:

Re: SCH 2017012022 Santa Clara County Stanford University 2018 General Use Permit - NOP

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings in California. The Commission's Rail Crossings and Engineering Branch (RCEB) has received the *Notice of Preparation (NOP)* from the State Clearinghouse for the proposed Stanford University 2018 General Use Permit. The Santa Clara County (County) is the lead agency.

According to the NOP, the project area includes active railroad tracks. RCEB recommends that the County add safety language to the Stanford University 2018 General Use Permit so that any future development adjacent to or near the rail right-of-way (ROW) is planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade crossings. This includes considering pedestrian circulation patterns or destinations with respect to railroad ROW and compliance with the Americans with Disabilities Act. Mitigation measures to consider include the planning for grade separations for major thoroughfares, improvements to existing at-grade crossings due to increase in traffic volumes, and continuous vandal resistant fencing or other appropriate barriers to prevent trespassers onto the railroad ROW.

If you have any questions in this matter, please contact me at (213) 576-7076, ykc@cpuc.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Chiang".

Ken Chiang, P.E.
Utilities Engineer
Rail Crossings and Engineering Branch
Safety and Enforcement Division

C: State Clearinghouse



City of East Palo Alto

Office of the City Manager

February 17, 2017

County of Santa Clara Planning Office
Attention: David Rader
County Government Center
70 West Hedding St., 7th Floor East Wing
San Jose, CA 95110
david.rader@pln.sccgov.org

RE: Notice of Preparation of the Environmental Impact Report for the Stanford University 2018 General Use Permit.

Dear Mr. Rader:

Thank you for the opportunity to review and comment on the NOP for the Stanford University 2018 General Use Permit (project). The City of East Palo Alto appreciates its working relationship with Stanford University regarding this and other projects that impact both the City and the University.

Traffic

First, East Palo Alto is a city that is severely impacted by regional cut through traffic. The RBD/4 Corners TOD Specific Plan Alternatives Analysis Memo identified 84% of the traffic on University Avenue as “cut through traffic” that neither originates nor ends in East Palo Alto. This cut through traffic leads to significant delays on local streets throughout East Palo Alto as people drive through East Palo Alto neighborhoods to access the Dumbarton Bridge.

The type and intensity of development envisioned in the project is likely to attract employees from both the East Bay and cities along the U.S. Highway 101 corridor. This commuter pattern is exacerbated by the lack of housing developed in Silicon Valley. To adequately analyze the potential impact of the Project, please add the following intersections to the Transportation Impact Analysis (TIA).

1. University Avenue and State Highway 84/Bayfront Expressway
2. University Avenue and Adams Drive
3. University Avenue and O'Brien Drive
4. University Avenue and Kavanaugh Drive
5. University Avenue and Purdue Avenue
6. University Avenue and Bay Road
7. Newbridge Street and Willow Road
8. University Avenue and Runnymede Street
9. University Avenue and Bell Street

10. East Bayshore Road and Holland Street
11. Saratoga Avenue and Newbridge Street
12. University Avenue and Donohoe Street
13. University Avenue/Hwy 101 NB on-off ramp.
14. University Avenue/Hwy 101 SB on-off ramp.
15. University Avenue and Woodland Avenue.

The City of East Palo Alto just updated its General Plan. Please be sure to reach out to us to ensure that the proper background traffic is added to the regional model. The DEIR should also include a robust discussion of bicycle and pedestrian facilities necessary to provide options other than single occupancy vehicle.

Land Use Designations

The land uses need better definition to be analyzed. The project description includes “housing (units/beds)” but there is no clear definition about how many are beds in a dormitory type setting and how many are in separate, discrete housing units. This is critical as it relates to the impact on the jobs housing imbalance and the traffic impacts for each use. Combining “Housing Units/Bed” is confusing and blurs the distinction, in particular when they are mutually inclusive. There needs to be a clear definition between what are new housing units and what are new dormitory style beds.

Table 1 of the NOP references “Academic and Academic Support Space,” however this term is neither included in the Land Uses (Table 1) nor the Zoning (Table 2) of the Project Description Chapter of the Application. The Plan and the DEIR should clarify exactly what specific land uses are being proposed under the amorphous title of “Academic and Academic Support Space.” The DEIR needs to specify if these uses are administrative office space, student auditoriums, or classrooms. The traffic impact of administrative offices might be significantly different from that of a student auditorium. The same is true of student dormitories versus townhomes that are available to Stanford staff. The DEIR must clearly outline the ITE codes used for each land use designation. If there is an overlay or land use designation that includes multiple potential land uses, in order to provide adequate analysis and disclosure of the impacts, the DEIR must analyze the land use that has the largest impact, in particular as it is related to traffic.

Housing Affordability and Availability

The City of East Palo Alto has significant concerns about the “growth-inducing impacts”¹ of the project, and in particular, how development of the project will impact housing affordability and availability in East Palo Alto.

The housing crisis is a preventable human tragedy that is created by other cities developing more jobs than housing units. East Palo Alto has 0.23 jobs per employed resident, while our surrounding cities have over 2 jobs per employed resident. Cities that have more than 1 job per employed resident push the housing burden onto other cities. Menlo Park and Palo Alto have 1.94 and 3.02 jobs per employed resident, respectively.

¹ CEQA Guidelines § 15126(d) (EIR must analyze growth-inducing impacts).

This jobs-housing imbalance, which would be exacerbated by development levels proposed under both projects, could mean (1) a significant increase in housing demand (indirect impact), and (2) an accompanying increase in new housing construction (direct physical impact) to accommodate that new demand caused by an increase in the number of new employees arising from the Project. The City of East Palo Alto is deeply concerned about these spillover impacts and how they could affect its residents.

The Project might further and severely exacerbate the existing housing crisis, which is caused by cities not developing sufficient housing concomitant with the approval of development projects that increase the demand for such housing.

East Palo Alto is an island of affordable housing surrounded by several of the most expensive housing markets in the nation. The City of East Palo Alto provides a significant amount of the housing stock in Silicon Valley. East Palo Alto has more housing units than jobs, the lowest market rate prices in the region, and approximately 39% of the total housing units in East Palo Alto are affordable rental projects, below market ownership units, or affordable units in the Rent Stabilization Program. Furthermore, East Palo Alto accounts for approximately 3% of the population of San Mateo County, but provides 22% of the emergency shelter homeless beds in San Mateo County.

East Palo Alto has 488 units of multifamily rental housing that were developed using Low Income Housing Tax Credits. That equals 6.2% of the total housing units in the City, which makes East Palo Alto among the cities with the highest percentages of total housing developed with Low Income Housing Tax Credits.



Source: US Census, <http://www.treasurer.ca.gov/ctcac/projects.asp>

East Palo Alto has 0.23 jobs per employed resident – the lowest jobs per employed resident ratio in the core Bay Area (Santa Clara, San Mateo, Alameda, and San Francisco counties). This low job to employed resident ratio in context of ratios in surrounding communities is also a reflection of East Palo Alto housing a lopsided proportion of the Silicon Valley workforce.

The City is concerned that the new development proposed under both projects might exacerbate the existing housing crisis in East Palo Alto by displacing current residents and/or causing the City to have to provide additional units without sufficient resources to adequately address the need.

Please provide an analysis of how the Project will impact the jobs-housing ratio, and analyze or provide information on the impact on housing prices and the potential displacement of East Palo Alto residents. The following information should be provided and analyzed.

- The current jobs-housing ratio and the projected future jobs-housing ratio for both the Project Area and surrounding cities.
- An analysis of the impact the Project will have on housing prices and potentially displacement of the City of East Palo Alto residents.
- An analysis of where it is anticipated that the new employees will live, based on zip code level data from the existing Stanford campus.

The number of each population that is anticipated to be housed on campus should be clearly delineated. To ensure the adequacy of the DEIR and the analysis, the number of employees anticipated to live on campus must be clearly identified, not combined with Post Doctorate residents as is done on Table 3 of the Population Section of the application.

San Francisquito Creek

Applicant (Stanford) shall continue to work with the City of Palo Alto, the San Francisquito Creek JPA, and other jurisdictions to develop a specific plan for the detention of floodwaters on Stanford land that will result in a significant and measurable reduction in floodwaters reaching the floodplain areas within Palo Alto and neighboring jurisdictions. Combined with the improvements downstream within San Francisquito Creek, the detention on Stanford land shall result in containment of flows from the 100-year storm event within the detention site(s) and within the Creek to the extent feasible. The detention plan shall be designed and implemented by Stanford within a specific time line that is relative to the proposed development. In addition, the proposed General Use Plan shall include measures that either mitigate for increase flows and/or create no net increase in storm water runoff to the neighboring downstream communities that are located within the San Francisquito Creek Watershed Area.

Process

East Palo Alto staff had been communicating with Fehr and Peers. If there are conflicts between those conversations and this formal letter, this letter takes precedent. The earlier conversations with Fehr and Peers were not complete because Fehr and Peers did not provide a complete project description and significantly emphasized the residential component of the project but not the 2.2 million square feet of commercial development.

Communication

Finally, please include the following individuals in all notices related to this project and the General Plan Update:

1. Sean Charpentier, Assistant City Manager, City of East Palo Alto, 1960 Tate Street, East Palo Alto, CA 94303; scharpentier@cityofepa.org.
2. Guido Persicone, Planning Manager, East Palo Alto Planning Division, 1960 Tate Street, East Palo Alto, CA 94303; gpersicone@cityofepa.org.
3. Rafael E. Alvarado Jr. ; City Attorney; City of East Palo Alto; 2415 University Avenue, 2nd FL ; East Palo Alto, CA 94303; 650-853-5921; ralvarado@cityofepa.org

Thank you for the opportunity to comment on the Notice of Preparations for the Expansion Project. East Palo Alto looks forward to continuing our collaborative relationship with Stanford University.

For more information or questions regarding this letter, please contact Sean Charpentier, Assistant City Manager, at (650) 853-3150.

Sincerely,



Carlos Martinez
City Manager



March 6, 2017

Mr. David Rader
County of Santa Clara
Department of Planning and Development
County Government Center
70 West Hedding Street, San Jose, CA 95110

RE: Stanford University "2018 General Use Permit", Draft EIR Comments

Dear Mr. Rader,

Please find attached the City of Menlo Park's comments on the Draft Environmental Impact Report (DEIR) for the Stanford University "2018 General Use Permit" Project (File #: 7165-16P-16GP-16Z-16EIR).

The City appreciates the opportunity to comment on the proposed project. Our comments are detailed in the attachment. Please contact us at 650.330.6770 with any questions.

Please note we have submitted comments prior to the deadline listed in the Notice of Preparation, however, the City has requested and was granted an extension to review the letter following a presentation by Stanford scheduled for February 28, 2017. Please consider this the formal comment letter.

The City looks forward to these issues being addressed in the Draft Environmental Impact Report.

Sincerely,

Kirsten Keith, Mayor

1. The City requests that Stanford continue to work with the City of Menlo Park and other jurisdictions to develop a specific proposal for the detention of floodwaters on Stanford land that will result in a significant and measurable reduction in floodwaters reaching the floodplain areas within Menlo Park and neighboring jurisdictions. Combined with the improvements downstream within San Francisquito Creek, the detention on Stanford land shall result in containment of flows from the 100-year storm event within the detention site(s) and within the Creek to the extent feasible. The detention plan shall be designed and implemented by Stanford within a specific time line that is relative to the proposed development.
2. In addition, the City requests that the proposed General Use Permit include measures that either mitigate for increase flows and/or create no net increase in storm water runoff to the neighboring downstream communities that are located within the San Francisquito Creek Watershed Area.
3. As availability of affordable housing continues to be a regional concern, the City requests that the County maximize additional benefits for housing supply for faculty, staff, and students, as well as for workers that may not be employed directly by Stanford, but work within the General Use Permit area. Funds proposed for affordable housing should be made available for use in the City of Menlo Park and nearby jurisdictions of San Mateo County.
4. The City supports Stanford's proposal for the continuation of the No Net New Commute Trips condition of development.
5. Please include an analysis of a 5-mile commute shed around the proposed General Use Permit development area. As noted in the permit application, Stanford owns land throughout the mid-Peninsula, including proposed development sites in Menlo Park and an approved project site in Redwood City. The City is requesting that the Draft EIR assess walking, bicycling, and traffic conditions across Stanford properties located across these multiple jurisdictions.
6. Stanford is requesting continuation of a program to provide trip credit for off-campus transportation infrastructure improvements within the Cordon Credit Area, which includes properties owned by Stanford outside of Santa Clara County, including 500 El Camino Real and 2131 Sand Hill Road. The City requests that any required measures to reduce or mitigate impacts from the Middle Plaza at 500 El Camino Real or 2131 Sand Hill Road projects currently under review are not eligible for credits under the General Use Permit program, since this would result in double-counting the benefits of such measures. Pursuant to comment 4 above, the City also requests the County consider expanding the Cordon Credit Area to encompass the approved Redwood City site.
7. Please describe in the Draft EIR how vehicle trips from the proposed development areas outside the traffic cordon area, including Quarry, Lathrop, and San Juan in particular, will be addressed by the No Net New Commute Trips condition. The City requests the County modify the cordon area to incorporate these zones with additional proposed development.
8. The trip distribution proposed in Stanford's application does not appear to account for the approved Redwood City project site or the proposed residential uses at 500 El Camino Real in

Menlo Park. Please evaluate the additional developments planned at these locations and adjust the trip distributions if necessary.

9. The mitigation funds generated for transportation issues should also be available for use in City of Menlo Park for any transportation related mitigation measures including the Dumbarton Corridor line.



February 17, 2017

Mr. David Rader
County of Santa Clara
Department of Planning and Development
County Government Center
70 West Hedding Street, San Jose, CA 95110

RE: Stanford University “2018 General Use Permit”, Draft EIR Comments

Dear Mr. Rader,

Please find attached the City of Menlo Park’s comments on the Draft Environmental Impact Report (DEIR) for the Stanford University “2018 General Use Permit” Project (File #: 7165-16P-16GP-16Z-16EIR).

The City appreciates the opportunity to comment on the proposed project. Our comments are detailed in the attachment. Please contact us at 650.330.6770 with any questions.

Please note we have submitted these comments prior to the deadline listed in the Notice of Preparation, however, the City has requested that the County consider an extension to allow the Menlo Park City Council to review the letter following a presentation by Stanford scheduled for February 28, 2017. If granted, the City will revise and resubmit a final comment letter by March 2, 2017.

The City looks forward to these issues being addressed in the Draft Environmental Impact Report.

Sincerely,

Nicole H. Nagaya, PE
Assistant Public Works Director

1. The City requests that Stanford continue to work with the City of Menlo Park and other jurisdictions to develop a specific proposal for the detention of floodwaters on Stanford land that will result in a significant and measurable reduction in floodwaters reaching the floodplain areas within Menlo Park and neighboring jurisdictions. Combined with the improvements downstream within San Francisquito Creek, the detention on Stanford land shall result in containment of flows from the 100-year storm event within the detention site(s) and within the Creek to the extent feasible. The detention plan shall be designed and implemented by Stanford within a specific time line that is relative to the proposed development.

In addition, the City requests that the proposed General Use Permit include measures that either mitigate for increase flows and/or create no net increase in storm water runoff to the neighboring downstream communities that are located within the San Francisquito Creek Watershed Area

2. As availability of affordable housing continues to be a regional concern, the City requests that the County maximize additional benefits for housing supply for faculty, staff, and students, as well as for workers that may not be employed directly by Stanford, but work within the General Use Permit area.
3. The City supports Stanford's proposal for the continuation of the No Net New Commute Trips condition of development.
4. Please include an analysis of a 5-mile commute shed around the proposed General Use Permit development area. As noted in the permit application, Stanford owns land throughout the mid-Peninsula, including proposed development sites in Menlo Park and an approved project site in Redwood City. The City is requesting that the Draft EIR assess walking, bicycling, and traffic conditions across Stanford properties located across these multiple jurisdictions.
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6. Please describe in the Draft EIR how vehicle trips from the proposed development areas outside the traffic cordon area, including Quarry, Lathrop, and San Juan in particular, will be addressed by the No Net New Commute Trips condition. The City requests the County modify the cordon area to incorporate these zones with additional proposed development.
7. The trip distribution proposed in Stanford's application does not appear to account for the approved Redwood City project site or the proposed residential uses at 500 El Camino Real in Menlo Park. Please evaluate the additional developments planned at these locations and adjust the trip distributions if necessary.

March 6, 2017

David Rader, Senior Planner
County of Santa Clara
Department of Planning and Development
County Government Center
70 West Hedding Street, San Jose, CA 95110

Re: Notice of Preparation of an Environmental Impact Report for the Stanford University 2018 General Use Permit

Dear Mr. Rader,

On behalf of the Midpeninsula Regional Open Space District (District), we respectfully submit the following comments regarding the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Stanford University 2018 General Use Permit.

The District owns and manages approximately 63,000 acres of open space land on the San Francisco Bay Peninsula. Our mission is:

To acquire and preserve a regional greenbelt of open space land in perpetuity; protect and restore the natural environment; and provide opportunities for ecologically sensitive public enjoyment and education.

District comments focus on Public Services and Recreation, where the proposed development for new academic and academic-support space and housing may result in potential environmental impacts to the community, parks, open space, and recreational facilities.

General Comments

1. The NOP describes the project location as the 4,017 acres of Stanford lands within unincorporated Santa Clara County. Given the District's ongoing mission to acquire and preserve a regional greenbelt, the District supports preserving in perpetuity the largely undeveloped, open space Stanford lands within the foothills south of Junipero Serra Boulevard that are located outside of Stanford's Academic Growth Boundary. **Please include a detailed discussion in the EIR of any proposed changes to the Academic Growth Boundary or zoning designations that would affect Stanford lands currently designated as Special Conservation Areas or Open Space/Field Research.**
2. The NOP mentions proposed modifications to development district boundaries, and minor

amendments to the Community Plan and zoning designations on some parcels to better conform to existing conditions on the ground. **Please include a description in the EIR of the proposed modifications in detail and delineate the proposed amendment areas in map form.**

Recreation

3. **Please include in the EIR the findings of an independent analysis of potential impacts to existing and planned open space and recreational facilities (including trails and bicycle networks) to supplement Stanford's Parks and Recreation Facilities Analysis that was included in the 2018 General Use Permit Application.**
4. **Please include as part of the environmental setting a discussion of planned regional trail connections and other public access improvements** that lie in the vicinity. Please refer to the District's Board-approved 2014 Open Space Vision Plan. A copy of the Open Space Vision Plan can be viewed at: <http://www.openspace.org/our-work/projects/vision-plan>. Within the vicinity of the Stanford University campus, the Bayfront Public Access Partnership, San Francisquito Creek Restoration Partnership, and the Cooley Landing Nature Center Partnership are priority Vision Plan projects that, once completed, will provide recreational amenities to the community.
5. **Please include in the environmental setting a description of the regional recreational trail linkages.** This discussion should address the completed countywide S1 trail and the status of regional trail projects funded by trail mitigation funds in the County Recreation Fund related to the 2000 GUP. In addition, **please include in the EIR an analysis of what the potentially underserved recreational trail needs are for the future residents, employees, students and visitors to the Stanford campus.** The GUP includes 2,275,000 net new square feet of academic and academic-support facilities and 3,150 net new housing units/beds, of which up to 550 units would be available for new faculty, staff, postdoctoral scholars, and medical residents who will be living and working within these new facilities.

We appreciate the opportunity to comment on the NOP and look forward to reviewing the Draft EIR for the Stanford University 2018 General Use Permit. Should you have any questions about this letter, please contact Whitney Berry at wberry@openspace.org or at (650) 691-1200.

Sincerely,



Ana Ruiz, AICP

Assistant General Manager

Midpeninsula Regional Open Space District

City of Palo Alto
Office of the Mayor and City Council

March 7, 2017

County of Santa Clara Planning Office
Attention: David Rader
County Government Center
70 West Hedding, 7th Floor, East Wing
San Jose, CA 95110

Subject: Stanford University's Application for a 2018 General Use Permit

Dear Mr. Rader,

Thank you for the opportunity to comment on the scope of the EIR being prepared to evaluate Stanford University's application for a 2018 General Use Permit (GUP). Members of the Palo Alto community are keenly interested in this project, and the City Council is happy to provide comments to inform preparation of the DEIR and its technical analyses. At the end of this letter, we have also identified a number of shared concerns that we look forward to working on with you as the County considers Stanford's application.

Project Description

We understand that the University has requested approval of 2.275M square feet of academic and academic support space, 3,150 dwelling units or beds (approximately 450 of which would be classified as affordable units), and 40,000 square feet of additional building space for child care and Transportation Demand Management (TDM) program administration. We further understand that all of this would occur within the current Academic Growth Boundary and that concurrent changes to the Stanford Community Plan and zoning would be extremely limited in scope, essentially reflecting existing use of limited areas, and adoption of the County's housing element several years ago.

While the magnitude of this proposal means that it will require careful review, we applaud the University's long term commitment to the Academic Growth Boundary and to managing the impacts of growth. Throughout the planning process, we will be seeking as much certainty as possible regarding the number of students, staff, employees, and residents that will be accommodated by the proposed development over time, and on ways the County will ensure that the intensity of use on campus will not increase unless clear performance standards (established as mitigation measures or conditions of approval) are met. We will also be

interested in fully understanding the relationship between on-campus development and the various land uses and developments that the University has or is developing at off-campus locations within Palo Alto and nearby jurisdictions. Our community deserves a comprehensive description of the University's footprint in the region, and a full accounting of its cumulative impacts and benefits if the 2018 GUP is approved as proposed.

Aesthetics & Cultural Resources

Given the flexibility and performance criteria that are the underpinning of the 2018 General Use Permit (GUP) proposal, the City is concerned that we will not be able to adequately assess the impacts of proposed development without specific information on the location and scale of the proposed changes. The DEIR should carefully identify scenic resources, including mature vegetation and historic resources that may be affected, and should identify those resources that are likely to be impacted by the proposed development program. A specific performance standard should be identified to minimize or avoid potential impacts through alternatives, and mitigation measures should provide for review and consultation with the City of Palo Alto as each development proceeds.

Air Quality, Green House Gas Emissions, Noise, & Vibration

With the similarities in the amount of development in the 2000 GUP and 2018 GUP within the academic growth boundary and the almost continuous construction we have experienced during the 2000 GUP, a detailed study of the impact of construction is needed. Construction activities and construction equipment will have an ongoing impact on air emissions and noise and vibration. The DEIR should provide a quantitative analysis of air emissions and noise/vibration attributable to construction (including the use of heavy equipment, construction worker traffic, etc.), and provide appropriate control measures.

Land Use & Biological Resources

The EIR should address the proposed changes in land use and open space within the academic growth boundary, as well as potential impacts resulting from activities and mitigation measures that extend outside that boundary. Please be specific regarding any existing land uses that will be replaced. For example, will the 200,000 SF of academic and support development proposed in the area of the playing fields on El Camino Real (DAPER development district) affect the continued use of this area for recreation, intramural sports events, and parking for major events at the stadiums? Will rezoning of the driving range affect that existing land use?

The study should extend to include impacts from corollary uses and development on other Stanford lands located in Palo Alto, including new off-site housing, non-residential uses in the East Bayshore Area, at the Stanford Research Park, the Stanford University Medical Center and at the transit center site.

Hazards and Hazardous Materials

Palo Alto's regulations governing the use of hazardous materials in proximity to sensitive receptors (such as residences) are evidence of this community's concern regarding this issue. The DEIR should describe current and potential future hazardous materials uses on site with some specificity with regard to type and location. The DEIR should also describe ways to ensure that sensitive receptors are not adversely impacted in the event of an unexpected release of hazardous materials caused by human error or an emergency (fire, earthquake, and explosion). The notification and safety of first responders to such an event involving hazardous materials should also be addressed.

Hydrology and Water Quality

While Stanford proposes to avoid an increase in impervious surfaces, thereby avoiding an increase in storm water flows, the EIR should describe existing deficiencies (i.e. downstream flood risks) that existing flows contribute to. A study of potential flood control measures should be included along with a discussion of upstream control measures and protections.

The city understands that Stanford uses groundwater for irrigation purposes and that there is a countywide groundwater study ongoing. The aquifer is shared by Stanford and a number of jurisdictions, and the capacity and availability of water from this source will affect Palo Alto and other jurisdictions, particularly during drought years and in the event of region wide emergencies. The DEIR should quantify any expected increase in Stanford's use of groundwater, and provide some discussion regarding the health of the aquifer. If increased groundwater use is expected, we request that the DEIR discuss and evaluate plans for recharge of the aquifer from detention basins, including dams/reservoirs, and creek management. Mitigations should be included in the form of recharge areas so that the basin can meet the available supply needed by Stanford and others drawing from the aquifer in years of drought and variable water supply. Ideally, detention basins also can be planned to help alleviate the flood risks referred to above.

The City of Palo Alto provides wastewater treatment for Stanford University including transport for the wastewater to the treatment facilities located on the Bayfront. The DEIR should include a detailed study of the impacts of development proposed over the 17-year period of the 2018 GUP on the city's wastewater treatment plant capacity and treatment facilities. The impact on the location and capacity of the collection system, both on campus and through the city to the treatment facilities, should also be studied. Appropriate mitigations to any impacts should be identified and addressed.

Population and Housing

As noted earlier, the City will be looking for detailed information about the number of new students, staff, and residents that would be accommodated on and off-campus by the development Stanford is proposing between today (the appropriate CEQA baseline) and 2035 (the proposed horizon year). Along with the population analysis, we would appreciate an assessment of housing demand, including existing and future demand by employees and

students qualifying for below market rate housing. The study should quantify housing demand inside and outside the Academic Growth Boundary and indicate how the supply of housing on campus, existing and projected, correlates with this demand, and should identify areas where those who are not provided housing on campus are likely to seek housing.

Section 5 of the application materials notes that with 550 new multiple family housing units occupied by faculty and staff on Stanford owned lands in unincorporated Santa Clara County there will be 275 additional school-aged children by 2035 (assuming 0.50 school aged children/dwelling). The City would ask for a clarification of 'multiple family' since many of the units built during the 2000 GUP particularly along Stanford Avenue were free standing single family units in close proximity to one another. More detailed study needs to be made of the family size of the current Stanford graduate, post doctoral, faculty, and staff living on campus since this is a unique population. An accurate estimate of the age range within the pre-school and school aged population is important in order to determine the impacts of these additional children on city facilities including safe routes to school, bicycle trails and travel routes, recreation needs. This analysis will also define the need for the 2018 GUP to address providing the additional square footage to meet demands for daycare and other on campus services and their related traffic impacts. Impacts on the Palo Alto Unified School District's capacity and services should also be addressed.

The City strongly supports the housing linkage/ratio concept used in the 2000 GUP and its continued use in the 2018 GUP. The proposed ratio is 605 new beds for every 500,000 SF of new academic and academic support space. The City would urge that the housing become available as close as possible to the availability of the new academic space. The City also appreciates the University's proposal to continue funding affordable housing projects elsewhere in the region, and supports continued use of a six-mile radius from campus for expenditure of these funds, with an additional focus of such development on transit corridors within that radius.

We also understand that Stanford is seeking a condition that would allow it to build additional housing beyond the proposed development limit of 3,150 housing units/beds proposed in the 2018 GUP. We have no objection to this proposal, as long as the environmental review effectively addresses potential impacts and/or provides a mechanism to do so, if and when, these additional housing units/beds should be proposed.

Public Services

Under contract with Stanford University, the City of Palo Alto Police Department Palo Alto 9-1-1 Communications Center (a.k.a. Public Safety Answering Point (PSAP)) provides 9-1-1 call taking service for the University campus and dispatches the Stanford University Department of Public Safety. The DEIR should provide a detailed study of how the demand for these services will increase as the 2018 GUP progresses and is completed.

The City of Palo Alto Office of Emergency Services (OES) works closely with Stanford University on topics related to natural disasters, technological and accidental hazards, and human-caused events, such as crime and terrorism. In particular, the Stanford University Department of Public Safety (SU DPS) and the Stanford University Environmental Health & Safety (EH&S) group routinely work with OES to conduct joint training, emergency planning, and work together on planned special events and other higher-risk events. Some clarification is needed in Section 8.5, Emergency Preparedness and Response, of the application materials. Specifically, the Background Conditions Report verbiage has to do with Palo Alto Fire Department and related topics, not emergency preparedness. The OES is a separate City Department. OES operations are closely aligned with the Palo Alto Police and Fire Departments and the 9-1-1 Communications Center. Stanford University generally receives support by OES at no additional charge despite many shared activities.

The Palo Alto Fire Department (PAFD) has been providing fire, rescue and emergency medical services (EMS) to Stanford University (Stanford) under contract since 1976. Under the proposed 2018 GUP, additional public safety impacts would be created by the increase in residential and daytime populations as well as construction and regular traffic impacting already congested road networks. The city understands that a court decision, *City of Hayward v. Board of Trustees of the California State University*, 242 Cal. App. 4th 833 (2015) minimizes the environmental impacts under CEQA related to emergency services. However, these effects as they relate to the 2018 GUP proposal should be studied in detail in the DEIR. Without mitigation the ability of the PAFD to meet acceptable performance standards could be negatively impacted by the anticipated growth impacting public safety.

The PAFD notes that they have been challenged to meet the response time performance noted in the 1976 contract as well as in the 2000 GUP and updated annual reports. The primary reason for response time performance challenges have been due to increased calls for service, the frequency of simultaneous calls for service, the location of the fires, speed limits, and the frequency of detours and lane closures due to construction activities. The DEIR should assess how the 2018 GUP will affect response times and provide appropriate mitigations.

Recreation

The NOP states that the DEIR will describe the environmental setting for parks and recreation, discuss the potential for increases in the use of non-Stanford recreation facilities so that substantial impacts could occur, and assess whether the construction of any proposed recreational facilities would have a significant effect on the environment. The DEIR should also address impacts and appropriate mitigations for impacts on City park and recreation facilities including available parking, over-use of recreational facilities, parks, open space trails and habitat. The study should include impacts to city recreational programs, including youth camps and classes resulting from an increased number of Stanford campus residents and employees. Will the soccer field at El Camino Real and Page Mill Road be preserved long term?

The Stanford application for the 2018 General Use Permit states that due to the size of the district and regional parks (Foothill Park/Open Space Preserve, Baylands Nature Preserve, and Pearson-Arastradero Preserve), increased visitor ship is less likely to lead to substantial deterioration. The application refers to the low increases in visits per acre for district and regional parks shown in Section 16, Table 7 to demonstrate that such projected increases in visits per acre are negligible given the size of the parks. The City of Palo Alto disagrees with these statements because -- although the open space preserves are large -- the areas where people actively recreate are a very small percentage of the entire preserve area. The impact of concentrating more people into these areas should be studied and identified impacts should be addressed with appropriate mitigation.

In Section 16, Parks and Recreation Analysis, of the application materials, Stanford includes a section assessing recreation impacts on nearby public park and recreation facilities located in the City of Palo Alto focusing on the College Terrace neighborhood. The city notes that the number of visitors per day cited (41 visits to Foothills Park, 32 visits to the Baylands, and 27 visits to the Pearson Arastradero) clearly demonstrate that visitation to parks by Stanford campus residents is not limited to the nearby College Terrace parks, and appropriate mitigation should include a larger area. Please consider whether provision of funding for acquisition of new parkland (in addition to funding to address impacts on existing parks) would address identified impacts.

The premise of the 2018 GUP involves concentration of uses within the core campus, increasing the density of the population within the academic growth boundary and requiring new construction that will reduce open space from 15.1 acres/1000 in the Fall of 2018 to 12.2 acres/1000 at build out of the 2018 GUP. While infill development is preferable to the alternative, the City requests an assessment of how any changes open space within the Academic Growth Boundary might affect recreational uses/facilities on and off-campus.

Transportation & Circulation

Members of the Palo Alto community appreciate the University's focus on reducing commute trips to/from campus by single occupant vehicle (SOV) during peak commute hours but are increasingly skeptical that the University's trip reduction programs are living up to their promise. We would ask the County to take a hard look at how the "no net trips" goal is structured, starting with the baseline, and including the methodology, reporting, peer reviews, and penalties for not achieving the promised results.

As the basis for this analysis, the DEIR should include the following data collection and background information:

- 1) Identify peak travel periods for the campus based on vehicle volumes collected across an entire day. Due to the University's unique land use mix, the city is interested in understanding how travel patterns may differ from typical morning and afternoon peak periods. Consider using the 24-hour cordon count data from the most recent version of the *Stanford University Traffic Monitoring Report*.
- 2) Identify the University's existing and planned primary and secondary transit corridors, especially within the Campus Drive ring-road, as this area is described as limited to most motorized vehicles. Primary corridors should be routes with frequencies greater than 15 minutes in the peak periods.
- 3) Additional background information is needed on transit serving the University: Include an inventory of applicable local and regional transit lines serving the project area, their ridership, capacity, and utilization.
- 4) The Marguerite is the backbone of the University's transit system. Please include current performance data such as boardings, speed, and frequency for individual lines.
- 5) Consider estimating person trip generation and then estimate mode split. Mode split estimates may be important to assist with impact analysis for transit capacity.

Based on information provided in the application materials, the DEIR traffic impact analysis should include the following items:

- 1) Include intersection, freeway segment, and ramp impact assessment consistent with the latest version of the Valley Transportation Authority's TIA Guidelines.
- 2) Evaluate impacts to emergency response times.
- 3) Evaluate transportation-related construction impacts including capacity impacts to roadways.
- 4) Pending review of daily vehicle volumes, reset the "no net new trips" baseline, as peak hours, periods, and directions may have changed since 2001.
- 5) Evaluate transit performance and efficiency as it relates to site design, mobility, and access.
 - a. Consider setting transit performance metrics such as speed, passenger travel time, boardings/hour. The city is concerned that dispersed development patterns may result in inefficient transit routes
 - b. Of the major transit corridors identified, show the location of development areas relative to ¼ mile walksheds around stops. It is unclear whether transit accessibility was considered as a factor when the distribution of growth was proposed.

- c. Include a qualitative discussion around the optimal land use and site design principles that support effective, user-friendly, and efficient transit networks. Evaluate the transit system serving the University with these principles.
- 6) Assess demand, capacity, and utilization of Caltrain servicing the Downtown Palo Alto Intermodal Transit Center in all scenarios. Many peak-period trains already exceed capacity. How will impacts on Caltrain be addressed, and how will current conditions impede the University from meeting its TDM goals?
- 7) Assess demand, capacity, and utilization of connecting transit services at the Palo Alto Intermodal Transit Center (PAITC). Consider requiring improved circulation and access to the transit center for transit vehicles as a prerequisite for additional development. Transit service would be greatly enhanced with improved access from El Camino Real.
- 8) Assess the performance, capacity, access, and operations of transit, bicycles, and pedestrians the Palo Alto Intermodal Transit Center (PAITC). Include capacity assessment for bus bays, layover facilities, and potential operational impacts to other transit providers using the PAITC.
- 9) Evaluate the relationship between mode and distance travelled to the University. Similar recent evaluations have shown persons who travel 3-5 miles may be the most likely to drive, but are still within biking distance of their destination.

When evaluating the “no net trips” methodology, please account for lengthening of “peak” traffic conditions as the University shifts more and more trips to traditionally off-peak or shoulder periods. Also consider ways to simplify the accounting process and make the annual counts and calculations more transparent to the public.

The traffic analysis should also study the extent to which Stanford commuters are avoiding cordon counts by parking on local streets in adjacent city neighborhoods. The DEIR should assess the magnitude of this practice, and propose a realistic program for addressing these “hidden” vehicle trips and the neighborhood parking problems they create.

The DEIR should identify critical intersections on bicycle routes that currently have inadequate integration of bicycle facilities and determine needed improvements to facilitate the No Net New Commute Trips program going forward. This should include an evaluation of Stanford population’s use of these locations and their impact on the need for improvements.

The City of Palo Alto appreciates the University’s proposal to support the City’s Safe Routes to School program via “walk and roll” improvements needed for Escondido and Nixon Elementary Schools. To continue this cooperative effort, the City would ask that the DEIR study

the impacts of the 2018 GUP on other school routes and expand their support to include improvements needed for Terman and Jordan Middle Schools and Gunn High School.

Finally, if the County seeks to off-set trips that cannot be reduced by requiring payments to agencies or organizations like the Palo Alto Transportation Management Association, these should be negotiated in advance, and not on an annual basis when we learn whether the University has or hasn't met its goal. This is because successful TDM programs require thoughtful planning and consistent funding; they cannot be funded on an ad hoc or intermittent basis.

Other Issues

There are a number of issues that warrant discussion outside of the EIR process and the City would be interested in discussing these with County representatives as the Draft EIR is being prepared. These include several issues identified in the comments above: upstream detention of storm water flows; compensation for Stanford-related impacts to City parks and recreation facilities; support for pedestrian and bicycle linkages; and support for transit services/access improvements including the Palo Alto Intermodal Transit Center and TDM programs. These issues also include extension of the University's 25-year foothills protection commitment, "fair share" contributions to neighborhood Residential Preferential Parking (RPP) programs, the project's proposal to provide below market rate housing, and the opportunity to execute a transfer agreement for the next Regional Housing Needs Allocation (RHNA) cycle similar to the agreement that was negotiated concurrent with the 2000 GUP.

Thank you for the understanding you have shown the City in providing time for the preparation of these responses. We encourage County staff to contact the City with any questions you might have or information you might need during the environmental review process. If you have any questions regarding these comments please reach out to me or Hillary Gitelman, Director of Planning and Community Environment, at (650) 329-2321 and Hillary.gitelman@cityofpaloalto.org.

Sincerely,



Mayor H. Gregory Scharff
City of Palo Alto

CC. Santa Clara County Supervisor Joe Simitian
Palo Alto City Council Members

James Keene, City Manager

Jean McCown, Stanford University Director of Community Relations

Catherine Palter, Stanford University Land Use and Environmental Planning

Kirk Girard, Santa Clara County Director of Planning & Development

Hillary Gitelman/Margaret Monroe/File

From: [Robert Golton](#)
To: [Rader, David](#)
Subject: Addition to the PAUSD Comment on the Stanford GUP
Date: Monday, March 13, 2017 3:02:29 PM

Hi Dave,

First of all, thank you!

We would like to simply add a second paragraph to our comment about "Mitigating the potentially significant impact on PAUSD student enrollment."

So, it would read as follows:

Mitigating the potentially significant impact on PAUSD student enrollment.

As detailed below, the proposed faculty, staff, and graduate student housing in the GUP application has the potential to add significantly to PAUSD enrollment. Our internal estimates are that the proposed housing could add up to 1,000 additional students to our current enrollment of 12,000. We request that you study the impact on enrollment, particularly given the unknown size and type of housing that will be built.

Also, the proposed student housing in the GUP application has the potential to add significantly to Stanford enrollment and therefore create an increase in faculty and staff living outside of the Stanford campus and commuting in from and through the PAUSD enrollment area. We request that you study the impact on PAUSD enrollment and local traffic patterns particularly given the unknown growth in faculty and staff housing in the local community and beyond.

MANY, MANY THANKS, DAVE.

Bob

Bob Golton
Manager, Strong Schools Bond
Palo Alto Unified School District
25 Churchill Avenue, Palo Alto, CA 94306
rgolton@pausd.org www.pausd.org



PALO ALTO UNIFIED SCHOOL DISTRICT

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OFFICE OF THE SUPERINTENDENT

March 10, 2017

David Rader
County of Santa Clara Planning Office
County Government Center
70 West Hedding, 7th Floor, East Wing
San Jose, CA 95110

RE: Palo Alto Unified School District (PAUSD) Comments for the Stanford University Application for a 2018 General Use Permit

Dear Mr. Rader,

Thank you for the opportunity to comment on the scope of the EIR being prepared to evaluate Stanford University's application for a 2018 General Use Permit (GUP). We have identified a number of concerns that we have as the County considers Stanford's application.

Mitigating the potentially significant impact on PAUSD student enrollment.

As detailed below, the proposed faculty, staff, and graduate student housing in the GUP application has the potential to add significantly to PAUSD enrollment. Our internal estimates are that the proposed housing could add up to 1,000 additional students to our current enrollment of 12,000. We request that you study the impact on enrollment, particularly given the unknown size and type of housing that will be built.

Mitigating the awkward location of the 550 Quarry units to be added for faculty and staff housing.

The Stanford central campus is located within the PAUSD attendance area and so PAUSD will be providing educational services to the majority of school age students residing in this housing. The application proposes 550 units in the Quarry Road area, which could generate over 500 students, a number exceeding the size of a typical elementary school.

In addition, the Quarry location is uncommonly awkward. The nearest elementary school is 1.5 miles away by foot, and requires crossing a state highway, active train tracks, an expressway, and downtown district to reach. We note that in some of the other school districts in the state that are impacted by development, the developer sets aside land for creation of a new school to serve that development. We request that you study the impact of housing in this location, which historically has not included housing, and we suggest that Stanford consider setting aside land for a PAUSD school facility.

Mitigating the "displacement impact" of family units added by the Stanford GUP.

Most school districts in the state are "revenue limit" school districts. A revenue limit school district receives the its funding based in large part on the number of students attending. So, more students result in more funds to service those students.

PAUSD is a "community-funded" school district. Its funding is based on local property taxes. So, additional students do not result in additional funding, but rather reduce the funding per student for current students.

After the last Stanford GUP, we observed significant "displacement impact" on enrollment. When new graduate student and other non-family housing on Stanford's campus were developed, this made available existing housing units elsewhere in our community, many of which were then occupied by families with school age children. Stanford is proposing to add over 900 additional housing units/beds for graduate students. We request that you study the impact of these additional units on PAUSD student enrollment.

Mitigating the effect of enrollment bubbles generated by large new development.

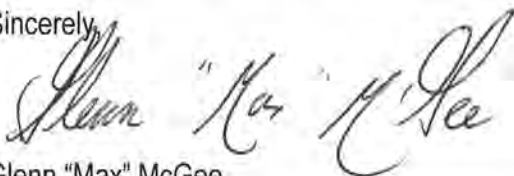
Large new housing developments do not generate an even distribution of students by grade. Rather, they tend to produce a large number of early grade students who flow through the system. This creates enrollment bubbles that put a significant strain on our schools, as enrollment expands rapidly, first in the early grades, and then subsides. As the bubble moves through the grade progression, we must adjust our staffing, facilities, and programs to meet the changing needs. We request that you study and consider the fiscal and physical capacity challenges created by these enrollment bubbles.

Other Issues

Ms. Penny Ellson, a member of our PAUSD school community, has already forwarded comments to you. They are for the most part very relevant to our schools. I am therefore providing them as an attachment to this letter.

In conclusion, thank you for the time that you have granted to PAUSD to prepare these comments. We trust that they will be helpful in this stage of the Stanford GUP process. Please reach out to me with any questions you might have or information you might need during the environmental review process.

Sincerely,



Glenn "Max" McGee
Superintendent, Palo Alto Unified School District

CC. Santa Clara County Supervisor Joe Simitian
PAUSD Board of Education Members
James Keene, City Manager
Jean McCown, Stanford University Director of Community Relations
Catherine Palter, Stanford University Land Use and Environmental Planning
Kirk Girard, Santa Clara County Director of Planning & Development
Robert Golton, PAUSD Staff

Attachment 1

2018 Stanford GUP Scoping Comments
February 17, 2017

Suggested Routes to School & The GUP

P. 35, Tab 3- of the Project Description refers to the recommendations in the Palo Alto Suggested Routes to School Walk & Roll Maps (incorrectly called Walkabout maps). It mentions a few improvements for Nixon and Escondido Elementary School routes on Stanford land. The EIR should go further and look at the following additional potential areas of school route improvements for these two schools, and connections from Stanford residences to Gunn High School, Barron Park Elementary School, and Terman as well. Please consider that these improvements also will improve the comfort and safety of bike commute routes for Stanford employees, faculty and students.

1). Please study connections to Gunn High School, Barron Park Elementary School, and Terman via the Bol Park Path. The City of Palo Alto (CoPA) is in process of improving Bol Park Path to create a more comfortable multi-use trail. This seems an appropriate time to improve the Stanford connections to this city facility-- especially because Stanford-affiliated residents are now attending Barron Park Elementary School, Gunn High School and Terman Middle School.

Consider the Hanover /Page Mill intersection. Note that bike lanes are incomplete along the Hanover route. Parents (and other bike commuters) complain about conflicts with motor vehicles at driveway entrances along the sidewalk along Hanover between California Ave and the entrance to the bike path to get to the park path and Matadero/Laguna Ave. Safety is a problem for bike commuters and pedestrians of all ages in this area and makes this important connection an unattractive link in the bike network that serves Stanford campus residents, faculty and staff, discouraging bike commutes.

2). Study the Peter Coutts/Nixon/Raimundo connection to the Nixon Elementary School path. At this location, young children (and adult foot-powered commuters) cross a wide intersection with auto speeds over 30mph, a safety problem that has been exacerbated by higher auto volumes related to growth from the last GUP. Again, this is a bike/pedestrian connection with great potential, but its usefulness is weakened by safety concerns.

3). Questions re: student busing—The PAUSD bus that picks up students at Nixon to go to Terman has a wait list. Consider how Stanford's existing bus/shuttle service might augment PAUSD service for Stanford-affiliated PAUSD students to reduce morning school commute auto trips across the cordoned area.

4). Please study a 5-mile radius/bike commute shed and consider the needs of bicyclists of all ages and abilities. Consider bike/pedestrian network improvements that would enable local Stanford employees to bike their children to school and then bike commute to campus. Work with City of Palo Alto Safe Routes to School staff to identify the best ways to engage more PAUSD parents who are Stanford employees to tag a work commute onto their daily school commute and improve Stanford's bicycle mode share.

No Net New Commute Trips Goal

Though Stanford's trip reduction program is greatly appreciated, community members observe Stanford traffic increasing much more than the cordon count indicates. Here are some things the EIR might study to understand why and to identify more appropriate mitigations.

1). Zero Net New Trips: Loopholes Prevent Accurate Counts

There are loopholes in the cordon count process. Stanford has surveyed employees to find out their arrival/departure times. They adjust employee schedules so car trips won't be captured by peak hour counts. Further, when Stanford is concerned about missing their goals, Stanford sends emails asking people to change their behavior for a day. Everyone in town knows this goes on because we all have Stanford-affiliated friends.

Here are some suggested changes to eliminate these loopholes:

- The counts might happen randomly without informing Stanford in advance so they can't "warn" commuters and a more accurate count will be taken.
- Cordon counts should be done throughout the day, not just am/pm peak hours, in order to capture all Stanford-generated car trips. (Congestion is no longer a problem limited to am/pm peak periods in Palo Alto, and afternoon auto commutes create risk for school commuting children.) This practice would support SCP-C7-Reduce auto travel in non-commute hours/directions.

2). Zero Net New Trips: Drivers Split the Trip to Game the System

At the recent Mitchell Park Community Meeting re: 2018 GUP Scoping a resident noted that she observes people parking in her neighborhood to pick up the Stanford Marguerite at El Camino to get to Stanford. These car trips are not included in the cordon count, but they are generated by Stanford and they impact Palo Alto.

- Please study this phenomenon in areas served by the Marguerite and other transit to understand how the cordon counting system could be augmented to capture all car trips in/out of town with Stanford as journey origin/destination—whether or not the car reaches the cordon area.
- In addition, consider the parking impacts of this practice and insure compliance with SCP-C6--Regulate parking supply while avoiding spillover.

AGB: Considering Long-Term Implications of Growth

The current proposal does not request any change to the Academic Growth Boundary, nor does it discuss any future plan for when the 25-year AGB period expires.

- Please study and discuss the potential benefits and impacts on both the university and surrounding community of moving the AGB. What is Stanford's future intent with regard to preservation of open space?

"Flattening" Mode Shift: Mitigation of Future Growth

Is it realistic to assume that a specific growth rate since 1960 (200ksf/year) can or should be maintained? Note: The growth rate from 1875 to 1960 was significantly lower (52ksf), so it is not correct to characterize recent growth as Stanford's "historic growth rate."

- Stanford's own documents acknowledge that results of their car trip reduction efforts are "flattening". Please quantify that trend and study how the "flattening" of Stanford's trip reduction results will affect mitigation of transportation impacts of future growth, including growth proposed in the 2018 GUP application. Should growth rate be reconsidered if mode shift is less robust? What additional transportation mitigations might be necessary.

Affordable Housing Subsidy

On page 3.41 (last paragraph) of the Project Description Stanford proposes eliminating the 6-mile radius limit on where Stanford Affordable Housing Fund mitigation dollars can be spent. This proposed change could

divert housing funds to communities that are more distant from Stanford where the university's impacts are far less acute—reducing the efficacy of the subsidy as a mitigation for campus growth.

Eliminating the 6-mile limit would give power to the SCC Board to divert housing funds from communities abutting Stanford which are most acutely impacted by campus population growth and traffic. Without the 6-mile limit, they could spend that money much farther afield—with no limit on distance from Stanford. This is unacceptable. Central-county controlled VTA is already cutting local fixed bus lines in City of Palo Alto areas with potential for affordable housing development. If the 6-mile radius limit is eliminated, this will leave in place only the "high quality transit corridor" limit which could result in Stanford Affordable Housing funds being diverted to communities where the money will do little to mitigate acute Stanford-generated housing and transportation problems in communities abutting the university.

- Please study how this proposed change could impact affordable housing development in close proximity to Stanford where commuters have multiple alternatives to driving—not just transit.
- How might a longer transit commute impact Stanford commuters' decisions to choose alternative transportation or drive?
- Study what radius limit is appropriate based on trip reduction performance against the university's transportation goals.
- Specifically, how might housing distance from campus affect commuter choices and trip reduction efforts toward mode shift? One example to consider: Many Stanford commuters say that they do not use transit because they have to combine trips to drop children at day care or school and run errands en route to work and home. They cannot do this with transit.
- This very significant change was dropped into the application as a one-liner with no explanation or substantive discussion. What is Stanford's objective in proposing this change?

Population & Housing.

The application provides an incomplete picture of what percentage of undergraduates, graduate students (including PhDs), post-doctoral students, faculty, on-campus staff, and non-matriculated students will be housed on campus. Please clarify these numbers for each of these categories.

Parking Supply Reserve

If there has been and will be no net new trips, why does Stanford need more parking? Please study and explain.

Intersection LOS For All Modes

Please look at potential impacts on intersections in the southern portion of Palo Alto and other outlying areas of Palo Alto, especially along El Camino and Foothill Expressway and Alma Expressway. Trips don't simply appear at the campus border. Many drivers travel through this part of town to get to Stanford.

February 17, 2017

David Rader
County of Santa Clara
Department of Planning and Development
County Government Center
70 West Hedding Street
San Jose, CA 95110

Dear Mr. Rader

SUBJECT: Notice of Preparation of an Environmental Impact Report for the
Stanford University 2018 General Use Permit Project.

The County of San Mateo appreciates the opportunity to comment on Santa Clara County's Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Stanford University 2018 General Use Permit (GUP) Project (Project). We applaud Stanford's pursuit of the six core principles in the Stanford Community Plan, and believe that success in that pursuit can significantly reduce any deleterious effects on San Mateo County residents and businesses from the implementation of the program envisioned in the GUP. The following comments are from the County's Planning and Building Department and Department of Public Works, in response to the NOP that we believe should be addressed in the EIR.

The County of Santa Clara approved the 2000 GUP for the Stanford Community. Stanford is nearing completion of the facilities and housing authorized by the 2000 General Use Permit. The 2018 GUP proposes expansion of the campus for new academic space, academic support space, housing, parking and other infrastructure on the campus to year 2035.

The proposed project adjoins the County, including the unincorporated areas of Ladera, Stanford Weekend Acres and Stanford Lands. The County views this project as closely linked to the Stanford in Redwood City Project, (EIR certified by the City of Redwood City September 2013), because the Stanford in Redwood City Project enables Stanford to relocate many on-campus staff and functions to Redwood City, freeing up space on campus for developments proposed under the GUP. Therefore, we would like to see the GUP EIR discuss the relationship between these two projects, including how much communication and travel between the two campuses will be necessary to support Stanford's ongoing programs and functions.

Jobs/Housing Balance

The Stanford in Redwood City Project has the potential to exacerbate gentrification and displacement forces at work in the North Fair Oaks neighborhood in the unincorporated



County area. Recently, several apartment buildings providing market rate affordable housing have been purchased, tenants were evicted; and apartments were rehabilitated and rented at substantially higher rents. This neighborhood is strategically located within reasonable commute distance to areas with high-paying jobs. Job generation in the County and nearby Santa Clara County cities has outstripped housing generation by a factor of seven jobs for each housing unit created. The Stanford in Redwood City Project campus has the potential to exacerbate this problem, through a net increase in employment of approximately 3,900 to 5,400 employees approximately 23.5 to 32.5 percent of the Association of Bay Area Governments projected citywide increase in jobs. The GUP EIR should discuss the linkage between relocating jobs from the Palo Alto Campus as part of Stanford in Redwood City Project, how it facilitates implementation of the projects envisioned in the GUP, the gentrification/displacement potential of those jobs on affordable housing in North Fair Oaks, and the mitigations that Stanford proposed to address any identified effects.

Transportation

Section 7 – Transportation Analysis. This Section suggests a No Net New Commute Trip Goal - with minor adjustments from the 2000 GUP proposal. The No Net New Commute Trip Goal is established by counting all 16 entrances to the campus and insuring that no new net trips are generated at these points. However, all transit vehicles, motorcycles, cut through traffic and hospital related trips would continue to be excluded from the counts as per the agreement in the 2000 GUP. Moreover, only Part I of the Traffic Impact Analysis is included in the GUP Application or available for review: Section 7 Part II is missing from the report: <https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/CurrentProjects.aspx>. It is difficult to see the total amount of traffic excluded from the Traffic Impact Analysis, due to the missing information.

Table 7 in Part I on page 21 suggests that approximately 20% of the 2015 commuters use the Highway 280/Alpine/Sand Hill Road corridors. The analysis does not show the impact of an increase in volume based on this distribution of trips to nearby communities. Levels of Service (LOS) reports were not included. Senate Bill 743 authorizes local governments to use Vehicle Miles Traveled instead of delay, typically characterized by LOS for evaluating traffic impacts during CEQA review, however local jurisdictions may still impose LOS standards per approved Traffic Impact Analysis (TIA) requirements per the local jurisdiction. The County still has LOS requirements for its TIA requirements.

Therefore, the County is requesting an extension of the deadline for comments related to the Traffic Impact Analysis to a date after which Part II of Section 7 is available and we can have sufficient time to review Part II of Section 7 and its impact to the County's roads. In addition, the report does not address impacts to the local streets during construction of the proposed new facilities. So while Traffic Demand Model measures may be sufficient for Stanford Campus commuters, this does not address impacts to local corridors such as Alpine Road for construction traffic impacts. The County would request that the GUP add as a condition of

approval for each project included under the GUP that construction traffic not use the Alpine Road Corridor.

The EIR should discuss the amount of likely travel between the Stanford in Redwood City Campus and Stanford in Palo Alto. We applaud the proposed no net new car trips standard for the GUP, however we would like to understand this in the context of some of the findings of "significant unavoidable impacts" related to traffic in the Stanford in Redwood City EIR. An in-depth analysis of the cumulative effects and the potential for generating further development in the area because of the enlargement contemplated in the GUP on the central campus is needed.

Stormwater/Detention

Stanford owns significant lands within the San Francisquito Creek (Creek) Watershed (Watershed). The General Use Plan should support or compliment the efforts of the jurisdictions within the Watershed to develop a specific plan for the detention of floodwaters on Stanford land that would result in a significant and measurable reduction in Creek flows that could otherwise adversely affect the downstream jurisdictions. Detention combined with downstream Creek improvements should be based on containment of flows from the 100-year storm event to the extent feasible. Detention plans shall be designed and implemented by Stanford within a specific timeframes that are consistent with proposed development timelines.

The proposed General Use Plan should include stormwater measures that allow for no net increase in stormwater runoff to the neighboring downstream communities that are located within the San Francisquito Creek Watershed Area.

Thank you again for the opportunity to review and comment on the NOP for the Stanford General Use Project. Please contact me at 650/363-1865 or jlaclair@smcgov.org should you have any questions.

Sincerely,



Joseph LaClair
Planning Services Manager

JEL:pac – JELBB0061_WPN.DOCX



EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX
DIRECTOR

Notice of Preparation

January 10, 2017

To: Reviewing Agencies

Re: Stanford University 2018 General Use Permit
SCH# 2017012022

Attached for your review and comment is the Notice of Preparation (NOP) for the Stanford University 2018 General Use Permit draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

**David Rader
Santa Clara County
70 W. Hedding Street
7th Floor, East Wing
San Jose, CA 95112**

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

**Document Details Report
State Clearinghouse Data Base**

SCH# 2017012022
Project Title Stanford University 2018 General Use Permit
Lead Agency Santa Clara County

Type NOP Notice of Preparation
Description Note: Review Per Lead

The proposed 2018 General Use Permit would authorize an additional 2,275,000 sf of academic space and an additional 3,150 housing units/beds over the period of 2018 through 2035. This increment of development would be constructed on vacant land, infill sites, and redevelopment sites within the university's Academic Growth Boundary. No site-specific projects and locations have been identified for development under the 2018 General Use Permit. Each individual building or project that would be developed under the 2018 general use permit would require submittal of an application to the county of Santa Clara at the time proposed, and may be subject to additional review prior to consideration.

Lead Agency Contact

Name David Rader
Agency Santa Clara County
Phone (408) 299-5779 **Fax**
email
Address 70 W. Hedding Street
7th Floor, East Wing
City San Jose **State** CA **Zip** 95112

Project Location

County Santa Clara
City
Region
Cross Streets Palm Dr and El Camino Real
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways SR 82, I-280
Airports
Railways UPRR
Waterways
Schools Palo Alto HS
Land Use

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Solid Waste; Traffic/Circulation; Water Quality; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 3; Office of Emergency Services, California; Native American Heritage Commission; Public Utilities Commission; Department of Housing and Community Development; California Highway Patrol; Caltrans, District 4; Regional Water Quality Control Board, Region 2

Date Received 01/10/2017 **Start of Review** 01/10/2017 **End of Review** 02/17/2017

Notice of Completion & Environmental Document Transmittal

2017012022

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

SCH #

Project Title: Stanford University 2018 General Use Permit

Lead Agency: County of Santa Clara

Contact Person: David Rader

Mailing Address: 70 W. Hedding Street, East Wing, 7th Floor

Phone: (408) 299-5779

City: San Jose

Zip: 95110

County: Santa Clara

Project Location: County: Santa Clara

City/Nearest Community: Stanford

Cross Streets: Palm Drive and El Camino Real

Zip Code: 94305

Longitude/Latitude (degrees, minutes and seconds): ° ' " N / ° ' " W Total Acres:

Assessor's Parcel No.:

Section:

Twp.:

Range:

Base:

Within 2 Miles: State Hwy #: SR 82, Interstate 280

Waterways:

Airports:

Railways: Union Pacific/Caltrain

Schools: Palo Alto High School

Document Type:

CEQA: ☒ NOP☐ Draft EIRNEPA: ☐ NOIOther: ☐ Joint Document☐ Early Cons☐ Supplement/Subsequent EIR☐ EA☐ Final Document☐ Neg Dec

(Prior SCH No.)

☐ Draft EIS☐ Other: Research☐ Mit Neg Dec

Other:

☐ FONSI

Local Action Type:

☐ General Plan Update☐ Specific Plan☒ Rezone

STATE CLEARINGHOUSE

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

Development Type:

☐ Residential: Units

Acres

☐ Office: Sq.ft.

Acres

Employees

☐ Transportation: Type☐ Commercial: Sq.ft.

Acres

Employees

☐ Mining: Mineral☐ Industrial: Sq.ft.

Acres

Employees

☐ Power: Type

MW

☐ Educational:☐ Waste Treatment: Type

MGD

☐ Recreational:☐ Hazardous Waste: Type☐ Water Facilities: Type

MGD

☐ Other:

Project Issues Discussed in Document:

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

Present Land Use/Zoning/General Plan Designation:

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

The proposed 2018 General Use Permit would authorize an additional 2,275,000 square feet of academic space and an additional 3,150 housing units/beds over the period of 2018 through 2035. This increment of development would be constructed on vacant land, infill sites, and redevelopment sites within the university's Academic Growth Boundary. No site-specific projects and locations have been identified for development under the 2018 General Use Permit. Each individual building or project that would be developed under the 2018 General Use Permit would require submittal of an application to the County of Santa Clara at the time proposed, and may be subject to additional review prior to consideration.

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

NOP Distribution List

County: Santa Clara

SCH#

2017012022

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Environmental Services Division
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Leslie Newton-Reed
Habitat Conservation Program
- ☐ Fish & Wildlife Region 6
Tiffany Ellis
Habitat Conservation Program
- ☐ Fish & Wildlife Region 6 I/M
Heidi Calvert
Inyo/Mono, Habitat Conservation Program
- ☐ Dept. of Fish & Wildlife M
William Paznokas
Marine Region

Other Departments

- ☐ Food & Agriculture
Sandra Schubert
Dept. of Food and Agriculture
- ☐ Depart. of General Services
Public School Construction
- ☐ Dept. of General Services
Cathy Buck/George Carollo
Environmental Services Section
- ☐ Delta Stewardship Council
Kevan Samsam
- ☒ Housing & Comm. Dev.
CEQA Coordinator
Housing Policy Division

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Supervisor
- ☐ Santa Monica Bay Restoration
Guangyu Wang
- ☐ State Lands Commission
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- ☐ Tahoe Regional Planning Agency (TRPA)
Cherry Jacques

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Office of Special Projects

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Division of Drinking Water
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Student Intern, 401 Water Quality Certification Unit
Division of Water Quality
- ☐ State Water Resources Control Board
Phil Crader
Division of Water Rights
- ☐ Dept. of Toxic Substances Control
CEQA Tracking Center
- ☐ Department of Pesticide Regulation
CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

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North Coast Region (1)
- ☒ RWQCB 2
Environmental Document Coordinator
San Francisco Bay Region (2)
- ☐ RWQCB 3
Central Coast Region (3)
- ☐ RWQCB 4
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- ☐ RWQCB 5F
Central Valley Region (5)
Fresno Branch Office
- ☐ RWQCB 5R
Central Valley Region (5)
Redding Branch Office
- ☐ RWQCB 6
Lahontan Region (6)
- ☐ RWQCB 6V
Lahontan Region (6)
Victorville Branch Office
- ☐ RWQCB 7
Colorado River Basin Region (7)
- ☐ RWQCB 8
Santa Ana Region (8)
- ☐ RWQCB 9
San Diego Region (9)

- ☐ Other _____
- ☐ _____
- ☐ _____
- ☐ _____
Conservancy

File: 33515
Various

February 17, 2017

David Rader
County of Santa Clara Planning Office
70 West Hedding, 7th Floor
San Jose, CA 95110

Subject: Stanford University 2018 General Use Permit

Dear Mr. Rader:

The Santa Clara Valley Water District (District) is a special district with jurisdiction throughout Santa Clara County. The District acts as the county's groundwater management agency, principal water resources manager, flood protection agency and is the steward for its watersheds, streams and creeks, and underground aquifers. We appreciate the opportunity to comment on the Notice of Preparation for the 2018 General Use Permit for Stanford. This letter transmits comments that focus on the areas of interest and expertise of the District.

The project will add up to 2,275,000 square feet of new academic and academic support space and up to 3,150 net new housing units/beds, which will increase impervious surface. Impervious development can increase runoff and reduce groundwater recharge. Portions of Stanford lands are in recharge areas which provide groundwater recharge for the Santa Clara Groundwater Subbasin, which is used as a water source by many of the communities in the South Bay. New development will be subject to stormwater requirements under the National Pollutant Discharge Elimination System, however the District notes these requirements were developed primarily to reduce impacts from stormwater pollutants, not necessarily to reduce impacts from loss of groundwater recharge areas or minimize flood risk in large storm events. The General Use Plan needs to include measures that either avoid or mitigate for loss of groundwater recharge and increased flows in storm water runoff.

The District is a member of the San Francisquito Creek Joint Powers Authority (SFCJPA) which is focused on flood risk reduction from San Francisquito Creek. Detention basins on Stanford lands have been considered as a method to reduce flood risk on the creek. Such basins could reduce impacts from development proposed by Stanford, contribute to a regional solution for flood risk, and provide groundwater recharge.

The District encourages Stanford to continue to work with the SFCJPA and its member agencies to develop a specific plan for the detention of floodwaters on Stanford land that will result in a significant and measurable reduction in floodwaters reaching the floodplain areas downstream. Combined with the improvements downstream within San Francisquito Creek, detention on Stanford land can result in containment of flows from the 100-year storm event



David Rader
Page 2
February 17, 2017

within the detention sites and the Creek. The detention plan should be designed and implemented by Stanford within a specific time line that is relative to the proposed development.

The NOP notes that a draft Water Supply Assessment has been prepared for the plan. The District, as the county's groundwater management agency and principal water resources manager, requests the opportunity to review the WSA prior to action by the county on the document.

If you have any question or need additional information, please contact me at (408) 630-3095.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael Martin".

Michael Martin
Environmental Planner
Santa Clara Valley Water District

cc: U. Chatwani, M. Richardson, V. Gin, T. Hemmeter, S. Hosseini, M. Martin, File



Stanford Coalition for Planning an Equitable 2035
Stanford University

TO: David Rader, Santa Clara County Planning Office

FROM: Stanford Coalition for Planning an Equitable 2035

SUBJECT: Stanford GUP Environmental Impact Report Scope

Thank you for the opportunity to comment on the scope of the Environmental Impact Report (EIR) for the 2018 Stanford General Use Permit (GUP). As University students, affiliates, and community members, we value community-informed, equitable development. Insofar as this objective can be realized through the EIR, SCOPE 2035 requests that the County consider the following potential impacts:

Comment 1: Greenhouse Gas Emissions

Although Stanford has made significant contributions to environmental sustainability in the past, it is more important now than ever before for Stanford to accelerate its pioneering leadership on climate action. Due to the growing urgency and magnitude of global climate change impacts and the simultaneous lack of initiative from the federal government, the situation demands that more stringent greenhouse gas mitigation measures be considered for the 2018 GUP. The 2018 GUP Application projects that Stanford will meet the BAAQMD CEQA threshold of significance of 2.7 metric tons of CO₂ equivalent per service population by 2030¹; however, the goal of California's Senate Bill 32 is to reduce absolute emissions to 40% below 1990 levels in 2030. As a responsible leader in the California community, Stanford must contribute to these goals by reducing its own emissions at a comparable or more aggressive rate regardless of increased population. Therefore, the university should reduce greenhouse gas emissions by at least 40% from its own 1990 levels by 2030². Based on the GHG estimates provided in Tab 9A of the GUP Application, and information from Stanford's Energy and Climate Plan concerning the University's 1990 emissions, Stanford is only projected to reduce emissions by less than 25% from 1990 levels in 2030. For these reasons, it is important that Stanford pursue significantly more aggressive mitigation goals as part of its development strategy.

Comment 1a. The Coalition requests that the EIR evaluate the greenhouse gas emissions estimates provided by Stanford in Tab 9a of the 2018 GUP Application document to ensure accuracy.

¹<http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/proposed-thresholds-of-significance-dec-7-09.pdf?la=en>

²https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32

The Coalition requests that the EIR evaluate the greenhouse gas emissions estimates provided by Stanford in Tab 9a of the 2018 GUP Application document to ensure their accuracy. Tab 9a of the application (page 57) estimates that in 2018, Stanford's annual emissions will be equivalent to 136,555 metric tons with emissions decreasing to 125,620 metric tons in 2030. However, these projections do not correspond to the estimates provided on page 11 of Stanford's Energy and Climate Plan which demonstrate emissions in 2017 to be well below 100,000 metric tons; informal estimates provided by the Office of Sustainability are in accordance with the Energy and Climate Plan. We thus request that the EIR conduct a comprehensive analysis of Stanford's emissions to clarify this inconsistency.

The analysis for the estimates should include the largest scope of emission pathways due to university related activities, including not just direct emissions from new construction, but also increased airline travel and other university events, services and programs enabled by the new construction. Additionally, the EIR should identify channels of carbon leakage due to energy conservation policies and programs. Specific concerns include, but are not limited to, changes in market electricity demand and pricing due to investment in renewable energy production (i.e. Stanford Solar Farm and roof-top solar) and the displacement of emissions due to the electrification of the Marguerite transit system.

Comment 1b. The Coalition requests that the EIR evaluate the two possibilities of Stanford reducing its emissions to 40% below its 1990 levels by 2030 AND adopting a policy of carbon neutrality for all new construction.

As demonstrated, Stanford must pursue more aggressive emission reductions. The Coalition requests that the EIR evaluate the feasibility of Stanford reducing its annual GHG release to 40% below its 1990 emissions by 2030 at the minimum.

We also propose that the EIR evaluate the feasibility of Stanford adopting a policy of carbon neutrality for all new construction to meet this goal within the scope of the GUP framework. We propose that all building projects be carbon neutral through the entire life cycle, including construction, material extraction/ processing/transportation, use phase and demolition (scope 1, 2 and 3 emissions). This evaluation should address the economic burden to the university, as well as the social and environmental impacts that would be mitigated.³

Comment 1c. To facilitate Stanford's efforts in reducing future greenhouse gas emissions, the Coalition requests that the EIR investigate mitigation strategies for offsetting emissions resulting from new construction.

To facilitate Stanford's efforts in reducing future greenhouse gas emissions, the Coalition requests that the EIR investigate mitigation strategies for offsetting emissions that are the result of new construction. Yale University recently conducted a campus carbon tax pilot program to study the comparative results of various pricing programs. The study found that the most successful program reduced emissions from baseline values by 10.8% on average, with some buildings reducing emissions by up to 33%⁴. Given the feasibility of a university carbon tax as demonstrated by the study, the EIR should investigate various approaches to a carbon pricing program including revenue neutral and non-revenue neutral strategies, a range of CO₂ equivalent charging rates, and various channels for utilizing the tax revenues. It should also look into the impact of any such measure on students of different socioeconomic statuses.

³ 2016 CEQA Statutes and Guidelines Article 9, Section 15131 "Economic and Social Effects"

⁴http://carbon.yale.edu/sites/default/files/files/Carbon_Charge_Pilot_Report_20161010.pdf

Additionally, the EIR should investigate the possibility and challenges of utilizing carbon offsets and renewable energy credits to neutralize emissions. Carbon offsets often face obstacles such as ambivalent efficacy and carbon leakage; therefore, the EIR should examine pathways to ascertain and quantify the benefits and drawbacks. For example, the EIR might consider third-party carbon offset rating systems and an economic model for the impacts of large-scale, off site renewable energy projects.

Although the University has incorporated some successful low carbon buildings into its campus, such as the LEED platinum rated Y2E2 and the Knight Management Center, many recent building projects have not incorporated energy efficient and high performance design strategies. One example is the the graduate residence Lyman Hall, which fails to take advantage of building orientation strategies to minimize heating and cooling loads. Therefore, it would be useful if the EIR evaluated the economic and environmental benefits of a variety of these design strategies. Some examples include passive solar design, integrated building systems, smart monitoring and sensors, and night cooling, among many other options.

Comment 2: Transportation and Housing

Through 2035, Stanford has proposed a 9,188 person increase in the University's population, of which at least 6,288 are expected to be employees. With the addition of its proposed 3,150 residential units through 2035, the University would have 6,038 new members of the population living off campus. We would expect this to subpopulation to significantly contribute to the traffic congestion of the area, to the University's emissions and total vehicle miles traveled, and to the burden on public transit.

Of particular import for the impact of the University's development on emissions and the public transit system is the consequent increase in very low and low-income workers in the area. Using data from the ACS and IPEDS, we've estimated a lower bound of 1,193 very low or low-income households (2,192 if graduate students are included) will be added to the area over the next 18 years.

Given that of the total 3,150 new housing units Stanford has proposed, 550 will be allocated to staff/faculty and approximately 900 will be allocated to graduate students, at least 742 very low or low-income households will still need to reside off campus even in the most optimistic scenario where all 550 proposed staff/faculty units will be allocated to very low or low-income employees. These off-campus residents are likely to have significant impacts on emissions, traffic, and the public transit system. Though not a perfect proxy for rental information, Plan Bay Area provides some information on the location of affordable housing in the Bay. Although a small amount exists in the affordable range in East Palo Alto, the remainder is in San Jose or farther. These workers will need to commute by car, thereby contributing to the congestion of regional traffic, or by public transit, contributing to the disrepair and overcrowding already burdening public transit systems.

In order to ensure that the above points are adequately addressed, the Coalition requests that that the Environmental Impact Report look into the following:

Comment 2a. In its efforts to reduce traffic congestion during peak hours, as well as in reducing total greenhouse gas (GHG) emissions, the Coalition requests that Stanford be accountable for all twelve employment categories identified in its Transportation Impact Analysis. We request that Stanford reports, and that the EIR considers, relevant data for all twelve populations.

Subcontracted workers, such as third party contractors, janitorial contractors, construction contractors as well as casual, contingent, and temporary employees, account for nearly a third of off-campus trips, and by the analysis conducted by Fehr & Peers, Third Party Contractors, Janitorial Shift Workers, and Construction workers have the highest VMT per capita among all Stanford workers (23.1 miles / capita)⁵. In terms of GHG emissions, casual, contingent, and temporary employees make up 11.9% of the university's total off-campus (Worker) trip emissions, while third party contractors, janitorial shift workers, and construction make up 15.5%, according to the Greenhouse Gases Technical Report Tab.

However, we note that Stanford does not include these categories of workers in many of its Transportation Demand Management (TDM) programs to decrease GHG emissions and vehicle miles traveled (VMT). For example, all of these positions are not eligible for the transportation benefits programs that incentivize lower emission trips, such as the GoPass⁶ and the VTA Eco Pass⁷. Without extending the transportation benefit program to these two groups of workers, Stanford neglects the opportunity to decrease the emissions from 27.4% of off-campus trips.

In addition, as noted in the VMT analysis tab of the GUP application, Stanford does not survey the needs, behaviors, and preferences of workers hired by "third party contractors, janitorial contractors and construction contractors" in its annual P&TS Commuter Survey. We find this particularly concerning, since this forces the VMT and GHG analyses to use proxy data for Commute Mode choice, Vehicle Occupancy, Trip Length, and Commute Frequency, which is likely less accurate. The VMT Analysis notes that available traffic models from MTC and VTA used in the analysis "do not accurately represent travel characteristics at Stanford." It seems that countywide data would similarly misrepresent the actual travel characteristics for this particular class of employees. We ask for the EIR to collect Stanford-specific information for these workers, rather than rely on less-accurate regional data.

In addition, we have found that this group of workers are often given later shifts that do not correspond to peak hour commute times. Given the lack of data from P&TS on shift times and commuting behaviors of this group of workers, it is difficult to assess their contribution to worker VMT.

More generally, without information regarding subcontracted workers in the transportation needs survey, Stanford has insufficient data to accurately design transit programs, such as commuter bus services, GHG reduction initiatives, and VMT reduction incentives. We ask that the EIR require Stanford to report on these numbers. In the Transportation Impact Analysis Part I of Stanford's GUP application, it is claimed that Stanford is considering the expansion of "commuter bus service" and "local Marguerite shuttle service" by identifying "employee transit markets" that would benefit from commuter bus services. Stanford must ensure that in its analysis of the relevant "employee transit markets" that it includes all Stanford employees, including those employed by outside contractors. Otherwise, this analysis is incomplete, leaving room for error in estimating the needs for commuter bus services.

Finally, we request a report on the locations that all workers in each of the 12 employment categories are traveling from, as well as a report on the TDM programs that are available and accessible to these workers, including free and reduced price passes, vanpool services, etc. Included in this analysis should be a study of workers' preferences for the most accessible transportation options.

⁵ https://www.sccgov.org/sites/dpd/DocsForms/Documents/SU_2018GUP_App_Tab8_VMT.pdf

⁶ <https://transportation.stanford.edu/transit/free-transit-incentives/caltrain-go-pass/eligibility>

⁷ <https://transportation.stanford.edu/transit/free-transit-and-incentives/vta-eco-pass>

Comment 2b. The Coalition requests that the county consider a transportation analysis that includes Vehicle Miles Traveled disaggregated by income and number of children.

Stanford's proposed development of on-campus housing for University employees is likely to significantly increase traffic congestion, University emissions, and the burden on public transit. In order to understand the environmental impact of the population growth created by the new development, and given high price of housing in the areas surrounding Stanford University land, VMT will likely differ based income. In order to fully understand the resulting VMT impact from proposed development, a commute analysis of Stanford University employees and students of all income levels should be assessed, and VMT should be calculated accordingly. Furthermore, the VMT assessment performed should include trips outside peak hours, when many low-income workers commute to and from campus.

Comment 2c. The Coalition requests that the EIR consider the alternative of providing more homes on-campus for Stanford staff and workers, particularly pertaining to the 12 employment groups included in the projected population increase.

As lower income employees may need to live further from the Stanford University campus due to the high price of buying or renting housing near Stanford campus (to the extent that efficient public transit may not be an option), the housing of more employees on campus may result in a significantly lower VMT rate.

We ask for more explicit data in regards to the potential VMT and GHG savings for new on-campus housing for employees. The Transportation Impact Analysis Part I notes that "While new on campus housing generates some new peak hour, peak direction trips, that residential trip generation is more than offset by the decrease in non-residential peak direction trips during the peak commute period." As a result, we believe that on-campus staff housing may yield significant GHG and VMT reductions. The EIR should quantify the total trip counts, VMT, and GHG reductions that would result from producing on-campus housing for each of the 12 employer categories.

Comment 2d. By 2035, Stanford is projected to bring in 7,901 persons who will be affiliated or employed by the University but live off campus. The Coalition requests that the EIR consider the impact of these affiliates in displacement, both as it pertains to significant physical impacts on the environment and public health. We request 1) that the EIR make public the costs of both increased prices and displacement, disaggregated by income and household size, 2) that the EIR includes both a Nexus study and market analysis to evaluate these costs.

Stanford's proposed development has the potential to displace local residents and raise area rents. Over the course of the next 18 years, Stanford's proposal will bring many people to the area whose impacts on the area's already-tight housing market need to be identified and mitigated. In addition to the 6,038 employees for whom the University is not proposing to provide housing for on campus, each year, some fraction of the proposed 2,900 new students brought to, and graduated from, the University every year will remain in the area. Assuming that, as was true of the class of 2014, 13.59% of students remain in the Bay Area after graduation each year through 2035, and that the distribution of students post-graduation matches the population distribution of the Bay Area, then 3.57% of students will remain in Santa Clara County each year.⁸ With the proposed additional 2,900 students per year, this

⁸ Census and CDC

results in a cumulative 1,863 persons brought to reside in the county over the next 18 years.

All of these 7,901 persons residing off-campus will require housing. Aside from the responsibility Stanford has to ensuring these people are housed (a point tangential to the EIR), it is obliged to mitigate the effect of the new residents on the area's housing physical development. All of these 7,901 persons residing off-campus will require housing. Aside from the responsibility Stanford has to ensuring these people are housed (a point tangential to the EIR), it is obliged to mitigate the effect of the new residents on the area's housing market. In the language of economics, they represent increased demand for housing across different segments of the market (in rough proportion, we imagine, to the income distribution of the group). Given that housing supply elasticities in the area are some of the highest in the country, we would expect to see this pressure manifest as a significant increase in the price of renting and owning a home for those segments of the market experiencing increased demand.⁹ Some will be able to bear the increased cost, but some will not and will be forced to relocate. We enjoin the County to account for the costs of both increased prices and displacement across the 7,901 persons we estimate will make this region home as a result of Stanford's proposed development.

Appendix G of the CEQA Guidelines requires the environmental analysis of a project to consider whether it would displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere.

Additionally, CEQA Section 15126.2 states that an EIR must address the "health and safety problems caused by the physical changes," including "changes induced in population distribution, population concentration, the human use of the land." There is precedent for the public health impacts of displacement to be considered under this guideline. These impacts include: psychological stress, fear, and insecurity caused by eviction; substandard living conditions because of limited affordable replacement housing; food insecurity or hunger caused by increased rent burdens; and loss of supportive social networks owing to displacement. Given the multitude of empirical studies that document the negative health impacts of displacement, and the high possibility for displacement of low-income families the current Bay Area housing market, we request that the EIR analyze the number of people displaced by added University affiliates, the physical environmental impacts of such displacement, and the negative public health impacts of displacement.

Comment 2e. The Coalition requests that the EIR consider the acute chronic health effects of lead paint and air quality reductions related to both renovation and new construction, especially as it pertains to resident and worker safety.

The Coalition requests that the EIR consider the acute chronic health effects, such as, the exposure to lead, for construction workers and residents of new units. There is significant cause to believe that the Escondido Village area of campus has in the past been coated with at least two layers of lead paint, with the potential for runoff into soil.¹⁰ We ask that the EIR conduct soil testing for hazardous materials on campus, particularly lead, and make previous soil testing data publicly accessible.

Has there ever been a case in EV of elevated blood lead levels since 1960? What are the results of blood lead tests? If the University does not know, then fund a study to review the county medical records (records are held by State of California and publicly available though in a raw data format).

⁹Saiz 1284

¹⁰ Stanford Daily, *Construction in 2013 exposed Escondido Village residents and workers to lead*.

We additionally request that the EIR measure the adverse health effects of the proposed construction on workers and nearby residents, particularly children. Children are a sensitive and vulnerable population, whose bodies and brains are rapidly developing and should be protected from unsafe exposure to contaminants.

Comment 2f. The Coalition requests that the EIR consider the role of facilities on diversity.

A recurring theme is the need for Stanford to execute on their promise to support students with children through all stages of life, from deciding to have children, to care for infants, to activities for older children. We see a correlation between students from diverse backgrounds and students with children. Increasing diversity in the student body will increase the need for family housing. For example, women in academia are underrepresented. When women are equally represented in the tenure track pipeline - facilities relating to children will be insufficient such as childcare, housing, and lactation rooms. Additionally, both undergraduate and graduate students with children from a variety of backgrounds, experiences and ages provide important perspectives and contributions to Stanford as an intellectual and social community. As a result, maintaining housing for students with children is essential for continuing to build a more diverse student body. Only half of housing for students with children is occupied by students with children. This is a failure of the University to achieve the diversity that would regularly fill that housing.

Questions that SCoPE has on this issue for the EIR include:

- Off campus students with children
 - How many students are forced out before they finish their degree?
 - Can Stanford identify the population of students with children?
 - How to subsidize housing students ineligible for housing on-campus.
- Housing units forecast
 - Inclusion/access to housing for university staff
 - Is the current student body served by the housing units? (it is not)
 - What evidence of a connection between diversity and housing? (agree there is)
 - Is there a connection between background and the number of children?
 - A housing plan with the projected ramp to diversity (i.e. double over five years)
 - What prevents Stanford from collecting data on diversity? (groups are on this)
 - Does Stanford have data on housing eligibility?
 - A written statement with the units analysis and R&DE commitment to supporting students with children would help us know these priorities will be maintained.

Comment 3: Impacts on External Communities

Stanford's actions have impacts that reach far beyond its boundaries. In the 2018 General Use Permit application letter, Associate Vice President Catherine Palter asserts that the "flexibility with accountability" regulatory framework established by the 2000 General Use Permit has worked well.¹¹ Stanford University has stated their commitment to be held accountable for impacts that it creates and will consider ways to mitigate negative effects on the surrounding community. The members of the Stanford community are spread far and wide across the Bay Area and even as far as the Central Valley.¹² Moreover, development impacts issues and services that are regional in nature: housing, transportation, public services, etc. We acknowledge that the EIR process is limited to Santa Clara

¹¹ 2018 General Use Permit Application, *Tab 1: Transmittal Letter*

¹² KQED News, *Long Commute to Silicon Valley Increasingly the Norm for Many*

County, and encourage the county to further examine how Stanford impacts all of Santa Clara County. Rather than limiting the scope to a certain radius within Stanford lands, we must also look at the impacts in communities such as San Jose and Sunnyvale. In order to ensure that the above points are adequately addressed, the Coalition requests that the Environmental Impact Report look into the following:

Comment 3a. The Coalition requests that the EIR examine the impact on services of employees in all twelve employment categories (identified in its Transportation Impact Analysis) who live within Santa Clara County but outside the direct radius of the University.

According to Section 15064 (d)(2) of the CEQA Guidelines, the environmental impact review must address indirect physical change in the environment that is induced by a direct physical change in the environment caused by the General Use Permit. In this case, the development of new housing and academic buildings is a direct physical change that will also lead indirectly to population growth and physical development in other parts of the county, since Stanford is unable to house all of its affiliates. In addition to the analysis requested in Comments (2a) and (2e), the EIR must consider the projected services impact that these families and those of other Stanford-affiliated workers have on other localities within the county in which they live. This must include impact on schools, affordable housing, public transportation services, and child care, in the same way this impact is analyzed within a direct radius of campus for families living in University housing. This analysis should consider employees in all twelve employment categories identified in its Transportation Impact Analysis.

Comment 3b. The Coalition requests that the EIR assess the impacts of Stanford's development on transportation infrastructure outside of Stanford's borders.

According to Section 15064 (d)(2) of the CEQA Guidelines, the EIR should address indirect impacts resulting from direct impacts of the project. In this case, increases in academic development will lead to more jobs at Stanford University than the increase in housing will accommodate. Therefore, an indirect impact would be the population growth in Santa Clara County outside of Stanford University, and the associated impact on the transportation infrastructure by workers of all categories who commute to Stanford. Santa Clara County should determine how these additional commutes will place an increased strain on bicycle and pedestrian infrastructure, complete streets, and public transportation within Santa Clara County.

Comment 3c. The Coalition requests that the EIR assess Stanford's childcare needs and provided facilities to determine whether there is a significant increased impact of proposed development.

Stanford will be building a net increase in child care centers and facilities due to the General Use Permit. However, according to Section 15130 of CEQA Guidelines, the environmental impact report should also consider cumulative impacts. Santa Clara County should consider the cumulative impact of the 2000 General Use Permit and the 2018 General Use Permit by including the current level of services provided by the child care centers and facilities in its analysis to determine whether Stanford is adequately addressing the need for child care generated by its development. We would like to see the county analyze the historical and project need for childcare generated by Stanford and determine a standard for what is considered sufficient childcare provision. We would also like the county to determine whether Stanford is providing adequate community services in the form of childcare and if they are not, how much of a strain is placed on nearby communities' child care facilities.

Thank you very much for taking these comments into consideration.

Student Group Endorsements

SSS (Students for a Sustainable Stanford)
FFS (Fossil Free Stanford)
MEChA (Movimiento Estudiantil Chicano de Aztlán)
SALA (Student and Labor Alliance)
AASA (Asian American Student Association)
SAAAC (Stanford Asian American Activism Committee)
Stanford NAACP (National Association for the Advancement of Colored People)
SAIO (Stanford American Indian Organization)
Resource Generation
Engineers for a Sustainable World

Individual Endorsements

Forest Peterson (CEE PhDc '17)
Emma Walker-Silverman (BA Psychology '17)
Kevin Keene (M.S., Civil Engineering)
Carl Hoiland (Ph.D. Candidate, Geological Sciences)
Arnaud Dusser (MS CEE '17)
Sierra Garcia (B.S. Earth Systems '18)
Co Tran (BA History '17)
Robert Young (BS Electrical Engineering '18)
Samuel Maull (PhD Anthropology '19)
Vivian Yan (Graduate)
Tyler Pullen (M.S. Sustainable Design and Construction '18)
Steven Cheng (2019)
Emma Fisher (BS Earth Systems '17)
Simone Speizer (class of 2020)
Erin Pang (B.S. Earth Systems '18)
Roxa Meyer (BS Physics '19)
Adam O'Regan (Class of 2020)
Joe R. C. Sponsler (BS Materials Science and Engineering '20)
Miranda Vogt (2019)
Christina Li (BS computer science 2020)
Emily Wilson (Freshman)
Sneha Ayyagari (17)
Carlos Ciudad-Real (BS Civil Engineering '20)
Eva Borgwardt (2019)
Sharon Tseng (B.S. Electrical Engineering '17)
Derek Ouyang (Lecturer, Department of Civil & Environmental Engineering)
Kimiko Estella Hirota (2020)

Justin Briggs (PhD Applied Physics '17)
Deirdre Paula Francks (2020)
Kirin Furst (PhD Civil & Environmental Engineering '20)
Elizabeth Andruszkiewicz (Current PhD Student - CEE)
Justin Alexander Wilck (20)
Yesid Antonio Castro Calle (BA Linguistics '17)
Tanvi Gambhir (2018)
Terence Zhao (Urban Studies '19)
Dr. Selby Wynn Schwartz (Lecturer, Program in Writing and Rhetoric)
Emily Nguyen (BA Human Biology '17)
Jack Lane (BS Earth Systems '17)
Jason Li (BA Human Biology '18)
Lily Zheng (BA Psychology '17, MA Sociology '17)
Stacy Villalobos (JD '15, BA '11)
Melissa Chen (BA Art Practice '19)
Daniel Murray (Associate Director of the Center for Comparative Studies in Race and Ethnicity)
Kate Ham (2020)
John Moran (PhD Anthropology '18)
Kylee Beck (2020)
Mark Gardiner (PhD Anthropology '16)
Flora Wang ('19)
Allison Perry (BA anthropology '17)
Catherine Sanchez (2019)
Samir Can (PhD Anthropology)
Aaron Sherman Hopes (Graduate Anthropology)
Teresa Pratt (PhD Linguistics)
Colin Kimzey (BA Art Practice '17)
Becca Nelson (Freshman)
Gabriella Guerra (2019)
Jonathan Fisk (Earth Systems B.S. '16, M.S. '17)
Joshua De Leon (BA International Relations '17)
Vanuyen Pham (BA History '18)
Lina Khoeur (BA Human Biology, MS Community Health & Prevention Research '18)
Jennifer Perry (BA History '19)
Jonathan Engel (BS Symbolic Systems '17)
Thi Nguyen (BS Biology '18)
Sarah Brickman (BS Earth Systems '17)
Andrea Flores (2018)
Anna Krakowsky (BA English '19)
Arnav Mariwala (BS Physics '17)
Parsa Nowruzi (BA Anthropology '19)
Thea Rossman (2019)
Eva Reyes (BA CSRE '19)
Kirsten Willer (BA International relations '17)

Neil Tangri (ESS PhD '18)
Fanya Becks (Graduate Student Anthropology)
Ian Macato (BS Symbolic Systems '19)
Savannah Pham (2018)
Perry Simmons (MS Civil Engineering)
E'iana Jordan (PhD Candidate, Anthropology)
Kaylee Elaine Beam (BS Atmosphere/Energy '19)
Natalie Gable (BS Electrical Engineering '19)
May Peterson (BA Classics '17)
Emma Hutchinson (BS Earth Systems '17)
Rocio Hernandez (BA Urban Studies & Sociology '18)
Paloma Hernandez (Earth Systems 2018)
Jessica Schrantz (BA African and African American Studies '17)
Bernardo Velez (BA Art Practice & Chicana/Latina Studies '18)
John Ribeiro-Broomhead (BA Public Policy)
Dan Sakaguchi (BS Physics '16 MS Earth Systems '18')
Joy Zeng (BS Chemical Engineering 2017)
Niza Contreras (20)
Solveij Rosa Praxis (BA Anthropology '17)
Emma Hartung (African & African American Studies '17)
Brian Tran (BA Human Biology '18)
Alpha Hernandez (BA Architectural Design '19)
John Zhao (B.S. Environmental Systems Engineering '18)
Gabriela Nagle Alverio (BA International Relations and Feminist Gender and Sexuality Studies '18)
James Li (BA CS '19)
John Bonacorsi (JD '18)
Josh Lappen (Classics '17)
Elena Press (2020)
Tynan Challenor (2017)
Sijo Smith (2018)
Luke Miller (2019)
Emily Lemmerman (2019)

Southgate Neighborhood Committee
Palo Alto, California

c/o Tom Vlasic
1540 Mariposa Avenue
Palo Alto, California 94306

February 16, 2017

Transmitted by email: david.rader@pln.sccgov.org

County of Santa Clara Planning Office
Attention: David Rader
County Government Center
70 West Hedding Street, 7th Floor, East Wing
San Jose, CA 95110

Subject: Comments on NOP for Proposed Stanford University 2018 GUP

Dear Mr. Rader,

Thank you for the opportunity to comment on the subject NOP. Our committee members and our neighbors live in the Southgate Neighborhood of Palo Alto. This neighborhood is bounded by El Camino Real, Churchill Avenue, Alma Street and Park Avenue. Southgate is Stanford's immediate neighbor northeast of the University and just across El Camino Real from the DAPER/Administrative and East Campus districts of the Stanford plan area. Of the plans proposed 2,275,000 sf of new academic space and 3,150 new dwelling units (dus), 220,000 sf of the academic space and 1,600 of the dus are planned in the two districts adjacent to our neighborhood.

Southgate has been, and continues to be, impacted by traffic and parking from non-residential uses outside of, and immediately adjacent to, our part of the City of Palo Alto and this is what concerns us about the proposed 2018 GUP. We have been struggling to cope with and address the parking problems from non-residential uses and have been working with the City in this regard. Traffic on the Churchill corridor between Alma and El Camino Real is compounding each year, therefore the anticipated growth of Stanford University as set forth in the proposed 2018 GUP plan causes additional alarm within our neighborhood. We are particularly concerned with the lack of a truly verifiable plan for monitoring and dealing with off campus traffic and parking impacts, particularly when we consider the manner in which the Transportation Demand Management (TDM) plan proposals are set forth in the Stanford application. We find them inadequate and to rely on only committing to partially solving problems well after the impacts are felt by the adjacent neighborhoods.

Under section 7.1 No Net Commute Trips Goal in the plan application, we specifically request that the draft EIR fully evaluate the practical application of the proposed TDM programs, and particularly their ability to be realistically monitored and implemented to reduce potential impacts of traffic and parking to insignificant levels. There should be detailed implementation strategies for the TDM operations that, under direct Santa Clara County Planning oversight and control, require Stanford to fully address evolving off site traffic and parking problems well BEFORE they mature to significant impact levels. Specifically, these strategies should ensure verification that TDM mitigations are functioning as intended and that, for example, the TDM stipends, VTA,

Caltrain, SamTrans, carpool gas cards and other passes or subsidies issued to workers/commuters, are being used and, most importantly, achieving the intended results.

Today, modern TDM programs can incorporate technology that correlates directly to a commuter, and their public transportation activity to verify that trips into Palo Alto are based on public transit, not driving and parking adjacent to a Marguerite shuttle route in a local neighborhood. What we are suggesting will likely require a hands-on TDM management program that issues subsidies directly to Clipper Cards, gas reimbursement applications, and other trip reduction techniques that can verify transit use and commute activity.

Our concerns are underscored by comments we have heard recently from Stanford representatives about the potential for off site parking, traffic and other impacts as “not Stanford’s problem” since this is a typical issue between universities and adjacent neighborhoods. Instead, they argue that such problems should be addressed by the City of Palo Alto. Southgate objects to this conclusion, and believes that Stanford does and will contribute to increased traffic congestion in and around our neighborhood, the city and other communities and therefore should be responsible for this impact with mitigations that include clear and specific verification methods that ensure workers offered TDM programs are using public transit for the entire commute.

As a reminder, Stanford is not a public university and does not have the same relief from the discretionary review process that a California public university would. Stanford should be held accountable for its share of off site impacts as would any other private use seeking such a permit. At the same time, we recognize the many benefits that a private school like Stanford offers, and the efforts it has made relative to TDMs. Our request is that Stanford update their TDM techniques so that there is verifiable accountability so that neighbors like Southgate can be confident these programs will achieve trip reduction mitigations to fully offset potential growth impacts relative to the proposals set forth in the requested GUP application.

Again, we thank you for the opportunity to comment on the NOP and look forward to a full and complete draft EIR addressing not only our concerns, but the many other growth impact issues the 2018 GUP proposals will trigger.

Sincerely,

Southgate Neighborhood Committee:

Nancy Shepherd
Jim McFall
Christine Shambora
Keith Ferrell
Tom Vlasic



Signed by Tom Vlasic on behalf of the Southgate Neighborhood Committee

cc. Palo Alto City Council

Stanford University Graduate Housing Affordability Report

Completed by the Graduate Student Organization
Department of Anthropology, Stanford University

Introduction

In its annual survey, Stanford's Residential and Dining Enterprises solicits no data from graduate students about the affordability of on-campus housing at Stanford University. Although both Stanford University and Santa Clara County designate on-campus graduate housing at Stanford as "affordable housing," this designation is not substantiated by information about the affordability of this housing for the only demographic of Santa Clara County residents who may access it: graduate students and graduate student employees of Stanford University. Santa Clara County's designation of Stanford's on-campus graduate housing as "affordable housing" contributing to the County's Regional Housing Needs Allocation obligation saves the University millions of dollars by justifying a smaller contribution to the County's Stanford Affordable Housing Fund. Simultaneously, Stanford profits from graduate students who must pay large percentages of their income to meet basic housing needs. This study asks a question both Stanford University and Santa Clara County have neglected to provide a substantiated answer for: Is on-campus housing at Stanford University in any meaningful sense affordable? The results of this study are definitive: It is not. We seek relief from the County and University for the wrongful designation of on-campus graduate housing at Stanford University as "affordable housing," which has saved Stanford University millions of dollars while burdening the residents this designation is meant to protect.

Study Methodology

Using graduate student employees in the Department of Anthropology as a case study, this online survey solicited self-reported financial data and perceptions of housing affordability from the eighty-four graduate student employees in the department. Thirty-two graduate student employees responded to the survey.

Study Findings

97% of graduate students reported contributing 30% or more of their income to housing costs, which is the federal definition of unaffordable housing as determined by the U.S. Department of Housing and Urban Development. Furthermore, over 60% of graduate students would be classified by U.S. HUD as "severely rent burdened," as they contribute 50% or more of their income to housing costs. 71% of graduate students described on-campus housing as "unaffordable" or "very unaffordable." 94% of students believe Stanford has an obligation to provide on-campus housing that meets the federal definition of affordability for graduate students.

Study Conclusions

On-campus graduate housing at Stanford University, a self-designated residential university, does not meet any reasonable standard of affordability for graduate student employees, who are undercompensated by an institution that fails to provide them a living wage even as that institution profits on grossly unaffordable housing.

Recommendations

We seek relief from Santa Clara County on four counts:

We ask that Santa Clara County deny Stanford University's claim of a \$103 million affordable housing subsidy in its 2018 General Use Permit, which the University claims despite constructing housing that will in no meaningful sense be affordable.

We ask that new on-campus housing in the 2018 General Use Permit not be designated as "affordable housing" unless projected annual rental costs are estimated to be less than 30% of mean graduate student income.

We ask that the county revoke its designation of Kennedy Graduate Residences and Munger Graduate Residences as affordable for "low- and very-low income populations" in accordance with the 2000 General Use Permit. We ask the county to explain through what criteria housing at Munger Graduate Residences, which costs between \$1,493 and \$1,910 per person per month, has been designated as affordable for very-low income populations.

We ask that since development of on-campus graduate housing at Stanford is available to only one class of Santa Clara County residents, namely Stanford graduate students and graduate student employees, these units should not be counted as "affordable housing" for the purpose of the Regional Housing Needs Allocation (RHNA), if their affordability is calculated based on the Area Median Income (AMI) for Santa Clara County, a calculation irrelevant to the only class of Santa Clara County residents who may access such housing, whose median incomes are much lower than the AMI.

We seek relief from Stanford University on four counts:

We ask that Stanford University, which wrongly claims a \$103 million affordable housing subsidy in its 2018 General Use Permit despite constructing housing that will in no meaningful sense be affordable, provide said \$103 million to the County of Santa Clara's Stanford Affordable Housing Fund.

We ask that within one year, Stanford University devise a plan to provide access to affordable housing for graduate students within five years. We ask that within five years, the mean annual on-campus graduate housing cost does not exceed 30% of the mean graduate annual income.

We ask that Stanford University make good faith efforts toward salary parity for graduate student employees across disciplines.

We seek evidence of Stanford's unsubstantiated claim in their 2018 General Use Permit Application that "Stanford's student rents are 40 percent less than what is charged in the surrounding rental market" (2018 GUP 6.10).

Further Research

Gender. Further research is needed to determine whether disciplinary pay disparity has disparate effects on female-identified graduate students. We hypothesize that the cost burden of unaffordable housing is placed disproportionately on female-identified employees, because Stanford compensates graduate student employees in disciplines with disproportionately male employees more than disciplines with disproportionately female employees. We seek data from Stanford University about variation in income among graduate student employees in different disciplines, and the distribution of gender across those disciplines.

National origin. Based on our preliminary study findings, we hypothesize that international students are more likely to live in efficiencies, the least expensive housing option, which contains limited amenities and space. We seek data on the distribution of the national origin of students across different levels of on-campus housing. We seek data on the national origins of occupants of double- and triple-occupancy rooms and data on what percentage students of a particular national background, such as Chinese nationals, are assigned roommates of the same national background.

Appendix A: Survey Results

Q1A. Are you able to cover your living expenses with the stipend/salary from the department?

Yes	63%
No	37%

Q1B-C. If not, how do you pay for your expenses or supplement your income? Is attending this graduate program more expensive than you anticipated? *Select responses:*

Yes, I am able to cover my living expenses with my stipend. BUT an efficiency is the only form of housing I can afford (among the options that let me at least have my own room), and if I hadn't gotten an efficiency, I wouldn't have been able to afford being here. I literally cannot afford any of the other housing options offered by Stanford, and I definitely cannot afford to live off campus.

Without taxes taken out, I am able to cover the expenses, but I live in constant fear that I'm going to owe more than I've been able to save for my taxes. Living here has been much more expensive than I thought it would be.

I can cover it with my stipend but it's tough, mainly because the department appears to believe that we do not pay rent, eat, or have medical expenses over summer quarter.

To supplement my income, I have done childcare, done odd jobs for the department, taught extra courses at Stanford in other departments, applied for supplemental funding, and found small paid gigs. However, one year I had to ask my parents to help me pay taxes, and I have not been able to pay them back due to the difficulties in having comfortable savings.

No - I have taken extra teaching jobs in order to cover cost of room and board. Attending grad school here has become much more expensive than I anticipated - had I realized it would have increased the way it has over the past 5 years I might have chosen a different program

Q2A. Do you have student loans?

Yes	41%
No	59%

Q2B-C. How much do you owe now? How much do you think you will owe upon earning your PhD?

The mean debt owed, among graduate students reporting student debt, was approximately \$27,000. The median student debt reported was \$16,500.

Q3. Could you calculate for us what percentage of your annual income goes to housing costs? The US Department of Housing and Urban Development defines affordable housing as costing less than 30% of one's income.

30% or more of income goes to housing:	97% of graduate students
50% or more of income goes to housing:	63% of graduate students
60% or more of income goes to housing:	19% of graduate students

Mean reported percentage of income going to housing costs: 49%.

Q4. Would you describe on-campus housing as “very affordable” “affordable” “unaffordable” “very unaffordable”?

Very affordable:	0%
Affordable:	26%
Unaffordable:	58%
Very unaffordable:	13%

Q5. Would you describe off-campus housing as “very affordable” “affordable” “unaffordable” “very unaffordable”?

Very affordable:	0%
Affordable:	3%
Unaffordable:	39%
Very unaffordable:	55%

Q6. In its ability to meet your expenses, would you describe your income as a graduate student as:

Very adequate:	3%
Adequate:	31%
Inadequate:	59%
Very inadequate:	6%

Q7. Which buildings have you lived in on-campus (please also name the housing style such as "efficiency" and monthly cost if possible), or which cities have you lived in in the Bay Area, and how would you describe your citizenship status, national origin, marital and parental status, race and ethnicity, gender, socioeconomic/class status, or any other identities and statuses? We are curious about the relationship between various backgrounds and accessibility to differently priced on-campus accommodations, and any reflections you may have. *Selected reflections:*

The cheaper living costs in Oakland are offset by the fact that getting to campus on public transit is not only expensive, but time consuming. My time commuting to and from campus is in average 5 hours a day, forcing me to limit the days I can go to campus because those days are unproductive.

The fact that I'm from a low-income family has had an impact on the fact that I have been content to live in an efficiency (though, my heart has ached -- ACHED -- when I have visited those of my friends who live in the studios, Munger, well, any other housing. Oh how I wish I could afford to live there too. But, I tell myself, I'm in grad school, and that's how it goes. But then I remember that Stanford has gone out of its way to demonstrate that it is very ok with inequality, by constructing grad housing buildings that are so ridiculously different from each other so that financial disparity is built into the very infrastructure of the university. Who ever heard of such a thing?! Even the furniture in the buildings is different. The beds - not just the size, the type of mattress.

As a foreign national there is almost no way to help yourself make extra money if you need to as the student visa is incredibly restrictive on how many hours/week you can work and in what field. On top of this, foreign nationals are subject to a hefty withholding tax of 30% so we lose 30% of our stipend/grant money

automatically and we do not qualify for many tax credits as alien residents, but DO qualify as residents for taxation.

My reflection is that I actually prefer not to live with people with same ethnic background, but I'm always assigned to apartment with Chinese roommates. It happens to many of my friends too, but the strategy of house allocation with regard to his aspect is not made clear in housing application system. The application asked you about everyday habits, I want to know if those issues are really taken seriously.

Q8. Do you believe Stanford should have stipend and salary parity across departments for PhD students, in which PhD students studying different disciplines are paid the same or close to the same stipend?

Yes: 84%

No: 6%

Did not know/want to learn more: 9%

Selected responses:

Yes. While there can be some differences, the fact that social science students make consistently less than their peers in some other schools is cause for concern. Students in some programs are clearing 34-35k per year, while we in Anthro earn less than 27k. The difference would be equivalent to a 30% pay increase for an Anthro student. However, even our peers in Classics and History have thousands of additional stipend dollars per year. So the School should at minimum move toward parity within similar programs.

Yes, I am aware. I am among those whose stipend is on the lowest end. When I first heard about the disparity, I was surprised and insulted. It mirrors the disparity among salaries paid to professors in different departments. CS professors get paid more than Humanities or School of Education professors. It's wrong. I do think that students should get paid the same across departments. I think female professors should be paid the same as male professors. I think professors of color should be paid the same as white professors. I think Anthro professors should be paid the same as Engineering Professors. Even within the school of H&SS, don't economics professor make much more than their anthropology or history counterparts? Yes. I think there should be pay parity for PhD students across disciplines. And I think this should not be accomplished at the cost of reducing the number of students admitted to those programs currently paying lower stipends i.e. they should be allotted more funding, instead of required to reduce size. All that said, I wouldn't trade places with my EE roommate. She gets paid more than I do, which I resent, and she is guaranteed summer funding (ie she gets 4 quarters of funding each year) but she is 'employed' by her advisor to work in his lab, which sounds awful. She's lucky if she gets to take a week off each year to go see her family. I work just as hard as she does, for

just as many hours each week, but on my own terms, because of my discipline and the structure of my program. Because I have the freedom to apply for external funding for the summers, I can do my own research, away from Stanford. Some university administrators would argue that it's ok to pay students differently because the 'work' they do 'for' the university is different, but that's not a correct assessment. Students in anthro only TA twice, sure, but students in TAPS and History TA a lot more quarters yet do not receive stipends as high as those in EE or CS. I'm not saying that stipends should depend on how many times students TA; I'm saying that extant 'justifications' for the disparities are flawed.

Yes, and this is beyond ludicrous, while certainly not beyond the capabilities of the university to fix. It is unclear to me why students in certain departments appear to have a right to a more comfortable living than others or why the university is fine with arbitrarily valuing students' work differently.

Q9. Have financial considerations ever impacted your sense of performance as a student?

Yes: 84%

No: 16%

Select responses:

Yes, absolutely. Every hour I spend earning the extra cash I need to visit my family, travel to conferences, and conduct fieldwork is time taken directly from my research and scholarly output. I make this trade off literally every week here.

Finding affordable housing, sometimes having to move from sublet to sublet on a quarterly basis, was a constant source of anxiety during my second and third years as a doctoral student and it had negative impacts on my overall wellbeing, and my extension on my performance as a student.

Absolutely. When I cannot make ends meet, I have to find income else where by working, and when working, I am not doing my job as a graduate student, and therefore fall behind in meeting deadlines. Not too mention being over-stressed and tired. It pushes one to their limits, and that effects work that requires extensive mental labor.

Yes. I did fieldwork for only 1/2 the summer after year 1 and year 2 so that I could work; if I hadn't done this, I would still have far more student debt than I do.

Yes – the stress of periodically not having access to cash (even if I, in theory, had the money) threatened my ability to make rent made studying for exams and applying for grants worse.

My family and relatives ridicule my pursuit of the degree because of my failure to maintain financial independence at my age.

Absolutely. When I had to live in [an affordable city far from Stanford] I couldn't get access to campus easily. I couldn't access amenities I deserved or attend lectures I deserved to attend. I was only able to come onto campus 1x per week or every other week.

Yes, it is very hard to keep up with work, deadlines, obligations when you are homeless for three months and moving from place to place of friend's or sublets for months on end because there is no affordable housing or housing vacancy

Low-level tension basically all the time. Some illegal housing situations to lighten that load somewhat, which add their own stresses.

Yes, I have taken on many additional or small jobs from the department, which is offered equally to all students but of course only taken up by those who need them.

Yes - it is a significant stress and I have to work extra to make enough money to live by

Q10A. Do you think Stanford has an obligation to provide housing to graduate students that meets the federal definition of affordable housing?

Yes:	94%
Want more information:	6%

Q10B. What percentage of graduate student income would be appropriate? (Open-ended question).

Select Responses:

Yes, absolutely. Regardless of its status and privilege as an elite educational institution, Stanford is not exempt from the national social contract that Americans have collectively decided is an appropriate minimum. It is completely ridiculous that we pay DOUBLE the affordable housing guidelines even as Stanford owns most of the properties in which its students live. But regardless of whether the property is owned by Stanford, the university must provide adequate housing which meets federal guidelines.

Yes, absolutely. The Bay Area is one of the most expensive places on earth. I believe Stanford, as one of the wealthiest institutions in the country, has a moral obligation to provide affordable housing to its graduate students. 30% of graduate student income would be appropriate and in keeping with federal guidelines.

I would want to know more about the economics of housing on campus before saying whether I think they have an obligation. I would have an issue with it if the residence & dining co is making big profits by charging phds 40% their income b/c the only alternative is off-campus, which is worse.

Yes. Or rather, preferably, and instead of undertaking enormous building projects that keep us (let's be honest) in dorms like children with the university in loco parentis, Stanford could just raise our stipends commensurate with the cost of housing in the Bay. Stanford's endowment is upwards of \$22,000,000,000. We live in the most expensive area of the country. I don't feel more needs to be said.

Absolutely. Stanford should be ashamed that its current graduate student pay and graduate student housing rate ratio does not meet federal (or anyone's) definition of affordable housing. Over 50% of my income goes to Stanford housing.

From: [Fred Balin](#)
To: [Rader, David](#)
Cc: [Steve Woodward](#)
Subject: GUP 2018 Scoping Comments
Date: Friday, February 17, 2017 4:20:41 PM

Dave,

This comments are in addition to the two emails submitted by neighbor Steve Woodward (yesterday and today) and of which I am a co-signer.

-Fred Balin
2385 Columbia Street
Palo Alto, CA 94306

GUP 2018 EIR Scoping Input

1a. What is the additional number of people that Stanford plans to have as students and hires as per the GUP 2018 proposal?

What will be the cumulative totals, including those from the GUP 2018 proposal?

1b. Break down all totals above into categories of undergraduates, graduate students, post-doctorates, faculty, staff working usual business hours, and staff working other than usual business hours?

1c. How many people will be housed on campus (both in GUP 2018 and cumulative)?

1d. How many people housed on campus will be children, for the purpose of better determining impacts on neighboring public facilities

2a. What will be the mix of housing (both in GUP 2018 and cumulative) for each category in #1

2b. Define the terms “beds” and “units” and how they used?

3a. Provide the current overall jobs to housing ratio on campus, in each employment category in #1

3b. What will be the jobs to housing ratio on campus for each employment category in #1 for the GUP 2018 growth additions and the cumulative totals?

4a. Examine the results of the GUP 2000 EIR and carefully determine the accuracy of projections made at the time and whether mitigations specified in GUP 2000 adequately addressed those impacts. If not, explain how and determine why?

4b. In detail, review GUP 2000 Condition Section I. 2, which begins:

"Stanford shall dedicate easements for, develop, and maintain the portions of the two trail alignments which cross Stanford lands ... "

Determine if the end result fulfilled the intent and spirit of this condition. Explain clearly why or why not.

Describe what additional protections should be included in GUP 2018 to prevent a repeat of the problems of interpretation of this section of GUP 2000

5. The major check on potential development in the Foothills District will expire midway through GUP 2018. Growth projections in Stanford's 2000 Community Plan indicate that both the constraint of 17,300,000 sf of building area of academic and support facilities and student housing as well as its co-condition in the community plan (Page 16, Policy SCP-GD2) to retain the current academic growth boundary, will expire in 2025.

It is essential that the GUP 2018 EIR determine a "maximum build out" or "maximum carrying capacity" for the Stanford academic campus so the public, governmental agencies, and the university can adequately address the community's desire for uninterrupted and permanent or very long term protections for the Foothills District.

6a. Obtain a current, accurate, baseline of traffic in areas around the campus using actual counts

6b. Extend the areas of the baseline beyond the typical Level of Service intersections to key entry points in surrounding neighborhoods.

6c. Extend the baseline traffic analysis to cover non-peak hours.

6d. Obtain expert, independent, third party review of (a) the traffic and transportation analysis work plan, and (b) the final projections and conclusions made in the draft report/analysis.

6e Fully determine any additional impacts in off-campus traffic and transportation against various growth scenarios.

##

From: PHYCASSEL@aol.com
To: [Rader, David](#)
Subject: Stanford EIR scooping comments
Date: Wednesday, February 15, 2017 4:04:12 PM

RE: Scoping Comments for the EIR

Please review the demand for housing for all employees of the academic area that you are reviewing. Stanford talks about the needs of its students, faculty and academic growth and their development plans. The academic area is also a major employer of talented employees of all skill levels and they need housing.

- 1. Where do they live? How are they transported to Stanford?**
- 2. What happens if some of those employees are housed on campus or near campus?**
- 3. Is Stanford considering the needs of all its employees and the demands of those employees on the surrounding community?**

**Phyllis C. Cassel
621 Wellsbury Way
Palo Alto, CA 94306**

From: [Jim Colton](#)
To: [Rader, David](#)
Cc: [Lydia Kou](#)
Subject: Stanford GUP
Date: Monday, February 13, 2017 10:06:07 PM

David,

My concerns about the proposed GUP are as follows:

1. As you know, traffic in Palo Alto is already a big problem. Stanford has reduced the number of trips into the campus but some of this comes about by Stanford employees and students parking in Palo Alto and finding their way into campus by a means other than driving. During rush hour, the roads around campus are near a choking point. Adding only a small percentage of cars would bring some of these roads to a complete halt. What measures are being taken to insure that the "zero net trips" in the proposed GUP doesn't result in even more Stanford people parking in Palo Alto.
2. Are there any plans for providing housing to lower-paid workers at Stanford? This is not only a traffic and parking issue, but it's simply right to consider all people involved in Stanford business.
3. There will be more children living on campus with this proposed development. Has the impact on Palo Alto schools been evaluated?

Thanks for your consideration.

Jim Colton
Georgia Avenue
Palo Alto

From: [Lenore Cymes](#)
To: [Rader, David](#)
Subject: Stanford's expansion plan
Date: Tuesday, February 14, 2017 5:31:54 PM

Dear Mr. Rader

I want to express my very HUGE concern over Stanford's latest expansion plan. Over my 50 years in Palo Alto, I have seen Stanford act like the behemoth organization it is to get what it wants. Stanford's growth does not just affect Stanford - it imposes itself on the entire neighboring communities. There is absolutely no way build millions of sq ft academic related facilities and over 3000 housing units and not overwhelm our community. Schools, air quality, cultural resources, noise, public services, construction/vehicles, transportation etc etc. No matter what they claim about mitigating all these concerns (PLUS MANY MORE) ---living and working on campus does not come with a fence around it and it will affect every person living in this city..

There is absolutely no way this type of instant huge development can avoid infecting the life of those of us living in Palo Alto. I am sure some growth is necessary for this 1st class university - HOWEVER.....slow it down..... way down to a sensible scale.

I don't have the skills to write academic reasons this project that is over the top. What I do have is abundance of common sense to understand that this will swallow up the quality of life ,we in Palo Alto, are already working hard to protect. Please put these, and so many more factors related to this project in perspective as you work with Stanford to develop their next phase of growth.

Thank you
Lenore Cymes
Palo Alto, Ca

From: [Kathy Durham](#)
To: [Rader, David](#)
Subject: Scoping Comments for Stanford University's 2018 GUP application
Date: Friday, February 17, 2017 5:07:13 PM

January 17, 2017

Mr. David Rader
County Government Center, East Wing, 7th floor
70 W. Hedding Street
San Jose, CA 95110

Dear Mr. Rader,

These comments are being submitted for consideration in the scoping process and preparation of the Draft Environmental Impact Report/CEQA analysis for Stanford University's proposed 2018 General Use Permit, anticipated to extend through the year 2035.

The university's commitment to continue meeting the "No Net New Commute Trips" goal set in the 2000 GUP, despite the daunting square footage of the development they are proposing, is certainly commendable. And the renewed commitment to supplying additional housing to accommodate increases in resident population (undergraduates, graduates and faculty/staff) is very important to achieving both transportation and sustainability goals articulated in the project application.

However, in the last five years, Stanford's extensive trip reduction program has reached a plateau of around 50% drive-alone mode share shown in Figure 5 in Tab 8 of the project application (see p. 32 in the Tab 8 PDF here: <https://drive.google.com/file/d/0B0BM4gZWP7M6MnBGMUhzRXEwZFU/view>). In addition, Figure 5 in Tab 7A shows surprisingly high drive alone rates among Stanford Campus residents as well as in Palo Alto and Menlo Park (see p. 24 in the Tab 7A PDF here: <https://drive.google.com/file/d/0B0BM4gZWP7M6SGRSNINTMGFLTzA/view>).

My comments here focus on suggesting fruitful options to explore in the EIR transportation study how the chances of success in shifting mode choices from drive-alone (or SOV) to active transportation or transit might be improved for residents on and near campus as well as students and employees within a 5 mile commute shed around the university.

Within the GUP boundaries, much progress has been made in engineering improvements to increase safety for those choosing to bike and walk, as well as an overall goal of road users sharing the road safely. This has benefited both residents and commuters. But the low hanging fruit for the next decade is likely to be reducing the barriers for those living nearby who fit into the category of "interested but concerned" bicyclists to try biking to work, or to do so more often with less stress.

Here are a few example locations I'm most familiar with, but there certainly are others to the east, north and west of the campus that could entice more commuters out of their cars!

<!--[if !supportLists]-->• <!--[endif]-->**Hanover and Page Mill:** This intersection and the Hanover approaches on both sides are very daunting/stressful for many bicyclists, who end up riding on the side walk on the east side of Hanover between California and Page Mill because they do not perceive it as safe to bike with traffic on the street.

It's also one of the main barriers for commuters to Stanford University or to Stanford Research Park locations. And it's a critical barrier leading to parents driving their children to several PAUSD schools (principally Terman and Gunn students from the Stanford campus area but also including parents and students heading to Spanish Immersion at Escondido or overflowed from Nixon and Escondido to Barron Park Elementary).

Safe crossings of Page Mill at this location could also make a difference for transit users in the Research Park area between Page Mill and California Avenue.

• **Hanover/California and Bowdoin/Stanford:** With the University Terrace housing development scheduled to open soon, and the successful model of the new campus roundabouts, consideration should be given to changing these three way stop intersections with bicycle access from the fourth leg into a safer design that allows safer legal crossings for bicyclists while reducing backups at peak periods. Children walking to Escondido School from the upper portion College Terrace and the new housing in the Research Park will also be safer when encouraged to cross Stanford at Bowdoin, and it would be a great way to encourage more "foot powered" employees to commute to Stanford via Bowdoin as well.

• **Peter Coutts/Kite Hill uncontrolled crosswalk and Peter Coutts/Raimundo:** Improving the safety of crossing at the first of these will be critical to families living in University Terrace and walking or biking to Nixon. Without improvements to slow down commuter traffic to Stanford on this roadway, parents may decide to drive to Nixon instead. Improvements would also benefit faculty/staff biking to Stanford from Peter Coutts and this section of the faculty housing area.

Thank you for considering these comments, which are in alignment with the goal of the City Managers' Mobility Partnership mentioned in Tab 7A, "to identify key bicycle improvements that would directly reduce the road stress for cyclists on access routes to campus."

Best regards,

Kathy Durham
College Terrace resident
kfdurham@earthlink.net

From: Penny Ellson
To: Rader, David
Subject: 2018 Stanford GUP Scoping Comments
Date: Friday, February 17, 2017 4:48:47 PM
Importance: High

Dear Mr. Rader,

Here are my comments on the 2018 Stanford GUP Application. Kindly confirm receipt by deadline.

Thank you for considering my comments.

Penny Ellson
513 El Capitan Place
Palo Alto, CA 94306

2018 Stanford GUP Scoping Comments February 17, 2017

Suggested Routes to School & The GUP

P. 35, Tab 3- of the Project Description refers to the recommendations in the Palo Alto Suggested Routes to School Walk & Roll Maps (incorrectly called Walkabout maps). It mentions a few improvements for Nixon and Escondido Elementary School routes on Stanford land. The EIR should go further and look at the following additional potential areas of school route improvements for these two schools, and connections from Stanford residences to Gunn High School, Barron Park Elementary School, and Terman as well. Please consider that these improvements also will improve the comfort and safety of bike commute routes for Stanford employees, faculty and students.

1). Please study connections to Gunn High School, Barron Park Elementary School, and Terman via the Bol Park Path. The City of Palo Alto (CoPA) is in process of improving Bol Park Path to create a more comfortable multi-use trail. This seems an appropriate time to improve the Stanford connections to this city facility--especially because Stanford-affiliated residents are now attending Barron Park Elementary School, Gunn High School and Terman Middle School.

Consider the Hanover /Page Mill intersection. Note that bike lanes are incomplete along the Hanover route. Parents (and other bike commuters) complain about conflicts with motor vehicles at driveway entrances along the sidewalk along Hanover between California Ave and the entrance to the bike path to get to the park path and Matadero/Laguna Ave. Safety is a problem for bike commuters and pedestrians of all ages in this area and makes this important connection an unattractive link in the bike network that serves Stanford campus residents, faculty and staff, discouraging bike commutes.

2). Study the Peter Coutts/Nixon/Raimundo connection to the Nixon Elementary School path. At this location, young children (and adult foot-powered commuters) cross a wide intersection with auto speeds over 30mph, a safety problem that has been exacerbated by higher auto volumes related to growth from the last GUP. Again, this is a bike/pedestrian

connection with great potential, but its usefulness is weakened by safety concerns.

3). Questions re: student busing—The PAUSD bus that picks up students at Nixon to go to Terman has a wait list. Consider how Stanford’s existing bus/shuttle service might augment PAUSD service for Stanford–affiliated PAUSD students to reduce morning school commute auto trips across the cordoned area.

4). Please study a 5-mile radius/bike commute shed and consider the needs of bicyclists of all ages and abilities. Consider bike/pedestrian network improvements that would enable local Stanford employees to bike their children to school and then bike commute to campus. Work with City of Palo Alto Safe Routes to School staff to identify the best ways to engage more PAUSD parents who are Stanford employees to tag a work commute onto their daily school commute and improve Stanford’s bicycle mode share.

No Net New Commute Trips Goal

Though Stanford’s trip reduction program is greatly appreciated, community members observe Stanford traffic increasing much more than the cordon count indicates. Here are some things the EIR might study to understand why and to identify more appropriate mitigations.

1). Zero Net New Trips: Loopholes Prevent Accurate Counts

There are loopholes in the cordon count process. Stanford has surveyed employees to find out their arrival/departure times. They adjust employee schedules so car trips won’t be captured by peak hour counts. Further, when Stanford is concerned about missing their goals, Stanford sends emails asking people to change their behavior for a day. Everyone in town knows this goes on because we all have Stanford-affiliated friends.

Here are some suggested changes to eliminate these loopholes:

- The counts might happen randomly without informing Stanford in advance so they can’t “warn” commuters and a more accurate count will be taken.
- Cordon counts should be done throughout the day, not just am/pm peak hours, in order to capture all Stanford-generated car trips. (Congestion is no longer a problem limited to am/pm peak periods in Palo Alto, and afternoon auto commutes create risk for school commuting children.) This practice would support SCP-C7-Reduce auto travel in non-commute hours/directions.

2). Zero Net New Trips: Drivers Split the Trip to Game the System

At the recent Mitchell Park Community Meeting re: 2018 GUP Scoping a resident noted that she observes people parking in her neighborhood to pick up the Stanford Marguerite at El Camino to get to Stanford. These car trips are not included in the cordon count, but they are generated by Stanford and they impact Palo Alto.

- Please study this phenomenon in areas served by the Marguerite and other transit to understand how the cordon counting system could be augmented to capture all car trips in/out of town with Stanford as journey origin/destination—whether or not the car reaches the cordon area.
- In addition, consider the parking impacts of this practice and insure compliance with SCP-C6--Regulate parking supply while avoiding spillover.

AGB: Considering Long-Term Implications of Growth

The current proposal does not request any change to the Academic Growth Boundary, nor does it discuss any future plan for when the 25-year AGB period expires.

- Please study and discuss the potential benefits and impacts on both the university and surrounding community of moving the AGB. What is Stanford's future intent with regard to preservation of open space?

“Flattening” Mode Shift: Mitigation of Future Growth

Is it realistic to assume that a specific growth rate since 1960 (200ksf/year) can or should be maintained? Note: The growth rate from 1875 to 1960 was significantly lower (52ksf), so it is not correct to characterize recent growth as Stanford's “historic growth rate.”

- Stanford's own documents acknowledge that results of their car trip reduction efforts are “flattening”. Please quantify that trend and study how the “flattening” of Stanford's trip reduction results will affect mitigation of transportation impacts of future growth, including growth proposed in the 2018 GUP application. Should growth rate be reconsidered if mode shift is less robust? What additional transportation mitigations might be necessary.

Affordable Housing Subsidy

On page 3.41 (last paragraph) of the Project Description Stanford proposes eliminating the 6-mile radius limit on where Stanford Affordable Housing Fund mitigation dollars can be spent. This proposed change could divert housing funds to communities that are more distant from Stanford where the university's impacts are far less acute—reducing the efficacy of the subsidy as a mitigation for campus growth.

Eliminating the 6-mile limit would give power to the SCC Board to divert housing funds from communities abutting Stanford which are most acutely impacted by campus population growth and traffic. Without the 6-mile limit, they could spend that money much farther afield—with no limit on distance from Stanford. This is unacceptable. Central-county controlled VTA is already cutting local fixed bus lines in City of Palo Alto areas with potential for affordable housing development. If the 6-mile radius limit is eliminated, this will leave in place only the “high quality transit corridor” limit which could result in Stanford Affordable Housing funds being diverted to communities where the money will do little to mitigate acute Stanford-generated housing and transportation problems in communities abutting the university.

- Please study how this proposed change could impact affordable housing development in close proximity to Stanford where commuters have multiple alternatives to driving—not just transit.
- How might a longer transit commute impact Stanford commuters' decisions to choose alternative transportation or drive?
- Study what radius limit is appropriate based on trip reduction performance against the university's transportation goals.
- Specifically, how might housing distance from campus affect commuter choices and trip reduction efforts toward mode shift? One example to consider: Many Stanford commuters say that they do not use transit because they have to combine trips to drop children at day care or school and run errands en route to work and home. They cannot do this with transit.
- This very significant change was dropped into the application as a one-liner with no explanation or substantive discussion. What is Stanford's objective in proposing this change?

Population & Housing.

The application provides an incomplete picture of what percentage of undergraduates, graduate students (including PhDs), post doctoral students, faculty, on-campus staff, and non-matriculated students will be housed on campus. Please clarify these numbers for each of these categories.

Parking Supply Reserve

If there has been and will be no net new trips, why does Stanford need more parking? Please study and explain.

Intersection LOS For All Modes

Please look at potential impacts on intersections in the southern portion of Palo Alto and other outlying areas of Palo Alto, especially along El Camino and Foothill Expressway and Alma Expressway. Trips don't simply appear at the campus border. Many drivers travel through this part of town to get to Stanford.

Thank you for considering my comments.

From: [Sharleen Fiddaman](#)
To: [Rader, David](#)
Subject: Stanford expansion
Date: Monday, February 13, 2017 7:43:58 PM

David Rader,

I strongly object to the massive expansion planned for Stanford campus!
I do live in Palo Alto relatively near the University.
Such development has detrimental impact on our community ...
traffic, emissions and air quality, and general land use.

Sharleen Fiddaman

From: [Eric Filseth](#)
To: [Rader, David](#)
Subject: Stanford GUP - EIR
Date: Wednesday, February 15, 2017 10:58:10 AM

David,

The proposed Stanford expansion is substantial – almost as much office space as the entire downtown of Palo Alto – so it makes sense for the EIR to be comprehensive. Three things I think it's important be included in the EIR are:

- 1. How many additional K-12 kids will need to be enrolled in the Palo Alto Unified School District?**
- 2. How many new jobs will be created in the new academic area?**
- 3. How much lower-income housing demand will be stimulated by the new jobs created?**

The first issue is pretty much standard practice for Stanford / PAUSD planning, but it ought to be explicitly included in the EIR.

The second issue is relevant for traffic, parking and as a contributor to housing demand in the area. Presumably more jobs will be created than housing created for them.

The third issue is a bit more complicated, but the City of Palo Alto periodically commissions "Nexus Studies" on this subject in order to determine affordable-housing development-impact fees. Essentially the idea is that creating new white-collar jobs (stem-cell research, for example) also drives demand for lower-paying support jobs, whose holders would be looking for nearby housing like everybody else; but whose needs would be specifically for affordable housing. This kind of assessment necessarily relies on a number of broad assumptions, but it probably makes sense to have one in the EIR.

Thanks very much,
Eric Filseth
160 Palo Alto Avenue, Palo Alto

From: [Giudice, Linda](#)
To: [Rader, David](#)
Cc: [Giudice, Linda](#); [Sakis Theologis](#)
Subject: Stanford University EIR
Date: Saturday, January 14, 2017 2:26:45 PM

Der Mr. Rader,

We are in receipt of the "Notice of Preparation of an Environmental Impact Report for the Stanford University '2018 General Use Permit'". We live on Mandoli Drive in Los Altos Hills – a street that is perpendicular to Arastradero Road and very close to Deer Creek Road. As we have read the Notice, Figure 3 is uninterpretable, and I write to request a finer resolution of Figure 3 be reissued. We cannot discern where Deer Creek is or where our street is. Can you please provide this?

Also, there is a statement about a "goal of no net new commute trips". With all this expansion and additional housing and occupants, this goal seems untenable. What is the projected increase in commute trips – zero is not a realistic or acceptable projection unless alternative transportation is projected and paid for – which is not addressed in the Notice – but still would count as new commute trips. Please advise

Finally (for now), what is the environmental impact on human health for the increased traffic and new settlements – exhaust emissions, e.g. - will you be addressing and quantifying these - especially along the routes that will be even more burdened once the new plans go into effect – e.g., Sand Hill Rd, Page Mill Road, Arastradero Rd?

Thank you for considering my inquiries, and I look forward to your reply.

Sincerely,
Linda Giudice

From: [Jane Harris](#)
To: [Rader, David](#)
Subject: Stanford land use plan
Date: Friday, February 17, 2017 5:42:05 PM

I'm writing to comment on stanfords land use plan. I have two primary objections to the plan:

1. Assumptions on traffic and parking needs assume alternative modes of transportation. In my experience in other cities e.g. Boulder Colorado and San Francisco, CA, that approved more intense uses/development believing they'd generate less traffic/parking demand, they were always wrong. I don't believe it.

I live in South Gate and it's hard to miss the stream of single passenger vehicles pouring in and out of Stanford esp. at commute hours when Churchill gets so backed up that traffic gets backed up on to el Camino real

So that leads to my next question

2. When is the city of Palo Alto, Santa Clara county and the state going to stop acquiescing to Stanford, because we're so connected to the university, that we don't insist they pay their fair share of the costs to improve infrastructure that they impact and benefit from.

So, any new development is approved should contribute to the cost to improve off-site infrastructure/transportation including:

1. Grade separation at Churchill (others too but I'm not as familiar with which) no more development should be allowed without funding and near term plans for that to happen.
2. Public transit - given Caltrain may very well lose its funding from the federal government and not have adequate funds to pay for electrification why shouldn't Stanford contribute to that. So far all I see is their empty shuttle busses that really only serve campus, meanwhile the traffic around Stanford is unacceptable.
3. Traffic congestion - I'm fairly sure that all the roads surrounding Stanford are already near tr at level F, including Churchill, sand hill, Embarcadero, etc.

Churchill and embarcadero in particular are a total safety hazard esp. with pedestrians crossing and for Churchill the train. It's a miracle we haven't had more fatalities esp, bicyclists and pedestrians crossing el Camino at those intersections at the Churchill rail crossing and high school students crossing to get to school. I've witnessed many near misses in the 8 years I've lived here.

4. Speaking of schools - as they expand, where are the faculty and staffs kids going to go school? Are they fairly compensating school districts including the cost to build new schools.

Palo Alto schools are already maxed out with temporary trailers and kids jammed into classrooms.

In summary, I hope the county will carefully weigh stanfords proposal and the tremendous impacts on our already stressed infrastructure and make them pay for their share of impacts. We have been too cozy with them for too long. Thanks for your time and consideration.

Jane harris

City of palo, South Gate neighborhood resident (south of Churchill and east of el Camino)

Sent from my iPad

From: Janet Davis
To: Rader, David
Subject: Fw: STANFORD'S 2018 GUP
Date: Thursday, January 12, 2017 3:01:45 PM

Sorry I mistyped your address first go around

----- Forwarded Message -----

From: Janet Davis <jadjad@sbcbglobal.net>
To: "david.rader@plan.sccgov.org" <david.rader@plan.sccgov.org>
Cc: Don Horsley <dhorsley@smcgov.org>; Michael Callagy <mcallagy@smcgov.org>; Diana Shu <dshu@smcgov.org>; Catherine Carlton <cat.carlton@me.com>; Raymond Mueller <rdmueller@menlopark.org>; Tom Gallagher <tgallagher@smcgov.org>; Kristina Bell <kbell@smcgov.org>; Jean McCown <jmccown@stanford.edu>; Lucy W. Wicks <lwicks@stanford.edu>; Brian David Shaw <bshaw2@stanford.edu>
Sent: Thursday, January 12, 2017 2:59 PM
Subject: STANFORD'S 2018 GUP

I received notice of Stanford's update to the GUP and had a few comments related to the potential impact to Alpine Road and the surrounding neighborhood of the significant construction planned. ***In addition*** to those comments I would ask that any plan have very specific directions as to construction trucks, since the last major construction effort generated double semi construction trucks racing down Alpine at the rate of one every 17 seconds for long periods of time.

STANFORD UNIVERSITY EIR FOR THE 2018 GUP COMMENTS

I have lived on Alpine Road for 50 years and have seen the traffic to and from Stanford increase very significantly almost every year. It has now become intolerable. In the morning residents of Stanford Weekend Acres have great difficulty accessing the road towards Menlo Park until after 10:30. It is also virtually impossible to cross the road and head towards I-280 at that time. In the mornings traffic is backed up on 280 and a virtual parking lot between 280 and Campus Drive West. In the evening the reverse is true. When the road is not a parking lot for a few hours during the day, it is a speed track, particularly for double trailer construction trucks that favor alpine over Sand Hill because it lacks traffic lights. At times it has taken 20 mins. and 6 iterations of traffic lights to get from Stowe Lane to Junipero Serra[JS]. The gap between the lights at Alpine and those at Sand Hill is jammed so that even if the light at Alpine is green, motorists cannot continue to Sand Hill. This is exacerbated by the "bulb out" in the gap that prevents vehicles coming from JS to change into the left hand lane to make the turn onto Sand Hill. In the morning the right hand lanes on Alpine are jammed with cars turning onto JS or heading towards the right hand turn to the SUMC. This causes drivers from Portola Valley [PV] to use the left hand lane up to the Sand Hill intersection and then there are fierce competitive battles in the short distance between Sand Hill and the fork at Santa Cruz/Alameda with drivers cutting into their desired lane.

Careless drivers often use the bike lane from Bishop Lane to Rural Lane as an additional vehicular lane. Between Wildwood and Stowe they even use the pedestrian pathway, to the extent that the County stopped repairing knocked down signs.

There are two stop places for the school buses: one at Bishop and one at Stowe. There are no pull-over slots for the buses and vehicles frequently race right past the buses even when the red lights are flashing.

The intersection dangers are such that the "spandex" cyclist crowd frequently avoid the bike lanes which are blocked by vehicles, and use the below road level "trail." Since this has a sharp incline those riders can reach 25-30 mph easily, which is life threatening to pedestrians. Since this is the only way that children can walk or bike to La Entrada Middle school, this is highly hazardous.

Cyclists coming from the upper part of Sand Hill who try to negotiate the intersection to access JS have to risk their lives by swerving across the traffic heading towards PV or JS. There are two vehicle lanes at the Alpine intersection: one that heads only to PV, and the other which allows drivers to go straight ahead to PV, or make a left turn to JS. I have seen many near misses where a cyclist is in the left hand lane hoping to get to JS, where he has almost been run down by a driver behind him going straight, towards PV. The left hand lane needs to be ONLY a turn lane. This would also mitigate the sometimes vicious competition in the merge lane by the Buck estate gate.

Another problem for cyclists coming from Upper Sand Hill to Lower Sand Hill is that during busy times both access to the multiuse trail, and the roadway bike lane is blocked by cars and they often have to swing out into the car lanes.

The PV bound merge lane at the Alpine intersection is too short. In the evenings there are some very aggressive drivers competing for access and they veer into the bike lane. The road signs indicate that the inside lane should merge with the outside, but this should be reversed to lessen this competition.

The back gate to the Buck Estate is often used as a parking area for people on the phone or for a highly dangerous U-turn on the blind corner for cars to back track to Santa Cruz or J.S. The median brickwork needs to be extended to prevent the latter problem. (I have even seen vehicles with the SU logo on them make this U-turn)

Pedestrians coming from Campus Drive West to Stanford Weekend Acres [SWA] or to walk at the Dish have no way to cross J.S. There needs to be (as there once was, before Larry Horton) a crosswalk at the Alpine intersection. This might also slow down the flood of vehicles from I-280 that totally ignore the red light at the corner of Alpine and J.S. Joggers/walkers are often seen using the bike path between J.S. and Sand Hill. This is highly dangerous. Some of the more athletic people clamber down the hill to the below ground "trail" to avoid this danger in favor of another. Because of the non-ADA compliant and dangerous Larry Horton-inspired "trail" from Rural Lane to Sand Hill Road people no longer have the surface route along Alpine/Santa Cruz to get to Safeway. There needs to be a crosswalk at Alpine/J.S. by the Buck Estate so that people trying to get to the store could cross Alpine and use the (presently blocked off) brick walkway alongside the Buck Estate wall. This way they could avoid the dangers of the Larry Horton "Trail" by the creek. An even better solution would be allow pedestrian passage through the Hewlett Foundation or along the Fire Trail that runs between Alpine and Sand Hill.

The "Larry Horton" boondoggle trail under the cantilevered section is always in bad repair. The initial engineering was so poor that the bank is constantly eroding. Part of this problem is that the storm "drain" from the road is merely a hole in the road that sends storm water cascading down the hillside. Eventually this entire hillside may have to be redone since the roadway is buttressed by metal bound rocks that obviously have a limited useful life. The surface of this "trail" is subsiding and has constantly re-appearing gashes which could cause major bike accidents. The large number of gigantic 18 wheeler construction trucks using the cantilevered section of Santa Cruz may contribute to this erosion. The rest of the trail within the City of Menlo Park's jurisdiction along Alpine is often in bad repair. There are frequent tree problems and fallen rocks. It was poorly designed at the intersection of Alpine in that there was no provision for a right hand turn for cyclists, so they have made a path for themselves across the drip line of the oak trees.

The back gate to the Stanford dish creates a death trap for commuters, pedestrians and cyclists. Motorists park illegally and make U-turns across Alpine right by the I-280 off ramp. All parking should be removed, especially since there is easy access with safe parking by the Stanford Avenue front gate. This parking lot has become a target of thieves which draws criminals to the residential area which, unlike the Stanford Ave entrance has no monitor and no police presence. It was much safer when the only access was by foot except for SU employees who could proceed up to the Dish.

This is not an exhaustive list, and others can feel free to add their concerns. Below are my suggestions for mitigations that Stanford could provide since it is obvious that there will be more traffic to and from SU in the years to come.

- The county has agreed to reduce the speed limit within their jurisdiction along Alpine to 35 mph. However, Menlo Park has a 40 mph sign by the Buck Estate that needs to come down.
- Some means has to be provided to enforce the speed limit. Perhaps :SU Sheriff could provide patrols under the supervision of the CHP?
- The county would like to see a traffic light at I-280 to make it possible for SWA residents to access Alpine Road
- Because of the vast numbers of cars already going to the Campus, the Shopping Center and SUMC, which number will surely increase despite SU's attempts to limit traffic, there needs to be a park and ride area south of I-280 perhaps on the old Tree Farm site. Stanford has many community members in the PV, Ladera and SWA districts and several facilities on Alpine and Arastradero Road, they could provide an expanded shuttle service.
- Metering lights are needed at the freeway
- Improvements need to be made at Page Mill/I-280 to facilitate better traffic movement
- Increased access to SU campus via Stanford Ave, and other side streets needs to be provided
- Improved access and better signs are needed for SUMC especially the ER
- Cross walks needed at J.S/Alpine, Alpine/Santa Cruz
- Considerable improvement needed for the Larry Horton "trail" as suggested above plus speed limits for cyclists
- Provision of some kind of access through the Hewlett Foundation between Alpine and Sand Hill
- School bus pull ins at Bishop and Stowe
- Barricades should be provided to prevent injury to pedestrians all along Alpine from Piers Lane to Stowe Lane
- Stanford officials should work with Menlo Park, Palo Alto and San Mateo County to get a **REGIONAL** traffic analysis and **plan**. This would prevent one jurisdiction dumping problems on another.
- Financing needs to be made available to San Mateo County and Menlo Park to make physical improvements like crossings, signage and road surface maintenance.
- There is no drainage along Alpine and road run-off is dumped on homeowners' property. It would improve safety if an environmentally sensitive drainage system could be installed along Alpine, since there have been flooding problems that impact traffic.
- The fence along Rural Lane needs to come down and an at-surface (possibly cantilevered) pedestrian pathway needs to be installed to avoid the Larry Horton non ADA compliant, dangerous sub-surface trail.
- Some thought and money needs to be provided for a turn lane into Wildwood. (There were at least 7 accidents there during 2016)
- A considerable amount of design and construction improvements need to be made by the rear gate to the Buck Estate, including the merge lane, the median and the utility box. The ATT people and the PGE crews are frequently there and since there is no place for them to park while working on their equipment this creates a traffic hazard.

From: [Janet Davis](#)
To: [Rader, David](#)
Subject: Re: Stanford GUP
Date: Thursday, January 12, 2017 7:00:52 PM

Thanks David. I already replied to this because there are a huge number of problems on Alpine Road and in W. Menlo Park because of the construction already in progress at SU. I want to make absolutely certain that Santa Clara County pays attention to the problems that they cause when approving GUPs. Nobody talks to anyone outside their jurisdiction, and this time around it is to be hoped that San Mateo County and Menlo Park get involved in the process. The continual development at Stanford has created all kinds of problems in my area. Santa Clara county needs to have traffic engineers look at this GUP.

From: "Rader, David" <David.Rader@pln.sccgov.org>
To: Janet Davis <jadjadjad@sbcglobal.net>
Cc: Don Horsley <dhorsley@smcgov.org>; Michael Callagy <mcallagy@smcgov.org>
Sent: Thursday, January 12, 2017 3:49 PM
Subject: RE: Stanford GUP

Here you go. A hard copy was also mailed to San Mateo County Planning and Development.

Dave

From: Janet Davis [mailto:jadjadjad@sbcglobal.net]
Sent: Thursday, January 12, 2017 3:23 PM
To: Rader, David <David.Rader@pln.sccgov.org>
Cc: Don Horsley <dhorsley@smcgov.org>; Michael Callagy <mcallagy@smcgov.org>
Subject: Stanford GUP

Would you please e-mail a copy of the NOTICE to Don Horsley and Mike Callagy of San Mateo County so that they have an idea of what is planned prior to the actual EIR.
Thank you

From: [Janet Davis](#)
To: [Rader, David](#)
Cc: [Don Horsley](#); [Warren Slocum](#); [Dave Pine](#); [Michael Callagy](#); [Raymond Mueller](#); [Catherine Carlton](#); [Kirsten Keith](#); [Jean McCown](#)
Subject: COMMENTS ON SU 2018 GUP
Date: Friday, January 20, 2017 2:28:34 PM

**STANFORD 2018 GUP FILE 7165-16P 16Z 16EIR
COMMENT**

I have not yet had time to carefully study the GUP **Application** which is on line at:
<https://www.sccgov.org/sites/dpd/Programs/Stanford/Pages/Stanford.aspx>
but in response to your request for comments, below is some of what I would like to see detailed in the EIR.

Stanford has built or is building, large numbers of student and faculty/staff housing. However, there are thousands of university **staff** who do not presently qualify for Stanford housing. Many of these employees come from distant cities and commute many miles to work on a daily basis. Their number will only increase over the next 30 years with the expansion of the facilities detailed in the GUP summary. The EIR should address this part of the housing issue and the increase in commercial supplier vehicles. More employees is going to strain the already inadequate supply of **affordable** housing, and increase the purchase price of properties in the vicinity of the university which in turn, will reduce availability. These factors are going to have significant negative impacts on the surrounding community.

Specific Questions:

What plans – if any – are there for lower income employee housing?
What type and how many employees would be required for the various additions?
The summary indicated the possibility of a large child care facility. What plans – if any - would there be for a school, or what would be the impact on existing schools for those additional personnel living locally?
What plans are there – if any - for local shuttle buses or park and ride spots?
What plans are there for regional employee transportation such as the Dumbarton Express/Ferry?
Has any thought been given to additional access points to the main campus from the surrounding arterials?
The summary indicates that the Traffic Impact Study will only be included in the EIR “if appropriate.” That study would seem to be utterly essential to any EIR
The summary references in fill and vacant sites. Could those be identified with specificity?
Under Housing Linkage the summary refers to Condition F.7 in the 2000 GUP that would allow SU to build additional housing beyond the limit of 3,150 subject to additional environmental review. This needs fleshing out since the 3150 figure is already in excess of the Housing Linkage amounts in Table 2.
Parking limits are to be exempted for various vehicles including electric vehicles. Since many vehicles are currently electric this does not reduce the number of vehicles as much as one might wish
Water quality/Amount: The summary notes that this will only be included in the EIR “if appropriate.” This would seem to be something that needs to be in the EIR. Is a gray water system to be installed? What plans are there for ground water pumping, extracting water from San Francisquito Creek etc.

From: Janet Davis
To: Rader, David
Subject: Fw: Stanford's 2018 GUP Comments
Date: Sunday, January 29, 2017 9:57:26 AM

----- Forwarded Message -----

From: Janet Davis <jadjad@sbcbglobal.net>
To: Don Horsley <dhorsley@smcgov.org>; Michael Callagy <mcallagy@smcgov.org>; Warren Slocum <wslocum@smcgov.org>; Raymond Mueller <rdmueller@menlopark.org>; Catherine Carlton <cat.carlton@me.com>; Kirsten Keith <kkeith@menlopark.org>; "David.rader@pln.scc.gov.org" <David.rader@pln.scc.gov.org>
Cc: Lennie Roberts <lennie@darwin.ptvy.ca.us>; Jean McCown <jmccown@stanford.edu>
Sent: Saturday, January 28, 2017 9:19 AM
Subject: Stanford's 2018 GUP Comments

YET MORE COMMENTS ON THE PROPOSED 2018 STANFORD GUP

The brainpower at and from Stanford is largely responsible for the economic growth and prosperity of the region. The world famous hospitals and clinics are something for which many of us have cause to be very grateful. However, this very prosperity has made the area unaffordable to many of those who work at, or provide services to, the University and Hospitals, causing them to live further and further away which has generated a traffic nightmare and a housing shortage.

The amount of construction contemplated in this GUP, on top of that constructed during the last GUP, is phenomenal. Given the potential construction of the Western Quad for scientific disciplines, the interrelationships with Silicon Valley companies and other organizations is staggering. Since this impact is, at this time so speculative, it would seem imprudent to incorporate this part of the development in the GUP.

The planned projects are also expansion-generating throughout the Bay Area and this needs to be addressed.

There is also a complicated inter-relationship between the academic campus and other interconnected entities, making it difficult to segregate impact of events on the core campus from events at other related entities. Examples:

- The fastest way to the ER is often via Campus Drive West or Palm Drive
- The Psychology Dept. has studies that sometimes involve the Research Center on Hillview in Los Altos
- The Physics Dept. has students using SLAC
- The Bioengineering Dept. has had studies involving the MRI facility in the Physics Dept, the V.A. Hospital in Palo Alto, and the SU Med Center
- Some studies originating on campus involve travel to the Stanford Campus in Redwood City

Since traffic on all roads surrounding the university are already at gridlock and there is dire need throughout the region for "affordable" housing it would seem that traffic and housing are two of the items of most concern to most people. It would be helpful to have some idea of the number and type of employees, contractors and service personnel that might be required for each of the projects anticipated.

NO NET NEW COMMUTER TRIPS:

This is a simplistic and inadequate approach to traffic impacts of the development. Several other highly

critical and relevant aspects need to be addressed.

Construction Vehicles:

For many years there has been constant construction on the campus and adjacent to the campus. At one point a few years ago there were double semi dump trucks racing down Alpine Road at the rate of one every 17 seconds. There is also traffic from the multitude of construction workers, materials suppliers, concrete trucks, backhoes and bulldozers etc.

What is needed: A count of how many construction trucks and workers/project are planned, and the routes that they are to take to and from SU.

Service Vehicles:

As new facilities are added to campus there are myriad service vehicles/trucks such as Praxair Gases, Plumbers, Restaurant supply companies, Catering companies supplying offices, Shredding companies, Furniture suppliers, PGE vehicles, Equipment suppliers etc.

What is needed: An estimate of how many such vehicles are likely for existing facilities and for those being contemplated.

Employees:

As more facilities are built there will be more employees, many in the lower income category, who will not qualify for the on campus housing.

What is needed: An actual number of projected employees for each phase of the construction by job classification and, some indication of home locations for present employees so that some idea of traffic patterns can be assessed.

Shuttles:

The shuttles would appear to be well used but more are probably needed as the campus grows.

What is needed: An analysis of present and future shuttle traffic, and potential new routes. There also need to be more access points to the campus such as from Stanford Avenue, or the side roads off Junipero Serra.

Tourists:

Stanford is world renowned and many visitors can be seen throughout the campus on any given day. Not only are there tour buses, but many also drive to Stanford, adding to the vehicular traffic.

What is needed: An estimate of no. of visitors and vehicle trips.

Public Events/Sports Events:

Stanford has many public events such as e.g., concerts, art shows, football, basketball, tennis, golf, lectures, scientific studies, poetry readings, demonstrations, national track/cross country meets, etc., all of which draw crowds that can sometimes number in the thousands.

What is needed: An estimate of attendees and employees at the various happenings and the expected vehicular traffic and its impact on neighboring roads.

Other Events Peripheral to the Central Campus:

- The golf course, its restaurant, and the driving range draw considerable traffic - not just from the immediate campus area.
- The Horse Barn also involves traffic from participants, guests, service personnel, Hay suppliers, etc.
- The Dish trail has generated a huge amount of traffic from other neighborhoods that floods the Alpine Road and the Stanford Avenue areas.

What is needed: A tabulation/estimate of this vehicular impact.

Associated Growth/Development:

- *The Hospitals/Med Center* have expanded almost beyond recognition
<https://mg.mail.yahoo.com/neo/launch?.partner=sbc&.rand=fmb01t02at6oo#mail>
and the traffic impact on the surrounding areas has been phenomenal even before the projects are

complete. As a result it appears the number of employees has also escalated dramatically. In addition, as the hospitals have expanded, the *medical services, labs and physician offices* area along Welch Road also seem to have proliferated, as have the number of clients and employees.

- *The Stanford Shopping Center* has expanded with numerous new employees and many more shoppers
- *The industrial Park* has increased in size as spin offs from University research have formed companies which has resulted in even more traffic
- *SLAC* has expanded and has included a Guest House.
- *The Ronald MacDonald House for Families of Lucile Packard Patients* has doubled in size
- *The SU Portola Valley Clinic* has opened along Alpine Road drawing a multitude of patients. There are also other clinics/facilities at least in Redwood City, on East Embarcadero, on Page Mill Road and on Hillview in Palo Alto.

What is needed: An in depth analysis of the cumulative effect, (and the potential for generating further development in the area,) of the enlargement contemplated on the central campus. This is way too much construction of too diverse types, having so many variables and unknowns, to be incorporated into one GUP, especially given the last GUP plus the hospital expansions and the Redwood City Campus. All the other factors are important, but the two most critical for the area directly adjacent to the university are traffic and affordable housing.

Jan. 28, 2017

From: [Suzanne Keehn](#)
To: [Rader, David](#)
Subject: Stanfords Expension
Date: Thursday, February 16, 2017 2:09:22 PM

Thank you for taking comments from the surrounding community.

I am very concerned about more major development in the Palo Alto/Stanford area. Stanford's proposed development and growth will have huge negative impacts on Palo Alto and the surrounding environment.

Some of these major concerns are:

- Aesthetics
- Air Quality
- Cumulative Impacts
- Greenhouse gas emissions
- Growth Inducement
- Hazards and Hazardous Materials
- Population and Housing, what about the lower income employees of Stanford?
- Impact on Schools, parks, which we already are in short supply
- Traffic and circulation,

Our community needs to be heard and best would be face to face.

Thank you,
Suzanne keehn
4076 Orme St.
Palo Alto, 94306

From: [Paul Machado](#)
To: [Rader, David](#)
Subject: Evergreen Park
Date: Wednesday, February 08, 2017 7:22:43 PM

In the last GUP we were offered \$100,000 for a RPP for College Terrace and Evergreen Park. College Terrace got a RPP but none of the money was used for us. After much work from residents, the city appears to have granted us a one year trial RPP. Unfortunately some dentists who were evicted from their offices on Welsh Road, for University/Hospital expansion, have rented/leased under parked facilities all over the city. They are totally opposed to the neighborhoods as we struggle to maintain our livability while being choked by traffic and parking. Will the University turn their back on Evergreen Park. Will these dentists be allowed to again rent on Stanford land where there is room to address their parking needs as in the past?

The current plan to place a LARGE student housing facility on Serra Street across from Evergreen Park is also a concern. We know the University has tried to mitigate traffic and parking but I know of nothing that will stop students from using Evergreen Park for parking that is not supposed to occur but of course will occur.

Also will the University ever address the Stanford employees and campers that line the El Camino from University to Stanford Ave.. Is this part of the general plan?

Lastly since the University began charging for parking at football games, Evergreen Park has become the default free University parking lot for the games. Will the University do nothing to address this iniquity.

Thank you for noting my concerns.

Paul Machado

From: [Jo Ann Mandinach](#)
To: [Rader, David](#)
Subject: Totally Opposed to Stanford Expansion
Date: Monday, February 13, 2017 9:31:51 PM

Dear Mr. Rader,

My partner (a Stanford graduate BS MS) and I are totally opposed to any further expansion of Stanford University and Stanford Medical Center that further undermines the quality of life in Palo Alto without any type of benefit to the community.

Charles R. Karish and I live at 1699 Middlefield Road near Embarcadero and experience the daily gridlock of so much new traffic that we now have to look out our window to see how backed up the traffic is before leaving our house on days without football games. Enough.

The traffic and air quality are already horrible and getting worse. Enough with the expansions.

Do you compensate PA residents with free or discounted events or classes for the inconveniences of traffic jams? No. So enough with the expansion unless Palo Alto taxpayers and residents see some type of personal benefit like reduced property taxes and/or free classes, discounted tours-- something.

Do to provide adequate parking for visitors to the museum or the gardens? No. They're already totally over-parked so we can't benefit from them. So enough with expansion.

If people can't park on campus, the encroach on residential neighborhoods and shopping centers so we can't conduct our daily business now so why should we approve your expansion? We don't, Enough with expansion.

Every year paid Stanford phone surveys insult our intelligence by asking which argument would be most effective in getting us to support a Stanford expansion but fail to ask if we support or oppose the expansion. We don't support it. Enough.

For years we've had to listen to our Stanford alum friends in Stanford Weekend Acres complain about broken promises re the dam and the hiking trails and how they won't go to alumni events with us because of the broken promises. Enough.

For a decade, we've been told that the expansion of the Stanford Medical Center and the university was going to benefit us/ I ask how? For years it's been increasingly time-consuming was i to get to my dentist at Welsh Road.

ENOUGH with the expansion!

Let me know if you want to expand on any of the above.

Most sincerely,
Jo Ann Mandinach
1699 Middefield Road
PA CA 94301

Jo Ann Mandinach
Need To Know Info Solutions
<http://www.needtoknow.com>
650 329-8655 or cell 650 269-0650
Palo Alto, CA 94301

From: [J McFall](#)
To: [Rader, David](#)
Subject: comments for inclusion in the Stanford EIR
Date: Tuesday, February 14, 2017 5:56:58 PM

Hi David-

I would like the following included for study in the EIR:

- impacts on nearby neighborhoods from vehicle traffic resulting from the project.

- impacts on street parking within adjacent neighborhoods caused by off-site parking of vehicles belonging to Stanford students, staff ,etc.

and possible mitigations to address these issues.

Thank you.

--

Jim McFall
1530 Escobita Avenue
Palo Alto, CA 94306
wmjmcfall@yahoo.com

From: [John Moran](#)
To: [Rader, David](#)
Cc: [Loquist, Kristina](#); Stanford2018GUP@stanford.edu
Subject: Comments on the Stanford GUP EIR
Date: Wednesday, February 15, 2017 11:18:58 AM
Attachments: [Stanford Graduate Housing Affordability Report.docx](#)

Dear Mr. Rader,

As I expressed in oral comments at the EIR scoping meeting, I have been a resident of Santa Clara County for five years and contribute over 50% of my income to on-campus graduate housing at Stanford. I represent an organization of graduate student employees who are "severely rent burdened" by Stanford as defined by U.S. HUD, and who are concerned about how the County may represent the issue of affordable housing in the "Population and Housing" section of the EIR. We are concerned that Stanford's 2018 GUP may be portrayed as alleviating the County's affordable housing crisis, rather than contributing to it.

In the "Population and Housing" section of the EIR, we would like the question of not just the number of housing units, but the cost burden of those units to the people who occupy them in relation to income, to be addressed in relation to the county's housing affordability crisis, which as we understand, is within purview of the EIR.

Because neither Stanford nor the County have made a substantial inquiry into the affordability of the housing designated as "affordable housing" on Stanford lands, a designation which will be wrongfully expanded in the proposal GUP, we have conducted a case study concerning the affordability of this housing for Stanford graduate students and graduate student employees, the only class of Santa Clara County residents who may access it. Please find this report attached. We consider this report to be professionally produced and would encourage its inclusion and citation in the EIR.

We believe both the University and County have benefited financially, and are poised to continue to benefit financially, from the wrongful designation of on-campus graduate housing at Stanford University as "affordable housing" meeting the County's RHNA obligations, while burdening the very population this California state law is meant to protect.

Thank you very much for your efforts as a public servant.

Best,

John Moran
Graduate Student Organization, Department of Anthropology

PhD candidate
Dept. of Anthropology
Stanford University

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

Please hand in during the meeting or mail (address on back) or email by **February 17, 2017.**

Name: Richard Patrone

Organization (if any): SFIO ZOO

Address (optional): _____

City, State, Zip: Woodside CA 94062

E-mail: rpatrone @ stanford.edu

This comment form is being furnished to obtain suggestions and information from the public on the scope of issues and alternatives that will be addressed in the EIR. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

Comments (Please print clearly and legibly)

Can the county investigate the
social impact of the University's request
to combine all affordable housing
eligible groups into one group

(More space on reverse side)

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

*Please hand in during the meeting or mail (address on back) or email by **February 17, 2017**.*

Name: David Perkins

Organization (if any): SEIU

Address (optional): _____

City, State, Zip: _____

E-mail: Vice_President@SEIU2007.org

This comment form is being furnished to obtain suggestions and information from the public on the scope of issues and alternatives that will be addressed in the EIR. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

Comments (Please print clearly and legibly)

We ask the county to analyze the demographics
of the workers that do and do not
qualify for the Stanford Transit Program

Thank you

(More space on reverse side)

1-23-17

Dear David

RECEIVED
PLANNING DEPT.

2017 JAN 26 AM 11:53

COUNTY OF SANTA CLARA

I have to vote ~~no~~
to Stanford because
I am sick of paying to
park in front of my own
house It was not
that way when I bought
it in 1984. There is no
logic in this, its not
a city area its rural -
let Stanford pay my parking
period. Fix that!

Thanks
Darlene Persson
650-947-8079

* 2018 General
Use Permit

Hi, my name is Francisco Preciado and I'm the Executive Director for SEIU Local 2007. I wanted to express our appreciation to SCoPE 2035 for asking very important questions about equity. In looking at the vast array of Stanford's accomplishments, it's important to recognize it as a world class leader in many respects. Whether its research, technological developments, or being recognized as one of the most beautiful campuses in the world. However, the reason we are here today is to express our concern that Stanford is not being that exemplary leader when it comes to treating their workers with respect or valuing them as part of the Stanford family. Examples of this include the fact that Stanford won't recognize the Public Safety Officers who want to unionize [pause] and the fact that the majority of workers do not qualify for affordable housing on campus. This relates directly to the GUP and the Community Plan. In Stanford's Community Plan, it specifically states that in order to address Stanford's housing needs, Stanford's Strategy Number One is to "Increase the Supply and Affordability of Housing." Given that the 2018 GUP proposal is 550 units for Faculty & Staff, does the county believe that Stanford is actually committed to providing affordable housing for staff when its cumulative faculty/staff units after the 2000 GUP was 937 units? Can the county examine the impact of developing 1,000 staff units on campus as it relates to decreasing the total commute trips? Lastly, would the county consider funding these additional 1,000 units for working class staff using Stanford's Affordable Housing Fund?

Hi, my name is _____ and I'm a member of SEIU Local 2007. I work at _____. I have a couple questions. (1) How does the county calculate Stanford's contribution to the Stanford Affordable Housing Fund? (2) Should the county calculate the contribution by examining what developers in the surrounding cities contribute? Maybe instead of contributing \$20 per square foot, Stanford align itself with Palo Alto's standard at around \$60 per square foot. Thank you.

Hi, my name is _____ and I'm a member of SEIU Local 2007. I work at _____. I would like to thank SCOPE for their important comments. Can the county look at the effect on the net new commute trips if Stanford provided 1,000 additional affordable housing units for their service and technical workers and their families? Thank you, that is my question.

"However, as housing supply and affordability trends within Santa Clara County and the Stanford area worsen, it is in the interest of both Stanford University and the public to ensure balance between housing demand and supply as it pertains to Stanford University's development. Stanford lands represent one of the most important opportunities in the County to improve the balance between jobs and housing, due to the potential to provide housing on Stanford lands for designated University populations. While this housing is directly accessible only to Stanford students, faculty and staff, it also benefits the wider community by augmenting the local housing supply. To that end, development of additional housing on the campus is a fundamental policy direction of this Community Plan."

Stanford Community Plan

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

Please hand in during the meeting or mail (address on back) or email by **February 17, 2017**.

Name: Sea Redding

Organization (if any): _____

Address (optional): 747 Stanford

City, State, Zip: Palo Alto, Ca 94306

E-mail: paloalto1ife@gmail.com

This comment form is being furnished to obtain suggestions and information from the public on the scope of issues and alternatives that will be addressed in the EIR. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

Comments (Please print clearly and legibly)

1. Traffic on Stanford Ave

2. TCE concerns

3. El Camino & Stanford Ave intersection

(More space on reverse side)

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

Please hand in during the meeting or mail (address on back) or email by **February 17, 2017.**

Name: Richard Patrone

Organization (if any): SFIO ZOO

Address (optional): _____

City, State, Zip: Woodside CA 94062

E-mail: rpatrione @ stanford.edu

This comment form is being furnished to obtain suggestions and information from the public on the scope of issues and alternatives that will be addressed in the EIR. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

Comments (Please print clearly and legibly)

Can the county investigate the
social impact of the University's request
to combine all affordable housing
eligible groups into one group

(More space on reverse side)

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

*Please hand in during the meeting or mail (address on back) or email by **February 17, 2017**.*

Name: David Perkins

Organization (if any): SEIU

Address (optional): _____

City, State, Zip: _____

E-mail: Vice_President@SEIU2007.org

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Comments (Please print clearly and legibly)

We ask the county to analyze the demographics
of the workers that do and do not
qualify for the Stanford Transit Program

Thank you

(More space on reverse side)

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

Please hand in during the meeting or mail (address on back) or email by **February 17, 2017**.

Name: MING-FIE J TING TRUSTE

Organization (if any): _____

Address (optional): _____

City, State, Zip: _____

E-mail: WWW.PEGASUS.COM HOTMAIL.COM

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Comments (Please print clearly and legibly)

- #1 - ^{Need} Traffic light on Stanford Ave and El Camino for that interaction
- Need Electric car for Margarita to campus for better air quality
- Hope Stanford will build their parking lot
- day care create traffic like Google campus day care
- We ^{public} encourage just finish the RPP w/ Palo Alto Transport

(More space on reverse side)

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Stanford Community Plan

From: [Steve](#)
To: [Rader, David](#); [doria.s](#)
Subject: 2018 Stanford GUP EIR
Date: Friday, February 17, 2017 2:26:33 PM

Dear Mr. Rader,

We the undersigned request that the EIR consider whether and how the GUP process could accelerate electrification of Caltrain and require all "baby bullet" trains to stop at both University and California Avenues. We believe these developments would enhance the use of mass transit by employees of Stanford University and Stanford Research Park.

Doria Summa
Steven Woodward

EIR Scoping: Stanford 2018 General Use Permit Project

SCOPING COMMENTS (Please print clearly and legibly)

Please hand in during the meeting or mail (address on back) or email by **February 17, 2017**.

Name: MING-FIE J TING TRUSTE

Organization (if any):

Address (optional):

City, State, Zip:

E-mail: WWW.PEGASUS.ED.HOTMAIL.COM

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- Need Electric ~~car~~ for Margarita to campus for better air quality
- Hope Stanford will build their parking lot
- day care create traffic like Google Campus day care
- We ^{public} encourage just finish the RPP w/ Palo Alto Transport

(More space on reverse side)

From: [Susan Wilson](#)
To: [Rader, David](#)
Subject: Stanford GUP 2018
Date: Thursday, February 09, 2017 8:57:22 PM

Dear Mr. Rader,

I'm writing in response to the 2018 GUP. I was at the recent presentation at Mitchell Library on January 25, 2017 and feel a need to write on the following topics: Infrastructure, Stanford's Responsibility, Deal Making with Stanford, and Past History with Stanford.

1. Infrastructure. It seems the issue of cars gets discussed a lot. Yes, our roads are congested, but it's also the rest of community infrastructure that is not sustainable. We don't have enough grocery stores, dentist offices, gyms, etc. Traffic is just one part of the problem as we increase our density.

We are being asked to approve 3,150 more beds and 2,035,000 sq feet of academic space without first realizing the effects of the Mayfield Housing Project will have on our community. That's another 180 household with probably only one person in the family working at Stanford and the other one driving a car to his/her employment. And that person will probably be taking their child to his tennis lessons, to soccer, or whatever, after already having driven to Safeway on her way home from work. All of that spells more cars, more lines a grocery store, more parking problems, less access to the amenities that make life work.

We are being told there will be no more "commuter traffic." Big deal, because traffic is now a constant, not contained to a few hours a day. It doesn't really matter if there is less commuter traffic because all day long people are living their lives moving from one event to the other. The quality of life continues to be downgraded with no consideration about stopping the trajectory. Just what is "commuter traffic" in this age when people go to work at all different times of the day and night?

2. Make Stanford responsible. So my question to you, the representative for the county, why is there not a Safeway on Stanford campus? Or any of the other amenities of living—like more schools, dentists, ballet teachers, etc. Why is there not an exit off 280 that goes directly to the Stanford inner campus through Stanford land. Why is my neighborhood of College Terrace congested with Stanford traffic when Stanford has all the land in the world to move people from 280?

3. Deal making. I don't understand why Stanford was ever allowed to count dorm rooms as low income housing? Absurd! to say the least. They are not the poor. These students are getting a world class education, with the idea of making way more than a living wage. Allowing dorms to count as low income housing means that the responsibility to create housing for the people that clean the Stanford toilets and mow lawn becomes either the traffic problem or a low-income-housing problem for Palo Alto and Menlo Park. It just doesn't seem fair.

Why can't your deal making involve some really good public transportation in the form of a subway system that goes from a parking lot on 280 and 101 to the the main campus. A subway system for the entire peninsula/South Bay should be your goal when dealing with any project that involves more people.

But really what's preventing the county and the City of Palo Alto from simply saying "no" to Stanford OR to put conditions on Stanford that move the burden away from Palo Alto and Menlo Park? I'm not talking about little handouts like speed bumps in College Terrace or a soccer field on the choice piece of land that should have been low income housing. I'm talking about forcing Stanford to provide its own infrastructure and housing for those who work there—yes especially the low wage earners.

At the meeting at Mitchell Library, there was something said about upgrading a park in College Terrace. Really? And for that we get what? More cut through traffic, longer waits at the light at El Camino and Stanford Ave. The density of Mayfield Housing? Stanford deals are never good for our neighborhood.

4. Past History I am reminded of the last GUP when the Mayfield Housing Project was sold to Palo Alto by saying that there would be housing for the people of Palo Alto. What a joke. Certainly the County must have known that a housing benefit was not for real. Guess what? Looks like Mayfield will be flushed out with Stanford folks, big surprise.

So please, we don't need to get tricked yet again. Make Stanford pay the full price of expansion—not Palo Alto, not Menlo Park.

Sincerely,
Susan Wilson
College Terrace
Palo Alto

From: [Jennifer Wolosin](#)
To: [Rader, David](#)
Subject: Stanford EIR Feedback
Date: Thursday, February 16, 2017 5:25:16 PM

To Whom it May Concern:

Thank you for the opportunity to comment on the scope of the Stanford EIR. I am a resident of the City of Menlo Park and Chair of Parents for Safe Routes (www.parents4saferoutes.org), a new Menlo Park community advocacy group committed to getting kids to school safely. In the less than a month since we launched, we now have over 160 concerned citizens who are united in our mission to do everything we can to make the streets safer for kids. The upcoming Stanford development and associated transportation impacts directly affect the kids in our community.

As our neighbors in Palo Alto have shown us, to have a truly successful Safe Routes to School program, a community partnership is needed. A community partnership involves the Parents, Schools and City(ies)/County (and other related jurisdictions) working together. We have learned through experience that any one group alone can not be successful in truly making a difference in Safe Routes. We are all interconnected and we all need each other.

As Parents for Safe Routes first "win", along with the Menlo Park Bicycle and Transportation Commissions, we successfully lobbied the Menlo Park City Council to make Safe Routes a priority. On February 7, 2017, the City Council voted to add a comprehensive Safe Routes program to its 2018 Work Plan. We are now continuing to make the rounds to the school districts and other key stakeholders to get more buy-in on the community partnership model. We are making great progress (last week the incoming Superintendent of the Menlo Park City School District agreed to support a community partnership as well!).

The timing couldn't be better for Stanford to join in the efforts to make our streets safe, for everyone. While the campus of Stanford may seem like an island, the regional impacts felt stretch far and wide. If Stanford really wants to keep its single occupancy vehicle trips down in the face of its rapid expansion, investments in biking and pedestrian infrastructure and the creation of true, low-stress Safe Routes, will be critical. In addition, working with neighboring jurisdictions in the spirit of cooperation is also key.

As for specific feedback, I respectfully request the following:

- Your transportation study should consider a 5-mile radius/bike commute shed and should consider the needs of bicyclists of all ages. Many Stanford employees live in Menlo Park and have children that attend our schools. It would be a huge incentive to Stanford employees to be able to bike their kids to school and then on to work. We suspect that in order for Stanford to maintain its commitment to no net new trips that bicycle investments for families will need to be made to enable parents who work at Stanford to bike to campus. It is unlikely that parents would drive their kids to school and then go home to get on their bikes. Five miles is a feasible distance to travel by bike for ordinary people without an extraordinary level of fitness.
- Consider a bicycle infrastructure improvement study that lists projects that would be needed within 5 miles of Stanford to allow for low-stress biking to campus. The study should include cost estimates for each project. The City of Los Gatos recently completed a Safe Routes study through Alta (<http://www.losgatosca.gov/DocumentCenter/View/17309>) that is an example of how to look at a bicycle network in a strategic way.
- Consider all 6 E's of Safe Routes to School in your analysis (Engineering, Enforcement, Education, Encouragement, Evaluation and Equity). While Safe Routes to School is typically thought of in the context of K-12 Education, a university campus can greatly benefit from analyzing its transportation program through the lens of Safe Routes.

The Peninsula, and the Menlo Park/Palo Alto/Stanford area is suffering greatly from a traffic crisis. We are all struggling with collective road rage and the frustration we feel on our streets is leading not only to physical danger (accidents and near misses), but a mental health crisis as well. Parents are stressed. Kids are stressed. The streets are not safe and fewer are riding their bikes and cars because of it...so traffic gets worse and the streets become less safe.

Stanford has done a great job in mitigating its traffic to date. It must continue its efforts and expand them to be part of a regional solution to our current traffic nightmare. Safe Routes is a do-able solution. We must stop the vicious cycle of single occupancy vehicle traffic on our streets.

Thank you for your consideration.

Sincerely,

Jen Wolosin

Parents for Safe Routes

jenwolosin@gmail.com

415-710-5838

www.parents4saferoutes.org

From: [Steve](#)
To: [Rader, David](#)
Cc: fbalin@gmail.com; [doria s](#); [Ed Schmitt](#)
Subject: Re: Stanford 2018 GUP EIR
Date: Friday, February 17, 2017 2:20:50 PM

February 17, 2017

Dear Mr. Rader,

We the undersigned long-term residents of College Terrace in Palo Alto, a neighborhood bordered by Stanford lands on three sides, including the academic campus via Stanford Avenue (from El Camino Real to Amherst Street), and extremely susceptible and vulnerable to negative impacts from increased traffic from campus along Stanford Avenue, as well as cut-through traffic in the neighborhood, request the following with regard to how the GUP EIR transportation and traffic section is conducted:

1. Conduct a baseline count of current vehicle traffic over a Tuesday-to-Friday 3-day period, of expected normal weekday vehicular usage, covering all directional flows at the following Stanford Avenue curb cuts:
 1. Yale Street, 4-way intersection
 2. Wellesley Street, 4-way intersection
 3. Oberlin Street, 4 way intersection
 4. Harvard Street, 3- way intersection
 5. Escondido Road, 3-way intersection
 6. Dartmouth Street, 3 way intersection
 7. Bowdoin Street, 3 way intersection
2. Provide College Terrace Residents' Association with a work plan of how the College Terrace neighborhood traffic study is to be conducted in the EIR so that a resident expert team selected by the CTRA board can review, comment, and come mutual final agreement on the document.
3. Hire a respected, independent traffic analysis peer reviewer to assess the assumptions, projections, and conclusions in the traffic and transportation EIR as it relates to College Terrace. (The neighborhood can provide one or more recommendations.)
4. Evaluate the potential positive impacts on College Terrace traffic obtainable by enhancing the capacity of Campus Drive east of Junipero Serra Blvd and by disincentivizing the use of the Bowdoin Ave entrance into campus via a FastPass-based entry fee. (Such as system could accommodate local Stanford leasehold users as well as off-peak entries and exits.)

Incorporating these components into the traffic analysis of EIR of the Stanford 2018 GUP proposal will enhance neighborhood confidence at a time of calamitous traffic increases elsewhere in the city and provide a sound basis for future mitigations that may be required to protect College Terrace.

Thank you,
Steve Woodward
Fred Balin
Doria Summa
Ed Schmitt

From: [Bill Youstra](#)
To: [Rader, David](#)
Subject: Comments for EIR for Stanford 2018 GUP
Date: Wednesday, January 18, 2017 5:03:09 PM

Mr. Rader,

I'm a neighbor of Stanford's and want to convey my full support for the 2018 GUP modification and Stanford itself. The university has been a trusted, valuable and responsible neighbor over the years. You can't please all of the people all of the time, but they are more than generous with community use of their lands and financial support for improvement of local infrastructure.

Regards,
Bill Youstra
187 Cervantes Road
Portola Valley, CA

Transcript of Public Scoping Meeting February 8, 2017

- - -

TRANSCRIPTION OF AUDIO-RECORDED SCOPING MEETING
CEQA - STANFORD 2018 GENERAL USE PERMIT APPLICATION
PALO ALTO ART CENTER
1313 NEWELL STREET
PALO ALTO, CALIFORNIA
FEBRUARY 8, 2017

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TRANSCRIBED BY: Tonia L. Webb
File No.: AB01F84

1 FEBRUARY 8, 2017

2 [Transcriber's Note: All proper names not spelled on
3 the recording are presented here phonetically; all
4 speakers not identified on the recording, or not able to
5 be identified by the transcriber, are presented here as
6 UNIDENTIFIED MALE or UNIDENTIFIED FEMALE]

7 - - -

8 TRANSCRIPT OF PROCEEDINGS

9 [Begin audio file 1 of 1]

10 SANTA CLARA COUNTY PLANNING DIRECTOR KIRK GIRARD:
11 Welcome to the formal scoping meeting under the California
12 Environmental Quality Act for Stanford's 2018 general
13 permit application.

14 So we held this and you've been invited
15 because the public is a really important process -- part, a
16 really important part of the permitting process and the
17 CEQA process.

18 So the -- the purpose of CEQA is to try to
19 understand the environmental effects of a project and
20 these scoping sessions are an opportunity for the people
21 that might be affected by the project, or have special
22 knowledge about the project, to communicate to the lead
23 agency what they feel their concerns might be, and what
24 they would like to see studied in the EIR.

25 And the timing of this session is important

1 because it's the very beginning of the permitting
2 process and the very beginning of the CEQA process. So
3 the comments that you make tonight will allow us to
4 consider those comments in the drafting of the
5 environmental impact report so that we could have the
6 best possible opportunity to think about, in a
7 nice, deliberative, thoughtful, early way how we might
8 be able to mitigate those concerns.

9 So this is primary -- primarily a listening
10 session for us, but it's an opportunity for you to give
11 us your insights on what the effects of this project
12 might be.

13 It's also an opportunity to get -- to introduce
14 our staff and so you can have a relationship with them
15 throughout this process.

16 This is Kavitha Kumar. She is the project
17 manager for the permit application process. And then
18 David Rader, he is our CEQA specialist. We have Rob
19 Eastwood, who is our planning manager, and he is
20 managing the CEQA aspects of the project. And I'm the
21 overarching project manager for the application.

22 We also have some Stanford representatives
23 here. And they're here to, to listen. We can answer your
24 questions if, if we think that -- or if you have questions
25 that would help you better understand the project so you

1 can give more thoughtful comments, then we're happy to
2 answer questions.

3 And that's one of the reasons that Stanford is
4 here, to act as a resource in that capacity. Kovita is
5 gonna describe the project, and she's going to describe
6 the permit application process. And then David's gonna
7 get up and he's gonna describe our CEQA process and then
8 give you specific guidance on how you can get your
9 comments into the process.

10 Tonight, we're happy to take verbal comments,
11 but as you'll tell him, the best comments, quite
12 frankly, are written comments that are a formal part of
13 the record, and, and this is gonna be your invitation to
14 submit those formal written comments.

15 So that concludes my introduction. And -- and I'd
16 like to introduce Kavitha Kumar for the project
17 description.

18 Sorry. Let me help that. And how's that?

19 MS. KUMAR: That's good.

20 MR. GIRARD: Okay.

21 MS. KUMAR: Thank you. Thank you, Kurt.

22 And, again, I am Kavitha Kumar, I'm senior
23 planner with the County of Santa Clara Planning and
24 Development Department, and I'm also the project planner
25 for this application from Stanford.

1 The first slide -- is there any way we can
2 lower the lights?

3 UNIDENTIFIED MALE: Yes. The - you know, the
4 spotlights are -- I feel like we're on performance here.

5 MS. KUMAR: Yeah.

6 [Multiple unintelligible speakers]

7 MS. KUMAR: Thank you.

8 Can everyone hear me? Oh, on the screen.

9 [Multiple unintelligible speakers]

10 MS. KUMAR: We have lights in the back, but they're
11 lowered here.

12 [Multiple unintelligible speakers]

13 MS. KUMAR: Can you see?

14 [Multiple unintelligible speakers]

15 MS. KUMAR: Yeah, there. Perfect. Yeah. I'm not
16 performing, so people need to see that. Okay. Thank
17 you.

18 I'm gonna start off with setting a context
19 to the area that is under a review in this application.
20 Many of you may be aware that Stanford owns lands in a
21 lot of jurisdictions in the area, and they - they have
22 lands in City of Palo Alto, Menlo Park, the Counties of
23 Santa Clara and San Mateo Counties, also the Town of Woodside
24 and Town of Portola Valley.

25 In this map, you see the green area is the

1 County of Santa Clara, and the application we have in
2 front of us at the County is for this area. So it's --
3 they're requesting an update to their general use permit
4 for the area in the green.

5 So currently Stanford operates under a
6 regulatory framework with the Stanford community plan
7 and a general use permit.

8 These -- the -- these approvals were approved
9 by the Board of Supervisors in 2000, December 2000, and
10 that allows them to operate under the general use
11 permit, a general framework to construct new academic
12 buildings, and residential buildings, and dormitories, and
13 roadways, and water irrigation facilities - all the
14 different projects that they do under this overarching
15 general use permit.

16 Just to go over what -- the principles of the
17 community plan and general use permit, just very
18 briefly. The community plan was -- established policies
19 for the Stanford lands in the county and it is a part of
20 the overall general plan of the County itself.

21 Some key policies that were memorialized in
22 the community plan were compact urban development,
23 conservation of natural resources in the foothills,
24 establishment of an academic growth boundary where
25 academic growth would be concentrated, housing that would

1 be built concurrent with academic development on --
2 within the academic growth boundary, and a goal of no --
3 no net new commute trips coming into the core campus.

4 And the 2000 general use permit authorized
5 development and established conditions of approval
6 consistent with the community plan policies that you just
7 saw in the previous slide.

8 The 2000 general use permit set a cap on
9 academic facilities at 2.035 million square feet over
10 4-0 - 4400 housing units, and then, well, another 40,000
11 square feet of children -- child care community centers.

12 In addition, it also established over a
13 hundred conditions of approval, which is monitored by
14 the County Planning Office and -- to make sure that
15 Stanford is in compliance with the community plan and
16 the general use permit.

17 Currently, Stanford has applied for an update
18 to the general use permit to -- to get -- to get into
19 their next phase of academic development. And in general,
20 we are -- we have been calling it a general use permit
21 2018 - in short, GUP 2018.

22 This application was submitted to the County
23 in November 2016 for all lands that are in the Santa
24 Clara County, and here in this map, you can see that in
25 green. This application includes updates to the 2000

1 general use permit, the Stanford community plan and some
2 zoning -- zoning adjustments.

3 This map here shows the academic growth
4 boundary. You -- if -- yeah, I think it's a faint red line
5 that is the academic growth boundary. I'll try to point it.
6 That's this -- so it runs along Junipero Serra Boulevard. So
7 everything north of that is the concentrated academic
8 growth that is allowed under the 2000 GUP, and everything
9 south of the -- the -- Junipero Serra is the foothills, which
10 is preserved.

11 The 2018 development propo- -- request
12 includes -- includes 2.275 million square feet of new
13 net academic and academic support uses; over three
14 thousand -- 3100 net new campus housing units; another
15 40,000 square feet of community space and child care
16 facilities; and no development is proposed in the
17 foothills and in the San Juan Development District where
18 the faculty housing is located.

19 And the application -- planning horizon for this
20 application is 2035; so it goes from 2018, or whenever
21 it's approved, through 2035.

22 The 2018 GUP also -- request is proposed to be
23 consistent with the general principles of the 2000
24 Stanford community plan, which was approved in 2000. It
25 retains the academic growth boundary in the same -- same line,

1 maintains no new net trips goal to limit automobile
2 congestion in the surrounding areas, and provides
3 housing that is concurrent with academic growth on the
4 campus.

5 So we are -- right now, the application is with
6 the County. We are doing -- we have done a completeness
7 review and we have a complete application to get into
8 the environmental assessment.

9 So after I'm done, Dave Rader will get into
10 more of that. So while that is going on, so -- we
11 will go through a complete EIR process for our
12 environmental impact report.

13 And once that is done, the County will
14 agendize the -- the application, the entire packet, and it
15 will go through the public hearing process; it'll go
16 through the Planning Commission and finally be approved
17 by the Board.

18 And we don't have any anticipated dates for
19 any of these hearings, but anybody who signed up on our
20 website, or today at the sign-in sheets, will be
21 notified. And we have a, we have a really robust outreach
22 program that we are going through so people will be notified
23 of all the public hearings.

24 And Stanford is also doing something similar
25 in parallel. They have a big mailing list that they are

1 sending out these notices to, so keep your eyes open.

2 And this graphic here just shows us where we
3 are in the process. So we are right here, and there's
4 gonna be more community feedback opportunities going
5 along this process, and before it's -- public hearings,
6 at the Planning Commission and the Board hearings.

7 And just so -- I have mentioned many different
8 documents here today; the Stanford community plan, the
9 general use permit, annual reports. All these are on
10 the County website, at this website I have noted
11 here, and also it's included in the NOP that you many have
12 picked up when you -- when you came in the door.

13 So all the resources are there, and if you
14 have any other questions, or if you need someone to talk
15 to, you can always contact me. My contact information
16 is also on the County website.

17 With that, I will turn it over to Dave Rader,
18 and we'll be happy to answer questions after we are
19 done. Thank you.

20 DAVID RADER: Yeah. Hear me okay? Okay.

21 So the California Environmental Quality Act
22 was enacted back in 1970 with the intent that decision
23 makers and the public would understand the environmental
24 consequences of projects under consideration.

25 The County has -- has determined that this

1 application for a general use permit -- that for this
2 application, the appropriate level of environmental
3 review is an environmental impact report.

4 And the purpose of an environmental impact
5 report is to determine the effects of the proposed
6 project on the environment, propose ways, or -- that -- that
7 those effects can be mitigated or avoided, and also to
8 evaluate alternatives to the proposed project,
9 alternatives that would lessen or -- or eliminate impacts of
10 the project.

11 So the County released a Notice of Preparation
12 for this environmental impact report that we're
13 preparing, back in January, January 10th of this year,
14 so we are now in the scoping period, which ends, I
15 believe, end of next week, February 17th.

16 And the purpose of this scoping period is to
17 receive input from the public on what they feel that the
18 environmental topics, issues that should be analyzed in
19 the environmental impact report.

20 So -- so that is the period we're in, and this
21 scoping meeting is another opportunity for you to
22 understand the project and what the process is for
23 submitting comments.

24 Next, next slide. Well, one thing I, I want to
25 emphasize, this -- this general use permit application is for

1 overall allocation of square footage, and housing units, and other
2 aspects. And so it's really more of a program than a
3 project. So -- so the EIR is gonna be analyzing the totality
4 of -- of those allocations and consequences of -- of -- of that
5 build-out.

6 Specific projects would come in when -- when those plans are
7 available for, you know, buildings and other -- other facilities.
8 So -- so this is a program EIR.

9 The overall process for the EIR is -- starts
10 with, as I said, the -- the release of the Notice of
11 Preparation, and the scoping period, generally a minimum
12 of 30 days, and then the County and its consultants will
13 begin preparation of the environmental impact report,
14 and that takes a number of months.

15 And at the end of that period, we will publish
16 a Notice of Availability, and release the draft EIR for
17 public comment. We are planning on a 60-day public
18 comment period. Similar to the Notice of Preparation,
19 or the scoping period, it's generally -- we're looking for
20 written comments, and the comments should be focused on
21 the adequacy of the draft EIR, whether - whether you think that
22 it adequately addressed the environmental impacts of the
23 project.

24 And then the County will respond to those
25 comments in a final EIR document, and we will also notify

1 the public when that's available. Generally, the
2 County's policy is to have the final EIR completed
3 before the first public hearing for the project.

4 And as part of that process, findings will
5 have to be made relative to CEQA before the project can
6 be adopted.

7 And then -- next slide, please. This is -- this is
8 our assessment at this point of what the environmental
9 topics are that should be covered in the environmental
10 impact report. So it's a pretty full range. Also, we'll --
11 we'll be looking at cumulative impacts of the project, and --
12 and alternatives.

13 So we're looking for public input on whether
14 there are additional topics that should be considered in
15 the EIR, and how you think -- what the -- what the content of
16 that analysis should be.

17 So the way to comment is you can -- you can
18 send me written comment through email or snail mail. I
19 think we're out of speaker comment sheets, but we can --
20 we can provide those additional -- additionally. And then you can -
21 -
22 you know, we will try to capture comments that you make
23 tonight. We would still encourage you to submit those
24 in writing.

25 NOP comments are actually included with the

1 EIR as -- as an appendice -- as -- as an appendix so, you know, it
2 is part of -- it's --it is part of a written record. And those
3 comments need to be addressed in the EIR.

4 So that's the general process, and I guess we
5 can open it up for questions or comments at this point.

6 We don't. Yeah. So -- yes, Sir.

7 SEA-SEELAM REDDY: Thank you for the really
8 [Unintelligible] just doing a great job, and Stanford was just
9 (unintelligible) last - a couple weeks ago, (unintelligible). I am a
10 resident of Palo Alto, the closest to Stanford location. I live on
11 Stanford Avenue, which, which, [unintelligible] area, and all the housing
12 that they have. And there is a [unintelligible] of 900 families, units,
13 and doing a lot of development in that area. And I have expressed a few
14 things to think about, and I have written, and passed on to you. And for
15 me to elaborate, I think [unintelligible] to look at these things.

16 The first thing is, traffic on Stanford Avenue - [unintelligible]
17 thousand people, especially the University families, tend to come up, you
18 know, [unintelligible] late at night, and there are families that have
19 school children and things like that, [unintelligible] early that are
20 [unintelligible]. So we need to look at it, what impact it has, and
21 there is - there is no stoplights until Escondido - about a mile and a
22 half, I think, from El Camino. But that - a lot of traffic might be
23 going towards El Camino. So we need more traffic lights. So how do we
24 manage that? and there are bikes, bike paths on both sides of it. It's
25 an undivided road, and a lot of traffic, a lot of early morning, getting

1 kids to, to school, and leaving the school, so that's all that stuff.
2 And there's an elementary school, [unintelligible] school, people going -
3 going east and west on it. So - but those are things to be looked at.
4 And [unintelligible] opportunity to come up with some solutions.

5 The second thing also, is the intersection of
6 El Camino Real and Stanford Avenue. It -- it's already
7 jammed now, you know. The prime time, from 7:00 to 9:00, 9:30, it's
8 -- it's almost like a highway, you know. They are going at about

9 So those are the three things that I think, as a resident,
10 as a resident, that comes across to me, and that we do have a, a
11 [unintelligible] Association that have might have more things to
12 [unintelligible]. But I'm going to leave that to you here, and --

13 UNIDENTIFIED MALE: You can leave it at the table.

14 MR. REDDY: Yeah. And thank you for the
15 opportunity for me to say those things.

16 UNIDENTIFIED MALE: You're very welcome.

17 MR. REDDY: Thank you.

18 MR. RADER: Yeah. Oh, yes. And by the way, if
19 you want your name in the record you can state it before
20 you make your comments.

21 PETER DREKMEIER: Good evening. I'm a Peter
22 Drekmeier. I'm a Palo Alto resident. A couple questions
23 and some comments. My first question:

24 Can you explain zoning works in general in
25 unincorporated Santa Clara County, and how it differs on the

1 Stanford campus?

2 UNIDENTIFIED MALE: Well, probably either of you be
3 better than I.

4 MR. GIRARD: In a general sense, it works the
5 same way in both instances. In the individual areas of
6 land, you have a specific zoning designation that creates certain
7 allowable uses.

8 There's one distinction that -- that
9 I can make, is that typically you can divide the allowable
10 uses, and those that are allowed, without a further
11 discretionary decision, so that you could just, for
12 example, build your house with a building permit and not
13 have to go to the Planning Commission for approval;
14 and then those that require discretionary
15 decisions.

16 In Stanford's case, the projects that they
17 propose have to go through a review, and they're almost
18 always conditioned by a discretionary review to make sure - and
19 this is an important concept to make -- that they're
20 consistent with the programmatic community plan and
21 an environmental review that's been done.

22 Does that help?

23 MR. DREKMEIER: Well, that's actually
24 more specific to a floor area ratio and density --

25 MR. GIRARD: Ah, okay.

1 MR. DREKMEIER: Is there a
2 difference between Stanford campus and
3 the rest of the County, according to the [unintelligible].

4 MR. RADER: Yeah. The -- the -- the specific
5 standards that have been applied depend upon the zone
6 designation at Stanford. But there's, I think, three or
7 four zoning designations -- three zoning designations
8 that cover Stanford lands.

9 And -- and the devil is in the details, that you
10 would look at that particular zoning designation in our
11 ordinance, and it would tell you exactly what development
12 standards apply - setbacks. I mean -- and -- and they do differ.

13 That - a commercial zone will have a different
14 set of criteria for development in unincorporated Santa
15 Clara than a like commercial zone for Stanford. They've been
16 -- and effectively, we have specific zones that apply only to the
17 Stanford lands.

18 MR. DREKMEIER: And -- thank you. And
19 same question is: Does -- are there any property taxes
20 paid by Stanford for the family centers?

21 MR. RADER: That's a good question for
22 Stanford.

23 [Multiple unintelligible speakers]

24 MR. RADER: Yeah, or - that's where I wish we
25 -- we did have that

1 answer. Do we -- do we know? Supervisor Simitian, I
2 don't wanna put you on the spot. But the question arose
3 about Stanford's -- or maybe I shouldn't put you on the spot --
4 Stanford's property tax requirements.

5 SUPERVISOR SIMITIAN: I -- I think there's a
6 distinction and I would add, it's [unintelligible] to Stanford. I -
7 - I'm not the assessor, Dave.

8 MR. RADER: Yeah.

9 SUPERVISOR SIMITIAN: I think there's a distinction between
10 academic lands and the lands of the Stanford Research Department.
11 Stanford would be - doesn't --

12 MR. RADER: Okay, got you.

13 SUPERVISOR SIMITIAN: -- Doesn't share that distinction.

14 MR. RADER: Do you -- do you have that, [unintelligible]?

15 CATHERINE PALTER, ASSOCIATE VICE PRESIDENT, LAND USE AND
16 ENVIRONMENTAL PLANNING, STANFORD UNIVERSITY: [Unintelligible] useless.

17 MR. RADER: Do you -- do you know?

18 MS. PALTER: I, I - Stanford [unintelligible]
19 and this isn't something I deal with as well, but I do believe
20 that the academic uses are exempt from property taxes,
21 but the homeowners -- the lease holders are on campus do
22 pay property tax.

23 MR. DREKMEIER: Thank you. So the comments are, first
24 of all, I think Stanford's done a lot of commendable work
25 on sustainable, green buildings and transportation demand

1 management.

2 But my concern is that there's really is no end
3 of growth in sight; that it doesn't appear to be
4 -- the campus doesn't appear to be zoned as, for example,
5 the City of Palo Alto, where you have a [unintelligible]
6 ratio. And so every 10 or 15, 18 years, Stanford comes
7 back for more development, which has impacts on the
8 community.

9 And it's almost as if - as if a business in Palo
10 Alto were to come back to come back every 15 years and
11 ask to add another story on a building, that
12 wouldn't be allowed.

13 And I think that the -- the EIR needs to study
14 communal impact long term, so not just spatial, but
15 temporal, and we need to look seriously at maximum
16 build-out. What can the community sustain?

17 I think that it's -- we need to protect the
18 open space, and I'm glad to see that they're proposing
19 no development there for 25 years, except in the
20 Laker District, which I would argue is partial open
21 space.

22 But what we really need is a transfer of
23 development rights from the foothills to the core
24 campus, to make sure that they're protected in perpetuity,
25 because it's just - not just fair that they can come

1 back every, every time and use that as a bargaining chip.

2 And so also, something I think that should be said
3 is, to -- to look at fairness in development rights. What is
4 the density of Stanford land in unincorporated Santa Clara
5 County -- so that includes the foothills -- both
6 space-wise and population-wise, so that in - in comparing
7 it to the surrounding communities, to look to see - it's like,
8 how - has Stanford been treated fairly with development.

9 The second thing that I think should be looked
10 at is: A lot of this development sounds like it's for
11 research, it's mentioned, stem cell research. You know,
12 might be great things, but really, historically a lot of that has
13 been done by business, because you're coming up with a product, or
14 service, and it's very lucrative.

15 And I'm -- if -- if this kind of research is taking
16 place on campus and there's not really much return to
17 the community in term -- terms of taxes for community services,
18 that seems unfair - if you're doing the same research in
19 the Stanford Research Department, you're, you're paying something to
20 the surrounding community, if you're doing it on
21 campus. And it's somewhat related to academics, but I
22 think it's a little bit of a stretch. I think it's really driven
23 by the profit motive.

24 So those are a few things I would encourage you
25 to do look at in the [unintelligible]. And thank you for the

1 opportunity.

2 MR. WOODWARD: My name's Steve Woodward and
3 I'd like to personally chime in on the same points that
4 -- that Peter just made.

5 That -- when Stanford presented, a couple weeks ago,
6 they referenced a growth rate of one, 1.2 percent as the long-term
7 growth rate, and that -- that as - having been at those for many
8 years, it was being very sustainable. But in 60 years,
9 that means the campus population will be about twice what
10 it is now.

11 And if -- if my -- if the estimates on the web are - are
12 correct and
13 my calculations are correct, that -- that will push it
14 somewhere near 50,000 people will be campus based.
15 I don't think there's any way that that could be
16 sustained without destructive impacts, severely
17 destructive impacts on the surrounding community, despite
18 the always commendable efforts on the part of the
19 University to control traffic, et cetera.

20 I just don't see how that level of population
21 could -- could be accommodated. So I -- I would like
22 to see a capitation discussion -- a public discussion on
23 capitation, as a requirement of -- of approval of the GUP.

24 Secondly, the -- along the same lines, the --
25 despite two or three [unintelligible], there's

1 opportunities for locally destructive traffic impacts.
2 The -- the corner of - I -- I'm not entirely unselfish in
3 bringing this up. I live at the
4 corner of Stanford and Bowden, which
5 is one of the choke points, for example,
6 that -- that might easily -- which is already heavily
7 impacted, and which could get a lot worse.

8 The -- there's really no way to mitigate the
9 -- that region directly on -- on public
10 streets. Mitigations might be -- might be - extracted
11 from modification of internal campus roadways, and I
12 think those should be considered, as well. Thank you.

13 UNIDENTIFIED MALE: Thank you.

14 REYNA GUZMAN: [unintelligible]. Hi, everyone.
15 Good evening. My name is Reyna Guzman, and I am an
16 organizer with SEIU Local 2007. I have the privilege
17 of representing about 1200 members. They're service
18 employee workers for Stanford and Santa Clara
19 University.

20 And my question is a two-part question. And
21 it goes along the lines of, I think we would all agree that
22 housing is a human right, and everyone deserves to have
23 affordable housing. So my first question
24 is:

25 How does the County calculate Stanford's

1 contribution to the Stanford Affordable Housing Fund?

2 And then the second question is:

3 Should the County calculate the contribution
4 by examining what developers in the surrounding cities
5 contribute?

6 We think that maybe, instead of contributing \$20
7 per square foot, Stanford could align itself, and follow out
8 those standard at around \$60 per square foot. Thank
9 you.

10 UNIDENTIFIED FEMALE: I have a couple of
11 questions. You said it's 40,000 square feet for child care
12 and for community. That seems like a huge amount of
13 building, and I wondered if you could expand on that.

14 And also, you're -- you are proposing to keep the
15 hill -- foothills pretty well sacred for 25 years.
16 As I was driving down Junipero Serra the other day, I saw
17 a huge, big building that is supposed to be for golf carts,
18 and I'm wondering how many of you [unintelligible].

19 And you have 20,000 square feet to be built in
20 Lathrop -- in the Lathrop area. That's a whole lot of square
21 feet. And the other thing that I think you should be
22 looking at is, all the employees that are coming to
23 Stanford in the future, where -- where are these
24 employees going to be housed?

25 You need to make some provisions, not just for

1 the professors or the students, for which you've done a
2 good job, but for the lower level employees who
3 have to commute long distances, and create problems with
4 traffic.

5 That's about all I had to say.

6 MR. HOLSNER: Good evening, [unintelligible].
7 My name is Kevin Holsner. I've been a long-time Palo Alto
8 resident for over 22 years. I live in the California Avenue
9 neighborhood, which is very close to the Stanford properties.

10 I really think it's really critical that the
11 County look very closely at the huge impacts that
12 Stanford University makes to our neighborhoods in Palo
13 Alto. We are impacted daily by traffic, by parking
14 issues.

15 Recently, the City made a determination that
16 one of the neighborhoods closest to Stanford, Evergreen
17 Park, should be included in the residential
18 parking program, which is great.

19 However, there are other areas closer
20 to Stanford that don't have these protections, and so
21 these impacts will increase, because as you increase,
22 obviously, the employee needs at Stanford, and -- and student
23 needs, they'll be pushing those people probably off
24 campus into the neighborhoods and the surrounding areas.

25 And it's true that Stanford has these traffic

1 development plans that -- which help to mitigate the situation.
2 But often, we find out that the employees, rightly or
3 wrongly, park in our neighborhoods and the
4 surrounding areas, and of course this impacts the
5 surrounding neighborhoods greatly.

6 And we'd like to encourage the County to look
7 at these problems in a unified way with the City of Palo
8 Alto. I think sometimes government agencies look at
9 things in a singular way from their perspective, and I
10 would like to see more cooperation between the City and
11 the County, especially when these -- when they're asking so
12 much more square footage of commercial space in
13 Stanford Research Park and also in the University lands
14 as well.

15 So I would encourage, especially, more
16 cooperation and more input from the citizens who surround --
17 who are affected daily by the traffic and the parking issues,
18 and have to live with that every day. Thank you.

19 MING-FIE J TING: My name is Ming-Fie J Ting,
20 and I'm a property owner, both in Palo Alto and in San Jose.
21 I have very little to say. I totally, I went through all the
22 [unintelligible], every single one, in Palo Alto.

23 And if you would -- simplifies -- and
24 previously we have been engulfed by some of the
25 Stanford staff parking, to hop on Ash Avenue, the

1 [unintelligible] to go to the campus, and all the
2 car parked, stay [unintelligible].

3 And now April 1st, we see the lights that we will
4 have, RBP, but my concern is I hope Stanford -- which I
5 highly admire the -- the academic university -- will
6 team well with Josh [unintelligible], of City of Palo Alto,
7 the chief, traffic transportation.

8 Right now, City of Palo Alto, from what I
9 heard from the last two meetings, we are not projecting
10 the inflow, incoming -- the impact from the Stanford
11 University, when you ask the Chief of Transportation.

12 This is very serious. Palo Alto's been trying
13 very best to make different types of bicycle
14 structures and lanes to accommodate the safety of the
15 University students, that sometimes they trespass on the
16 Evergreen property.

17 And I part of the Evergreen Park property owner. I
18 see the danger of the traffic light, which I previously
19 reported, that that's a two-way traffic, and Josh immediately
20 add on to it, and put a sign to say this is two-way
21 [unintelligible] stop, and so the next car will not bump into it.
22 That's on Stanford Avenue.

23 Needless to say, for Evergreen Park people, to
24 make the left turn onto El Camino, some cars are not
25 behaving, and going straight, or making their turns at

1 bicycle, and also you have the sidewalk people.

2 I feel strongly Stanford, or the City
3 of Palo Alto, they need to have a traffic light
4 right there. Okay.

5 For - as far as myself, I see so many Stanford
6 staff with Evergreen community people. They try their
7 best to park, to go to the ditch. For what? For exercise and
8 good-quality air.

9 Now, may I address to Stanford, that these
10 days, clean costs, electric costs, Marguerite
11 [unintelligible] clean air busses to commute from foothills,
12 all the way to the campus, to reduce car emissions, to
13 reduce global -- you know that temperature, you know,
14 that -- that would enhance all our air quality. It seems
15 very little, but if every car give out so much; or
16 even the [unintelligible] are not electrical
17 -- electrical.

18 Number two, it's only tonight that I hear
19 about everything -- the day care. Are we going to have the
20 same traffic patterns like the Google campus, with their
21 Google day care, and end up with so many traffic problems? This
22 one - when parents need to be on time, drop
23 off, and would that impact all these Palo Alto residents
24 that - who are here, they also need the traffic to
25 report to their job on time, be it - be, let's say, in California,

1 like, Molly Stone, a [unintelligible] worker, or be it be - you
2 had a CEO of [unintelligible].

3 So this is how I feel. It's like we share.
4 But we are so adjacent to Stanford University, and I feel like that,
5 no doubt about that, it will impact the Evergreen community because
6 we are right next to it.

7 And how are they going to solve their problem?
8 The only way is to link Stanford to the City
9 of Palo Alto, to the chief to discuss how you
10 can encourage commute and then to set up the full - the Marguerite
11 [unintelligible].

12 Last but not least, I know Stanford, or any of
13 you [unintelligible] - if you wanted to expand your
14 business, can you be a little bit more generous
15 into your architect planning that build parking, and not using
16 other people's residential areas, who pay quarter of a million or
17 more for the properties.

18 And every day, you cannot take out your trash cans.

19 And this is why I call daily impact.
20 Okay? Who needs all these cars generating emissions in
21 our neighborhood? It's not fair. You want quality air
22 and you have to dash up the hill, and we all trying to park
23 it and every day, we junk up the hill. Okay?

24 But when you think about the long term, when you
25 bring in so many faculty members, child care. Can you

1 imagine the traffic? Can you imagine the emission?
2 Are they all going to use the bicycle? Or how are we going to
3 solve this traffic?

4 And right now in Palo Alto we already are having
5 impact. If you look at El Camino, and people
6 are complaining - [unintelligible] cannot get out of their
7 house. So have some mercy when you do that planning - that I
8 hope you will truly look into - build parking lots in your day
9 care center, and spend money to create your own buildings.

10 When you do you your buildings, and if this be
11 a new hospital, you know, do a nice planning for the
12 surrounding, to let people who admire the campus to come
13 to visit, they have the ability to park. It's not like
14 I took of someone, you know, less than a minute, that - over -
15 and somebody earn a ticket. It's not a friendly gesture, either.

16 So I hope all the community, if you are --
17 this is Palo Alto. This is Palo Alto, and Santa Clara County,
18 and this is also a talented city. I hope together we can solve
19 - to give all the residents, that the air quality; start out with
20 electrical carpool, Marguerite from Stanford. Thank
21 you all.

22 UNIDENTIFIED FEMALE: Thank you.

23 MR. MORAN: Hi. Good evening. Thank you all so
24 much for listening. My name is John Moran, I've been a
25 resident of the County now for five years, and I live on

1 Stanford's campus and Stanford University is my employer
2 -- I'm a resident student employee -- and they're also
3 my landlord.

4 And I'm severely rent-burdened, which means
5 that I pay over 50 percent to housing as defined by a
6 U.S. Title. And I'm here on behalf of the graduate
7 student organization in the Department of Anthropology,
8 which represents 84 graduate student employees.

9 And we believe that the majority of
10 graduate-student, on-campus residents are actually
11 severely rent-burdened. And so we sort of have a
12 contention with section 3.3 of the general use permit
13 application, which is entitled "Affordable Housing on
14 Stanford Lands."

15 Now, our contention would begin with the title
16 of that section, when we really don't believe that there
17 is any affordable housing on Stanford lands. And if you
18 go back and look at the housing that has been classified
19 as affordable housing for the purpose of, you know,
20 making Stanford contribute less money to the County's
21 affordable housing mitigation funds, one of them is
22 among the graduate residences, which cost between \$1,493
23 and \$1,910 per person per month, and that has been
24 designated as affordable for low and very-low income
25 population.

1 And I think that's a totally wrongful
2 designation to begin with. Maybe it was based on the
3 County's AMI. Well, you have to keep in mind that the
4 housing on Stanford campus, it's only accessible to one
5 class of Santa Clara County residents, which is the
6 graduate students and graduate student employees. And
7 so the AMI isn't really relevant for whether or not that
8 becomes affordable housing for us. What's relevant is
9 our [unintelligible] mean income.

10 So anyways, we conducted a survey -- because
11 there's information data that the County doesn't have
12 information on whether the housing is actually
13 affordable, and Stanford University doesn't have the
14 data on whether it's actually for.

15 But we surveyed the students in our
16 department. There were 32 graduate student employees
17 responded to the survey, and 97 percent reported
18 contributing 30 percent or more of their income to
19 housing costs, which is the federal definition of
20 unaffordable housing; and furthermore, 60 percent of
21 graduate students would be classified by U.S. Title as
22 severely rent-burdened, because they contribute 50
23 percent or more of their income to housing costs, and 71
24 percent of graduate students describe on-campus housing
25 as unaffordable or very unaffordable.

1 So we're curious, in that section 3.3,
2 Stanford claims a 103 million-dollar affordable housing
3 subsidy based on the, quote, affordable housing building
4 on Stanford campus. Since we do not believe that that
5 housing could, in any meaningful sense, be designated as
6 affordable housing, we're curious.

7 If Stanford could not claim that 103
8 million-dollar affordable housing subsidy, would they
9 have to contribute more to the County's affordable
10 housing fund, which is so desperately needed, since we
11 have unaffordable housing prices - and we all know
12 that -- and would the 102 [sic] million dollars need to
13 be contributed to the County?

14 And we believe that that would be proper.
15 Thank you.

16 MR. SCHOEN: My name is Richard Schoen, I'm
17 from SEIU, I'm the secretary of the union, we represent
18 1200 members on Stanford campus.

19 Affordable housing seems to be a major issue
20 for our members, and a number of people have come up
21 talking about the environmental impacts of the people
22 coming into Stanford every day, employees coming in and
23 how that's going to get enforced in the future.

24 We'd like something to be done about that. At
25 this point, there are very, very few of our 1200 members

1 that can actually live on campus. If Stanford increases
2 the affordable housing on campus by an enormous amount
3 -- not just the small number that they are suggesting --
4 then that would mitigate a lot of the issues,
5 environmental issues that some people have brought up
6 before, and allow our members not to have to commute 50,
7 60, 70 miles away, but live on campus and not have to
8 drive their cars in.

9 This would be a huge way in determining
10 whether Stanford is actually going to be generous to
11 their employees and generous to the recipients in the
12 surround communities. And that really needs to be done.

13 JENNA MAINS: Make Stanford labor
14 friendly.

15 JOHN ZHAO: Hi, my name is John Zhao and
16 I'm a student at Stanford University and a member of the
17 Stanford Coalition For Planning and Equitable
18 2035, otherwise known as SCoPE 2035.

19 While we applaud Stanford's commitment to
20 sustainability and its intention to reduce
21 net emissions, carbon and greenhouse gas
22 emissions by 8 percent between 2018 and 2035, we
23 would like to see the university set more rigorous and
24 concrete targets.

25 While we understand that Stanford has already

1 met its legal responsibilities in accordance with state
2 rules, we believe that, given the urgency of the climate
3 crisis, Stanford should, as a leader in the realm
4 of sustainability, and in line with actions by
5 other institutions, such as the UC system, do
6 more. So I have a couple of questions for the
7 County.

8 We're interested in how the EIR
9 may act as an opportunity to provide Stanford and the
10 County with the necessary information to adopt these
11 targets, as well as identify means to achieve them.

12 Does the report only examine mitigation
13 measures for emissions arising directly as a result of
14 the new construction under the GUP only, or can it
15 examine the feasibility of Stanford adopting more
16 ambitious emission reduction targets in general?

17 So should I keep going with questions,
18 or ...

19 UNIDENTIFIED MALE: Yeah, just go ahead
20 [unintelligible].

21 MR. ZHAO: Okay. Yeah, great. Thank you. Okay.
22 My other question is: Will the report include an analysis of
23 different alternative targets for reductions, such as looking
24 into Stanford becoming carbon neutral as a whole by 2035, or
25 adopting different possible emission reduction targets

1 within the range of 40 to 80 percent reduction between
2 2018 and 2035, or making all new buildings at least be
3 carbon neutral?

4 And the final question is: What would such an
5 analysis include? Will the study lay out different ways
6 in which each of these targets could be achieved by
7 Stanford as well as the social and environmental
8 benefits of each of them?

9 Can it examine instruments, such as carbon
10 offsets, renewable energy credits or a carbon pricing
11 program, in determining what the most cost effective
12 means to make meeting any of these objectives are?

13 Thank you very much.

14 SUPERVISOR SIMITIAN: Hi, I'm County
15 Supervisor Joe Simitian and, for the record, I represent
16 a supervisorial district, including the Stanford campus,
17 that has been identified in the lands that have been
18 identified tonight.

19 I just thought it might be helpful or
20 important to clarify a couple of things before the
21 meeting breaks up. I'm gonna ask County staff to work
22 with me here a little impromptu, to make sure we get
23 these things clarified.

24 First a small [unintelligible]. I think the
25 chart earlier had some completion dates for the process

1 of 2016 and they meant to be 2017. We're not planning
2 for completion 2016, as much as everyone would like the
3 process to end. So 2017, 2018.

4 There's a couple references to 25-year
5 commitment on open space in the foothills. I just wanna
6 clarify, it's my understanding that that is not part of
7 the proposal going forward.

8 The 25-year commitment that has been
9 referenced is part of the current GUP, and it expires
10 in six or seven years. That issue has yet to be
11 debated and resolved, considered as part of the
12 process.

13 Am I correct in that understanding? Because
14 I -- I think a couple of folks thought that was part of the
15 proposal, by your -- your comments directly.

16 MR. GIRARD: Yeah, there's no proposal by
17 Stanford to change the framework for that 25-year
18 period. And under the current framework, if there's a
19 proposal to move the academic growth boundary within that
20 25-year window, then it would require a super majority of Board
21 of Supervisors, or four-fifths vote.
22 And then after the conclusion of that 25-year window, or
23 a maximum build-out in square footage, then it would
24 require a simple majority to move the academic growth
25 boundary.

1 SUPERVISOR SIMITIAN: But there's no proposal
2 going forward beyond the current 25 years, which expires
3 in six or seven years at the outset. Yes?

4 MR. GIRARD: That's correct.

5 SUPERVISOR SIMITIAN: Okay. Then on the issue
6 of traffic trips, I think it might be helpful to
7 distinguish for folks who are here tonight, the
8 difference no net trips and no net new commute trips,
9 because that's a very different thing and people
10 sometimes misunderstand that.

11 If I could ask you to clarify that for the
12 public.

13 MR. GIRARD: Yeah. The goal for no new net
14 trips is during the peak hour in the direction of the
15 impacted flow. And that is not necessarily more traffic
16 in and out of the campus during off-peak hours, or the
17 opposite peak direction of flow.

18 SUPERVISOR SIMITIAN: I say this respectfully.
19 I think that planners are playing with that may be a little
20 [unintelligible].

21 MR. RADER: Sorry.

22 SUPERVISOR SIMITIAN: My understanding -- my
23 understanding is that -- that the standard is no net new
24 commute trips.

25 Am I right about that?

1 MR. GIRARD: Yes.

2 SUPERVISOR SIMITIAN: And that that means
3 commute hours only in the commute path, so that it does
4 not measure or calculate other trips which might be
5 generated during non-commute hours.

6 Is that a fair statement?

7 MR. GIRARD: No, a simpler way to say it, yes.

8 SUPERVISOR SIMITIAN: Okay, thanks.

9 MR. GIRARD: Thank you.

10 SUPERVISOR SIMITIAN: And then I think it
11 might be important as well to explain to people why
12 the phrase is "a goal of no net new commute trips,"
13 which is different, of course, than "no net new commute
14 trips."

15 MR. GIRARD: Yes.

16 SUPERVISOR SIMITIAN: What "a goal of" means.

17 MR. GIRARD: "A goal" means that the best
18 intentions are to use traffic demand management methods
19 to prevent that increase in commute hour trips.

20 But there are proposed, under this plan, three
21 tiers of interventions, if you will, to mitigate traffic
22 congestion; one is the goal of no new net commute trips;
23 the second would be that Stanford could propose and
24 implement a traffic demand measurement that would reduce
25 the traffic in the impact area.

1 The way the traffic analysis works, the
2 question is asked: What is the geographic area that
3 would be influenced by people coming and going from
4 Stanford and what are the constraints in that impact
5 area?

6 If Stanford is able to propose a program, like
7 expanding the Marguerite service, that would reduce
8 trips within that impact area and take some of the
9 pressure off some of the net impact area, that could be
10 established as a credit to offset an increase in the
11 commute trips to and from the campus. That's tier two.

12 Tier three is that another entity -- for
13 example the City of Palo Alto, County of Humboldt, VTA
14 -- could accept funds from Stanford and propose some
15 traffic-demand management program, again within the
16 impact area, to reduce traffic in the impact area, as
17 credit, if they did exceed the cordon [phonetic] count
18 of the no new net commute trip goals.

19 SUPERVISOR SIMITIAN: Just to clarify -- it's
20 been a long day -- I think I heard you say "County of
21 Humboldt." I think you meant County of Santa Clara.
22 It's been a long day for everybody. Thank you.

23 MR. GIRARD: The County of Humboldt is always
24 hungry for money, and Sacramento

25 SUPERVISOR SIMITIAN: They really go well. I'm

1 sure [unintelligible].

2 And then, just to make it a little simpler:

3 So the goal is a goal, but it's not an absolute. If the
4 goal is exceeded, then there are some consequences that are
5 designed to mitigate the fact that there has been an
6 excess number of trips --[unintelligible] the goal.

7 Is that a true?

8 MR. GIRARD: That's correct.

9 SUPERVISOR SIMITIAN: Okay.

10 MR. GIRARD: Now, I will say that mitigation
11 program hasn't been designed yet, and that that would be
12 a product of the EIR analysis, the input that you see.
13 But that's the initial proposal made my Stanford as part
14 of our application.

15 SUPERVISOR SIMITIAN: And that was in place
16 for the current GUP as well. Yes?

17 MR. GIRARD: The tier one and tier two
18 standards were. The tier three's an addition to the -- a
19 proposed addition to the program.

20 SUPERVISOR SIMITIAN: And was there ever an
21 exceedance on those no net new commute trip standards?

22 MR. GIRARD: There were, I wanna say, two years
23 where there -- they have to be 1 percent above. Did we
24 have two years of exceedances that were offset by
25 credits or - in the main, I think the answer

1 is no. But weren't there two years where there was a --

2 MS. PALTER: Right. Through the -
3 the goal has been met every year since 2001, which is
4 the year that we're being compared to. There were a
5 couple of years where it was a combination of on campus
6 and the local reduction --

7 MR. GIRARD: And trip credit.

8 MS. PALTER: -- and net goal.

9 MR. GIRARD: So the cordon count was
10 exceeded in two years, and those
11 were offset by trip credits from the tier two
12 mitigation.

13 SUPERVISOR SIMITIAN: Thank you. I think
14 those are helpful to the community.

15 MR. RADER: Thank you.

16 TODD COLLINS: I'm Todd Collins, I'm a member of
17 Humboldt County School Board - I mean, the Palo Alto and
18 Unified School District.

19 I wanted to ask a couple of questions about
20 schools and then make a couple of comments about them.
21 How does the EIR process consider impact on local
22 schools, if at all?

23 MR. RADER: We would calculate the
24 school-age children that would be anticipated from --
25 from the development of the square footage. So, you

1 know, any additional employees that would be -- come to
2 the campus as a result of the build-out that they've
3 asked for.

4 So then -- then that im- -- then, of course,
5 you know, which schools would be impacted. So that
6 would be analyzed.

7 MR. COLLINS: So schools are explicitly
8 considered for the --

9 MR. RADER: Yes.

10 MR. COLLINS: The EIR process
11 and --

12 MR. RADER: Yeah, they're --

13 MR. COLLINS: -- and the impact on --

14 MR. RADER: Yeah, they're under the
15 public services portion --

16 MR. COLLINS: Of the EIRs.

17 MR. RADER: Yeah.

18 MR. COLLINS: Okay. Great. Well, let me -- let
19 me make a comment about that. I'm a member of the school
20 board. I'm not speaking as a school board member
21 tonight. Our school board has not had a chance to meet
22 and discuss the GUP, though we hope to, in time to
23 submit any comments.

24 But I did participate as part of a group that
25 did our enrollment planning effort over the last

1 -- during 2015, and actually looked in great detail at
2 the impact of housing built on Stanford campus during
3 the current GUP, and sort of have, I think, some insight
4 into what the impact that is having on our schools.

5 As I look at the application, two things
6 jumped out. One was that, overall, I think the impact
7 on the schools could be considerable. I would expect
8 between 500 and a thousand new students from the housing
9 that's been proposed, and that's out of 12,000 total
10 students in the district today. So it's a very
11 substantial district today.

12 For reference, an elementary is average about
13 400 students in Palo Alto, so that would be two and a
14 half, or one or two schools, if they were all
15 elementary school students.

16 And, you know, often -- often when we do enrollment
17 planning, or often when planners look at it, they assume that
18 the spread of students will go across all grade levels.
19 And, in fact, in practice, that's often not the case, or
20 usually not the case.

21 New housing tends to attract new families; new
22 families have young children. And so -- and we've --
23 well, I won't talk about all that we're experiencing. I
24 think the part of the plan, the housing plan that impact
25 -- well, that housing plan has two major components; one

1 is 550 faculty units over across the street, across
2 Quarry -- Quarry Road -- from the Stanford Shopping
3 Center -- some of which, I believe, is gonna be
4 single-family units, condominiums - and then 900 or
5 close to a thousand graduate student residences on the
6 eastern part of campus.

7 The 550, frankly, is the part that's --
8 concerns me the most, both because I expect those will
9 have the highest student generation rates. Single-
10 family houses in Palo Alto tend to have a student
11 generation rate of one, one student per house, though --
12 and we have some cases where it is meaningfully more
13 than one, depending on the mix in the community and the
14 type of housing.

15 The other thing that concerns me about that
16 particular housing, it is not well -- in an area that is
17 well-served by our schools today. In fact, the closest
18 school to those -- to that housing would be Addison
19 School, which would require crossing the train tracks,
20 crossing El Camino, crossing Alma, walking through the
21 downtown and then, eventually, if you can survive all
22 that, you get to Addison School.

23 So it's -- it's definitely a problematic area.
24 In fact, the attendance -- I don't believe there are any
25 children that live in that area today. If they did, I

1 believe they would be - they would be in the attendance
2 boundaries there for Nixon School, where, if you know
3 the geography of Palo Alto, is all the way --
4 kitty-corner at completely the other end of campus;
5 i.e., no elementary student will ever walk there.

6 The same is true of Stanford West, a
7 little further up Sand Hill Road, where those kids also
8 go to Nixon School today, and they do not walk to
9 school, they are driven to school.

10 So I'm concerned that that particular housing
11 development will generate hundreds of students, and
12 hundreds times two of car trips to get those students to
13 and from school in an area that is, as I'm sure you
14 know, is already very congested.

15 The second is the graduate student housing.
16 Now the - and the plan that Stanford points out, or
17 expects that the graduate students will not add any
18 students. They indicate there are 420 children living
19 in graduate student housing today and they anticipate,
20 after building the housing, there will still be 420
21 students.

22 And that's probably true. However, what we
23 found when we looked at our own history, is that there
24 is a displacement effect. You can see this goes from
25 the longer dorms that were built and completed in

1 2008/2009.

2 When the students moved into those dorms, we
3 saw a significant growth in enrollment in Palo Alto
4 Unified; not from the dorms - the dorms don't take
5 children, the dorms don't generate any students - but
6 from the places where the students used to live,
7 because, when they leave their Palo Alto housing to move
8 on campus, they leave behind apartments that families
9 move into, and they do.

10 And so that had an un- -- we didn't anticipate
11 that, we - our demographers didn't anticipated it, I'm
12 not sure Stanford anticipated it, but it had effects,
13 along with other things, where we have now a bubble of
14 three or four classes in our school district -- we
15 actually call it a bubble, because they are meaningful
16 larger than the classes before or after.

17 And it's incredibly destructive. Our middle
18 schools today are filled above capacity because of this
19 bubble. And we don't wanna build a new middle school,
20 because in three years, the bubble will be gone because
21 there was a surge that then goes down.

22 But these very large developments, hundreds
23 and hundreds of units built at the same time in the same
24 place, definitely have a significant impact,
25 disproportionate to just the numbers by themselves.

1 And it's also worth noting that in addition to
2 those 900 units Stanford currently [unintelligible] --
3 is planning to build 2,000 net beds at Escondido Village
4 - and in two towers, I believe -- that similarly are
5 not anticipating allowing children, but there will
6 certainly have some displacement effect.

7 So I think it's very, very important to look
8 at these impacts on the schools and on the community,
9 because, again, with schools goes kids, and with kids
10 goes -- for the most part, they don't drive, which means
11 somebody usually drives them. And that, at our --
12 managing commutes for school children is ours, and our
13 state school program is incredibly important, and
14 increasingly challenging as the traffic issues in Palo
15 Alto during school commute times tend to grow.

16 So I think it's incredibly important that we
17 work with Stanford to try and mitigate the impact of
18 these -- this increase in - in students on campus.
19 Thank you.

20 ALLISON PERRY: Hi. My name is Allison Perry,
21 I'm a new grad at Stanford and part of the Stanford
22 Coalition for Planning an Equitable 2035.

23 So I believe currently Stanford is committed
24 to a no net new commute trips policy that restricts the
25 number of trips to starting to there to peak

1 commute times, be we're wondering if the County has
2 considered extending this commitment to include a wider
3 window of trips to align with a commitment to Stanford
4 reducing greenhouse gas emissions that come from all
5 commute trips regardless of the time of day.

6 And along with these sustainability concerns,
7 we have heard of many [unintelligible] contracted workers
8 that have their hours shifted outside of the peak hours and
9 we're concerned that this may allow Stanford to provide fewer
10 transportation options for them.

11 So we're concerned about the impacts of these
12 peak hours commutes and just restricting the things
13 to that time of day. Thanks.

14 FRANCISCO PRECIADO: Hi. My name is Francisco
15 Preciado, I'm the executive director for SEIU Local 2007.
16 I want to express our appreciation to the scoping of
17 2035 and the grad students for asking very important
18 questions about equity.

19 So in looking at the vast array of Stanford's
20 accomplishments, it's important to recognize it as
21 world-class leader in many respects, whether it's
22 research, technological developments or being recognized
23 as one of the most beautiful campuses in the world.
24 Thanks to our members, by the way.

25 However, the reason we are here today is to

1 express our concern that Stanford is not being a
2 sensitive leader when it comes to treating everyone with
3 respect or valuing them as part of the Stanford family.

4 Examples of this include the fact that
5 Stanford won't recognize the public safety officers who
6 want to unionize and the fact that the majority of
7 workers -- we only have three members, in fact -- that
8 qualify for the affordable housing on campus. So that's
9 three members out of 1200 that come - and provide
10 services to the university.

11 So this is relates directly to the GUP in the
12 community plan, because Stanford's own community plan
13 specifically states that in order to address Stanford's
14 housing needs, it's gonna focus on strategy number one,
15 which is to, quote, increase the supply and affordable --
16 affordability of housing, end quote.

17 Given that the 2018 GUP proposal is 550 units
18 for faculty and staff, does the County actually believe
19 that Stanford is committed to providing affordable
20 housing for staff when its cumulative faculty staffing
21 is, after the 2000 GUP was 937 units, proposing 550 over
22 the last GUP, which was 937?

23 So can the County examine the impact of
24 developing 1,000 staff units on campus as it relates to
25 decreasing the total number of commuters?

1 Lastly, will the County consider funding these
2 additional 1,000 units for a working-class staff
3 members, using Stanford's own affordable housing fund?
4 Thank you.

5 UNIDENTIFIED FEMALE: Hi. My name is
6 Courtney and I'm a current undergraduate student at
7 Stanford and I'm a member of the Stanford Coalition
8 Planning an Equitable 2035.

9 And I have two points today that are on the
10 topic of Stanford University's impact on the larger
11 community.

12 The first deals with impact fees. So, as we
13 know, currently Stanford pays Palo Alto Unified School
14 District an impact fee, a below-market rate housing fee
15 and a government entitlement fee, which is kind of the
16 overarching fee that covers a lot of other things.

17 But comparatively, in San Francisco,
18 [unintelligible] pays impact fees that cover other
19 categories, such as child care, jobs, housing,
20 linkage fee, a community stabilization fee, a
21 public artwork fee and a neighborhood specific
22 impact fee.

23 And so we're wondering: Has Santa Clara
24 County considered the possibility of applying a
25 similar type of impact fees to Stanford University,

1 given that, as we heard from a lot of community members
2 tonight, Stanford University has some impacts on a lot
3 these areas?

4 And we're also wondering whether these types
5 of impacts would be covered within the scope of the EIR
6 process.

7 Our second point, or question, related to the
8 2000 general use permit, condition P8 addresses
9 community services, and this is gonna be a community
10 service study. During our research, we noticed that
11 one of these community services studies has never been
12 conducted before, to my knowledge, and so, to clarify,
13 we wanted to know, first of all, what are examples of
14 community services that would apply to condition P8; and
15 also, have any new neighborhood jurisdictions requested
16 or performed such a study?

17 [Multiple unintelligible speakers]

18 JENNA MAINS: Hello. My name is Jenna Mains,
19 I'm with SEI Local 2007, we support scope 2035 as well
20 as our graduate students.

21 My question is: Can the County please
22 investigate impact to the daily and yearly trips if
23 Stanford extended their transit incentive program, to
24 casuals, contingent and temporary workers?

25 According to the Stanford 2018 analysis report

1 in the last year, this has a potential to reduce over
2 4500 single-driver commutes.

3 I also wanna show my support for their pilot
4 programs that include off-campus graduate students and
5 the post-doc scholars. If they continue this program,
6 it has the potential to save another 2500 commute --
7 same-driver, single-driver commutes.

8 UNIDENTIFIED MALE: Good evening. My name is
9 [unintelligible], I'm a member of local 2007, I work at
10 the Stanford University, and I have a question: Can the
11 County look at the effect on the commuters if Stanford
12 provided a thousand additional affordable housing units
13 for their service and technical workers and their
14 families?

15 Thank you. That's my question.

16 MR. GIRARD: Are there any other
17 comments?

18 MR. GIRARD: What I've done, is I've
19 highlighted some of the questions that it sounded like
20 it would be helpful to have people understand the
21 project.

22 We're not gonna be able to answer some of the
23 questions that are basically saying, you know, please
24 study and evaluate this; we -- we urge you to
25 consider this, but --

1 UNIDENTIFIED FEMALE: Go to the mike.

2 MR. RADER: Oh, oh, yes. Oh, thank you.

3 UNIDENTIFIED FEMALE: Working on this?

4 DAVE PERKINS: Yeah. My name is Dave

5 Perkins. I'm the Vice President of Local 2007.

6 We would like to respectfully ask the County to analyze

7 the demographics of the workers that do and do not

8 qualify for the Stanford transit programs. Thank

9 you.

10 UNIDENTIFIED MALE: I don't have a card, but
11 the very first thought that came up in the discussion,
12 in last general use permit, there was a section -- I
13 guess it's still there -- about community service impact
14 fees for the City of Palo Alto.

15 And that benefit section negotiated away by
16 the City of Palo Alto through Stanford in terms of the
17 major development agreement. And it just struck me now.
18 So just if that -- if the County has any input on any
19 agreement subsequent to approval of GUP that would
20 affect the relations between Stanford and the City of
21 Palo Alto, that could then be aggregated or negotiated away.
22 Thank you.

23 JACOB WAGGONER: Hi. As a fellow member
24 of scope 2035, I also just want to affirm our support for
25 SEIU 2007. Two, or one procedural question, and maybe a

1 follow-up after that.

2 To what extent will there be room for public
3 comments as it becomes more clear which difference, or
4 models for forecasting environmental impacts to be used
5 by the consultant conducting the EIR, what
6 room will there be, as that process becomes
7 more transparent, for a couple of comments on the model, and
8 also on some of the alternatives being studied.

9 That's what I was -- depending on the answer
10 to that question, we would also be interested in the
11 County considering something along the lines of planned
12 areas, equity environment and jobs alternative, which
13 has a number of different conditions for approval,
14 specifications, target metrics and
15 programs that would support something along the lines of
16 more approval development for 2035.

17 Thanks.

18 MR. GIRARD: Does that conclude all the
19 comments? Okay. Thank you.

20 I'll do my best to go back to the questions
21 that I thought were more important to try to answer.
22 One -- and I'll start from the last one and move back in
23 time.

24 So what are the opportunities for
25 participation in the EIR? Formally, there's a scoping

1 opportunity, so that if you want anything to be
2 considered in the EIR, a particular approach to modeling
3 or particular mitigation framework, then you would
4 provide that input.

5 The next opportunity really is when the draft
6 EIR is released and then you have an opportunity to
7 comment, and then between the release of the draft EIR
8 and the final EIR adoption, we receive those comments,
9 analyze them, respond to them formally, and then you
10 have an opportunity to look at our responses and your
11 final comments to the decision making body that's gonna
12 consider the final EIR.

13 MR. WAGGONER: Can I ask a follow-up
14 question?

15 MR. GIRARD: By all means.

16 MR. WAGGONER: Just because I think
17 it's sometimes hard for us as members of the public to
18 imagine what --

19 LUCY WICKS: Can you use the mic?

20 MR. WAGGONER: Yeah.

21 MS. WICKS: I'm sorry.

22 MR. WAGGONER: So I think just as
23 members of the public, for some of us, it might be hard
24 sometimes to imagine what different kinds of models
25 might be used in this process and some different

1 alternatives that can be imagined, and then what level of
2 specificity we have to give those alternatives.

3 Do you have any particular resources you might
4 suggest for looking into those? Because I assume
5 that those comments need to be submitted by the 17th.
6 Correct?

7 MR. GIRARD: Yeah. Within the scoping period.

8 MR. WAGGONER: Given that there's not gonna
9 be any more input, once it becomes more apparent what --

10 MR. GIRARD: Yeah.

11 UNIDENTIFIED MALE: -- models [unintelligible].

12 MR. GIRARD: I'll say, that there's - there
13 are some very large comparable projects on the Peninsula
14 that have recently gone through environmental impact
15 reports, like the Apple campus, for example, and the
16 Google expansion and the Facebook expansion.

17 So if you wanted to see frameworks for dealing
18 with a lot of the issues that are gonna be apparent in
19 the development at Stanford, they -- you'll see them and
20 how they've been handled in those EIRs.

21 MR. WAGGONER: Right. And those are
22 reasonably representative of what we might expect from this
23 EIR?

24 MR. GIRARD: Not necessarily, but if you were
25 looking for sort of a comparative -- means of comparison

1 just to see what the possibilities are and what EIRs
2 have been recently approved in this area for similar
3 amounts of development, those are good comparisons --
4 comparable EIRs.

5 MR. WAGGONER: Thanks.

6 MR. RADER: Yeah. I'd like to add,
7 there are technical reports available as part of the
8 application. They're on the County's website for this
9 project and so you probably get some idea of
10 methodologies, sort of accepted approaches to these --
11 analyzing these topics.

12 An example would be vehicle miles traveled.
13 The State of California Office of Planning and Research
14 has put forth a methodology for looking at vehicle miles
15 traveled and the -- so that approach will be used. I
16 think greenhouse gas emissions has -- you know, has
17 quite a body of accepted methodologies and targets -- you
18 know, state targets and thresholds.

19 So, you know, it depends on the topic, but
20 there are a lot -- you know, there are standard
21 methodologies out there that are generally used for most
22 environmental impact analysis.

23 You know, traffic has also standards; the
24 National Trans- -- or -- let's see, what's the --

25 UNIDENTIFIED MALE: NTSB?

1 MR. RADER: Yeah. I mean, there's a
2 professional organization, national organization, that
3 has put out, for example, trip -- you know, vehicle trip
4 standards.

5 This project will have its own -- you know,
6 the -- I think the general use permit 2000 had developed
7 its own trip rates because of the uniqueness of the
8 Stanford campus, it's sort of like its own community,
9 but, you know, there are standard traffic analysis
10 methodologies that have been used for, you know,
11 decades.

12 And so -- so there's quite a lot of
13 information about -- they're both in this project, the
14 technical reports that have been submitted so far, and
15 then, you know, as Kirk said, in other EIRs, you can get
16 an idea of what's generally done for each topic.

17 UNIDENTIFIED MALE: I just wanna put a
18 question.

19 UNIDENTIFIED MALE: Sure.

20 UNIDENTIFIED MALE: Would you say - this is San
21 -- San Mateo County, so maybe you'd be more comfortable answering.

22 Would you say that the EIR for the Facebook
23 campus expansion accurately estimated the impacts of
24 traffic on the eastern extent of Willow Road?

25 MR. GIRARD: We can't answer that. I wish --

1 not - not politically. We just don't know.

2 UNIDENTIFIED MALE: Just wondering about EIRs in
3 general.

4 UNIDENTIFIED MALE: Can I throw a follow-up
5 on that?

6 MR. RADER: By all means.

7 UNIDENTIFIED MALE: I was talking about
8 traffic, but I'm also trying to remember the name of the --
9 who approved those old trip generation tables.

10 In the Santa Clara County process, is there
11 independent peer review traffic analysis by consultants
12 who are paid for by the applicant but approved by the
13 County? Is that how it works?

14 MR. GIRARD: That's correct, yeah. And the
15 answer is yes, there are. That work is ongoing.

16 David spoke about the technical studies that
17 were provided to us by Stanford as a part of their
18 application. In every case, we're having those reviewed
19 by the consultants that we've hired to do the EIR, and
20 -- and we're meeting on a regular basis to -- so that we
21 fully understand the perspectives that the consultants
22 have taken and that our consultants can do on
23 independent analysis of the same topics.

24 I think there was -- the question, just in
25 general, about the adequacy of EIR's treatment of

1 traffic impacts, and I -- I think that's an important
2 question that answers several of the questions that have
3 been made tonight, and that is, you know:

4 What is the framework for determining whether
5 or not the jurisdiction has the ability to impose
6 mitigation on Stanford. And from an environmental
7 perspective, under CEQA, the analysis goes something
8 like this:

9 Is the -- what is the impact? Is the impact
10 above what might be considered a threshold of
11 significance for an environmental effect?

12 And those sources of thresholds of
13 significance vary. The gold standard is some standard
14 that has been adopted by your jurisdiction, or maybe the
15 state or federal government, that's been peer-reviewed
16 and is an accepted standard. But that isn't the only
17 requirement. And, in fact, the ultimate decision of
18 whether or not a threshold is an appropriate threshold
19 rests with the lead agency decision makers.

20 But in -- the general prospective, is you
21 can't require somebody to do more mitigation than the
22 impact they create. And they -- to ask for mitigation
23 in the first place, they -- in fact, has to be somewhat
24 significant, or deemed to be significant.

25 Now, that's a -- sounds like a very

1 black-and-white framework, and it is, but for anybody
2 that knows CEQA, it's considerably more gray than that.
3 Sometimes a project is designed inherently to reduce
4 impacts, other times it's designed in such a way that it
5 requires specific conditions or approval that would
6 mitigate the impacts.

7 So it's pretty much on the spectrum, but many
8 people are dissatisfied because the threshold isn't
9 zero. Before it's a considerable impact, it has to meet
10 the level of significance and then you can't require the
11 applicant to fix more than their fair share of the
12 problem.

13 And that gets to the point of why there's some
14 frustration even after something might be thoroughly
15 mitigated, the project might persist or remain, or even
16 worsen incrementally.

17 So the question came up, is -- is -- looking
18 at the, like, vehicle miles traveled effect of providing
19 more affordable housing on campus for workers.

20 And this would come up from the framework of
21 providing some substance to the traffic demand
22 management plans of Stanford and doing some what-if
23 scenarios to say: If housing was brought to the --
24 Stanford, how would that impact the traffic trips to and
25 from the campus?

1 And that is an -- potentially fair-game
2 analysis. Now, the - to be clear, the Stanford
3 application isn't proposing specific housing allocations
4 for specific groups. For planning purposes, they've
5 broken down the total housing allowance that they're
6 requesting into anticipated purposes for the housing,
7 but they're asking for flexibility for who they serve
8 with their housing allocations in the campus.

9 And the question of even: Would it be
10 considered within the realm of the EIR to say, well, you
11 have to provide this amount of housing to this
12 particular population on the campus? It might be, if it
13 comes down to mitigating the traffic impact associated
14 with that.

15 But the issue of sort of equity and social
16 equity of who does and doesn't receive housing on the
17 campus is really not an EIR topic, per se.

18 The question came up: Would the EIR deal with
19 more ambitious GHG reduction targets than what might be
20 required by the state framework? And I'll go back to
21 this issue of what would be considered to be a threshold
22 of significance for greenhouse gas emissions.

23 The framework that has been proposed is that
24 Stanford would do its share of meeting the state
25 greenhouse gas reduction goals. And -- and if they met

1 their share, they have an argument that they've met the
2 -- well, the sufficient mitigation of that impact
3 because that is effectively an adopted standard by a
4 regulatory agency that's been peer-reviewed, that
5 doesn't necessarily prevent them from proposing beyond
6 that; but if they had built that standard into their
7 project, then -- then the lead agency would be within
8 its realm to say that it has been mitigated below the
9 level of significance based on what they proposed.

10 And there was the question of the development
11 in the foothill areas in reference to the large building
12 for golf carts that was constructed. And I'm not that
13 familiar with that particular building, but I will
14 describe the framework for the first GUP for
15 construction in the foothills. And then - you may need
16 to help me with some of the square footage.

17 But if my memory serves me, Stanford sought
18 and received permission to develop up to 15,000 square
19 feet in the foothills area.

20 MS. PALTER: Yes, that's correct.

21 MR. GIRARD: Okay. And so far, of that 15,000
22 that was approved, at least 7,000 has been consumed or
23 some --

24 MS. PALTER: There was about 5,000
25 square feet that was used near the Red Barn, which is

1 technically in the foothills district because of the
2 little jiggery of the line. That was a - an unreinforced
3 masonry building that was closed, and it we reactivated it we
4 had to get approval for about 5,000 square feet.

5 And then there was a 42-square-foot
6 guard shop.

7 MR. GIRARD: Okay.

8 MS. PALTER: And that - those were
9 the projects --

10 MR. GIRARD: And that's it.

11 MS. PALTER: -- under the 2000
12 general use permit.

13 MR. GIRARD: So there were -- the allocation
14 they sought in the original general use permit, they're
15 not proposing any changes in that allocation, and that
16 leaves a head room for the remaining -- for consuming
17 the remaining allocation that was originally provided.

18 MS. PALTER: Actually, we're not
19 carrying forward that head room. We're just saying from
20 here on --

21 MR. GIRARD: Even better.

22 MS. PALTER: -- Yeah. We're not proposing
23 any inputs.

24 MR. GIRARD: Okay. So that head room expires.
25 Okay? So ...

1 All right. So answers that. Thanks for
2 clarifying that.

3 And is there any -- those are the ones that I
4 highlighted. So tell me if -- do you have some more?

5 MS. KUMAR: I can respond to the one of
6 commissions [unintelligible].

7 UNIDENTIFIED MALE: Are you taking any more
8 questions?

9 [Multiple unintelligible speakers]

10 MS. KUMAR: Somebody had a question about
11 condition P8. The way the condition is written is at a
12 written request of any neighboring jurisdiction which is
13 supported by substantial evidence that Stanford would
14 not provide adequate community services to new campus
15 residential - residents associated with the proposed
16 development under the GUP, then the County would take up
17 such a study and Stanford would pay for it.

18 So no such request has come forward from any
19 neighboring community, so that has not been done. But
20 it is there, that provision does exist -- you're right
21 -- in the Stanford GUP. But that has not been requested
22 by anybody at this point.

23 Thank you.

24 MR. GIRARD: And let me add to that, because
25 that was a question that I was gonna answer. The

1 question is: If a condition of approval was imposed
2 upon Stanford, could it be negotiated away after the
3 fact?

4 Like, apparently, in the Mayfield
5 development agreement, the services fee to Palo Alto has
6 changed.

7 And the answer is no, not if there was a
8 condition of approval or mitigation requirement of our
9 approval. The only agency that could modify that is the
10 lead agency, or the County.

11 If it was supplemental and wasn't a built-in
12 part of the project decision, and/or the CEQA
13 mitigation, then the answer is yes, that didn't have a
14 nexus to our permanent approval.

15 UNIDENTIFIED MALE 13: So Stanford University
16 has been here for a long time, and so when Stanford was
17 originally built, the material that they used in the
18 construction that were considered safe at that time are
19 now known not to be safe.

20 So one of the materials that seems to be
21 problematic is lead paint. And so, everybody knows,
22 lead is a powerful neurotoxin and it attacks the central
23 nervous system.

24 So Stanford has lead paint on the campus. And
25 at the last scope in 2000, I think lead paint at that

1 time wasn't necessarily fully, you know, understood, the
2 full impact. But now the EPA has come out with a new
3 ruling that says there's no safe level of lead paint,
4 whereas before, they had an action level, you
5 know, to what was considered to be the threshold, but
6 now they specifically said there is no threshold.

7 And so that's a major change in how lead paint
8 is handled; plus, there's a mega lawsuit in
9 California that - that's like in appeal right now, but
10 looks like it's going to probably pass against the lead
11 paint industry.

12 So I'm sure that the County -- it's a
13 County-wide problem, it's not just Stanford. But this
14 is the opportunity to get up to, you know, how does, you
15 know, Stanford address the lead paint hazard, not just
16 for the residents of Stanford, but also the employees
17 who come in and maintain Stanford, the construction
18 workers who come in and do the demolition, and then you
19 have the residents with children on campus and then all
20 of us.

21 So I'd like to hear how -- you know, not just
22 the effect to the human, but the environment, you know,
23 it runs off in the bay, of course. And so you have the
24 effect to the community, the effect to the construction
25 workers, the effect to the community of employees of

1 Stanford. So I'd like to understand that.

2 MR. RADER: So there will be a
3 hazard and hazardous material section of the EIR. And
4 at the beginning of each of these environmental topic
5 sessions, there's a description of the existing physical
6 setting of the environment and then also a description
7 of the regulatory environment.

8 And so all -- any of the changes that have
9 occurred in -- in either the physical setting or the
10 regulatory environment, you know, since the previous
11 general use permit, you know, will -- will have to be
12 included in the document.

13 So any of those kind of regulatory changes
14 that you mentioned would have to be disclosed and they
15 would be part of the analysis or the way in which those
16 impacts are evaluated.

17 Obviously -- I mean, we're not evaluating
18 specific demolition or building construction projects
19 because they haven't -- they haven't been presented to
20 us, but we -- you know, obviously, demolition is a
21 reasonably foreseeable outcome of what Stanford has
22 asked for, so, you know, demolition will be -- will be
23 evaluated in terms of hazardous materials including, you
24 know, lead or asbestos, other materials like that.

25 MR. GIRARD: So the question came up of: Could

1 the County impose additional fees on Stanford as impacts
2 are known?

3 And the answer is yes, there's certain rules,
4 as you might imagine, in California, for imposing
5 mitigation impact fees. But I -- you talked about the
6 suite of fees that are imposed in San Francisco.

7 If the decision-making body from a policy
8 perspective proposes fees and/or from a EIR mitigation
9 perspective, then there are frameworks that would have
10 to be followed.

11 So the answer is that is a potential. But
12 it's still too early in the process to be able to answer
13 any -- any what-if scenarios for fees.

14 And then the question of valuating the
15 greenhouse gas reduction effects for changing parking
16 standards from just the commute hours.

17 The answer is yes, that vehicle mile traveled
18 analysis is being conducted which looks at the total
19 vehicle miles traveled from the campus as a result of
20 the expansion of the campus that ties directly to
21 greenhouse gas emissions.

22 And I think that's it for my review of the
23 questions that you've -- you've asked, but I'll say if
24 somebody feels like we didn't do justice to your
25 question or forgot it entirely, feel free to ask it

1 again now.

2 MR. GIRARD: Okay. Well, I'll say
3 this is a very rich set of comments. Oh, we have one
4 more question.

5 MR. ZHAO: So this is follow-up to the response
6 about condition P8: What would an example of a community
7 service be that could be studied as part of community
8 services study?

9 MR. GIRARD: Well, I think the classic ones are
10 parks and schools. Again, there's some specific
11 frameworks for both of those. But were there any
12 contemplated in P8 that were mentioned?

13 MS. KUMAR: [Unintelligible]

14 MR. GIRARD: Yeah, I -- other examples is
15 sometimes there are contributions to, like I say, say,
16 for after-school programs, they're --

17 MS. KUMAR: Police - police, fire.

18 MR. GIRARD: And then police, fire impact fees
19 are often assessed. So I think those are the big ones.

20 MR. ZHAO: Okay.

21 MR. GIRARD: Yeah.

22 UNIDENTIFIED MALE: Thank you.

23 UNIDENTIFIED MALE: I'd just like to
24 understand the policies. I'm an accountant. And what
25 is your view on the -- on that paint hazard? Would you like

1 to see a more aggressive abatement program going into the
2 future, or are you satisfied with the current approach?

3 MR. GIRARD: Well, I think the points you've
4 raised, that the regulatory standards may have changed,
5 is something that we pay attention to.

6 I can -- I can tell you, traditionally, the
7 regulatory framework that's established for treatment of
8 hazardous materials and hazardous waste, is -- is fairly
9 exhaustive, and most lead agencies and jurisdictions
10 consider whether or not you are or aren't compliant --
11 for example, with a permitting program that might be
12 already in place for those materials. And if you are
13 compliant, then that is often deemed to be a threshold
14 of significance.

15 So it's too early to say if -- if we feel that
16 somehow what Stanford is proposing wouldn't be fully
17 mitigated by them complying with the federal or the
18 state statutes for -- for lead, lead paint.

19 But I'll say, in that area of regulatory
20 coverage, most lead agencies actually defer to the
21 permitting and oversight framework of the state and
22 federal government.

23 UNIDENTIFIED MALE: Thank you.

24 MR. GIRARD: But like I say, it's too early to
25 know now. But that's -- that's from this vantage point.

1 Okay. With that, thank you all for coming.
2 Really, we got a lot of -- a lot comments. So really,
3 thank you all for participating in this.
4 [End audio file 1 of 1 at 01:41:08]

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TRANSCRIBER CERTIFICATION

I, TONIA L. WEBB, attest that the foregoing proceedings provided to me via audio were transcribed by me to the best of my ability.

I further attest that I am not a relative or employee to any attorney or party nor financially interested in this action.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated this ____ day of _____, 2017.

TONIA L. WEBB

APPENDIX CON

Notable Near-Term Cumulative Building Construction in Project Site Vicinity

TABLE 1
NOTABLE NEAR-TERM CUMULATIVE BUILDING CONSTRUCTION WITHIN PROJECT SITE

Project and Location	Status
Sapp Center for Science Teaching and Learning (Campus Center Development District)	Renovation and addition to this approximately 76,000 square foot building; construction completed.
David & Joan Traitel Building (Campus Center Development District)	New approximately 50,000 square foot building; construction underway.
Bass Biology Building (Campus Center Development District)	New approximately 120,000 square foot building, construction underway.
ChEM-H & SNI Building (Campus Center Development District) construction underway.	New 211,000 square foot building; construction underway.
Academic Advising and Rowing Center (Daper and Administrative Development District)	New approximately 24,000 square foot building; construction underway.
Public Safety Building and Departmental Operations Center (Daper and Administrative Development District)	Approximately 30,000 square foot building to replace the existing Public Safety Building on Serra Street; construction starting in 2018.
Manzanita Field Parking Garage (East Campus Development District)	850 underground parking spaces at Manzanita Field; construction starting in 2018.
Serra/Campus Drive Roundabout (East Campus Development District)	Convert the 4-way stop intersection of Serra St and Campus Drive into a roundabout and reconfigure portions of Campus Drive and Serra Street. Six parking spaces in the small lot off Olmsted Rd will be removed. Construction underway.
Roble Field Garage (Lagunita Development District)	New underground garage provides 1,050 parking spaces, and includes an athletic field above. The parking garage was completed in February 2017.
Denning House (Lagunita Development District)	New approximately 8,000 square foot building, with construction underway.
Center for Academic Medicine (Quarry Development District)	New approximately 154,000 square foot building, with three levels of underground parking, for a net new 600 parking spaces. This project is awaiting County approval, and expected to start construction in Fall 2017.
EV Graduate Residences (East Campus Development District) ^a	Includes 1,655,000 square feet of building development. This project has demolished 29 buildings, and will construct four buildings for a net addition of 2,020 beds, along with other supporting amenities, market and café. The project will also modify surface parking and construct underground parking, for 750 net new parking spaces. The balance of this housing project will include circulation improvements and site amenities such as recreation fields and social spaces. The EV Graduate Residences was approved by the County in 2016 and is currently under construction, but for which the housing would not be completed and occupied at the time of approval of the 2018 General Use Permit. This housing project is anticipated to be fully completed and occupied by 2020.

^a This EIR considers the EV Graduate Residences project in different contexts, depending on when impacts associated with it would occur. See Section 5.0 in this EIR for detail.

SOURCE: Stanford University Land Use and Environmental Planning Office, 2017

TABLE 2
NOTABLE NEAR-TERM CUMULATIVE BUILDING CONSTRUCTION WITHIN PROJECT SITE VICINITY

Project and Location	Status
Stanford University Medical Center Renewal Project (Palo Alto)	The project includes the following new developments: • <i>Lucile Packard Children's Hospital Stanford</i>: Expanded and modernized hospital, consisting of 521,000 square feet that will add 149 patient beds and various supporting uses. Construction is expected to be completed in Fall 2017. • <i>Stanford Health Care</i>: New adult hospital consisting of 824,000 square foot that will include 368 patient rooms, and various supporting uses. Construction is expected to be completed in 2018. • <i>Updated School of Medicine</i>: The BioMedical Innovations Building (BMI) consists of 215,500 square feet and will provide laboratories and teaching space. A connective tunnel to other nearby research facilities is part of the proposed design. Construction began in January 2017 and is scheduled to be completed in Summer 2019.
Middle Plaza at 500 El Camino Real (Menlo Park)	Mixed-use residential/office/retail development. The proposed project is approximately 460,000 square feet, including 144,000 square feet of office, 10,000 square feet of retail, and 215 dwelling units. If approved, construction could begin in Spring 2018.
2131 Sand Hill Road (Menlo Park)	Approximate 40,000 square foot office building at 2111-2121 Sand Hill Road. If approved, construction could begin in February 2018.
Mayfield Place (Palo Alto)	70 below market rentals were completed at 2500 El Camino Real between California Avenue and Page Mill Road in March 2017.
University Terrace (Palo Alto)	112 condominiums and 68 single family homes, located on California Avenue south of the Stanford University Campus and the College Terrace neighborhood, between California Avenue and Page Mill Road and just north of Hanover Street. Construction was initiated in early 2017, and anticipated to be completed in late 2018.
429 University Avenue (Palo Alto)	The demolition of two one-story commercial structures on two existing parcels, and the construction of a new four-story, approximately 33,000 square feet, mixed-use building with ground floor retail, second floor office, three residential units on the third floor, and one residential unit and office use, including a 5,158 square feet terrace, on the fourth floor. The project entitlements are effective March 20, 2017.
2585 El Camino Real (Palo Alto)	The project includes the demolition of the existing single story restaurant building at 2515 El Camino Real and construction of a new 3-story mixed use building including retail, office, and 13 residential condominium units. The project includes a request for a Conditional Use Permit (CUP) to exceed the 5,000 square foot office use limit for the site by approximately 4,835 square feet. The project will provide parking on grade as well as one level of underground parking. The project entitlements are effective May 23, 2016.
600 El Camino Real Block (Palo Alto)	The project includes the demolition of the existing six-story commercial building and the construction of a new 62,616 square feet, four-story commercial building. Project entitlements are effective March 10, 2017.
1050 Page Mill Road (Palo Alto)	New research and office space. The project includes the demolition of existing structures and construction of up to 287,000 square feet of R&D/office in four buildings in the Research Park. The decision is effective January 11, 2016.
1459 Page Mill Road (Palo Alto)	New construction within the research park. The project will involve demolition of an existing building and construction of a 74,400 square foot two-story office building and 3,234 square feet of amenity space. The entitlements are effective August 7, 2015.
3251 Hanover Street (Palo Alto)	The project includes 110,000 square feet of a newly constructed office building and site improvements that would replace the existing buildings with the same square footage on a site located in the Stanford Research Park. Entitlements are effective August 7, 2017.

TABLE 2 (CONTINUED)
NOTABLE NEAR-TERM CUMULATIVE BUILDING CONSTRUCTION WITHIN PROJECT SITE VICINITY

Project and Location	Status
3181 Porter Drive (Palo Alto)	The project includes the demolition of three existing office buildings, approximately 69,084 total square feet, and the construction of one new two-story office building, approximately 101,084 square feet with an underground parking garage in the RP Research Park zone district. Entitlements are effective March 4, 2017.
777 Welch Road (Palo Alto)	The project will demolish three existing one-story structures and construct a new three story 28,750 square feet building constructed in two phases. Project approval effective September 18, 2014.

SOURCE: Stanford University Land Use and Environmental Planning Office, 2017; City of Palo Alto (Buildingeye Inc), 2017; City of Menlo Park Building Permit Applications, 2017.

APPENDIX NOI

Noise Appendix

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Traffic Noise Input Assumptions and Modeling Output

Existing

Existing													CALCULATED NOISE LEVEL 15 meters from	Receptor Dist. from Roadway	Adjusted Noise Level	Distance from Roadway to 65 dBA	Distance from Roadway to 65 dBA						
ROAD SEGMENT	TOTAL # VEHICLES		VEHICLE TYPE %			VEHICLE SPEED				NOISE LEVEL (dBA)													
			Auto	MT	HT	Auto k/h	MT k/h	HT k/h	Auto	MT	HT												
Calveno Peak																							
	from:	to:		%	Auto	%	MT	%	HT				roadway center)	Center (m.)	(dBA)	(m.)	(ft)						
Sand Hill	Stackfarm	Pastuer	2205	97	2138.9	2	44.1	1	22.05	35	56	35	56	35	56	67.6	60.5	64.2	69.8	40	65.5	45.1	147.9
Sand Hill	Santa Cruz	Stock Farm	2461	97	2387.2	2	49.22	1	24.61	35	56	35	56	35	56	68.1	61.0	64.7	70.3	40	66.0	50.3	165.0
Sand Hill	Saga	Sharon Park	2474	97	2399.8	2	49.48	1	24.74	35	56	35	56	35	56	68.1	61.0	64.7	70.3	40	66.0	50.6	165.9
ECR	Churchill	Serra	2978	97	2888.7	2	59.56	1	29.78	35	56	35	56	35	56	68.9	61.8	65.5	71.1	40	66.8	60.9	199.7
J.Serra Bl.	Campus	Stanford	1437	97	1393.9	2	28.74	1	14.37	35	56	35	56	35	56	65.8	58.6	62.3	67.9	40	63.7	29.4	96.4
J.Serra Bl.	Stanford	Page Mill	1622	97	1573.3	2	32.44	1	16.22	35	56	35	56	35	56	66.3	59.1	62.8	68.4	40	64.2	33.2	108.8
Foothill Exp	Arastadero	Edith	2221	97	2154.4	2	44.42	1	22.21	45	72	45	72	45	72	70.8	62.2	65.2	72.3	40	68.0	80.5	264.1
Alpine	280 J. Serra		1486	97	1441.4	2	29.72	1	14.86	40	64	40	64	40	64	67.6	59.7	63.0	69.4	40	65.1	40.9	134.3
Oregon Exswy	ECR	Middlefield	3036	97	2944.9	2	60.72	1	30.36	35	56	35	56	35	56	69.0	61.9	65.6	71.2	40	66.9	62.1	203.6
Embarcadero	T&C	Middlefield	1672	97	1621.8	2	33.44	1	16.72	25	40	25	40	25	40	62.2	57.0	61.6	65.6	40	61.3	17.2	56.3
Stanford	Bowdoin	ECR	593	97	575.21	2	11.86	1	5.93	25	40	25	40	25	40	57.7	52.5	57.1	61.1	40	56.8	6.1	20.0
Assumptions: AM peak hour traffic data from Fehr & Peers																							

TOTAL			VEHICLE TYPE %			VEHICLE SPEED						NOISE LEVEL (dBA)			NOISE LEVEL		Dist. from	Noise	from	from					
ROAD SEGMENT	# VEHICLES		Auto	MT	HT	Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT	(15 meters from	Roadway to	Roadway to	65 dBA	Roadway to						
Calveno																									
Peak	from:	to:	%	Auto	%	MT	%	HT																	
Sand Hill	Stackfarm	Pastuer	2512	97	2436.64	2	50.24	1	25.12			35	56	35	56	35	56	68.2	61.0	64.7	70.3	40	66.1	51.3	168.5
Sand Hill	Santa Cruz	Stock Farm	2863	97	2777.11	2	57.26	1	28.63			35	56	35	56	35	56	68.7	61.6	65.3	70.9	40	66.7	58.5	192.0
Sand Hill	Saga	Sharon Par	2823	97	2738.31	2	56.46	1	28.23			35	56	35	56	35	56	68.7	61.6	65.3	70.9	40	66.6	57.7	189.3
ECR	Churchill	Serra	3083	97	2990.51	2	61.66	1	30.83			35	56	35	56	35	56	69.1	61.9	65.6	71.2	40	67.0	63.0	206.8
J.Serra Bl.	Campus	Stanford	1508	97	1462.76	2	30.16	1	15.08			35	56	35	56	35	56	66.0	58.8	62.5	68.1	40	63.9	30.8	101.1
J.Serra Bl.	Stanford	Page Mill	1729	97	1677.13	2	34.58	1	17.29			35	56	35	56	35	56	66.6	59.4	63.1	68.7	40	64.5	35.3	116.0
Foothill Exj	Arastadero	Edith	2234	97	2166.98	2	44.68	1	22.34			45	72	45	72	45	72	70.8	62.2	65.2	72.3	40	68.1	81.0	265.6
Alpine	280 J. Serra		1655	97	1605.35	2	33.1	1	16.55			40	64	40	64	40	64	68.0	60.1	63.5	69.8	40	65.6	45.6	149.6
Oregon Exj	ECR	Middlefield	3139	97	3044.83	2	62.78	1	31.39			35	56	35	56	35	56	69.1	62.0	65.7	71.3	40	67.1	64.2	210.5
Embarcade	T&C	Middlefield	1819	97	1764.43	2	36.38	1	18.19			25	40	25	40	25	40	62.6	57.4	62.0	65.9	40	61.7	18.7	61.2
Stanford	Bowdoin	ECR	623	97	604.31	2	12.46	1	6.23			25	40	25	40	25	40	57.9	52.7	57.3	61.3	40	57.0	6.4	21.0

Assumptions: AM peak hour traffic data from Fehr & Peers

2018 Baseline + Project

TOTAL		VEHICLE TYPE %						VEHICLE SPEED						NOISE LEVEL (dBA)			NOISE LEVEL		Dist. from	Noise	from	from
ROAD SEGMENT	# VEHICLES	Auto	MT		HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT	(15 meters from		Roadway	Level	65 dBA	Roadway to 65 dBA	
Calveno																						
Peak																						
from:	to:	%	Auto	%	MT	%	HT									roadway center)	Center (m.)	(dBA)	(m.)	(ft)		
Sand Hill	Stackfarm Pastuer	2616	97	2537.52	2	52.32	1	26.16	35	56	35	56	35	56	68.4	61.2	64.9	70.5	40	66.3	53.5	175.4
Sand Hill	Santa Cruz Stock Farm	3036	97	2944.92	2	60.72	1	30.36	35	56	35	56	35	56	69.0	61.9	65.6	71.2	40	66.9	62.1	203.6
Sand Hill	Saga Sharon Park	2997	97	2907.09	2	59.94	1	29.97	35	56	35	56	35	56	68.9	61.8	65.5	71.1	40	66.9	61.3	201.0
ECR	Churchill Serra	3228	97	3131.16	2	64.56	1	32.28	35	56	35	56	35	56	69.3	62.1	65.8	71.4	40	67.2	66.0	216.5
J.Serra Bl.	Campus Stanford	1602	97	1553.94	2	32.04	1	16.02	35	56	35	56	35	56	66.2	59.1	62.8	68.4	40	64.1	32.7	107.4
J.Serra Bl.	Stanford Page Mill	1922	97	1864.34	2	38.44	1	19.22	35	56	35	56	35	56	67.0	59.9	63.6	69.2	40	64.9	39.3	128.9
Foothill Ex.	Arastadero Edith	2312	97	2242.64	2	46.24	1	23.12	45	72	45	72	45	72	71.0	62.4	65.4	72.5	40	68.2	83.8	274.9
Alpine	280 J. Serra	1790	97	1736.3	2	35.8	1	17.9	40	64	40	64	40	64	68.4	60.5	63.8	70.2	40	65.9	49.3	161.8
Oregon Ex.	ECR Middlefield	3170	97	3074.9	2	63.4	1	31.7	35	56	35	56	35	56	69.2	62.1	65.8	71.4	40	67.1	64.8	212.6
Embarcade	T&C Middlefield	1939	97	1880.83	2	38.78	1	19.39	25	40	25	40	25	40	62.8	57.6	62.3	66.2	40	62.0	19.9	65.3
Stanford	Bowdoin ECR	679	97	658.63	2	13.58	1	6.79	25	40	25	40	25	40	58.3	53.1	57.7	61.7	40	57.4	7.0	22.9

Assumptions: AM peak hour traffic data from Fehr & Peers

Assumptions: AM peak hour traffic data from Fehr & Peers

2035 Baseline

TOTAL		VEHICLE TYPE %				VEHICLE SPEED						NOISE LEVEL (dBA)			NOISE LEVEL		Dist. from	Noise	from	from
ROAD SEGMENT	# VEHICLES	Auto	MT	HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT	(15 meters from	Roadway	Level	Roadway to 65 dBA	Roadway to 65 dBA	
Calveno Peak																				
from:	to:	%	Auto	%	MT	%	HT								roadway center)	Center (m.)	(dBA)	(m.)	(ft)	
Sand Hill	Stackfarm	Pastuer	2632	97	2553.04	2	52.64	1	26.32		35	56	35	56	35	56	68.4	61.2	64.9	
Sand Hill	Santa Cruz	Stock Farm	2841	97	2755.77	2	56.82	1	28.41		35	56	35	56	35	56	68.7	61.6	65.3	
Sand Hill	Saga	Sharon Par	2701	97	2619.97	2	54.02	1	27.01		35	56	35	56	35	56	68.5	61.4	65.1	
ECR	Churchill	Serra	4050	97	3928.5	2	81	1	40.5		35	56	35	56	35	56	70.3	63.1	66.8	
J.Serra Bl.	Campus	Stanford	1701	97	1649.97	2	34.02	1	17.01		35	56	35	56	35	56	66.5	59.3	63.1	
J.Serra Bl.	Stanford	Page Mill	2017	97	1956.49	2	40.34	1	20.17		35	56	35	56	35	56	67.2	60.1	63.8	
Foothill Exj	Aranstadero	Edith	3435	97	3331.95	2	68.7	1	34.35		45	72	45	72	45	72	72.7	64.1	67.1	
Alpine	280 J. Serra		1783	97	1729.51	2	35.66	1	17.83		40	64	40	64	40	64	68.4	60.5	63.8	
Oregon Exj	ECR	Middlefield	3623	97	3514.31	2	72.46	1	36.23		35	56	35	56	35	56	69.8	62.6	66.3	
Embarcade	T&C	Middlefield	2377	97	2305.69	2	47.54	1	23.77		25	40	25	40	25	40	63.7	58.5	63.2	
Stanford	Bowdoin	ECR	674	97	653.78	2	13.48	1	6.74		25	40	25	40	25	40	58.3	53.0	57.7	

Assumptions: AM peak hour traffic data from Fehr & Peers

Assumptions: AM peak hour traffic data from Fehr & Peers

ROAD SEGMENT	TOTAL # VEHICLES

ROAD SEGMENT	TOTAL #VEHICLES		VEHICLE TYPE %				VEHICLE SPEED				NOISE LEVEL (dBA)			NOISE LEVEL (15 meters from Roadway)	Dist. from Roadway	Noise Level from Roadway @ 65 dBA	from Roadway @ 65 dBA	from Roadway @ 65 dBA	Roadway to 65 dBA					
	Auto	MT		HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT							HT				
Calveno Peak	from: 2735	to: 2735	% 97	Auto 2652.95	% 2	MT 54.7	% 1	HT 27.35																
Sand Hill Stackfarm	3015		97	2924.55	2	60.3	1	30.15	35	56	35	56	35	56	68.5	61.4	65.1	70.7	40	66.5	55.9	183.4	0.2	0.9
Sand Hill Santa Cruz Stock Farm	2875		97	2788.75	2	57.5	1	28.75	35	56	35	56	35	56	69.0	61.8	65.5	71.1	40	66.9	61.6	202.2	0.3	0.9
Sand Hill Saga Sharon Park	4194		97	4068.18	2	83.88	1	41.94	35	56	35	56	35	56	68.8	61.6	65.3	70.9	40	66.7	58.8	192.8	0.3	0.7
ECR Churchill Serra	1795		97	1741.15	2	35.9	1	17.95	35	56	35	56	35	56	70.4	63.3	67.0	72.6	40	68.3	58.7	281.3	0.2	1.5
J.Serra Bl. Campus Stanford	2211		97	2144.67	2	44.22	1	22.11	35	56	35	56	35	56	66.7	59.6	63.3	68.9	40	64.6	36.7	120.4	0.2	1.0
J.Serra Bl. Stanford	3513		97	3407.61	2	70.26	1	35.13	35	56	35	56	35	56	67.6	60.5	64.2	69.8	40	65.5	45.2	148.3	0.4	1.3
Foothill Ex Arastadero	1918		97	1860.46	2	38.36	1	19.18	45	72	45	72	45	72	72.8	64.2	67.2	74.3	40	70.0	52.73	417.7	0.1	2.0
Alpine 280 J. Serra	3655		97	3545.35	2	73.1	1	36.55	40	64	40	64	40	64	68.7	60.8	64.1	70.5	40	66.2	52.8	173.4	0.3	1.1
Oregon Ex: ECR Middlefield	2497		97	2422.09	2	49.94	1	24.97	35	56	35	56	35	56	69.8	62.7	66.4	72.0	40	67.7	74.7	245.1	0.0	0.8
Embarcadero T&C Middlefield	730		97	708.1	2	14.6	1	7.3	25	40	25	40	25	40	63.9	58.7	63.4	67.3	40	63.1	25.6	84.1	0.2	1.7
Stanford Bowdoin ECR			97						25	40	25	40	25	40	58.6	53.4	58.0	62.0	40	57.7	7.5	24.6		

Assumptions: AM peak hour traffic data from Fehr & Peers

Construction Noise Calculations

Building Output.txt
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/06/2017
Case Description: Stanford GUP Building Construction

**** Receptor #1 ****

Description	Land Use	Daytime	Evening	Night
Receptor 1	Residential	60.0	60.0	55.0

		Equipment				
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Crane	No	16		80.6	50.0	0.0
Crane	No	16		80.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0
Welder / Torch	No	40		74.0	50.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				
		Calculated (dBA)		Day Night		Evening			
Night	Day	Evening	Evening	Night	Night	Evening	Evening	Evening	Evening
Equipment	Equipment	Equipment	Equipment	Equipment	Equipment	Equipment	Equipment	Equipment	Equipment
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Crane	N/A	N/A	80.6	72.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	N/A	N/A	80.6	72.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	N/A	N/A	80.6	72.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	N/A	N/A	74.0	70.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	N/A	N/A	74.0	70.0	N/A	N/A	N/A	N/A	N/A

Building Output.txt									
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			74.0	70.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			74.0	70.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total		80.6	83.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Receptpr 2	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	150.0	0.0
Crane	No	16		80.6	150.0	0.0
Crane	No	16		80.6	150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0
Welder / Torch	No	40		74.0	150.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night		Day	Calculated (dBA)		Day		Evening		
			Evening	Night	Night	Evening			

Equipment			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			

Crane			71.0	63.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane			71.0	63.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane			71.0	63.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			69.6	65.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			69.6	65.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			69.6	65.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			69.6	65.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Building Output.txt									
Welder / Torch			64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	71.0	74.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Receptor 3	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	300.0	0.0
Crane	No	16		80.6	300.0	0.0
Crane	No	16		80.6	300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0
Welder / Torch	No	40		74.0	300.0	0.0
Welder / Torch	No	40		74.0	300.0	0.0
Welder / Torch	No	40		74.0	300.0	0.0
Welder / Torch	No	40		74.0	300.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				
-----					-----				
Night			Calculated (dBA)		Day Night		Evening		
			Day	Evening					
-----			-----		-----		-----		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq	-----								
Crane			65.0	57.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane			65.0	57.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane			65.0	57.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			63.5	59.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			63.5	59.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			63.5	59.6	N/A	N/A	N/A	N/A	N/A

Building Output.txt										
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front	End	Loader		63.5	59.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder	/	Torch		58.4	54.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder	/	Torch		58.4	54.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder	/	Torch		58.4	54.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder	/	Torch		58.4	54.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total		65.0	68.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Demo Output.txt
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/06/2017
Case Description: Stanford GUP Demolition

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptor 1	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night		Day	Calculated (dBA)		Day	Evening			
			Evening		Night				

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq			Lmax	Leq	Lmax	Leq			

Concrete Saw			89.6	82.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			80.7	76.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			80.7	76.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			80.7	76.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total			89.6	85.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptpr 2	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Demo Output.txt					
Concrete Saw	No	20	89.6	150.0	0.0
Excavator	No	40	80.7	150.0	0.0
Excavator	No	40	80.7	150.0	0.0
Excavator	No	40	80.7	150.0	0.0

Results

Noise Limit Exceedance (dBA)						Noise Limits (dBA)			

Night		Day	Calculated (dBA) Evening		Day Night		Evening		

Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

Concrete Saw	N/A	N/A	N/A	80.0	73.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	71.2	67.2	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	71.2	67.2	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	71.2	67.2	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		N/A	N/A	80.0	75.5	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description		Baselines (dBA)		
Land Use		Daytime	Evening	Night
Receptor 3		60.0	60.0	55.0

Equipment						

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Concrete Saw	No	20		89.6	300.0	0.0
Excavator	No	40		80.7	300.0	0.0
Excavator	No	40		80.7	300.0	0.0
Excavator	No	40		80.7	300.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night		Day		Calculated (dBA) Evening		Day Night		Evening	

Equipment		Lmax		Leq		Lmax		Leq	
		Lmax		Leq		Lmax		Leq	

				Demo Output.txt					
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			
Concrete Saw			74.0	67.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			65.1	61.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			65.1	61.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			65.1	61.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total			74.0	69.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Grading Output.txt
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/06/2017
Case Description: Stanford GUP Grading

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptor 1	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0
Excavator	No	40		80.7	50.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night		Day	Calculated (dBA)		Day		Evening		
			Evening		Night				

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq			Lmax	Leq	Lmax	Leq			

Excavator			80.7	76.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator			80.7	76.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	80.7	79.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptpr 2	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	150.0	0.0
Excavator	No	40		80.7	150.0	0.0

Results

Grading Output.txt

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

		Calculated (dBA)			Day		Evening		
Night		Day		Evening		Day		Night	
Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	N/A	N/A	N/A	71.2	67.2	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	71.2	67.2	N/A	N/A	N/A	N/A
Total		N/A	N/A	71.2	70.2	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor 3	Residential	60.0	60.0	55.0

		Equipment			
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Excavator	No	40		80.7	300.0
Excavator	No	40		80.7	300.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

		Calculated (dBA)			Day		Evening		
Night		Day		Evening		Day		Night	
Equipment	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	N/A	N/A	N/A	65.1	61.2	N/A	N/A	N/A	N/A
Excavator	N/A	N/A	N/A	65.1	61.2	N/A	N/A	N/A	N/A
Total		N/A	N/A	65.1	64.2	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Paving Output.txt
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/06/2017
Case Description: Stanford GUP Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)				
		Daytime	Evening	Night		
Receptor 1	Residential	60.0	60.0	55.0		
Equipment						
Estimated Shielding Description	Impact	Usage	Spec	Actual	Receptor	(dBA)
			Lmax	Lmax	Distance	
	Device	(%)	(dBA)	(dBA)	(feet)	
Paver	No	50		77.2	50.0	
0.0						
Roller	No	20		80.0	50.0	
0.0						
Roller	No	20		80.0	50.0	
0.0						
All Other Equipment > 5 HP	No	50	85.0		50.0	
0.0						

Results

Noise Limit Exceedance (dBA)							Noise Limits (dBA)			

Night		Day	Calculated (dBA) Evening				Day Night		Evening	
-----		-----	-----				-----		-----	
Equipment			Lmax		Leq		Lmax		Leq	
Lmax	Leq	Lmax	Leq	Lmax	Leq	Leq	Lmax	Leq	Lmax	Leq
-----		-----	-----		-----		-----		-----	
Paver				77.2	74.2		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				80.0	73.0		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				80.0	73.0		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP				85.0	82.0		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total				85.0	83.5		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Receptpr 2	Residential	60.0	60.0	55.0

Paving Output.txt

Estimated Shielding Description -----	Equipment -----		Spec	Actual	Receptor	(dBA)
	Impact	Usage	Lmax	Lmax	Distance	
	Device	(%)	(dBA)	(dBA)	(feet)	
	-----	-----	-----	-----	-----	
Paver	No	50		77.2	150.0	
0.0						
Roller	No	20		80.0	150.0	
0.0						
Roller	No	20		80.0	150.0	
0.0						
All Other Equipment > 5 HP	No	50	85.0		150.0	
0.0						

Results

Noise Limit Exceedance (dBA)								Noise Limits (dBA)	
-----		-----		-----		-----		-----	
Night		Day		Calculated (dBA) Evening		Day Night		Evening	
-----		-----		-----		-----		-----	
Equipment				Lmax	Leq	Lmax	Leq	Lmax	Leq
Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Paver				67.7	64.7	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				70.5	63.5	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				70.5	63.5	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP				75.5	72.4	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total		75.5	74.0	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description -----	Land Use -----	Baselines (dBA)		
		Daytime	Evening	Night
-----	-----	-----	-----	-----
Receptor 3	Residential	60.0	60.0	55.0

Estimated Shielding Description -----	Equipment -----		Spec	Actual	Receptor	(dBA)
	Impact	Usage	Lmax	Lmax	Distance	
	Device	(%)	(dBA)	(dBA)	(feet)	
	-----	-----	-----	-----	-----	
Paver	No	50		77.2	300.0	

	Paving Output.txt			
0.0 Roller	No	20	80.0	300.0
0.0 Roller	No	20	80.0	300.0
0.0 All Other Equipment > 5 HP	No	50	85.0	300.0
0.0				

Results

Noise Limit Exceedance (dBA)								Noise Limits (dBA)	
Night		Day		Calculated (dBA) Evening		Day Night		Evening	
Equipment									
Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver				61.7	58.6	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				64.4	57.4	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller				64.4	57.4	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP				69.4	66.4	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total				69.4	67.9	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Site Prep Output.txt
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 06/06/2017
Case Description: Stanford GUP Site Preparation

**** Receptor #1 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptor 1	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results

Noise Limit Exceedance (dBA)					Noise Limits (dBA)				

Night		Day	Calculated (dBA)		Day		Evening		
			Evening		Night				

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Leq			Lmax	Leq	Lmax	Leq			

Backhoe			77.6	73.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe			77.6	73.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader			79.1	75.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total			79.1	80.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Daytime	Baselines (dBA)	
			Evening	Night
Receptpr 2	Residential	60.0	60.0	55.0

Equipment						
Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

			Site Prep Output.txt		
Backhoe	No	40	77.6	150.0	0.0
Front End Loader	No	40	79.1	150.0	0.0
Backhoe	No	40	77.6	150.0	0.0
Front End Loader	No	40	79.1	150.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night		Day		Calculated (dBA) Evening		Day Night		Evening	
Equipment		Lmax		Leq		Lmax		Leq	
Leq		Lmax		Leq		Lmax		Leq	
Backhoe	N/A	N/A	68.0	64.0	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	69.6	65.6	N/A	N/A	N/A	N/A	N/A
Backhoe	N/A	N/A	68.0	64.0	N/A	N/A	N/A	N/A	N/A
Front End Loader	N/A	N/A	69.6	65.6	N/A	N/A	N/A	N/A	N/A
Total		69.6		70.9		N/A		N/A	

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Receptor 3	Residential	60.0	60.0	55.0

Equipment		Receptor		Estimated	
Description		Distance		Shielding	
Impact Device		(feet)		(dBA)	
Usage (%)		Spec Lmax (dBA)		Actual Lmax (dBA)	
Backhoe	No	40	77.6	300.0	0.0
Front End Loader	No	40	79.1	300.0	0.0
Backhoe	No	40	77.6	300.0	0.0
Front End Loader	No	40	79.1	300.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night		Day		Calculated (dBA) Evening		Day Night		Evening	
Equipment		Lmax		Leq		Lmax		Leq	

Site Prep Output.txt									
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq			
Backhoe			62.0	58.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Front End Loader			63.5	59.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Backhoe			62.0	58.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Front End Loader			63.5	59.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			
		Total	63.5	64.9	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A			

Noise Monitoring Summary Sheets

Stanford GUP - Embarcadero at Waverley

5/24/2017	TIME		dBA	Remove LOG	10 dBA Penalized Values	5 dBA Penalized Values	Leq Morning Peak Hour 7:00-10:00 a.m. 65 dBA
	0 / 24						
5/23/2017	Midnight	0	55.3	338844	3388442	1071519	Leq Evening Peak Hour 4:00-8:00 p.m. 63 dBA
	am 1:00	100	53.4	218776	2187762	691831	
	2:00	200	52.8	190546	1905461	602560	
	3:00	300	53.3	213796	2137962	676083	Leq Nighttime 10:00 pm-7:00 a.m. (not penalized) 59 dBA
	4:00	400	57.8	602560	6025596	1905461	
	5:00	500	62.0	1584893	15848932	5011872	
	6:00	600	63.5	2238721	22387211	7079458	Leq Daytime 7:00 am-10:00 p.m. 64 dBA
	7:00	700	64.3	2691535	26915348	8511380	
	8:00	800	66.7	4677351	46773514	14791084	
	9:00	900	63.9	2454709	24547089	7762471	Leq 24-Hour 62 dBA
	10:00	1000	64.5	2818383	28183829	8912509	
	11:00	1100	63.6	2290868	22908677	7244360	
5/23/2017	12:00	1200	65.7	3715352	37153523	11748976	Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m. 66 dBA
	pm 1:00	1300	62.7	1862087	18620871	5888437	
	2:00	1400	62.7	1862087	18620871	5888437	
	3:00	1500	63.1	2041738	20417379	6456542	CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m., and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m. 67 dBA
	4:00	1600	62.4	1737801	17378008	5495409	
	5:00	1700	64.1	2570396	25703958	8128305	
	6:00	1800	62.4	1737801	17378008	5495409	CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m., and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m. 67 dBA
	7:00	1900	61.7	1479108	14791084	4677351	
	8:00	2000	61.9	1548817	15488166	4897788	
	9:00	2100	60.2	1047129	10471285	3311311	
	10:00	2200	59.2	831764	8317638	2630268	
	pm 11:00	2300	58.5	707946	7079458	2238721	

CNEL - Ldn 0.35380535

Calculated Ldn from long-term noise monitoring data

Stanford GUP - Oak Creek Apartments

	TIME	dBA	Remove LOG	10 dBA		5 dBA	
				Penalized Values	Penalized Values	Penalized Values	Penalized Values
5/11/2017	Midnight	0	24	194984	1949845	616595	
	am	1:00	100	72444	724436	229087	
		2:00	200	117490	1174898	371535	
		3:00	300	66069	660693	208930	
		4:00	400	199526	1995262	630957	
		5:00	500	602560	6025596	1905461	
		6:00	600	891251	8912509	2818383	
		7:00	700	1258925	12589254	3981072	
		8:00	800	1479108	14791084	4677351	
		9:00	900	1778279	17782794	5623413	
		10:00	1000	1047129	10471285	3311311	
		11:00	1100	1862087	18620871	5888437	
		12:00	1200	977237	9772372	3090295	
		pm	1:00	3162278	31622777	10000000	
		2:00	1400	3630781	36307805	11481536	
		3:00	1500	1412538	14125375	4466836	
		4:00	1600	1122018	11220185	3548134	
5/10/2017		5:00	1700	933254	9332543	2951209	
		6:00	1800	1047129	10471285	3311311	
		7:00	1900	1047129	10471285	3311311	
		8:00	2000	1318257	13182567	4168694	
		9:00	2100	691831	6918310	2187762	
		10:00	2200	436516	4365158	1380384	
		pm	11:00	288403	2884032	912011	

Leq Morning Peak Hour 7:00-10:00 a.m.

62 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.

60 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)

55 dBA

Leq Daytime 7:00 am-10:00 p.m.

62 dBA

Leq 24-Hour

60 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

63 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m., and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

64 dBA

CNEL - Ldn 0.52485768

Calculated Ldn from long-term noise monitoring data

Stanford GUP - Southgate Neighborhood El Camino Frontage

	TIME		dBA	Remove LOG	Penalized Values		5 dBA Penalized Values
	0 / 24				10 dBA	5 dBA	
5/12/2017	Midnight	59.7	933254	9332543	2951209		Leq Morning Peak Hour 7:00-10:00 a.m.
	am 1:00	58.3	676083	6760830	2137962		71 dBA
	2:00	59.9	977237	9772372	3090295		
	3:00	57.4	549541	5495409	1737801		Leq Evening Peak Hour 4:00-8:00 p.m.
	4:00	60.0	1000000	10000000	3162278		71 dBA
	5:00	65.8	3801894	38018940	12022644		
	6:00	68.6	7244360	72443596	22908677		Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)
	7:00	70.7	11748976	117489755	37153523		63 dBA
	8:00	72.1	16218101	162181010	51286138		
	9:00	70.7	11748976	117489755	37153523		Leq Daytime 7:00 am-10:00 p.m.
5/11/2017	10:00	72.8	19054607	190546072	60255959		71 dBA
	11:00	70.9	12302688	123026877	38904514		
	12:00	70.4	10964782	109647820	34673685		Leq 24-Hour
	pm 1:00	70.1	10232930	102329299	32359366		69 dBA
	2:00	69.7	9332543	93325430	29512092		
	3:00	70.5	11220185	112201845	35481339		Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.
	4:00	70.9	12302688	123026877	38904514		72 dBA
	5:00	72.4	17378008	173780083	54954087		
	6:00	71.2	13182567	131825674	41686938		CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,
	7:00	70.1	10232930	102329299	32359366		72 dBA and 10 dBA penalty for noise between
	8:00	68.2	6606934	66069345	20892961		10:00 p.m. and 7:00 a.m.
	9:00	66.5	4466836	44668359	14125375		
	10:00	64.4	2754229	27542287	8709636		
	pm 11:00	61.8	1513561	15135612	4786301		

CNEL - Ldr 0.50772115

Noise Monitoring Download Data

Summary				
File Name	LxT_Data.053			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	Stanford at Bowdoin			
Job Description	Stanford GUP			
Note				
Measurement Description				
Start	2017-05-25 10:53:23			
Stop	2017-05-25 11:08:25			
Duration	00:15:02.1			
Run Time	00:15:02.1			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	59.5 dB			
LAE	89.0 dB			
EA	88.498 µPa²h			
EA8	2.825 mPa²h			
EA40	14.127 mPa²h			
LZpeak (max)	2017-05-25 11:06:15	107.8 dB		
LASmax	2017-05-25 11:04:27	77.4 dB		
LASmin	2017-05-25 10:56:26	49.9 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LCeq	69.8 dB			
LAeq	59.5 dB			

LCeq - LAeq	10.4 dB
LAeq	62.2 dB
LAeq	59.5 dB
LAeq - LAeq	2.8 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	44.4	44.4 dB

Statistics

LAS5.00	62.6 dB
LAS10.00	61.2 dB
LAS33.30	58.2 dB
LAS50.00	56.9 dB
LAS66.60	55.7 dB
LAS90.00	53.7 dB

METROSONICS db-308 SN 2677 V2.3 3/87

CURRENT DATE: 5/26/17
CURRENT TIME: 9:41:56

CALIBRATED: 5/23/17 @ 7:32:46

DISPLAY RANGE: 43.3dB TO 139.3dB

DOUBLING RATE: 3 dB

FILTER: A WGT

RESPONSE: SLOW

SCHEDULED RUN: OFF

START DATE: 5/23/17
START TIME: 9:00:00
LENGTH: 25:00:00

** OVERALL REPORT **

TEST STARTING DATE: 5/23/17
TEST STARTING TIME: 9:00:19
TEST LENGTH: 1DAYS 1:00:00

Lav = 62.4dB
Lav 80= 50.9dB
Lav 90= 45.5dB
SEL =111.8dB

Lmax = 93.8dB ON 5/23/17 @ 12:11:54
Lpk < 118dB

TIME OVER 115dB 0D 0:00:00.00

DOSE CRITERION: 90dB

8 HR DOSE (80dB CUTOFF)= 0.03%
8 HR DOSE (90dB CUTOFF)= 0.01%

** TIME HISTORY REPORT **

MODE: CONTINUOUS
PERIOD LENGTH: 1:00:00
TIME HISTORY CUTOFF: NONE
Ln(1): 10.0% Ln(2): 50.0%

INT#	START	Lav	Lmax	Lpk
TAG#	TIME	ET	L1	L2

Embarcadero.txt

1	5/23/17	63.9	85.7	<118	*		+
0	9:00:19	1:00:00	66	61			
2	5/23/17	64.5	87.4	<118	*		+
0	10:00:19	1:00:00	66	61			
3	5/23/17	63.6	80.9	<118	*		+
0	11:00:19	1:00:00	66	61			
4	5/23/17	65.7	93.8	<118	*		+
0	12:00:19	1:00:00	66	61			
5	5/23/17	62.7	72.3	<118	*	+	
0	13:00:19	1:00:00	65	61			
6	5/23/17	62.7	76.0	<118	*		+
0	14:00:19	1:00:00	65	61			
7	5/23/17	63.1	81.7	<118	*		+
0	15:00:19	1:00:00	65	61			
8	5/23/17	62.4	76.1	<118	*		+
0	16:00:19	1:00:00	65	61			
9	5/23/17	64.1	84.3	<118	*		+
0	17:00:19	1:00:00	65	61			
10	5/23/17	62.4	79.5	<118	*		+
0	18:00:19	1:00:00	65	61			
11	5/23/17	61.7	74.0	<118	*		+
0	19:00:19	1:00:00	65	60			
12	5/23/17	61.9	79.3	<118	*		+
0	20:00:19	1:00:00	65	60			
13	5/23/17	60.2	75.5	<118	*		+
0	21:00:19	1:00:00	63	58			
14	5/23/17	59.2	69.1	<118	*	+	
0	22:00:19	1:00:00	63	57			
15	5/23/17	58.5	69.9	<118	*	+	
0	23:00:19	1:00:00	63	54			
INT#	START	Lav	Lmax	Lpk			
TAG#	TIME	ET	L1	L2			
16	5/24/17	55.3	73.2	<118	*		+
0	0:00:19	1:00:00	59	47			
17	5/24/17	53.4	67.5	<118	*	+	
0	1:00:19	1:00:00	58	44			
18	5/24/17	52.8	69.9	<118	*		+
0	2:00:19	1:00:00	57	43			
19	5/24/17	53.3	69.7	<118	*	+	
0	3:00:19	1:00:00	57	43			

Embarcadero.txt

20	5/24/17	57.8	69.9	<118	*	+
0	4:00:19	1:00:00	62	51		
21	5/24/17	62.0	74.8	<118	*	+
0	5:00:19	1:00:00	66	59		
22	5/24/17	63.5	74.5	<118	*	+
0	6:00:19	1:00:00	67	61		
23	5/24/17	64.3	80.5	<118	*	+
0	7:00:19	1:00:00	67	62		
24	5/24/17	66.7	78.7	<118	*	+
0	8:00:19	1:00:00	69	65		
25	5/24/17	63.7	75.5	<118	*	+
0	9:00:19	PARTIAL	66	62		

** AMPLITUDE DISTRIBUTION REPORT **

TOTAL SAMPLES = 720000

dB	SAMPLES	% OF TOTAL
43	64456 *****	8.95
44	11692 **	1.62
45	8789 *	1.22
46	8183 *	1.13
47	8708 *	1.20
48	7994 *	1.11
49	8602 *	1.19
50	9045 *	1.25
51	10868 **	1.50
52	12249 **	1.70
53	15054 **	2.09
54	19260 ***	2.67
55	23156 ***	3.21
56	28033 ****	3.89
57	38196 *****	5.30
58	42840 *****	5.95
59	50474 *****	7.01
60	46311 *****	6.43
61	50819 *****	7.05
62	54337 *****	7.54
63	52701 *****	7.31
64	45881 *****	6.37
65	38312 *****	5.32
66	27494 ****	3.81
67	15727 **	2.18
68	8838 *	1.22
69	4644 *	.64
70	2479 +	.34
71	1673 +	.23
72	1100 +	.15
73	743 +	.10
74	352 .	.04
75	212 .	.02
76	171 .	.02
77	129 .	.01
78	95 .	.01
79	79 .	.01

Embarcadero.txt

80	85	.01
81	53	.00
82	24	.00
83	63	.00
84	25	.00
85	9	.00
86	13	.00
87	9	.00
88	5	.00
89	3	.00
90	2	.00
91	6	.00
92	4	.00
93	3	.00

Ln(0.0) = 93dB
Ln(10.0) = 65dB
Ln(50.0) = 59dB
Ln(99.9) = 43dB

	NO CUTOFF	80.0dB CUTOFF	90.0dB CUTOFF
Ldod	61.0dB	45.3dB	43.5dB
Losha	60.5dB	43.8dB	43.1dB
Leq(6)	60.1dB	43.4dB	43.0dB

Summary				
File Name	LxT_Data.052			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	950 Lathrop Place			
Job Description	Stanford GUP			
Note				
Measurement Description				
Start	2017-05-25 10:17:23			
Stop	2017-05-25 10:32:26			
Duration	00:15:03.2			
Run Time	00:15:03.2			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7 dB	
Under Range Limit	36.8	34.8	42.8 dB	
Noise Floor	24.4	24.8	32.1 dB	
Results				
LAeq	56.4 dB			
LAE	85.9 dB			
EA	43.711 µPa²h			
EA8	1.394 mPa²h			
EA40	6.969 mPa²h			
LZpeak (max)	2017-05-25 10:26:06	91.1 dB		
LASmax	2017-05-25 10:21:19	67.3 dB		
LASmin	2017-05-25 10:25:10	41.9 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	63.6 dB
LAeq	56.4 dB
LCeq - LAeq	7.2 dB
LAleq	58.0 dB
LAeq	56.4 dB
LAleq - LAeq	1.6 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	41.4	41.4 dB

Statistics

LAS5.00	60.9 dB
LAS10.00	59.9 dB
LAS33.30	56.7 dB
LAS50.00	54.7 dB
LAS66.60	51.8 dB
LAS90.00	46.5 dB

Summary	
File Name	LxT_Data.050
Serial Number	0004338
Model	SoundTrack LxT®
Firmware Version	2.301
User	Sanchez
Location	4198 Manuela Avenue
Job Description	Stanford GUP
Note	Address number approximated from neighboring house. On

Measurement Description	
Start	2017-05-25 09:22:29
Stop	2017-05-25 09:37:31
Duration	00:15:01.7
Run Time	00:15:01.7
Pause	00:00:00.0
Pre Calibration	2017-05-25 09:19:54
Post Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT2B
Microphone Correction	Off
Integration Method	Linear
Overload	143.3 dB
	A C Z
Under Range Peak	99.7 96.7 101.7 dB
Under Range Limit	36.8 34.8 42.8 dB
Noise Floor	24.4 24.8 32.1 dB

Results	
LAeq	55.2 dB
LAE	84.8 dB
EA	33.239 $\mu\text{Pa}^2\text{h}$
EA8	1.062 mPa^2h
EA40	5.308 mPa^2h
LZpeak (max)	2017-05-25 09:29:37 100.4 dB
LASmax	2017-05-25 09:29:37 77.1 dB
LASmin	2017-05-25 09:31:17 40.2 dB
SEA	-99.9 dB
LAS > 85.0 dB (Exceedance Counts / Duration)	0 0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0 0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0 0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0 0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0 0.0 s

LCeq	63.3 dB
LAeq	55.2 dB
LCeq - LAeq	8.1 dB
LAeq	59.0 dB
LAeq	55.2 dB
LAeq - LAeq	3.8 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	40.2	40.2 dB

Statistics

LAS5.00	60.3 dB
LAS10.00	54.4 dB
LAS33.30	47.7 dB
LAS50.00	46.1 dB
LAS66.60	45.1 dB
LAS90.00	43.3 dB

Calibration History

Summary				
File Name	LxT_Data.049			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	Oak Creek Apartments			
Job Description	Stanford GUP			
Note				
Measurement Description				
Start	2017-05-10 09:01:03			
Stop	2017-05-11 10:06:02			
Duration	25:04:58.797			
Run Time	25:04:57.797			
Pause	00:00:01.0			
Pre Calibration	2017-05-10 08:24:51			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.4 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	60.6 dB			
LAE	110.2 dB			
EA	11.551 mPa²h			
EA8	3.684 mPa²h			
EA40	18.421 mPa²h			
LZpeak (max)	2017-05-10 09:01:20	128.4 dB		
LASmax	2017-05-10 14:23:45	96.4 dB		
LASmin	2017-05-11 04:04:16	39.1 dB		
SEA	141.5 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	9	28.5 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	68.4 dB
LAeq	60.6 dB
LCeq - LAeq	7.8 dB
LAleq	66.1 dB
LAeq	60.6 dB
LAleq - LAeq	5.5 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	0.02	0.10 %
Projected Dose	0.01	0.03 %
TWA (Projected)	20.0	32.2 dB
TWA (t)	28.3	40.5 dB
Lep (t)	65.6	65.6 dB

Statistics

LAS5.00	64.5 dB
LAS10.00	63.3 dB
LAS33.30	59.1 dB
LAS50.00	55.4 dB
LAS66.60	51.6 dB
LAS90.00	44.2 dB

Record #	Record Type	Date	Time	LAEq	LZpeak	LASmax	LASmin	Ovrld.	OBA Ovrld.	Marker
1	Run	2017-05-10	9:01:03							
2		2017-05-10	9:01:03	49.8	81.0	51.2	50.4	No	No	
3	Pause	2017-05-10	9:01:04							
4	Resume	2017-05-10	9:01:05							
5		2017-05-10	9:01:05	50.7	80.0	50.8	50.7	No	No	
6	Pause	2017-05-10	9:01:05							
7	Resume	2017-05-10	9:01:05							
8		2017-05-10	9:01:05	64.6	128.4	93.7	46.3	No	No	
9		2017-05-10	10:01:05	60.2	97.4	76.6	46.6	No	No	
10		2017-05-10	11:01:05	62.7	102.4	73.5	46.3	No	No	
11		2017-05-10	12:01:05	59.9	95.7	77.0	46.3	No	No	
12		2017-05-10	13:01:05	65.0	102.1	89.7	44.3	No	No	
13		2017-05-10	14:01:05	65.6	116.8	96.4	46.9	No	No	
14		2017-05-10	15:01:05	61.5	104.9	78.9	47.6	No	No	
15		2017-05-10	16:01:05	60.5	100.4	78.0	46.5	No	No	
16		2017-05-10	17:01:05	59.7	97.4	73.7	46.3	No	No	
17		2017-05-10	18:01:05	60.2	105.4	81.0	46.7	No	No	
18		2017-05-10	19:01:05	60.2	93.6	72.9	45.7	No	No	
19		2017-05-10	20:01:05	61.2	104.6	87.8	45.1	No	No	
20		2017-05-10	21:01:05	58.4	93.0	74.8	42.8	No	No	
21		2017-05-10	22:01:05	56.4	89.3	67.3	42.2	No	No	
22		2017-05-10	23:01:05	54.6	95.7	72.2	41.5	No	No	
23		2017-05-11	0:01:05	52.9	100.4	77.4	43.0	No	No	
24		2017-05-11	1:01:05	48.6	88.1	65.0	42.4	No	No	
25		2017-05-11	2:01:05	50.7	101.0	78.5	40.6	No	No	
26		2017-05-11	3:01:05	48.2	87.2	66.7	39.6	No	No	
27		2017-05-11	4:01:05	53.0	94.5	67.9	39.1	No	No	
28		2017-05-11	5:01:05	57.8	94.6	67.7	41.4	No	No	
29		2017-05-11	6:01:05	59.5	96.6	73.4	43.5	No	No	
30		2017-05-11	7:01:05	61.0	95.0	73.7	45.7	No	No	
31		2017-05-11	8:01:05	61.7	101.2	80.5	44.6	No	No	
32		2017-05-11	9:01:05	62.5	98.2	85.8	44.2	No	No	
33		2017-05-11	10:01:05	67.1	115.5	84.1	46.8	No	No	
34	Stop	2017-05-11	10:06:02							

Summary				
File Name	LxT_Data.057			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	2389 Ramona Street			
Job Description	Stanford GUP			
Note	At setback from Oregon Expressway			
Measurement Description				
Start	2017-05-25 15:50:40			
Stop	2017-05-25 16:05:42			
Duration	00:15:01.7			
Run Time	00:15:01.7			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	61.7 dB			
LAE	91.3 dB			
EA	149.902 µPa²h			
EA8	4.788 mPa²h			
EA40	23.939 mPa²h			
LZpeak (max)	2017-05-25 16:02:09	107.3 dB		
LASmax	2017-05-25 15:59:32	75.9 dB		
LASmin	2017-05-25 15:54:24	51.3 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	74.2 dB
LAeq	61.7 dB
LCeq - LAeq	12.5 dB
LAleq	62.8 dB
LAeq	61.7 dB
LAleq - LAeq	1.0 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	46.7	46.7 dB

Statistics

LAS5.00	65.2 dB
LAS10.00	64.2 dB
LAS33.30	62.3 dB
LAS50.00	60.5 dB
LAS66.60	58.2 dB
LAS90.00	54.9 dB

Calibration History

Summary				
File Name	LxT_Data.056			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	675 Sharon Park Drive			
Job Description	Stanford GUP			
Note	At rear of apartment building looking onto Sand Hill Road			
Measurement Description				
Start	2017-05-25 14:52:56			
Stop	2017-05-25 15:07:57			
Duration	00:15:01.1			
Run Time	00:15:01.1			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	54.9 dB			
LAE	84.4 dB			
EA	30.686 µPa²h			
EA8	980.739 µPa²h			
EA40	4.904 mPa²h			
LZpeak (max)	2017-05-25 14:55:52	104.8 dB		
LASmax	2017-05-25 14:52:56	62.6 dB		
LASmin	2017-05-25 15:07:05	46.8 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	66.1 dB
LAeq	54.9 dB
LCeq - LAeq	11.2 dB
LAleq	56.7 dB
LAeq	54.9 dB
LAleq - LAeq	1.8 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	39.8	39.8 dB

Statistics

LAS5.00	58.3 dB
LAS10.00	57.5 dB
LAS33.30	55.6 dB
LAS50.00	54.3 dB
LAS66.60	52.5 dB
LAS90.00	49.9 dB

Summary				
File Name	LxT_Data.055			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	3 Sneckner Court			
Job Description	Stanford GUP			
Note				
Measurement Description				
Start	2017-05-25 14:11:47			
Stop	2017-05-25 14:26:53			
Duration	00:15:05.8			
Run Time	00:15:05.8			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	58.1 dB			
LAE	87.6 dB			
EA	64.537 µPa²h			
EA8	2.052 mPa²h			
EA40	10.260 mPa²h			
LZpeak (max)	2017-05-25 14:12:13	112.4 dB		
LASmax	2017-05-25 14:23:31	67.9 dB		
LASmin	2017-05-25 14:14:15	50.7 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	70.3 dB
LAeq	58.1 dB
LCeq - LAeq	12.2 dB
LAleq	59.2 dB
LAeq	58.1 dB
LAleq - LAeq	1.1 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	43.0	43.0 dB

Statistics

LAS5.00	60.7 dB
LAS10.00	59.9 dB
LAS33.30	58.4 dB
LAS50.00	57.6 dB
LAS66.60	56.8 dB
LAS90.00	55.1 dB

Southgate.txt

METROSONICS db-308 SN 2677 V2.3 3/87

CURRENT DATE: 5/15/17
CURRENT TIME: 8:56:25

CALIBRATED: 5/11/17 @ 8:18:37

DISPLAY RANGE: 43.3dB TO 139.3dB

DOUBLING RATE: 3 dB

FILTER: A WGT

RESPONSE: SLOW

SCHEDULED RUN: OFF

START DATE: 5/11/17
START TIME: 10:00:00
LENGTH: 25:00:00

** OVERALL REPORT **

TEST STARTING DATE: 5/11/17
TEST STARTING TIME: 10:00:19
TEST LENGTH: 1DAYS 1:00:00

Lav = 69.3dB
Lav 80= 60.1dB
Lav 90= 58.1dB
SEL =118.6dB

Lmax = 99.1dB ON 5/11/17 @ 17:26:54
Lpk = 126dB ON 5/11/17 @ 11:40:10

TIME OVER 115dB 0D 0:00:00.00

DOSE CRITERION: 90dB

8 HR DOSE (80dB CUTOFF)= 0.30%
8 HR DOSE (90dB CUTOFF)= 0.19%

** TIME HISTORY REPORT **

MODE: CONTINUOUS
PERIOD LENGTH: 1:00:00
TIME HISTORY CUTOFF: NONE
Ln(1): 10.0% Ln(2): 50.0%

INT#	START	Lav	Lmax	Lpk
TAG#	TIME	ET	L1	L2

Southgate.txt

1	5/11/17	72.8	97.8	<118	*		+
0	10:00:19	1:00:00	74	67			
2	5/11/17	70.9	95.2	126	*		+
0	11:00:19	1:00:00	74	68			
3	5/11/17	70.4	82.0	<118	*	+	
0	12:00:19	1:00:00	74	68			
4	5/11/17	70.1	84.6	<118	*		+
0	13:00:19	1:00:00	73	67			
5	5/11/17	69.7	81.5	<118	*	+	
0	14:00:19	1:00:00	73	67			
6	5/11/17	70.5	81.7	<118	*	+	
0	15:00:19	1:00:00	74	68			
7	5/11/17	70.9	85.6	<118	*		+
0	16:00:19	1:00:00	74	68			
8	5/11/17	72.4	99.1	<118	*		+
0	17:00:19	1:00:00	74	69			
9	5/11/17	71.2	89.8	<118	*		+
0	18:00:19	1:00:00	74	68			
10	5/11/17	70.1	89.1	<118	*		+
0	19:00:19	1:00:00	74	66			
11	5/11/17	68.2	81.6	<118	*		+
0	20:00:19	1:00:00	72	64			
12	5/11/17	66.5	80.7	<118	*		+
0	21:00:19	1:00:00	71	61			
13	5/11/17	64.4	79.7	<118	*		+
0	22:00:19	1:00:00	68	58			
14	5/11/17	61.8	77.9	<118	*		+
0	23:00:19	1:00:00	65	56			
15	5/12/17	59.7	74.9	<118	*	+	
0	0:00:19	1:00:00	63	51			
INT#	START	Lav	Lmax	Lpk			
TAG#	TIME	ET	L1	L2			
16	5/12/17	58.3	80.5	<118	*		+
0	1:00:19	1:00:00	60	48			
17	5/12/17	59.9	82.0	<118	*		+
0	2:00:19	1:00:00	60	46			
18	5/12/17	57.4	78.2	<118	*		+
0	3:00:19	1:00:00	58	45			
19	5/12/17	60.0	79.7	<118	*		+
0	4:00:19	1:00:00	62	48			

Southgate.txt

20	5/12/17	65.8	90.4	<118	*		+
0	5:00:19	1:00:00	69	55			
21	5/12/17	68.6	90.0	<118	*		+
0	6:00:19	1:00:00	73	61			
22	5/12/17	70.7	82.5	<118	*	+	
0	7:00:19	1:00:00	75	67			
23	5/12/17	72.1	84.7	<118	*		+
0	8:00:19	1:00:00	75	70			
24	5/12/17	70.7	85.2	<118	*		+
0	9:00:19	1:00:00	74	68			
25	5/12/17	71.7	97.6	<118	*		+
0	10:00:19	PARTIAL	74	67			

** AMPLITUDE DISTRIBUTION REPORT **

TOTAL SAMPLES = 720000

dB	SAMPLES	% OF TOTAL
43	13109 **	1.82
44	22615 ***	3.14
45	17424 **	2.42
46	14638 **	2.03
47	13759 **	1.91
48	11854 **	1.64
49	13281 **	1.84
50	12460 **	1.73
51	12532 **	1.74
52	13585 **	1.88
53	14011 **	1.94
54	15651 **	2.17
55	17454 **	2.42
56	19374 ***	2.69
57	23736 ***	3.29
58	24546 ***	3.40
59	26728 ****	3.71
60	23445 ***	3.25
61	24177 ***	3.35
62	23573 ***	3.27
63	24112 ***	3.34
64	22749 ***	3.15
65	23269 ***	3.23
66	23155 ***	3.21
67	22852 ***	3.17
68	25857 ****	3.59
69	27752 ****	3.85
70	28467 ****	3.95
71	33347 *****	4.63
72	34362 *****	4.77
73	32737 *****	4.54
74	30791 ****	4.27
75	16600 **	2.30
76	8872 *	1.23
77	3553 +	.49
78	1513 +	.21
79	736 +	.10

Southgate.txt

80	439 .	.06
81	257 .	.03
82	101 .	.01
83	82 .	.01
84	97 .	.01
85	58	.00
86	44	.00
87	39	.00
88	39	.00
89	32	.00
90	15	.00
91	9	.00
92	14	.00
93	16	.00
94	16	.00

dB	SAMPLES	% OF TOTAL
95	22	.00
96	21	.00
97	16	.00
98	4	.00
99	3	.00

Ln(0.0) = 99dB
 Ln(10.0) = 73dB
 Ln(50.0) = 63dB
 Ln(99.9) = 43dB

	NO CUTOFF	80.0dB CUTOFF	90.0dB CUTOFF
Ldod	67.5dB	49.4dB	45.1dB
Losha	66.6dB	46.5dB	44.5dB
Leq(6)	65.9dB	44.8dB	43.6dB

Summary				
File Name	LxT_Data.051			
Serial Number	0004338			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Sanchez			
Location	1076 Vernier Place			
Job Description	Stanford GUP			
Note				
Measurement Description				
Start	2017-05-25 09:54:42			
Stop	2017-05-25 10:09:44			
Duration	00:15:01.6			
Run Time	00:15:01.6			
Pause	00:00:00.0			
Pre Calibration	2017-05-25 09:19:50			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Slow			
Preamp	PRMLxT2B			
Microphone Correction	Off			
Integration Method	Linear			
Overload	143.3 dB			
	A	C	Z	
Under Range Peak	99.7	96.7	101.7	dB
Under Range Limit	36.8	34.8	42.8	dB
Noise Floor	24.4	24.8	32.1	dB
Results				
LAeq	49.8 dB			
LAE	79.4 dB			
EA	9.650 µPa²h			
EA8	308.251 µPa²h			
EA40	1.541 mPa²h			
LZpeak (max)	2017-05-25 10:08:57	104.1 dB		
LASmax	2017-05-25 09:54:42	60.1 dB		
LASmin	2017-05-25 09:58:45	43.3 dB		
SEA	-99.9 dB			
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s		
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s		

LCeq	61.1 dB
LAeq	49.8 dB
LCeq - LAeq	11.3 dB
LAleq	51.3 dB
LAeq	49.8 dB
LAleq - LAeq	1.5 dB
# Overloads	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	34.8	34.8 dB

Statistics

LAS5.00	53.0 dB
LAS10.00	52.1 dB
LAS33.30	50.3 dB
LAS50.00	49.3 dB
LAS66.60	48.4 dB
LAS90.00	46.0 dB

Calibration History

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamp	PRMLxT2B		
Microphone Correction	Off		
Integration Method	Linear		
Overload	143.3 dB		
	A	C	Z
Under Range Peak	99.7	96.7	101.7 dB
Under Range Limit	36.8	34.8	42.8 dB
Noise Floor	24.4	24.8	32.1 dB

Results			
LAeq			61.3 dB
LAE			90.8 dB
EA			133.107 µPa²h
EA8			4.360 mPa²h
EA40			21.801 mPa²h
LZpeak (max)	2017-05-25 11:39:18		103.3 dB
LASmax	2017-05-25 11:19:35		77.6 dB
LASmin	2017-05-25 11:33:40		47.5 dB
SEA			-99.9 dB
LAS > 85.0 dB (Exceedance Counts / Duration)		0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)		0	0.0 s
LZpeak > 135.0 dB (Exceedance Counts / Duration)		0	0.0 s
LZpeak > 137.0 dB (Exceedance Counts / Duration)		0	0.0 s
LZpeak > 140.0 dB (Exceedance Counts / Duration)		0	0.0 s
LCeq			71.3 dB
LAeq			61.3 dB
LCeq - LAeq			9.9 dB
LAleq			63.7 dB
LAeq			61.3 dB
LAleq - LAeq			2.3 dB
# Overloads			0
Overload Duration			0.0 s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	46.2	46.2 dB

Statistics

LAS5.00	65.6 dB
LAS10.00	62.3 dB
LAS33.30	58.8 dB
LAS50.00	57.0 dB
LAS66.60	55.1 dB
LAS90.00	50.9 dB

APPENDIX PKG

Stanford 2018 General Use Permit: Parking On- and Off-Campus



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415.896.5900 phone
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www.esassoc.com

memorandum

date July 31, 2017

to David Rader, Senior Planner
Santa Clara County Department of Planning and Development

from Brian Boxer, Paul Mitchell, Jack Hutchison - ESA

subject **ESA Peer Review of Stanford Parking Memorandum**

In support of its 2018 General Use Permit, Stanford prepared and submitted a memorandum titled *2018 General Use Permit: Parking On- and Off-Campus* in April 2017.

At the request of the County, ESA conducted an independent peer review of this parking memorandum to verify the technical accuracy of the information, and identify any apparent deficiencies, errors and omissions affecting the completeness, methodologies, findings and adequacies of the report. The ultimate goal of the peer review is to help ensure that the information contained in the report met accepted professional standards for use in the EIR.

As part of the peer review, ESA advised County staff of any revisions or additions to the parking memorandum that were necessary. ESA prepared and submitted a technical peer review memorandum to the County documenting its comments. In turn, Stanford prepared a response memorandum indicating how ESA peer review comments were responded to; and updated the report accordingly. The parking memorandum was revised by Stanford in May 2017. In general, revisions to the parking memorandum made in response to peer review comments and Stanford staff-initiated changes include, but are not limited to:

- Parking capacity of parking structure and lot were added
- Parking inventory changes added due to replacement of surface lots.
- Utilization rate of the largest lots and structures added
- Miscellaneous minor numerical and editorial adjustments.

These peer review and response memoranda are part of the administrative record for the EIR. Based on the peer review conducted; ESA concludes that the parking memorandum as revised is appropriate for use as reference in the EIR.

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TITLE: 2018 General Use Permit: Parking On- and Off-Campus

Introduction

Parking is an important campus resource. The University strives to provide enough parking to serve the demand generated by faculty, staff, students and a wide range of visitor types, while actively encouraging its employees, residents, and visitors to travel via means other than driving alone. This is achieved both through provision of physical parking spaces, and also pricing of those parking spaces.

When the County Board of Supervisors approved the 2000 General Use Permit, it authorized construction of up to 2,300 net new parking spaces on the campus- which roughly equated to the number of parking spaces needed to meet the projected increase in campus demand. Stanford has not exhausted the 2000 General Use Permit parking authorization. Even though faculty and staff populations grew under the 2000 General Use Permit, permit purchase rates per square foot of academic and academic support space declined and then leveled off. This likely was due to Stanford's successful transportation demand management programs, which encourage commuters to take transit and other alternative modes to work. Purchases of parking permits by campus residents- in particular graduate student residents- also declined on a per bed basis. This likely was due to a shift in values away from car ownership, as well as the programs Stanford provides to enable students to travel when needed without having a car on campus.

Because Stanford has not used all of the parking authorized by the 2000 General Use Permit and because Stanford intends to continue to meet the Stanford Community Plan's goal of no net commute trips, Stanford proposes to live within the remainder of the 2000 General Use Permit allocation-- with no increase to that allocation under the 2018 General Use Permit. This will require further reductions in the parking permit purchase rates by campus commuters and student residents.

Stanford proposes some modest changes in the way that parking spaces are counted under the use permit. Since approval of the 2000 General Use Permit, Stanford has installed approximately 40 electric charging stations in campus lots (with 2 ports for 80 parking spaces). Campus residents and commuters using the charging stations must move their cars away from the station as soon as active charging is complete. This means there must be another long-term parking space available. Stanford does not seek to change the way that such long-term spaces are counted. However, Stanford does request that the County exempt from the count the short-term electric charging station spaces; this would avoid counting parking for the same commuter or resident twice.

Stanford proposes that spaces used for transportation demand management purposes also not be counted. For example, Stanford provides spaces for zip cars and rental cars. These cars are available so that commuters can take public transit, vanpools, or bike or walk to campus rather than drive. For example, if a commuter needs to attend a mid-day off-campus meeting or appointment, they can take the train to work and have access to short-term vehicular use. These cars also enable students living on campus to refrain from bringing a car. They can rent a car for occasional trips home or to visit locales that are not served by transit.

Stanford proposes that the spaces used by the police or fire departments should not be counted as those spaces cannot be used by residents or commuters. And Stanford proposes that the current General Use Permit exemption for parking to serve faculty/staff housing in the Campus Residential -- Medium Density and Campus Residential -- Low Density zones be extended to parking to serve high-density faculty/staff housing on the Academic Campus. (When the 2000 General Use Permit was approved, Stanford only contemplated building new faculty/staff housing on the medium- and low-density sites.)

Finally, Stanford proposes that the 2018 General Use Permit include a 2,000-space parking reserve. 2,000 spaces equates to the amount of additional parking beyond the 2000 General Use Permit authorization that would be needed if parking demand were to continue at its current rates-- based on parking spaces per academic square foot and spaces per student bed. Stanford would not be allowed to construct any of the parking in the reserve unless it obtains Planning Commission approval under one of three circumstances:

- Stanford is achieving the No Net New Commute Trips goal;
- The proposed additional parking spaces serve a purpose that is not likely to result in a substantial increase in peak hour commute trips (such as visitor and/or residential demand); or
- Unforeseen circumstances occur due to changes in background conditions such as prolonged or permanent disruption of transit service that requires provision of additional parking.

This paper outlines the existing on-campus parking conditions and programs, the basis for the proposed 2018 General Use Permit request, and the off-campus parking control mechanisms that are in place to minimize neighborhood parking by campus users, local high school students, visitors to downtown businesses and others.

On-Campus Parking

Parking on the Stanford campus is a carefully managed resource. The University strives to provide enough parking to serve the demand generated by faculty, staff, students and a wide range of visitor types, while actively encouraging its employees, residents, and visitors to travel via means other than driving alone. Stanford's Parking and Transportation Services (P&TS) administers both the parking program and other major

transportation programs. Its key parking responsibilities include the sale of permits, management of parking inventory, and promotion of alternative modes of travel.

Parking Lot Locations

Parking is distributed throughout the Stanford campus with the exception of the pedestrian campus core. The campus includes six parking structures and several dozen surface lots. The capacity of the garages and lots with over 500 parking spaces are presented in **Table 1**. Paid visitor parking is provided in most of the larger lots and structures. All but two parking structures (Via Ortega and the Roble Field) are located directly off Campus Drive or outside the Campus Drive loop.

Table 1: Stanford Community Plan Land Use Designations

Parking Lot Name	Total Spaces	Fall 2015 Utilization
Parking Structure 5, Stock Farm	1,509	88%
Parking Structure 10, Roble Field (opened February 2017)	1,160	N/A
Parking Structure 6, Wilbur	1,192	85%
Parking Structure 1, Roth Way	1,077	97%
Parking Structure 7, Knight Management Center	858	100%
Parking Structure 2, Via Ortega	735	98%
Searsville Lot	611	87%
Dudley & Angell Lot	551	79%

While there have been new parking structures constructed under the 2000 General Use Permit, they have largely replaced other parking facilities on campus. The University has been replacing surface parking in the campus core with structures outside the campus core, with the goal of removing vehicles from the pedestrian areas of campus, and maximizing opportunities for infill development. For example, in Academic Year 2014/15, 395 parking spaces in lots along Santa Teresa were removed for construction projects. These spaces were replaced in the Roble Field Garage that opened in 2017.

Parking Inventory by Permit Type

Parking spaces on the Stanford Campus are classified into six permit types:

- “A” commuter permits (and carpool permits) which typically provide the most convenient access to buildings on campus
- “C” and “Z” commuter permits (and carpool permits) are located farther away from the center of campus. “C” Permits are issued to University affiliated commuters, while Z permits are issued to Hospital affiliated commuters.
- “MC” commuter permits are provided specifically for motorcycle commuters
- “Res” Residential permits (residential permits correspond to residential areas EA, ES, SH, SJ, SO, and WE)
- Visitor spaces (pay-by-space, as well as “E” event permits)

Several variations occur within these six permit types. For example, some “A” and “C” zones are specifically reserved for carpools or service vehicles. A, C, and MC permits are also color-coded and stamped based on whether they are issued to a University or Hospital employee. Residential permits are subdivided into six permit types by location on campus (EA, ES, SH, SJ, SO, and WE permits). Some visitor lots allow all-day parking, while others are limited by time.

Parking Occupancy

Based on data from the P&TS parking inventory for Fall 2015, approximately 86 percent of University spaces are occupied on a typical day (i.e., Monday and Thursday) when the University is in session, which indicates that there is enough supply to minimize spillover parking in the areas surrounding the campus (see Table 1 for utilization rates of the largest parking structures and lots).¹ The University’s parking condition is not static; a wide array of visitors associated with meetings, special events, performances, cultural attractions, and athletic events causes parking occupancy to fluctuate by day, time, and location.

University-affiliated parking occupancy tends to be fairly consistent (at 86 percent) from Monday through Thursday of a typical week, with lower occupancy rates on Fridays, at approximately 82 percent. Parking occupancy tends to be highest near the core of the academic campus (>90 percent occupied) and lowest near the campus periphery (<75 percent occupied) for both commuter and residential lots. The Campus Center and East Campus districts provide the largest numbers of parking spaces, but show slightly lower occupancy overall due to a high proportion of residential and visitor spaces.

¹ The utilization counts were completed over a two-week period in Fall 2015.

Occupancy and Permit Sales over Time

The total number of active campus commuter and residential permits has declined from a high of nearly 21,000 permits sold in 2004-2005 to fewer than 18,000 sold in 2015-2016. During this time frame, enrollment in the Commute Club has steadily increased, more than doubling since 2004-2005. These two trends reflect Stanford's development of a robust program of transportation demand management measures to contain traffic growth in response to the Stanford Community Plan's No Net New Commute Trips goal. Most notably, permit sales have declined, even as the square footage of the campus has increased under the 2000 General Use Permit.

Campus Visitors and Event Attendees

Based on data from October 2015 through January 2016, Stanford saw an average of around 2,300 daily visitor transactions for pay-by-space parking at the 1,871 spaces designated for visitor use. During campus holidays, these numbers were much lower. These transactions do not include parking at reserved spaces, paid directly to mechanical parking meters, or from individuals using scratch-off event permits (i.e., E Scratchers). The University hosts around 900,000 visitors and event attendees annually. Visitors come to campus for a wide range of purposes, including cultural events (museums, Bing Concert Hall, etc.), athletic events, alumni center visits, walking tours of the University, conferences/symposiums, and extended work or study commitments by non-Stanford affiliates. The 900,000 visitor estimation is based largely on event attendance statistics, and so will include some overlap with Stanford affiliates. It also includes individuals arriving at campus by all modes of transportation; not all of these visitors require parking at the University.

Parking Permit and Fee Structures

All parking on the Stanford Campus is paid parking during weekday business hours. Residential permits are enforced 24 hours a day, seven days a week, while commuter permits are enforced from 6:00 AM to 4:00 PM on weekdays. Most visitor areas are enforced from 8:00 AM to 4:00 PM on weekdays. The exception is the Oval, which is enforced from 8:00 AM to 6:00 PM weekdays. Non-residential permit and visitor spaces on weekends, and outside the above-cited time periods on weekdays, are unrestricted.

Parking Permit Pricing

Parking permit prices vary by permit type and duration. Commuter and residential permits are available on a daily, monthly, 10 month (academic year) or 12 month basis. Daily visitor permits are available, while some special events or conferences offer monthly permits. Daily commuter and residential permits are not available to the general public, and are limited to five per person per month (or eight per person per month for Commute Club members).

Pricing varies based on permit type. 'A' permits are the most expensive given they typically provide the most convenient access, while 'C,' 'Z,' and residential permits are less expensive. A permits range from \$11.75 for

daily permits to \$1,032 for the annual permit. The C and Z permits are \$4.75 for a daily permit or \$375 for the annual permit. Residential permits are priced at the same level as the 'C' permit.

Enforcement

Parking citations are issued in University visitor, commuter and residential lots and Stanford residential areas by the Stanford Department of Public Safety, a division of the Santa Clara County Sheriff's department. Parking tickets range from \$45 for a permit violation to \$348 for illegally parking in an ADA space.

Stanford covers the cost for enforcement in university parking areas, while all parking ticket revenue is collected and retained by Santa Clara County.

2000 General Use Permit Environmental Impact Report

When Santa Clara County issued the 2000 General Use Permit, there were approximately 19,350 parking spaces on campus. The 2000 General Use Permit Environmental Impact Report (EIR) found that buildout of the 2000 General Use Permit would have a less than significant impact on parking or access to parking. The EIR noted that not providing sufficient parking could result in Stanford commuters parking in surrounding neighborhoods. The EIR also noted that allowing no more than the then-current parking ratio on campus would reduce the degree to which added parking would encourage automobile trips and referenced the Transportation Demand Management program.

The EIR analysis used the following ratios to develop the parking demand under build out of the 2000 General Use Permit:

- Academic parking ratio was 1 space per 1,560 square feet
- Undergraduate and graduate student housing parking ratio was 0.75 per unit
- Postdoc and resident parking was 1.0 space per unit
- Faculty/staff housing parking would be accommodated in the unit, and would be exempt.

The analysis then applied a deduction for the graduate student population that would move onto campus due to new housing that would be provided under the 2000 General Use Permit and also reduced parking supply requirements for an anticipated performing arts center.² To balance parking supply and demand, without generating a surplus that would undermine future trip reduction efforts, the EIR concluded that future parking spaces should be limited to 2,267 total spaces (including student residential parking). (Final EIR Vol. 1, page 4.4-83).

² The current method for calculating parking demand differs somewhat from the method used in the 2000 General Use Permit EIR; the per square foot and per bed ratios should not be compared directly to one another.

Conditions under the 2000 General Use Permit

Construction of Net New Parking Spaces and Parking Distribution

The 2000 General Use Permit allows construction of 2,300³ net new parking spaces above the then-current campus base of 19,351 spaces for a total of 21,651 spaces. Condition H.1 states that parking constructed as part of, and to serve, new faculty/staff housing in the areas designated Campus Residential – Low Density and Campus Residential – Medium Density do not count toward these limits (see **Figure 1**).

The 2000 General Use Permit established maximum net additional parking spaces per Development District, subject to modification with an environmental assessment.

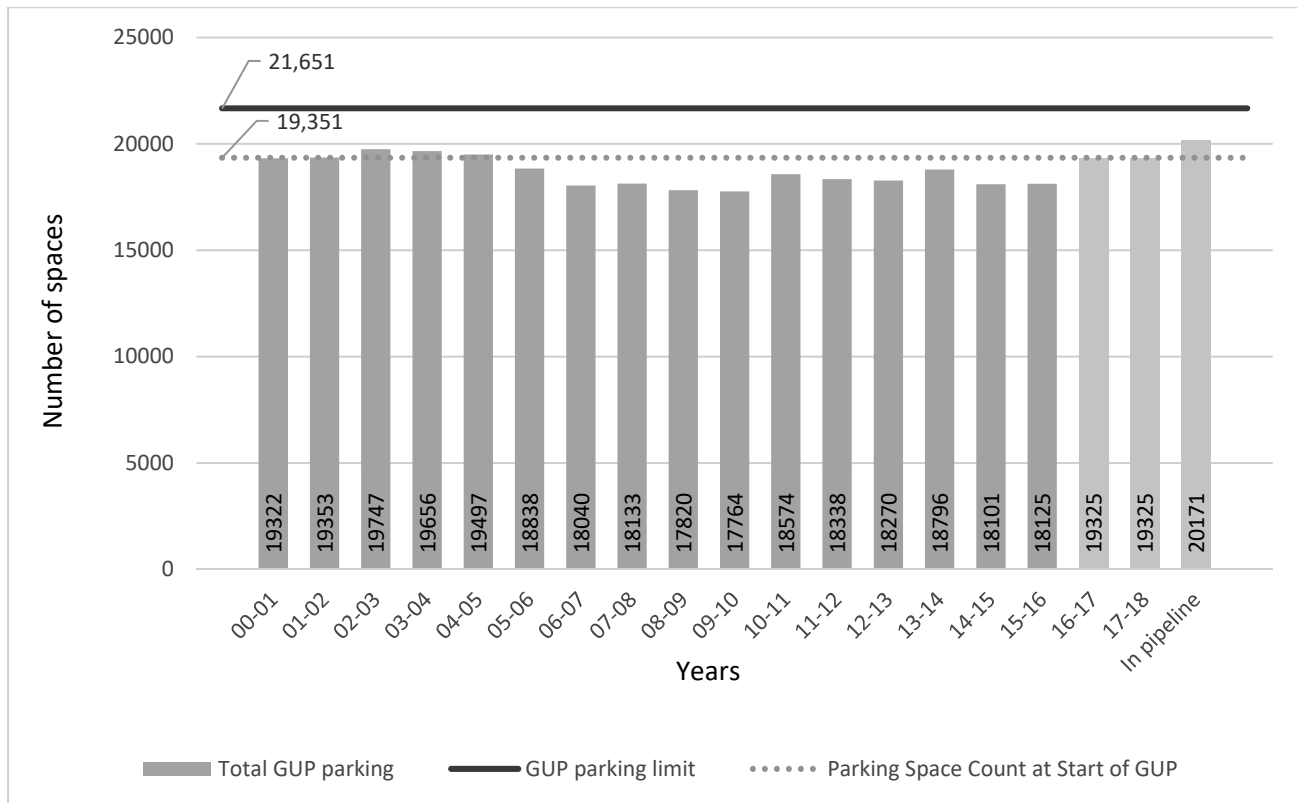
As of August 2016, the total supply of parking outside the Campus Residential zoning districts was 18,125 spaces, mostly due to a net decrease in spaces resulting from removal of surface lots and construction of parking structures. Projects in the pipeline through Fall 2018 are expected to bring this total to 19,325 spaces, which is 2,326 spaces under the parking authorization established by the 2000 General Use Permit (see Figure 1). With the parking constructed in association with the Escondido Village Graduate Residences and other development under the 2000 General Use Permit, this total is expected to increase to 20,171, leaving 1,480 spaces remaining under the 2000 General Use Permit authorization.

Parking Demand

Stanford's residential and commuter parking demand has been decreasing on a per student bed and per academic square foot basis due to implementation of Stanford's successful alternative transportation/Transportation Demand Management programs and nationwide trends of reduced vehicle ownership by the student population.

³ The 2,267 spaces identified in the 2000 General Use Permit EIR was rounded to 2,300 spaces in the Conditions of Approval.

Figure 1: 2000 General Use Permit Parking Supply and Limit



Millennial Travel Preferences

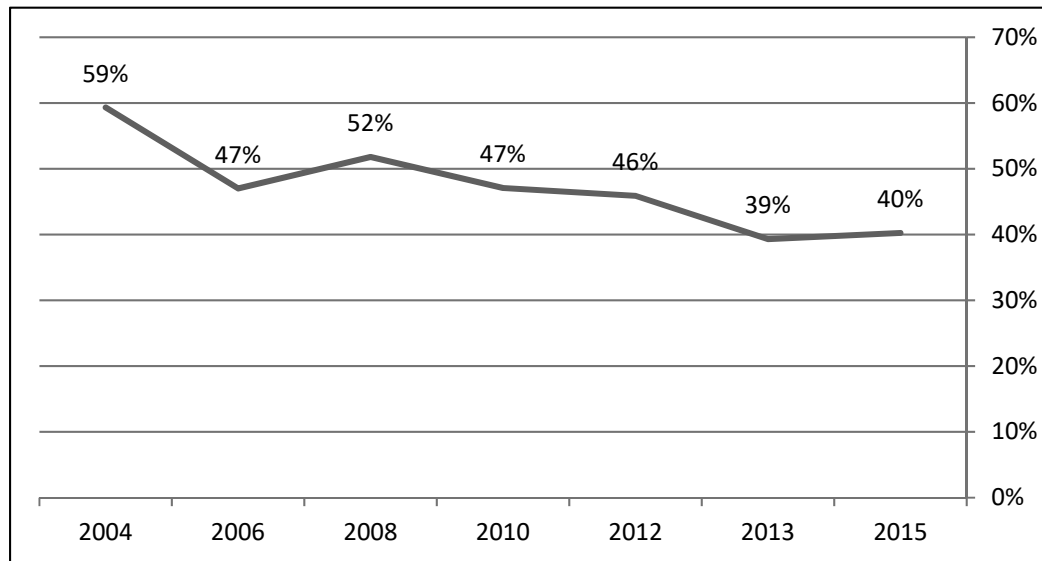
The “millennial” generation is a demographic cohort whose birth years range from the 1980s to the early 2000s. The majority of graduate students matriculating at Stanford for the next 10 years will likely be millennials.

Multiple researchers and media outlets have studied millennials and transportation, focusing on the fact that “automobility” has been declining for millennials and the previous generation, dating back to the 1990s. Noreen C. McDonald, associate professor in the Department of City and Regional Planning at the University of North Carolina at Chapel Hill, addresses this trend in a 2015 paper titled, “Are Millennials really the ‘Go-Nowhere’ generation?” published in the *Journal of the American Planning Association*. Using data from National Household Travel Surveys, McDonald finds that “automobility declines for all Americans between 1995 and 2009, but the drops are largest for Millennials and younger members of Generation X starting in the late 1990s. Moreover, among young adults, lifestyle-related demographic shifts, including decreased employment, explain 10 to 25 percent of the decrease in driving; millennial-specific factors such as changing attitudes and use of virtual mobility (online shopping, social media) explain 35 to 50 percent of the drop in driving; and the general dampening of travel demand that occurred across all age groups accounts for the remaining 40 percent.”

Stanford Graduate Student Mode Shift

National trends in mode and mobility shifts are even more pronounced in Stanford's graduate student population. From 2004 to 2015, commuting graduate students have reduced their drive-alone mode share from approximately 60% to approximately 40% (see **Figure 2**).

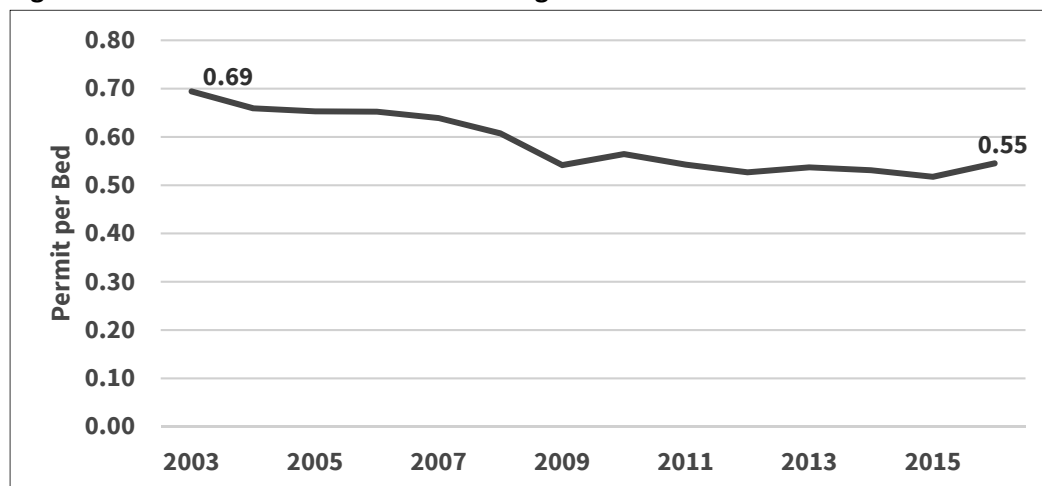
Figure 2: Stanford Graduate Student Drive-Alone Rate



Stanford Residential Parking Permit Trends

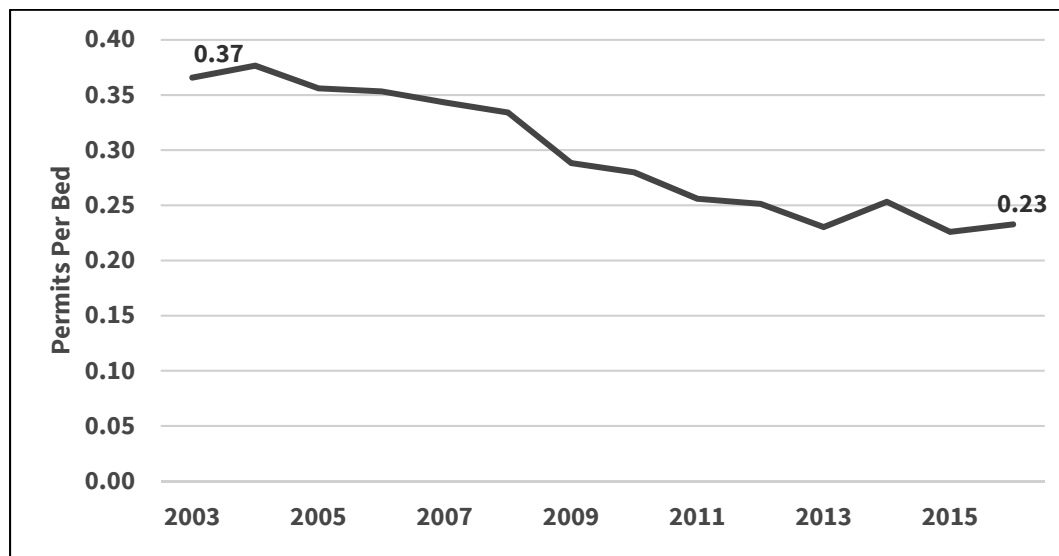
This trend away from personal automobile reliance is also apparent in parking permit sales for Stanford's graduate student residents. Between 2004 and 2015, the total graduate student residential parking permits-to-beds ratio has fallen from 0.69 to 0.55 (see **Figure 3**).

Figure 3: Stanford Graduate Student Parking Permits-to-Beds Ratio



Undergraduate student parking permit sales also declined at a similar rate at Stanford. Between 2003 and 2015, the undergraduate student residential parking permits-to-beds ratio has fallen from 0.37 to 0.23 (see **Figure 4**).

Figure 4: Stanford Undergraduate Parking Permits-to-Beds Ratio

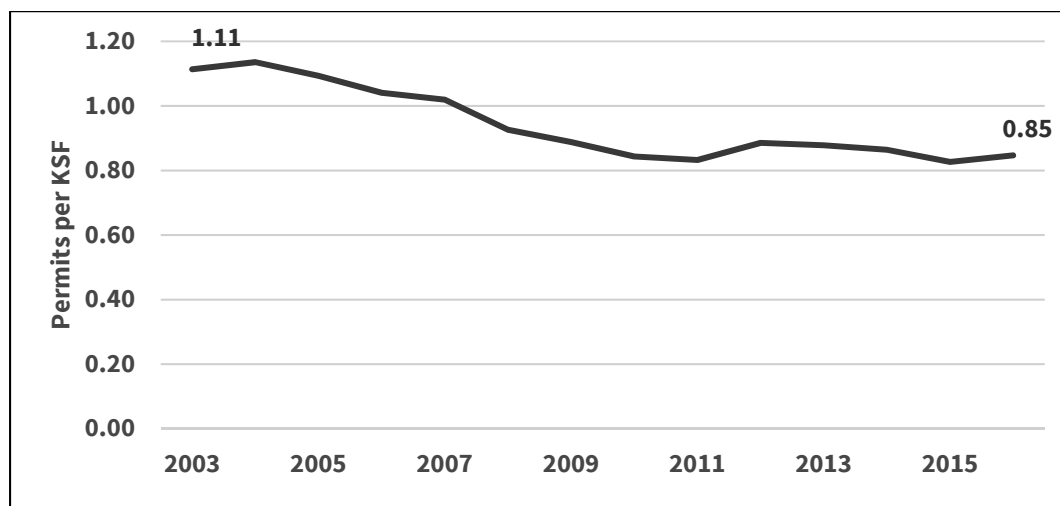


Stanford Commuter Parking Permit Trends

Unlike student permits, commuter permits are not dominated by the millennial generation. Yet Stanford has seen the number of commuter parking permits purchased decline on a per square foot basis, from a rate of 1.11 permits per thousand square feet of academic and academic support facilities in 2003 to a rate of 0.85 permits per thousand square feet in 2015.⁴ This decline is likely due to Stanford's successful Transportation Demand Management program, which is designed to reduce the rate of single-occupant vehicle trips and achieve a goal of No Net New Commute Trips. While Stanford saw a significant drop in its commuter permit-per-square-foot rate between 2003 and 2009, this rate has been relatively flat since 2009 (see **Figure 5**).

⁴ The 0.85 is the ratio of commuter permits (8,166 permits) sold divided by the academic and academic support facilities square footage (9,462,000 square feet).

Figure 5: Stanford Commuter Parking Permits-to-Academic Square Footage Ratio



Campus Parking Authorization Request

As explained in the preceding sections, Stanford has remained well beneath its 2000 General Use Permit parking allocation for two reasons. One, car ownership by Stanford students has been trending downward. Similarly, permit purchases by faculty and staff has declined over time, although that rate of decline has flattened out. Both of these reductions are due in part to Stanford's extensive transportation demand management programs. In addition, parking permit rates associated with student housing likely have declined due to shifting preferences among the millennial generation away from automobile ownership.

Stanford proposes to accommodate future demand for parking under the 2018 General Use Permit by carrying over the remaining authorization from the 2000 General Use Permit. Consistent with the 2000 General Use Permit, the total authorized number of spaces would be 21,651 spaces. However, Stanford proposes two changes in approach.

First, Stanford requests that certain types of parking not count toward the numeric parking limit:

- To support Stanford's transportation demand management efforts, Stanford proposes that spaces used for trip-reducing programs not be counted. Current examples of spaces used for trip-reducing programs include spaces dedicated to rental cars and zip cars.
- To support reduction in greenhouse gas emissions and to recognize that electric vehicle charging stations require turnover such that other spaces are needed for the same cars when they are not

charging, Stanford proposes that Electric Vehicle (EV) charging stations not be counted.

- Stanford proposes that spaces dedicated to police or fire department use not be counted. These spaces are not associated with commute trips to and from the campus.
- Stanford proposes that parking for high-density housing to be occupied by faculty and staff not be counted. 2000 General Use Permit Condition H.1 states that “Parking constructed as part of and to serve new faculty/staff housing in the areas designated Campus Residential – Low Density and Campus Residential – Medium Density shall not count toward the limits. ...” Stanford proposes that the high-density faculty/staff housing allowed within the Academic Campus land use designation be subject to this same exemption.

Second, Stanford requests County approval for a 2,000-space parking supply reserve. This number of spaces is based on applying the current (2015) parking demand rate to the number of student housing units and amount of academic square footage proposed under the 2018 General Use Permit. Those rates result in a total demand for 3,479 net new parking spaces, including a 15% vacancy factor to allow a sufficient number of empty spaces distributed over the campus to prevent unnecessary circulation to locate an available space (see **Table 2**). Subtraction of the 1,480 spaces anticipated to remain after completion of the academic and academic support facilities and housing authorized by the 2000 General Use Permit results in a remaining forecasted demand for 1,999 spaces.

Table 2: 2018 General Use Permit Parking Demand Based on Existing Parking Rates

	Development Proposal	Existing Parking Demand Rates	Number of Spaces
Academic and Support Space	2,275,000 net new square feet	0.94 spaces per 1,000 square feet ^a	2,139
Graduate Student Housing	900 beds	0.55 spaces per bed	495
Undergraduate Student Housing	1,700 beds	0.23 spaces per bed	391
Subtotal			3,025
Plus 15% vacancy factor			454
Total Demand			3,479

^a The parking ratio is the estimated commuter and visitor demand from the utilization counts conducted in Fall 2015 (9,025 parking spaces) divided by the academic and support space in Fall 2015 (9,462,000 square feet).

Stanford does not seek initial authorization for this parking supply reserve because it seeks to discourage automobile ownership and use. Stanford intends to continue to expand its Transportation Demand Management programs to meet the No Net New Commute Trips goal, which in turn should reduce demand for

both residential and commuter parking permits. However, Stanford recognizes that it may be necessary to provide more parking than it has initially requested if car ownership by campus residents does not continue to decrease over time or if unforeseen circumstances occur.

Stanford requests that the 2018 General Use Permit allow Stanford to request Planning Commission approval to construct parking spaces in the parking supply reserve under one of three circumstances:

- Stanford is achieving the No Net New Commute Trips goal;
- The proposed additional parking spaces serve a purpose that is not likely to result in a substantial increase in peak hour commute trips (such as visitor and/or residential demand); or
- Unforeseen circumstances occur due to changes in background conditions such as prolonged or permanent disruption of transit service that requires provision of additional parking.

Off-Campus Parking and Palo Alto's Residential Parking Permit Programs

Community outreach for the 2018 General Use Permit has generated comments from nearby residents who state that Stanford affiliates may be parking off-campus to avoid the cost of parking on-campus. This section summarizes Palo Alto's current programs to restrict all day parking in the neighborhoods surrounding the campus. It also addresses the concern that Stanford affiliates parking on El Camino Real are avoiding the No Net New Commute Trip goal cordon counts. Based on the geographic extent of existing and planned off-site parking restrictions and observations about the use of parking along El Camino Real, it does not appear that a substantial number of Stanford affiliates will be able to park in nearby neighborhoods under the 2018 General Use Permit or that they will be able to avoid No Net New Commute Trip cordon counts.

Background

Under the 2000 General Use Permit, Stanford was required as a Condition of Approval to participate in residential parking permit programs in neighborhoods within the City of Palo Alto that are immediately adjacent to the campus. Condition H.2 required Stanford to allocate \$100,000 to Palo Alto for consideration and initiation of a residential parking permit program in College Terrace. If there was any remaining money, it could be used to fund a parking study in the Southgate or Evergreen Park neighborhoods. Stanford is in compliance with this condition as it paid the \$100,000 to Palo Alto, who used it for a parking permit program experiment in College Terrace in 2008-2009.

The following summarizes the City of Palo Alto's Residential Parking Permit (RPP) Programs. The location of the parking permit program areas described below are illustrated in **Figure 6**.

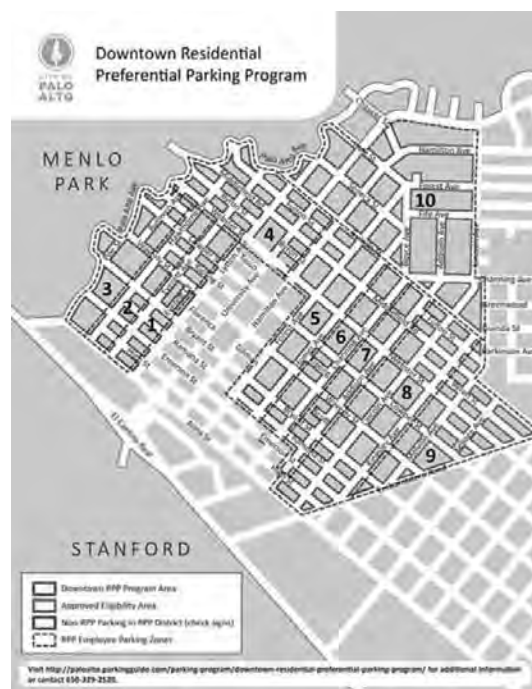
These programs were initiated in response to increasing concern that non-resident parking in general (not necessarily parking by Stanford affiliates) was affecting the quality of life in Palo Alto. In response, the City Council approved a City-wide Residential Parking Permit (RPP) ordinance to establish uniform procedures to develop RPP districts.

Generally speaking, the programs impose 2-hour daily limits for non-residents. In terms of the residential programs immediately adjacent to Stanford in Palo Alto there are two programs that are in place (Downtown and College Terrace), and two that are under consideration (Evergreen Park-Mayfield and Southgate). The Crescent Park neighborhood has an overnight parking restriction.

Downtown Palo Alto Residential Preferential Parking

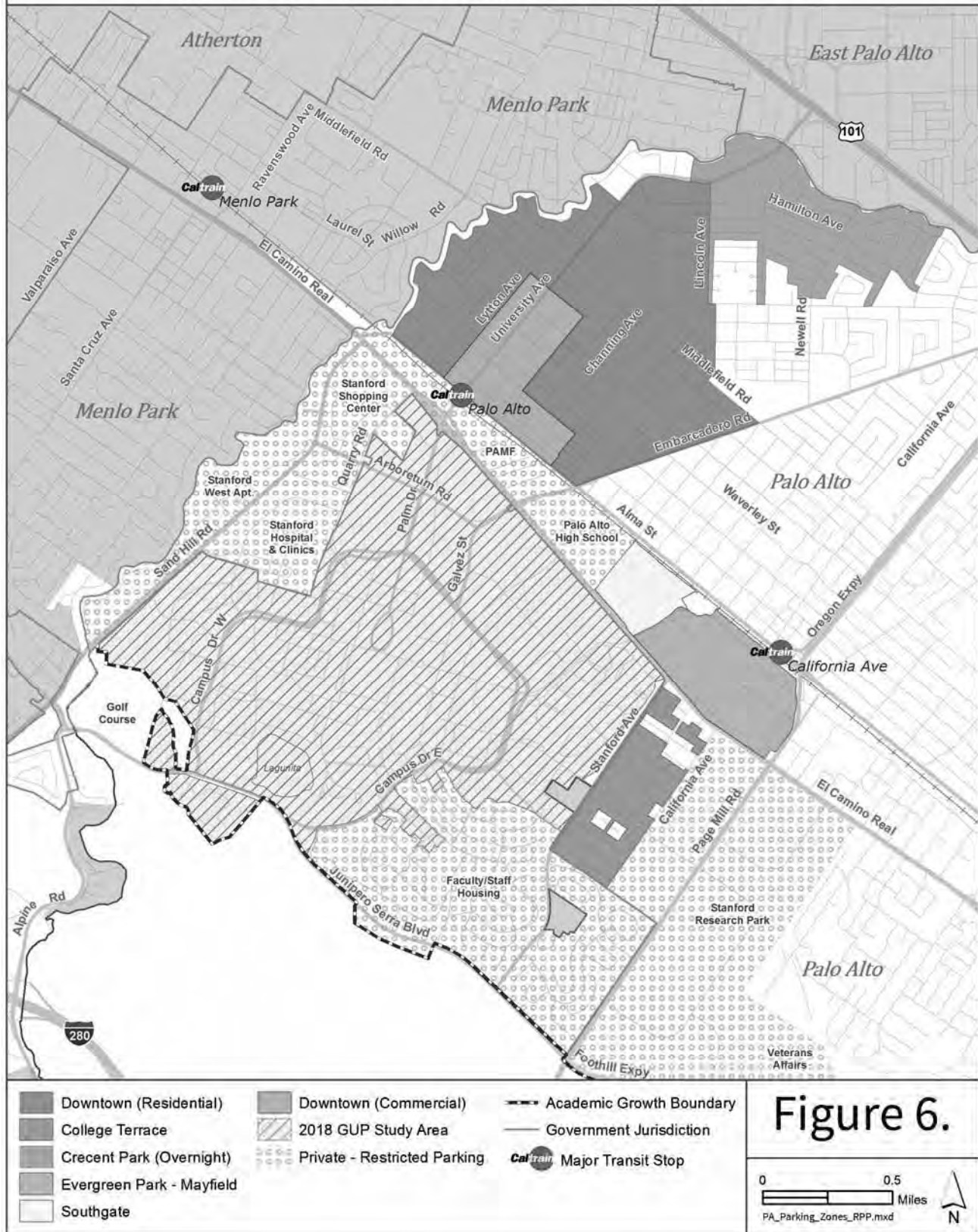
The downtown Palo Alto commercial district has 2-hour on-street parking and 3-hour lot/garage parking restrictions. These time restrictions have caused downtown employee parking to shift into the residential areas surrounding the downtown. To protect the residential neighborhoods, the City passed an ordinance to develop the Downtown Palo Alto Residential Preferential Parking (RPP) Program which requires all downtown residents to have a permit to park on the street for more than 2 hours between the hours of 8 AM and 5 PM, Monday through Friday. The downtown plan covers the area illustrated in the figure to the right.

Residents are eligible for one permit free of charge and up to three additional for \$50 each for their personal vehicles. These permits are vehicle-specific decals. Residents may also purchase up to two transferable visitor hangtags for \$50 each and up to 50 daily visitor permits for \$5 each.



Serco, Inc. has been contracted by the City to provide enforcement services for the Downtown RPP program. Serco employees wear uniforms with identification, and walk, bike, or drive throughout the Downtown RPP district.

Palo Alto Residential Parking Program (RPP) Zones



College Terrace Residential Parking Permit Program

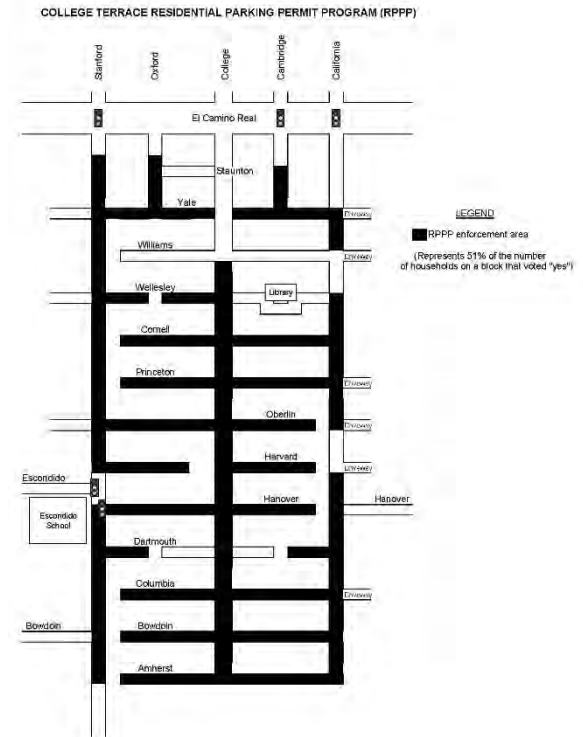
The College Terrace Residential Parking Permit (RPP) program was implemented in 2009 and includes the area generally bounded by Stanford Avenue, Yale Street, California Avenue, and Amherst Street. The RPP allows vehicles displaying a resident permit, guest permit, or day permit, to use on-street parking, Monday through Friday from 8 AM to 5 PM. The College Terrace RPP covers the majority of the streets in the College Terrace neighborhood other than a few short block on Dartmouth Street and some multifamily areas on Williams Street.

Each College Terrace resident can purchase up to two reusable guest passes at a cost of \$40 per permit. The guest permits are available only for a household that has purchased at least one resident parking permit. This allowance is to provide accessibility for resident services in the neighborhood such as lawn care, house cleaners, contractors, etc., as well as for guests of the household. Guest passes are provided per household rather than per vehicle ownership. Guest passes are designed to hang from the rear view mirror and must be clearly displayed in this fashion. The selling of guest passes is considered illegal under the adopted ordinance. If a resident loses a guest permit, he or she may request a replacement at a cost of \$40 but this is restricted to a one-time replacement per program year.

Day permits may be purchased in person at the Revenue Collections office. Day permits will be applicable for one 24-hour period. At the time of purchase, the date of purchase of each day permit will be logged in a registry at the Revenue Collections office based on the number of the day permit. A fee of \$5 will be charged for each day permit. Day passes are designed to hang from the rear view mirror and allow the user to scratch off the day of usage, which must be clearly displayed. The total number of day permits issued will be limited to 20 day passes for each quarter that the College Terrace RPP applies.

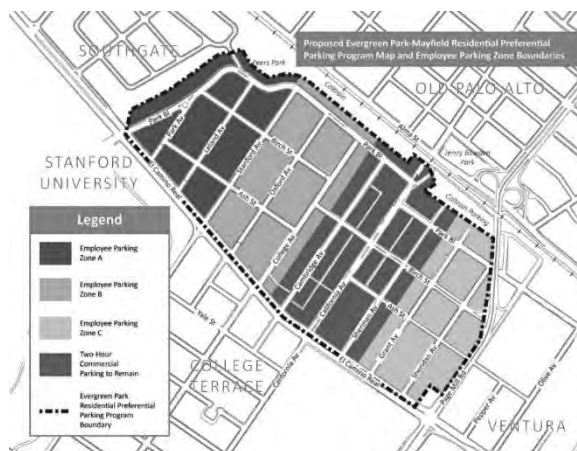
Construction and maintenance permits will be available for long-term construction activities, consistent with current practice by the City.

In addition, all vehicles not displaying a permit, may park up to 2 hours during these specified time periods. Vehicles not displaying a permit, during these specified time periods and exceeding the 2-hour maximum parking allowance are cited by the City of Palo Alto Police Department.



Evergreen Park – Mayfield RPP

The Evergreen Park- Mayfield RPP area is located adjacent to South Gate and generally bounded by Park Avenue, El Camino Real, Page Mill Road and the Caltrain railroad tracks. The RPP was initiated as a one-year pilot in April 2017, and restricts parking by persons without a permit to a 2-hour time limit between 8 AM and 5 PM. Like in the Downtown RPP, permits are available to all residents and to a limited number of employees. And like the Downtown RPP, the Evergreen Park-Mayfield RPP is only enforced on the weekdays, during working hours.



Each resident will receive their first permit for free, with remaining permits costing \$50 dollars each, with up to three permits per household. There would only be 250 parking permits for employees, with an annual of cost \$149, though low-income workers would get a discounted rate of \$50.

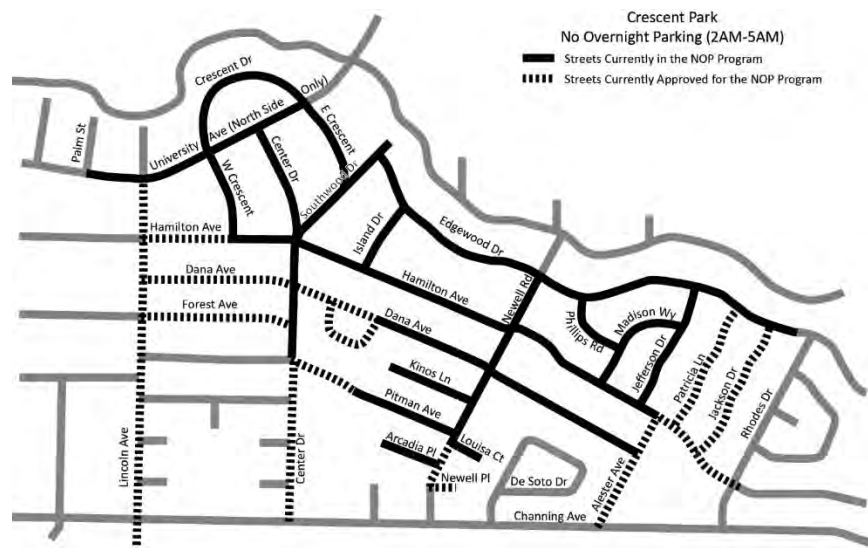
Southgate RPP

The Southgate neighborhood began its process for an RPP in July 2016 with the idea that the implementation would be in June 2017. The Southgate RPP includes the area generally bounded by Churchill Avenue, El Camino Real, Park Avenue, and the Caltrain railroad tracks. The parking concern is from spill over from Palo Alto High School. The community is considering implementing a 1-hour time restriction on school days for non-permit holders, similar to what is enforced near Gunn High School. A time period of 9 AM to 1 PM is being considered.



Crescent Park No Overnight Parking

The Crescent Park No Overnight Parking program was initiated in September 2015 as a response to resident concerns about non-Palo Alto residents parking within the neighborhood. A no-overnight restriction was implemented to eliminate parking from outside sources. The Crescent Park RPP includes the area generally bounded by San Francisquito Creek, Lincoln Avenue, Channing Avenue, and Rhodes Drive.



The Crescent Park No Overnight Parking program restricts parking by non-residents during the hours of 2 AM to 5 AM. Only residents of streets within the program boundaries are eligible to purchase permits. Residents are allowed up to two annual permits per household at a cost of \$100 each. Permits were sold at various times of the year and permits purchased after the initial 6-months of the program were sold at a prorated basis.

Stanford Affiliates Parking Off-Campus

Some community members have posited that Stanford affiliates could be parking in the community and either walking or taking a Marguerite shuttle to campus. **Figure 7** presents the parking permit areas with a 5-minute walkshed around those Marguerite shuttle stops that are served by a shuttle with 15 minutes headways or less during the morning and evening peak commute periods. As illustrated, the RRP areas cover the neighborhoods where accessing a Marguerite stop would be most likely to occur. The RRP areas are expected to prevent parking in these neighborhoods; anecdotal observations to the contrary may pre-date initiation of the RRP. Substantial amounts of Stanford-affiliate parking in neighborhoods near shuttle routes with longer commute period headways also is unlikely to occur.

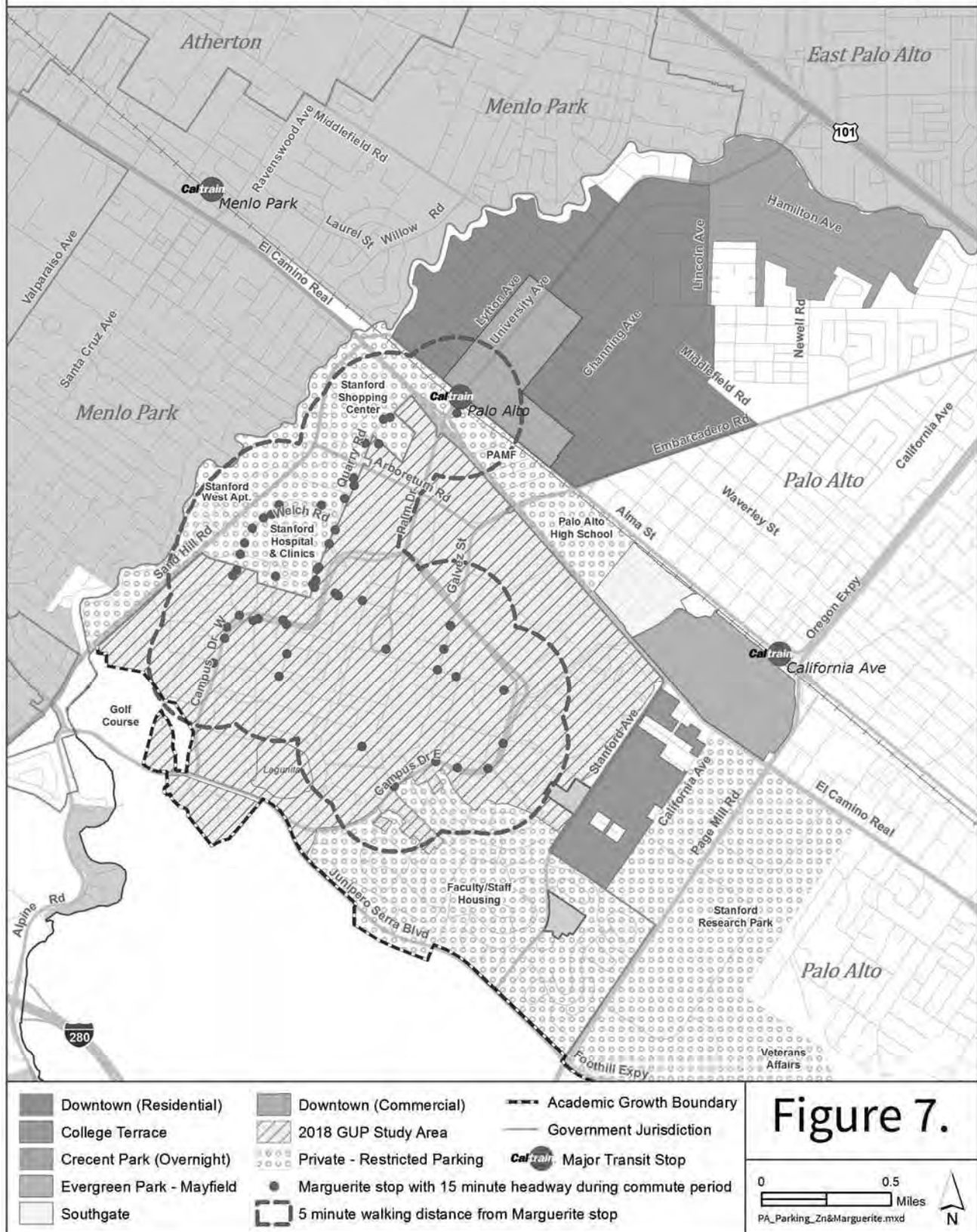
While there is no way to control the individual behavior of each of member of its community, Stanford makes a number of efforts to minimize this occurrence. When members of the Stanford community join the Commute Club, a program that pays employees to forgo parking on campus in favor of taking alternative transit options, the Stanford affiliates must sign an agreement that says that they will not park in the surrounding community. When violations occur, Stanford removes the employee from the Commute Club and works with the local jurisdiction to identify the responsible party and take action to remedy the situation. Further, when employees are reported to be parking off-site in the surrounding community, their department heads are made aware, so they can directly address the problem and curtail it.

There is not an abundance of on-street parking that is not time restricted adjacent to the campus. The exception is along El Camino Real between Encinal Avenue and Stanford Avenue. The on-street parking occupies both the Stanford and the Palo Alto side of El Camino Real, and extends south to Grant Avenue. There are approximately 150 parking spaces on the Stanford side of El Camino Real fronting the Stanford campus. These on-street spaces are essentially filled before the traditional peak hour of 8-9 AM. Thus, drivers using these spaces are not traveling during the peak hour, and therefore are not parking in this location to avoid cordon counts.

Conclusion

In sum, Stanford's proposal for the 2018 General Use Permit attempts to balance the need to accommodate demand with a desire not to over-park the campus such that it would be more difficult to achieve the No Net New Commute Trips goal. Stanford's proposal to live within the parking authorization from the 2000 General Use Permit reflects its plan to further reduce parking rates for commuters and residents. The proposed parking reserve is intended to be used only in the event Stanford is meeting the No Net New Commute Trips goal, Stanford needs to provide additional parking for purpose that is not likely to increase peak hour commute trips, or unforeseen circumstances occur due to changes in background conditions. The parking reserve is sized to match parking demand based on current per square foot and per bed rates.

Average 5 Minute Walking Distance from Marguerite Shuttle Stops



APPENDIX TBC

Stanford 2018 General Use Permit: Transit and Bicycle Capacity Analysis



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memorandum

date September 7, 2017

to David Rader, Senior Planner
Santa Clara County Department of Planning and Development

from Brian Boxer, Paul Mitchell, Shadde Rosenblum - ESA

subject **ESA Peer Review of Stanford 2018 General Use Permit Transit and Bicycle Capacity Analysis**

In support of its 2018 General Use Permit, Stanford (using Alta Planning + Design) prepared and submitted *2018 General Use Permit Transit and Bicycle Capacity Analysis* in August 2017.

At the request of the County, ESA conducted an independent peer review of this analysis to verify the technical accuracy of the information, and identify any apparent deficiencies, errors and omissions affecting the completeness, methodologies, findings and adequacies of the analysis. The ultimate goal of the peer review is to help ensure that the information contained in the report met accepted professional standards for use in the EIR.

As part of the peer review, ESA advised County staff of any revisions or additions to the report that were necessary. ESA prepared and submitted a technical peer review memorandum to the County documenting its comments. In turn, Stanford prepared a response memorandum indicating how ESA peer review comments were responded to; and updated the analysis accordingly. The Transit and Bicycle Capacity Analysis was revised by Stanford in September 2017. In general, revisions to the analysis made in response to peer review comments and Stanford staff-initiated changes include, but are not limited to:

- Provide clarification on the changes in annual growth rates reported
- Miscellaneous minor editorial adjustments made

These peer review and response memoranda are part of the administrative record for the EIR. Based on the peer review conducted; ESA concludes that this Transit and Bicycle Capacity Analysis as revised is appropriate for use as reference in the EIR.

Stanford 2018 General Use Permit Transit and Bicycle Capacity Analysis

FINAL | September 7, 2017

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

The proposed 2018 General Use Permit would authorize an increase in academic square footage and housing. In the Transportation Impact Assessment - Part 1 report, Fehr & Peers has calculated vehicular trip generation associated with the 2018 General Use Permit, conservatively assuming that Stanford continues its existing transportation demand management (TDM) programs, but does not expand those programs to achieve the “no net new commute trips” goal established by the Stanford Community Plan and 2000 General Use Permit. The Fehr & Peers methodology produced a reasonable worst case methodology for purposes of analyzing congestion-based traffic impacts and vehicle miles traveled.

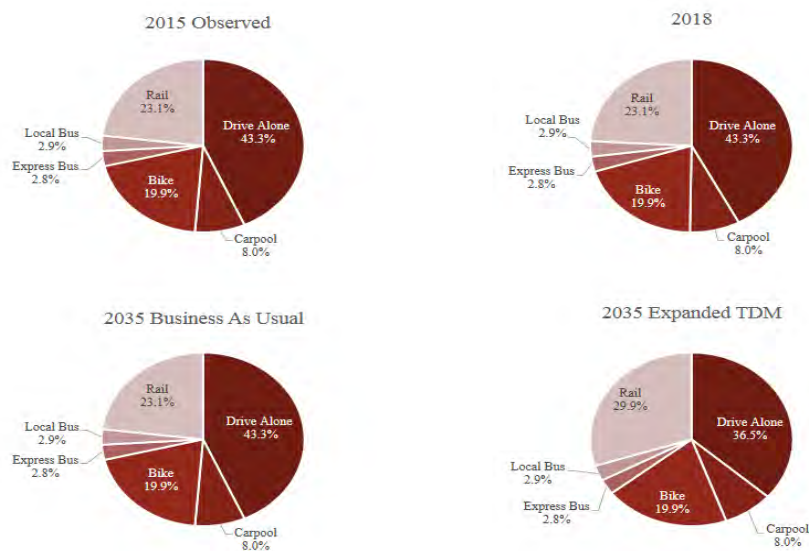
The current report identifies the increase in transit riders and bicyclists that would be expected to be generated by the Stanford campus under the 2018 General Use Permit, and evaluates the capacity of regional infrastructure and services to accommodate such increases. To be consistent with the analysis Fehr & Peers performed for the Transportation Impact Analysis, bicyclists and transit riders first are estimated using a reasonable worst case assumption that Stanford would not implement expanded TDM programs in order to achieve the no net new commute trips goal. However, this report also calculates the changes to transit riders if Stanford were to expand its TDM programs in order to meet the no net new commute trips goal.

2 New Stanford Transit Users and Bicyclists

For both transit users and bicyclists, estimated numbers were developed for Existing Conditions (2015), Background Conditions (2018) and Cumulative Conditions (2035). Two scenarios were considered for 2035: a “Business as Usual”, or reasonable worst case, scenario that assumes that existing Stanford campus TDM programs would continue but no new or enhanced programs would be implemented; and an “Expanded TDM” scenario that conservatively assumes Stanford would achieve the mode share necessary to meet the no net new commute trips goal by increasing the percentage of Stanford affiliates commuting by rail.

The number of commuters for transit and bicycle modes for each year and scenario is determined by applying commuter mode shares (percentages) as shown in **Figure 1** to estimated commuter populations, which have been projected for the three analyzed years. Chapter 3 and Chapter 4 utilize these estimates to calculate peak hour transit commuters and bicycle commuters estimates, distributing them and measuring their impact by comparing them with existing and anticipated capacity.

Figure 1. Existing and Forecasted Stanford Mode Share



Source: 2016 Stanford Commuter Survey; Arup 2017

For existing (2015) conditions, mode shares were calculated directly from the 2016 Stanford Transportation Survey,¹ and these were held constant for the Background Conditions year (2018).

For the Cumulative Conditions year (2035), Arup again maintained the 2015 mode split for the Business as Usual scenario. The 2035 Expanded TDM mode shares are adjusted to reflect a shift from drive alone commuters to rail commuters as described above.

The Expanded TDM scenario reduces the drive alone mode share from 43.2% to 36.5% between 2018 and 2035, which is the amount necessary to achieve the no net new commute trips goal given the population increases projected to occur during the 2018 General Use Permit and assuming Stanford receives no trip reduction credits for improvements that take non-Stanford campus trips off the road.² For purposes of this analysis, drive alone commuters have been shifted to the rail mode. Rail mode share is assumed to increase from 23.1% in 2015 and 2018 to 29.9% in 2035.

All other modes have been kept constant. Although Stanford may choose to provide additional bus service, this would be provided by Stanford and would not place pressure on public transit providers. Bicycle mode share may increase under an Expanded TDM scenario, but not to a degree that is likely to have a substantial adverse effect on bicycle facility capacity.

Under both the Business as Usual and Expanded TDM scenarios, the greatest impacts on transit services and bicycle infrastructure would occur in the AM and PM peak hour; therefore, these hours were considered in this analysis. Peak hours analyzed were:

- 7:00 – 8:00 AM
- 5:00 – 6:00 PM

The focus of this analysis is on commuters rather than on campus residents. The Stanford Transportation Survey, conducted by Stanford Parking & Transportation Services every year, yields robust data on transit and bicycle use by Stanford commuters. However, little information is available regarding mode choice by campus residents other than their single occupant vehicle trip generation.

¹ The 2016 Stanford Transportation Survey was conducted in fall 2015.

² This analysis conservatively assumes Stanford achieves the no net new commute trips goal by reducing its own trips to and from the campus. Under the County's adopted Stanford Community Plan policies, trip reductions also may be counted toward the no net new commute trips goal where programs and improvements funded or implemented by Stanford take non-Stanford campus trips off the road in the surrounding local impact area.

3 Transit Capacity Analysis

A transit impact analysis was completed to evaluate the ability of local and regional transit infrastructure and services to accommodate increased Stanford transit ridership anticipated to occur under the proposed 2018 General Use Permit. This analysis was completed for Existing Conditions (2015), Background Conditions (2018) and Cumulative Conditions (2035), to determine what share of peak ridership comprises Stanford University affiliates, and whether peak ridership exceeds capacity standards.

Three transit modes were separately analyzed to determine the ridership of Stanford affiliates. These three transit modes analyzed were commuter rail (Caltrain), express buses serving the campus (Dumbarton Express Line DB, Line AE-F, and AC Transit Line U), and local bus routes operated by the Santa Clara Valley Transportation Authority (VTA) and San Mateo County Transit (SamTrans) that serve the campus.

3.1 Caltrain

3.1.1 Methodology and Assumptions

To assess the future ridership growth generated by the 2018 General Use Permit and the capacity of Caltrain to accommodate that ridership, this analysis compared the anticipated Caltrain capacity with forecasted ridership growth at peak load stations and determined the share of future ridership attributable to Stanford affiliates.

The three factors considered are:

- capacity
- total load
- Stanford load

Estimates of each of these factors were generated for 2015, 2018, and 2035, under a Business as Usual scenario (no new or enhanced TDM investments) and an Expanded TDM scenario. Capacity assumptions are presented in this section, while load is presented for each scenario in 3.1.2 and 3.1.3.

It was assumed that the Caltrain modernization project, which includes electrification in 2021 and further capacity improvements thereafter, will be fully implemented by 2035³. This means that 2018 will have no capacity improvements

³ Caltrain does not anticipate any construction-related capacity reductions during peak commute periods. Caltrain plans to perform any construction work that limits service outside of the peak commute periods. Source: Caltrain Electrification Program EA/DEIR

over 2015.⁴ Electrification would convert Caltrain rolling stock from diesel locomotive-hauled trains to electric multiple unit (EMU) trainsets between the 4th and King Street Station in San Francisco and the Tamien Station in San Jose. The electrification project would involve the installation of new infrastructure, including traction power supply substations and overhead catenary. After electrification the number of peak hour trains will increase from the existing 5 trains to 6 trains. Another important improvement that will significantly expand capacity is a platform expansion and train program that will allow trains to increase from 5 cars per train to 8 cars per train.⁵ **Table 1** below shows the capacity assumptions for Caltrain. This analysis defines full train capacity as 120% of seats, allowing for some standees.

Table 1. Caltrain Capacity Assumptions

	2018	2035
Train type	Diesel Locomotive	Electrical Multiple Unit
Seats per car	130	112
Train length	5 cars	8 cars
Trains per peak hour	5	6
Seated capacity	3,250	5,370
Total capacity (120% of seats)	3,900	6,444

Note: capacity numbers are rounded

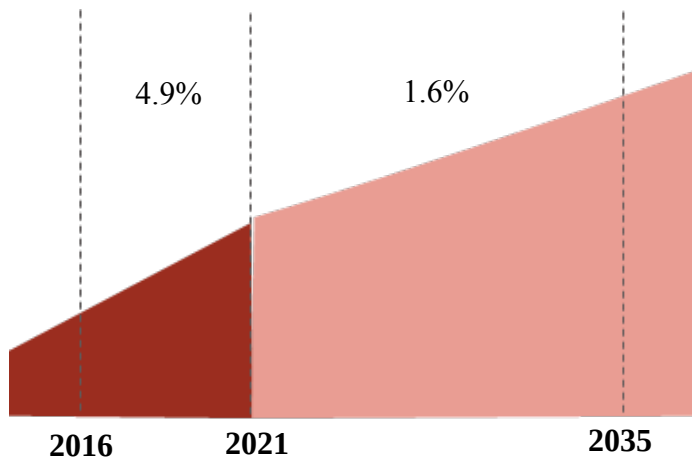
Source: Arup, Core Capacity Study, Caltrain Short Range Transit Plan: FY2015-2024

Total anticipated Caltrain ridership growth during the peak hour is based on Caltrain 2015 passenger load data along with two separate growth rates that have been applied to future years. The 2015 Caltrain ridership data includes Stanford riders. As shown in **Figure 2**, the overall annual growth in Caltrain ridership is assumed to be 4.9% from 2015-2021 based on the 20 year historical trend. From 2021-2035, the growth in ridership is assumed to be 1.6% annually based on ridership forecasts published in the Peninsula Corridor Electrification Project EIR.⁶

⁴ Although it is possible that alternative service plans could be implemented to yield an additional peak hour capacity, Caltrain currently has no plans to do so.

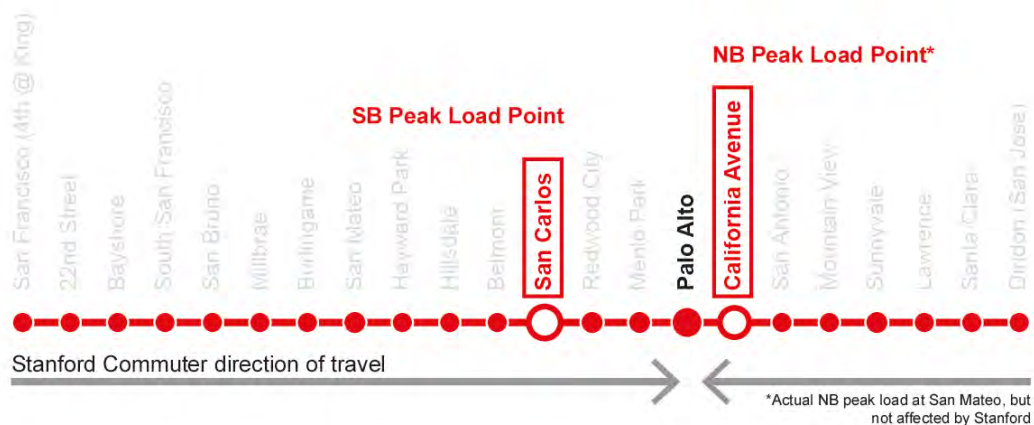
⁵ Caltrain Short Range Transit Plan: FY2015-2024

⁶ <http://www.caltrain.com/Assets/Caltrain+Modernization+Program/FEIR/App+I+Ridership.pdf>
The year 2021 was conservatively selected as the year of transition from the historical growth rate (4.9%) to the EIR-forecasted (1.6%) growth rate, with 4.9% growth assumed to continue for five years from the start of this capacity analysis.

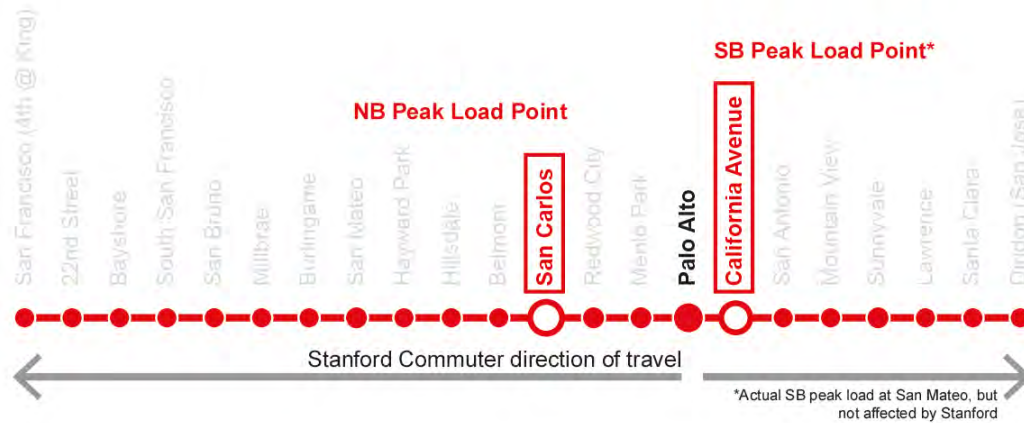
Figure 2. Caltrain Annual Growth Rate.

Source: Peninsula Corridor Electrification Project (PCEP) Final Environmental Impact Report (FEIR), January 2015.

During the AM peak of 7:00-8:00 AM, the northbound and southbound peak load Caltrain stations that Stanford commuters affect are California Avenue and San Carlos, respectively (see **Figure 3**). During the PM peak of 5:00-6:00 PM this trend reverses, with the San Carlos Station being the northbound peak load point and the California Avenue Station being the southbound peak load point (see **Figure 4**). Only passengers boarding, rather than alighting, at peak load stations during the peak hour were counted in the ridership estimate. It is also important to note that these peak load points represent the highest passenger load point that Stanford commuters affect. Both the AM and PM system wide peak load, peak direction load points are at San Mateo Station, and is not affected by Stanford commuters.

Figure 3. Caltrain Peak Load Locations During AM Peak Hour (7-8 AM)

Source: Caltrain ridership data, 2016; Arup, 2017.

Figure 4. Caltrain Peak Load Locations During PM Peak Hour (5-6PM)

Source: Caltrain ridership data, 2016; Arup, 2017.

3.1.2 Business as Usual Scenario

This section analyzes growth in Stanford rail commuters on Caltrain, assuming that no new and enhanced TDM strategies are implemented.

Table 2 shows how Stanford commuters were estimated for the AM and PM peak hours. To determine the proportion of Stanford-affiliated Caltrain riders during the peak hour, estimates of daily Stanford rail commuters were adjusted to eliminate a small proportion of rail commuters that use other services (e.g., BART, ACE) as their primary mode. It was assumed that of the Stanford affiliates that commute via Caltrain, 85% ride Caltrain every day. Based on the 2016 Commuter Survey, 40% of Stanford Caltrain commuters ride Caltrain during the AM peak hour and 36% ride Caltrain during the PM peak hour.

Table 2. Stanford Estimated Peak Hour Passenger Load – Business as Usual Scenario

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Rail Mode Share (%)	23.1%	23.1%		23.1%	
Adjustment for sick days, vacation, etc.	85%	85%		85%	
% of rail commuters on Caltrain*	96%	96%		96%	
Daily Caltrain Commuters	3,672	3,420	-252	4,240	+929
Percentage of Stanford-bound commute trips in peak hour**	40%	40%		40%	
Total AM peak hour trips - Caltrain	1,469	1,368	-101	1,696	+328
Percentage of home-bound commute trips in peak hour**	36%	36%		36%	
Total PM peak hour trips - Caltrain	1,322	1,231	-91	1,526	+295

*4% of Stanford rail commuters use ACE, BART, or another rail system as their primary mode

**From 2016 Stanford Transportation Survey

Table 3 and **Table 4** allocate Stanford commuters by their direction of travel, whether south or north of campus and thus traveling northbound or southbound in the morning or afternoon. A minority of commuters do not affect the peak load points as they are not on the train at that load point.⁷

AM peak hour Stanford Caltrain trips are projected to decrease from 1,469 in 2015 to 1,368 in 2018, a result of a temporary reduction of Stanford's commuter population.⁸ It is then projected to grow from 1,368 passenger trips in 2018 to 1,696 trips in 2035, an increase of 328. During the PM peak hour, Stanford passenger trips are projected to decrease from 1,322 in 2015 to 1,231 in 2018.

⁷ Commuters boarding Caltrain at Redwood City or Menlo Park in the AM and alighting at those same stations in the PM do not affect the peak load point at San Carlos.

⁸ The increase of graduate student housing at Escondido Village is the major contributing factor.

Stanford PM peak ridership on Caltrain would increase from 1,231 passenger trips in 2018 to 1,526 riders in 2035, an increase of 295.

Table 3. Total Stanford Commuters on Caltrain during AM Peak Hour (Academic Campus Only) – Business as Usual Scenario

	2016	2018	2035
All AM Peak Hr Stanford Commuters	1,469	1,368	1,696
Northbound at peak load point (51%)	749	698	865
Southbound at peak load point (43%)	632	588	729

Source: Source: 2016 Stanford Commuter Survey; Arup, 2017

Table 4. Total Stanford Commuters on Caltrain during PM Peak Hour (academic Campus Only) – Business as Usual Scenario

	2016	2018	2035
All PM Peak Hr Stanford Commuters	1,322	1,231	1,526
Northbound at peak load point (42%)	568	529	656
Southbound at peak load point (51%)	674	628	778

Source: 2016 Stanford Commuter Survey; Arup, 2017

Results

Figure 5 shows the excess Caltrain capacity in 2015 for the AM peak hour at California Avenue Station in the northbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 5. Caltrain AM Peak Hour Northbound Passenger Load by User Type at California Avenue Station – Business as Usual Scenario

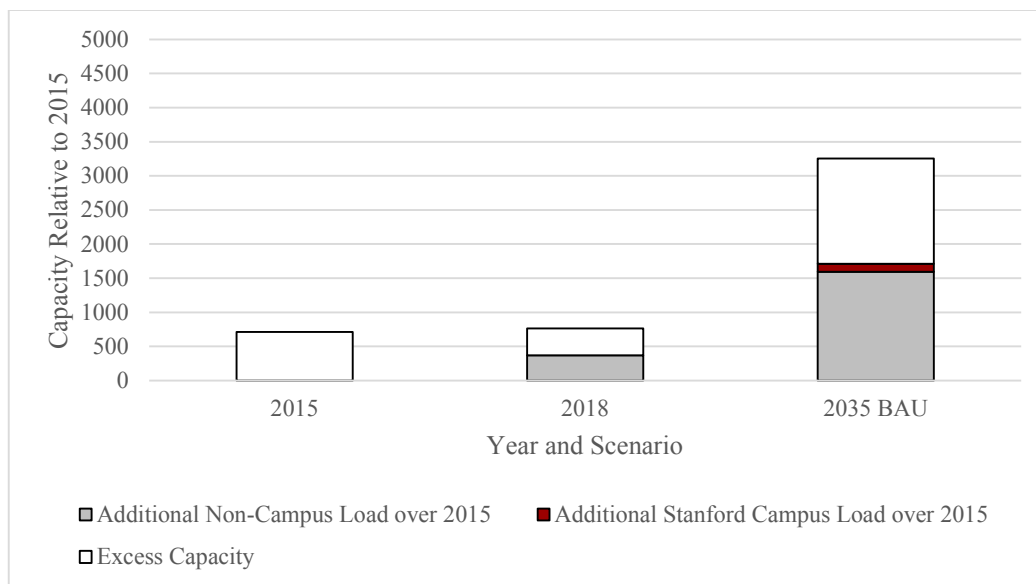


Figure 6 shows the excess Caltrain capacity in 2015 for the AM peak hour at San Carlos Station in the southbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 6. Caltrain AM Peak Hour Southbound Passenger Load by User Type at the San Carlos Station – Business as Usual Scenario

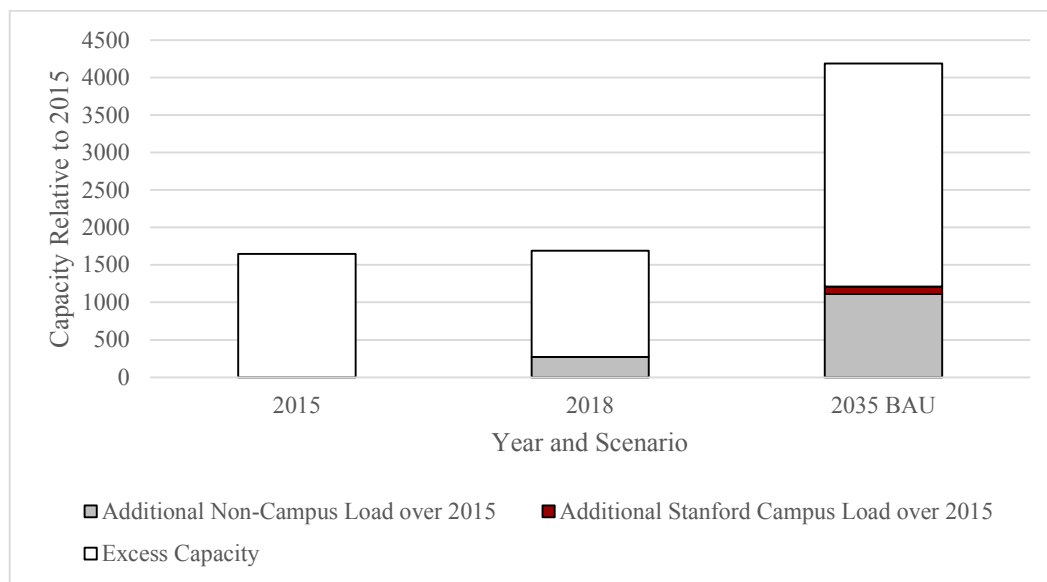


Figure 7 shows the excess Caltrain capacity in 2015 for the PM peak hour at San Carlos Station in the northbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 7. Caltrain PM Peak Hour Northbound Passenger Load by User Type at the San Carlos Station – Business as Usual Scenario

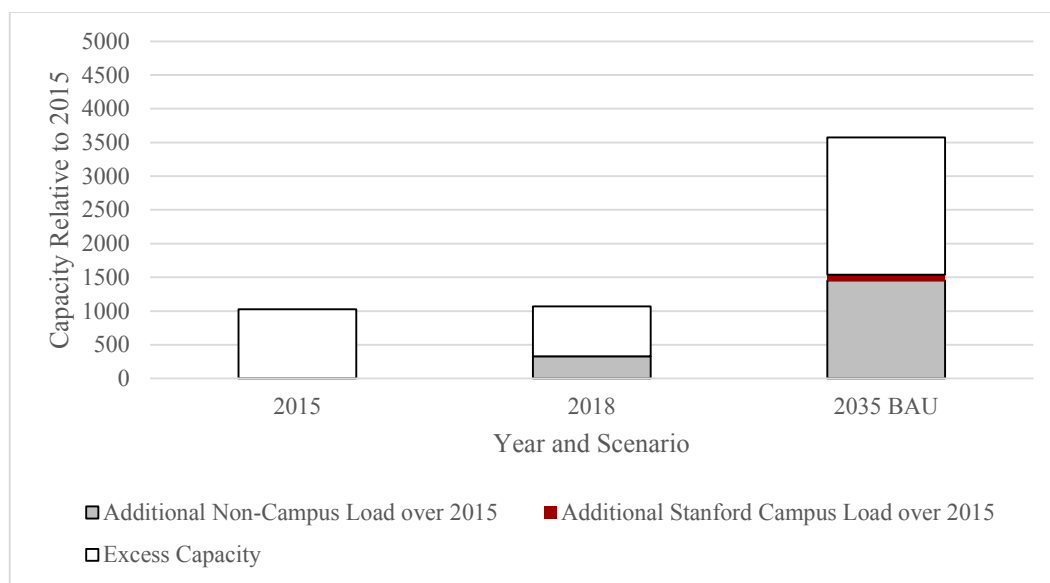
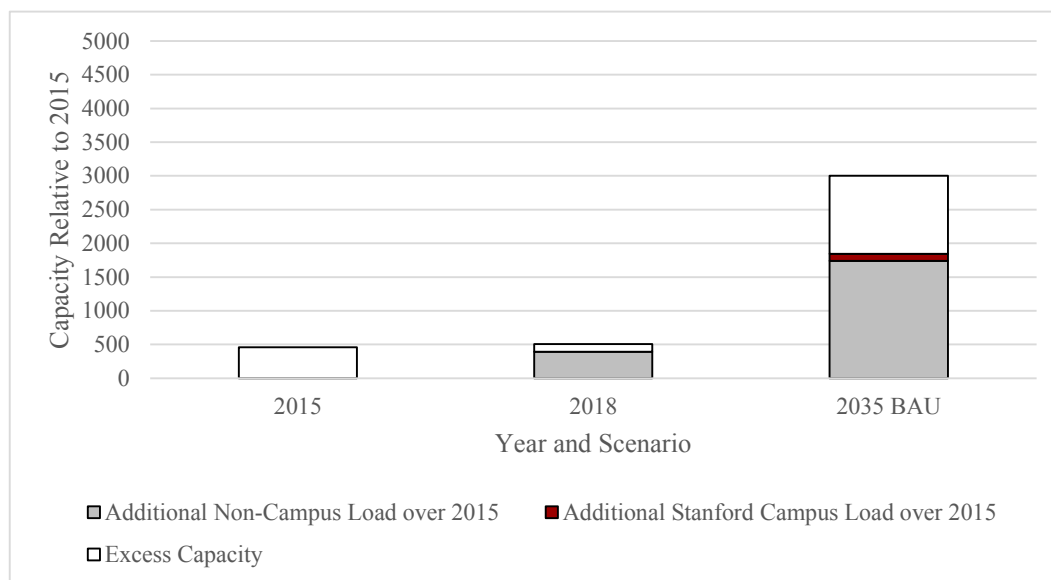


Figure 8 shows the excess Caltrain capacity in 2015 for the PM peak hour at California Avenue Station in the southbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 8. Caltrain PM Peak Hour Southbound Passenger Load by User Type at California Avenue Station – Business as Usual Scenario



3.1.3 Expanded TDM scenario

This section analyzes growth in Stanford rail commuters on Caltrain, assuming that expanded TDM strategies designed to achieve the no net new commute trips goal are implemented through 2035. As mentioned, it was conservatively assumed that such strategies shifted the necessary quantity of drive alone commuters to rail.

Table 5 shows how Stanford commuters were estimated for the AM and PM peak hours. To determine the proportion of Stanford-affiliated Caltrain riders during the peak hour, estimates of daily Stanford rail commuters were adjusted to eliminate a small proportion of rail commuters that use other services (e.g., BART, ACE) as their primary mode. It was assumed that of the Stanford affiliates that commute via Caltrain, 85% ride Caltrain every day. Based on the 2016 Commuter Survey,

40% of Stanford Caltrain commuters ride Caltrain during the AM peak hour and 36% ride Caltrain during the PM peak hour.

Table 5. Stanford Estimated Peak Hour Passenger Load (Academic Campus Only) – Expanded TDM Scenario

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Rail Mode Share (%)	23.1%	23.1%		29.9%	
Adjustment for sick days, vacation, etc.	85%	85%		85%	
% of rail commuters on Caltrain*	96%	96%		96%	
Daily Caltrain Commuters	3,672	3,420	-252	5,494	+2,074
Percentage of Stanford-bound commute trips in peak hour**	40%	40%		40%	
Total AM peak hour trips - Caltrain	1,469	1,368	-101	2,197	+829
Percentage of home-bound commute trips in peak hour**	36%	36%		36%	
Total PM peak hour trips - Caltrain	1,322	1,231	-91	1,978	+747

*4% of Stanford rail commuters use ACE, BART, or another rail system as their primary mode

**From 2015 Stanford Transportation Survey

Table 6 and **Table 7** allocate Stanford commuters by their direction of travel, either south or north of campus and thus traveling northbound or southbound in the morning or afternoon. A minority of commuters do not impact the peak load points as they are not on the train at that load point.⁹

AM peak hour Stanford Caltrain trips are projected to decrease from 1,469 in 2015 to 1,368 in 2018, a result of a temporary reduction of Stanford's commuter population.¹⁰ It is then projected to grow from 1,368 passenger trips in 2018 to 2,197 trips in 2035, an increase of 829. During the PM peak hour, Stanford

⁹ Commuters boarding Caltrain at Redwood City or Menlo Park in the AM and alighting at those same stations in the PM do not impact the peak load point at San Carlos.

¹⁰ The increase of graduate student housing at Escondido Village is the major contributing factor.

passenger trips are projected to decrease from 1,322 in 2015 to 1,231 in 2018. Stanford PM peak ridership on Caltrain would increase from 1,231 passenger trips in 2018 to 1,978 riders in 2035, an increase of 747 passengers.

Table 6. Total Stanford Commuters on Caltrain during AM Peak Hour (Academic Campus Only) – Expanded TDM Scenario

	2015	2018	2035
All AM Peak Hr Stanford Commuters	1,469	1,368	2,197
Northbound at peak load point (51%)	749	698	1,121
Southbound at peak load point (43%)	632	588	945

Source: Source: 2015 Stanford Commuter Survey; Arup, 2017

Table 7. Total Stanford Commuters on Caltrain during PM Peak Hour (Academic Campus Only) – Expanded TDM Scenario

	2015	2018	2035
All PM Peak Hr Stanford Commuters	1,322	1,231	1,978
Northbound at peak load point (43%)	568	529	816
Southbound at peak load point (51%)	674	628	968

Source: 2015 Stanford Commuter Survey; Arup, 2017

Results

Figure 9 shows the excess Caltrain capacity in 2015 for the AM peak hour at California Avenue Station in the northbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 9. Caltrain AM Peak Hour Northbound Passenger Load by User Type at California Avenue Station – Expanded TDM Scenario

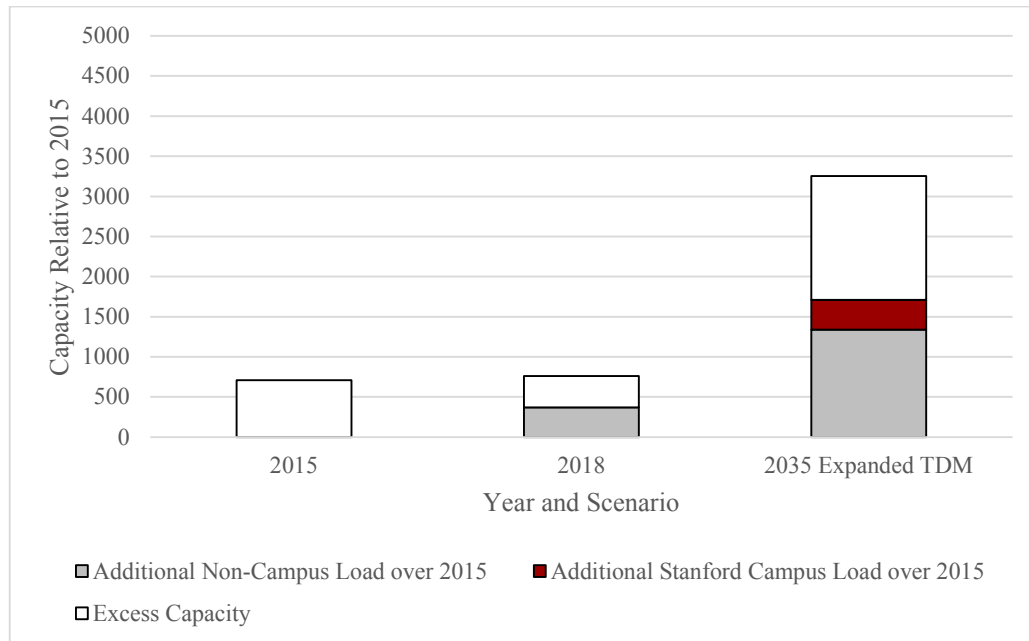


Figure 10 shows the excess Caltrain capacity in 2015 for the AM peak hour at San Carlos Station in the southbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 10. Caltrain AM Peak Hour Southbound Passenger Load by User Type at the San Carlos Station – Expanded TDM Scenario

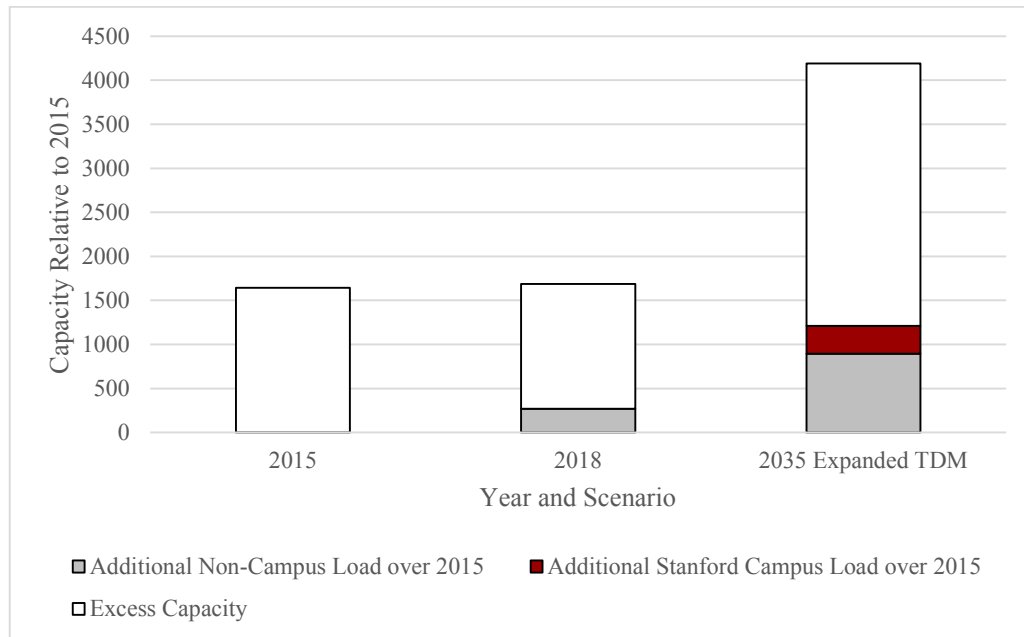


Figure 11 shows the excess Caltrain capacity in 2015 for the PM peak hour at San Carlos Station in the northbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 11. Caltrain PM Peak Hour Northbound Passenger Load by User Type at the San Carlos Station – Expanded TDM Scenario

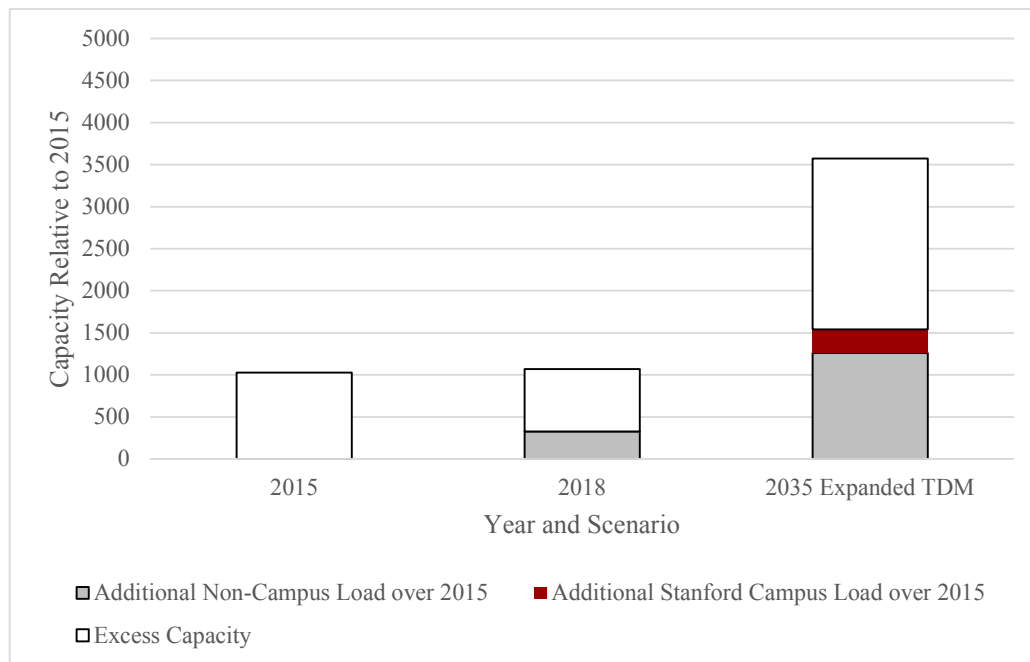
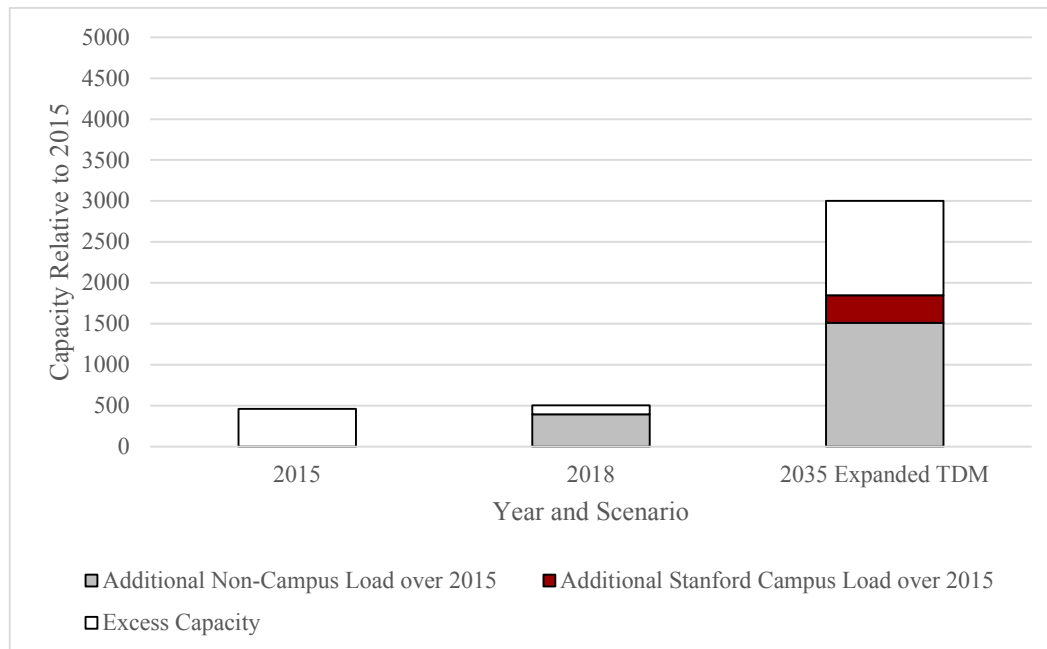


Figure 12 shows the excess Caltrain capacity in 2015 for the PM peak hour at California Avenue Station in the southbound direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands. In 2018, prior to electrification, the total passenger load would come closer to meeting the capacity, but would not exceed it. By 2035, loads of Stanford campus and non-Stanford campus passengers increase, but capacity is expected to increase as well. Therefore, peak passenger load in 2035 would not exceed the peak hour capacity.

Figure 12. Caltrain PM Peak Hour Southbound Passenger Load by User Type at California Avenue Station – Expanded TDM Scenario



Findings

Growth in overall Caltrain ridership, including Stanford ridership, will not exceed capacity at any of the peak load points analyzed, which only include those that are affected by Stanford commuters. Between 2015 and the 2018 General Use Permit base year, capacity is expected to remain unchanged, but growth in demand will not result in capacity to be exceeded at any of the peak load loading points.

During the lifetime of the 2018 General Use Permit, capacity is expected to increase significantly with electrification and other modernizations allowing for an additional peak hour train trip and, even more significantly, an expansion from five car to eight car trains. These improvements will provide enough capacity at the peak load points affected by Stanford to meet demand. This is true for both the

Business as Usual scenario (no new or enhanced TDM programs) and the Expanded TDM scenario.

3.2 Express Bus

3.2.1 Approach

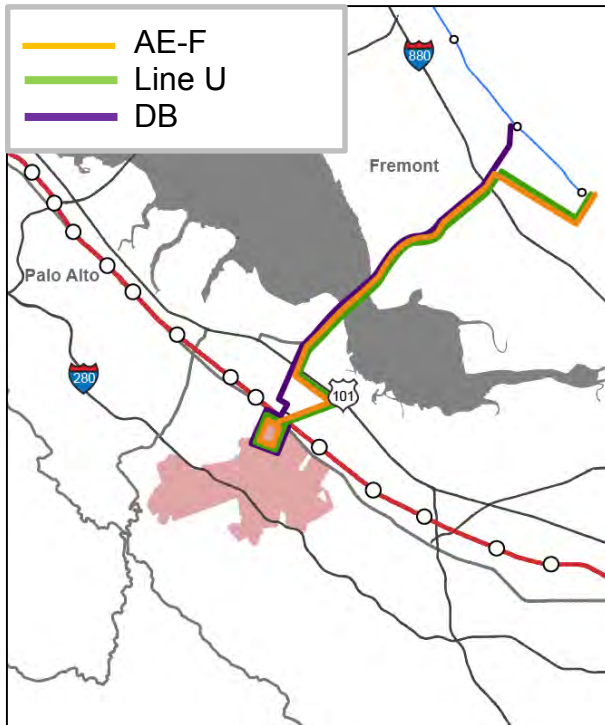
To assess the future ridership growth from the buildout of the 2018 General Use Permit and the capacity of express bus routes to accommodate that ridership, this analysis compares the anticipated capacity with forecasted ridership growth at peak load points and determines the share of future ridership (and if applicable, the share of the ridership impact) attributable to Stanford affiliates.

The three express bus transit routes considered in this analysis serve the Stanford campus are the Marguerite Line AE-F, AC Transit Line U, and Dumbarton Express Line DB which all provide service to and from the East Bay via the Dumbarton Bridge (see **Figure 13**).

- The Line AE-F operates Monday through Friday serving Stanford, the Fremont BART station, Fremont Wells Fargo park-and-ride lot, ACE/Amtrak Fremont station, Kaiser park-and-ride lot, Ardenwood park-and-ride lot, Embarcadero Road and Wildwood Avenue, and Embarcadero Road and N. California Avenue.
- Line U operates during the weekday serving the Stanford campus with stops at the Fremont BART, Fremont ACE/AMTRAK station, and Ardenwood park-and-ride lot.
- Dumbarton Express operates Line DB during the weekday serving the Stanford campus with stops in the Eastbay along the route between Union City BART and the Ardenwood park-and-ride lot. Another Dumbarton Express bus route, Line DB1, was not considered as it does not serve the Stanford academic campus.

It is possible that an Expanded TDM scenario would include extensions to Stanford's Marguerite bus routes. However, these routes would be provided by Stanford and therefore would not affect transit capacity for surrounding communities or the region as a whole.

It is also possible that by 2035 there could be additional public transit routes that serve the campus from VTA, SamTrans or another provider which could help to accommodate Stanford commuter demand. However, it is conservatively assumed that this will not occur. Therefore, the Business as Usual and Expanded TDM Scenarios are the same in terms of mode share allocated to local and express bus service.

Figure 13. East Bay Express Bus Routes Serving Stanford Campus

Source: Arup, 2017.

As with the Caltrain analysis, the three factors considered are:

- capacity
- total load
- Stanford load

Estimates of each of these factors were generated for 2015, 2018, and 2035. The analysis was combined for the Business as Usual and Expanded TDM scenarios, as it is assumed that express bus mode share will be the same in either scenario. Capacity assumptions are presented in this section, while load is presented in section 3.2.2.

Peak hour express bus capacity was determined by multiplying the number of vehicles by the seats per bus. **Table 8** shows estimated capacity for all three routes in 2015. Line AE-F currently has significantly greater capacity than the other routes as it provides an additional peak hour trip and operates with a combination of 45 foot over the road coaches and double-deck buses (an average vehicle capacity of 65 passengers). Total capacity for express bus routes is considered to be 100% of seats (i.e., no standees) per VTA standards, with the exception of line DB, which utilizes standard urban transit buses with seating plans designed for standees (120% of seated capacity is used for line DB). AC Transit plans to

employ higher capacity double-deck buses on line U,¹¹ reflected in the 2018 capacity assumptions. By 2035 additional capacity increases over 2018 levels are highly probable though exact levels are difficult to predict and not currently programmed. SamTrans' Dumbarton Transportation Corridor Study recently recommended significant enhancements to transbay bus routes, including both the introduction of new routes and increased frequency on existing routes (e.g., Dumbarton Express),¹² To be conservative, we assumed an increase of one peak hour trip for each service, or an increase from seven to ten trips overall.

Table 8. East Bay Express Bus Capacity

Bus Line	2015			2018			2035		
	Peak hr trips	Capacity per vehicle	Total Capacity	Peak hr trips	Capacity per vehicle	Total Capacity	Peak hr trips	Capacity per vehicle	Total Capacity
Line AE-F	3	65	195	3	65	195	4	65	260
Line U	2	57	114	2	81	162	3	81	243
Line DB (Dumbarton Express)	2	50	84	2	50	121	3	50	181
Total	7	172	430	7	196	478	10	196	684

3.2.2 Business as Usual and Expanded TDM Scenarios

Average daily ridership for each of the three express bus lines was obtained for 2015/2016. Factors were then applied to estimate the peak hour ridership.¹³ The nature of these services are such that the total ridership is equivalent to the total load. This analysis focuses on the lines crossing the Dumbarton Bridge. The peak load point is at the Dumbarton Bridge both in the westbound and eastbound directions, as westbound riders all board in the east bay, and eastbound riders all board at Stanford or other stops on the peninsula.

¹¹ Per Stanford P&TS, telephone conversation, 6/23/2017. The Stanford University Medical Center is required as part of its development agreement for its expansion to contribute \$250,000 to AC Transit for Line U capacity enhancements as well as operating funds to maintain a load factor of less than 1 to the Medical Center.

¹² SamTrans News, 8/3/2017, *SamTrans Looks to Improve Travel in the Dumbarton Corridor; Dumbarton Transportation Corridor Study Presentation*, SPD&S Committee Agenda Item #4, 8/2/2017

¹³ Peak hours are 7-8 AM and 5-6 PM. Peak period assumed to be 33% of daily ridership, and peak hour ridership assumed to be 50% peak period ridership.

Table 9 below shows the total estimated peak load for each time period. To estimate future passenger load, a 1.1% annual growth rate was applied. This represents the overall ridership trends for DB and Line U service between 2007 and 2016.

Table 9 Total Passenger Load

Time Period	Direction	2015	2018	Change 2015-18	2035	Change 2018-35
AM peak (8– 9)	Westbound	284	294	+10	353	+59
PM peak (5 -6)	Eastbound	284	294	+10	353	+59

As in the Caltrain analysis, Stanford passenger load is calculated by multiplying commuter populations and estimated express bus mode share. As noted in Chapter 2, the Expanded TDM scenario used for this analysis assumes that all mode shift would be to the rail mode. This, under both the Business as Usual and Expanded TDM scenarios the mode share remains unchanged in 2018 and 2035 at 2.8% of Stanford commuters.

Table 10 shows how peak hour Stanford express bus commuters were estimated for the AM and PM peak hours.

Table 10. Stanford Estimated Peak Hour Passenger Load

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Express Bus Mode Share (%)	2.8%	2.8%		2.8%	
Assumes 85% commute each day	85%	85%		85%	
Total Exp Bus Trips (Daily One-Way)	465	433	-32	537	+104
AM Peak Hour (One-Way)	144	134	-10	166	+32
PM Peak Hour (One-Way)	153	143	-10	177	+34

Results

Figure 14 shows the excess express bus capacity in 2015 for the AM peak hour and peak direction and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands.

Between 2015 and 2018, a small addition in non-Stanford passenger load is expected, and additional bus capacity is also expected to be available, resulting in sufficient capacity for both Stanford and non-Stanford passengers. Between 2018 and 2035, increases in Stanford and non-Stanford passenger load are expected. However, demand will not exceed capacity, which is also higher due to an assumption of additional service.

Figure 14. AM Westbound Peak Hour Express Bus Peak Load

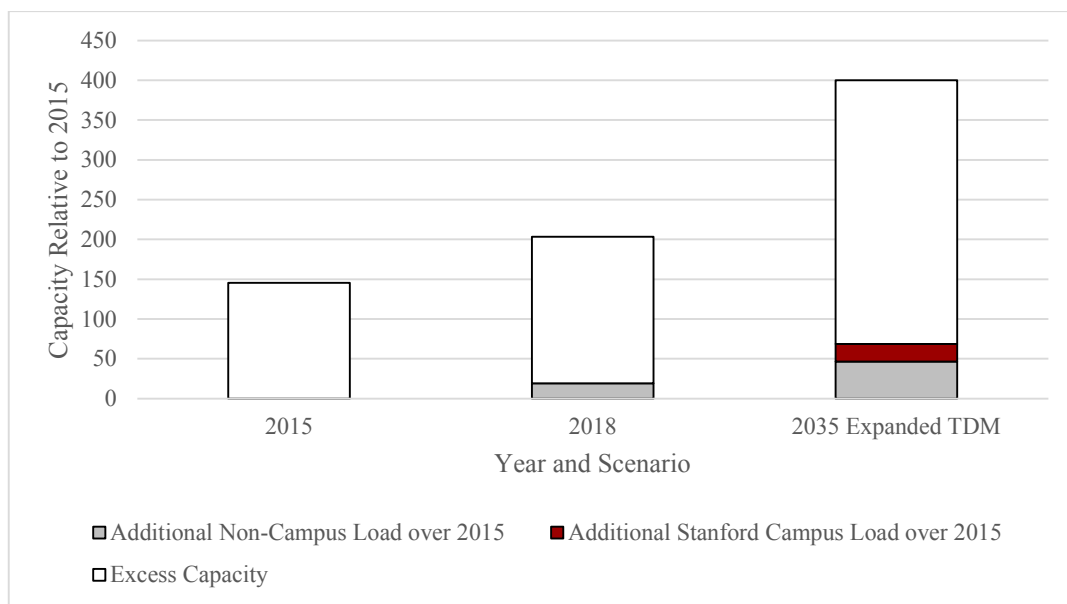
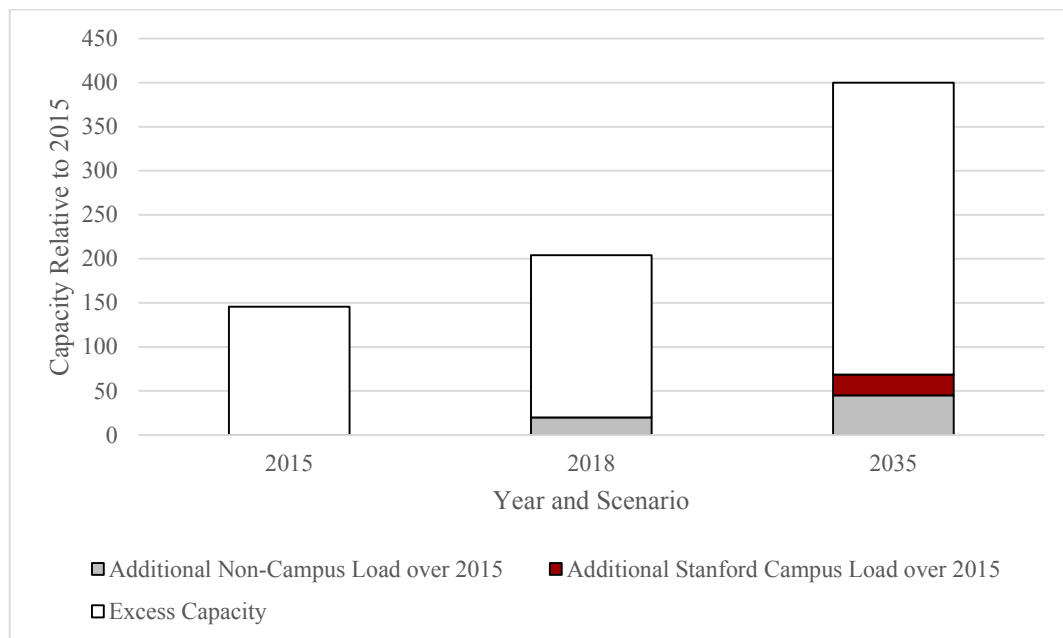


Figure 15 shows the excess express bus capacity for the PM peak hour and peak direction in 2015 and how much of that capacity is taken up in 2018 and 2035. The bars for 2018 and 2035 represent additional load in those years, with proportions of that load made up by Stanford campus and non-Stanford campus passengers shown in different color bands.

Between 2015 and 2018, a small addition in non-Stanford passenger load is expected, and additional bus capacity is also expected to be available, resulting in sufficient capacity for both Stanford and non-Stanford passengers. Between 2018 and 2035, increases in Stanford and non-Stanford passenger load are expected. However, demand will not exceed capacity, which is also higher due to an assumption of additional service.

Figure 15. PM Eastbound Peak Hour Express Bus Peak Load



3.2.3 Findings

As can be seen in **Figure 14** and **Figure 15**, existing excess express bus capacity in 2015 is sufficient to handle additional demand in 2018 and 2035 projected from modest growth trends in Stanford and non-Stanford ridership. This analysis assumes that there will be an additional peak hour bus added to each of the three east bay express services during the lifetime of the 2018 General Use Permit as well as some adjustments to vehicle capacity. These changes will add a capacity buffer should ridership grow more than anticipated.

3.3 Local Bus

There are seven VTA and SamTrans routes that serve the Stanford campus. These local buses are currently a relatively minor mode for Stanford commuters. None of these routes directly serve the campus, and commuters living close by to campus tend to drive or bike to avoid a transfer at the Palo Alto Transit Center.

We calculated the change in Stanford local bus ridership between 2015 and 2018, and between 2018 and 2035, based on Stanford population growth and an assumption of no change to local bus mode share. **Table 11** shows these projections. There is a reduction in local bus commuters from 2015 to 2018, and an increase of 38 AM peak hour passengers and 37 PM peak commuters from 2018 to 2035.

Table 11. Stanford Local Bus Commuter Projections

	2015	2018	Change 2015-18	2035	Change 2018-35
Stanford Commuters	19,475	18,139	-1,336	22,489	+4,350
Local Bus Mode Share (%)	2.9%	2.9%		2.9%	
Total Bus Trips (Daily)	561	526	-35	652	+126
AM Peak Hour (7-8 AM)	168	158	-10	196	+38
PM Peak Hour (5-6 pm)	163	153	-10	189	+37

We allocated the additional Stanford trips to bus routes proportionate to the overall existing ridership levels of those buses. The only route that gained more than 10 peak hour trips between 2018 and 2035 from Stanford was the VTA 22 bus route, with an additional 23 Stanford riders in the AM peak hour and 22 additional Stanford riders in the PM peak hour.

These increases were not judged by Arup to be significant enough to warrant further analysis.

3.4 Summary of Transit Impacts

A summary of the transit impacts for each year of the analysis is shown in **Table 12**

Table 12. Comparison of Transit Impacts by Year and Mode

Service Type	2015	2018	2035 Business as Usual scenario	2035 Expanded TDM scenario
	Capacity exceeded?	Capacity exceeded?	Capacity exceeded?	Capacity exceeded?
Caltrain	No	No	No	No
Express Bus	No	No	No	No
Local Bus	Screened out			

4 Bicycle Facility Capacity Analysis

This chapter examines the growth in future commuter cyclists on community roads and bicycle facilities as they increase with university population growth.

4.1 Approach

The analysis looks at the capacity of roads and facilities to accommodate Stanford bicycle commuters at the locations that would be most affected by growth in bicycle ridership under the 2018 General Use Permit.

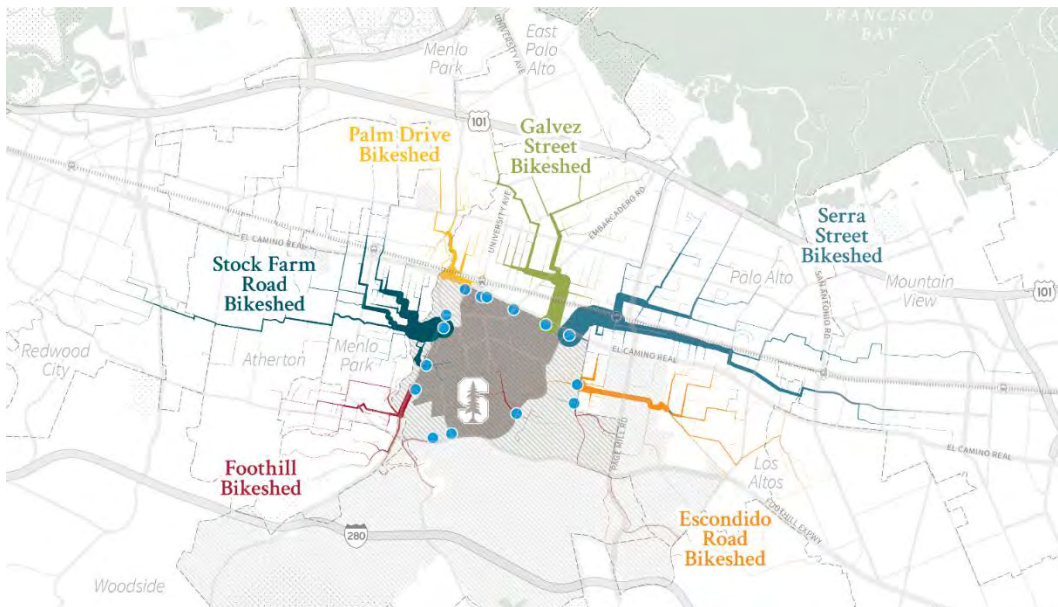
The analysis uses estimates of existing and future cyclists on bike corridors leading into campus.

Peak hour bicycle volumes are converted into cyclists per minute to provide an indication of how intensely the corridors are being utilized and whether these additional bicycle volumes could reasonably be expected to have an impact on the capacity of the corridors.

4.2 Analysis

Arup obtained from Stanford estimates of existing bicycle commuters on gateways serving the Stanford campus from all directions, shown in **Figure 16**. Estimates were derived from bicycle counts conducted at entry points into the campus in May 2015.

Figure 16. Bicycle Gateway Locations



Source: Alta 2017

Table 13 shows AM and PM peak hour bicycle volumes for each gateway location for 2015, 2018, and 2035. 2015 data represents actual counts, while 2018 and 2035 are projected counts based on Stanford commuter population growth¹⁴. This is then translated into cyclists per minute. Existing estimated bicycle frequencies during the peak commute hour in 2035 range from 0.1 cyclists to 3.1 cyclists per minute.

4.3 Findings

Both class I (bike path) and class II (bike lanes) facilities are capable of handling many more than 3.1 cyclists per minute without cyclists needing to ride side by side. Arup has estimated that a class I facility can accommodate approximately 1,500 bikes per hour and a class II facility can accommodate approximately 1,000 bike per hour.¹⁵ Therefore, this bicycle capacity analysis indicates that anticipated growth in bike commuters under the 2018 General Use Permit would not exceed bicycle infrastructure capacity under the scenarios analyzed (Business as Usual and Expanded TDM). Even if the bicycle mode share were to increase significantly due to improvements that encourage more cycling, capacity would not be a concern.

¹⁴It is assumed that no change in bicycle mode share will take place.

¹⁵ Sources for these estimates were *Highway Capacity Manual (2010)*, *FHWA Capacity Analysis of Pedestrian and Bicycle Facilities*, and *Estimating Capacity of Bicycle Path on Urban Roads in Hangzhou, China*.

Table 13. Estimated Peak Hour Bikes Per Minute

Bicycle Gateway	Peak hour bikes						Peak hour bikes per minute					
	2015		2018		2035		2015		2018		2035	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Serra St SW of El Camino Real	144	118	134	110	166	136	2.4	2.0	2.2	1.8	2.8	2.3
Palm Dr S of Arboretum Rd	132	159	123	148	152	184	2.2	2.7	2.0	2.5	2.5	3.1
Escondido Rd W of Olmsted Rd	117	94	109	88	135	109	2.0	1.6	1.8	1.5	2.3	1.8
Stock Farm Rd E of Sand Hill Rd	91	93	85	87	105	107	1.5	1.6	1.4	1.4	1.8	1.8
Welch Rd N of Oak Rd	55	41	51	38	64	47	0.9	0.7	0.9	0.6	1.1	0.8
Bowdoin W of Stanford Ave	40	40	37	37	46	46	0.7	0.7	0.6	0.6	0.8	0.8
Path Entrance W of El Camino at Churchill Rd	33	35	31	33	38	40	0.6	0.6	0.5	0.5	0.6	0.7
Quarry Rd N of Campus Dr	29	27	27	25	33	31	0.5	0.5	0.5	0.4	0.6	0.5
Yale St W of Stanford Ave	28	29	26	27	32	33	0.5	0.5	0.4	0.5	0.5	0.6
Olmsted Rd N of Escondido Rd	28	19	26	18	32	22	0.5	0.3	0.4	0.3	0.5	0.4
Campus Dr West N of Junipero Serra Blvd	25	23	23	21	29	27	0.4	0.4	0.4	0.4	0.5	0.4
Galvez St S of Arboretum Rd	22	40	20	37	25	46	0.4	0.7	0.3	0.6	0.4	0.8
Lasuen St S of Arboretum Rd	22	29	20	27	25	33	0.4	0.5	0.3	0.5	0.4	0.6
Oberlin St W of Stanford Ave	22	13	20	12	25	15	0.4	0.2	0.3	0.2	0.4	0.3
Wellesley St W of Stanford Ave	14	15	13	14	16	17	0.2	0.3	0.2	0.2	0.3	0.3
Campus Dr East E of Junipero Serra Blvd	10	9	9	8	12	10	0.2	0.2	0.2	0.1	0.2	0.2
Raimundo W of Stanford Ave	5	7	5	7	6	8	0.1	0.1	0.1	0.1	0.1	0.1
Santa Maria Ave N of Junipero Serra Blvd	2	2	2	2	2	2	0.0	0.0	0.0	0.0	0.0	0.0

Source: Gateway Bicycle Counts, May 2015; Arup, 2017

APPENDIX PHD

Technical Data to Address Population and Associated Housing Demand



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memorandum

date September 1, 2017

to David Rader, Senior Planner
Santa Clara County Department of Planning and Development

from Brian Boxer, Paul Mitchell, Cory Barringhaus - ESA

subject **ESA Peer Review of Technical Data to Address Population and Associated Housing Demand**

In support of its 2018 General Use Permit, Stanford prepared and submitted *Technical Data to Address Population and Associated Housing Demand* memo in July 2017.

At the request of the County, ESA conducted an independent peer review of this report to verify the technical accuracy of the information, and identify any apparent deficiencies, errors and omissions affecting the completeness, methodologies, findings and adequacies of the report. The ultimate goal of the peer review is to help ensure that the information contained in the report met accepted professional standards for use in the EIR.

Based on the peer review conducted; ESA concludes that this *Technical Data to Address Population and Associated Housing Demand* memo is appropriate for use as reference in the EIR.



TITLE: Technical Data to Address Population and Associated Housing Demand

INTRODUCTION

In *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 370, the court established a framework for analyzing housing demand caused by Project-related job growth:

When analyzing these impacts, [an EIR] should, at a minimum, identify the number and type of housing units that persons working within the [p]roject area can be anticipated to require, and identify the probable location of those units. The [EIR] also should consider whether the identified communities have sufficient housing units and sufficient services to accommodate the anticipated increase in population. If it is concluded that the communities lack sufficient units and/or services, the [EIR] should identify that fact and explain that action will need to be taken to provide those units or services or both.

This paper provides technical data that the County may choose to use in conducting the analysis specified by the court in *Napa Citizens*. The paper provides on and off-campus population increases anticipated to occur during implementation of the proposed 2018 General Use Permit and compares those populations to the projections published by the *Plan Bay Area Projections 2013* (“*Projections 2013*”) produced by the Association of Bay Area Governments (ABAG). The paper begins by discussing current and forecasted population, housing, and employment statistics in the Bay Area region and Santa Clara County. Next, the paper identifies population and job growth projections under the 2018 General Use Permit. The paper then calculates the increase in demand for campus households that could result from employment and student growth at Stanford during implementation of the 2018 General Use Permit and distributes those households geographically according to data specific to Stanford’s faculty, staff, and student populations. Finally, the paper compares the increase in housing demand in each jurisdiction to ABAG’s projections.

BACKGROUND

Regional Setting

ABAG is the comprehensive regional planning agency for the San Francisco Bay Area region, which encompasses the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. ABAG has no land use authority but produces growth forecasts on four-year cycles so that other regional agencies can use the forecasts to inform project funding and regulatory decisions. The most recent set of growth forecasts was published by ABAG in July 2013 (*Projections 2013*).

Local general plans, zoning regulations, and growth management programs inform ABAG’s projections,¹ which have practical consequences that shape growth and affect environmental quality.

¹ ABAG *Projections 2013*, p. 5.



Specifically, the projections provide the basis for *Plan Bay Area*, a long-range Regional Transportation Plan and Sustainable Communities Strategy under SB 375 for the nine-county region. The projections also form the basis for the *Bay Area Air Quality Management District Regional Ozone Attainment Plan*.

Table 1 provides regional population and job information and projections for select years from ABAG's *Projections 2013*.

Table 1: Population and Job Projections for the Bay Area Region

Year	Population	Jobs
2010	7,150,739	3,385,300
2015	7,461,400	3,669,990
2020	7,786,800	3,987,150
2040	9,299,100	4,505,230

Source: ABAG *Projections 2013*

Santa Clara County

Santa Clara County is the sixth most populous county in the State of California, with a current population of approximately 1,938,180 people.² According to the 2015–2022 County of Santa Clara Housing Element Update, Santa Clara County had approximately 625,325 housing units in 2010. 402,325 of these household units were single family, 204,982 were multi-family, and 18,582 were mobile homes. According to ABAG's *Projections 2013*, the County will have approximately 818,400 total households by 2040. Within the unincorporated portion of the County, approximately 28,570 total housing units were projected for 2015, increasing to approximately 31,070 units by 2040.

Stanford University

Table 2 shows the growth in the student, faculty, and staff population at Stanford University as of Fall 2015 and the anticipated population in Fall 2018 when the 2018 General Use Permit would commence. Stanford anticipates that it will grow by a combined total of 1,108 students, faculty, and staff under the previously-approved 2000 General Use Permit between Fall 2015 and Fall 2018, prior to commencement of the proposed 2018 General Use Permit. These projections reflect an approximately 1.2 percent compound annual growth rate (CAGR).

² California Department of Finance, 2016. E-1 Population Estimates for Cities, Counties, and the State—January 1, 2016 and 2017. Available: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-1/>. Viewed June 19, 2017.



Table 2: Projected Growth of Student, Faculty, and Staff Population Prior to Commencement of the 2018 General Use Permit

Affiliation	Population in Fall 2015	Anticipated Population in Fall 2018	Change in Population	Growth Rate (CAGR)
Undergraduate Students	6,994	7,085	91	0.4%
Graduate Students, including PhDs	9,196	9,528	332	1.2%
Postdoctoral Students	2,264	2,403	139	2.0%
Faculty	2,959	3,073	114	1.3%
Staff (a)	8,612	8,985	373	1.4%
Nonmatriculated Students	918	977	59	2.1%
Total	30,943	32,051	1,108	1.2%

Note: (a) The staff category only includes staff working within the area that would be governed by the 2018 General Use Permit.
Source: Stanford University Land Use and Environmental Planning Office, in consultation with the Stanford Office of Institutional Research and Decision Support

Since Stanford University's inception, housing offered to students has been substantial. Undergraduate students are guaranteed four years of housing, and six years of housing priority are given to eligible graduate students. Stanford also offers long-term housing opportunities to faculty, not merely transitional housing.

In Fall 2015, there were approximately 11,300 on-campus Stanford-operated student beds. With the addition of undergraduate and graduate student housing projects between 2015 and 2018, the total number of student beds in 2018 is estimated to be approximately 11,700. By 2020, after completion of the Escondido Village Graduate Residences, which was approved under the 2000 General Use Permit, there will be about 13,800 on-campus Stanford-operated student beds.³

Table 3 shows the population of "Other Worker" affiliations at Stanford University as of Fall 2015 and the anticipated population in Fall 2018 when the 2018 General Use Permit would commence. The characteristics of these populations are discussed below in section on other workers.

³ In addition, approximately 500 beds are occupied by dependents or are reserved for sick students and other temporary needs.



Table 3: Other Worker Population by Affiliation Prior to Commencement of 2018 General Use Permit

Other Worker Affiliation	Fall 2015 Population	Fall 2018 Population
Casual	2,080	2,167
Contingent	980	1,021
Temporary	1,390	1,448
Non-employee academic affiliates, 20% FTE	1,259	1,312
Non-employee academic affiliates, FTE	1,377	1,435
Third-party contract workers	300	324
Janitorial contract workers	240	259
Construction contract workers	1,200	1,200
Total	8,826	9,166

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

Because some of these populations are only on campus part of the year, they have a proportionally smaller impact on the daily campus population. To estimate the average daily population of these workers, their populations are weighted by their commute frequency. The anticipated daily on campus population is presented in **Table 4**.

Table 4: Average Daily Other Worker On-Campus Population by Affiliation Prior to Commencement of 2018 General Use Permit

Affiliation	Commute Frequency	Fall 2015 Population	Fall 2018 Population
Casual	20%	416	434
Contingent	52%	510	531
Temporary	78%	1,084	1,130
Non-employee academic affiliates, 20% FTE	17%	214	224
Non-employee academic affiliates, FTE	85%	1,170	1,220
Third-party contract workers	100%	300	324
Janitorial contract workers	100%	240	259
Construction contract workers	100%	1,200	1,200
Total	N/A	5,134	5,321

Source: Stanford University Land Use and Environmental Planning Office.



PROJECTED GROWTH FROM DEVELOPMENT UNDER THE 2018 GENERAL USE PERMIT

Under the 2018 General Use Permit, Stanford anticipates increases in the population of students, faculty, staff, and other employees on campus. To estimate the increase in on-campus population over the duration of the 2018 General Use Permit, Stanford reviewed data provided by the Stanford Office of Institutional Research and Decision Support, including 15 years of population data for each population segment.⁴

Growth in Student, Faculty, and Staff Populations

Table 5 summarizes the anticipated growth in the student, faculty, and staff populations under the 2018 General Use Permit. The sections that follow discuss the growth characteristics of these populations.

Table 5: Anticipated Population Growth of Students, Faculty, and Staff

Affiliation	Fall 2018 Population	Fall 2035 Population	Change in Population	Growth Rate (CAGR)
Undergraduate Students	7,085	8,785	1,700	1.3%
Graduate Students, including PhDs	9,528	10,728	1,200	0.7%
Postdoctoral Students	2,403	3,364	961	2.0%
Faculty	3,073	3,862	789	1.4%
Staff (a)	8,985	11,423	2,438	1.4%
Nonmatriculated Students	977	1,397	420	2.1%

Note: (a) The staff category only includes staff working within the area that would be governed by the 2018 General Use Permit.

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

Undergraduate Students

Stanford estimates that the total population of undergraduate students may increase by up to 1,700 between Fall 2018 and Fall 2035. This increase is projected to occur gradually over time, at an average growth rate of approximately 100 undergraduates per year. This is a higher rate of growth than the historic rate. Stanford plans a modest expansion of undergraduate enrollments in recognition of the fact that applications to Stanford have increased while spaces available have not, resulting in one of the lowest rates of admission in the nation. Providing a reasonable increase in the number of talented students for whom a Stanford education is accessible has therefore become an increasing priority.

⁴ Stanford calculated the 15-year compound annual growth rates (CAGR) for each population segment and then applied the measured CAGR to each population segment to calculate the populations anticipated in Fall 2018 and Fall 2035, with three exceptions. Stanford applied a CAGR of half the historic growth rate to predict population growth for postdoctoral students. Stanford also assumed approximately 100 undergraduate students would be added each year after 2018, which is higher than the historic growth rate. Stanford also assumed there would be no growth in the “Other Teaching” segment of Stanford’s faculty.



Graduate Students

Based on the historic CAGR for this population segment, Stanford anticipates that the total campus population of graduate students will increase by 1,200 from Fall 2018 to Fall 2035. Total graduate student enrollment (including both master's candidates and doctorate candidates) is projected to grow gradually between Fall 2018 and Fall 2035, at an average rate of approximately 70 graduate students per year. The total growth projection of 1,200 includes the 300 new Knight-Hennessy scholars announced in Spring 2016.

Postdoctoral Students

The term "postdoctoral students" (postdocs) refers to trainees with doctoral degrees who are involved in research projects and who have appointments for the purpose of advanced studies and training under the mentorship of a Stanford faculty member.

Although postdoc growth at Stanford has been strong in the last 10 to 15 years, trends show the growth to be leveling off for medicine, biology, and engineering. Other key limitations are the number of faculty, available research work, and grant funding. Based on these trends and limitations, as well as their professional judgment, the Stanford administration projects the postdoc growth to year 2035 at a 2.0% CAGR, about half the historic CAGR experienced during the last 15 years. This projected growth rate would result in an increase in the total campus population of postdoctoral student population by 961 from Fall 2018 to Fall 2035. Like the other populations, the total population of postdoctoral students is expected to grow gradually between Fall 2018 and Fall 2035.

Faculty

"Faculty" refers to professoriate faculty members and regular benefits-eligible employees in academic/instructional positions, including Academic Council faculty, Center fellows, Medical Center line faculty, lecturers, acting professors, coaches, some emeriti, and teaching fellows.

Professoriate faculty from the School of Medicine is expected to grow by the historic CAGR of 2.4%. Professoriate faculty from all other schools is projected to follow the historic CAGR of 1.2%.

The "faculty" category also includes an "Other Teaching" population, which comprises lecturers and senior lecturers; visiting, consulting, and acting professors; coaches; emeritus faculty on recall and research assignments; artists-in-residence; course associates; teaching specialists; and teaching fellows. The Other Teaching population fluctuated in the last 15 years, with a historic CAGR of -1.1%. It is assumed that this group would remain steady at its existing population of about 810 from Fall 2018 until Fall 2035. No increase is assumed.

Altogether, the combined CAGR for faculty growth from Fall 2018 to Fall 2035 is projected to be 1.4%. This projected growth rate would result in an increase in the total campus population of faculty population by 789 from Fall 2018 to Fall 2035.



Staff

“Staff” refers to regular benefits-eligible employees generally in nonacademic positions such as human resources, information technology, facilities, financial aid, etc.

Staff growth within the area that would be governed by the 2018 General Use Permit is projected to be 1.4% based on the historic CAGR. This projected growth rate would result in an increase in the total campus population of staff by 2,438 from Fall 2018 to Fall 2035.

This rate of staff growth may be conservative given that some staff from the academic campus in unincorporated Santa Clara County will move to a new administrative campus in Redwood City. However, many staff who relocate to Redwood City already would be located outside of the academic campus at locations such as the Stanford Research Park. Therefore, Stanford has not taken credit for moving staff to Redwood City in estimating its future growth under the proposed 2018 General Use Permit.

Nonmatriculated Students

Nonmatriculated graduate students are students taking graduate courses or engaged in graduate-level research or training but who are not seeking a degree. This group is assumed to grow at the historic CAGR of 2.1%. This projected growth rate would result in an increase in the total campus population of nonmatriculated students by 420 from Fall 2018 to Fall 2035.

Nonmatriculated undergraduates are undergraduates who are auditing classes and are not seeking a degree. This group had no specific trend over the last 15 years, but their numbers have been historically very low (about 5 per year) and are not expected to grow beyond the existing total.

Other Worker Populations

The “Other Worker” population segments are presented separately from the faculty, staff, and student populations because many members of these populations do not work on the campus on a daily or year-round basis or are not directly employed by Stanford. The Other Worker populations are divided into the following categories: contingent,⁵ casual,⁶ temporary workers,⁷ other nonemployee

⁵ Salaried workers with roles that are comparable to academic staff and Other Teaching, working less than 50% FTE and/or working less than six months

⁶ Hourly workers less than 50% FTE and working no more than 980 hours a year, including summer camp staff, summer grounds/facilities work, and special projects in academic units

⁷ Hourly workers at 50% FTE or more working no longer than six months, including summer camp staff, summer grounds/facilities work, and special projects in academic units



academic affiliates,⁸ third party contract workers,⁹ janitorial contract workers,¹⁰ and construction contract workers.¹¹

For the duration of the 2018 General Use Permit, the growth rate assumed for the contingent, casual, temporary, and non-employee affiliate population segments is the same as that for regular benefits-eligible non-academic employees (i.e., staff, at 1.4% CAGR). Third-party and janitorial contract workers are estimated to grow at the same rate as occupied academic and academic support square footage (22.1% from Fall 2018 to Fall 2035). Construction contract workers are expected to stay constant, as this has been the trend during the 2000 General Use Permit and construction is expected to continue at historic rates under the 2018 General Use Permit.

Other Workers are expected to total 11,267 in Fall 2035. **Table 6** summarizes the expected Other Worker population in 2018 and 2035, including 2018 General Use Permit related growth.

Table 6: Other Worker Population by Affiliation

Other Worker Affiliation	Fall 2018 Population	Fall 2035 Population	Change in Population during 2018 General Use Permit
Casual	2,167	2,746	579
Contingent	1,021	1,294	273
Temporary	1,448	1,835	387
Non-employee academic affiliates, 20% FTE	1,312	1,662	350
Non-employee academic affiliates, FTE	1,435	1,818	383
Third-party contract workers	324	396	72
Janitorial contract workers	259	316	57
Construction contract workers	1,200	1,200	0
Total	9,166	11,267	2,101

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

Table 7 shows the average daily Other Worker on-campus population. This figure is calculated as the population of Other Workers weighted by the commute frequency of each Other Worker subgroup by affiliation.

⁸ Affiliated teaching staff, adjunct professors, and visiting scholars, typically not full time, approximately half of this category of workers are 20% FTE

⁹ Food service workers at on-campus cafeterias, and childcare center workers

¹⁰ Working off-peak hour morning and evening shifts

¹¹ Related to ongoing construction projects on campus



Table 7: Average Daily Other Worker On-Campus Population by Affiliation

Affiliation	Commute Frequency	Fall 2018 Population	Fall 2035 Population	Change in Population 2018–2035
Casual	20%	434	550	116
Contingent	52%	531	673	142
Temporary	78%	1,130	1,432	302
Non-employee academic affiliates, 20% FTE	17%	224	283	1,059
Non-employee academic affiliates, FTE	85%	1,220	1,546	325
Third-party contract workers	100%	324	396	72
Janitorial contract workers	100%	259	316	57
Construction contract workers	100%	1,200	1,200	0
Total	N/A	5,322	6,396	1,074

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

OVERVIEW OF PROJECTED POPULATION AND JOB GROWTH

Table 8 displays the projected population growth of each Stanford population segment for the duration of the 2018 General Use Permit. This total population is expected to increase from 41,217 in 2018 at the projected commencement of the 2018 General Use Permit to 50,827 by 2035. This represents an increase in population of 9,610 individuals.

Table 8: Anticipated Population Growth of all Population Segments

Affiliation	Fall 2018 Population	Fall 2035 Population	Change in Population	Growth Rate (CAGR)
Undergraduate Students	7,085	8,785	1,700	1.3%
Graduate Students, including PhDs	9,528	10,728	1,200	0.7%
Postdoctoral Students	2,403	3,364	961	2.0%
Faculty	3,073	3,862	789	1.4%
Staff (a)	8,985	11,423	2,438	1.4%
Nonmatriculated Students	977	1,397	420	2.1%
Other Worker Populations	9,166	11,267	2,101	1.2%(b)
Total	41,217	50,827	9,610	1.2%

Notes:

(a) The staff category only includes staff working within the area that would be governed by the 2018 General Use Permit.

(b) As discussed in the text above, anticipated population projections for different categories of “Other Worker” populations utilize different growth rate assumptions. This figure represents the CAGR for this population as a whole.

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

Table 9 shows the projected job growth for Stanford under the 2018 General Use Permit. Jobs are calculated as the sum of postdoctoral students, faculty, staff, and the average daily “Other Worker” population.



Table 9: Projected Jobs 2015–2035

Affiliation	Fall 2015	Fall 2018	Fall 2035
Postdoctoral Students	2,264	2,403	3,364
Faculty	2,959	3,073	3,862
Staff (a)	8,612	8,985	11,423
Daily Other Worker Populations	5,134	5,322	6,396
Total	18,969	19,783	25,045

Note: (a) The staff category only includes staff working within the area that would be governed by the 2018 General Use Permit.

Source: Stanford University Land Use and Environmental Planning Office, in consultation with Stanford University Residential and Dining Enterprises

ANALYSIS OF POPULATION GROWTH AND HOUSING DEMAND UNDER THE 2018 GENERAL USE PERMIT

This section quantifies two types of possible population and housing growth that could occur during implementation of the proposed 2018 General Use permit: 1) direct population or economic growth resulting from increases in the on-campus population during implementation of the 2018 General Use Permit; and 2) indirect population or economic growth outside of the campus that is not part of the project.

Direct Population and Economic Growth During Implementation of the 2018 General Use Permit

In this section, the direct population and employment growth anticipated to occur under the 2018 General Use Permit are compared to the *ABAG Projections 2013* for long-term growth in the County and the region. As discussed below, the growth that would result from the 2018 General Use Permit comprises only a small fraction of the projected growth in the County and region. The 2018 General Use Permit would not result in more growth than the relevant jurisdictions have predicted.

Direct On-Campus Population Growth

For purposes of this paper, the term “on-campus” refers to the area that would be governed by the 2018 General Use Permit. Stanford estimated the on-campus residential population anticipated to exist by Fall 2018 at commencement of the proposed 2018 General Use Permit, and forecasted the on-campus resident population at completion of the development proposed in the 2018 General Use Permit in Fall 2035. These projections consider the increase in housing units and student beds anticipated to be constructed through completion of the 2000 General Use Permit and under the proposed 2018 General Use Permit. Based on current and historic occupancy rates, Stanford estimates that, in addition to Stanford graduate students, 10% of graduate student housing would continue to be occupied by couples (2% Stanford student spouses and 8% non-Stanford student spouses), resulting in 1.1 residents per graduate student bed. Stanford also estimates that 2.57 residents would occupy each faculty and staff housing unit. Faculty and staff resident household size was obtained from the 2016 Commute Survey conducted by Stanford’s Office of Parking and Transportation.



The proposed 2018 General Use Permit would entail construction of up to 3,150 housing units/student beds, including up to 550 housing units that can be occupied by faculty and staff. In addition, similar to the 2000 General Use Permit, Stanford seeks a condition allowing it to build more than 3,150 housing units/student beds upon approval by the Planning Commission and subject to additional environmental assessment.

Table 10 summarizes projections provided by Stanford for how housing authorized under the 2018 General Use Permit may be allocated among population segments. As shown in **Table 10**, it is projected that there would be approximately 1,700 net new undergraduate student beds, 900 net new graduate student beds, and 550 net new faculty/staff units, which together would result in a projected increase in on-campus population of 4,104 people (the difference between an on-campus population of 17,560 and 21,664). These population projections rely on the estimates of residents per student bed and per faculty/staff housing unit discussed earlier in this section.

Table 10: Projected Growth of On-Campus Academic Year Population Through 2035

	Fall 2015		2018		2020 (only for units/beds added under 2000 General Use Permit) (a)		2035 (includes units/beds added under 2018 General Use Permit)	
	Existing Units/ Beds	On-Campus Population	Units/ Beds Added	On-Campus Population	Units/ Beds Added (a)	On-Campus Population (a)	Units/ Beds Added	On-Campus Population
Undergrad Housing	6,401 beds	Under-grads 6,401	216 beds at Lagunita	Under-grads 6,617	None	Under-grads 6,617	1,700 beds	Under-grads 8,317
Graduate Housing	4,892 beds	Grad Students 5,001 Spouses 644 Children 420	200 beds at Highland Hall	Grad Students 5,205 Spouses 660 Children 420	2,020 beds at Escondido Village Graduate Residences	Grad Students 7,265 Spouses 822 Children 420	900 beds	Grad Students 8,183 Spouses 894 Children 420
Postdoc Housing	28 beds	Postdocs 28	None	Postdocs 28	None	Postdocs 28	N/A—included with faculty/staff	
Faculty/ Staff	937 units	Faculty/ Staff 937 Other family 1,471	None	Faculty/ Staff 937 Other family 1,471	None	Faculty/ Staff 937 Other family 1,471	550 units	Faculty / Staff 1,515 Other family 2,335
Total		14,902		15,338		17,560		21,664

Notes: (a) These columns include only the final projected growth under the 2000 General Use Permit and are not intended to address any addition of housing units or student beds that may occur by 2020 under the 2018 General Use Permit.

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



This direct population growth is a small component of the projected growth in Santa Clara County and the Bay Area region when compared to long-term projected growth. As shown below in **Table 11**, total projected Stanford on-campus population growth under the 2018 General Use Permit would represent only 0.8% of the projected population growth in Santa Clara County from 2015 through 2040.

Table 11: Projected 2018 General Use Permit On-Campus Population and Job Growth Compared to Projected County and Regional Growth from 2015–2040

Period	Projected Increase from Project during GUP Period	Projected increase in Santa Clara County 2015–2040	2018 General Use Permit on-campus growth as proportion of County growth	Projected increase in Bay Area region 2015–2040	2018 General Use Permit on-campus growth as proportion of regional growth
Population	4,104	545,800	0.8%	1,837,700	0.002%
Jobs	5,262	225,740	2.3%	835,240	0.006%

Source: Stanford University; ABAG *Projections 2013*

Direct Economic Growth

In addition to providing housing, Stanford anticipates growth in employment during implementation of the 2018 General Use Permit. As shown above in **Table 9**, the number of campus-related jobs is anticipated to increase from 19,693 to 25,045 by 2035—an increase of 5,262 jobs under the 2018 General Use Permit. This is a small proportion of the projected job growth in Santa Clara County and the Bay Area region when compared to long-term projected growth. As shown in **Table 11**, the total projected job growth anticipated to occur on the Stanford campus during implementation of the 2018 General Use Permit is between 2 and 3% of projected job growth in Santa Clara County from 2015 through 2040.

Indirectly Induced Growth

The section discusses the potential for development under the 2018 General Use Permit to result in growth that does not result directly from the population and employment opportunities authorized by the 2018 General Use Permit. Three potential forms of indirect growth are analyzed: 1) off-campus demand for housing that may result from growth in Stanford affiliated populations under the 2018 General Use Permit; 2) non-Stanford jobs that might be induced by growth in Stanford affiliated populations, and 3) infrastructure improvements that may eventually facilitate growth beyond what is contemplated by the 2018 General Use Permit. This section concludes that indirect off-campus housing growth generated by the 2018 General Use Permit project would fall well within ABAG projections, both considering growth in Stanford affiliates and considering a potential multiplier effect from indirect economic growth in the region. Additionally, the infrastructure improvements contemplated by the project would not have the potential to induce growth beyond the direct growth contemplated by the project.



Off-Campus Growth

The 2018 General Use Permit would not directly increase population or the number of housing units outside of the Stanford campus. But the growth of certain Stanford affiliated populations during implementation of the 2018 General Use Permit would not be entirely accommodated in residences on campus and would result, indirectly, in housing demand (and associated population growth) outside of the Stanford campus.

Table 12 shows the projected increase in the number of Stanford affiliates (students, faculty, staff, and other workers) who would live off-campus during the 2018 General Use Permit period, and estimates the number of households that each of these individuals would represent. As shown in the table, the projected growth in off-campus households resulting from the 2018 General Use Permit would total zero for undergraduate students, 83 for graduate students, 449 for postdoctoral students, 1,385 for staff, and 610 for other workers. Assuming that all new faculty are accommodated in the new faculty/staff units, a net decrease of 102 off-campus faculty households¹² is projected. In total, the 2018 General Use Permit is expected to result in demand for 2,425 off-campus housing units.

Factors have been applied to convert jobs to households. Multiple-earner households have two or more workers. The analysis recognizes that if an added employee lives in a household with one or more other workers, that added employee is not responsible for creating demand for an entire additional housing unit, only a portion of an additional unit. There is no assumption in these household calculations that Stanford workers would live with one another. Rather, the assumption is that the Stanford worker is responsible for the fraction of the household that corresponds to the number of workers per household for the particular affiliate group.

¹² Stanford anticipates that the 2018 General Use Permit will result in a net increase of 789 faculty. For purposes of this analysis, 550 faculty are assumed to be housed in 550 net new units for faculty and staff on the Stanford campus. The remaining 239 net new faculty members are assumed to live off campus. Assuming an average of 1.76 workers per faculty household, consistent with the average number of workers per household with at least one worker in Santa Clara County, on average the 550 faculty units on campus will each house one faculty member and 0.76 workers that are not Stanford faculty, resulting in a net increase of 418 workers that are not Stanford faculty living in faculty and staff units on campus (550 units x 0.76 workers that are not Stanford faculty per unit). Because these workers are part of Stanford faculty households, their places of residence would likely be distributed in cities and counties within the region similarly to the distribution of other members of off-campus Stanford faculty households if these workers instead lived off campus.

The net increase in workers that are projected to live on campus as part of Stanford faculty households but are not themselves Stanford faculty (418) is larger than the net increase in Stanford faculty that are projected to live off campus (239). The net result is that 179 fewer members of Stanford faculty households (239 off-campus faculty less 418 on-campus non-faculty members of faculty households) will live off campus as a result of the 2018 General Use Permit. Assuming 1.76 people per household, the 2018 General Use Permit will therefore result in a net decrease of 102 faculty households (179 workers / 1.76 workers per worker household). Put another way, the faculty units included in the 2018 General Use Permit are projected to house more members of faculty households (including faculty and non-faculty household members) than the net increase in faculty from 2018 GUP, leading to a net decrease in housing unit demand in the region.



Table 12: Projected Growth in Off-Campus Households during the 2018 General Use Permit Period

	Undergrads	Graduate Students	Postdoctoral Students	Faculty	Staff	Other Workers	Total
Total Growth During 2018 GUP	1,700	1,200	961	789	2,438	1,074	8,162
Less: Number Housed on Campus (a)	(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 (b)	0	(72)	0	(418)	0	0	(490)
Net Increase in Off-Campus Population	0	210	961	(179)	2,438	1,074	4,504
Increase in Off-Campus Households (c)	0	83	449	(102)	1,385	610	2,425
Assumptions							
Household Adjustment Factor (c)	N/A	2.54	2.14	1.76	1.76	1.76	N/A

Notes:

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

(a) The on-campus housing included in the 2018 General Use Permit consists of housing for 1,700 undergraduate students and 918 graduate students along with 550 units for faculty or staff.

(b) Stanford predicts 72 non-student spouses would occupy the graduate student housing that would be included in the 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. This analysis assumes an average of 1.76 workers per staff or faculty household, per footnote (c) below, resulting in an average of one faculty or staff member and 0.76 other workers per faculty or staff unit.

(c) For each population group, this analysis makes a household adjustment factor in order to translate population growth into new households to determine the increase in projected future housing unit demand attributable to the 2018 GUP. For graduate students and post-doctorates, the adjustment is based on the average number of 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 analysis 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.

Sources: Stanford University, 2016 & 2017; US Census Bureau, 2011-2015.



The growth in Stanford student, faculty, staff, and other worker households that would live off-campus would be distributed among jurisdictions in the Bay Area region. **Table 13** shows the estimated distribution of existing off-campus Stanford households by population group, across cities and counties in the Bay Area. These estimates are based on data from Stanford University's 2016 Commute Survey.

Table 13: Place of Residence for Current Off-Campus Student, Faculty, and Staff Households, 2016

	Graduate	Post-Doc	Faculty	Staff	Total
Santa Clara County					
Campbell	0.1%	0.7%	0.0%	0.9%	0.7%
Cupertino	0.6%	0.6%	0.0%	1.2%	0.9%
Gilroy	0.1%	0.0%	0.0%	0.3%	0.2%
Los Altos	0.7%	1.2%	4.9%	1.5%	1.4%
Los Altos Hills	0.7%	0.7%	1.9%	0.3%	0.5%
Los Gatos	0.1%	0.1%	0.0%	0.5%	0.3%
Milpitas	0.2%	0.3%	0.0%	1.1%	0.8%
Monte Sereno	0.1%	0.0%	0.0%	0.0%	0.0%
Morgan Hill	0.0%	0.0%	0.0%	0.4%	0.2%
Mountain View	11.6%	17.3%	5.3%	8.1%	9.7%
Palo Alto	32.9%	25.3%	27.3%	12.7%	18.8%
San Jose	2.2%	3.6%	0.8%	13.1%	9.3%
Santa Clara	1.0%	2.4%	0.0%	3.2%	2.5%
Saratoga	0.2%	0.0%	0.4%	0.3%	0.3%
Sunnyvale	3.2%	6.1%	1.5%	6.2%	5.4%
Unincorporated County	0.8%	0.4%	4.2%	0.9%	1.0%
Total Santa Clara County	54.3%	58.8%	46.2%	50.6%	52.1%
San Mateo County					
Atherton	0.6%	0.3%	1.1%	0.5%	0.5%
Belmont	0.2%	0.4%	0.8%	1.2%	0.9%
Brisbane	0.0%	0.0%	0.4%	0.0%	0.0%
Burlingame	0.7%	0.4%	0.4%	0.9%	0.8%
Colma	0.0%	0.0%	0.0%	0.0%	0.0%
Daly City	0.2%	0.3%	0.0%	0.7%	0.5%
East Palo Alto	3.1%	2.2%	0.0%	1.4%	1.8%
Foster	0.1%	0.4%	0.4%	0.5%	0.4%
Half Moon Bay	0.0%	0.0%	0.0%	0.2%	0.1%
Hillsborough	0.1%	0.0%	0.8%	0.1%	0.1%
Menlo Park	17.7%	10.8%	17.8%	5.4%	9.0%
Millbrae	0.0%	0.4%	1.1%	0.5%	0.4%
Pacifica	0.0%	0.0%	0.0%	0.6%	0.4%
Portola Valley	0.2%	0.0%	2.3%	0.2%	0.2%
Redwood	4.2%	5.3%	2.7%	5.4%	5.0%
San Bruno	0.1%	0.3%	0.0%	0.5%	0.3%
San Carlos	0.3%	1.0%	1.9%	1.7%	1.4%
San Mateo	1.1%	2.1%	0.8%	2.8%	2.3%
South San Francisco	0.1%	0.0%	0.0%	0.5%	0.3%
Woodside	0.4%	0.7%	1.5%	0.3%	0.4%
Unincorporated County	3.0%	3.4%	6.8%	3.7%	3.6%
Total San Mateo County	32.1%	28.3%	38.6%	27.1%	28.7%

Continued on following page



Table 13 (cont.): Place of Residence for Current Off-Campus Students, Faculty, and Staff Households, 2016

	Graduate	Post-Doc	Faculty	Staff	Total
Alameda County					
Alameda	0.2%	0.0%	0.0%	0.3%	0.2%
Albany	0.0%	0.1%	0.0%	0.1%	0.0%
Berkeley	0.6%	0.4%	0.0%	0.3%	0.4%
Dublin	0.0%	0.1%	0.0%	0.1%	0.1%
Emeryville	0.0%	0.0%	0.0%	0.1%	0.0%
Fremont	0.6%	1.0%	0.0%	3.7%	2.6%
Hayward	0.2%	0.3%	0.0%	1.1%	0.8%
Livermore	0.2%	0.0%	0.0%	0.2%	0.2%
Newark	0.1%	0.3%	0.0%	1.4%	0.9%
Oakland	1.8%	0.7%	0.0%	1.4%	1.3%
Piedmont	0.0%	0.1%	0.0%	0.0%	0.0%
Pleasanton	0.1%	0.0%	0.0%	0.3%	0.2%
San Leandro	0.1%	0.1%	0.4%	0.4%	0.3%
Union City	0.1%	0.4%	0.0%	1.2%	0.8%
Unincorporated County	0.0%	0.1%	0.4%	0.5%	0.4%
Total Alameda County	3.7%	4.0%	0.8%	11.0%	8.3%
Contra Costa County	0.1%	0.3%	0.0%	0.7%	0.5%
Marin County	0.1%	0.0%	0.0%	0.2%	0.1%
Monterey County	0.0%	0.0%	0.0%	0.3%	0.2%
San Francisco County	9.4%	8.4%	14.4%	8.4%	8.9%
San Joaquin County	0.0%	0.0%	0.0%	0.7%	0.4%
Santa Cruz County	0.2%	0.0%	0.0%	0.8%	0.5%
All Other Locations	0.2%	0.1%	0.0%	0.3%	0.2%
Total Off Campus	100.0%	100.0%	100.0%	100.0%	100.0%

Notes:

Data are from the Stanford University 2016 Commute Survey conducted in November 2015 and include all respondents who lived, worked, or attended classes on the campus and answered questions on household income and household size.

Source: Stanford University 2016 Commute Survey.

Table 14 shows the projected distribution across different jurisdictions of the off-campus household growth projected as an indirect result of the 2018 General Use Permit. This table applies the distributions of current off-campus households from **Table 13** to the projected increase in households by Stanford population group shown in **Table 12**.



Table 14: Projected Growth in Off-Campus Households by Population Group and Residence Location during 2018 General Use Permit Period

	Graduate Students		Postdoctoral Students		Faculty		Staff		Other Workers (a)		Total	
	% (a)	#	% (a)	#	% (a)	#	% (a)	#	% (b)	#	%	#
Total Off Campus (c)		83		449		-102		1,385		610		2,425
Total Santa Clara County	54.3%	45	58.8%	264	46.2%	-47	50.6%	701	50.6%	309	52.4%	1,271
Campbell	0.1%	0	0.7%	3	0.0%	0	0.9%	12	0.9%	5	0.9%	21
Cupertino	0.6%	0	0.6%	3	0.0%	0	1.2%	16	1.2%	7	1.1%	26
Gilroy	0.1%	0	0.0%	0	0.0%	0	0.3%	4	0.3%	2	0.2%	5
Los Altos	0.7%	1	1.2%	5	4.9%	-5	1.5%	21	1.5%	9	1.3%	31
Los Altos Hills	0.7%	1	0.7%	3	1.9%	-2	0.3%	4	0.3%	2	0.3%	8
Los Gatos	0.1%	0	0.1%	1	0.0%	0	0.5%	6	0.5%	3	0.4%	10
Milpitas	0.2%	0	0.3%	1	0.0%	0	1.1%	16	1.1%	7	1.0%	24
Monte Sereno	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Morgan Hill	0.0%	0	0.0%	0	0.0%	0	0.4%	5	0.4%	2	0.3%	8
Mountain View	11.6%	10	17.3%	78	5.3%	-5	8.1%	112	8.1%	49	10.0%	244
Palo Alto	32.9%	27	25.3%	114	27.3%	-28	12.7%	176	12.7%	78	15.1%	367
San Jose	2.2%	2	3.6%	16	0.8%	-1	13.1%	182	13.1%	80	11.5%	279
Santa Clara	1.0%	1	2.4%	11	0.0%	0	3.2%	44	3.2%	19	3.1%	74
Saratoga	0.2%	0	0.0%	0	0.4%	0	0.3%	4	0.3%	2	0.2%	6
Sunnyvale	3.2%	3	6.1%	27	1.5%	-2	6.2%	86	6.2%	38	6.2%	152
Unincorporated County	0.8%	1	0.4%	2	4.2%	-4	0.9%	13	0.9%	6	0.7%	17
Total San Mateo County	32.1%	27	28.3%	127	38.6%	-39	27.1%	375	27.1%	165	27.0%	655
Atherton	0.6%	0	0.3%	1	1.1%	-1	0.5%	7	0.5%	3	0.4%	11
Belmont	0.2%	0	0.4%	2	0.8%	-1	1.2%	17	1.2%	8	1.1%	26
Brisbane	0.0%	0	0.0%	0	0.4%	0	0.0%	0	0.0%	0	0.0%	0
Burlingame	0.7%	1	0.4%	2	0.4%	0	0.9%	12	0.9%	5	0.8%	20
Colma	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Daly City	0.2%	0	0.3%	1	0.0%	0	0.7%	10	0.7%	4	0.6%	15
East Palo Alto	3.1%	3	2.2%	10	0.0%	0	1.4%	20	1.4%	9	1.7%	41
Foster City	0.1%	0	0.4%	2	0.4%	0	0.5%	6	0.5%	3	0.4%	11
Half Moon Bay	0.0%	0	0.0%	0	0.0%	0	0.2%	2	0.2%	1	0.1%	3
Hillsborough	0.1%	0	0.0%	0	0.8%	-1	0.1%	1	0.1%	1	0.1%	1
Menlo Park	17.7%	15	10.8%	49	17.8%	-18	5.4%	75	5.4%	33	6.3%	153
Millbrae	0.0%	0	0.4%	2	1.1%	-1	0.5%	7	0.5%	3	0.5%	11
Pacifica	0.0%	0	0.0%	0	0.0%	0	0.6%	9	0.6%	4	0.5%	12
Portola Valley	0.2%	0	0.0%	0	2.3%	-2	0.2%	2	0.2%	1	0.1%	1
Redwood City	4.2%	3	5.3%	24	2.7%	-3	5.4%	75	5.4%	33	5.5%	133
San Bruno	0.1%	0	0.3%	1	0.0%	0	0.5%	6	0.5%	3	0.4%	11
San Carlos	0.3%	0	1.0%	5	1.9%	-2	1.7%	23	1.7%	10	1.5%	37
San Mateo	1.1%	1	2.1%	9	0.8%	-1	2.8%	39	2.8%	17	2.7%	66
South San Francisco	0.1%	0	0.0%	0	0.0%	0	0.5%	7	0.5%	3	0.4%	10
Unincorporated County	3.0%	2	3.4%	15	6.8%	-7	3.7%	51	3.7%	22	3.5%	84

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Table 14 (cont.): Projected Growth in Off-Campus Households by Population Group and Residence Location during 2018 General Use Permit Period

	Graduate Students		Postdoctoral Students		Faculty		Staff		Other Workers (a)		Total	
	% (a)	#	% (a)	#	% (a)	#	% (a)	#	% (b)	#	%	#
Total Alameda County	3.7%	3	4.0%	18	0.8%	-1	11.0%	152	11.0%	67	9.9%	240
Alameda	0.2%	0	0.0%	0	0.0%	0	0.3%	4	0.3%	2	0.2%	6
Albany	0.0%	0	0.1%	1	0.0%	0	0.1%	1	0.1%	0	0.1%	2
Berkeley	0.6%	0	0.4%	2	0.0%	0	0.3%	4	0.3%	2	0.4%	9
Dublin	0.0%	0	0.1%	1	0.0%	0	0.1%	1	0.1%	0	0.1%	2
Emeryville	0.0%	0	0.0%	0	0.0%	0	0.1%	1	0.1%	0	0.0%	1
Fremont	0.6%	0	1.0%	5	0.0%	0	3.7%	52	3.7%	23	3.3%	80
Hayward	0.2%	0	0.3%	1	0.0%	0	1.1%	15	1.1%	7	1.0%	23
Livermore	0.2%	0	0.0%	0	0.0%	0	0.2%	3	0.2%	1	0.2%	5
Newark	0.1%	0	0.3%	1	0.0%	0	1.4%	19	1.4%	8	1.2%	29
Oakland	1.8%	1	0.7%	3	0.0%	0	1.4%	19	1.4%	8	1.3%	32
Piedmont	0.0%	0	0.1%	1	0.0%	0	0.0%	0	0.0%	0	0.0%	1
Pleasanton	0.1%	0	0.0%	0	0.0%	0	0.3%	4	0.3%	2	0.3%	6
San Leandro	0.1%	0	0.1%	1	0.4%	0	0.4%	5	0.4%	2	0.3%	8
Union City	0.1%	0	0.4%	2	0.0%	0	1.2%	16	1.2%	7	1.1%	26
Unincorporated County	0.0%	0	0.1%	1	0.4%	0	0.5%	7	0.5%	3	0.5%	11
Contra Costa County	0.1%	0	0.3%	1	0.0%	0	0.7%	10	0.7%	4	0.6%	16
Marin County	0.1%	0	0.0%	0	0.0%	0	0.2%	2	0.2%	1	0.2%	4
Monterey County	0.0%	0	0.0%	0	0.0%	0	0.3%	4	0.3%	2	0.2%	5
San Francisco County	9.4%	8	8.4%	38	14.4%	-15	8.4%	117	8.4%	51	8.2%	199
San Joaquin County	0.0%	0	0.0%	0	0.0%	0	0.7%	9	0.7%	4	0.5%	13
Santa Cruz County	0.2%	0	0.0%	0	0.0%	0	0.8%	11	0.8%	5	0.6%	16
All Other Locations	0.2%	0	0.1%	1	0.0%	0	0.3%	4	0.3%	2	0.3%	7

Notes:

(a) Projected percent of households that will reside in each jurisdiction from Table 11.

(b) The commute survey data used in Table 11 did not provide data on workers in the "Other Workers" category. This analysis assumes that the distribution of Other Worker households will be the same as the distribution of Staff households.

(c) From Table 10.

Source: Stanford University 2016 Commute Survey

Table 15 compares the projected growth, by Bay Area jurisdiction, in off-campus households attributable to the 2018 General Use Permit to ABAG's *Projections 2013* for household growth in these jurisdictions from 2015 to 2040. The projected off campus household growth that may result from the 2018 General Use Permit falls well within ABAG's growth projections for every jurisdiction.



Table 15: Off-Campus Household Increase during 2018 General Use Permit Period Relative to Projected Growth in Bay Area Jurisdictions from 2015–2040

Jurisdiction	Projected household increase resulting from 2018 General Use Permit	Projected household growth	Project proportion of growth
Total Santa Clara County	1,271	179,240	0.7%
Campbell	21	2,740	0.8%
Cupertino	26	3,230	0.8%
Gilroy	5	2,400	0.2%
Los Altos	31	920	3.4%
Los Altos Hills	8	150	5.3%
Los Gatos	10	770	1.3%
Milpitas	24	10,450	0.2%
Monte Sereno	0	80	0.0%
Morgan Hill	8	3,200	0.3%
Mountain View	244	8,230	3.0%
Palo Alto	367	6,590	5.6%
San Jose	279	109,260	0.3%
Santa Clara	74	11,910	0.6%
Saratoga	6	570	1.1%
Sunnyvale	152	16,240	0.9%
Unincorporated County	17	2,500	0.7%
Total San Mateo County	655	47,950	1.4%
Atherton	11	210	5.2%
Belmont	26	1,020	2.5%
Brisbane	0	230	0.0%
Burlingame	20	3,190	0.6%
Colma	1	210	0.5%
Daly City	15	3,910	0.4%
East Palo Alto	41	1,170	3.5%
Foster City	11	780	1.4%
Half Moon Bay	3	260	1.2%
Hillsborough	1	260	0.4%
Menlo Park	153	1,820	8.4%
Millbrae	11	2,550	0.4%
Pacifica	12	570	2.1%
Portola Valley	1	130	0.8%
Redwood City	133	7,450	1.8%
San Bruno	11	3,740	0.3%
San Carlos	37	1,560	2.4%
San Mateo	66	8,690	0.8%
South San Francisco	10	5,820	0.2%
Woodside	9	90	10.0%
Unincorporated San Mateo	84	4,290	2.0%
Total Alameda County	240	133,960	0.2%



Jurisdiction	Projected household increase resulting from 2018 General Use Permit	Projected household growth	Project proportion of growth
Alameda	6	5,390	0.1%
Albany	2	1,120	0.2%
Berkeley	9	8,320	0.1%
Dublin	2	7,270	0.0%
Emeryville	1	4,960	0.0%
Fremont	80	15,120	0.5%
Hayward	23	11,280	0.2%
Livermore	5	8,200	0.1%
Newark	29	3,070	0.9%
Oakland	32	49,070	0.1%
Piedmont	1	70	1.4%
Pleasanton	6	5,900	0.1%
San Leandro	8	6,420	0.1%
Union City	26	2,690	1.0%
Unincorporated County	11	5,080	0.2%
Contra Costa County	16	76,280	0.0%
Marin County	4	7,400	0.1%
San Francisco County	199	84,910	0.2%
All Other Jurisdictions (a)	41	N/A	N/a

Note (a): All Other Jurisdictions include Monterey County, San Joaquin County, Santa Cruz County, and all other locations where growth in off-campus households is projected. These jurisdictions are not described separately in the table because they are outside the ABAG planning region analyzed in *Projections 2013* and because the number of projected households in these jurisdictions is small.

Source: ABAG *Projections 2013*, BAE

Job Multipliers

Job multipliers are stated as the ratio of indirect and induced jobs generated outside the university to the number of jobs provided directly by that institution. The indirect and induced jobs are those found at the businesses supported by direct university expenditures as well as the expenditures by the employees of the university.¹³

Table 16 presents multipliers identified in studies of other colleges and universities. As shown, these multipliers range from 0.33 to 1.36. This broad range is due to several factors:

¹³ Indirect jobs are those at the suppliers of goods and services for the university, while induced jobs are created through the expenditures of the university and supplier workers' household expenditures.



- The basis for the impacts varied, with some studies providing impacts specifically for expenditures for operations and employee expenditures, while others only provided estimates that also included the impacts of capital expenditures, student expenditures, and/or visitor expenditures.
- The impact areas may have consisted of relatively self-contained economies where most of the job-generating expenditures would occur within the region, while others were smaller areas such that the institution or worker expenditures would “leak” more quickly from the region such that fewer jobs would be generated in the study area.
- The methodologies used varied considerably; for instance, some studies used full-time equivalent (FTE) employee counts, whereas others used total employees. In another example, one study consultant included as direct jobs those of suppliers directly utilized by the university. Results would also vary due to different model years and sources of multiplier data.

Table 16: Job Multipliers from Other University Impact Studies

Institution	Date of Study	Direct Jobs	Indirect/ Induced Jobs	Multiplier	Basis	Geography
UC Davis- Main Campus Only	2016	30,000	10,000	0.33	All university expenditures	Davis/Sac Region
UC Riverside	2011	6,985	2,900	0.42	Operations and worker compensation	California
Wisconsin Lutheran College	2015	380	217	0.57	All university expenditures	Wisconsin
University of California System	2011	258,000	172,000	0.67	All UC-Related expenditures	California
University of San Francisco	2012	3,240	2,376	0.73	All university expenditures	Bay Area
UCLA	2013	47,452	47,105	0.99	All university expenditures	Southern California
UC San Diego	2008	10,394	10,392	1.00	Operations and worker compensation	City of San Diego
University of Delaware	2010	10,000	10,529	1.05	All university expenditures + student & visitor expenditures	Delaware
University of Notre Dame	2002	4,333	4,966	1.15	All university expenditures	Indiana
University of Miami	2011	13,07	17,563	1.34	All university expenditures + student expenditures	Miami-Dade County
UC Santa Cruz	2006	4,500	6,125	1.36	Operations and worker compensation	Santa Cruz County



While the multipliers cover a broad range, at 0.73 indirect and induced workers per University of San Francisco worker, the USF study¹⁴ may provide the best “order of magnitude” estimate for regional impacts for Stanford, as it is in the same Bay Area region with the same range of available local goods and services. If Stanford’s projected increase of 5,262 were multiplied by 0.73, then an additional 3,843 jobs could be indirectly induced by campus growth. It is unknown where such workers would choose to live; presumably they could live anywhere in the Bay Area and may or may not travel to the Stanford campus vicinity. As shown on Table 11, growth of an additional 3,843 jobs within the Bay Area region is well within ABAG’s long-term projections for the Bay Area.

Infrastructure

Development under the 2018 General Use Permit would include infrastructure improvements, such as parking spaces and onsite circulation improvements, to accommodate the contemplated growth discussed above. The scale and nature of these improvements are limited to the growth directly attributable to the 2018 General Use Permit. Moreover, the 2018 General Use Permit would not modify the Academic Growth Boundary, and development under the project would be directed to areas that are already urbanized. Any infrastructure development outside of the Academic Growth Boundary would be in keeping with the appearance of the natural setting and would not be designed in such a way that population or job growth could be facilitated outside of the Academic Growth Boundary. Accordingly, infrastructure under the 2018 General Use Permit would not induce population or economic growth in the surrounding area beyond the levels of growth addressed in previous sections of this paper.

¹⁴ *University of San Francisco Economic Impacts*, October 2012, BAE Urban Economics.