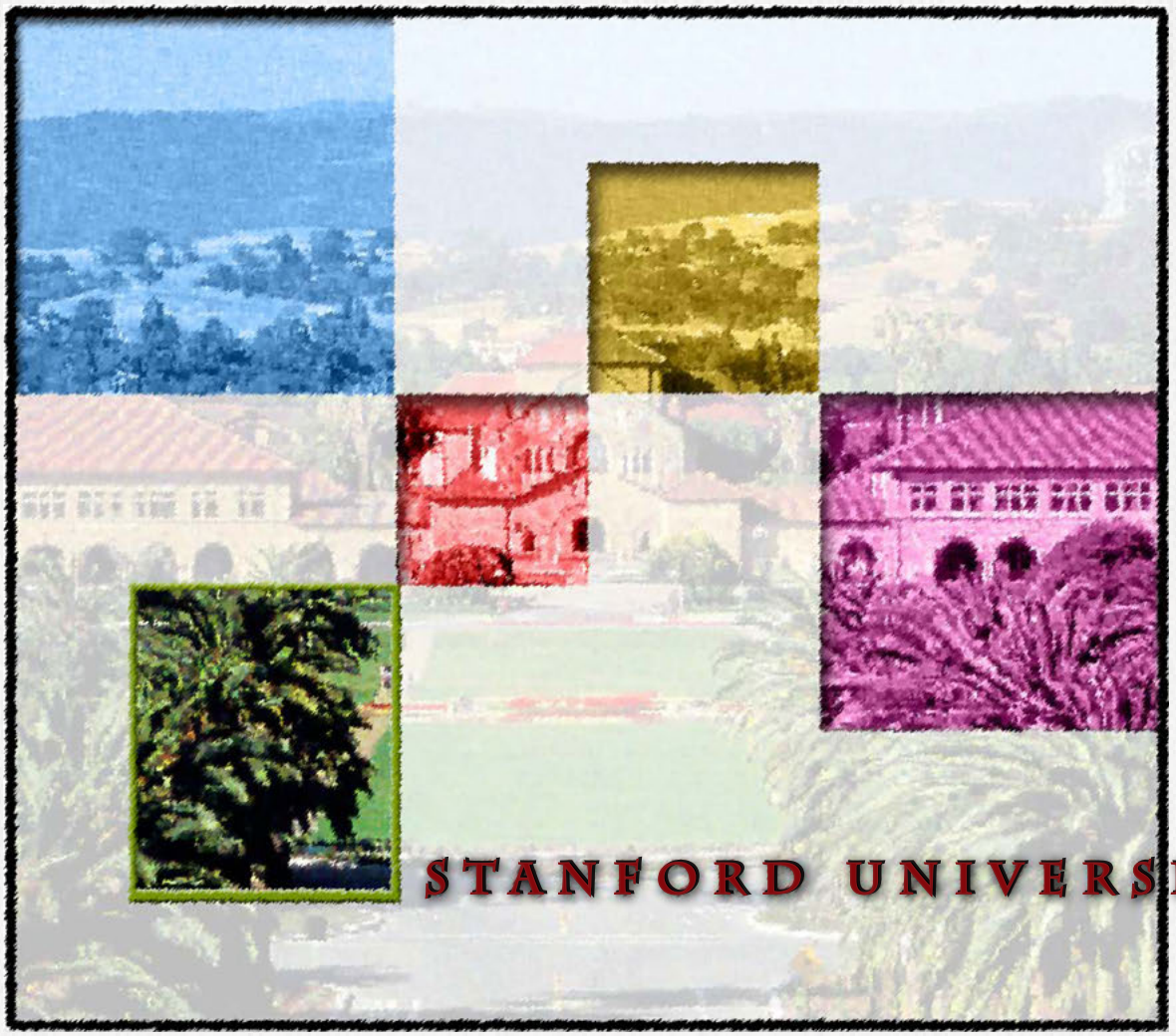
GENERAL USE PERMIT 2000

ANNUAL REPORT NO. 15



COUNTY OF SANTA CLARA
PLANNING OFFICE

June 2016

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The Stanford University, General Use Permit (GUP) 2000 Fifteenth Annual Report (AR 15) provides public documentation that summarizes development at Stanford University and required environmental mitigation activity within the unincorporated Santa Clara County, for the monitoring period from September 1, 2014, through August 31, 2015. This report documents both new projects approved during the reporting period and the status of ongoing projects. Section I provides an introduction and context to the AR 15. Information on project status and a summary of development through the AR 15 reporting period is provided in Section II. Section III provides a summary of GUP compliance. Details and illustrations of projects that received Architecture and Site Approval (ASA) during this reporting period are provided in Section IV. Section V describes anticipated development, Section VI provides information on other significant information in the reporting period, and Section VII provides information on references and the project team.

Appendices A, B, C, D, E, and F contain information on campus maps, GUP conditions and additional compliance details, summaries of cumulative development on campus, traffic monitoring results, sustainable activities initiated and ongoing by Stanford University and a summary of Stanford's approved Alternate Means Programs, respectively.

The production team for this annual report endeavored to make this report user friendly. If you have comments or questions about the format, you may forward your comments to the Santa Clara County Planning Office. For the 15th annual reporting period, Kavitha Kumar and Manira Sandhir,were the project managers for the Santa Clara County Planning Office for the Stanford University environmental mitigation monitoring and reporting program.

Specific questions regarding this report or the Stanford Community Plan, General Use Permit or the Environmental Impact Report may be directed to:
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Stanford University owns 8,180 acres of land, including 4,017 acres within unincorporated Santa Clara County that are subject to the land use jurisdiction and regulatory authority of the County. Please see Map 1 in Appendix A, which shows governmental jurisdiction on Stanford lands. Stanford University is a private institution and is subject to local zoning controls and project approval procedures. Stanford University land in Santa Clara County includes the academic campus, residential areas, and most of the foothills east of Alpine Road.

FIGURE 1: REGIONAL LOCATION

Santa Clara County guides future use of these lands through (1) the General Plan, (2) the Stanford Community Plan (CP), (3) County Zoning Ordinance, (4) other County ordinances and policies, and (5) the 2000 General Use Permit (GUP).

In November 1999, Stanford University submitted a Draft CP/GUP Application to Santa Clara County. As a result of an extensive public review process, significant changes were made in the proposed CP/GUP. Santa Clara County, the lead agency under the California Environmental Quality Act (CEQA), prepared a Program

Environmental Impact Report (EIR) to disclose the significant environmental effects of development pursuant to the CP/GUP. In December 2000, the County Board of Supervisors certified the EIR and approved the Final CP/GUP (2000 GUP).

The 2000 GUP replaced the 1989 GUP. It is the permit under which Stanford continues its academic and support uses, and authorizes the University to develop the following facilities:

- Academic and academic support facilities (an additional 2,035,000 net square feet (sq. ft.) plus the square footage remaining under the 1989 GUP)
- Childcare or community centers (an additional 40,000 sq. ft.)
- Temporary trailers and surge space (up to 50,000 sq. ft.)
- Parking structures and lots (2,300 net new parking spaces)
- Housing (3,018 housing units)

The Board approval of the 2000 GUP and the EIR resulted in mitigation measures. The EIR identified mitigation measures, which were formally adopted in the Mitigation Monitoring and Reporting Program (MMRP).

GUP Condition D.2 requires Stanford to implement the identified MMRP mitigation requirements as follows:

> "If at any time the County Planning Commission determines that Stanford is not in compliance with one or more conditions of the General Use Permit, it may take corrective action as provided in the County Ordinance Code including, but not limited to, suspension of any future development approvals until such time as the conditions are met. Failure of Stanford to comply with aspects of the Mitigation Monitoring and Reporting Program adopted for the GUP or any specific projects approved under the GUP for which Stanford is responsible shall also constitute a violation of these GUP conditions for which corrective action may be taken as described above."

This Fifteenth Annual Report (AR 15) documents Stanford's development activity and compliance with both the conditions of the 2000 GUP and any specific conditions associated with proposed building projects. It covers the period from September 1, 2014, to August 31, 2015. Activities or projects that occurred after August 31, 2015, are beyond the scope of this Annual Report, but will be presented in the next Annual Report that will cover activities between September 1, 2015, and August 31, 2016.

This report is organized into seven primary sections and six appendices:

I. Introduction - presents the background and overall requirements of the 2000 GUP, the reporting period and organization of the Annual Report, and provides a glossary of terms used in this report.

II. Development Overview - presents major statistics on certain 2000 GUP provisions, including the academic building area cap, the distribution of development, development projects that do not count toward the building area cap, housing, and parking.

III. Overview of Monitoring During Fifteenth Year - summarizes Stanford's activities and status of compliance with 2000 GUP conditions.

IV. Project Summaries - provides summaries of major Stanford projects that received Architectural and Site Approval (ASA) within this Annual Report's reporting period.

V. Anticipated Future Development - lists projects anticipated for submittal/approval during the next Annual Report period. Includes a map showing proposed locations.

VI. Other Information - presents references for the information used in this Annual Report and the persons involved in its preparation.

Appendix A - provides maps to illustrate the general orientation of Stanford University lands and campus.

Appendix B - presents the complete list of 2000 GUP conditions and associated activities in the reporting period.

Appendix C - provides cumulative tables and location maps for building projects, housing projects, parking projects, and grading projects.

Appendix D - provides a summary of the result of traffic monitoring at the Stanford University campus between 2001 and 2015.

Appendix E – presents the Stanford Sustainability Annual Report.

Appendix F – provides a summary of Stanford's approved Alternate Means Programs.

Glossary of Terms

The following terms and acronyms are used in this Annual Report:

AR	**Annual Report:** "AR 15" refers to Stanford's 15th annual report on development and compliance with GUP conditions.
ASA	**Architectural and Site Approval:** A procedure established by the County of Santa Clara Zoning Ordinance to review the quality of site and architectural design associated with a proposed project. ASA may establish conditions of approval that change and improve development design.
ASX	**Small Project Exemption from ASA:** Projects that are below a certain threshold due to their minimal impact are exempt from the full ASA process and public hearing. ASX is a discretionary staff approval process. ASX may establish conditions of approval that change and improve development design.
CEQA	**California Environmental Quality Act:** The overarching California law under which environmental reviews are conducted.
CP	**Stanford Community Plan:** Plan that refines the policies of the Santa Clara County's 1995 General Plan as they apply to Stanford lands under County jurisdiction.
EIR	**Environmental Impact Report:** Documents the result of environmental analyses conducted under CEQA.
GUP	**2000 General Use Permit:** Permit issued to Stanford by the County of Santa Clara, which describes the allowable distribution of additional building area, and establishes procedures under which construction may occur and associated measures that must be accomplished before, during and after construction as conditions of approval for development.
NPS	**Non-point source:** Refers to pollution of runoff by diffuse sources, such as vehicle traffic on parking lots or streets.
NSF	**Net square feet:** Total "net" or overall change in square footage. This category designates a total amount of positive or negative square footage for a project, based on square footage of total construction ("gross square footage") less any credits for demolition.
SDS	**Sustainable Development Study:** A Study required under GUP Condition E.5 that was submitted by Stanford and approved by the Board of Supervisors in 2009.

GUP Building Area Cap

The 2000 GUP (GUP Condition A.1.b) establishes a 2,035,000-net-square-foot building area cap for new academic and academic support uses. The limit applies to most nonresidential development that Stanford proposes to build during the time that this GUP is in effect. Because the exact amount of square footage may change due to design refinements that occur between initial ASA application and subsequent issuance of a building permit, the County requires that the actual square footage deducted from the building area cap be documented at the time a building permit is issued. The cumulative total building area authorized during the reporting period is provided in this annual report for those projects that received building permits between September 1, 2014 and August 31, 2015.

The GUP generally distributes the 2,035,000 sq. ft. of additional academic and academic support facilities among 11 development districts on the Stanford Campus. Map 2 in Appendix A shows the development districts. The majority of 2000 GUP academic building area is allocated to the Campus Center. The allocation of square footage between the development districts can deviate from the GUP's general allocation as long as the GUP procedures are followed (see GUP Condition E.2). For example, during the AR 8 reporting period, the allocation for Campus Center was revised down from 1,600,268 gsf to 1,480,268 gsf to allow for the allocation of 120,000 gsf to the DAPER and Administrative district to accommodate the Knight Management Center and future anticipated projects, which is consistent with the 2000 GUP.

Table 1 lists the development districts, the 2000 GUP allocation of building area for each district, and the amount of academic/academic support square footage that received ASA or building permit approval in each district during this reporting period. The academic/academic support projects that do not affect the GUP building area cap are not shown in Table 1. See Section IV, Project Summaries, for additional information on projects that received ASA approval during the AR 15 reporting period.

TABLE 1
ANNUAL REPORT 15
DISTRIBUTION OF GUP-ALLOWED ACADEMIC AND ACADEMIC SUPPORT DEVELOPMENT[1]

Development District	2000 GUP Building Area Distribution (gsf)	GUP Building Area Distribution at the end of AR 15[1]	ASA Approved Space (sq. ft.)	Building Permit Approved Space[2] (sq. ft.)	Previous ARs Cumulative Building Permit Approvals (sq. ft.)	Cumulative Total Building Permits Approved[3] (sq. ft.)	GUP Balance Remaining (sq. ft.)
Campus Center	1,605,000	1,389,337	58,233	(64,557)	1,043,063	978,506	410,831
DAPER & Administrative	250,000	370,000	1,023	19,810	344,871	364,681	5,319
East Campus	110,000	109,136	0	0	(38,112)	(38,112)	147,248
Quarry	50,000	50,000	0	0	0	0	50,000
Lathrop	20,000	20,000	0	0	0	0	20,000
West Campus	0	16,795	0	(432)	16,510	16,078	717
Foothills	0	4,732	0	0	3,192	3,192	1,540
Lagunita	0	75,000	0	0	73,195	73,195	1,805
Arboretum	0	0	0	0	0	0	0
San Juan	0	0	0	0	0	0	0
Total	**2,035,000**	**2,035,000**	**59,256**	**(45,179)**	**1,442,719**	**1,397,540**	**637,460**

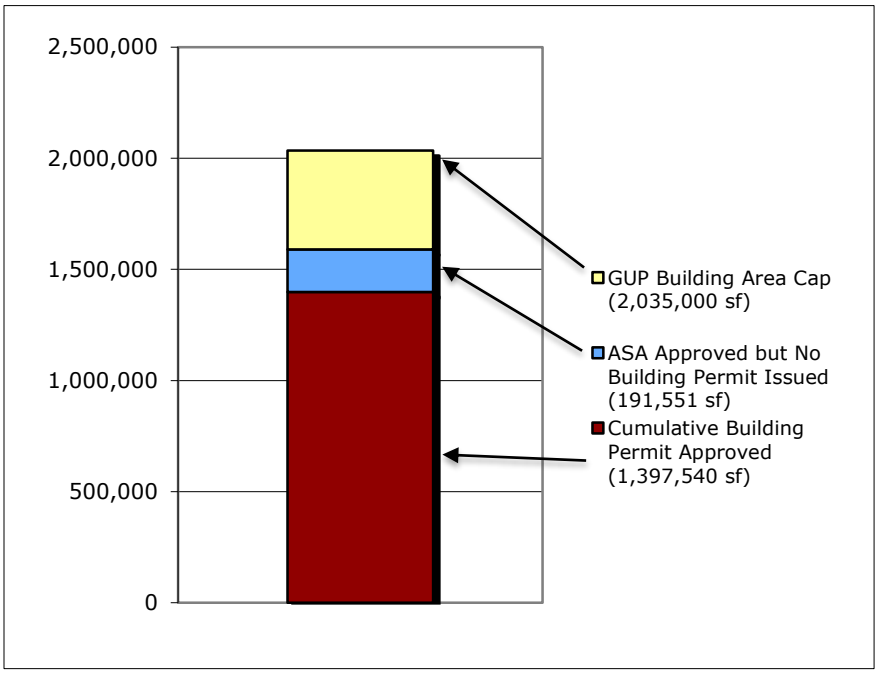
1. 2000 GUP Conditions E.2, 3, and 4 allow for deviations from the building area cap for each district. Any proposed increase in development in a district will be accompanied by an identified corresponding proposed decrease equivalent in building area in one or more of the other districts so that the overall campus-wide GUP building area cap is not exceeded. A cumulative maximum of 15,000 square feet of building area may be located in the Foothills District in a manner consistent with the General Plan and zoning. This amount may not be increased. Redistribution occurred in AR 8, AR 9, and AR 13. In AR 14, 864 square feet was redistributed from East Campus to West Campus, to accommodate the Educational Farm.
2. Square footage is counted against the GUP building area cap in the reporting year in which the building permits are approved.
3. Cumulative totals include adjusted results from the current and previous annual reports. Also see Appendix C and/or previous annual reports for more detailed background on these cumulative totals.

During the AR 15 reporting period, 17 projects received ASA and 1 project received ASX approvals. The County also processed 3 of these as Resubmittals of projects that were deemed incomplete to take an action.

Figure 2 illustrates the cumulative status of building-permit-approved square footage for academic/academic support facilities, including the ASA approved square footage counted during the reporting period, as also shown in Table 1. In addition, it illustrates the remaining allowable square footage for development under the 2000 GUP.

Figure 2 illustrates the cumulative status of development that counts toward the GUP building area cap. The square footage of building permit approvals is cumulative. In contrast, ASA approved square footage is only shown for projects that received ASA and ASX (small project) approval during the current reporting period.

FIGURE 2: CUMULATIVE DEVELOPMENT ACTIVITY 12/12/00 - 8/31/15

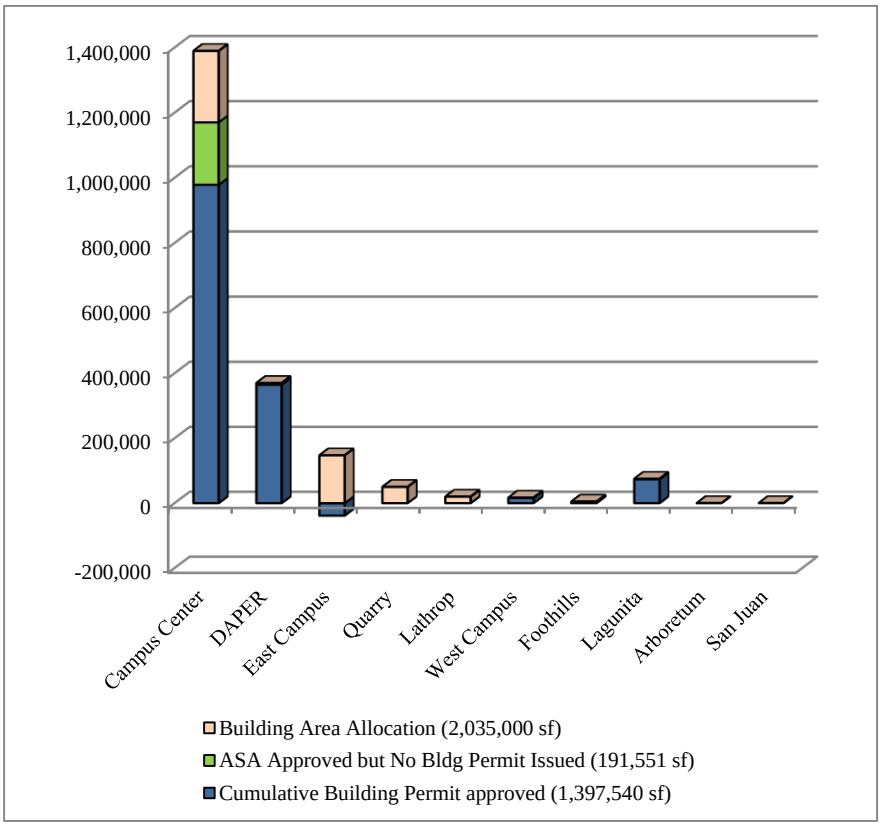


The Stanford Community Plan and GUP Condition E.5 required that a Sustainable Development Study (SDS) be completed and approved prior to acceptance of applications for the second 50% of the academic development allowed under the 2000 GUP. The SDS was presented to the Stanford Community Resource Group (CRG) on November 13, 2008 and to the Planning Commission on November 20, 2008, and was approved by the Board of Supervisors on April 7, 2009. See Appendix E for a Summary of Stanford's Sustainability Activities during this reporting period.

Figure 3, below, based on data in Table 1, illustrates the 2000 GUP distribution of academic/academic support square footage throughout the 10 development districts, and the academic/ academic support square footage authorized by building permits or received approval by the ASA committee during the current reporting period. Anticipated projects or projects in the approval process for Annual Report 15 reporting period are noted in Section V, Table 6.

A map of Stanford University's Development District is provided in Map 2 in Appendix A. The distribution of GUP-allowed academic and academic support development is detailed in Table 1.

FIGURE 3: DISTRIBUTION OF ACADEMIC DEVELOPMENT



Other Space Caps

Remaining 1989 GUP Approved Square Footage

In addition to providing a 2,035,000 sq. ft. academic/academic support building area, the 2000 GUP preserved the remaining 92,229 gsf authorized but undeveloped under the 1989 GUP. The remaining 1989 GUP approved square footage was consumed during the Annual Report 5 reporting period.

Temporary Surge Space

The 2000 GUP (Condition A.2.c) allows Stanford University to install up to 50,000 sq. ft. as surge space during construction. Surge space is typically provided by installing modular buildings for a limited time. There was no change in the square footage of temporary trailers during this reporting period.

Childcare and Community Centers

The 2000 GUP (Condition A.2.c) allows up to 40,000 sq. ft. of building area for the purpose of new childcare or community centers, in addition to the academic/academic support building area. As indicated in Table 2, a total of 3,638 gsf remains available.

TABLE 2
ANNUAL REPORT 15
OTHER SPACE CAPS - PROJECT SUMMARY

Non-Building Cap Category	Maximum Allowable Square Footage	ASA Approved (sq. ft.)	Building Permit (sq. ft.)	Cumulative Building Permits Approved (sq. ft.) in Previous ARs	Cumulative Total Building Permits Approved (sq. ft.)	Balance Remaining (sq. ft.)
Remaining 1989 GUP Square Footage	92,229	0	0	92,229	92,229	0
Temporary Surge Space	50,000	0	0	20,224	20,224	29,776
Childcare/ Community Center	40,000	0	0	36,362	36,362	3,638

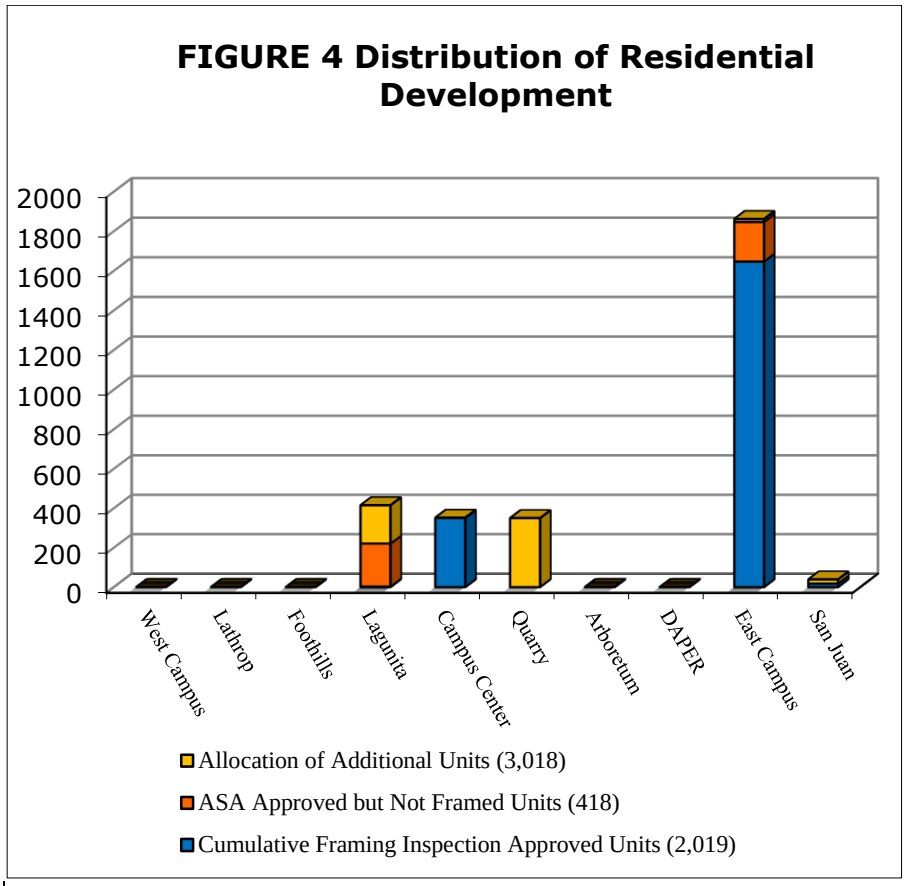
Housing

The 2000 GUP allows for the construction of 3,018 net new housing units on campus, with allocations for faculty and staff, graduate and undergraduate students, and postdoctoral and medical students as shown in Table 3. The GUP identified potential housing sites for students, staff and faculty (Map 3, Appendix A). As with academic/academic support building space, the housing units must be distributed among the 10 development districts (see Table 3).

Housing may also be developed on sites other than those shown on Map 3. The estimated distribution of the type and location of housing among development districts may deviate from the locations described in the 2000 GUP pursuant to Conditions F.2, F.3, and F.4. As explained under Condition A (A.1.c, A.1.d, and A.3.b), the square footage of housing units constructed is tracked but does not count toward the 2000 GUP building area cap (see Table C-2, Appendix C).

During the AR 15 reporting period, 4 housing renovations were approved and constructed, resulting in 2 additional student housing units. For purposes of the housing linkage requirement, as provided in GUP Condition F.8, the housing requirement is counted at the time of the framing inspection.

FIGURE 4: DISTRIBUTION OF RESIDENTIAL DEVELOPMENT



There is a total allocation of 3,018 housing units for the campus. As illustrated in Figure 4, the cumulative total number of approved units under the 2000 GUP allocation, which have completed framing inspection, is 2,019 units. A total of 581 housing units remain available under the housing allowance.

TABLE 3
ANNUAL REPORT 15
DISTRIBUTION OF RESIDENTIAL DEVELOPMENT

Development District[1]	Allowable 2000 GUP Net Additional Units[6]	ASA Approved Units but Not Yet Framed	Past Cumulative[2]	Final Framing Inspection Approved Units	Cumulative
West Campus	0 [4]	0	0	0	0
Lathrop	0	0	0	0	0
Foothills	0	0	0	0	0
Lagunita **- Driving Range** **- Searsville Block** **- Mayfield/Row**	415 [3,4]	218 (New Residences at Lagunita Court)	3	0	3
Campus Center	352	0	351	0	**351**
Quarry **- Quarry/Arboretum** **- Quarry/El Camino**	350	0	0	0	0
Arboretum	0	0	0	0	0
DAPER & Administrative	0	0	0	0	0
East Campus **- Manzanita** **- Escondido Village** **- Quillen** **- GSB Residences**	1,862 [3,4,5]	200 (GSB)[5]	1,518	129	1,647
San Juan **- Lower Frenchman's** **- Gerona** **- Mayfield**	3939	0	14	4 (Phi Kappa Psi and Kairos)	18
Total	**3,018 Allowed[2]**	**418**	**1,886**	**133**	**2,019**

1. Housing may be developed on other sites and development may vary from the estimated distribution with regard to either the type (student, postdoctoral, or faculty/staff) or amount of housing on the site (2000 GUP Conditions F.2, F.3, and F.4). Redistribution was reported in AR 6. In AR 13, 310 graduate units were redistributed from Lagunita to East Campus – 60 units for the McFarland project and 250 units for the Comstock Graduate Housing project.
2. Cumulative totals include results from previous annual reports. See Appendix C and/or previous annual reports for more detailed background on these cumulative totals.
3. Manzanita Park Residence Hall was approved on October 10, 2013, together with the redistribution of 128 student units from Lagunita to East Campus. This project is currently under construction and is anticipated to be completed in March 2015.
4. The redistribution of 372 faculty/staff units from West Campus to 166 student units in Lagunita and 206 student units in East Campus was approved by the County Board of Supervisors on November 26, 2013.
5. GSB Residences was approved on July 31, 2014, for 200 graduate student units. No redistribution occurred.
6. A GUP amendment was approved on May 5, 2015 to revise the remaining housing allocations by housing types, to provide flexibility in meeting campus housing needs. All remaining unused housing allowances consisting of 228 faculty/staff beds, 3 graduate student bends, and 350 post-doc/medical resident beds, were approved to be usable for any type of university affiliate housing.

Parking

The 2000 GUP allows for 2,300 net new parking spaces above the campus base of 19,351 spaces. As explained in Condition A.3.c, the building area of parking structures does not count towards the GUP academic/academic support building area cap. As with academic/academic support building area square footage and housing, the allowed parking spaces have been distributed among the development districts (Table 4 and Figure 5).

FIGURE 5: DISTRIBUTION OF PARKING SPACES

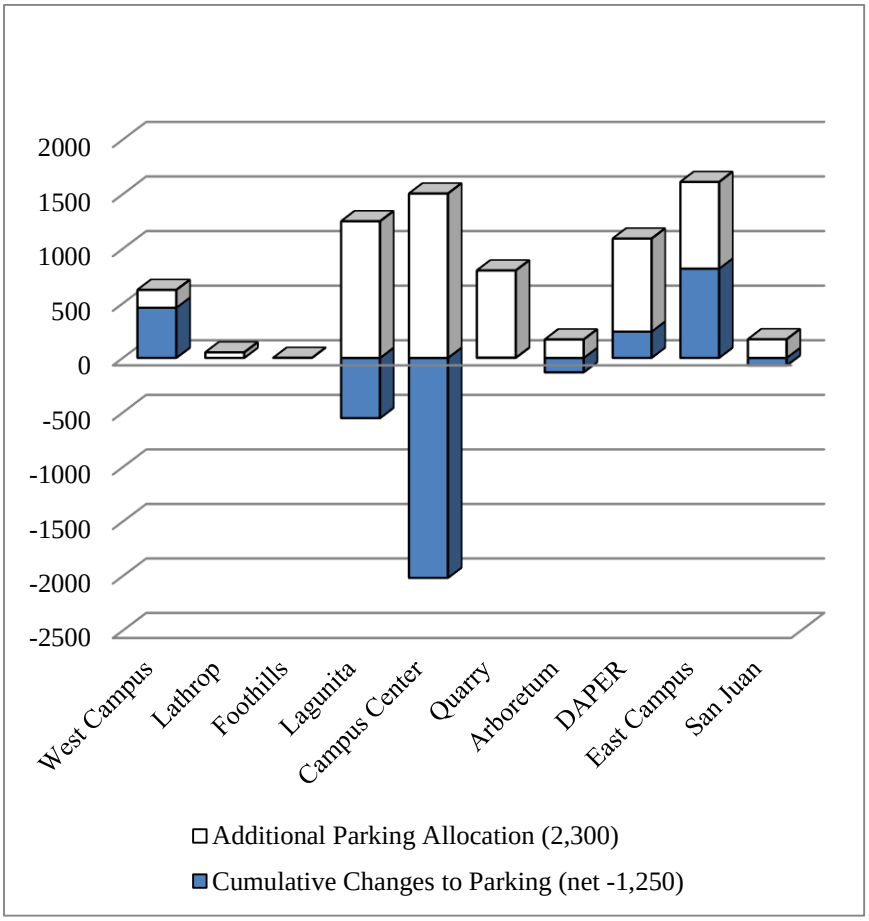


Table 4 presents the changes in parking spaces during the current reporting period, and cumulative increases and decreases in parking spaces on the campus during the AR 1 through AR 15 reporting periods.

During the AR 15 reporting period, there was a net decrease of 695 parking spaces on campus. The cumulative change in the parking inventory is a net decrease of 1,250 parking spaces under the 2000 GUP.

TABLE 4
ANNUAL REPORT 15
DISTRIBUTION OF PARKING

Development District	Base Parking GUP EIR	2000 GUP Allowed Change in Parking Spaces	Changes to Parking Inventory				Unused 2000 GUP Allocation
			AR 15 Contribution	Previous AR 1-14 Contribution	Cumulative (AR 1 Through Current AR 15)	EIR Base and Cumulative (Current Parking Capacity)	
West Campus	191	622	(132)	591	459	650	163
Lathrop	0	50	0	0	0	0	50
Foothills	0	0	0	0	0	0	0
Lagunita	1,745	700	(392)	(159)	(551)	1,194	1,251
Campus Center	8,743	(511)	88	(2,104)	(2,016)	6,727	1,505
Quarry	1,058	800	15	(12)	3	1,061	797
Arboretum	134	36	(168)	36	(132)	2	168
DAPER & Administrative	2,209	1,092	1	239	240	2,449	852
East Campus[1]	4,731	1,611	(111)	928	817	5,548	794
San Juan	540	100	4	(74)	(70)	470	170
Campus Wide Summary	19,351	2,300[2]	(695)	(555)	(1,250)	18,101	3,550

1. Parking allocation in East Campus increased from 900 to 1,611 spaces and decreased in Campus Center from 200 to negative 511 with the approval of Parking Structure 6 (Munger).

2. According to 2000 GUP Condition H.1, the total net additional parking on campus shall not exceed 2,300 spaces, except for parking provided with any housing that is constructed in excess of 3,018 planned housing units. Also, parking constructed, as part of and for new faculty/staff housing in areas designated Campus Residential-Low Density and Campus Residential-Medium Density will not count toward the limit for each development district. In order to allow flexibility in the distribution of parking, the GUP also sets an upper limit for new parking in each development district. Some districts will ultimately build less than their GUP allocations. Thus, the sum of unused district allocations is more than the remaining 2000 GUP allocation, which is the campus-wide maximum number of parking spaces that will be built under this GUP.

3. Parking allocation for Arboretum increased from zero to 36 spaces and decreased in DAPER from 1,700 to 1,664 when on-street, non-striped parallel parking was converted to striped, angled parking along the west side of the street, and two-way traffic was converted to one-way northbound traffic in association with the Galvez Parking Lot project.

4. Parking allocation for West Campus increased from 50 to 622 and decreased in DAPER from 1,664 to 1,092 when 611 new surface parking stalls were added to the Searsville Parking lot and 19 on-street parking spaces were removed in West Campus.

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III. Overview of Monitoring During Fifteenth Year

This section provides a summary of activities conducted during the AR 15 reporting period in compliance with 2000 GUP conditions. For a complete discussion of compliance with each 2000 GUP condition, please see Appendix B.

GUP Condition A: Building Area

Section II of this Annual Report provides statistics and distribution of building area by district. It also provides accounting of the 2000 GUP space expenditure for those projects that received building permits during the AR 15 reporting period. Descriptions and illustrations of projects that received ASA and ASX during the AR 15 reporting period are provided in Section IV.

During the AR 15 reporting period, September 1, 2014 through August 31, 2015:

- Stanford did not exceed the GUP building area cap, or the GUP caps for new housing and parking.
- Stanford also remained within the other space caps established under the GUP.

GUP Condition B: Framework

A total of18 projects received ASA approval or ASA Small Project Exemption (ASX) during the AR 15 reporting period. All were determined to be consistent with General Plan land use designations and zoning. Stanford University paid all costs associated with the work conducted by the County Planning Office in relation to the 2000 GUP (staff time, consultant fees, and the direct costs associated with report production and distribution) in a timely manner.

GUP Condition C: Monitoring, Reporting, and Implementation

The County Planning Office gathered comprehensive data related to Stanford projects, compiled the information, produced and published the AR 15 pursuant to the 2000 GUP. Stanford University provides funding for all aspects of the Annual Report preparation, and necessary information included in the report.

The Draft AR 15 will be presented to the Community Resource Group on April 7, 2016 and the final report will be presented to the Planning Commission at the June 2016 public hearing.

GUP Condition D: Permitting and Environmental Review

During the AR 15 reporting period, Stanford received ASA or ASA Small Project Exemption (ASX) for 18 projects. All of these projects were determined to be consistent with the General Plan land use designations and zoning requirements, and found to be adequately analyzed in the CP/GUP EIR. See Section II of this Annual Report for the status of each project.

When violations of codes, ordinances or other requirements occur, they are addressed through appropriate County procedures. It is beyond the scope of this Annual Report to document every minor violation of County ordinances or other requirements that occur on Stanford University land. As of this Annual Report, there has been no action that would require the County Planning Commission to consider or determine Stanford to be in non-compliance with any GUP condition or mitigation requirement. Stanford University remains in compliance with the GUP.

The zoning enforcement office and building inspection office report that Stanford University is in general compliance with other County requirements.

GUP Condition E: Academic Building Area Review

Stanford is in compliance with GUP Condition E.5. See Appendices B and E for more detail.

GUP Condition F: Housing

During this reporting period, Stanford renovated 2 Row houses adding 4 beds, and framed 129 units at the Manzanita Park Residence Hall, adding a total of 133 housing units. The total number of campus housing units constructed under the 2000 GUP is 2,019.

Currently, Stanford's capacity for providing student-housing units remains equivalent to the capacity identified by Stanford University at the time of initial occupancy. Stanford's housing need is subject to fluctuation during any given year. Accordingly, Stanford University may redistribute the student population among existing housing facilities in any given year, based on current population and programmatic needs. The County will, as needed, reassess housing availability status with appropriate Stanford University staff. If Stanford University should ever apply for a development permit that would change the number of beds available to students, that action and the change in beds would be reported in the Annual Report.

The 2000 GUP requires Stanford to build additional housing units commensurate with the development of academic/academic support facilities. The threshold at 1,000,000 gsf of academic or academic support area requires a minimum of 1,210 housing units. Stanford University has constructed 2,019 units and is therefore, in compliance with this requirement.

Stanford University has complied with County requests for affordable housing in-lieu payments after building permit issuance and before occupancy. As of August 2015, the affordable housing fees are assessed at the rate of $19.85 per square foot of net new academic or academic support space approved under the building permit. Stanford has made affordable housing fee payments to date (as of December 2015) totaling $26,559,153. Five affordable housing projects have been funded so far with $13,345,811. Maybell Orchard proposed by Palo Alto Housing Corporation, originally planned to provide 50 units, was cancelled in November 2013. The fund balance as of December 2015 is $13,213,342 which has been set aside by the Board towards the Buena Vista Mobile Home Park project in Palo Alto. The six projects built within the 6 mile radius from Stanford Campus boundary have provided 319 affordable housing units, with 137 units restricted to very low income to extremely low income families.

The Manzanita Park Residence Hall was framed within this reporting period. The GSB Residences and New Residences at Lagunita Court are currently under construction.

GUP Condition G: Transportation

A baseline traffic count to determine the existing level of commute trips entering the campus during the morning peak commute period and leaving the campus during the evening peak commute period was established in 2001. Data collection during the AR 15 monitoring period involved 6 weeks in Spring 2015 and 2 weeks in Fall 2015 to monitor Stanford's compliance with the "no-net-new commute trip" standard. The Stanford University Traffic Monitoring Report 2015 is available for review at the County and is also available on the County website, (www.sccplanning.org). Results of annual traffic monitoring are summarized in Appendix D of this document.

The Annual Report normally reports on activity between September 1 and August 31. However, the annual Traffic Monitoring Reporting period is the same as the baseline, 6 weeks in the Spring and 2 weeks in the Fall.

The 2015 Monitoring Report concluded that the adjusted morning (AM) inbound count totaled 3,142 vehicles. This number is 297

vehicles below the baseline, the 90% confidence interval, and does not represent a significant AM inbound traffic increase. The afternoon (PM) outbound count totaled 3,257 vehicles. This number is also below the 90% confidence interval by 298 vehicles and below the one-percent established trigger by 334 vehicles. Trip credits submitted by Stanford were not applied as the vehicle counts were below the thresholds in this reporting period. Therefore no additional mitigation is required.

The 2015 traffic monitoring cordon locations used for traffic monitoring are shown on Map A-4, Appendix A. Data and analysis of these counts, reported in March 2016, are provided in Appendix D of this annual report.

GUP Condition H: Parking

During AR 15 reporting period, all parking projects were in compliance with GUP Condition H. Detailed information may be found in Section II, Table 4 and Appendix B, Appendix C (Map C-3) and Figure 5. As indicated in this Annual Report, several parking projects were implemented. The cumulative change in the parking inventory remains significantly under the cap set for the 2000 GUP, which allowed a total increase campus-wide of 2,300 spaces. With cumulative reductions, the remaining parking capacity that could be installed under the 2000 GUP parking cap is 3,550 spaces.

GUP Condition I: Parks and Recreation Facilities

Construction of C2/Arastradero Trail: Construction and trail improvements were completed and the trail was dedicated in November 2013. The trail links to the Pearson-Arastradero Preserve.

San Mateo County and Stanford did not reach agreement for the San Mateo C1 segment and in February 2012, Stanford paid the County approximately $10.3 million. In August 2012, the County issued a request for applications for projects that would serve as alternative mitigation measures to address the loss of recreational facilities on the Stanford campus. The County received 15 project applications from six local agencies. The Board of Supervisors declared its intent to fund six of the 15 projects, including $4.5 million to Stanford to construct a perimeter trail along El Camino Real and Stanford Avenue frontages. The Board also directed County Administration to negotiate projects agreements for the selected projects and submit approval to the Board consistent with the requirements of CEQA. The Stanford Perimeter Trail was approved in December 2014 and construction is expected to be complete by December 2015.

GUP Condition J: California Tiger Salamander

The final Stanford University Habitat Conservation Plan (HCP) and Final Environmental Impact Statement (EIS) were published on November 23, 2012 and the HCP was revised in March 2013. On August 13, 2013, the County Board of Supervisors acknowledged the determination that the approved HCP provides equal habitat value and protection for the California Tiger Salamander (CTS). Therefore, the HCP supersedes all conditions in the GUP that address the CTS, implementing Condition J.9 of the GUP.

GUP Condition K: Biological Resources

Three projects that began construction during the current reporting period required pre-construction surveys for breeding raptors and migratory birds. For more information, see Appendix B, Condition K.2. No special status plant assessments was conducted on campus during this reporting period.

GUP Condition L: Visual Resources

Six projects approved during the reporting period included exterior lighting. The ASA conditions of approval required the lighting impacts to be mitigated and limited to the site to be in keeping with the Visual Resources conditions.

GUP Condition M: Hazardous Materials

During the AR 15 reporting period, no new buildings will include hazardous materials that are regulated by the California Accidental Release Prevention Law.

GUP Condition N: Geology and Hydrology

During the AR 15 reporting period, all projects were in compliance with GUP Condition N. See Appendix B, Condition N for more details.

GUP Condition O: Cultural Resources

During the AR 15 reporting period, all projects were in compliance with GUP Condition O. See Appendix B, Condition O for more details.

GUP Condition P: Utilities and Public Services

During the AR 15 reporting period, all projects were in compliance with GUP Condition P. See Appendix B, Condition P for more detail.

GUP Condition Q: Air Quality

All approved projects were required to comply with BAAQMD's permitting, control measures and recommendations as appropriate. See Appendix B, Condition Q for more detail.

GUP Condition R: Noise

Stanford complied with the requirements of the County Noise Ordinance on individual construction projects. Two events per calendar year are allowed by the GUP, and additional fireworks events were allowed under separate permits. Stanford maintained the noise hotline (650) 723-2281. The University reports that 18 complaints were received.

The noise hotline was intended to serve outdoor special events and Stanford continues to meet the GUP condition. However, Stanford reports that the hotline has recently been used to capture day-to-day noise issues that typically go to Public Safety or 911. Out of the 18 complaints in the AR 15 reporting period, 14 complaints were from residents on the campus about noises within residential areas on-campus. See Appendix B, Condition R for more detail.

GUP Condition S: Additional GUP Conditions

This condition was a requirement for Stanford University to agree to the GUP conditions of approval within 60 days. This condition was fulfilled in Annual Report 1.

Project Summaries

This section presents brief project summaries of all major projects that received ASA approval or exemption and/or a building permit or demolition permit during the reporting period. A list of projects that received approval is presented at the end of this section. Figure 6 shows the locations of the major projects.

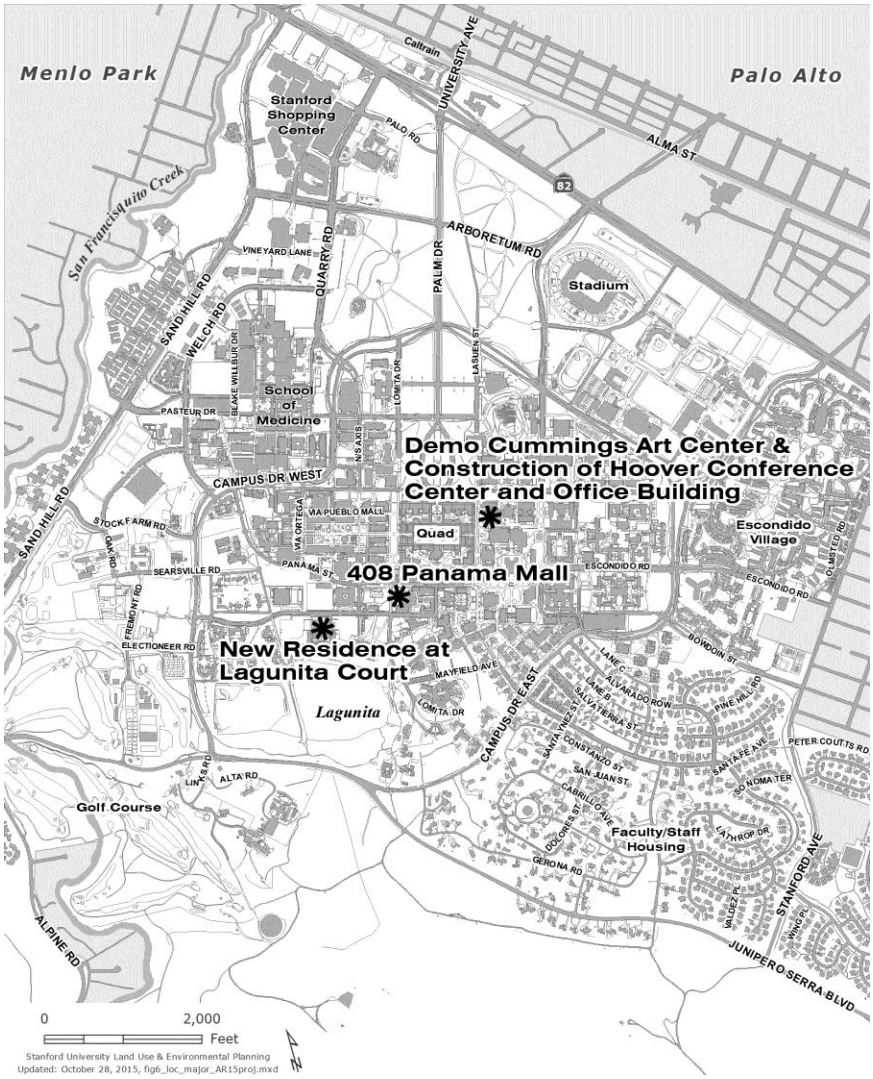

FIGURE 6: LOCATION OF MAJOR ANNUAL REPORT 15 PROJECTS

File No. 9731: 408 Panama (Admin Building)

ASA Application Submitted:	07/15/2013
ASA Approved:	10/10/2013
Status as of 08/31/15:	Under construction. Expected completion April 2016.
Project Description:	The 56,790-square-foot, four-story building at the corner of Panama Mall and Lomita Drive will be constructed in two phases – as a shell, and then interior improvements to support several university groups, including Dean of Research, Vice Provost for Teaching and Learning, Business Affairs, and the University Budget Office, to name a few. No trees larger than 12" dbh will be removed. Estimated grading quantities are 16,338 cubic yards of cut and 7,105 cubic yards of fill. This project is academic space; therefore the building space counts against the 2000 GUP building area cap.
Development District:	Campus Center
Type of Project:	Academic
	
Applicable GUP Conditions:	Stanford is in compliance with Mitigation Monitoring and Reporting Program requirements and GUP Conditions for this project. Detailed summaries of project-related conditions are maintained in County project files.

File No. 6819: New Residences at Lagunita Court

ASA Application Submitted:	06/10/2014
ASA Approved:	09/04/2014
Status as of 08/31/15:	Under construction. Expected completion August 2016.
Project Description:	Two new undergraduate residence halls will be added to Lagunita Court complex at 326 Santa Teresa Street. The project will add 216 net new student beds and 2 Resident Fellow units in one-room singles, traditional doubles, and two-room doubles. The two buildings are three stories tall, and amenities include a large lounge with adjoining kitchenette and exterior patio for social gatherings and activities, study spaces, and computer clusters. 14 trees will be removed, 20 trees will be replanted. Estimated grading quantities are 4,111 cubic yards of cut and 28.5 cubic yards of fill. This project is residential space; therefore the units count against the 2000 GUP residential unit cap.
Development District:	Lagunita
Type of Project:	Residential

Applicable GUP Conditions:	Stanford is in compliance with Mitigation Monitoring and Reporting Program requirements and GUP Conditions for this project. Detailed summaries of project-related conditions are maintained in County project files.

File No. 10723: David and Joan Traitel Building, Hoover Institution

ASA Application Submitted:	03/03/2015
ASA Approved:	06/04/2015
Status as of 08/31/15:	Awaiting Grading and Building Permits
Project Description:	The new 50,340 square feet David and Joan Traitel Building to be constructed at 435 Lasuen Mall will add new office and conference facility capacity in order to meet demand for policy-oriented research and dissemination. The site for the new building is the location of the existing Cummings Art Building (51,024 GUP sf), which will be demolished as part of this project. The Traitel Building will house the administrative headquarters of the Hoover Institution with offices and conference rooms on the upper floor. The ground floor will be a major conferencing facility, including an auditorium seating 400 and a dining-multipurpose room for 440. Guests will be welcomed through a transparent pavilion that will look out on the Hoover Tower and lead to a semi-private courtyard. An arcade will be constructed along Crothers Way to connect the new facility to the existing Hoover buildings. As part of this project, 6 oaks and 21 non-oaks were removed, replaced by 6 oaks and 64 non-oaks on the site. Estimated grading quantities for building and sitework combined are 520 cubic yards of cut and 16,851 cubic yards of fill. This project is academic space; therefore the building space counts against the 2000 GUP building area cap.
Development District:	Campus Center
Type of Project:	Academic
	 
Applicable GUP Conditions:	Stanford is in compliance with Mitigation Monitoring and Reporting Program requirements and GUP Conditions for this project. Detailed summaries of project-related conditions are maintained in County project files.

TABLE 5
ANNUAL REPORT 15
DEVELOPMENT PROJECTS RECEIVING ASA OR OTHER APPROVAL

PC/ File #	Project Name	Development District	ASA gross sq. ft.	Demolition sq. ft.	Bldg. Permit sq. ft.	Development Status
Projects that affect GUP gsf						
10323	Replacement Central Energy facility	Campus Center	14,715		14,715	Completed
10363	McMurtry Art – Art History	Campus Center	83,649		84,239	Completed
10346	520/524 Renovation	Campus Center	2,065		2,237	Completed
9731	408 Panama Mall	Campus Center	56,990		56,790	Under Construction
10478	Science Teaching and Learning Center - Old Chemistry Project	Campus Center	75,935		68,151	Under Construction
5945	Sunken Diamond New Entry/Locker Room Expansion	DAPER & Admin	3,423		3,410	Under Construction
10520	Educational Farm	West Campus	864		864	Completed
6939	Cagan Soccer Field Bleacher Lockers	DAPER & Admin	2,658		2,658	Completed
8572	Maples Pavilion Addition	DAPER & Admin	1,135		1,135	Completed
10438	Softball Field House	DAPER & Admin	2,618		2,618	Completed
10540	Roble Gym Renovation	Campus Center	544		544	Under Construction
6512	Footlball Stadium New Locker Room	DAPER & Admin	8,966		8,966	Under Construction
10545	Field Conservation Facility	Campus Center	2,842		2,842	Completed
8605	Demolition of old Field Conservation Facility	Campus Center		(2,821)		Demolished
8605	Siebel Varsity Golf Training Complex	West Campus and Campus Center	3,461	(432)	3,431 (no change in demo sf)	Under Construction

TABLE 5
ANNUAL REPORT 15
DEVELOPMENT PROJECTS RECEIVING ASA OR OTHER APPROVAL

PC/ File #	Project Name	Development District	ASA gross sq. ft.	Demolition sq. ft.	Bldg. Permit sq. ft.	Development Status
10612	Golf - 10th Tee Improvements	Foothills	0		0	Building Permits obtained, project on hold
10617	Meyer Library Demolition	Campus Center		(124,710)		Demolished
10635	End Station 3 Infrastructure and Code Upgrades	Campus Center	0		0	Under Construction
5622	Golf Learning Center	Lagunita	2,035	(1,740)	Not yet	Awaiting Planning Approval
56246	Lasuen Restrooms	DAPER & Admin	N/A		1,023	Completed
41254	Demolition of Central Energy Facility	Campus Center		(8,715)		Demolition underway
57153	Hogan Lab Renovation Project	Campus Center	N/A		107	Completed
3947	Addition to the Ford Center	Campus Center	3,310		Not yet	Project on hold
10723	Demolition of Cummings Art Center and Construction of Hoover Conference Center & Office Building	Campus Center	50,340	(51,024)	Not yet	Awaiting Grading and Building Permits
10414	Palo Lot Trailers	Quarry	N/A	N/A	N/A	withdrawn
10804	Regional Loading Dock Expansion	Campus Center	2,284	(20,628)		Awaiting Planning Approval
57932	Demolition of HEPL Powerhouse	Campus Center		(3,684)		Awaiting Planning Approval
10784	ChEM-H & SNI	Campus Center	210,953			Awaiting Planning Approval
Projects that affect other gsf						
10228	Temporary Arboretum Childcare Center	Campus Center	10,560 (remaining in temp. surge)			Use extended

TABLE 5
ANNUAL REPORT 15
DEVELOPMENT PROJECTS RECEIVING ASA OR OTHER APPROVAL

PC/ File #	Project Name	Development District	ASA gross sq. ft.	Demolition sq. ft.	Bldg. Permit sq. ft.	Development Status
Housing						
10447	Manzanita Park Residence Hall	East Campus	39,696		41,805	Completed
10538	Phi Kappa Psi	San Juan	505		505	Completed
10539	Kairos	San Juan	979		979	Completed
10541	Lasuen	San Juan	0		Not yet	Awaiting Planning Approval
10537	La Maison Francaise (French House)	San Juan	871		Not yet	Awaiting Planning Approval
9120	717 Dolores	San Juan	928		Not yet	Awaiting Planning Approval
10600	GSB Residences	East Campus	124,670		124,670	Under Construction
6819	New Residences at Lagunita Court	Lagunita	74,300		77,300	Under Construction
Site Projects						
10307	Central Process Steam building	Campus Center	N/A	N/A	N/A	Completed
10279	RAN 24 Distribution Antenna System	DAPER & Administration	N/A	N/A	N/A	Completed
8453	Toyon-Branner Boiler	East Campus	N/A	N/A	N/A	Completed
9024	LPCH-SHC Steam Plant	Campus Center	N/A	N/A	N/A	Completed
8464	Stanford Perimeter Trail	Multiple Districts	N/A	N/A	N/A	Under Construction
9351	Roble-Lagunita Boiler Enclosure	Lagunita	N/A	N/A	N/A	Completed
10572	Stanford Parking Structure 10 (PS-10)	Campus Center	N/A	N/A	N/A	Under Construction
10578	Cubberley Boiler	Campus Center	N/A	N/A	N/A	Completed

TABLE 5
ANNUAL REPORT 15
DEVELOPMENT PROJECTS RECEIVING ASA OR OTHER APPROVAL

PC/ File #	Project Name	Development District	ASA gross sq. ft.	Demolition sq. ft.	Bldg. Permit sq. ft.	Development Status
10486	Searsville Parking Lot	West Campus	N/A	N/A	N/A	Parking lot completed
10628	Regional Storm Water Treatment Facility	Campus Center	N/A	N/A	N/A	Under Construction
10689	West Campus Detention Basin	West Campus	N/A	N/A	N/A	Under Construction
10478	Lomita/Roth Parking Lot and Lomita Road	Campus Center	N/A	N/A	N/A	Building Permits obtained; Construction anticipated to start in May 2016

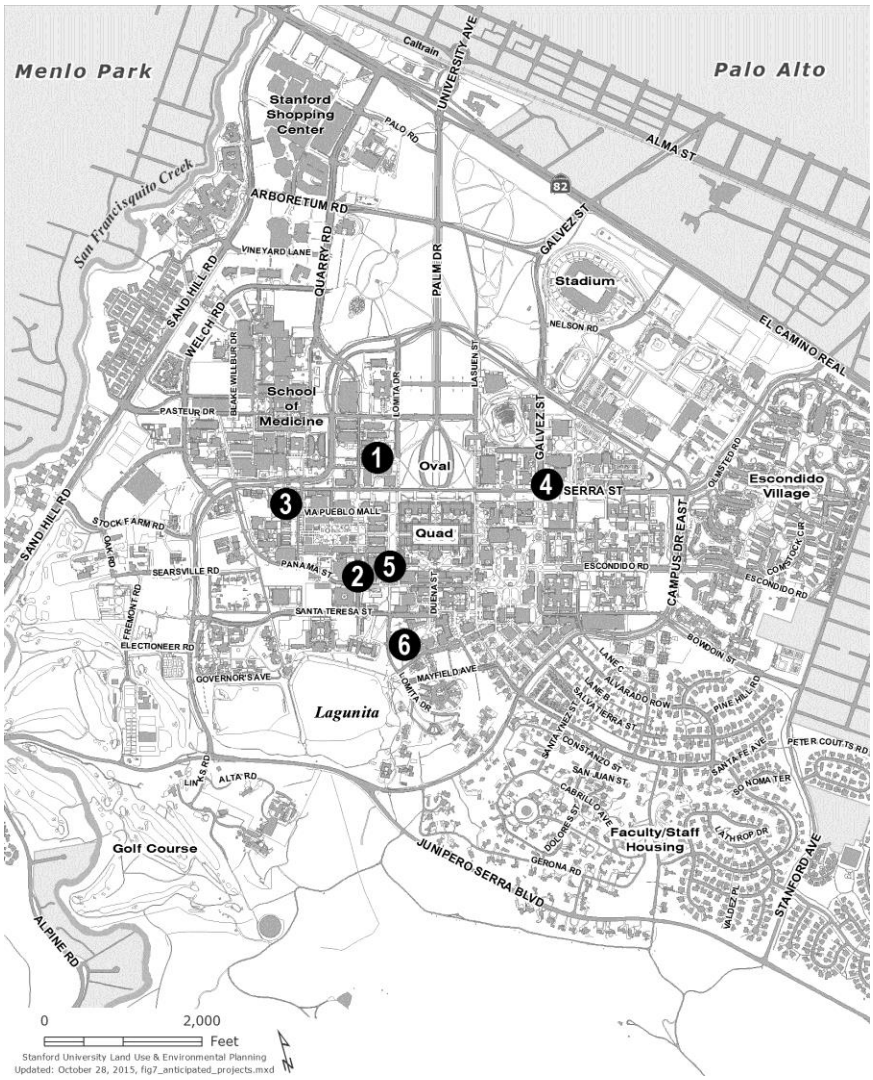

FIGURE 7: LOCATION OF ANTICIPATED PROJECTS

Map ID	Project
1	Regional Loading Dock Expansion
2	Demolition of HEPL Powerhouse
3	ChEM-H & SNI
4	Galvez and Serra St Parking Lot
5	Earth Sciences Courtyard Infill
6	Kingscote Gardens Renovation

TABLE 6
ANTICIPATED PROJECTS FOR ANNUAL REPORT 16

County File #	Project	Development District	ASA Application Submitted	Anticipated ASA Square Footage	Anticipated Housing	Anticipated Parking
ASA Applications Submitted During AR 15, No Approval as of August 31, 2015						
10804	Regional Loading Dock Expansion	Campus Center	8/24/15	(18,344)	0	3
57932	Demolition of HEPL Powerhouse	Campus Center	5/27/15	(3,684)	0	0
10784	ChEM-H & SNI	Campus Center	7/9/15	210,953	0	(53)
ASA Applications Anticipated for AR 15 Reporting Period						
6253	Galvez and Serra St Parking Lot	Campus Center	9/9/15	0	0	5
43135	Earth Sciences Courtyard Infill	Campus Center	9/9/15	2,697	0	0
-	Kingscote Gardens Renovation	Campus Center	-	20,650 (converted from housing gsf)	(33)	unknown

References

- Santa Clara County 2000 Stanford Community Plan/General Use Permit Environmental Impact Report. Prepared by Parsons.
- Stanford University Community Plan. Adopted by Santa Clara County Board of Supervisors December 12, 2000.
- Stanford University General Use Permit. Approved December 12, 2000.

County of Santa Clara Report Project Preparers

- Kavitha Kumar, Senior Planner (Project Manager: Stanford Environmental Mitigation Monitoring and Reporting Program), Santa Clara County Planning Office
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Stanford University Data Providers

- Catherine Palter, Associate Vice President, Karen Hong, AICP, Community Planner/Analyst, and Joe Ryan, GIS Specialist, Land Use and Environmental Planning
- Fahmida Ahmed, Associate Director, and Lauren Hennessy, Sustainability Program Manager, Sustainability and Energy Management
- Brian Shaw, Director, and Brian Canada, Parking Operations Coordinator, Parking & Transportation Services
- Laura Goldstein, Director, Project Managers and staff, Department of Project Management
- Adam Porter, Civil Infrastructure Engineer, Utilities
- Project Management Resources, Residential and Dining Enterprises, Environmental Health & Safety Department, Facilities Operations - Utilities, University Architect/Campus Planning and Design

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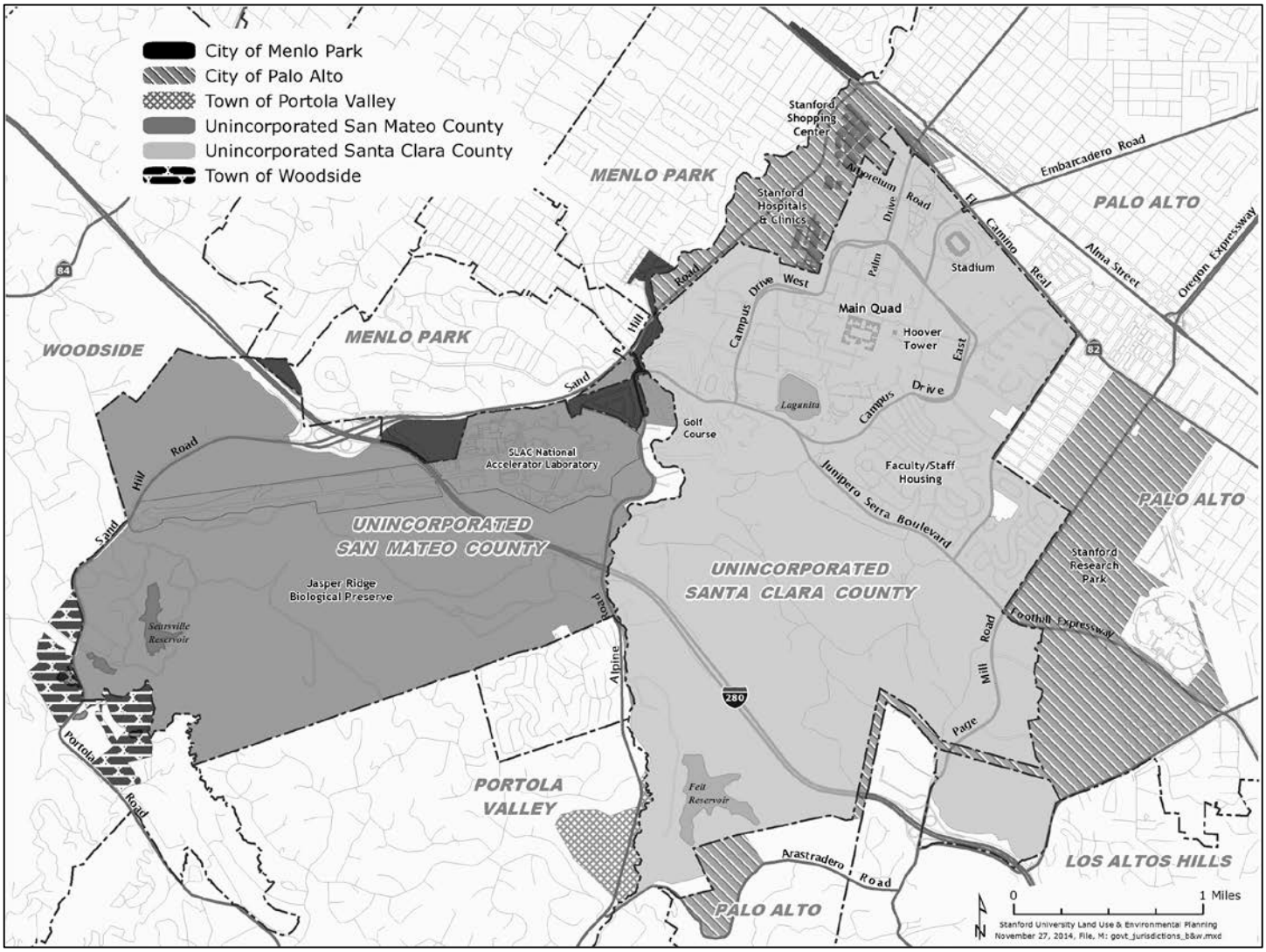
Appendix A
Reference Maps

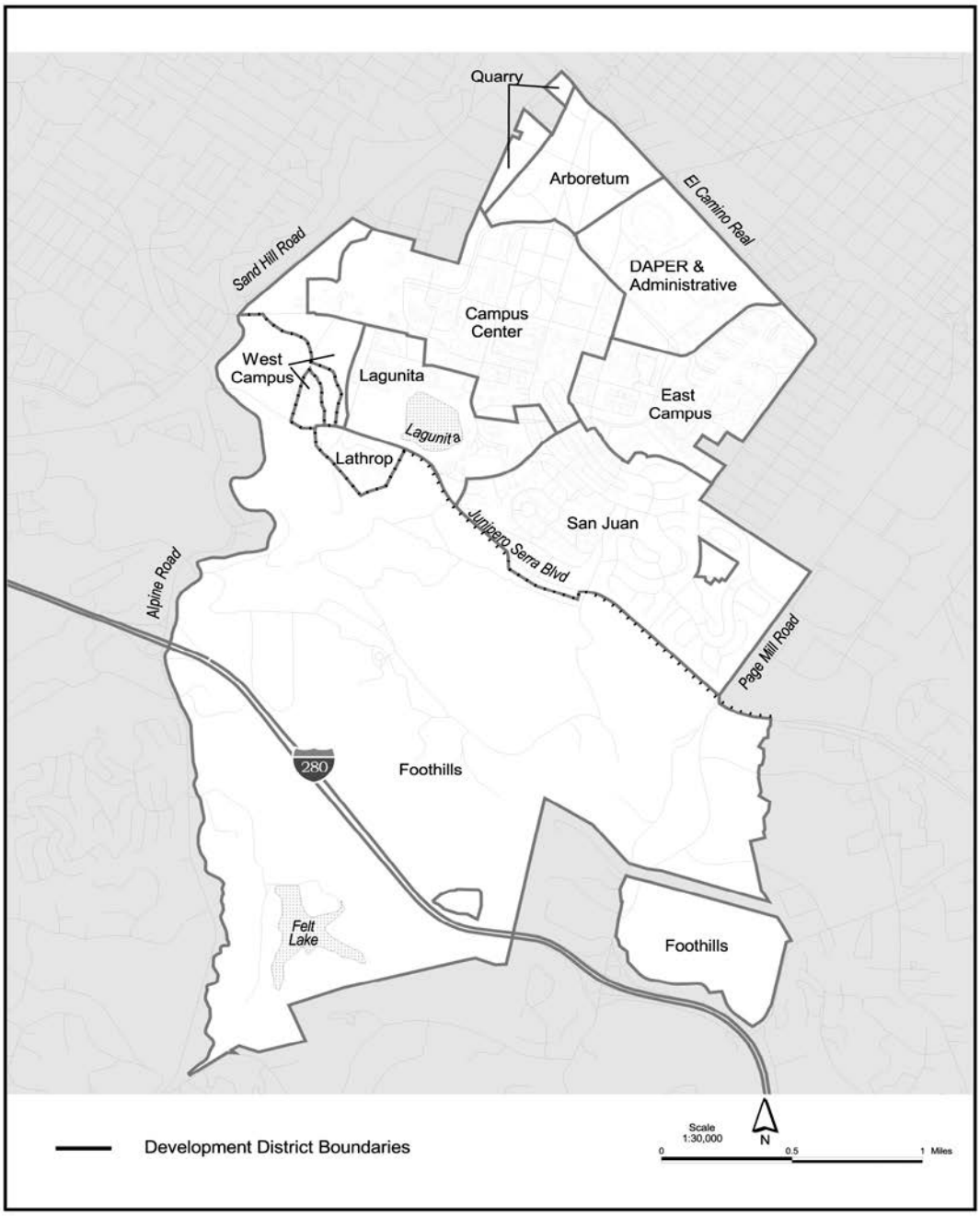
Appendix A
Reference Maps



Source: Stanford University 2014

MAP A-1
GOVERNMENTAL JURISDICTIONS ON STANFORD LANDS

Appendix A
Reference Maps

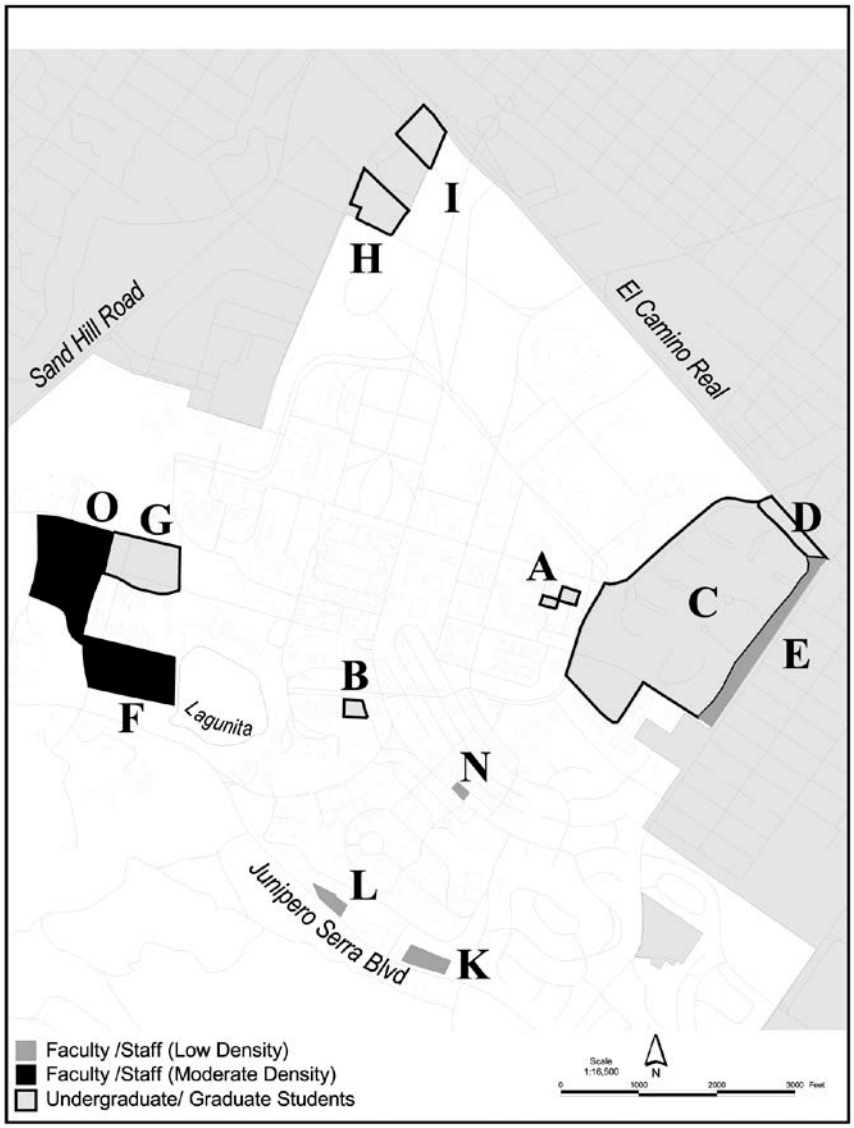


Source: Stanford University General Use Permit, December 2000

MAP A-2
STANFORD UNIVERSITY DEVELOPMENT DISTRICTS

Appendix A
Reference Maps

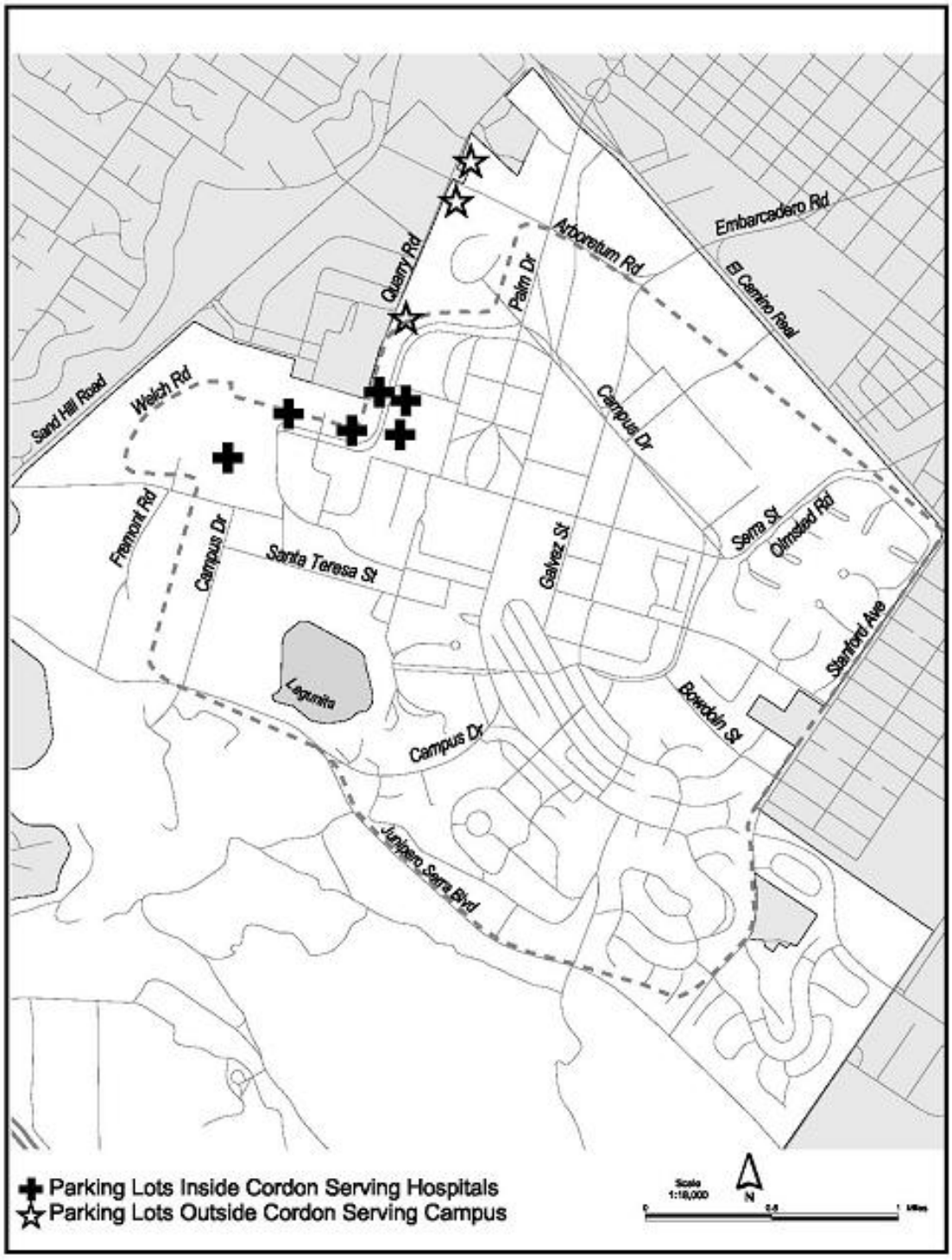
- ***A*** *Manzanita*
- ***B*** *Mayfield/Row*
- ***C*** *Escondido Village*
- ***D*** *Escondido Village*
- ***E*** *Escondido Village*
- ***F*** *Driving Range*
- ***G*** *Searsville Block*
- ***H*** *Quarry/Arboretum*
- ***I*** *Quarry/El Camino*
- ***K*** *Lower Frenchman's*
- ***L*** *Gerona*
- ***N*** *Mayfield*
- ***O*** *Stable Sites*



Source: Stanford University General Use Permit, December 2000

MAP A-3
POTENTIAL HOUSING SITES

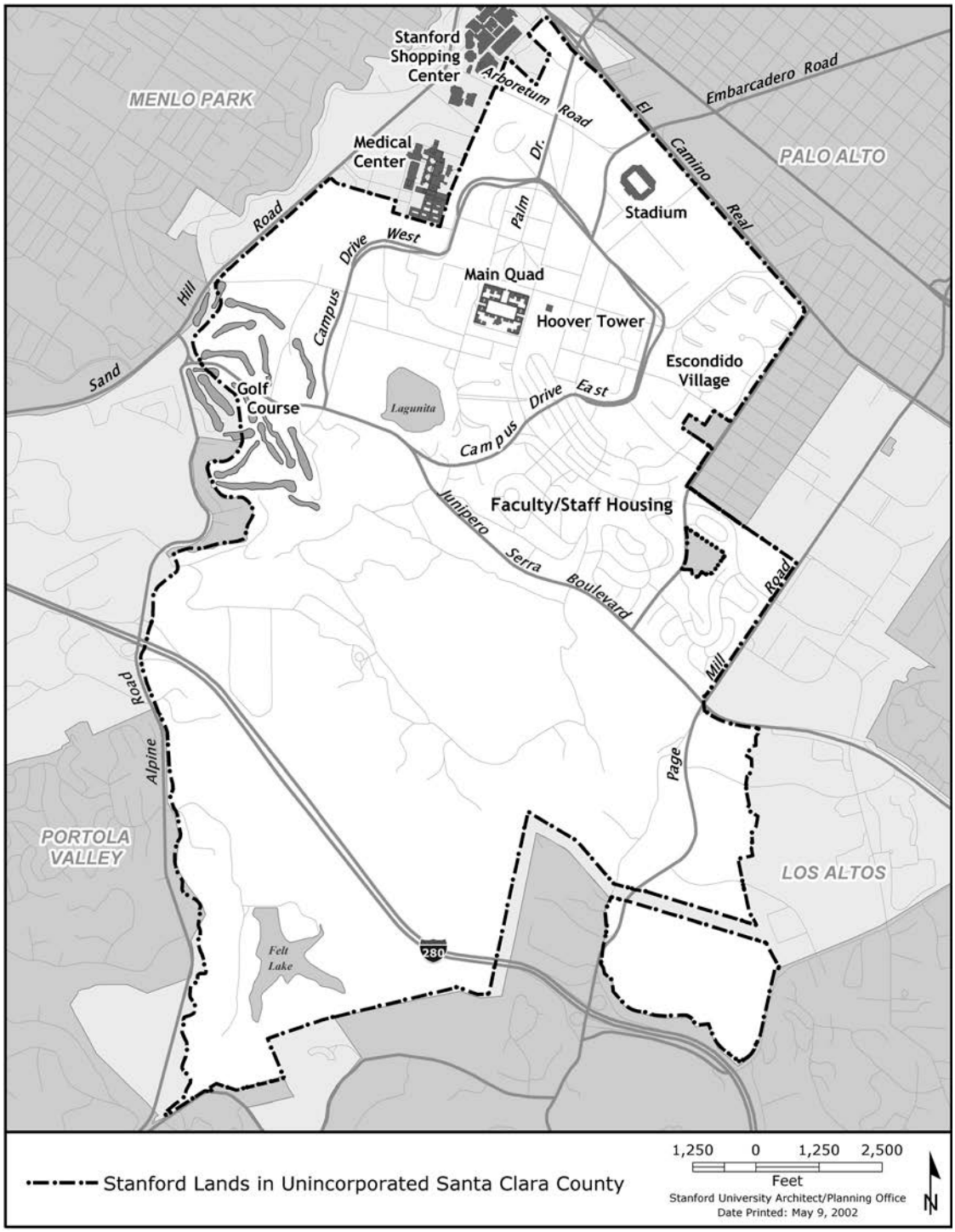
Appendix A
Reference Maps



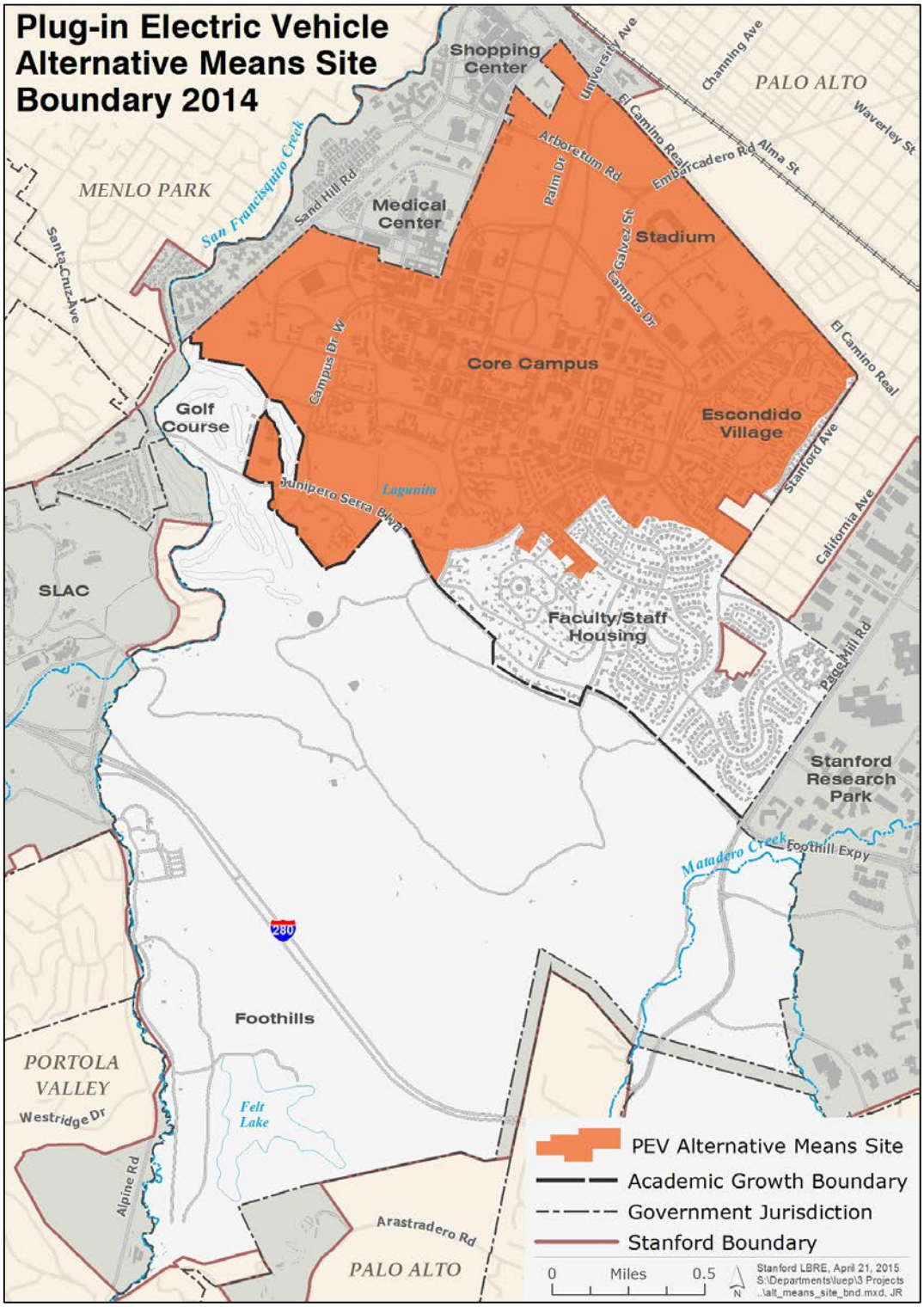
Source: Stanford University General Use Permit, December 2000

MAP A-4
TRAFFIC MONITORING CORDON BOUNDARIES

Appendix A
Reference Maps



MAP A-5
GENERAL ORIENTATION MAP OF STANFORD UNIVERSITY
(UNINCORPORATED SANTA CLARA COUNTY)



MAP A-6
PLUG-IN ELECTRIC VEHICLES ALTERNATIVE MEANS SITE BOUNDARY 2014

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Appendix **B**

GUP Conditions and Compliance Activities

Appendix B
GUP Conditions and Compliance Activities

GUP Condition		Stanford Compliance
A.	**Building Area**	
A.1.	GUP allowed construction on unincorporated Santa Clara County lands.	Illustrations and details are provided in Section IV of this report of all major projects that received ASA during the current reporting year. Projects are described in detail in the annual report for the period in which ASA was granted; however, academic and support building area is counted against the building area cap in the period during which the project received a building or grading permit. Table 1 in Section II of this annual report shows building area accounting during this reporting period relative to the "GUP building area cap." During this reporting period, 133 housing units received final framing inspection. As of August 31, 2015, the cumulative housing units are 2,019, as shown in Section II (Table 3). During the AR 15 reporting period, there was a net decrease of 695 parking spaces. Changes that resulted from these projects are enumerated in Section II (Table 4).
A.2.	Building area allowed in addition to the GUP building area cap.	The remaining 1989 GUP approved square footage was consumed during the Annual Report 5 reporting period, per Condition A.2.a. The 2000 GUP (Condition A.2.c) allows Stanford University to install up to 50,000 sq. ft. as surge space during construction activities in the form of temporary trailers, which shall not be counted towards the GUP building area cap. During AR 15, there was no change in temporary surge space, as shown in Section II (Table 2).
A.3.	Construction that does not count toward the GUP building area cap.	The 2000 GUP (Condition A.3.a) allows up to 40,000 sq. ft. of additional building area for the purpose of new childcare or community centers. During AR 15, no additional projects in this category were constructed, as shown in Section II (Table 2).
B.	**Framework**	
B.1.	Development under the GUP must be consistent with the Community Plan and General Plan.	Eighteen ASA/ASX projects were approved consistent with the policies in the Community Plan and the General Plan.
B.2.	Definition of a proposed building project.	No action required.
B.3.	Minimum time duration of GUP (modification possible, subject to County Ordinance).	No action required.
B.4.	Funding of work associated with conditions of GUP.	Stanford paid all costs associated with work conducted by the County Planning Office in relation to the GUP (staff time, consultant fees, and direct

Appendix B
GUP Conditions and Compliance Activities

GUP Condition	Stanford Compliance
	costs associated with report production and distribution) in a timely manner.
C. Monitoring, Reporting, and Implementation	
C.1. Preparation of an Annual Report that summarizes Stanford's development over the preceding year, upcoming development, and compliance with GUP conditions.	This Annual Report fulfills Condition C.1. for the reporting period of September 1, 2013 to August 31, 2015.
C.2.a. County of Santa Clara Planning Office has the responsibility of preparing the Annual Report.	The County Planning Office staff prepared and distributed this 15th Annual Report pursuant to the 2000 GUP.
C.2.b. Funding for Annual Report by Stanford.	Stanford provided funding to the Santa Clara County Planning Office for all aspects of this Annual Report in a timely manner.
C.2.c Stanford to submit information related to Annual Report.	Stanford provided required information for this Annual Report in a timely manner.
C.2.d. Annual Report presentation to the Community Resource Group (CRG).	The Draft Annual Report 15 was presented to the CRG on April 7, 2016.
C.2.e. Presentation of the Annual Report to the Planning Commission in June of each year.	This Annual Report 15 is scheduled for presentation to the Planning Commission at the June 2016 public hearing.
C.2.f. Time period and content of the Annual Report.	This Annual Report documents Stanford's development activity and compliance with 2000 GUP conditions, and any specific conditions, associated with building projects proposed between September 1, 2014 and August 31, 2015.
C.3. Funding of work associated with implementing tasks identified in the CP and GUP.	Stanford paid all costs associated with work conducted by the County Planning Office in relation to the CP and GUP during this reporting period (including staff time and consultant fees) in a timely manner.
D. Permitting and Environmental Review	
D.1. Review of proposed building projects and issuance of all necessary permits and approvals in accordance with County requirements.	Eighteen projects received ASA/ASX during the reporting period, as described in Section II and detailed in Section IV of this Annual Report.
D.2. Compliance with adopted GUP conditions and adopted mitigation measures within the Mitigation Monitoring and Reporting Program (MMRP).	During this reporting period, Stanford submitted 14 ASA/ASX applications for projects proposed under the 2000 GUP. All approved projects were in compliance with GUP conditions. For additional details, see Section II of this annual report and Condition K.7 in Appendix B.
D.3. Compliance with CEQA requirements.	All projects that received ASA/ASX approval also received adequate CEQA review and clearance during the reporting period as specified in this GUP

GUP Condition		Stanford Compliance
		condition. (See also GUP Conditions D.4 and I.2).
D.4.	Determination of appropriate level of environmental assessment.	Relevant measures identified in the EIR, and incorporated into the GUP, have been incorporated into the conditions of approval for each project. Additional project conditions of approval were included where necessary.
D.5.	Project specific environmental assessment.	No environmental assessments were required for any other projects in the reporting period.
D.6.	Impact areas to be considered in environmental assessment.	Not applicable.
E.	**Academic Building Area**	
E.1.	Distribution of 2,035,000 square feet of academic and academic support facilities distributed among ten development districts.	During the reporting period, academic/academic support facilities were approved for the Campus Center District. (See Section IV Project Summaries for details).
E.2.	Deviation from the proposed distribution of academic development.	During the reporting period, the redistribution of 864 gsf from East Campus to West Campus was approved to support the Educational Farm.
E.3.	Maximum allowable development in the Lathrop District shall be 20,000 square feet.	No development was proposed for the Lathrop District during the reporting period.
E.4.	No academic development allowed in the Arboretum District.	No academic development was proposed for the Arboretum District.
E.5.	Complete and submit a Sustainable Development Study (prior to cumulative development total of more than 1,000,000 net square feet).	The Sustainable Development Study (SDS) was approved by the Board of Supervisors on April 7, 2009. More detail on the SDS process was provided in AR 9. Appendix E provides an Annual Report of Stanford's sustainable activities. Stanford is in compliance with GUP Condition E.5.
F.	**Housing**	
F.1.	Type and distribution of the 3,018 housing units allowed under the GUP.	Four dorm renovation projects adding 2 student units were completed. To date, 1,886 housing units have been built or framed. In AR 13, a GUP Housing Amendment was proposed to allocate 372 faculty/staff units in West Campus to 166 student units in Lagunita and 206 student units in East Campus. The Amendment was approved on November 26, 2013. In AR 15, a GUP Housing Amendment was submitted to allow all remaining unused housing allocation to be usable for any type of university affiliate housing. The Amendment was approved on May 5, 2015.
F.2.	Other allowed housing sites.	During AR 15 reporting period, no housing projects were proposed on sites other than those designated on Map 3, Appendix A.

GUP Condition		Stanford Compliance
F.3.	Allowable variation of housing development.	See compliance with GUP Condition F.2 above, and F.4 below.
F.4.	Deviation from estimated housing distribution.	No redistribution occurred in FY 15.
F.5.	No housing may be constructed in the Foothills, Lathrop, or Arboretum districts.	No housing projects were proposed for any of these districts during the reporting period.
F.6.	Compliance with affordable housing requirement.	Stanford has complied with the affordable housing requirement. Stanford pays the in-lieu fee for applicable projects prior to occupancy. Stanford University has complied with County requests for in-lieu. As of August 2015, the affordable housing fees are assessed at the rate of $19.85 per square foot of net new academic or academic support space approved under the building permit. Stanford has made affordable housing fee payments as of August 2015 totaling $25,624,312.59. Five affordable housing projects have been built so far with $13,345,811. The five projects were built within the 6 mile radius from Stanford Campus boundary and have provided 319 affordable housing units, with 137 units restricted to very low income to extremely low income families. Maybell Orchard proposed by Palo Alto Housing Corporation, originally planned to provide 50 units, was cancelled in November 2013. The fund balance as of August 2015 is $12,278,501.59 which has been set aside by the Board towards the Buena Vista Mobile Home Park project in Palo Alto, which is proposed to have approximately 117 units.
F.7.	Allowance for additional housing beyond 3,018 units.	No additional housing was proposed.
F.8.	Housing linkage requirements.	The GUP requires 1,210 housing units to be provided as part of a housing "linkage" to Stanford development of 1,000,000 cumulative sq. ft. of academic square footage. Stanford has constructed a total of 2,019 housing units, which complies with the housing linkage requirement.
F.9.	For purposes of the linkage requirement, the County will consider Stanford to have met housing compliance at the time of framing inspection.	The County has and continues to use the framing inspection for determination of the housing linkage requirement.
F.10.	Petition for modification of the housing linkage requirements.	Stanford made no petition for modification of the housing linkage requirement.
F.11.	Adoption of new zoning designations for Campus Residential – Low Density and Campus Residential – Medium Density.	Completed during Annual Report 1 reporting period.
F.12.	Allowed suspension of the housing linkage	There was no suspension of the housing linkage

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	requirement.	requirement.
G.	**Transportation**	
G.1.	Intersection modifications.	Completed during Annual Report 1 reporting period.
G.2.	Continued compliance with 1989 GUP transportation requirements.	Stanford continues to offer and further expand the following programs that were in effect during the 1989 GUP: Marguerite shuttle system, carpool incentives, vanpool services, bicycle and pedestrian services, alternative transportation promotional activities, and staff support of alternative transportation programs. Several program changes were made in previous years, which have helped encourage the use of alternative transportation as a means of arriving and departing the campus, and are described fully in AR 9. Changes to the programs are described in subsequent annual reports. In 2014-15, the Zipcar program maintained a fleet of 67 vehicles, the largest Zipcar program at any university in the country. The Marguerite shuttle system now has 23 routes and over 80 buses, with an estimated annual ridership of over 2.5 million. The Marguerite fleet includes 13 electric buses, 5 diesel-electric hybrid buses, and 61 vans, shuttles, and buses fueled by diesel. This includes four high-capacity (81 passenger) double-decker motor coaches used for our Transbay service, which has seen continued ridership growth over the last year. Stanford also plans to add 10 more electric buses to replace older buses in the fleet. As one of two Platinum-Level Bicycle Friendly Universities, Stanford has expanded its bicycle program to accommodate an estimated 13,000 bikes on campus each day. The expansion has included adding bicycle safety repair stands, which now total seven, and increasing bicycle parking capacity to 19,000. Stanford is also partnering with a local mobile bike repair service, Beeline Bikes, to offer convenient bike maintenance to the eastern side of campus, supplementing the Campus Bike Shop service on the west side of campus. The Commute Club introduced new membership gifts, including a 2015 desk calendar featuring winning photos from the “Why I Commute the Way I Do” photo contest, and other new incentives to support retention of its more than 9,000 members and recruitment of new members. Membership in the Commute Club increased 8% over 2013-2014 levels. Stanford introduced a new ride-sharing service, Ride, engaging the campus community with launch events, incentives to register, and new subsidies for the first

GUP Condition		Stanford Compliance
		five new vanpools formed. In September 2014, Stanford launched two new pilot Go Pass programs, which enable off-campus (commuting) graduate students and postdocs to purchase a Go Pass for unlimited rides on Caltrain.
G.3.	Mitigation of transportation impacts from additional development and population growth.	The County hired an independent consultant, AECOM Engineering, to complete traffic studies. See Appendix D of this document for a summary of results.
G.4.	No net new commute trips.	Year 15 cordon counts were conducted in Spring 2015 and completed in Fall 2015. The average AM trip count was 3,142, which is a decrease of 177 vehicles below the baseline and 297 vehicles below the 90-percent confidence interval and 332 vehicles below the one-percent established trigger. The average PM trip count was 3,257, which is a 189 vehicles decrease over the baseline. This represents an decrease of 298 vehicles over the 90% confidence level. Stanford applied for a trip credit of 844 trips for the PM peak hour outbound traffic. With the application of the trip credits, the PM outbound traffic is 1,178 trips below the 1% established trigger. These peak hour counts were less than the trip limits established by the 2001 baseline counts with a 90% confidence level and 1% trigger once the trip credits were considered. Therefore, Stanford complied with GUP Condition G.6.
G.5.	Traffic counts cost.	Stanford submitted all requested funds in a timely manner.
G.6.	Baseline count established prior to construction of first new non-residential structure or by an alternative methodology determined to be more accurate.	Baseline cordon counts were completed during AR 1 and 2 reporting periods.
G.7.	Traffic counts and determination of traffic volume.	The traffic counts were conducted in Spring 2015 and completed in Fall 2015 by the County's traffic consultant, AECOM Engineering. As described in Appendix D of this report, the results of the 2015 counts were analyzed against the baseline counts previously collected, and were determined not to exceed the traffic limits threshold for the AM and PM peak hour traffic, even without the application of any trip credits.
G.8.	Off-campus trip reduction.	During AR 15, Stanford did not require trip credits for off-campus trip reduction as they were below the 2000 GUP EIR thresholds for vehicle counts.
G.9.	Monitor cordon count volumes.	A summary report of traffic monitoring is provided as Appendix D to this annual report.

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G.10. Neighborhood traffic studies.	No additional neighborhood traffic study requests have been received by the County Planning Office.
G.11. Project-specific traffic studies.	No projects during the reporting period required project-specific traffic studies.
G.12. Construction traffic management plan.	Stanford informed both its Public Safety Office and the University Fire Marshall's Office about site work and schedules for all construction projects that could affect emergency access. The University Fire Marshall's Office has regular coordination meetings with the Palo Alto Fire Department, where they update the Department on any emergency route changes. In addition, Stanford requires, through contract with the general contractors, that emergency vehicle access is always kept available through work areas. The Stanford Contracts office provides a general "Stanford Area truck routes map" to all general contractors and all the associated sub-contractors for the project at the time of contract release. The map also includes pedestrian zones, weight limits, service vehicle parking areas, and loading areas. In addition, Stanford provides copies of the map to contractors that come into the Parking and Transportation office to purchase Service Vehicle permits. This map and others are available on the web at http://transportation.stanford.edu/. The County and Stanford continue to work towards consistent inclusion of a traffic management plan as part of the construction plan set available on site.
G.13. Special event traffic management plan.	Compliance with this requirement was achieved during the AR 3 reporting period.
G.14. Junipero Serra Boulevard/ Stanford Avenue traffic group.	The full JSB/Stanford Avenue Multi-Jurisdictional Group did not meet during the reporting period; however, an ad hoc working group including Stanford, the SCRL and County Roads and Airports (CR&A) met on several occasions regarding the JSB traffic calming project. In June 2010, County Supervisor Liz Kniss announced that the County Board of Supervisors had approved $1.5M in funding to complete the project. CR&A awarded a design contract in March 2011. Construction documents (30% stage) were issued in August 2011. A draft Initial Study was issued for public review in November 2011. A final CEQA document was adopted in March 2012. CR&A anticipated starting construction in spring of 2012. However, due to permitting constraints from the Regional Water Quality Control Board delayed the approval process. Stanford presented a conceptual redesign to CR&A in the Spring of 2015 that could eliminate the permitting

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		constraints. Stanford conducted neighborhood outreach to share the concept with SCRL representatives. The conceptual design was reviewed for engineering feasibility by CR&A in summer 2015.
H.	**Parking**	
H.1.	Net additional parking spaces shall not exceed 2,300 spaces, with the exception of parking provided for any housing in excess of 3,018 units.	During the reporting period, changes in parking resulted in a net increase of 695 parking spaces on the campus for a total cumulative decrease since September 1, 2000 of 1,250 spaces. Changes in parking occurred in the Lagunita, DAPER & Administrative, Campus Center, East Campus, Quarry, West Campus and San Juan Development Districts. See Section II, Table 4, and Appendix C-3 for details.
H.2.	Residential Parking Permit Program.	Stanford paid the City of Palo Alto $100,000 towards the development of a Residential Parking Permit Program. Stanford is in compliance with Condition H.2. The City of Palo Alto conducted a College Terrace Parking Permit Program experiment in 2008 and 2009 and subsequently adopted a permanent program in late 2009. The program includes continued monitoring of the parking patterns in the neighborhood.
I.	**Parks and Recreation Facilities**	
I.1.	Improve parks in the San Juan faculty/staff residential area.	At the April 8, 2004 ASA meeting, the ASA Committee accepted the *Stanford University Program for the Replacement of Recreational Facilities in the San Juan District*. Stanford has complied with the requirement to submit the plan, and future compliance will be required through implementation of the plan, if triggered by infill development.
I.2.a.	In consultation with the County Parks and Recreation Department, identify and complete Trail Easements within one year of GUP approval.	Stanford entered into an agreement with the County on January 3, 2006, to construct the S1 trail in Santa Clara County and to make offers to Los Altos Hills for the funding of a trail extension through that town and to the Town of Portola Valley and San Mateo County for improvements to the C1/E12 Alpine Trail. Construction of S1 Trail: Construction of the off-road portions of the S1 trail was completed in May 2011. Santa Clara County accepted the trail easement and the trail opened in May 20, 2011. All aspects of the S1/ Matadero Trail in unincorporated Santa Clara County including trail construction, associated roadway improvements, and dedication of easements are complete.

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	Construction of C1/E12 Trail: Stanford's proposal for the design and funding of the C1/E12 Alpine Trial (segment in Portola Valley) improvements was accepted by the Town of Portola Valley in 2009. All aspects of the C1/E12 Alpine Trial in Portola Valley including trail construction, associated roadway improvements, and dedication of easements are complete. Construction of C2/Arastradero Trail: Construction and trail improvements were completed and the trail was dedicated on November 1, 2013. The trail links the S1/Matadero Trail (at the Arastradero Road and Purissima Road intersection) to the Pearson-Arastradero Preserve. Construction of Stanford Perimeter Trail: San Mateo County and Stanford did not reach agreement for the San Mateo C1 segment and in February 2012, Stanford paid the County approximately $10.3 million. In August 2012, the County issued a request for applications for projects that would serve as alternative mitigation measures to address the loss of recreational facilities on the Stanford campus. The County received 15 project applications from six local agencies. The Board of Supervisors declared its intent to fund six of the 15 projects, including $4.5 million back to Stanford to construct a perimeter trail along El Camino Real and Stanford Avenue frontages. The Board also directed County Administration to negotiate projects agreements for the selected projects and submit approval to the Board consistent with the requirements of CEQA. Stanford proposed a 3.4 mile Stanford Perimeter Trail along Junipero Serra Boulevard, Stanford Avenue, and El Camino Real. The Trail was approved in December 2014 and is expected to be complete by December 2015 without County funding.
I.2.b. Work with County Parks and Recreation Department to identify responsibilities for trail construction, management and maintenance.	Identification of trail construction, management, and maintenance responsibilities had begun previously, based on Stanford's 2001 proposal (see Condition I.2.a above and "Overview of Monitoring Activities"). A trail management plan for S1 was accepted by Santa Clara County, along with the easement, in May 2011.

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J.	**California Tiger Salamander (CTS)**	
J.1.	Habitat protection easements for protection of the CTS.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.2.	Specifics of habitat protection easements.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.3.	Creation of breeding ponds for CTS prior to issuance of a building permit for a proposed building project on occupied CTS habitat.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.4.	CTS monitoring.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.5.	Project specific measures in CTS Management Zone.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.6.	Operational measures required within the CTS Management Zone.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.7.	Continued compliance with 1998 CTS Management Agreement.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.8.	CTS passage ways across Junipero Serra Boulevard.	Condition superseded by Stanford's Habitat Conservation Plan (see Condition J.9).
J.9.	U.S. Fish and Wildlife Service permit prior to construction on occupied CTS habitat if CTS is listed as threatened or endangered.	The final Stanford University Habitat Conservation Plan (HCP) and Final Environmental Impact Statement (EIS) were published on November 23, 2012, and revised in March 2013. On August 13, 2013, the County Board of Supervisors acknowledged the determination that the HCP provides equal habitat value and protection for the California Tiger Salamander (CTS). Therefore, the HCP supersedes all conditions in the GUP that address the CTS, as stated in Condition J.9.
K.	**Biological Resources**	
K.1.	Special-status plant surveys.	No special species plant surveys were done during this reporting period.
K.2.	Preconstruction surveys for breeding raptors and migratory birds.	The County hired Environmental Science Associates to complete three surveys for breeding raptors and migratory birds potentially affected by Stanford projects.
K.3.	Oak woodland habitat – create or restore at a 1.5:1 ratio for proposed building projects located in oak woodland area.	No projects were proposed within oak woodland habitat, as mapped in the 2000 EIR, during this reporting period.
K.4.	Tree preservation for proposed building projects affected by protected trees.	All projects were conditioned to protect existing trees during construction. Stanford proposed appropriate mitigation for the loss of protected trees greater than

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		12 inches diameter at breast height (dbh) in the ASA applications for all projects.
K.5.	Stanford to hire biological consultant to prepare wetlands description.	Compliance with this requirement was achieved during the AR 3 reporting period. Subsequent wetland delineations are conducted in compliance with Army Corps of Engineers guidelines.
K.6.	Updates to CA Natural Diversity Database.	Stanford submitted CNDDB sheets to the County in the following years: May 2003 – California tiger salamander (three seasons of data) and California red-legged frog (four years of data) Dec 2014 - California tiger salamander (6 seasons of data) and California red-legged frog (12 years of data)
K.7.	Special conservation area plan.	Stanford submitted a "Conservation Program and Management Guidelines for the Special Conservation Areas" to the County on December 11, 2001. The County waited for the Stanford HCP to be approved and adopted before directing Stanford with specific requirements for modification and resubmittal. The Stanford HCP was approved on August 13, 2013 (see Condition J.9). Stanford submitted and the County accepted a revised Special Conservation Area Plan in August 2015, fulfilling Condition K.7.
L.	**Visual Resources**	
L.1.	Streetscape design for El Camino Real prior to or in connection with submitting an application for development along El Camino Real.	During AR 8, Stanford completed and submitted a draft *Plan For The El Camino Real Frontage*, approved by the County of Santa Clara Architectural and Site Approval Committee on April 10, 2008. Stanford is in compliance with Condition L.1.
L.2.	Minimum 25-foot building setback from Stanford Avenue.	No building projects were proposed on Stanford Avenue during the reporting period.
L.3.	Lighting plan for development projects that include exterior light sources.	Project-specific lighting plans were submitted with ASA applications during the reporting period.
L.4.	Development locations in the Lathrop Development District.	No development was proposed in the Lathrop District.
M.	**Hazardous Materials**	
M.1.	Hazardous materials information/Risk Management Plan for each proposed building project.	Hazardous materials information was provided in the ASA applications for all projects proposed or approved during the reporting period. No projects were proposed or approved during the reporting period that triggers the California Accidental Release Prevention (CAL-ARP) law.
M.2.	Maintenance of programs for storage, handling, and disposal of hazardous materials.	University Dept. of Environmental, Health and Safety (EH&S) continues to provide key resources in the planning, development, and implementation of

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	effective environmental and health and safety training programs. Where appropriate and possible, EH&S provides in-house training programs that enable University managers and supervisors to deliver health and safety training directly to their staff. Schools, Departments and Principal Investigators provide other levels of training throughout the University. During this reporting period, EH&S maintained a training catalog that included 93 separate training courses. Stanford staff, faculty, and students through both on-line and classroom sessions completed a total of 25,570 trainings. Stanford also extends its training efforts by providing training and information resources on the World Wide Web at http://ehs.stanford.edu. Surveys of campus and medical center labs, shops and studios are conducted on a routine basis to provide compliance assistance regarding hazardous materials, hazardous waste, fire safety, biological safety and chemical safety requirements. Personnel conducting the surveys often work one-on-one with personnel in labs, shops and studios to help them understand pertinent compliance requirements. Hazardous Materials Management Plans for existing buildings storing hazardous materials are submitted annually to the Santa Clara County Environmental Health Hazardous Materials Compliance Division as online updates via the Cal/EPA California Environmental Reporting System Portal. To facilitate hazardous materials tracking and reporting, Stanford has implemented an on-line chemical inventory database system whereby authenticated chemical users may maintain their hazardous materials inventories, supporting timely and accurate submission of required regulatory reports. The University Committee on Health and Safety meet regularly during the reporting period, for this reporting period, there was one public meeting on July 15, 2014. The committee membership includes a member from the public as well as faculty, staff and students. Issues considered by the committee included environmental, health and safety activities, and initiatives conducted at the SLAC National Accelerator Laboratory. The EH&S Department reviews each set of plans for new structures and those for renovation and/or remodeling of existing structures to help ensure that the risks associated with activities conducted in Stanford's buildings are addressed, and that all facilities projects are undertaken in compliance with

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		applicable environmental and health and safety laws, codes, and regulations. EH&S also conducts Environmental and/or Human Health Risk Assessments for new projects as required by the Bay Area Air Quality Management District and as appropriate as part of the building planning process. EH&S personnel specifically responsible for handling hazardous wastes and for emergency response are trained by certified independent professionals and by professional EH&S staff in accordance with all applicable regulations. The operational waste personnel are augmented and assisted by professional environmental engineers, chemists, and environmental managers. As a part of waste minimization activities, EH&S operates a Surplus Chemical redistribution program. In FY 2014, EH&S redistributed 32 unneeded chemical containers from laboratory inventories to other campus users.
N.	**Geology and Hydrology**	
N.1.	Compliance with all requirements of the Uniform Building Code, County Geologist, County Building Inspection Office, Stock Farm Monocline Agreement, and others defined under the GUP in regard to reduction of seismic risk.	Stanford is in compliance with Condition N.1 requirements. These are reviewed through the ASA applications submitted, and building and grading permits issued during the reporting period. See Section II of this report for project details.
N.2.	Hydrology and drainage study.	The Storm Water Detention Master Plan for the Matadero Creek watershed was submitted by Stanford and accepted by the County during the Annual Report 4 reporting period. Stanford is responsible for implementing phased measures consistent with the plan prior to development of new impervious cover within the watershed. Regarding storm drainage and flood control, Stanford and the County reached agreement on the approach and engineering design criteria for detention provisions to avoid increases in peak runoff flow rate from the campus in the San Francisquito Creek watershed. Stanford continued with implementation of its storm drainage master plan for both detention and protection of campus facilities, engineering the remaining barriers to divert overland flows away from structures to streets and malls, and Phase 1 of the West Campus detention basins. With these improvements and the detention basins constructed previously in the Matadero watershed, Stanford has mitigated anticipated runoff from a substantial portion of its future development under the 2000 GUP in compliance with Conditions N.2 and N.3.

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N.3.	Storm water management facilities designed to only store storm water runoff temporarily and not create extended ponding.	The Serra/El Camino Real (ECR) and the West Campus Storm Water Detention Facilities projects are designed to accommodate increases in the 10-year and 100-year storm runoff associated with 2000 GUP development in the Matadero and San Francisquito Creek watersheds respectively. These projects are designed to drain within a couple of days, thereby avoiding extended ponding. An initial phase of this plan was implemented when the Stock Farm/Sand Hill Road Detention Basins were completed during the AR 4 reporting period.
N.4.	Groundwater recharge study in conjunction with projects located in unconfined zone.	Stanford has prepared and submitted a draft campus-wide groundwater recharge plan that describes the groundwater recharge mitigation approach in coordination with the Santa Clara Valley Water District and the County. This plan accounts for water from Stanford's Lake Water system that is directed to Lagunita (where it percolates) in an amount that exceeds the cumulative groundwater recharge lost from projects built in the unconfined zone. Stanford and County staff finalized this plan on May 27, 2015. The annual groundwater recharge mitigation monitoring report has been submitted to the County for tracking purposes.
N.5.	Review and approval for storm water/ groundwater recharge facilities.	The ASA and grading or building permit-approved projects during the 15th annual reporting period are anticipated to result in new impervious surface area in the Matadero Creek and San Francisquito Creek watersheds. The cumulative increase of impervious surfaces on campus has been mitigated by the Serra/ECR detention basins and West Campus detention basins Phase I, to avoid impacts with respect to reduced groundwater recharge. West Campus detention basin Phase II will increase the amount of impervious surface area that can be mitigated in the San Francisquito Creek watershed, upon completion in early 2016. Stanford and the County will track whether the cumulative increase in impervious surface continues to be less than the amount that can be mitigated by the constructed basins.
N.6.	Notice of Intent to State Water Resources Control Board (SWRCB) prepared each year for anticipated projects.	Stanford submitted a Notice of Intent (NOI) to join the State of California General Storm Water Construction Permit on June 29, 2001. Stanford received acceptance on July 10, 2001. An updated NOI was submitted to the State Water Resource Control Board as well as to the San Francisco Regional Water Quality Control Board in accordance with the NPDES General Permit on July 16, 2009. On September 2, 2009 the State Water Resources

GUP Condition	Stanford Compliance
	Control Board adopted a new construction permit for all construction projects over 1 acre. Due to reporting and sampling requirements listed in the new State permit, Stanford has been applying for permit coverage on a project-by-project basis for all new construction over 1 acre. All projects listed below were either terminated or started from the period September 2, 2014 through August 31, 2015 and can be viewed via the State Board's SMART system located at http://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp. Projects terminated from September 1, 2014 – August 31, 2015: • Searsville Parking Lot, WDID # 2 43C368566 • Northwest Data Center Communications Hub, WDID # 2 43C368506 • Stanford University Volleyball Arena, WDID # 2 43C368031 • 3051 RCEF Replacement Central Energy Facility, WDID # 2 43C364633 • 3277 Comstock Housing, WDID # 2 43C364771 • Stanford Educational Farm, WDID # 2 43C369636 Projects started/continuing from September 1, 2014 – August 31, 2015: • 3235 SESI Piping Distribution Storage, WDID # 2 41C363957 • McMurtry Art and Art History Building, WDID # 2 43C365823 • Manzanita Park Residence Hall, WDID # 2 43C368567 • 408 Panama, WDID # 2 43C370010 • Parking Structure 10 & Roble Gym, WDID # 2 43C370396 • Graduate School of Business New Residence, WDID # 2 43C370238 • Meyer Library, WDID # 2 43C371265 • Stanford Football Locker Room, WDID # 2 43C371172 • Siebel Golf, WDID # 2 43C371175 • New Residences at Lagunita Court, WDID # 2 43C371164 • Old Chemistry Building, WDID # 2 43C371587 • Stanford University 10th Tee, WDID # 2

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		43C372346 • Golf Learning Center, WDID # 2 43C372512 • Cogen Plant Demo, WDID # 2 43C372589 • West Campus Detention Basin, WDID # 2 43C373056 • Hoover Conference Center & Office Building, WDID # 2 43C373618 •
N.7.	Monitor effectiveness of storm water pollution prevention best management practices; monitor at construction sites before and during storm events occurring during construction period.	Each construction site under the 2000 GUP is permitted through the General Permit for Discharges of Storm Water Runoff Associated with Construction Activity. The information submitted as part of the permit will be updated yearly to reflect the current construction projects. In accordance with that permit, the sites are required to have a Storm Water Pollution Prevention Plan (SWPPP). Each SWPPP outlines the Best Management Practices for preventing storm water pollution on that specific site. To ensure that the BMPs are working and in place, each construction project is required to monitor the construction site and BMPs before, during, and after rain events or weekly, whichever is more frequent. The project is required to maintain inspection logs on site, documenting the monitoring program. Stanford storm water staff visits the sites at least once per month to ensure compliance with BMPs and monitoring. In addition, Stanford is required to send an Annual Compliance Status Report to the State Water Resources Control Board, certifying compliance with the provisions of the General Permit for Discharges of Storm Water Runoff Associated with Construction Activity, including BMPs and monitoring.
N.8.	Surveys to determine presence and location of wells prior to issuance of any building permit or grading permit.	Stanford performed surveys to identify existing wells on building sites with ASA applications as required.
N.9.	Permit from Santa Clara Valley Water District for any proposed construction, demolition, grading, landscaping within 50-feet of the top of the bank.	In 2007, SCVWD adopted an approach to defer to local permitting agencies for work conducted in creeks, and no longer require SCVWD permits.
N.10	No new land use or practices within the unconfined zone that could pose a threat to the groundwater quality or supply.	In 2009, Stanford mailed an informative pamphlet to all residential leaseholders whose property is located within the unconfined zone. This pamphlet contains valuable information regarding the sensitive nature of these properties with respect to the potential for downward migration of contaminants to groundwater. The pamphlet also provides “Best

GUP Condition		Stanford Compliance
		Management Practices" regarding proper application of landscape chemicals, notifying Stanford of abandoned wells and fuel tanks, and safe management of household chemicals and hazardous waste. Stanford also mailed this pamphlet to all other residential leaseholders that are not located within the unconfined zone as a part of continuing outreach.
O.	**Cultural Resources**	
O.1.	Assessment of structure with potential historic significance for building projects that involve the demolition of a structure 50 years or older.	The County assessed the historical signification of the Central Energy Facility, prior to demolition.
O.2.	Requirements for remodeling, alteration, or physical effect on structures that are 50 years old or more.	Ten renovation projects that received ASA or ASX were assessed because they were proposed to remodel or alter structures that are more than 50 years old. These projects included the End Station 3 Infrastructure and Code Upgrades project. The New Residences at Lagunita Court were analyzed and found to be compatible with the original Lagunita dormitory. The Hoover Conference Center and Office Building was analyzed and found to be compatible with the nearby historic Hoover Tower, Art Gallery, and Green Library.
O.3.	Archaeological resources map.	The Stanford archaeologist provided draft maps to the County Planning Office in March 2001 and a revision in 2014. These maps show the locations of all known prehistoric and historic archaeological resources in the unincorporated Santa Clara County portion of Stanford land. County and Stanford staffs will continue to work on revision and updates to these maps so they can be utilized by County staff to identify all known cultural resource site boundaries on Stanford land within the County's jurisdiction. All maps and updates will be maintained as confidential records.
O.4.	Required actions if fossilized shell or bone is uncovered during earth-disturbing activities.	No fossilized shell or bone was uncovered during 2000 GUP construction activities.

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P.	**Public Services and Utilities**	
P.1.	Law Enforcement Agreement.	"Memorandum of Understanding Regarding Police Services Between Santa Clara County and Stanford University" was signed February 6, 2001, and signed again in May and June of 2007 Per the GUP Condition, Stanford is providing funding for the Stanford Police Department to maintain 32 full-time sworn police officers (one officer per 1,000 daytime population). There was no decrease in the level of police services during the reporting period.
P.2.	Funding of Fire Protection Services.	The City of Palo Alto assesses the city's fire protection needs on an annual basis and adopts a yearly budget for fire protection services. As part of this process, the City identifies Stanford's share of this budget, and Stanford pays its annual allotment. Stanford is currently in discussion with City of Palo Alto regarding future funding for fire protection services.
P.3.	Fire protection response times.	The Palo Alto Fire Department notified the County in May 2015 that it has experienced lengthened response times as a result of campus construction. Per Condition P.3 Stanford is investigating whether alternate routes would address the Fire Department's concerns. To date the Palo Alto Fire Department has not indicated that the increased response times are unacceptable.
P.4.	Water conservation and recycling master plan.	Stanford has performed effective conservation outreach and education, as evidenced by County staff discussions with campus facility managers. Stanford also has undertaken numerous water conservation projects, including installation of water misers, toilet retrofits, low flow jet spray nozzles, and Maxicom controls. The County continues to monitor Stanford implementation of the approved master plan as a measure of compliance with this condition. The County consults with the SCVWD to determine compliance. The SCVWD assessment is that Stanford appears to be implementing aggressive water conservation measures. The University has completed the plan and it was approved.
P.5.	Annual daily average water use.	The allowed average daily water allocation from the San Francisco Water Department is 3.033 million gallons per day (mgd). Stanford's average campus domestic water use for the 2014-15 year was 1.89 mgd.
P.6.	Information on wastewater capacity and generation.	Stanford submitted project-specific wastewater capacity information as necessary with ASA

Appendix B
GUP Conditions and Compliance Activities

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		application materials.
P.7.	Palo Alto Unified School District school impact fees.	Stanford paid school impact fees for all applicable building permits.
P.8.	Community Services Study.	No study was required during this reporting year.
Q.	**Air Quality**	
Q.1.	Compliance with Bay Area Air Quality Management District (BAAQMD) measures for construction activities.	Grading activities associated with 2000 GUP projects that commenced during the reporting period complied with the BAAQMD control measures incorporated into the ASA conditions of approval.
Q.2.	Maintenance of equipment for construction activities.	Stanford requires all construction contractors to properly maintain equipment.
Q.3.	Conduct a risk screening analysis and obtain BAAQMD permit for building projects containing more than 25,000 square feet of laboratory space and 50 fume hoods.[1]	All approved projects were required to comply with BAAQMD's permitting, control measures, and recommendations, as appropriate. No projects crossed the 25,000 square feet of laboratory space and 50 fume hoods threshold.
R.	**Noise**	
R.1.a-e	Compliance with County Noise Ordinance during construction activities of each building project.	Construction activities associated with 2000 GUP projects complied with the County Noise Ordinance and incorporated noise reduction measures as required by ASA conditions of approval.
R.2.	Limits on construction hours.	Construction activities associated with 2000 GUP projects were limited to construction hours as specified by the County Noise Ordinance.
R.3.	Operational noise reduction measures.	ASA-approved building projects incorporated all county-specified noise reduction measures (listed in Section D of the MMRP) and complied with the County Noise Ordinance.
R.4.	Limits on fireworks displays.	Two fireworks events per calendar year are permitted under the GUP. Other fireworks events require an entertainment event license from the Planning Office. In 2014, one of the two fireworks events permitted under the GUP occurred at the Big Game Rally on Nov 17, 2014. As of Aug 31, 2015, no fireworks events permitted under the GUP have occurred in 2015.
R.5.	Maintenance of hotline for noise complaints.	A noise hotline is maintained (650) 724-4900. 18 noise complaints were received during the AR 15 reporting period, typically concerning party noise and loud music. Stanford and the County continue to work with and respond to neighborhood residents and their questions regarding the noise hotline.

[1] Note: Q.3 has been confirmed to match BAAQMD regulations, which requires both triggers in order to do risk screening.

Appendix B
GUP Conditions and Compliance Activities

GUP Condition		Stanford Compliance
S.	**Additional Conditions**	
S.1.	Acceptance of Conditions of Approval.	See Annual Report 1.

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Appendix C
Cumulative Project

Appendix C
Cumulative Projects

Completed building projects under the GUP cap, housing projects, parking, non-GUP building projects and grading projects are tracked in Appendix C. A map and table are provided for each category to illustrate the project, its location, its square footage/housing units/parking spaces counted toward the GUP cap, and in which annual report period the project was completed. Each table provides a cumulative total of square footage, housing, or parking to date. A table also provides a cumulative total of non-GUP building projects. Additional backup data is kept on file by Stanford and the County.

Section II of this annual report provides brief descriptions of each project on which there was activity during the current reporting year. Projects listed in Appendix C that were completed in prior years are not reported in the body of the Annual Report. Detailed information on these projects may be found in previous Annual Reports.

Appendix C
Cumulative Projects

KEY TO MAP C-1 ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15 CUMULATIVE BUILDING PROJECTS THAT AFFECT GUP BUILDING AREA CAP				
Fiscal Year	**Map No.***	**Project**	**Built Area (sq. ft.)**	**Net Addition to GUP Building Cap**
Annual Report 1 (2000-01)	N/A	None	N/A	0
Annual Report 2 (2001-02)	1	Student Services	20,000	22,790
		Demo Bridge Building	(-2,752)	
		Band Trailer	4,320	
		Demo existing Band Trailer	(-2,160)	
		Rugby Pavilion	3,382	
Annual Report 3 (2002-03)	2	Carnegie Global Ecology Center	18,164	32,023
		Demolish Carnegie Greenhouses	(-6,161)	
	3	Lucas Center Expansion	20,600	
		Electronics Communications Hub-West	1,500	
		Demolition of Ortho Modular	(-2,080)	
		SoM Trailer Replacement	0	
		Galvez Modular Re-Permit	0	
Annual Report 4 (2003-2004)	4	Maples Pavilion Addition	18,298	92,915
		Demolish Maples Ticket Booth	(-179)	
	5	Arrillaga Family Recreation Center	74,796	
Annual Report 5 (2004-2005)	6	Varian 2	63,869	39,763
		Building 500	3,254	
		Wilbur Modular Ext.	(-27,360)	
Annual Report 6 (2005-2006)	7	Environment and Energy Building	164,087	116,237
		GP-B Modular Demolition	(-8,640)	
		Varian 2 (gsf adjustment from AR 5)	8,305	
	8	HEPL Demolition	(-71,425)	
		Engineering Shed	(-929)	
		Galvez Too	(-4,320)	
	9	Football Stadium Renovations	33,050	
		Munger House Relocations	906	
		Avery Aquatic	1,445	
		Band Trailer	(-4,320)	
		Guard Shelter	42	
		579 Alvarado (Humanities Annex)	(-3,258)	
		Barnum Family Center	2,337	
		Brick Barn	4,690	
		Knoll Trailer A	(-2,912)	
		Knoll Trailer B	(-2,821)	
Annual Report 7 (2006-2007)		None	N/A	0
Annual Report 8 (2007-2008)	10	Lorry I. Lokey Stem Cell Research Building (SIM 1)	198,734	323,264
	11	Li Ka Shing Center for Learning and Knowledge (LKSC)	104,000	
		Demolish Fairchild Auditorium	(14,600)	
		Demolish Welch Road Modulars	(4,030)	
	12	Center for Nanoscale Science and Technology	99,297	

KEY TO MAP C-1
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE BUILDING PROJECTS THAT AFFECT GUP BUILDING AREA CAP

Fiscal Year	Map No.*	Project	Built Area (sq. ft.)	Net Addition to GUP Building Cap
		Demolish Ginzton	(69,714)	
Annual Report 8 (2007-2008) continued				
	13	Jen-Hsun Huang School of Engineering Center	125,639	
		Demolish Terman Engineering	(148,818)	
		Lorry I. Lokey (Stanford Daily) Building	4,783	
		Demolish Storke Building	(9,040)	
		Li Ka Shing Center for Learning and Knowledge - Connective Elements	5,890	
		Peterson Building Renovation	(661)	
	14	John A. and Cynthia Fry Gunn SIEPR Building	31,784	
Annual Report 9 (2008-2009)	15	Knight Management Center	331,093	72,776
		Demolish GSB South	(167,371)	
		Demolish Serra Complex	(84,000)	
		Demolish Kresge Auditorium	(13,042)	
		Cobb Track Bleacher addition	3,950	
		Arrillaga Gymnasium and Weight Room	19,951	
		Site 515 Demolition	(1,540)	
		Volkswagen Automotive Innovation Lab	8,000	
		Oak Road Restrooms	499	
		Golf Practice Storage Trailer	432	
		Cubberley Seismic Project	(3,654)	
		Press Building Demolition	(14,303)	
		Recalculation of gsf with Annual Reports 1 through 8	(7,239)	
Annual Report 10 (2009-2010)	16	Neukom Building	61,014	126,676
	17	Bing Concert Hall	78,350	
		DAPER Corps Yard Demolition	(12,688)	
Annual Report 11 (2010-2011)		Braun Music Center	167	174,723
		Bing Concert Hall adjustment	7,185	
	18	Retention of GSB South	167,371	
Annual Report 12 (2011-2012)	19	Arrillaga Outdoor Education and Recreation Center	75,000	223,725
	20	Bioengineering and Chemical Engineering	196,172	
	21	Satellite Research Animal Facility	20,507	
		Anatomy demolition	(66,579)	
		Cagan Soccer locker rooms	3,345	
		Cypress Annex demolition	(960)	
		Quonset Hut demolition	(3,760)	
Annual Report 13 (2012-2013)		Ford Center Addition (from AR 8)	8,710	165,092
	22	Arrillaga Family Sports Center Addition	27,709	
	23	Anderson Collection at Stanford	30,279	

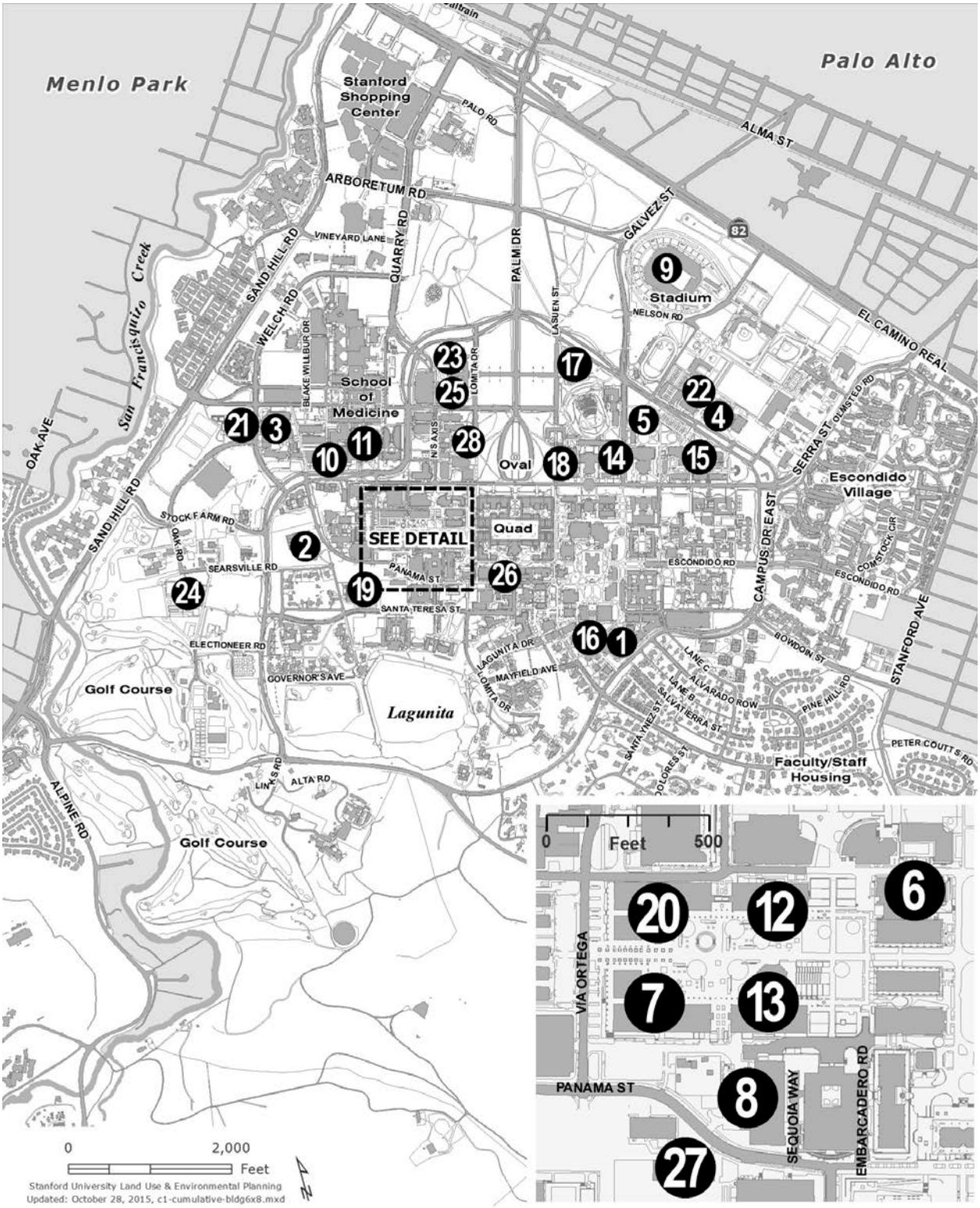
Appendix C
Cumulative Projects

KEY TO MAP C-1
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE BUILDING PROJECTS THAT AFFECT GUP BUILDING AREA CAP

Fiscal Year	Map No.*	Project	Built Area (sq. ft.)	Net Addition to GUP Building Cap
	24	Replacement Central Energy Facility	14,715	
		Grounds trailer demolition	(722)	
	25	McMurtry Art - Art History	84,239	
		New Field Hockey Bleachers	2,397	
		Windhover Contemplative Center	3,928	
		Encina Modular Demolition	(8,400)	
		520/524 Renovation	2,237	
Annual Report 14 (2013-2014)		Northwest Data Center and Communications Hub	3,130	52,735
	26	408 Panama Mall	56,790	
		Educational Farm	864	
		Roble Gym Renovation	544	
		Field Conservation Facility	2,842	
	27	Demolition of Godzilla Trailer	(11,435)	
Annual Report 15 (2014-2015)	28	Science Teaching & Learning Center – Old Chem	68,151	(45,179)
		Sunken Diamond New Entry/Locker Room Expansion	3,410	
		Cagan Soccer Field Bleacher Lockers	2,658	
		Maples Pavilion Addition	1,135	
		Softball Field House	2,618	
		Football Stadium New Locker Room	8,966	
		Siebel Varsity Golf Training Complex	3,431	
		Demolish golf storage trailer	(432)	
		Demolition of old Field Conservation Facility	(2,821)	
		Meyer Library Demolition	(124,710)	
		Lasuen Restrooms	1,023	
		Demolition of Central Energy Facility	(8,715)	
		Hogan Lab Renovation Project	107	
Cumulative Net Contribution toward 2000 GUP Building Cap:				**1,397,540**

1. Projects included at the time of building permit issuance.
2. Cumulative total includes the adjusted results from the recalculations for buildings and demolitions from previous annual reports under the 2000 GUP. Specific adjustments are not reflected in this table at this time.

*Map C-1 illustrates the locations of building projects 10,000 sq. ft. or greater. Projects smaller than 10,000 sq. ft. are not shown on Map C-1.



MAP C-1
CUMULATIVE BUILDING PROJECTS THAT AFFECT BUILDING AREA CAP
(GREATER THAN 10,000GSF)

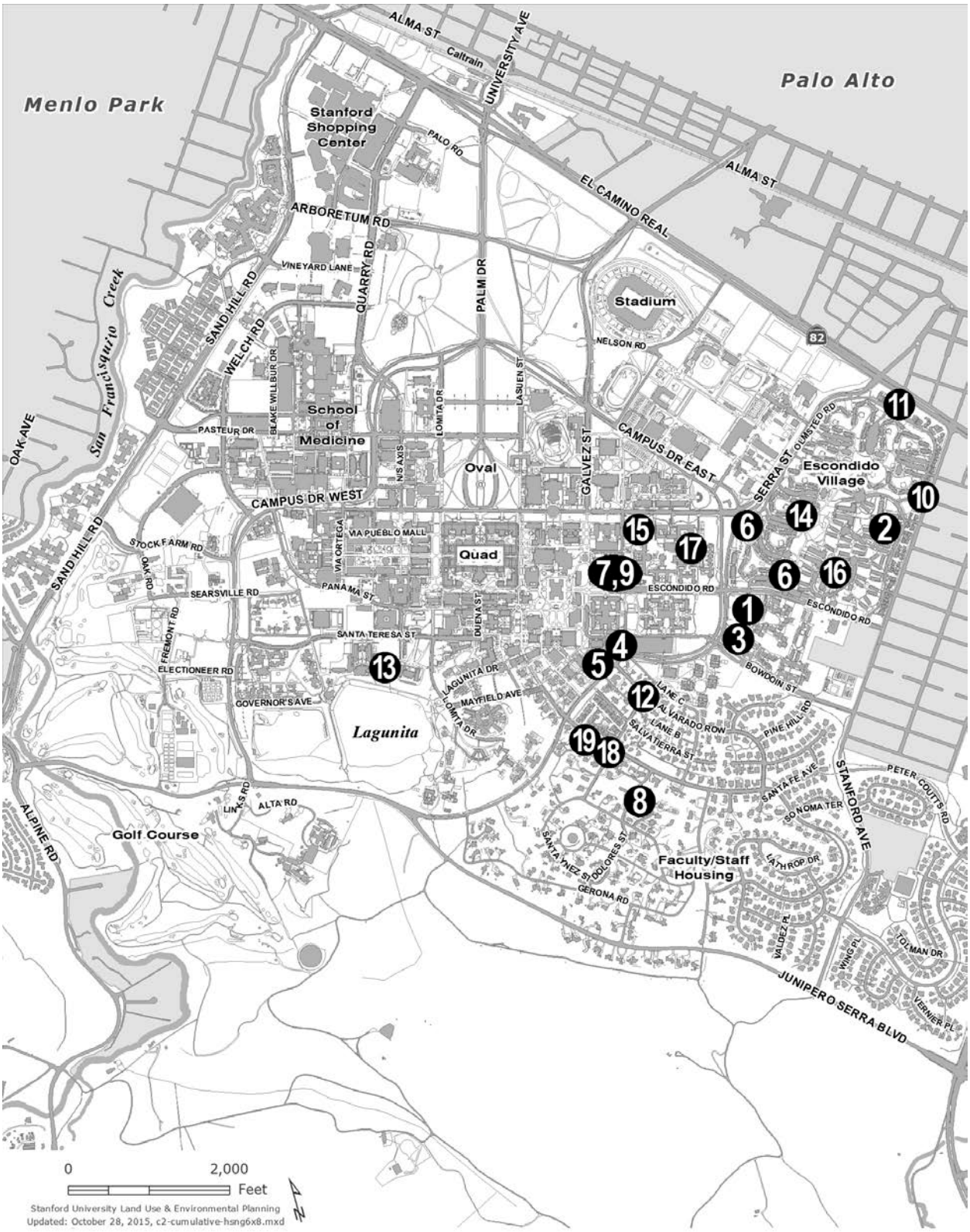
KEY TO MAP C-2
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE HOUSING PROJECTS

Fiscal Year	Map No.*	Project	Housing Units	Square Footage	Annual Units	RHNA Units
Annual Report 1 (2000-01)	1	Mirrielees – Phase I	102	0	102	
Annual Report 2 (2001-02)	2	Escondido Village Studios 5 & 6	281	139,258	331	281
	3	Mirrielees – Phase II	50	0		
		Branner Student Housing Kitchen	0	1,596		
Annual Report 3 (2002-03)	N/A	None	N/A	N/A	0	
Annual Report 4 (2003-04)	N/A	None	N/A	N/A	0	
Annual Report 5 (2004-05)	N/A	None	N/A	N/A	0	
Annual Report 6 (2005-2006)		Drell House (conversion to academic)	-1	(-906)	(-8)	-1
		579 Alvarado	1	3,258		1
	4	Casa Zapata RF Unit Replacement	-8	(-691)		1
Annual Report 7 (2006-2007)		None	N/A	N/A	0	
Annual Report 8 (2007-2008)	5	Munger Graduate Housing	349	267,683[1]	349	209
Annual Report 9 (2008-2009)	5	Munger Graduate Housing	251	192,517[1]	514	147
		Schwab Dining Storage	N/A	464		
	6	Blackwelder/Quillen Dorms	130	N/A		
	7	Crothers Renovation	133	N/A		
Annual Report 10 (2009-2010)	8	717 Dolores	4	0	70	
	9	Crothers	2	0		
	10	Olmsted Terrace Faculty Housing	39	103,127		39
	11	Olmsted Staff Rental Housing	25	53,831		25
		Arrillaga Family Dining Commons	N/A	28,260		
Annual Report 11 (2010-2011)	6	Quillen Dorm Phase 2	90	N/A	90	
Annual Report 12 (2011-2012)	12	Hammarskjold renovation	7	1,730	9	
		Haus Mitt renovation	1	210		
		Phi Sigma renovation	1	420		
Annual Report 13 (2012-2013)		Grove House Renovation	N/A	500	427	
		Columbae Renovation	N/A	950		
		Slavianskii Dom Renovation	N/A	961		

KEY TO MAP C-2 ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15 CUMULATIVE HOUSING PROJECTS						
Fiscal Year	**Map No.***	**Project**	**Housing Units**	**Square Footage**	**Annual Units**	**RHNA Units**
		Muwekma-Tah-Ruk Renovation	N/A	450		
	13	Ujamaa	2	N/A		
	14	McFarland	63	N/A		
		EV summer renovation	(2)	N/A		
	15	Toyonito Demolition	N/A	(13,298)		
	16	Comstock graduate housing demolition	(74)	(30,547)		(40)
	16	Comstock Graduate Housing	438	256,258		274
Annual Report 14 (2013-2014)		Mars Renovation	1	273	2	
		Sigma Nu Renovation	N/A	628		
		Roth Renovation	1	508		
		Durand Renovation	N/A	675		
Annual Report 15 (2014-2015)	17	Manzanita Park Residence Hall	129	41,805	133	1
	18	Phi Kappa Psi	2	505		
	19	Kairos	2	979		
Cumulative Net Contribution toward 2000 GUP Housing Units			**2,019**	**1,051,404**	**2,019**	**937**

*Map C-2 illustrates the locations of housing projects that add more than one unit. Individual housing projects are not shown on Map C-2.

1. Based on an average of 767 square feet per unit constructed for the Munger Graduate Student Housing project.



MAP C-2
CUMULATIVE HOUSING PROJECTS

KEY TO MAP C-3
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE PARKING PROJECTS

Fiscal Year	Map No.*	Project	Parking Spaces	Spaces Subtotal
Annual Report 1 (2000-01)	1	Removal of Arguello Lot	(55)	(29)
	2	Oak Road Angle Parking	52	
		Oak Road Parallel Parking	12	
		Student Services Building	(38)	
Annual Report 2 (2001-02)		Band Modular Project	23	31
	3	Parking Structure V	97	
	4	Oak Road (Angle to Parallel)	(66)	
		Closure of Anatomy Lot	(28)	
		Maples Lot	5	
Annual Report 3 (2002-03)		PS-1 Restriping/ADA	(29)	394
		Maples Lot	21	
	5	Escondido Village Expansion	212	
	6	Serra Street Reconstruction	50	
		Arguello Lot	37	
		Mirrielees Lot Reconfiguration	(23)	
	7	Cowell Lot Expansion	154	
		Carnegie Global Center Parking	17	
		Misc. reconstruction/restripe/ADA	(45)	
Annual Report 4 (2003-2004)		Anatomy Lot Reopening	26	(91)
		Encina Gym/ Arrillaga Rec Center Construction	(17)	
		Ventura Lot Closing-CSLI/EPGY Annex Construction	(21)	
		Housing Maintenance Yard Project	(25)	
		Graduate Comm. Center Parking Lot	(35)	
		Misc. reconstruction/restripe/ADA	(19)	
Annual Report 5 (2004-2005)		Stock Farm Bus Reconfiguration	(47)	(159)
		Dudley & Angell Recount	(20)	
		Mayfield 3 Recount	(23)	
		Misc. reconstruction/restripe/ADA	(69)	
Annual Report 6 (2005-2006)	8	Ginzton Lot Closure (for Environment & Energy construction)	(211)	(659)
		Humanities Lot (for Old Union Surge Trailers)	(20)	
		Law School Lot/ House Relocation/ Prep for Munger construction	(26)	
	9	Mariposa Lot/ Munger Law School/ House Relocation/ Columbae Renovation	(115)	
	10	Stock Farm Bus Reconfiguration	(64)	
	11	Tresidder Lot (for House Relocation)	(138)	
		Dudley & Angell/ Olmsted Road	24	
	12	Eating Clubs Lot (for Old Union Surge)	(87)	
	13	Stern Lot	(64)	
	14	Wilbur-Stern Temporary Lot	108	
	15	Wilbur Modulars Removal	131	
	16	Wilbur South Lot (for PS 6)	(128)	
		Misc. reconstruction/restripe/ADA	(69)	
Annual Report 7 (2006-2007)	17	Li Ka Shing Center for Learning and Knowledge displacement	(505)	(798)

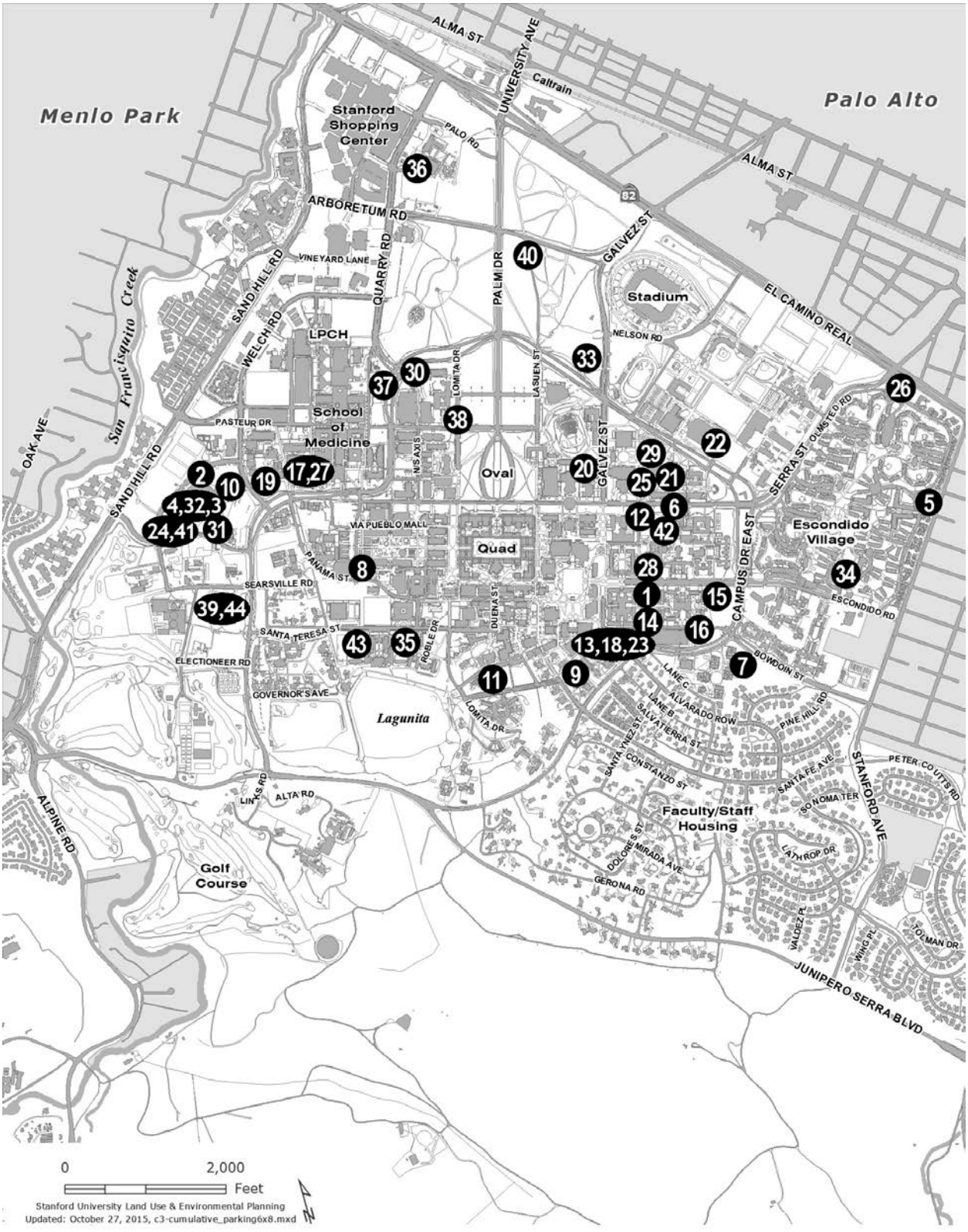
KEY TO MAP C-3
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE PARKING PROJECTS

Fiscal Year	Map No.*	Project	Parking Spaces	Spaces Subtotal
		Tresidder – Post House Relocation project	34	
Annual Report 8 (2007-2008)	18	Munger Displacement	(369)	
		Misc. Reconstruction/restripe/ADA	42	
		Dean's Lawn reconfiguraton	(27)	93
	19	Beckman/MSOB Closure for Li Ka Shing Center for Learning and Knowledge construction	(206)	
	20	Memorial Lot closure for John A. and Cynthia Fry Gunn SIEPR Building	(81)	
	21	Serra closure for Knight Management Center	(712)	
	22	Maples closure for Athletics Practice Gym	(75)	
	23	Parking Structure 6	1,185	
		Misc. Reconstruction/restripe/ADA	9	
Annual Report 9 (2008-2009)	24	Oak Road Parking Lot	197	(313)
	25	Arguello and 651 Serra Closure	(267)	
		Track House	(46)	
	26	Barnes & Abrams For Olmsted Road Staff Rental Housing	(96)	
		Dudley & Angell for Stanford Terrace Faculty Homes	(42)	
		Miscellaneous reconstruction/restripe/ADA	(59)	
Annual Report 10 (2009-2010)	27	Beckman Lot reopening	66	(56)
	28	Toyon lot closure for Arrillaga Family Dining Commons	(163)	
		Miscellaneous reconstruction/restripe/ADA	41	
Annual Report 11 (2010-2011)		Cypress lot closure for BioE/ChemE	(44)	810
		Stock Farm West reconfiguration for bus parking	(20)	
		Roth Way reconfiguration for bus loading	(36)	
	29	Parking Structure 7	858	
		Dudley & Angell	49	
		Miscellaneous reconstruction/restripe/ADA	3	
Annual Report 12 (2011-2012)		Lasuen@Arboretum – Bing and Galvez	39	(236)
	30	Anatomy-McMurty Art - Anderson	(95)	
	31	L-17 (Stockfarm South) – Temp Child Care	(75)	
		L-25 (Panama) – West Campus Rec Center	(23)	
		Lasuen – Bing Concert Hall	(26)	
		L-73 (Stern Annex) – East Campus Rec	(37)	
		Miscellaneous reconstruction/restripe/ADA	(19)	
Annual Report 13 (2012-2013)	32	L-20 (Stock Farm West) - SESI Project laydown	(202)	(68)
		L-25 (Panama) - West Campus Recreation Center	28	
	33	L-96 (Galvez) - Galvez Event Lot completion	423	
	34	Comstock - Comstock Graduate Housing Project	(84)	
		L-65 (Cowell @ Bowdoin) - Contractor laydown	(49)	
	35	L-31 (Roble) - Windhover Project	(69)	
	36	L-01 (Rectangle) - Parking Structure 9 construc. yard	(86)	
		Miscellaneous reconstruction/restripe/ADA	(29)	
Annual Report 14 (2013-2014)	37	Dean's Lawn for SHC Steam Plant	(106)	526
		Cypress lot reopening	40	
		Panama Lot for Roble Garage	(27)	

KEY TO MAP C-3
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE PARKING PROJECTS

Fiscal Year	Map No.*	Project	Parking Spaces	Spaces Subtotal
	38	Lomita at Rodin	(72)	
	36	Rectangle parking Lot reopening	75	
	39	Searsville Lot net loss on Searsville Road	592	
		Miscellaneous reconstruction/restripe/ADA	24	
Annual Report 15 (2014-2015)	40	Lasuen @ Arboretum reconfiguration and partial closure	(168)	(695)
		Gates Lot closure for Bio Quad construction	(32)	
	41	L-20 (Stock Farm West) – removal of laydown, restoration of parking	117	
		Roth Way – Tour bus reconfiguration	32	
	42	L-79, L-81 (GSB Highland Hall project)	(108)	
	43	L-29, L-31, Santa Teresa @ Lagunita and Santa Teresa @ Sterling (New Residences at Lagunita Court and Roble Field projects)	(395)	
	44	L-22 (Searsville lot) – Construction laydown	(126)	
		Miscellaneous reconstruction/restripe/ADA	(15)	
Cumulative Net Contribution toward 2000 GUP Parking Cap:				**(1,250)**

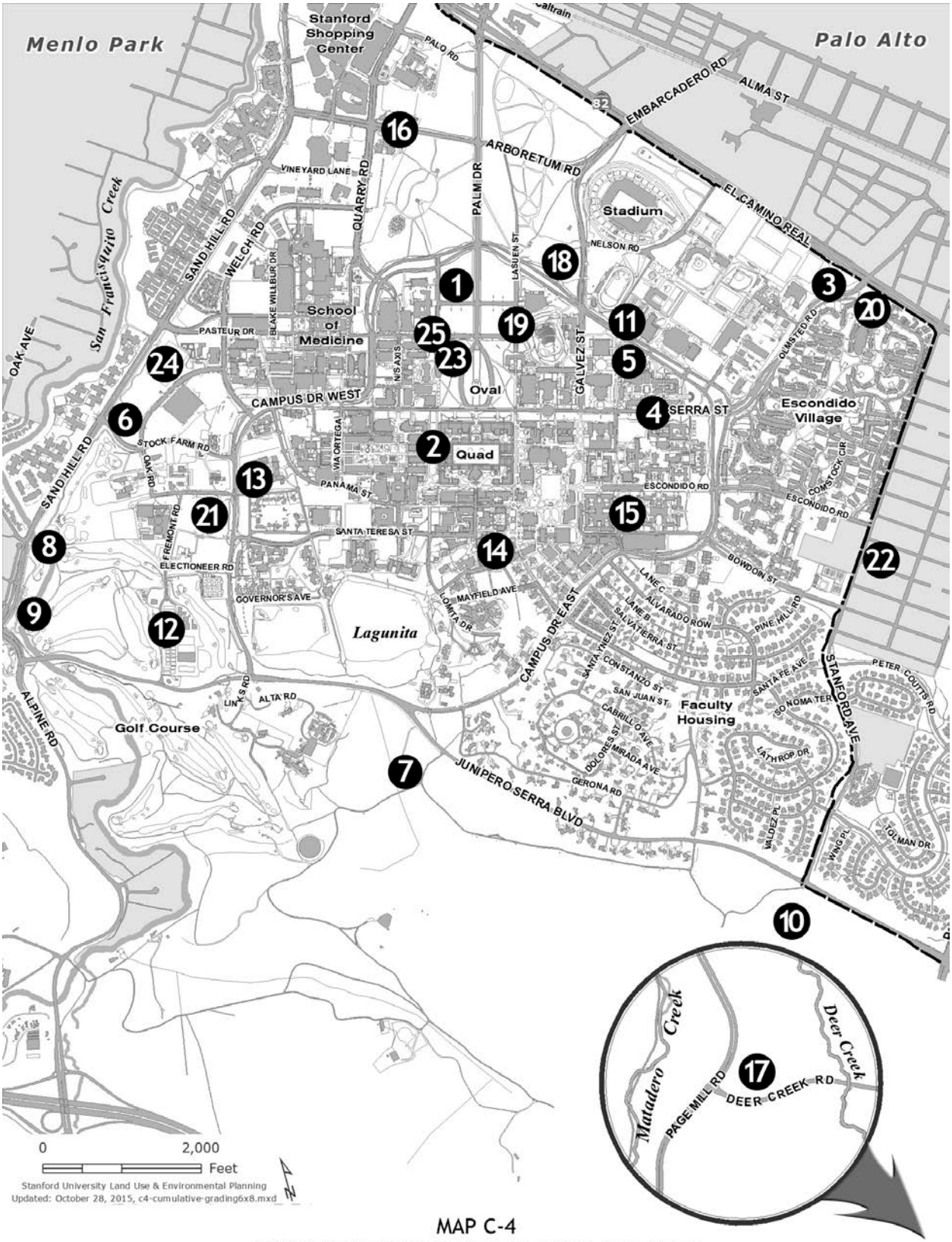
* Map C-3 illustrates the locations of parking projects that change the parking inventory by more than 50 spaces.



MAP C-3
CUMULATIVE PROJECTS THAT AFFECT PARKING INVENTORY (50 SPACES OR MORE)

KEY TO MAP C-4 ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15 CUMULATIVE GRADING PERMIT PROJECTS		
Fiscal Year	**Map No.**	**Project**
Annual Report 1 (2000-01)	1	Sandstone Sculpture
Annual Report 2 (2001-02)	2	Lomita Mall
	3	Serra/ECR Detention Basin
	4	Serra Street Reconfiguration
	5	Encina Tennis Courts
Annual Report 3 (2002-03)		None
Annual Report 4 (2003-04)	6	West Campus Storm Detention
	7	CTS Breeding Ponds
	8	Hole #3 Golf Cart Bridge Replacement
Annual Report 5 (2004-2005)	9	Hole #4 Golf Cart Bridge Replacement
	10	Temporary Art in Foothills
	11	Taube Tennis Practice Bleachers
Annual Report 6 (2005-2006)	12	Equestrian Center
	13	Carnegie Grading Permit
Annual Report 7 (2006-2007)		None
Annual Report 8 (2007-2008)		None
Annual Report 9(2008-2009)	14	Dinkelspiel Stage
Annual Report 10 (2009-2010)		None
Annual Report 11 (2010-2011)		None
Annual Report 12 (2011-2012)	15	Arguello Recreation Field
	16	LPCH Contractor Parking Lot
	17	Page Mill Road Construction Laydown
Annual Report 13(2012-2013)	18	Galvez Parking Lot
	19	Lasuen Street Parking Lot
	20	Acorn Parking Lot
Annual Report 14(2013-2014)	21	Searsville Parking Lot
Annual Report 15 (2014-2015)	22	Stanford Perimeter Trail
	23	Regional Storm Water Treatment Facility
	24	West Campus Detention Basin
	25	Lomita/Roth Parking Lot & Lomita Road

Note: These are reported at the time of completion. These are grading projects that were not associated with construction of academic or housing square footage.



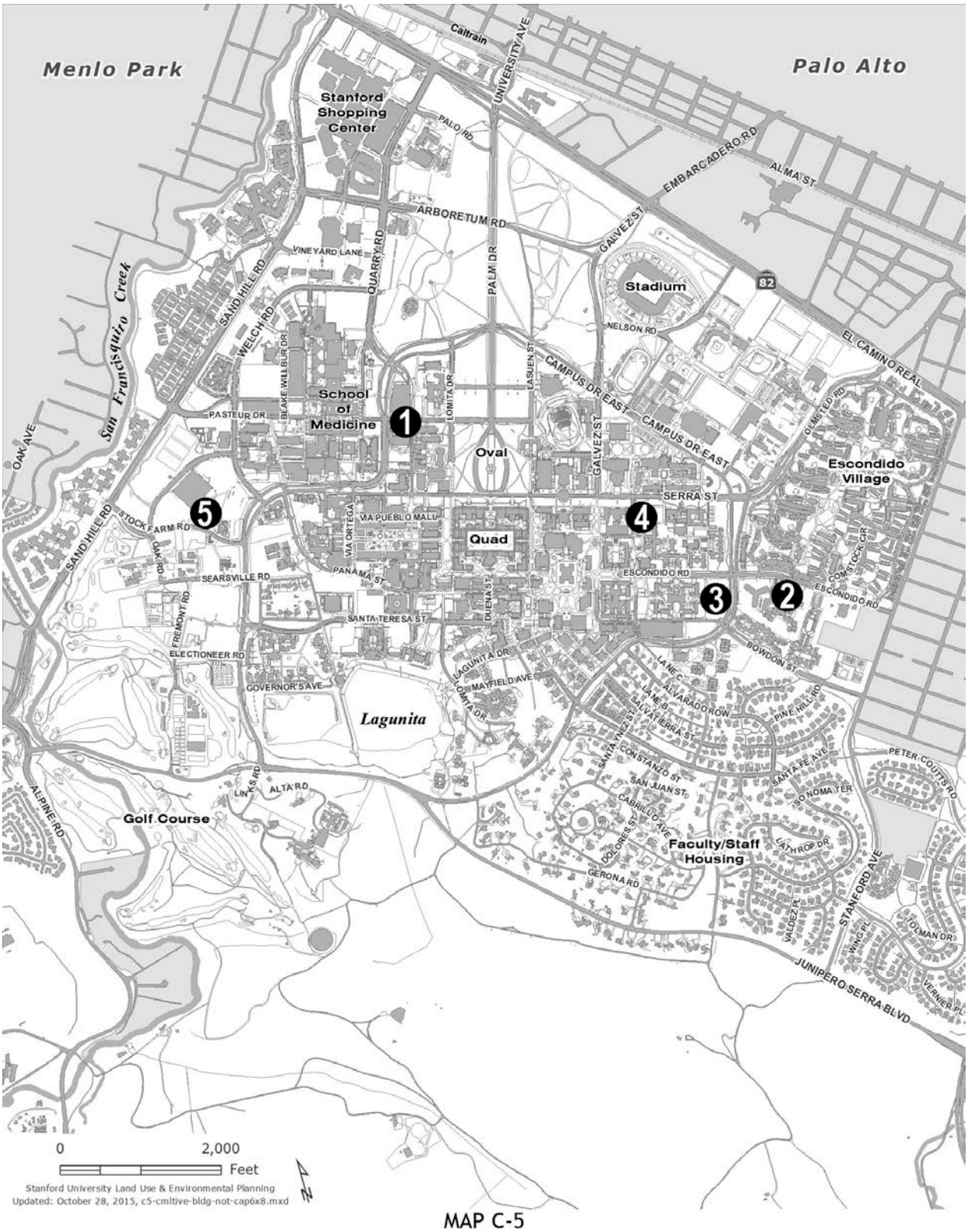
MAP C-4
CUMULATIVE COMPLETED GRADING PROJECTS

KEY TO MAP C-5
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE BUILDING PROJECTS THAT DO NOT AFFECT BUILDING AREA CAP*

				Applicable Category		
Applicable GUP Condition:				**A.2.a**	**A.2.b**	**A.3**
Fiscal year	**Map No.**	**Project**	**Size (sq. ft.)**	**1989 GUP (sq. ft.)**	**Temporary Surge Space (sq. ft.)**	**Community Childcare Center (sq. ft.)**
Annual Report 1 (2000-01)		None				
Annual Report 2 (2001-02)	1	Lokey Lab	85,063	85,063		
		Demolish Chem Storage	(2,441)	(2,441)		
		Demolish Shocktube Lab for ME	(929)	(929)		
		CCSC Modular Replacement	768			768
Annual Report 3 (2002-03)		None				
Annual Report 4 (2003-2004)		Maples Surge Trailers	2,688		2,688	
	2	Graduate Community Center	12,000			12,000
		CSLI/EPGY	8,270	8,270		
Annual Report 5 (2004-2005)	3	Wilbur Modular Ext.	27,360		27,360	
		Building 500	2,266	2,266		
		Maples Surge	(2,688)		(2,688)	
		Varian Surge	3,050		3,050	
Annual Report 6 (2005-2006)	3	Wilbur Modular Removal	(27,360)		(27,360)	
	4	Old Union – Serra	21,495		21,495	
		Old Union – Lomita	7,680		7,680	
Annual Report 7 (2006 – 2007)		Old Union – Lomita Removed	(7,680)		(7,680)	
		Durand Surge (formally Varian Surge)	3,050			
		Tower House Rehabilitation	3,241			3,241

KEY TO MAP C-5
ANNUAL REPORT 1 THROUGH ANNUAL REPORT 15
CUMULATIVE BUILDING PROJECTS THAT DO NOT AFFECT BUILDING AREA CAP*

				Applicable Category		
Applicable GUP Condition:				**A.2.a**	**A.2.b**	**A.3**
Fiscal year	**Map No.**	**Project**	**Size (sq. ft.)**	**1989 GUP (sq. ft.)**	**Temporary Surge Space (sq. ft.)**	**Community Childcare Center (sq. ft.)**
Annual Report 8 (2007 – 2008)		Black Community Service Center Addition	2,500			2,500
		GSB Modulars	3,840		3,840	
		SCRA Sports Complex	3,701			3,701
		Demolish old SCRA complex	(2,617)			(2,617)
		Madera Grove Childcare Center (Acorn Building)	8,354			8,354
Annual Report 9 (2008-2009)		Recalculation of AR 1 - 8	197			197
Annual Report 10 (2009-2010)		None				
Annual Report 11 (2010-2011)		Welch Road modulars	4,030		4,030	
		GSB Modular demolition	(3,840)		(3,840)	
		Madera Gove Childcare Center (Mulberry Building)	8,218			8,218
Annual Report 12 (2011-2012)	5	Temporary Child Care Facility	10,560		10,560	
Annual Report 13 (2012-2013)	4	Encina Modulars Trailer demolition (Old Union – Serra)	(21,495)		(21,495)	
		Cowell Lot Construction Trailers	2,584		2,584	
Annual Report 14 (2013-2014)		None				
Annual Report 15 (2014-2015)		Varian Surge (double-counted in AR7)	(3,050)			
		Extension of Temporary Child Care Facility	0 (already counted in AR 12)		0 (already counted in AR 12)	
Cumulative Net Square Feet:			**148,815**	**92,229**	**20,224**	**36,362**



MAP C-5
CUMULATIVE BUILDING PROJECTS THAT DO NOT AFFECT BUILDING AREA CAP
(GREATER THAN 10,000GSF)

Appendix D
Summary Report of Traffic Monitoring, 2001-2015

Appendix D
Summary of Traffic Monitoring

The following tables summarize Stanford Traffic Monitoring to date. The requirements for establishment of the traffic baseline and performing annual comparisons to the baseline are contained within the December 2000 Stanford Community Plan/General Use Permit (GUP)/Environmental Impact Report (EIR) and within the 2000 Stanford General Use Permit.

Methodology for Evaluating Traffic Impacts

The GUP *Condition of Approval G.7* outlined the methodology for gathering baseline counts and monitoring. The process can be summarized as follows:

- Peak hour traffic is counted at least three times per year for a two-week period each time. The three counts shall be averaged to determine the annual traffic level.
- All counts are recorded at the 16 campus entry and exit points, which form a "cordon" around the campus.
- During the count, license plate numbers are recorded for each entering and exiting vehicle to determine the amount of non-campus traffic.
- Cordon volumes are adjusted for parking lots within the cordon used by the hospital (these volumes are subtracted from the cordon line counts) and parking lots outside the cordon used by the university (these volumes are added to the cordon line counts).
- A peak hour is then established for the campus based on the counts, adjusted for cut-through and parking lot location.

Condition of Approval G.4 defines the "no net new commute trips" standard as no increase in automobile trips during peak commute times in the peak commute direction, as counted at a defined cordon location around the central campus.

Condition of Approval G.6 defines the peak commute directions as entering the campus in the morning peak commute period and leaving the campus in the evening commute period. The peak commute period is defined as the one-hour period of time between 7 AM and 9 AM and again between 4 PM and 6 PM with the highest volume of traffic, as defined by the counts. Therefore, the two peak hours are considered to be independent events.

Condition of Approval G.9 states that the Planning Office shall monitor the cordon count volumes using the procedures described above. If the cordon counts, as modified by trip reduction credits, exceed the baseline volumes as calculated by the procedures outlined above by 1 percent or more for any two out of three consecutive years, mitigation of impacts to intersections identified in the December 2000 Stanford Community Plan/GUP EIR will be required. Since an increase in traffic during the AM peak hour is independent from an increase in traffic during the PM peak hour, an increase in traffic for two out of three years in one peak hour would trigger the additional elements of the monitoring program without a change, or even with a decrease in the other peak hour. Also a significant increase during one year in the AM and a sufficient increase in the PM for the following year would not trigger additional mitigation.

Appendix D
Summary of Traffic Monitoring

Monitoring Results

Annual Report 1 - Year 2001 – Baseline

The Stanford Traffic Monitoring began in Spring 2001. Monitoring counts are done each calendar year. The 2001 counts serve as the Baseline to which future years are compared.

Annual Report 2 - Year 2002

Two adjustments were made to the 2002 counts that are summarized in this report. On the basis of results of the 2002 counts, following the adjustments, it was concluded that the counts were below the threshold that would indicate an increase in traffic volumes. Stanford thus was found to be in compliance with the "no net new commute trips" GUP requirement for 2002.

An update to the original 2002 Monitoring Report was issued on October 15, 2003. Following the publication of the July 2003 report, Stanford and the County separately analyzed traffic data for the Stanford Homecoming week. Based on consultation with Stanford and independent analysis of County consultant traffic data, the County determined that data collected for the week of Homecoming should not be included in the comparison data set. The rationale for this decision was that Homecoming had been ongoing for years, was not included in the Baseline counts, and would continue to be an annual event. The County communicated to Stanford that other future "large events" would not be excluded from future counts. The revised analysis substituted the week of October 28, 2002, for the previously counted week of October 14, 2002. The results of this change are noted in the table below as the first revision.

Subsequent to the first adjustment to the 2002 Monitoring Report discussed above, Stanford informed the County that additional Marguerite Shuttle runs had been introduced to campus since the completion of the Baseline counts, and thus counted in the Year 1 (2002) comparison counts. This resulted in an increase of 12 vehicles in each peak hour. County staff determined that these new bus lines should be subtracted from the comparison count. The resultant counts are noted in the table below as the second revision.

Annual Report 3- Year 2003

The results of the 2003 counts were also below the threshold that would indicate an increase in traffic volumes. Stanford thus was also found to be in compliance with the "no net new commute trips" requirement for 2003.

Annual Report 4- Year 2004

The results of the 2004 counts were below the threshold that would indicate an increase in traffic volumes for the inbound AM peak hour traffic. However, the 2004 count for the outbound PM peak hour traffic exceeded the threshold by 51 vehicles. On March 2, 2005 Stanford submitted a 2004 Trip Credit Report that was reviewed by Korve Engineering. This report documented a credit of 66 for the increase in the number of bus trips across the cordon points and the number of transit passengers served outside the cordon area in the PM peak hour between the 2001 baseline and 2004. Most of the trip credits claimed are for passengers (primarily Stanford Hospital employees) getting on the shuttle outside the cordon area and traveling to the Palo Alto Caltrain station. Factoring in the trip credit of 66 trips Stanford did not exceed the no net new commute trip standard based on the 2004 Monitoring Program.

Appendix D
Summary of Traffic Monitoring

Annual Report 5 - Year 2005

The results of the 2005 Monitoring Report concluded that the adjusted AM inbound count totaled 3,383 vehicles. This represented an increase of 64 vehicles, which fell within the 90% confidence interval and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,735 vehicles which was an increase of 422 vehicles from the baseline, which is above the 90% confidence interval by 289 vehicles and above the 1% increase trigger by 144 vehicles. Stanford applied for 182 trip credits for the 2005 monitoring period, consistent with the Cordon Count Credit Guidelines.

Annual Report 6 - Year 2006

The 2006 Monitoring Report concluded that the adjusted AM inbound count totaled 3,048 vehicles. This represented a decrease of 271 vehicles from the baseline and does not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,427 vehicles, which was a decrease of 19 vehicles from the baseline, which is 128 vehicles below the 90 percent confidence interval and 164 vehicles below the 1 percent established trigger. Stanford submitted a 2006 Trip Credit Report showing 223.36 trip credits – this report has been received and confirmed by the County's traffic consultant.

Annual Report 7 - Year 2007

The 2007 Monitoring Report concluded that the adjusted AM inbound count totaled 3,058 vehicles, which was a decrease of 261 vehicles from the baseline, this decrease falls below the 90 percent confidence interval by 141 vehicles and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,494 vehicles, which was an increase of 48 vehicles from the baseline counts. This increase falls below the 90 percent confidence interval by 61 vehicles and 97 vehicles below the 1 percent established trigger. Stanford submitted a 2007 Trip Credit Report showing 201 trip credits – this report has been received and confirmed by the County's traffic consultant.

Annual Report 8 - Year 2008

The 2008 Monitoring Report concluded that the adjusted AM inbound count totaled 3,020 vehicles, which was a decrease of 419 vehicles from the baseline and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,460 vehicles, which was a decrease of 95 vehicles below the baseline count and did not represent a significant PM outbound traffic increase. Stanford submitted a 2008 Trip Credit Report showing 240 trip credits – this report has been received and confirmed by the County's traffic consultant.

Annual Report 9 - Year 2009

The 2009 Monitoring Report concluded that the adjusted AM inbound count totaled 2,840 vehicles, which was a decrease of 479 vehicles from the baseline and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,227 vehicles, which was a decrease of 219 vehicles below the baseline count and did not represent a significant PM outbound traffic increase.

Annual Report 10 - Year 2010

The 2010 Monitoring Report concluded that the adjusted AM inbound count totaled 2,921 vehicles, which was a decrease of 553 vehicles from the baseline and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,459 vehicles, which was a decrease of 132 vehicles below the baseline count and did not represent a significant PM outbound traffic increase.

Annual Report 11 - Year 2011

The 2011 Monitoring Report concluded that the adjusted AM inbound count totaled 3,081 vehicles, which was a decrease of 393 vehicles from the baseline and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,743 vehicles, which was a decrease of 51 vehicles below the baseline count, after the trip credit was applied, and did not represent a significant PM outbound traffic increase.

Annual Report 12 - Year 2012

The 2012 Monitoring Report concluded that the adjusted AM inbound count totaled 3,287 vehicles, which was a decrease of 187 vehicles from the baseline and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,590 vehicles, which was a decrease of 302 vehicles below the baseline count, after the trip credit was applied, and did not represent a significant PM outbound traffic increase.

Annual Report 13 - Year 2013

The 2013 Monitoring Report concluded that the adjusted morning (AM) inbound count totaled 3,332 vehicles which was an increase of 13 vehicles from the baseline, which falls within the 90% confidence interval, and does not represent a significant AM inbound traffic increase. The afternoon (PM) outbound count totaled 3,744 vehicles, which is an increase of 298 vehicles from the baseline. However, after applying 339 trip credits submitted by Stanford and verified by the County, the PM peak hour outbound traffic is 186 trips below the 1% established trigger.

Annual Report 14 - Year 2014

The 2014 Monitoring Report concluded that the adjusted morning (AM) inbound count totaled 3,336 vehicles which was an increase of 17 vehicles from the baseline, which falls within the 90% confidence interval, and does not represent a significant AM inbound traffic increase. The afternoon (PM) outbound count totaled 3,696 vehicles, which is an increase of 250 vehicles from the baseline. However, after applying 402 trip credits submitted by Stanford and verified by the County, the PM peak hour outbound traffic is 297 trips below the 1% established trigger.

Annual Report 15 - Year 2015

The 2015 Monitoring Report concluded that the adjusted morning (AM) inbound count totaled 3,142 vehicles which was a decrease of 297 vehicles from the baseline, which falls below the 90% confidence interval, and does not represent a significant AM inbound traffic increase. The afternoon (PM) outbound count totaled 3,257 vehicles, which is a decrease of 298 vehicles from the baseline, and also falls below the 90% confidence interval and does not represent a significant PM outbound traffic increase. However, after applying 844 trip credits submitted by Stanford and verified by the County, the PM peak hour outbound traffic is 1,178 trips below the 1% established trigger.

Appendix D
Summary of Traffic Monitoring

2001 Baseline

Original Publication Date: **July 2002**
Updated Publication Date: **October 15, 2003**

Changes between the July 2002 and October 2003 reports were minor editorial corrections.

Inbound AM:	
Adjusted Average 2002 Count	3,319
90% Confidence Interval (2001)	+/- 120
Significant Traffic Increase (2001)	3,439
1% Increase Trigger (2001)	3,474
Outbound PM:	
Adjusted Average 2002 Count	3,446
90% Confidence Interval (2001)	+/- 109
Significant Traffic Increase (2001)	3,555
1% Increase Trigger (2001)	3,591

2002 Monitoring Report

Original Publication Date: **December 2002**
Updated Publication Date: **October 15, 2003**

Inbound AM:	**Original Data**	**First Revision Data**	**Second Revision Data**
Adjusted Average 2002 Count	3,390	3,287	3,275
Baseline-established 90% Confidence Interval (2001)	+/-120	+/-120	+/-120
Baseline-established Significant Traffic Increase (2001)	3,439	3,439	3,439
Baseline-established 1% Increase Trigger (2001)	3,474	3,474	3,474
Result	-84	-187	-199

Outbound PM:	**Original Data**	**First Revision Data**	**Second Revision Data**
Adjusted Average 2002 Count	3,678	3,598	3,586
Baseline-established 90% Confidence Interval (2001)	+/-109	+/-109	+/-109
Baseline-established Significant Traffic Increase (2001)	3,555	3,555	3,555
Baseline-established 1% Increase Trigger (2001)	3,591	3,591	3,591
Result	+87	+7	-5

Appendix D
Summary of Traffic Monitoring

2003 Monitoring Report

Original Publication Date: **January 29, 2004**

The following table summarizes the results of traffic monitoring for 2003.

Inbound AM:	
Adjusted Average 2003 Count	3,413
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result	-61
Outbound PM:	
Adjusted Average 2003 Count	3,476
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result	-115

2004 Monitoring Report

Original Publication Date: **January 18, 2005**

The following table summarizes the results of traffic monitoring for 2004.

Inbound AM:	
Adjusted Average 2004 Count	3,413
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result	-298
Outbound PM:	
Adjusted Average 2004 Count	3,642
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (Falls above the 90% Confidence Interval by 87 vehicles)	+87
Result (Falls above the 1% Trigger by 51 vehicles)	+51
2004 Trip Credit	-66
Result With Trip Credit (Falls below the 1% Trigger by 15 vehicles)	-15

Appendix D
Summary of Traffic Monitoring

2005 Monitoring Report

Original Publication Date: **December 21, 2005**

The following table summarizes the results of traffic monitoring for 2005.

Inbound AM:

Adjusted Average 2005 Count	3,383
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result (Falls below the 90% Confidence Interval by 56 vehicles)	-56
Result (Falls below the 1% Trigger by 91 vehicles)	-91

Outbound PM:

Adjusted Average 2005 Count	3,735
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (Falls above the 90% Confidence Interval by 313 vehicles)	+180
Result (Falls above the 1% Trigger by 277 vehicles)	+144

2006 Monitoring Report

Original Publication Date: **November 20, 2006**

The following table summarizes the results of traffic monitoring for 2006.

Inbound AM:

Adjusted Average 2006 Count	3,048
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result (falls below the 90% confidence interval by 391 vehicles)	-391
Result (falls below the 1% increase trigger by 426 vehicles)	-426

Outbound PM:

Adjusted Average 2006 Count	3,427
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (falls below the 90% confidence interval by 128 vehicles)	-128
Result (falls below the 1% trigger by 164 vehicles)	-164

Appendix D
Summary of Traffic Monitoring

2007 Monitoring Report

Original Publication Date: **November 2007**

The following table summarizes the results of traffic monitoring for 2007.

Inbound AM:	
Adjusted Average 2007 Count	3,058
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result (falls below the 90% confidence interval by 381 vehicles)	-381
Result (falls below the 1% increase trigger by 416 vehicles)	-416
Outbound PM:	
Adjusted Average 2007 Count	3,494
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (falls below the 90% confidence interval by 61 vehicles)	-61
Result (falls below the 1% trigger by 97 vehicles)	-97

2008 Monitoring Report

Original Publication Date: **November 2008**

The following table summarizes the results of traffic monitoring for 2008.

Inbound AM:	
Adjusted Average 2008 Count	3,020
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result (falls below the 90% confidence interval by 381 vehicles)	-419
Result (falls below the 1% increase trigger by 416 vehicles)	-454
Outbound PM:	
Adjusted Average 2008 Count	3,460
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (falls below the 90% confidence interval by 61 vehicles)	-95
Result (falls below the 1% trigger by 97 vehicles)	-131

Appendix D
Summary of Traffic Monitoring

2009 Monitoring Report

Original Publication Date: **November 2009**

The following table summarizes the results of traffic monitoring for 2009.

Inbound AM:

Adjusted Average 2009 Count	2,840
Baseline-established 90% Confidence Interval (2001)	+/- 120
Baseline-established Significant Traffic Increase (2001)	3,439
Baseline-established 1% Increase Trigger (2001)	3,474
Result (falls below the 90% confidence interval by 381 vehicles)	-599
Result (falls below the 1% increase trigger by 416 vehicles)	-634

Outbound PM:

Adjusted Average 2009 Count	3,227
Baseline-established 90% Confidence Interval (2001)	+/- 109
Baseline-established Significant Traffic Increase (2001)	3,555
Baseline-established 1% Increase Trigger (2001)	3,591
Result (falls below the 90% confidence interval by 61 vehicles)	-328
Result (falls below the 1% trigger by 97 vehicles)	-364

2010 Monitoring Report

Original Publication Date: **December 2010**

The following table summarizes the results of traffic monitoring for 2010

Inbound AM:

Adjusted average 2010 count	2,921
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 518 vehicles)	-518
Result (falls below the 1% increase trigger by 553 vehicles)	-553

Outbound PM:

Adjusted average 2010 count	3,459
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls below the 90% confidence interval by 96 vehicles)	-96
Result (falls below the 1% increase trigger by 132 vehicles)	-132

Appendix D
Summary of Traffic Monitoring

2011 Monitoring Report

Original Publication Date: **December 2011**

The following table summarizes the results of traffic monitoring for 2011

Inbound AM:

Adjusted average 2011 count	3,081
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 358 vehicles)	-358
Result (falls below the 1% increase trigger by 393 vehicles)	-393

Outbound PM:

Adjusted average 2011 count	3,743
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 188 vehicles)	+188
Result (falls above the 1% increase trigger by 152 vehicles)	+152
2011 Trip Credit	-203
Result with trip credits (falls below the 1% trigger by 51 vehicles)	-51

2012 Monitoring Report

Original Publication Date: **December 2012**

The following table summarizes the results of traffic monitoring for 2012

Inbound AM:

Adjusted average 2012 count	3,287
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 152 vehicles)	-152
Result (falls below the 1% increase trigger by 187 vehicles)	-187

Outbound PM:

Adjusted average 2012 count	3,590
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (exceeds the 90% confidence interval by 35 vehicles)	+35
Result (falls above the 1% increase trigger by 1 vehicle)	-1
2012 Trip Credit	-301
Result with trip credits (falls below the 1% trigger by 302 vehicles)	-302

Appendix D
Summary of Traffic Monitoring

2013 Monitoring Report

Original Publication Date: **March 2014**

The following table summarizes the results of traffic monitoring for 2013

Inbound AM:	
Adjusted average 2013 count	3,332
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 358 vehicles)	-107
Result (falls below the 1% increase trigger by 393 vehicles)	-142
Outbound PM:	
Adjusted average 2013 count	3,744
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 188 vehicles)	+189
Result (falls above the 1% increase trigger by 152 vehicles)	+153
2013 trip Credit	-339
Result with trip credits (falls below the 1% trigger by 51 vehicles)	-186

2014 Monitoring Report

Original Publication Date: **April 2015**

The following table summarizes the results of traffic monitoring for 2014

Inbound AM:	
Adjusted average 2014 count	3,336
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 103 vehicles)	-103
Result (falls below the 1% increase trigger by 138 vehicles)	-138
Outbound PM:	
Adjusted average 2014 count	3,696
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (exceeds the 90% confidence interval by 141 vehicles)	+141
Result (exceeds the 1% increase trigger by 105 vehicles)	+105
2014 Trip Credit	-402
Result with trip credits (falls below the 1% trigger by 297 vehicles)	-297

Appendix D
Summary of Traffic Monitoring

2015 Monitoring Report

Original Publication Date: **February 2016**

The following table summarizes the results of traffic monitoring for 2015

Inbound AM:	
Adjusted average 2015 count	3,142
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 297 vehicles)	-297
Result (falls below the 1% increase trigger by 332 vehicles)	-332
Outbound PM:	
Adjusted average 2015 count	3,257
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls below the 90% confidence interval by 298 vehicles)	-298
Result (falls below the 1% increase trigger by 334 vehicles)	-334
2015 Trip Credit	-844
Result with trip credits (falls below the 1% trigger by 1,178 vehicles)	-1,178

Appendix D
Summary of Traffic Monitoring

Definitions

The following definitions are provided to assist in understanding for procedures of the Stanford Traffic Monitoring.

Adjusted Traffic – The raw traffic counts defined below are adjusted to add in University traffic that does not cross the cordon, and to subtract hospital traffic that does cross the cordon, and cut-through traffic through the campus that is not university related. The adjusted traffic volumes are used to compare the Baseline traffic volumes to subsequent year volumes to assess potential changes in commute traffic volumes.

AM Peak Hour – The 60-minute time period with the highest volume of traffic within the 2-hour AM Peak Period. During the AM Peak Period, traffic counts are aggregated by 15-minute increments. The AM Peak Hour is the highest four consecutive 15-minute intervals during the Peak Period for all 16 entrance/exit points combined.

AM Peak Period – The 2-hour period beginning at 7:00 AM and ending at 9:00 AM. The AM Peak Hour is calculated for traffic volumes collected during the AM Peak Period.

Average Count – Traffic data are collected for 16 entry and exit points. The entering data are averaged for the AM peak and the existing data are averaged for the PM peak. The average counts are used to compare one year to a subsequent year to determine if a change in traffic volumes has occurred.

Baseline – The Baseline traffic data are the counts from calendar year 2001, the first year of monitoring after approval of the Stanford GUP in 2000. Subsequent year's counts are compared to the Baseline to determine if the GUP condition requiring no net new commute trips is being satisfied.

Cordon Line – A cordon line is an imaginary line that completely encircles an area and crosses all roads leading into and out of the area. By counting traffic volumes on the cordon by direction, the amount of traffic entering the area and exiting the area can be determined. For Stanford traffic monitoring, the cordon line surrounds the campus and crosses all entry and exit roads, such that all vehicles entering and exiting the campus can be counted.

License Plate Survey – The last four digits of the license plates of each vehicle entering and exiting the campus is recorded for one day during each week of traffic counts. The time period during which each identified vehicles enters and exits the campus cordon is also recorded. If an entering vehicle's license plate matches an exiting vehicle's license plate with a 15-minute interval, that vehicle is assumed to represent a cut-through trip (i.e. not campus-related) and is subtracted from the total traffic count for Stanford since it does not represent traffic related to Stanford. In order for a vehicle trip to be identified as "cut-through", it must be identified by license plate match as having entered via one roadway and exited via another. If a car is identified by license plate match as using the same entering and exiting roadway, the trip purpose is assumed to be to drop-off a passenger within the campus, and the trip is assumed to be Stanford related and is not subtracted from the trip count total.

PM Peak Hour – The 60-minute time period during which the highest volume of traffic is counted, within the 2-hour PM Peak Period. During the Peak Period, traffic counts are

aggregated by 15-minute increments. The PM Peak Hour is the highest four consecutive 15-minute interval during the Peak Period for all 16 entrance/exit points combined.

PM Peak Period – The 2-hour period beginning at 4:00 PM and ending at 6:00 PM. The PM Peak Hour is calculated for traffic volumes collected during the PM Peak Period.

Raw Data – The total traffic volumes counted at the cordon line before adjustments are made. Adjustments are made to the raw data to subtract hospital parking within the cordon, and cut-through traffic from the total count, and to add university parking outside the cordon to the total count, in order to accurately account for traffic attributable to Stanford University.

Significant Traffic Increase – In comparing the change in traffic volumes between the Baseline and subsequent years, only statistically significant changes are considered. The following parameters define how a significant traffic increase is calculated:

- Ninety Percent Confidence Interval – A confidence interval is calculated to determine if a subsequent set of data is statistically different from the Baseline data. The County selected a 90 percent confidence interval as the significance threshold. Based on the daily variation in the Baseline counts, the 90 percent confidence interval for the AM peak hour is +/- 120 vehicles. The 90 percent confidence interval for the PM peak hour is +/- 109 vehicles. Therefore, if a subsequent year count exceeds the Baseline count by more than 120 vehicles, there is a 90 percent likelihood that the increase in traffic volumes has increased significantly.
- One Percent Increase Trigger – The 1 percent trigger is a second criterion for identifying significant increases in traffic volume. Condition of Approval G.9 stipulates that if traffic volumes increase above the Baseline volumes by 1 percent or more in two out of three consecutive years, this will "trigger" a requirement for additional mitigation.

Trip Credits – *Condition of Approval G.8* specifies that the County will recognize and "credit" Stanford off-campus trip reduction efforts after the approval data of the GUP (December 12, 2000), but not before, within a specified area surrounding the campus. These credits can be used to offset a significant increase in peak hour traffic into and out of the campus. Specific guidelines have been established that define how credits can be applied. An example of a credit would be Stanford providing bus service to someone traveling from the Caltrain Station to the hospital. By reducing overall travel in the area around the campus, Stanford can receive a credit against increases in travel onto the campus.

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Appendix E
Sustainability at Stanford Annual Report

EXECUTIVE SUMMARY

Sustainability is a core value at Stanford, deeply integrated into academics, campus operations, communications, and the campus lifestyle. Sustainability teachings and practices enrich our students' academic experience, reduce the university's environmental impact, save resources, and engage the campus community.

This executive summary provides an overview of *Sustainability at Stanford: A Year in Review, 2014-15*. It summarizes key accomplishments, results, and trends, as well as offering some insight into the work ahead.

Annual Highlights

Overall Sustainability

For the third consecutive year, Stanford is on the **Princeton Review's Green Honor Roll**, which lists universities that achieve the highest score—99—in the review's annual green rating of 804 institutions. The review includes this information in its print and online college selection guides. Additionally, Stanford placed fourth on BestColleges.com's Greenest Universities list.

The Princeton Review largely bases its rankings on the Sustainability Tracking, Assessment & Rating System (STARS) of the national Association for the Advancement of Sustainability in Higher Education. Stanford received a **Gold rating from STARS in 2014**, increasing its 2012 score by 6 percentage points. Every two years, more than 300 colleges and universities report into various versions of STARS. Stanford will submit its data again in 2016.

Interdisciplinary Research and Sustainability Curricula

Stanford continues to produce **leading interdisciplinary research** to develop solutions to the world's most pressing environmental problems. The Stanford Woods Institute for the Environment, the Precourt Institute for Energy (PIE), and others award millions of dollars each year to innovative new research

projects. On the curricular side, the shift in undergraduate requirements from a discipline-based to a capacity-based model enables students to take sustainability-related courses that also count toward breadth requirements. All seven schools offer a wide range of environmental and sustainability-related courses and research opportunities, with over 750 sustainability-related graduate and undergraduate courses offered across campus.

Greening of the Energy Supply

Stanford has transformed its energy system through Stanford Energy System Innovations (SESI), which will reduce greenhouse gas emissions by 50% and total campus potable water use by 15%. With additional renewable energy partnerships coming online in 2016, total greenhouse gas reductions will reach 68% by the end of 2016. The SESI website has a multitude of fact sheets, brochures, and videos that detail the project from initial planning to completion in April 2015.

Leadership in Building Design and Construction

Stanford has a multitude of projects in development that will incorporate some of the most aggressive performance benchmarks in the industry today. The university replaced the energy efficiency goal of 30% beyond code with whole-building energy performance targets derived specifically for each new building coming online.

Robust Energy Efficiency Programs

The university continuously works to reduce energy use in existing buildings and to incorporate energy efficiency best practices into all new buildings. Programs like the Whole Building Energy Retrofit Program and Energy Retrofit Program provide rebates for updating buildings with the most efficient systems possible, and a new focus on building control systems has maximized the potential for sustainable performance. As of 2014, Stanford has reduced energy intensity on campus 8% from a 2000 baseline, despite continued campus growth.

Expanded Alternative Transportation Options

In 2014, the employee drive-alone rate is at 49%, compared to 72% in 2002 at the inception of the enhanced Transportation Demand Management program. Commute-related emissions remain below 1990 levels, and this year saw record turnout for the annual Bike to Work Day. Additionally, Stanford has expanded access to electric vehicle charging stations as well as increasing the number of electric vehicles in its Marguerite and campus fleets.

Expanded Water Conservation

Stanford has an extensive history of water conservation, and in the face of four consecutive years of drought has enhanced its sustainable water practices by managing available resources to meet its needs, while preserving ecological systems and vital resources for future generations. Stanford has reduced its potable water consumption by 31% since 2001.

Higher Landfill Diversion Rate

Stanford increased its landfill diversion rate from 30% in 1994 to 64% in 2014 and reduced its tonnage sent to landfill to an all-time low.

Sustainability Enhancements in Food and Living

Residential & Dining Enterprises (R&DE) Sustainable Food and Living programs help to influence generations of students to lead sustainable lifestyles, not only on campus but in their future communities. In 2014, food considered sustainable—local, organic, humanely raised, fairly traded, and from family-owned farms and sustainable fisheries—made up 47% of R&DE food purchases. Housing projects included the expansion of zero-waste and composting programs in dorms, as well as water conservation efforts expected to reduce R&DE's use of irrigation water 46%.

Behavioral Sustainability

Annual Cardinal Green conservation campaigns engaged the community with sustainability efforts throughout the year. The fourth annual Celebrating Sustainability event took place at the new Central Energy Facility and highlighted the advances the campus has made while encouraging behavioral sustainability. The Earth Day celebration brought together more than 700 guests, 65 volunteers, and 30 campus groups to experience the thriving culture of sustainability on campus.

Collaborative Governance

Sustainability continued to expand as a core value across campus through collaborative partnerships among students, staff, and faculty. The Provost's Committee on Sustainability finished its third year of collaboration and made progress in integrating sustainability into campus events and expanding the campus-wide Cardinal Green program.

Leadership in Sustainability

Central to the academic endeavor has been the Initiative on the Environment and Sustainability, which boosted interdisciplinary research and teaching in all seven of Stanford's schools, as well as in interdisciplinary institutes, centers, and associated programs across campus, in recognition of the fact that solutions to complex challenges demand collaboration across multiple fields. The School of Earth, Energy & Environmental Sciences, the School of Engineering, the Graduate School of Business, the Graduate School of Education, the School of Humanities and Sciences, the School of Law, and the School of Medicine are leaders in sustainability research and teaching. Leading institutes such as the Stanford Woods Institute (founded in 2004) and PIE (founded in 2009) serve as the academic integration points and coordination platforms for interdisciplinary research and programs.

The Department of Sustainability and Energy Management (SEM) within Land, Buildings & Real Estate (LBRE) leads initiatives on campus physical infrastructure and programs in energy and climate, water, transportation, building operations, and information systems. Office of Sustainability (founded in 2008 as an entity of SEM) connects campus departments and other entities and works collaboratively with them to steer sustainability-specific initiatives. The office works on long-range sustainability analysis and planning, evaluation and reporting, communication and outreach, academic integration, behavior-based programs, and governance coordination.

Creating a bridge between operational groups and academic entities are the Provost's Committee on Sustainability and the Sustainability Working Group. With a commitment to uphold sustainability as a visible priority at Stanford, these committees work to encourage and promote collaborations among sustainability programs across schools, institutes, and the Office of Sustainability. Additional critical

sustainability partners at Stanford include all LBRE departments; R&DE, which houses its own sustainable food and student housing programs; the Stanford Recycling Center, run by Peninsula Sanitary Service, Inc.; University Communications; Government and Community Relations; the Alumni Association; and over 20 student organizations.

Through the efforts and collaboration of Sustainable Stanford and its partners across campus, sustainability can truly be seen as a core value on campus, with initiatives to enhance it as a tangible component of campus life taking place throughout the year.

TRENDS IN SUSTAINABILITY PERFORMANCE

Stanford has undertaken major ongoing initiatives to reduce energy and water use, apply stringent environmental standards to all new buildings, encourage sustainable living, promote low-impact transportation, conserve natural resources, and decrease waste. Stanford continues to analyze the effectiveness of its sustainability programs and identify opportunities for improvement.

Proper assessment of Stanford's success in achieving a culture of sustainability depends heavily on tracking performance metrics and reporting them both internally and externally. A commitment to transparency and accountability helps the university strengthen its sustainability programs and services.

Results

Changes in Resource Consumption

The first graphic below depicts trends in resource consumption this past year and compared to baseline program years. Key information on these trends includes the following:

- Because of consistent campus growth, total **campus energy use** has gradually increased over time, although it remained fairly steady between 2013 and 2014. The overall increase has been small relative to the growth of the campus footprint, meaning that energy intensity is decreasing.
- Decreases in **energy intensity** since 2000 reflect the effectiveness of construction of energy-efficient facilities as well as retrofits of existing buildings.
- Total **water use** has decreased substantially since 2000 due to the success of Stanford's water efficiency programs. The university's dedicated drought response efforts throughout 2014 have reduced its water consumption even further.
- The amount of **campus waste** that is landfilled has decreased significantly since 2000 as recycling and composting have become prevalent. The reduction from 2013 to 2014 brought Stanford's diversion rate to an even 65%.
- Stanford has significantly lowered the **number of commuters** who drive to campus alone since 2002, and the percentage has remained steady at 49% since 2013.

Operational Sustainability Metrics Summary

	Annual Trend (2014 vs. 2013)	Baseline Trend (2014 vs. Base)	Baseline Year
Total Energy Use	▼ 0.5%	▲ 12%	2000
Total Energy Intensity	▼ 3%	▼ 8%	2000
GHG Emissions	▼ 2%	▼ 2%	2007*
GHG Intensity	▼ 8%	▼ 11%	2007*
Landfilled Waste	▼ 5%	▼ 27%	2000
Drive-Alone Rate	◄► 0%	▼ 32%	2002*
Domestic Water Use	▼ 4%	▼ 26%	2000

* Years other than 2000 are formal program start dates and/or the earliest years for which data are available.

Mindful of the continued growth necessary to support and advance its academic mission and enroll more students, Stanford maintains an unrelenting commitment to reducing its impact on resources. An analysis of absolute values over time demonstrates this trend. In the features section, operational departments and initiatives provide detail on the programs and services Stanford implements to improve efficiency, conserve resources, and ultimately reduce its impact while enhancing learning opportunities across campus.

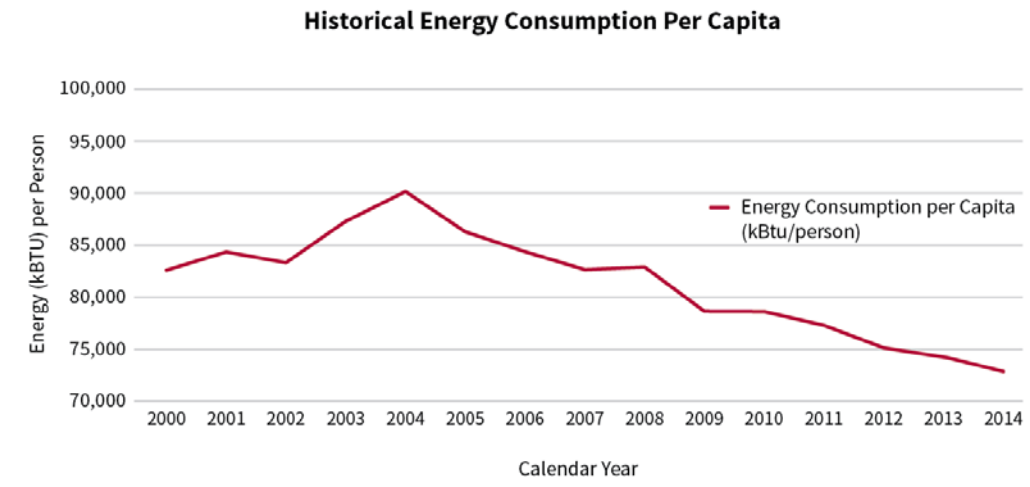
Individual Impact: A Look at Per Capita Consumption

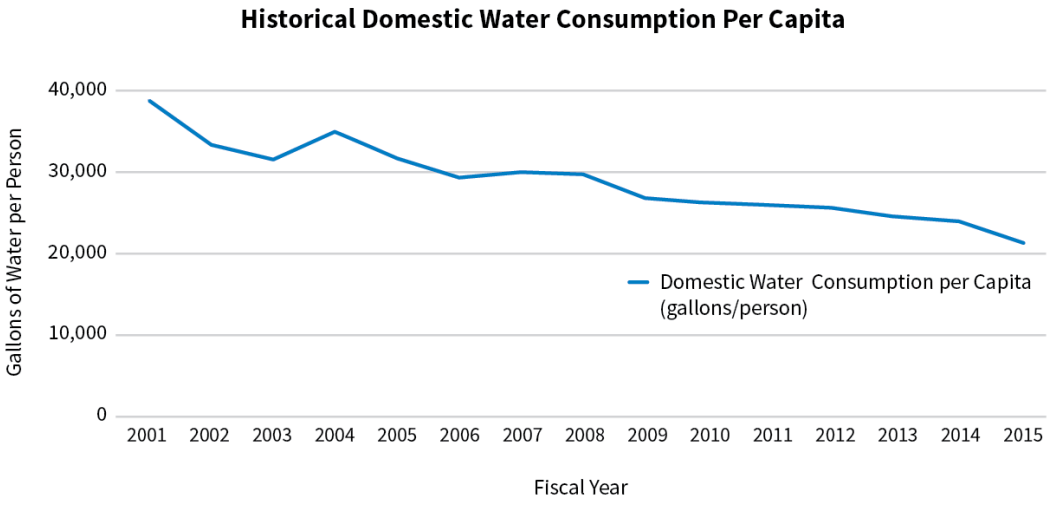
In addition to tracking absolute consumption and intensity trends, Stanford considers annual per capita resource use. As the university grows to support its academic mission, responsible growth is both a priority and a tool for informing long-range strategic planning. As the total campus population continues to grow, the suite of efficiency and conservation programs implemented by the Department of Sustainability and Energy Management and its partner organizations ensures that each individual footprint shrinks. As a testament to these efforts, the chart below shows that per capita consumption has dropped in every category not only in the past year, but also compared to each baseline year. A detailed look at the magnitude of these per capita changes, demonstrated in the following charts, illustrates the effectiveness of resource management at Stanford.

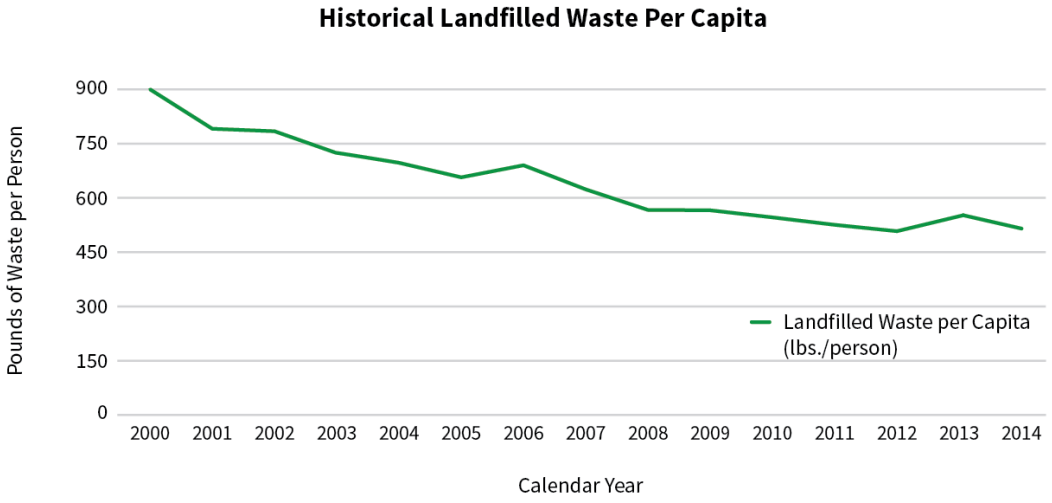
Per Capita* Consumption Trends

	Annual Trend (2014 vs. 2013)	Baseline Trend (2014 vs. Base)	Baseline Year
Total Energy per Capita	▼ 2%	▼ 12%	2000
GHG Emissions per Capita	▼ 3%	▼ 15%	2007
Domestic Water per Capita	▼ 11%	▼ 45%	2001*
Landfilled Waste per Capita	▼ 6%	▼ 43%	2000

* Population numbers sourced from the annual Stanford Population Report, compiled by the Office of Institutional Research and Decision Support and publicly available.


Historical Energy Consumption Per Capita
100,000
95,000
90,000
85,000
80,000
75,000
70,000
Energy (kBTU) per Person
Energy Consumption per Capita (kBtu/person)
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Calendar Year

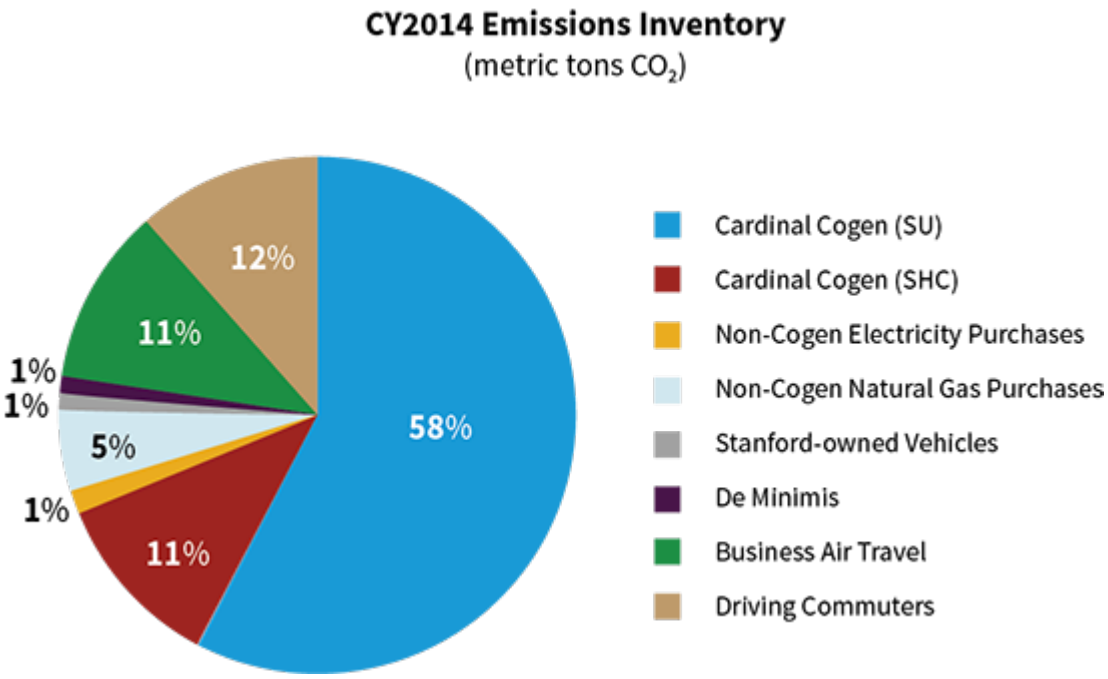

Historical Domestic Water Consumption Per Capita
40,000
30,000
20,000
10,000
0
Gallons of Water per Person
Domestic Water Consumption per Capita (gallons/person)
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Fiscal Year


Historical Landfilled Waste Per Capita
900
750
600
450
300
150
0
Pounds of Waste per Person
Landfilled Waste per Capita (lbs./person)
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Calendar Year

The Road to Carbon Reduction

Stanford began operating its new Central Energy Facility (CEF) in April 2015. The substantial efficiency increase from the previous cogeneration plant will allow an immediate drop in emissions. Installation of 5.5 megawatts of onsite solar and 73 megawatts of offsite solar power will allow Stanford's emissions to decrease by a total of 68% by the end of 2016.

Stanford pursues third-party verification of its annual emissions inventories, which means each year's GHG emissions are not publicly reported until late the following year. In 2013, for the eighth consecutive year, Stanford completed and verified its inventory of Scope 1 and Scope 2 CO2 emissions, reporting approximately 181,700 metric tons of emissions through the Climate Registry. Stanford calculated approximately 178,800 metric tons of Scope 1 and Scope 2 CO2 emissions for 2014 (verification pending), a 2% decrease from 2013 levels. This decrease resulted largely from direct reductions in electricity and steam use on campus. Sustained reductions in steam use have also helped Stanford's emissions fall to 2% below baseline levels, despite over 2 million square feet of growth since 2006. However, the primary drivers behind Stanford's reduced GHG emissions over this period are the efficiency gains from new high-performing buildings and numerous retrofit programs, which together have contributed to a reduction in emissions intensity on campus of 11% since 2007.



This chart depicts the breakdown of Stanford's total 2014 emissions. It includes Stanford University's third-party-verified, publically reported Scope 1 and 2 emissions, which capture all direct emissions and indirect emissions from the purchase of electricity, heating, and cooling (discussed above). It also includes the emissions of Stanford Hospital and Clinics (SHC), and Scope 3 emissions from driving commuters and business air travel, bringing Stanford's total emissions to 267,435 metric tons of CO2.

STANFORD ENERGY SYSTEM INNOVATIONS (SESI)

Since its opening in 1891, Stanford has been dedicated to finding solutions to big challenges and preparing students for leadership in a complex world. Today, Stanford provides not only excellence in teaching and research, but innovation in technology and operations.

Stanford is addressing climate change, the greatest environmental and socioeconomic challenge of our time, head on by raising the bar in efficiency and ingenuity in developing global solutions and implementing them across its 8,180-acre campus. In December 2011, Stanford's Board of Trustees approved the Stanford Energy System Innovations (SESI) project, designed to meet the university's future energy needs while reducing greenhouse gas (GHG) emissions and water consumption. SESI is the largest component of Stanford's Energy and Climate Plan, originally developed in 2009, which also includes high efficiency standards for new buildings and continued efficiency improvements for existing buildings. The SESI project encompasses the best of both North American and European district heating and cooling system advances, with engineers, manufacturers, and builders from both continents collaborating to develop this state-of-the-art transformation of Stanford into one of the most efficient district energy systems in the world.

Conceived in the Department of Sustainability and Energy Management (SEM) and implemented in collaboration with the Department of Project Management (DPM), the university architect's office, Land Use and Environmental Planning, Zones Management, Buildings and Grounds Maintenance, and many other departments, the SESI program is an all-hands Land, Buildings & Real Estate engagement that will deliver immense benefits for Stanford University in decades to come.

Although developed independently by Stanford from 2009 to 2011, SESI may be the first large-scale example in the world of the technology roadmap for building heating and cooling recommended by the International Energy Agency, which the United Nations Environment Programme discussed in a comprehensive report on district-level implementation.

Results

This new system, along with Stanford's renewable power procurement, is anticipated to reduce campus emissions approximately 68% and campus potable water use 15% from current levels.

Specific benefits of the SESI program include the following:

- The electricity-dependent energy supply system offers greater reliability, lower cost, and more flexibility for additional green power procurement. By the end of 2016, Stanford will procure 65% of its electricity from renewable sources.
- Because of the significant opportunity for heat recovery and the lower line losses of hot water compared to steam piping, the new energy system is 70% more efficient than the combined heat and power process of the cogeneration facility.
- Since the majority of the waste heat from the chilled water loop will be reused, rather than discharged via evaporative cooling towers, the Central Energy Facility (CEF) will use 115 million fewer gallons of water annually than the cogeneration plant, for total campus potable water savings of 15%.
- The $485 million capital investment for SESI represents a significant transformation of the university energy supply from fossil-fuel-based cogeneration to a more efficient electric heat recovery system. The SESI project provided the best-cost option compared to continuation of the cogeneration system, with a net additional $100 million capital investment projected to yield $420 million in savings over the next 35 years.

Because there is a large overlap between campus heating and cooling demands, the new CEF utilizes an innovative heat recovery design that is significantly more efficient than the previous cogeneration process. Chilled water is sent out to campus for cooling needs and returns at a warmer temperature via a chilled water loop. Heat recovery chillers at the facility extract this excess heat collected from buildings for reuse in a new hot water loop, which replaced Stanford's aging steam system. This new process not only is safer and reduces heat loss from the steam system, but also minimizes the need for conventional chillers to discharge waste heat via cooling towers.

The plant features both hot and cold water thermal storage and relies on a diversified mix of electricity sources for power to create a more environmentally and economically sound power portfolio, in stark contrast to the cogeneration plant, which relied on 100% natural gas. SEM operates the CEF with a new automated control system, Energy Optimization Solution (EOS), a patented technology invented at Stanford and developed for commercial use by Johnson Controls, Inc. EOS assures optimal operation through predictive economic dispatching based on load and market electricity pricing forecasts. It allows for fully automated operation to eliminate guesswork by plant operators in running a complex combined heating and cooling system with both hot and cold thermal storage, and has shown to increase efficiency an average of 6%.

Implementation

Implementation of the SESI program involved significant work throughout the campus between 2012 and 2015. DPM managed design and construction of 22 miles of low-temperature hot water pipe, conversion of the mechanical systems of 155 buildings to receive hot water instead of steam, and installation of the new CEF and high-voltage substation.

The work was carefully sequenced in multiple phases to minimize disruption to campus life. As each phase of piping and building conversion reached completion, that section of campus moved off steam to hot water via a regional heat exchanger that converted steam from the cogeneration plant to hot water at a district level. A full transition from the cogeneration plant to the new CEF took place in April 2015,

the regional heat exchange stations were removed, and the cogeneration plant was decommissioned to make way for new academic buildings within the campus core. Throughout the process, the SESI website presented detailed project updates. It now showcases videos, fact sheets, and related articles that can help guide others on the path to efficiency.

Academic Integration

The Energy and Climate Plan, which set the framework for SESI, incorporated various faculty peer reviews from inception through approval. The first faculty GHG task force convened in 2009 to review the initial plan. Throughout 2011, the heat recovery scheme and proposed financial models were extensively peer reviewed by faculty from the School of Engineering and the Graduate School of Business, as well as a Board of Trustees advisory committee. SESI program studies have also periodically engaged graduate student researchers to supplement industry findings, verify models, and assist with other assessments. SEM partnered with the Stanford Solar and Wind Energy Project, a student group, to study the campus's solar potential. The students assisted in analyzing data while gaining practical hands-on experience.

Stanford staff will continue to partner with students and faculty to utilize the CEF as a living laboratory, where students can directly interact with the technical operations of the university. To this end, Office of Sustainability offers weekly tours for all those interested in learning more about the SESI project, and it hosted its annual Earth Day celebration, Celebrating Sustainability, at the plant to debut the facility to campus. The CEF features communal space for classes and meetings for both Stanford students and members of the surrounding community. By helping educate tomorrow's workforce, SESI is ensuring that these trained professionals can meet the demands of the world's growing clean energy sector.

Looking Ahead

Implementation is under way of a project that will install photovoltaic panels on the rooftops of 18 campus buildings and a parking structure. Phase 2 studies of additional potential major enhancements to the campus energy system have begun. These include:

- Development of a ground source heat exchange system to complement the core heat recovery process;
- Installation of a new high-voltage transmission line to improve the reliability of the grid that serves the university;
- Installation of a plug-in electric vehicle infrastructure to support both private and university electric vehicles and electrification of the Stanford bus, truck, and car fleet; and
- Installation of a natural gas–based centralized emergency generation and distributed electrical storage system to replace the current distributed diesel fuel emergency generation system.
- Detailed feasibility studies of these potential enhancements are under way and will be completed within the next few months.

STRIDES IN WATER EFFICIENCY AND CONSERVATION

Stanford has an extensive history of effective water conservation efforts—one of its first faculty members helped to frame the water laws of the state—and in the face of the current four-year drought has expanded its sustainable water practices by managing available resources to meet its needs, while preserving ecological systems and vital resources for future generations.

The university has developed innovative alternative water supplies and expanded water conservation efforts for its buildings, grounds, and residential leaseholders.

In April 2015, Governor Brown declared a state of emergency and issued an executive order to reduce water consumption statewide. In response, the State Water Resources Control Board adopted emergency water conservation regulations, which went into effect on May 18, 2015. These regulations require institutional potable (domestic) water users like Stanford to reduce consumption by 25% from a 2013 baseline, or to limit irrigation to two days per week. Stanford has complied with the regulations by limiting irrigation using potable water to two days per week, as directed by Provost Etchemendy in a June 2015 letter to the campus.

In addition to the two-days-per-week watering restrictions, Provost Etchemendy requested all users of Stanford's nonpotable irrigation water to strive for a 25% reduction from 2013 levels. While this reduction is not required by the State Water Board, the drought has drastically reduced Stanford's surface water supplies, resulting in greater use of groundwater in the nonpotable water system. Groundwater can be considered a "bank" that can supply water during droughts; thus, pumping should be done judiciously in order to preserve an adequate supply for future years if the drought continues, and for future decades when droughts reoccur. Many campus irrigators have already begun reduction and efficiency projects expected to achieve significant savings, and the Stanford Energy System Innovations project is expected to reduce total campus potable water use by 15%.

Results

In response to the drought, many Stanford groups reduced water use substantially in 2014 compared to 2013.

Collectively Stanford has **reduced potable water use on campus 31%** comparing this water year (July 2014 through June 2015) to a 2001 baseline, despite adding more than 2.5 million gross square feet to the campus buildings portfolio.

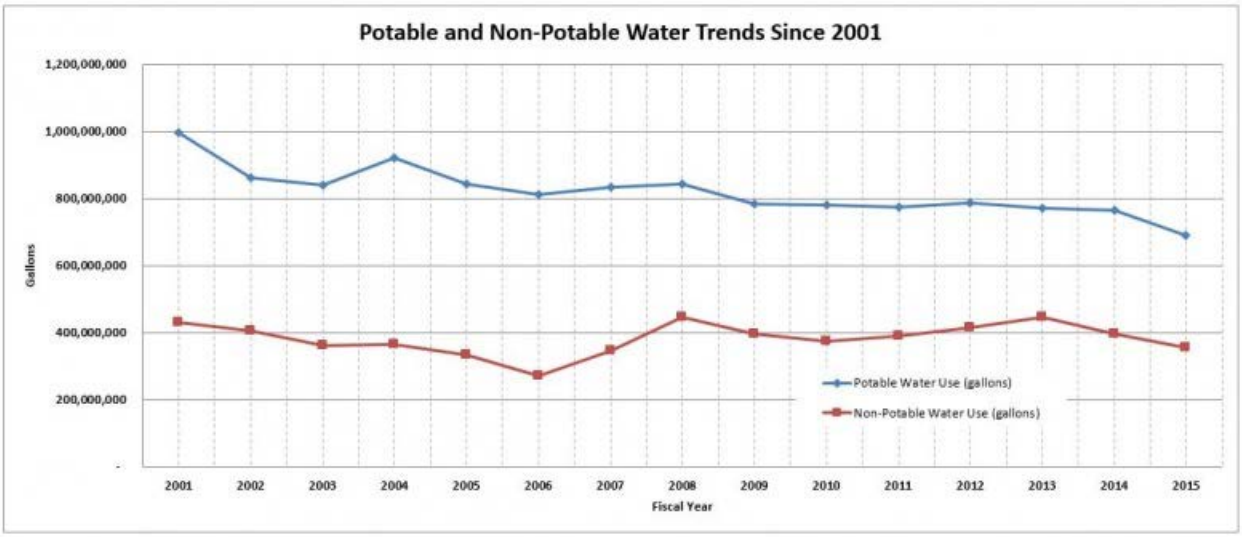
Many customer groups put forth conservation efforts in irrigation practices that resulted in significant savings to their total consumption. By carefully monitoring irrigation practices, making changes to

systems, and adding weather-based irrigation controllers (WBICs), Building and Grounds Maintenance (BGM) reduced its use of potable water for irrigation by 31%. Residential and Dining Enterprises (R&DE) reduced its potable water irrigation use 28%, and School of Medicine (SOM) added additional WBICs to reduce its irrigation consumption 20%. The Stanford Campus Residential Leaseholders reduced their overall water use by 17%.

Furthermore, use of nonpotable irrigation water was voluntarily reduced by 31% through BGM, 13% by R&DE, and 11% by the Department of Athletics, Physical Education and Recreation (DAPER).

In addition to the drought-triggered reductions, Stanford expanded its Water Efficiency (WE) program, developing and implementing measures to further encourage voluntary conservation. In 2014 and 2015, WE staff sent out monthly reports to campus zones and each major campus customer group to track water usage and promote savings. The reports helped inform campus managers and residents and encourage water conservation. The greatest savings have been in areas taking an integrated approach, including open communication between area managers and WE staff, the use of smart or weather-based irrigation controllers (for landscape sites), and equipment and fixture retrofits. Additional conservation measures include updates on drought conditions on the WE website; a call for action to the campus community, which yielded hundreds of pledges to conserve water; and expanded WE rebates for campus residents and groups.

The chart below depicts Stanford's monthly potable and nonpotable savings as a result of its water conservation efforts from 2001.



The 2003 Water Conservation Master Plan identified 14 water conservation measures for campus implementation; today, more than 20 such measures are employed. Campus domestic water use averaged 1.89 million gallons per day in the 2015 water year, the lowest average since the start of the water conservation program in 2001. Specific activities this year included the following:

Departmental Conservation

- The WE team partnered with R&DE to help fund an extensive irrigation system upgrade, including installation of 89 WBICs; over 70 flow sensors; and thousands of efficient sprinkler heads and nozzles. R&DE expects to save 33 million gallons per year from these retrofits.
- DAPER has made noteworthy strides in water conservation by replacing large areas of decorative grass with artificial turf or mulch thanks to generous donations. The WE group also partnered with DAPER to install new water-efficient column showers, which use 1.5 gallons per minute (gpm), in the Avery Aquatic Center.
- SOM received rebates from the WE and Facilities Energy Management groups to purchase new devices that reduced the necessary frequency of washing lab equipment. This improvement has cut the amount of water needed for washing specific lab equipment in half.
- In 2014, the WE group partnered with the Food Service Technology Center to monitor the water and energy use of a dishwasher in Wilbur Dining Hall. After a month, the old dishwasher was removed and replaced with a new, efficient model, which was then monitored for another month and proved to be more efficient. The project highlighted the importance of best management practices in dish rooms and in product monitoring and replacements.

Customer Outreach

In an effort to further ingrain water conservation into the daily ritual of campus life, the WE group has expanded its customer outreach:

- WE staff performed landscape irrigation water audits of more than 30 residences and other campus grounds in FY 2015. The purpose of the audits was to identify leaks, eliminate irrigation runoff, and improve overall efficiency while maintaining healthy plants.
- Drought and monthly supply updates have been posted on the water efficiency website to make information and resources more easily accessible for the campus community. The website, which has proved to be a successful outreach tool, also includes information about rebates for water-efficient fixtures and landscaping.
- WE staff coordinated with campus facilities to promote the 24-hour maintenance customer service hotline as a hub for reporting water waste and leaks. Faculty, staff, students, and community members can report leaks and water waste seen on campus so they can be quickly remedied. Call (650) 723-2281 for attention to any leaking taps, toilets, or showers; misaligned irrigation (not watering plants); broken irrigation sprinklers (water shooting into the air); or excessive irrigation runoff (flowing in gutters).
- WE staff gave out free water-saving devices and other items, including over 400 shower timers, 200 water conservation bookmarks, and over 100 items such as t-shirts, pins, decals, and sponges. The WE program also provided showerheads, aerators, and toilet leak detection tablets.
- The water conservation program has maintained and updated an interactive map, featured on the WE website, which details water conservation retrofit projects from 2002 to the present. A variety of sorting parameters allow users to quickly search more than 300 indoor and outdoor

projects. Clicking on the map's icons provides details on the water-efficient equipment installed during retrofit projects, as well as the estimated water savings, when available. The map also includes general water profiles for each new building opened since 2007.

Academic Integration

Water resources remain paramount for future development in California, and thus present the opportunity for increased collaboration between operations and academics for innovative solutions to a complex issue. To this end, in 2015, a 12-person joint faculty and staff steering committee completed an extensive, four-year study of the Stanford-owned Searsville Dam and Reservoir. A significant amount of sediment has accumulated in the reservoir of the 120-year-old dam, and a plan of action is required to address this in a way that both preserves the water supply and enhances local ecology. Based on the recommendations of the committee, the university has narrowed its options to three alternatives, all of which will improve fish passage, manage accumulated and future sediment, and avoid an increase in upstream or downstream flood threats in the San Francisquito Creek watershed. The recommendations take an adaptive management approach to allow flexibility in the plan to adjust to new findings and information, and showcase the collaboration that allows the university to lead sustainability by example in its operations and landscape management.

Realizing the benefits of the living laboratory that the campus provides, in March 2014 the university broke ground on the William and Cloy Codiga Resource Recovery Center, which has the primary purpose of testing and demonstrating the scalability of promising wastewater treatment technologies and will serve as an innovation accelerator.

Looking Ahead

The WE group, in partnership with its parent department in Water Resources and Civil Infrastructure (WRCI), will continue investigating Stanford's water resources and demands. Investigations are being conducted on Stanford's surface water supplies (reservoirs and creeks), groundwater, and storm water capture opportunities. Based on the findings of the Searsville study that was completed in 2015, WRCI will work on developing a campus-wide Sustainable Water Management Plan.

The WE group will continue to work with students, faculty, staff, campus groups, and residents to promote efficient practices, track water savings, and implement projects that promote water conservation. Staff will continue to reach out to residential landscape water users to encourage water-saving actions and offer outdoor water surveys to customers who consume a high amount of water.

EXCELLENCE IN BUILDING DESIGN, CONSTRUCTION, AND RENOVATION

To evolve as a center of learning, pursue world-changing research, and respond to pressing environmental concerns, Stanford designs and creates buildings that use resources wisely and provide healthy, productive learning environments.

Energy generation for building heating, cooling, and electricity accounts for the majority of Stanford's carbon emissions—and from 2000 to 2025, the university expects to build 2 million square feet of academic facilities, as well as housing for 2,400 students, faculty, and staff.

The Department of Project Management (DPM) oversees major construction on campus. Advancements in high-performance building design, construction, and renovation continue to ensure that Stanford delivers and maintains new facilities in accordance with its project delivery process manual. Since 2001, DPM has incorporated sustainability through guidelines for life cycle cost analysis, sustainable buildings, and salvage and recycling programs, as well as a strong emphasis on commissioning. Stanford's Energy and Climate Plan (2009) includes high-efficiency standards for new buildings, and DPM implements all new projects according to these standards.

Results

The examples below highlight achievements from 2014-15 that mark Stanford's progress toward sustainability in new construction and major renovations. These projects will ensure that Stanford has the most environmentally responsible and innovative facilities possible, allowing the university to fulfill its academic mission and lead sustainability by example.

To this end, in 2015 the university embraced a new method of benchmarking that allows for a more holistic, and also more rigorous, method for designing high-performance buildings. **The university replaced the energy efficiency goal of 30% beyond code with whole-building energy performance targets derived specifically for each new building coming online.**

Completed Projects

In March 2015, Stanford completed its most extensive and ambitious campus-wide construction project serving its Energy and Climate Plan. Stanford Energy System Innovations (SESI) has transformed the university's energy supply from a 100% fossil-fuel-based combined heat and power plant to grid-sourced electricity and a more efficient electric heat recovery system. SESI's major construction components were the following:

The new Central Energy Facility (CEF), which includes three large water tanks for thermal energy storage, a high-voltage substation that receives electricity from the grid, and an innovative heat recovery system that takes advantage of Stanford's overlap in heating and cooling needs. In addition to the mechanical operations, the facility includes administrative, classroom, and meeting spaces that contribute to the educational component of the project. The facility features the latest in efficient design, including LED lighting, flooring that utilizes radiant heat and chilled beam systems for heating and cooling, and an open-air floor plan with floor-to-ceiling windows and ceiling fans to facilitate daylighting and cross breezes. Another innovation, used for the first time on campus, is the use of phase change materials in the ceiling of the CEF office building. Phase change materials actively store and release heat within a designed temperature range, thereby reducing heating and cooling costs and improving occupant comfort.

Installation of hot water pipes and mechanical conversion of buildings to integrate with hot water thermal systems. With the removal of steam as the campus heating utility, over 22 miles of new low-temperature hot water (LTHW) piping have been installed throughout campus. All of the 155 campus building mechanical rooms that were fed by the steam service have been converted to accept the LTHW utility.

The highly anticipated Windhover Contemplation Center was completed in 2015. The one-story, 4,000-square-foot center features three rooms that house four large paintings by late Stanford art professor Nathan Oliveira. Outside landscaping features a reflection pool and garden areas for meditation. The building is enclosed in glass, allowing for viewing of the Oliveira paintings even from outside. Windhover uses radiant heating and cooling, which is both efficient and quiet, in keeping with the nature of the facility. Natural daylighting helps to reduce energy costs as well as providing excellent color rendition for the artwork. The Windhover Center is a good example of how DPM seeks solutions that meet both efficiency and programming needs.

Projects in Design and Construction

- As an extension of the SESI program, Stanford has signed a power purchase agreement with SunPower and will install 5.5 MW of solar photovoltaic panels on rooftops across campus. There will be panels on 18 buildings plus a large array on top of the Stock Farm Parking Structure. Construction will occur in phases throughout next year, with all systems slated to be online and operational by the end of 2016. The panels will produce clean energy that feeds directly into campus facilities, offsetting energy purchased through the grid.
- Several large residence halls and housing complexes are in design or construction in an effort to further improve the out-of-classroom academic experience, reduce traffic, and reduce commutes. Construction is wrapping up on the Manzanita Park Residence Hall, an arts-themed residence for 125 undergraduate students expected to open in 2015. Two new buildings adjacent to Lagunita Court will provide beds for 218 students and open in 2016. Finally, additional housing for 200 Graduate School of Business students is in construction and will also be completed in 2016. These buildings must meet aggressive energy and water standards set by code (CalGreen under Title 24) as well as specific water and energy targets established by the Department of Sustainability and Energy Management in partnership with DPM. Additional

sustainability features include high-efficiency LED outdoor lighting fixtures, occupancy sensors for indoor lighting, radiant heating, and high-efficiency appliances.

- The Old Chemistry Building, built in 1903 but not occupied since the 1989 earthquake, will be transformed into the Science Teaching and Learning Center and will promote sustainability through reuse of materials. The building will house teaching laboratories for chemistry and biology and a new library facility. With a prime location facing Palm Drive, this building will create a new, formal entrance to the Biology/Chemistry District. While the design team is still working to determine the specific water and energy targets, the building is expected to combine the best of historic Stanford architecture with innovative energy features found in the rest of the recently completed laboratories on campus.
- Two institutes—Chemistry, Engineering, and Medicine for Human Health (ChEM-H) and the Stanford Neurosciences Institute (SNI)—will occupy a new 235,000-gross-square-foot facility. The shared space will help to facilitate easier and more frequent collaborations and provide unique facilities for these two intellectual communities to foster great ideas and innovative scholars that transcend individual schools and departments. The building will have a combination of fume hood labs, engineering labs, and computational space and will incorporate a number of energy- and water-saving strategies. Because this building is still in design, it will be the first "test case" for the aggressive new energy and water goals set forth in 2015. Already the design team is studying a number of options to make the building as efficient as possible based on the experience gained in recently completed lab buildings.
- The 123,000-gross-square-foot Bass Biology Building will be constructed as part of Stanford's Science, Engineering, and Medical Campus Initiative. The building will be located between Gates Computer Science and Mudd Chemistry and will provide shared spaces for collaboration; innovative instrumentation; and laboratories for students, faculty, and research staff. Providing the opportunity to bring more members of the department together, the new building will encourage collaboration and interdisciplinary work both within the department and across departmental boundaries. In planning the building, the department intends to create intellectual neighborhoods, leveraging Stanford's strengths in interdisciplinary research. As with the ChEM-H/SNI building mentioned above, the design team will work to achieve an aggressive energy use intensity benchmark target. Also, using lessons learned from earlier buildings, Bass Biology will use heat recovery, zone-level heating and cooling, and reduced airflow in labs during non-occupied hours.
- Another building in design is the 55,000-gross-square-foot Hoover Office Building and Conference Center that will be located on the site of the old Cummings Art Building. The Hoover Institute is a university-affiliated think tank, and this project represents the institute's first expansion in over 35 years. The new building will accommodate additional scholars, staff, and events. It will be the first office building to use the new benchmark energy targets. The design team is working on heating, ventilation, and air conditioning, lighting, and plug load innovations to meet the challenging targets.
- The Redwood City campus for Stanford is about to become a reality. After over five years of project design, environmental review, and community outreach, the City Council of Redwood City adopted the conceptual master plan for the new campus in September 2013. The university intends to redevelop the site in phases over time, depending on need. The satellite campus will accommodate nonacademic user groups not required to be on the main campus. The concept

design responds to guiding principles and objectives that will enrich and carry forward the existing Stanford culture, as well as offering benefits to the surrounding community. The project will also set an example of Stanford's commitment to environmental responsibility and sustainability. High-performance strategies for the structures and landscape, coupled with an aggressive transportation management program, will demonstrate responsible stewardship of the site and respect for the community.

Academic Integration

As the university continues to raise the bar for sustainability across all aspects of the campus experience, the William and Cloy Codiga Resource Recovery Center (CR2C)represents a nexus of academic research and operational action that advances Stanford's educational mission. Following a ground-breaking ceremony on March 26, 2014, Stanford moved forward on the construction of CR2C, which has the primary purpose of testing and demonstrating the scalability of promising wastewater treatment technologies, and will allow researchers and students direct access to test and implement innovative new programs. The facility is slated for completion in December 2015.

Looking Ahead

As Stanford strives to maintain its leadership in sustainable buildings, the new energy efficiency targets that surpass 30% beyond code with whole-building performance goals derived specifically for each new building will establish a more holistic method to achieve the highest possible standards. This methodology will allow designers to set the targets for each building at the maximal potential efficiency standards by type in the state, and to take into account lessons learned from historic high-performance buildings for ultimate results. They set the targets by comparing the new building to the energy consumption of peer buildings at other California universities, the energy consumption of similar buildings on campus, and its own best possible energy performance. This new method allows Stanford to continuously improve the energy performance of its buildings by incorporating lessons learned into each new project. Moreover, because the whole-building energy targets capture all energy loads of a building, not just those regulated by code, the design team has more flexibility in meeting them and the operations team has a much better understanding of how much energy the building should be consuming. National leaders in energy research, such as the National Renewable Energy Laboratory, endorse and utilize this method.

To support excellence in building design, post-occupancy energy studies of high-performance buildings will continue. These studies compare expected building performance with actual measured data, and Stanford uses this information to further optimize building operation. They also inform design decisions for future new construction projects to optimize conservation of resources in those buildings.

ADVANCEMENTS IN ENERGY EFFICIENCY

The Facilities Energy Management (FEM) team within the Department of Sustainability and Energy Management coordinates with facilities stakeholders across campus to reduce energy use in existing buildings and to incorporate energy efficiency best practices into all new buildings.

Energy efficiency programs have been prominent on campus since the ’80s. Metering campus buildings has paid dividends throughout the last decade in developing more advanced programs to improve energy efficiency. Stanford’s Energy and Climate Plan includes continued efficiency improvements for existing buildings, and FEM follows the overall plan as a blueprint.

FEM works closely with Land, Buildings & Real Estate’s Operations and Zone Management departments as well as facilities staff in Residential & Dining Enterprises (R&DE); the Department of Athletics, Physical Education, and Recreation (DAPER); and the School of Medicine (SOM) to ensure buildings are operated efficiently. FEM also manages multiple programs that offer technical and financial assistance to facility managers, department leads, and building occupants to encourage implementation of energy efficiency projects.

Results

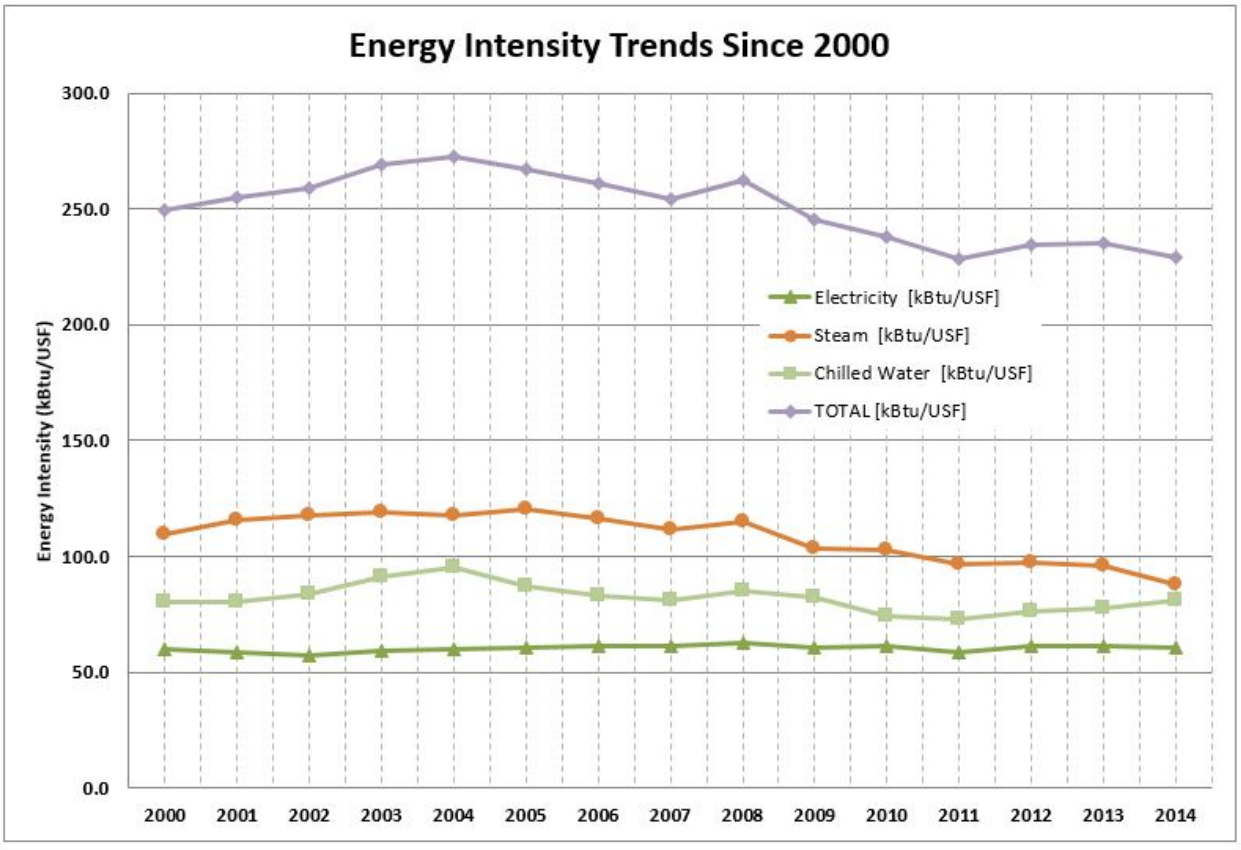
As of 2014, Stanford has reduced energy intensity on campus 8% from a 2000 baseline, despite continued campus growth.

- The **Whole Building Energy Retrofit Program (WBERP)** seeks to reduce energy consumption in Stanford’s most energy-intensive buildings. This $30 million capital program began in 2004 to address the 12 campus buildings consuming the most energy and now includes the top 27, which represent 60% of total campus energy use. Retrofits have been completed in 15 buildings thus far and have saved more than $4.5 million a year in energy costs. The program has also yielded over $2 million in financial incentives via Pacific Gas & Electric (PG&E) rebates. In 2014-15, construction was completed on a controls upgrade project at the Clark Center that is expected to save over $400,000 per year. Designs were completed for retrofits at the Mechanical Engineering Lab and Varian, and energy studies were completed for the Physics/Astrophysics Building and Lorry Lokey (Chem/Bio).
- Since 1993, the **Energy Retrofit Program (ERP)** has provided rebates to Stanford Utility users who install efficiency upgrades within their facilities. Rebates cover some or all of the upgrade costs, depending on the project payback period. Thirteen ERP projects were completed in 2014-15, for estimated savings of over $600,000 per year. These included heating, ventilation, and air conditioning (HVAC) upgrades, new LED lighting, new air compressors, and server virtualization.
- With ERP support, DAPER completed a major HVAC upgrade at the Arrillaga Family Sports Center that is projected to save nearly $200,000 per year; DAPER also completed projects focused on improved controls systems at the Arrillaga Center for Sports and Recreation, Avery Aquatic Center, Ford Center, and the stadium that will save another $225,000 in fiscal year

2015-16. SOM completed a large air handler upgrade project at the Medical School Office Building, a large lab lighting upgrade, and a controls project at Falk Center, which are saving over $40,000 per year. R&DE undertook multiple LED upgrades at the majority of dining halls on campus, saving over $9,000 per year altogether.

- Operations staff continue to monitor building performance, looking for improvement opportunities related to operating schedules, HVAC set points, and maintenance work. In 2014-15 the team completed 23 HVAC recommissioning projects. It also rolled out the new Utility Metering, Billing, Reporting, and Sustainability database tool for operations staff. This new tool provides a central user interface for energy use monitoring and analysis. It simplifies the tasks associated with identifying excess energy use and other anomalies.
- The FEM team received rebates from PG&E totaling over $70,000 for 2014-15 projects completed at Arrillaga Alumni Center and SOM.

Overall energy intensity (measured in thousand British thermal units per usable square foot, kBtu/USF) remains less than it was in 2000. The suite of energy-saving programs targeting large-scale building retrofits, small-scale retrofits, and HVAC controls, coupled with new construction standards, has contributed to this trend.



Other notable performance trends include the following:

- Heating energy (utility hot water and steam) consumption per usable square foot had been relatively flat since 2009 but decreased 9% in 2014. A notable decrease in 2009 correlated with the completion of major HVAC upgrade projects in multiple buildings.

- Chilled water consumption per usable square foot increased 10% in 2014, a rise correlated with the coming online of new energy-intensive research facilities.

Academic Integration

The FEM team engages frequently with research faculty to better understand energy demand inherent to their work and tailors program offerings accordingly. FEM provides input on the types of HVAC and energy management sensors deployed in buildings, the quality and resolution of the resultant data, how the data are currently managed and utilized, and future opportunities for improvement in sensor performance, data storage, and smart applications for processing the data. FEM staff also regularly interact with faculty in the Center for Integrated Facility Engineering (CIFE). FEM team members serve as guest speakers for CIFE courses, help review student projects, and provide feedback on research needs regarding the operation of high-performance buildings.

Stanford's Energy Conservation Incentive Program, established in 2004, provides schools and administrative units a financial incentive to use less electricity. The program sets budgets based on past consumption and lets participants "cash in" unused kilowatt-hours; those that exceed their electricity budgets pay the difference out of their own funds. FEM completed a large analysis in 2013 to recalibrate the budgets of the schools and units to more closely match them with expected performance. The analysis highlighted that on average, most units are coming in well under budget.

Looking Ahead

Under WBERP, construction will begin early next year at the Mechanical Engineering Laboratory and Varian. When completed, these projects are expected to save over $350,000 per year. SOM, with supplemental ERP funding, will undertake multiple HVAC improvements at the Center for Clinical Sciences Research and the Medical School Lab Surge building that were identified through WBERP studies. These projects are projected to save over $300,000 per year. Next year will also see extensive energy efficiency lighting upgrades in academic buildings through a partnership between the Buildings and Grounds Maintenance group re-ballasting program and ERP.

In the coming year the FEM team will continue to work collaboratively with building occupants and operations and management staff to further improve airflow management in large laboratory buildings. These facilities are typically the largest energy consumers on campus due to the high air change rates required for occupant safety, which represent a large HVAC load. Studies conducted in 2014 identified innovative strategies to reduce HVAC-related energy needs in lab buildings, and WBERP projects are already including some of those measures.

Building control upgrades will continue to be a primary focus for energy efficiency savings in 2016. In addition, FEM will be working closely with operations and maintenance partners to extract additional benefits from control systems data by researching and vetting new software analytics tools like Fault Detection and Diagnostics, Predictive Maintenance, and Performance Optimization.

In 2016, the FEM team will continue to maximize the benefits of the Stanford Energy System Innovations project to further optimize the energy efficiency of the campus. The new Central Energy Facility (CEF) and campus buildings work together with unprecedented synergies that enable macro-level tuning of energy efficiency. Actively managing building-level energy demand maximizes the efficiency of the CEF, and concurrently optimizing the energy supply to campus maximizes efficiency in each building.

EXPANDED OFFERINGS IN TRANSPORTATION

Stanford's Transportation Demand Management (TDM) program to reduce university-related traffic impact is one of the most comprehensive in the country. Stanford developed the program to meet peak-trip reduction goals in its General Use Permit, issued by the county of Santa Clara, which governs campus growth and development.

Despite significant campus growth, the TDM program has resulted in measurable reductions in commuter emissions, and it plays an essential role in the university's sustainability effort.

The Stanford Commute Club is a key element of the TDM program. The Commute Club rewards each member with up to $300 a year, among other incentives, for commuting primarily by alternative transportation. In 2014-15, Commute Club membership increased 8% over 2013-14 levels. Stanford has also continued to expand other transportation programs, including car sharing, and now boasts one of the largest university Zipcar programs in the nation.

As one of the nation's first Platinum-Level Bicycle Friendly Universities, Stanford has expanded its bicycle program to accommodate an estimated 13,000 bikes on campus each day. The expansion has included adding bicycle safety repair stands, which now total seven, and increasing bicycle parking capacity. In 2014-15, Stanford added three bike locker compounds on campus, providing a total of 44 bike lockers. This brings the total for secure bike parking spaces to 440 (331 in bike lockers and 109 in bike cages). In addition, Stanford provides more than 19,000 bike rack parking spaces on campus.

These TDM advances, coupled with extensive marketing outreach and promotions, have enabled Stanford to reduce its drive-alone rate by 32% since 2002, with half of university employee commuters now primarily using sustainable transportation.

Results

Stanford has been transitioning to more sustainable campus shuttles and fleet vehicles, adding electric vehicle (EV) charging stations, increasing shuttle route efficiency, and expanding its other sustainable transportation efforts.

In 2014, the employee drive-alone rate totaled 49%, compared to 72% in 2002 at the inception of the enhanced TDM program.

Additional achievements for 2014-15 include the following:

- Marguerite—Stanford's free public shuttle service that travels around campus and connects to nearby transit, shopping, dining, and entertainment—passenger numbers rose from 2.3 million in 2013 to an estimated 2.5 million in 2014.
- In 2014-15, Stanford increased its efforts to encourage and reward sustainable commuting. Stanford introduced a new ride-sharing service, Ride, engaging the campus community with launch events, incentives to register, and new subsidies for the first five new vanpools formed. The Commute Club also offered a new membership gift: a 2015 desk calendar featuring winning photos from the "Why I Commute the Way I Do" photo contest. The photo contest invited Commute Club members to submit photos showing why they choose a sustainable commute.
- Bike to Work Day at Stanford saw a record turnout in 2015. Volunteers counted more than 2,000 riders, and 807 riders reported logging a total of 6,386 miles, for an average of eight miles per trip. By biking instead of driving, these commuters (plus 279 pedestrians) eliminated an estimated 5,786 pounds of CO2 emissions on Bike to Work Day.
- Stanford more than doubled the number of EV charging stations on campus, replacing six charging stations with 14 new stations in high-demand parking areas. Stanford now has a total of 16 EV charging stations, including off-campus sites. All stations are Level 2 (240V charging via SAE J1772 connector).
- Three 81-passenger double-deck buses were added to the Marguerite fleet to augment the 49- and 57-passenger motor coach buses that serve the East Bay on the expanded East Bay Ardenwood Express route.
- Throughout 2014-15, Stanford promoted the Caltrain Go Pass as part of a pilot program beginning on September 1, 2014, which enables graduate students and postdoctoral scholars to purchase the pass at a significant discount. The Go Pass provides unlimited rides in all zones throughout the calendar year.

Stanford hosted a Corporate Bike Forum, which drew more than 30 leading Silicon Valley businesses to share best practices and what challenges they face with their bicycle programs. Over 40% of Stanford's 1,100 fleet vehicles are electric, and the number of hybrid vehicles increased to 36 this past year. In addition, a bike fleet comprises 5 electric bikes and 16 pedal-powered bikes. The Marguerite shuttle fleet includes 13 electric buses, 5 diesel-electric hybrid buses, and 61 vans, shuttles, and buses fueled by biodiesel. Parking & Transportation Services (P&TS) added a plug-in hybrid vehicle to its department fleet.

Academic Integration

Stanford's P&TS office engaged in several academic partnerships in 2014-15:

- P&TS worked with the School of Education's Social Ecology Lab to examine the relationship between learning and travel behavior: which conditions and mechanisms impact that link and the role(s) that institutions do or do not play in commute choices and behavior. Research methods included a survey of employees, interviews and commute documentation with up to 10 employees, observation of transportation-related events (e.g., Bike to Work Day, employee orientation events, Commute Club events), focus groups, and document analysis. Existing survey and other data from P&TS will be used as background and baseline data.

- Working with the Precourt Energy Efficiency Center, P&TS collaborated on a study to evaluate what TDM measures are relevant and applicable to employees' mode choices. Research included a series of focus groups to understand employee transportation and parking behavior and the underlying factors that determine employees' attitudes toward existing and hypothetical transportation and parking policies.
- P&TS worked with Stanford graduate students and postdoctoral scholars from the Graduate School of Education, Statistics Department, and Precourt Energy Efficiency Center to improve the research methodology used in developing its annual commute survey.
- P&TS consulted with a group of Summer Undergraduate Research Institute (SURI) students on an an opensource transportation modeling system that highlights the benefits of purchasing electric buses compared with conventional diesel, compressed natural gas, or hybrid buses. Once completed, this model could help other universities or municipalities determine institutional benefits realized through the electrification of their fleet, such as total savings compared to initial cost.

Looking Ahead

Many new and exciting TDM initiatives are in development, including plans to address Stanford's long-term growth both on and off campus.

The existing EV charging policy is undergoing a review that includes assessing the number and location of stations to be installed in the future and determining charging-level options. With the construction of a new, underground parking structure, the university plans to add 50 more EV charging stations in 2016.

Based on the performance of its 40-foot electric buses (13 have been added to the Marguerite fleet since 2013), Stanford plans to add 10 more 30-foot electric buses, which will replace older buses in the fleet.

TDM remains a priority sustainability program at Stanford, with implications beyond the university's main campus. With current commute trends in Silicon Valley pointing to an increase in traffic congestion, Stanford is also launching a regional transportation planning initiative under the leadership of Land, Buildings & Real Estate.

ENRICHED SUSTAINABLE FOOD AND LIVING PROGRAMS

Residential & Dining Enterprises (R&DE), which comprises Student Housing, Stanford Dining, Stanford Hospitality & Auxiliaries, Stanford Conferences, and a team of strategic business partners supports the academic mission of the university by providing the highest-quality services to the university community in a sustainable and fiscally responsible manner.

As one of Stanford's largest auxiliary departments, R&DE provides housing and food for over 13,000 students and family dependents, and hosts over 20,000 summer conference visitors each year, in more than 350 buildings that make up one-third of the campus. R&DE is the largest provider of food service on campus, serving more than 4 million meals annually. R&DE's efforts directly impact student learning, the overall campus culture, and the lives of Stanford's students after graduation.

An ongoing commitment to having two full-time professionals on staff again in 2015 honors R&DE's core value that sustainability is a way of life. R&DE Student Housing's Sustainable Living Program and R&DE Stanford Dining's Sustainable Food Program are two hallmark sustainability initiatives among many across R&DE. Now in their ninth year, both programs create positive impacts by collaborating with students, staff, faculty, other campus stakeholders, vendors, and suppliers; reporting on sustainability indicators; providing education and outreach for staff and students through lectures and instructional sustainability events; and auditing operational practices and standards for conservation across R&DE.

Results

The Sustainable Living Program is committed to influencing generations of students to lead sustainable lifestyles, not only on campus but in their future communities. R&DE Student Housing does this by providing infrastructure that encourages sustainable living. For example, all residences are equipped with plumbing fixtures that adhere to strict low-flow standards to save water, and they all have access to composting and recycling services. The program also aims to foster behavioral change through residence workshops, competitions, and campaigns that encourage individual action. Students receive creative educational materials on what to bring to campus, how to interact with their building's heating and cooling systems, how and where to sort waste, and how to report water leaks.
Key programs for R&DE Student Housing in the 2014-15 academic year included the following:

- In response to California's drought, R&DE Student Housing led an irrigation retrofit project that included replacing all irrigation equipment, over 20,000 pieces, across its 57 acres of landscape with more efficient models; this is expected to save 33 million gallons of water per year, a 46% reduction in R&DE's irrigation water use. A team of students also conducted water audits in all

Row Houses to identify where plumbing fixtures may not meet low-flow standards and identified an additional 1 million gallons in water savings per year.

- The Delta Delta Delta sorority house became the first residence at Stanford to completely eliminate chemical usage for cleaning by installing the Tersano green cleaning system, which uses an ozone-infused water solution that is just as powerful as traditional cleaners. The green cleaner is much safer for custodian and occupant health and reduces the impact of chemicals on the environment.
- The Kappa Sigma fraternity house became the first residence at Stanford completely outfitted to support a zero-waste lifestyle in all spaces. The house's landfill capacity outside was cut in half, and compost and recycling capacity doubled.
- Fifteen students participated in sustainability internships for the academic year, supporting a variety of sustainability initiatives in residences. For example, one student led focus groups with freshman residents on their New Student Orientation experience and how the values of sustainability could be better conveyed during this critical time. Other students analyzed waste behaviors and contamination at residence waste corrals, and audited lighting and plumbing fixtures.
- The annual Give & Go program, which seeks to reduce waste sent to landfill as students move out at the end of the academic year, introduced a new alpaca mascot and theme (Alpaca my stuff). Student participation increased by 75%, and over 50 tons of materials were donated.
- Compost collection for paper towels in restrooms was added in 11 residences, affecting over 1,000 students.

The **new Sustainable Living Video, which showcases the sustainable living community on campus, debuted and serves as an educational training tool on how to engage with sustainability**. The video features contributions to sustainable living on campus by an undergraduate student, a graduate student family, a custodian, a chef, a faculty member, and a staff member. The video will be available online as well as shown to incoming first-year and transfer students and at residence meetings.

The **Sustainable Food Program** is committed to meaningfully participating in the education of the world's future leaders by sharing knowledge and creating awareness of food culture, systems, and production. R&DE Stanford Dining and R&DE Stanford Hospitality & Auxiliaries are committed to providing healthy and delicious meals that nourish students while supporting a sustainable future and positively influencing lifelong eating behaviors. R&DE favors sourcing products that are local, organic, humanely raised, fairly traded, and from family-owned farms and sustainable fisheries—47% of food purchases are considered sustainable. In collaboration with students, staff, and faculty, the Sustainable Food Program raises awareness through lectures, special events, academic partnerships, and hands-on learning in cooking classes and organic gardens. More than 100 student, staff, and faculty participate in the campus's BeWell Community Gardens, which R&DE Stanford Dining oversees. Highlights in 2014-15 included the following:

- R&DE Stanford Dining developed a plant-forward and plant-based protein menu for the dining halls, which reduced the amount of animal proteins purchased by 14% and increased plant-based protein purchases by 29%. It also made the following new sustainability commitments: all beef is grass fed with no antibiotics and is from Australia; all chicken (except chicken breasts) is antibiotic and hormone free, humanely raised, and local from Petaluma Poultry; and many

produce items, including kale and beets, come from a local, organic, educational farm, Pie Ranch. In recognition of efforts thus far, Stanford was voted peta2's Favorite Vegan-Friendly College for 2015.

- R&DE Stanford Dining created a drought response plan and reduced domestic water use by 9% in 2014 as compared to the year before through staff trainings, student education, and the purchase of new, efficient equipment, including dishwashers. Stanford Dining's switch to Australian beef saves over 50 million gallons of water in California, given the high water footprint of raising cattle. Because the beef is transported by boat, emissions from transport of the product are minimal. R&DE Stanford Hospitality & Auxiliaries reduced towel and linen usage and heightened maintenance to fix leaky faucets in the Stanford Guest House, and Stanford Catering introduced spa water stations to replace water bottles at catering events.
- R&DE Stanford Dining cofounded, with the Culinary Institute of America, the Menus of Change University Research Collaborative, an organization of university business leaders, faculty, food service directors, and chefs from universities across the country who work together on research and education to advance healthier, more sustainable lifelong food choices among students. Additionally, R&DE Stanford Dining cofounded the Bay Area Sustainable Sourcing Group with Google, bringing purchasers and educators in the Bay Area together six times a year to share ideas and learn about different sustainability topics.
- R&DE Stanford Dining launched the Teaching Kitchen @ Stanford with the Jamie Oliver Food Foundation in January 2015. Students are taught the fundamentals of cooking delicious and healthy meals, learning how to eat more sustainably while building confidence in their cooking skills. Additional cooking classes included a Farm to Fork series offered in partnership with sustainable suppliers such as Niman Ranch, Pie Ranch, and the Taku River Reds fishery. Classes included a hands-on component.
- Florence Moore Dining Hall was certified sustainable by the Green Restaurant Association, and R&DE Stanford Dining won a Hobart national sustainability award for its comprehensive sustainability program, including purchasing, education, and energy and water reduction. Stanford Dining was the first university program to receive the U.S. Healthful Foods Council Responsible Epicurean and Agricultural Leadership (REAL) Certification for wellness and sustainability.
- R&DE Stanford Dining replaced 1,475 lightbulbs in the dining halls with LED bulbs, which will save over 125,000 kilowatt-hours and $17,000 in electricity costs every year. The lighting retrofit project was paid for by Stanford's Energy Retrofit Program rebates.

Academic Integration

R&DE supports students and faculty interested in conducting academic research throughout its facilities. This year, R&DE Student Housing and R&DE Stanford Dining partnered with students and faculty from the departments of Sociology, Civil & Environmental Engineering, and Psychology, as well as the Stanford Woods Institute for the Environment, the Stanford Persuasive Tech Lab, the School of Education, and the Hasso Plattner Institute of Design at Stanford, to research and create behavior change campaigns around reducing energy and water consumption in on-campus residences.

R&DE Stanford Dining partnerships involved multiple classes and students working on food waste best practices, including the second iteration of a class at Stanford Law School with Professor Emeritus Paul Brest. Still more partnerships with faculty and students are being explored on topics such as the potential impacts of normative messaging, social networks, and tools such as shower timers on energy and water conservation behaviors in residences.

R&DE works with many organizations on campus to benefit from the extensive resources of Stanford's renowned faculty. R&DE's program includes sponsoring a faculty speaker series, partnering with faculty to teach in various classes throughout the university, and promoting food as a multidisciplinary educational experience. R&DE engages students in food issues such as those related to health, the environment, social equity, and the global economy. Examples of these offerings include the Food Summit (an interdisciplinary food conference involving all seven schools at Stanford) and the Farm to Fork lecture/workshop series.

In addition, R&DE hires a group of student gardeners each year to manage seven organic gardens across campus. These gardens, strategically located adjacent to campus dining halls, are designed to provide an experiential model of the food system for students to observe at every meal.

R&DE also supports student groups, students working on class projects, and student interns implementing projects within residences and dining halls. For example, R&DE provides the student-run Green Living Council with funding, staff mentors, and access to utility data, among other resources, to help the students educate their peers about sustainable living and implement sustainable practices in their residences.

Looking Ahead

R&DE's sustainability programs strive to continuously integrate sustainability throughout the campus experience and into everyone's lifestyle at Stanford. Partnerships with academic channels will remain a priority and will continue to grow as the new Educational Farm, a six-acre farm focused on education and research on small-scale agriculture, comes online. Establishing a hands-on, credit-based curriculum that utilizes the unique urban environment of the campus as a teaching tool is a key priority in the coming years. Through partnerships with faculty, researchers, and student groups, R&DE will expand opportunities for students to design, implement, and manage sustainable food and living initiatives, and to develop creative design solutions that promote and encourage healthy and sustainable behaviors in the dining halls and residences.

As the university's metering and real-time data monitoring systems expand, utilities management will become increasingly more transparent and prominently featured throughout these efforts. R&DE will continue to build on success from this year to retrofit residences and dining halls with the most efficient lighting, appliances, and infrastructure to ensure maximum savings, while expanding green cleaning practices and supporting Stanford's path to zero waste with innovative solutions and widespread implementation of recycling and composting in all residences.

A new Harvest of the Month program will educate students about seasonality through multiple channels, including cooking classes, tastings, and signage, and the university will continue to develop an

animal protein reduction strategy that uses some of the best practices uncovered through these faculty and student partnerships.

MINIMIZING STANFORD'S WASTE

Minimizing waste is a crucial component of creating a more sustainable Stanford. By using less, reusing more, recycling, and composting, the university sends less waste to landfill; preserves natural resources by providing recyclable materials to manufacturers; and contributes to efforts to conserve water, save energy, and reduce greenhouse gas emissions and other pollution.

Stanford has increased its landfill diversion rate, also referred to as its recycling rate, from 30% in 1994 to 65% in 2014, with the goal of reaching 75%, the new state goal, by 2020.

Stanford's waste reduction, recycling, and composting program serves all academic and athletic areas, Residential & Dining Enterprises (R&DE), Faculty Staff Housing, Stanford University Medical Center, SLAC National Accelerator Laboratory, and all associated construction sites. The university continually improves and expands recycling and composting collection activities, identifies new markets for waste materials and recyclables, and raises awareness so that reducing, reusing, recycling, and composting become an ingrained set of behaviors. Stanford partners with Peninsula Sanitary Service, Inc. (PSSI), its recycling and waste management service provider, to reduce waste, increase landfill diversion, and move closer to zero waste (defined as at least 90% diversion).

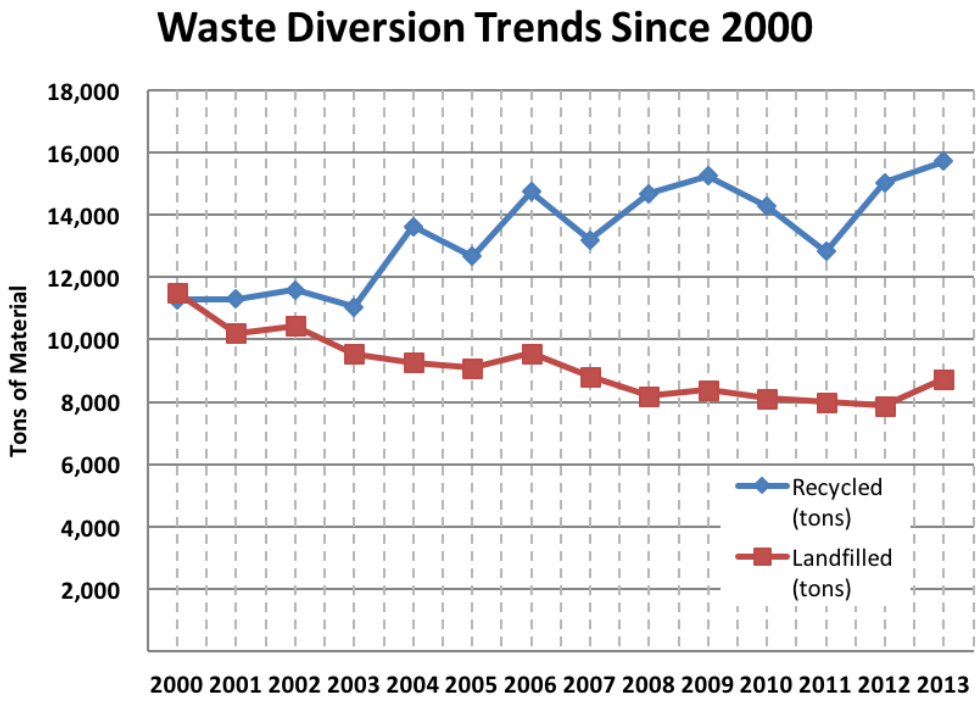
Results

Efforts to minimize waste have significantly reduced the total amount of material Stanford sends to landfill: 8,343 tons in 2014, compared to 14,000 tons in 1998. This year:

- **Stanford achieved a recycling rate of 65%, up from 30% in 1994**. The recycling rate for construction and demolition waste generated by campus projects (taken to a specialized facility) was 87%.
- The **Deskside Paper Recycling and Mini–Trash Can Program expanded into 70 buildings** after successful completion of the pilot program, with 6,000 sets of bins delivered. This program will be expanded into all academic buildings in the upcoming year.
- Over 200 people attended the BeWell class "Reducing the Stress of Recycling and Composting," taught by PSSI/Stanford Recycling, to educate themselves on what is and isn't recyclable and compostable on campus. In addition, 30 people attended the waste management reduction class offered by Office of Sustainability and PSSI/Stanford Recycling. Attendance has increased with each offering of this class.
- **More than 120 individuals are participating in the Voluntary Compost Program**, which enables individuals to collect food and other compostable materials from break rooms and kitchens within their building or department and take them to nearby compostable-collection bins. In addition, the Customer Funded Compostables Collection Program launched this year, enabling composting at a building-wide level.

- **PSSI conducted regular waste audits of campus buildings and determined that more than 50% of the remaining landfilled waste is either recyclable or compostable.** Food waste makes up the largest percentage of material sent to landfill and remains the primary target for program development.
- **The SLAC National Accelerator Laboratory continues to expand its food waste and paper towel composting program** to additional office buildings. Approximately one-half of SLAC's 1,500 staff work in a building where the program has been implemented.
- This year saw the collection of 305 more tons of food scraps and yard trimmings than last year and the addition of four new compostables collection points.

Stanford scored in the top 20 in six of the eight categories in the national RecycleMania 2015 contest: Gorilla (3rd), corrugated cardboard (7th), bottles and cans (6th), paper (11th), food service organics (7th), and per capita classic (18th). In the spirit of friendly competition, Office of Sustainability created a music video parody of Meghan Trainor's "All About That Bass," called "All About No Waste," to encourage the campus to reduce waste and recycle and compost more. The video received more than 5,000 hits, and campaign pledges more than doubled from previous years.



Academic Integration

PSSI regularly partners with staff and student groups to conduct waste audits across campus. These events offer the campus community an experiential learning opportunity while providing valuable data to PSSI about the content of campus landfill bins. In addition, PSSI continues to provide tours of the university's recycling facility to classes and other groups on campus.

In keeping with a tradition of engaging students with ideas for improving Stanford's waste program, PSSI worked this year to advise students on a variety of initiatives. Student projects on waste-related issues included examining the metals industry and the food waste system, studying the effectiveness of recycling bin designs, promoting the use of reusable mugs, ascertaining how polyester fabric and textbooks are recycled, determining the best waste material for a bioreactor, and learning how anaerobic digestion of organic material fits into sustainable materials management. PSSI also organized a field trip for students to visit the Newby Island Compost Facility, where Stanford sends its compostable materials.

Looking Ahead

The state of California (through AB 341) has set a policy goal of a 75% recycling rate by 2020. Stanford's Department of Buildings and Grounds Maintenance (BGM) has completed a comprehensive review of all current recycling and diversion programs and identified several new waste management initiatives and technologies that will further increase the university's recycling rate. The primary focus will be on capturing more organics and paper.

BGM is evaluating several new technologies related to capturing and processing food waste, and prototype or demonstration projects will likely result. PSSI will continue to focus on increasing the availability of composting services on campus by expanding compost collection in offices, cafes, and student housing, as well as at Maples Pavilion and other event venues.

Expansion of the Deskside Paper Recycling and Mini–Trash Can Program to more campus buildings will continue to make paper recycling more convenient. Increasing the amount of clean, source-separated paper collected represents a major opportunity for the university.

The program will continue to work with the Department of Athletics, R&DE, and Office of Sustainability to promote and improve recycling and composting at the stadiums. These projects will be components of efforts related to Stanford's membership in the Green Sports Alliance. Ongoing waste audits will provide relevant information, including building-level waste data, to guide expanded program implementation and a building rating system that Office of Sustainability is developing for 2016.

SUSTAINABLE STANFORD PROGRAMS

Formed in 2008, Stanford's Office of Sustainability (OOS) serves as the hub of Stanford's sustainability programs, dubbed "Sustainable Stanford." Rooted in operations, OOS connects various organizations and entities and works collaboratively with them to steer key sustainability initiatives on campus.

Complementing academic curricula led by faculty and operational efficiency measures undertaken by facilities staff, action-oriented programmatic initiatives led by OOS help make sustainability both more tangible and more visible at Stanford.

In a unique position to articulate sustainability initiatives from all campus stakeholder groups, OOS focuses on six key areas of programs and services, backed up by plans and metrics. The program and service areas are infrastructural planning support; assessments, evaluations, and reporting; business systems; conservation programs; communications, training, and education; and collaborative governance.

In its formative years, OOS focused on institutionalizing sustainability through conservation and communication programs and services. In recent years, OOS focused on enhancing its outreach and assessment programs while establishing trainings and targeted resources to increase engagement and realize direct savings potential in identified areas of high impact. As the programs and services have helped establish sustainability as a core value campus wide, OOS is now operating as a business office in service of sustainability programs for its parent departments and the university.

Results

1. Infrastructural Planning Support

As the programmatic arm of operational sustainability efforts at Stanford, OOS works with the Department of Sustainability and Energy Management (SEM) and various other units across campus operations and academic groups to help develop long-term plans to improve campus operations and infrastructure.

Stanford Energy System Innovations (SESI) outreach support: As final details of SESI wrapped up, OOS provided consistent support for outreach and presentations on the SESI program across campus and to external audiences. The office produced a video highlighting the accomplishments of all who worked to implement this groundbreaking initiative and, with support from University Communications, hosted a press conference attended by President Hennessy and university leadership to unveil the facility to a wider audience. Detailed project brochures, fact sheets, and FAQs are available on the SESI website, and OOS offers weekly tours to the campus community and the public that have been attended by university staff, students, and faculty, as well as representatives of local, regional, and national entities, including President Obama's Council of Advisors on Science and Technology.

2. Assessments, Evaluations, and Reporting

OOS diligently tracks key performance indicators related to campus resource use and trends. This evaluation work is critical to assessing Stanford's success in advancing the sustainability of both its physical campus and its programmatic and academic offerings. The following overview provides background and results for the key elements of the OOS evaluations and assessment program.

Greenhouse gas (GHG) emissions inventory: Completing an annual emissions inventory is an important step in monitoring and reducing the university's GHG emissions. Stanford's GHG emissions totaled approximately 178,800 metric tons of CO2 in 2014. Since 2006, Stanford has prepared and filed independently verified inventories of its Scope 1 and 2 emissions. Emissions have remained relatively flat for a number of years but will significantly decrease in coming years as a result of the SESI program.

Third-party evaluations: OOS regularly participates in various annual third-party sustainability evaluations. Stanford renewed its Gold rating through the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment & Rating System evaluation in 2014, and earned a spot on the Princeton Review's Green Honor Roll in 2015 for the third consecutive year.

Building performance: OOS has worked closely with buildings and facilities staff to determine the best path toward building sustainability and how to engage the campus community in improving building performance.

- To better understand plug load energy consumption in buildings, OOS conducted a **Plug Load Equipment Inventory** in 2014 to collect data on standard types of electricity-consuming equipment in 220 buildings across campus. OOS interns collected data on over 110,000 pieces of plug load equipment, which are estimated to account for approximately $6.8 million per year in electricity costs and 22% of building energy consumption on campus. OOS distributed the findings to building managers and used the equipment data to identify 33 viable plug load reduction opportunities. These divide into five overarching programs: basic energy efficiency measures through the existing Energy Retrofit Program; space heating improvements; sustainability in information technology; green labs; and procurement strategy. Since then, OOS has formed partnerships and developed strategies to execute each of these programs; to date these efforts have led to a series of energy efficiency pilot studies and the launch of the Cardinal Green Labs program.
- In 2014-15, OOS rated over 100 buildings on their sustainability performance through an in-house **building rating system**. The data-driven system evaluates each building's sustainability performance in six categories: energy, water, waste, purchasing, transportation, and occupant engagement. A letter grade is allocated based on an average of all performance categories, with the intention of motivating future sustainability improvements. The grades will be shared with key stakeholders through school- and department-level report cards starting in fall 2015.

3. Business Systems

SEM has initiated a systems integration project that will address immediate and long-term information system needs. The Utility Metering, Billing, Reporting, and Sustainability (UMBRS) project integrates disparate building controls and metering systems, stores data in a common database, and interfaces with billing data to produce trends and reports that help manage utilities and maximize resource efficiency. Supported by Finance and Administration, it has directly supported the creation of intuitive and user-friendly dashboards that track energy, heating, cooling, and water consumption over time. In 2014, over 100 buildings across campus were outfitted with their own sustainability dashboards, available through a designated Building Performance section of the Sustainable Stanford portal. Individual building performance pages also highlight other sustainability features in each building and recognize Stanford's network of green building champions. OOS is responsible for operation and maintenance of the UMBRS system for SEM, and the program will develop further in 2016.

4. Conservation Programs

Individual actions and awareness conserve resources, lower utility bills, and contribute to a campus experience consistent with the university's overall commitment to sustainability. To increase institutional awareness and achieve results, OOS runs campus-wide Cardinal Green conservation campaigns. Each campaign has a specific program goal, relevant messaging, and meaningful incentives to drive conservation and efficiency. The following overview provides background and results for each of the campaigns.

- The 2014 **Cardinal Green Buildings** campaign combined Turn Down for Break/Winter Closure and the Cardinal Green Office Program (CGOP, formerly known as the Building Level Sustainability Program). Through the new Sustainable Stanford portal, hundreds of building managers engaged with CGOP and related resources to enhance operations throughout the year. The campaign was a success, with 30 buildings volunteering to participate in CGOP and 181 in Winter Closure; 20 of the latter increased their participation levels. The resulting savings from Winter Closure totaled more than $350,000 in avoided energy costs, which represents 1.5 million kilowatt-hours of electricity, or 840 metric tons of CO2 emissions avoided.
- **What Could You Make Instead of Waste?** served as the new message to address waste on campus and was used to promote the annual RecycleMania contest and programs supported by the Stanford Recycling Center. Through a series of online pledges, trainings, and communications, Stanford has increased awareness of waste reduction best practices to reduce the amount of waste sent to landfill. In 2015, Stanford competed against over 250 other universities in the national RecycleMania competition and increased its standings among the top 20 in six of the eight categories: Gorilla (3rd), corrugated cardboard (7th), paper (11th), bottles and cans (6th), per capita classic (18th), and food service organics (7th). Campus pledge participation more than doubled from 2014.
- OOS, with its partners in Residential & Dining Enterprises (R&DE) and Goodwill of Silicon Valley, supported the **Give & Go move-out program**, which seeks to divert students' unwanted reusable items from landfill by making it convenient for them to donate those items to those in need in the local community. The outreach efforts resulted in diversion of more than 50 tons of

materials, including clothing, food, appliances, furniture, and books; 700 students pledged online to participate.

As the Cardinal Green campaign series continues to evolve, OOS will incorporate findings from the latest research and best practices in promoting behavior change, drawing on current academic, operational, and student work across campus.

5. Communications, Events, and Trainings and Education

A campus culture of sustainability cannot be created without widespread awareness of Stanford's sustainability plans, programs, and achievements. OOS works to promote existing sustainability programs and to publicize campus-wide sustainability actions through a variety of communication and publication channels, including the following.

Communications and Events

- **Sustainability at Stanford Annual Report**: Since 2008, OOS has published this annual document highlighting sustainability achievements from the past year. A campus-wide effort incorporating sustainability milestones and achievements of operational, academic, and student partners, the report remains the office's flagship publication and an invaluable resource to the sustainability community at Stanford.
- **Sustainable Stanford website and portal**: The Sustainable Stanford website provides a single source of information on sustainability work across campus. The website includes extensive information on campus metrics, trends, and initiatives, as well as details on how individuals can get involved. A new engagement platform for the campaigns launched in October 2014 and serves as the intersection of information and action. Here individuals can directly affirm their commitment to sustainability initiatives and become engaged with programmatic opportunities. The new portal also features real-time building performance data that can help users clearly understand how their actions affect operations and resource consumption.
- **Cardinal Green Newsletter**: As part of its outreach efforts, OOS maintains an electronic newsletter. The Cardinal Green eNewsletter aims to provide an easily digestible update on all things sustainability happening on campus.
- **Celebrating Sustainability annual event**: On Earth Day, OOS hosted the fourth annual Celebrating Sustainability Festival, jointly sponsored by academic and operational entities. This year's event took place at the new Central Energy Facility and featured more than 30 campus groups, who used the celebration as an opportunity to educate the campus community about Stanford's sustainability achievements through fun, engaging activities and displays. Approximately 700 attendees and 65 volunteers got a first look at the new plant and experienced the thriving culture of sustainability.
- **Keys to Sustainability at Stanford student reception**: This annual reception served as an opportunity to educate students about the variety of sustainability offerings in research, academics, and extracurricular activities, and to inspire them to explore environmental sustainability issues. Hundreds of students attended.

OOS also regularly engages in on- and off-campus community outreach programs and events. Staff participate in approximately 50 outreach opportunities every year, including conferences, presentations,

tours, tabling, and other activities. All campus communications and publications on sustainability are heavily influenced by and consciously integrated with the work of OOS's academic partners in the School of Earth, Energy, & Environmental Sciences, the Stanford Woods Institute for the Environment, the Precourt Institute for Energy, the Haas Center for Public Service, and their affiliates.

Training and Education

Creating a culture of sustainability on campus requires equipping the community with the tools and information necessary to empower individual change. OOS interacts with faculty, staff, and students to design and implement training and engagement opportunities so that hands-on experience in sustainability is integrated into not only the students' overall learning experience at Stanford, but also professional opportunities for campus staff. The following are the key elements of the sustainability training and education programs portfolio.

Student Training and Education

Student Green Fund: Having completed its seventh year, the Student Green Fundcontinues to foster student engagement by encouraging leadership in sustainability improvement projects on campus. The 2014-15 fund awarded almost $25,000 in grants for projects that studied food waste in dining halls, piloted a pedal-powered bike light program, and produced a video edition of the "Sustainable Living Guide". Highlights from this year's projects are detailed in the 2014-15 Green Fund report. Past projects also continue to benefit campus sustainability.

Student internships: Each year, OOS has worked with sustainability partners across campus to provide internship opportunities for students. In 2014-15, the office and its partners offered cross-departmental Sustainable Stanford internships to nearly 25 students. Interns worked on projects on various campus sustainability topics (waste, water, housing, food) under the supervision and direction of campus sustainability staff. Internship position descriptions and final reports are available athttps://sustainable.stanford.edu/internships.

Staff Training and Education

Sustainable Stanford training series: Delivering formal training to the Stanford community was among the key actions identified through the Sustainability 3.0 strategic planning process in 2011. Focused on sustainable behavior and choices, the Sustainable Stanford training series provides a portfolio of training opportunities each year. In 2014-15, OOS partnered with Stanford's BeWell program to increase training incentives and reach a broader audience base through its Berry program.

- *Sustainable Office Spaces (SST 1000)* was offered in November 2014 and reviewed the CGOP and actions that can contribute to a sustainable workspace. Attendees were trained in using energy auditing tools and gained experience identifying areas for conservation.
- *Waste Management Reduction (SST 2000)* was offered for the third year, providing a hands-on exploration of waste reduction and management processes and measures at Stanford. Attendance figures for this course have increased each time it is offered.

6. Collaborative Governance

A core value such as sustainability is best integrated through collaborative governance, especially in a large institution like Stanford. Through strategic partnerships among administrative departments, faculty, and students, sustainability is embedded as a value-add supporting Stanford's mission of education, research, and outreach.

In 2011-12, a group of faculty, staff, and student leaders initiated Sustainability 3.0, a strategic blueprint for the future of sustainability at Stanford. The Sustainability 3.0 process sought to map out a shared and actionable vision for sustainability at Stanford over the next five to 10 years, building on the Initiative on the Environment and Sustainability (2003-11) and the formalization of Sustainable Stanford (2007-present). Major goals stemming from this effort include leading sustainability by example through on- and off-campus actions and maintaining a global influence through sustainability in research, education, and operations.

With these goals in mind, the following three components of collaborative governance actively support the continuation and refinement of sustainability programs.

Provost's Committee on Sustainability (Since 2012)

The Provost's Committee on Sustainability continues to implement Sustainability 3.0. This committee was launched in spring 2012 with the intention of bringing key leaders on campus together to focus on sustainability as a core value at Stanford. It meets four times a year, and its functions include overcoming institutional barriers, giving advice, enabling action, and providing feedback to the president and provost.

In 2014-15, the committee supported and encouraged a formal Cardinal Green Events program that was piloted in each member's department to demonstrate leadership by example. The committee also supported increased collaboration around New Student Orientation and development of a stronger sustainability curriculum for the program. Direct engagement with committee members continues to be instrumental in furthering implementation of OOS programs as well as enabling resource allocation or realignment to topics that deserve more attention.

Sustainability Working Group (Since 2006)

The SWG prepares policy and program recommendations to advance and implement sustainability practices on campus. It works to implement programs identified by the Provost's Committee on Sustainability. Chaired by the director of OOS and comprising representatives from all parts of the university, including faculty, staff, and students, the SWG meets monthly. Its mission is to continuously improve Stanford's leadership in demonstrating environmental sustainability in campus operations; incorporate faculty, staff, and student expertise in the evolving field of sustainability to enhance program development; and advance opportunities for hands-on sustainability-related learning and service in the campus community.

In 2014-15, the SWG met seven times in a workshop format, showcasing problems the university is trying to solve in specific program areas and actively listening for solutions and feedback. The workshops addressed a range of topics, including Cardinal Green campaigns and programs, water conservation, greening athletics, sustainable procurement, and the road to zero waste.

Sustainability Working Teams (Since 2008)

The Sustainability Working Teams assembled in 2008 convene when needed to develop program recommendations, assess progress, and help implement policy recommendations in major operational areas related to sustainability. Each team activates when a specific initiative is under way and may be dormant once a project is being or has been implemented. In 2014-15, working teams were active in evaluation and reporting, food programs, Green Labs, Green Events, and information technology.

OOS programs benefit from the guidance of the SWG as well as the Provost's Committee on Sustainability. The office staffs both committees to directly address content creation and information dissemination. Collaborative governance by faculty, staff, and students serves as the engine for all the programmatic areas.

Looking Ahead

Moving forward, the office will continue its current programs and support new and additional programs. In the coming academic year, it will integrate new plug load equipment data collected during summer 2015 into its existing data set to further inform plug load reduction programs. OOS will continue to expand those programs, including installing timers on appropriate communal office equipment campus wide, adding more resources to the Cardinal Green Labs program, and revamping power management and server room efficiency Sustainable IT programs.

Now that the sustainability performance of Stanford's buildings has been rated through the Building Rating System, OOS will begin sharing results with key stakeholders, including leadership of academic departments. The results will be presented in school- and department-level report cards, along with a recommended action plans of how to improve sustainability performance.

Working together with academic entities, the office looks forward to providing additional opportunities for practical training and education to the Stanford community. Plans for 2015-16 include expanding Sustainable Stanford training modules to a wider audience and subject matter, and expanding partnerships with each of the seven schools to provide a targeted approach to sustainability in all components of campus life.

OOS will continue to refine the new sustainability portal with an individual action network. Envisioned as a hub of engagement in sustainability initiatives at Stanford, the site incorporates tools and resources to provide a comprehensive platform for sustainability action on campus. OOS will seek to expand the social engagement experience at the individual level, with targeted opportunities for each user to engage with sustainability in personal, meaningful ways, while connecting to others on campus to foster change. This action network will not only provide custom actions for individuals to improve their environmental footprint, but offer an avenue to incentivize the actions of champions.

OOS is gearing up to launch the Business Systems program for SEM. Through this program, OOS will have operations and maintenance responsibility for the UMBRS systems integration and reporting analytics project; oversee the enterprise asset management of the department's activities; and be vigilant on resource efficiency. OOS will lead the implementation of management tool recommendations

adopted by SEM leadership, including arrangement of hardware and software deployments and system training for managers and staff.

Finally, OOS will launch its Cardinal Green Events program to the entire campus. Nine organizations across campus participated in a successful pilot during spring quarter with the goal of minimizing the environmental impact of events on campus. Events ranged in size from small departmental meetings of about 50 to campus-wide gatherings of more than 3,000. Targeted analysis of sustainability opportunities and resources enabled significant reductions in waste through the use of reusable decorations and service ware and increased recycling and composting, as well as reduced CO2 emissions as a result of encouraging attendees to use alternative methods of transportation on and around campus.

Recognition and Awards

Stanford's long history of sustainability-focused operations and academic research has been recognized by regional, national, and international organizations. The spectrum of Stanford's awards and commendations highlights the multifaceted nature of sustainability and spans a wide range of topics. Presented below are selections of the most significant campus sustainability initiatives to receive formal recognition.

Third-Party Evaluations of Sustainable Stanford

2015 GREEN HONOR ROLL, THE PRINCETON REVIEW
Stanford was named as one of the most environmentally friendly schools in the nation for the third consecutive year, having earned 99 points in the survey of 804 schools.

BESTCOLLEGES.COM GREENEST UNIVERSITY
Stanford ranked fourth among BestColleges.com's Greenest Universities for 2015. This ranking system relies heavily on the data available through the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS) tool. The only institutions that surpassed Stanford were Colorado State University, Colby College, and Green Mountain College.

GOLD RATING, ASSOCIATION FOR THE ADVANCEMENT OF SUSTAINABILITY IN HIGHER EDUCATION (AASHE)
Stanford earned a Gold rating from AASHE's latest version (2.0) of the assessment and national rating system. Though this assessment does not result in a formal ranking, Stanford's score of 74.6% is among the highest scores earned to date by any institution within the new framework. A total of 314 colleges and universities report into various versions of STARS.

Operations

GOLD AWARD, BEST WORKPLACES FOR COMMUTERS, FOR TRANSPORTATION DEMAND MANAGEMENT PROGRAM
Best Workplaces for Commuters spotlighted 25 employers nationwide during the organization's "Race to Excellence" Virtual Awards Ceremony. The program is designed to encourage sustainable transportation innovation. The "Race to Excellence" awards recognize organizations that have taken exemplary steps to offer their employees viable alternatives to driving alone, resulting in reduced air pollution, traffic congestion, and fuel consumption.

PLATINUM-LEVEL BICYCLE-FRIENDLY UNIVERSITY, LEAGUE OF AMERICAN BICYCLISTS
This is the organization's highest designation.

PARKING MATTERS MARKETING AND COMMUNICATIONS AWARD, INTERNATIONAL PARKING INSTITUTE

The award recognizes Stanford's outstanding marketing, public relations, and communications efforts to encourage drive-alone commuters to switch to alternative transportation. The IPI recognized Stanford's efforts to encourage drive-alone commuters to switch to alternative transportation through campaigns promoting the Commute Club program. In the past year, one campaign invited Commute Club members to enter a "Why I Commute the Way I Do" photo contest.

GREEN RESTAURANT ASSOCIATION CERTIFICATION

Florence Moore Dining Hall, which had recently undergone a complete renovation, was certified by the Green Restaurant Association. The association's standards cover water efficiency, waste reduction and recycling, sustainable building materials and furniture, sustainable food, energy, reusables, and chemical and pollution reduction.

U.S. HEALTHFUL FOOD COUNCIL'S REAL CERTIFICATION

R&DE Stanford Dining has become the nation's first campus dining program to be REAL Certified for its use of nutrition and sustainability best practices. Modeled after the LEED® green building program, Responsible Epicurean and Agricultural Leadership (REAL) Certified is the trusted, nationally recognized mark of excellence for food and foodservice operators committed to holistic nutrition and environmental stewardship.

HOBART CENTER FOR FOODSERVICE SUSTAINABILITY GRANT

R&DE Stanford Dining won the Hobart Center for Foodservice Sustainability Grant in 2015. Each year, one foodservice establishment in the nation is given this grant for its work reducing energy use, water use, and waste and for its sustainability programs.

PETA2 FAVORITE VEGAN-FRIENDLY COLLEGE

Stanford was named peta2's Favorite Vegan-Friendly College (Large Campus) in 2015 for R&DE's commitment to serving delicious and creative vegan food in the dining halls and cafes.

RECYCLEMANIA FILM PLASTICS CHAMPION

Stanford University won first place in the Film Plastics Category of RecycleMania collecting 2340 pounds during the competition. Stanford University has a unique program that asks users to place their plastic bags, bubble wrap, air pillows, and shrink wrap in the paper recycling bins on campus to keep the material clean and dry so that it can be recycled into new products.

Research & Academic

FELLOW OF THE AMERICAN PHYSICAL SOCIETY

Kenneth Goodson, chair of the Department of Mechanical Engineering

CO-DIRECTOR OF THE PRECOURT INSTITUTE FOR ENERGY

Arun Majumdar, the Jay Precourt Provostial Chair Professor. He was also selected as the vice chair of the Secretary of Energy Advisory Board in the U.S. Department of Energy.

RICHARD W. LYMAN AWARD
Margot Gerritsen, professor of energy resources engineering, received the 2014 honor for faculty who go above and beyond to engage Stanford alumni.

NATIONAL MEDAL OF SCIENCE FROM PRESIDENT BARACK OBAMA
Burton Richter and Thomas Kailath, professors emeriti

2015 IEEE FOUNDERS MEDAL
Jim Plummer, former dean of the School of Engineering, for leadership in fostering interdisciplinary global research and education

2015 BENJAMIN FRANKLIN MEDAL IN PHYSICS
Shoucheng Zhang, professor of physics, for his groundbreaking contributions to the discovery of topological insulators.

ROBERT R. BERG OUTSTANDING RESEARCH AWARD
From the American Association of Petroleum Geologists for Mark Zoback, professor of geophysics, for his contributions to the field of reservoir geomechanics.

APPOINTED CHAIR OF DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING
Paul McIntyre, co-director of Stanford Energy 3.0

ELECTED TO THE NATIONAL ACADEMY OF SCIENCES
Zhi-Xun Shen, Shoucheng Zhang, and Aharon Kapitulnik

NAMED MEMBER OF THE NATIONAL ACADEMY OF ENGINEERING
Jens Nørskov, professor of chemical engineering at Stanford and of photon science at SLAC

APPOINTED CHAIR OF DEPARTMENT OF CHEMICAL ENGINEERING
Stacey Bent, director of the TomKat Center for Sustainable Energy

ROLAND VOLUNTEER SERVICE PRIZE
Elizabeth Hadly, biology professor and senior associate vice provost for undergraduate education, for integrating research, teaching, and outreach as they pertain to science education and global issues

STEPHEN H. SCHNEIDER AWARD
Chris Field, director of the Carnegie Institution's Department of Global Ecology; Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies; and a senior fellow at the Stanford Woods Institute for the Environment, the Precourt Institute for Energy, and the Freeman Spogli Institute for International Studies; for outstanding climate science communication

BBVA FOUNDATION FRONTIERS OF KNOWLEDGE AWARD
Paul Ehrlich, senior fellow at the Stanford Woods Institute for the Environment, in the ecology and conservation biology category

GORDON MASKEW FAIR AWARD

From the American Academy of Environmental Engineers & Scientists, Richard Luthy, senior fellow by courtesy at the Stanford Woods Institute for the Environment, for substantial contributions to the field of environmental engineering

SENCKENBERG PRIZE FOR NATURE RESEARCH

Page Chamberlain, Stanford Woods Institute for the Environment, for advancing the understanding of erosion mechanisms, the carbon cycle, climate, and precipitation patterns

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Appendix F

Stanford Alternative Means Programs

2001-2015

Appendix F
Stanford Alternative Means Programs

F.1 Annual Reporting of Select LEED Credits

SSc4.1-4, Alternative Transportation

Reference annual GUP reporting on net trips during peak commuting hours

Stanford's annual reporting on "no net new commute trips" is provided in Appendix B (Condition G.4) and in Appendix D.

Submit an updated Transportation Demand Management Program document or similar narrative that describes alternative transportation services

Stanford's annual reporting on the TDM Program is provided in Appendix B (Condition G.2).

WEc1, Water Efficient Landscaping

Report the annual percentage of surface water (non-potable) vs. groundwater (potable) water in the lakewater irrigation system

The average groundwater percentage in the lakewater system remained under 50 percent.

Lakewater Irrigation System Supply Sources					
	Surface Water		Groundwater		Total
Year	Quantity (acre-feet)	Percentage	Quantity (acre-feet)	Percentage	Quantity (acre-feet)
2010	809	70%	342	30%	1,151
2011	1,019	85%	182	15%	1,201
2012	1,032	82%	238	18%	1,270
2013	1,056	77%	311	23%	1,367
2014	72	6%	1,142	94%	1,214
2015	-50	-5%	1,135	105%	1,085

The increased use of groundwater in the lakewater irrigation system during 2015 is due to the drought. Groundwater wells are pumped to meet demand within the lakewater irrigation system and to fill storage within Felt Lake. The negative value for the "Surface Water" component indicates that groundwater added to the storage at Felt Lake was greater than the amount taken from Felt Lake to meet campus demand. The majority of campus lakewater irrigation demand was met by groundwater sources. The overall annual percentages do not reflect the Surface Water/Groundwater breakdown that occurred on a monthly basis (where a blend of both sources was used). However, the average groundwater percentage of the total lakewater irrigation system is 49% over the last 5 years, and 38% over the last 15 years (since 2001). "Abnormal" years were considered in the calculations for the Alternative Means approach, and Stanford demonstrated that with or without abnormal years, Stanford met the credit requirements for WEc1. Other "abnormal years" included 2006, when Felt Lake was drained, and 2007, when sediment removal at Felt Lake, and groundwater pumping was higher than normal. 2014 and 2015 are other examples of "abnormal years" with the drought.

EAp3, Fundamental Refrigerant Management

Report when phase-out of CFC refrigerants in the central plant is complete.

The scheduled phase-out described in EAp3 has not changed. The demolition of the central energy plant began in FY 15 and will be complete by November 2015. Therefore, the prohibited CFC refrigerant has been removed.

This will also indicate when EAc4, Enhanced Refrigerant Management, may be submitted for campus-wide pre-approval.

The Central Energy Plant refrigeration calculation described in EAp4 has not changed. Each building will continue to fill out the template to show full compliance with this credit.

MRp1, Storage & Collection of Recyclables; MRc2.1-2.2, Construction Waste Management

Confirm that PSSI is still Stanford University's waste contractor, and that PSSI's waste diversion programs are ongoing.

PSSI is Stanford University's waste contractor for all construction projects on campus, and their waste diversion programs are ongoing. Stanford's current construction and demolition waste diversion rate is 88.66%, meeting both the minimum 50% diversion rate and the 75% diversion rate to maintain two credits under MRc2 for the campus as a whole.

Reference reporting already sent to the County under the Solid Waste Management Act of CA (AB 939).

Stanford submitted the County of Santa Clara Countywide AB 939 Quarterly Summary to the Santa Clara County Integrated Waste Management Program on or before March 2, May 30, August 30, and November 30, 2015.

IDc1.3, Green Housekeeping

Confirm that Unicco is Stanford University's cleaning service provider.

Unicco is Stanford University's cleaning service provider.

IDc1.4, Green Campus Operations Education

Provide update on any new green campus operations, education campaigns, newsletters, or other forms of green campus operations education

The description of green campus operations provided in the Green Building Ordinance materials did not change during this year.

ISc1.6, Green Dining

Provide an update on any green dining initiatives or education

The description of green dining initiatives and education provided in the Green Building Ordinance materials did not change during this year.

Water Reduction Credits

Report on 'water bank' balance using water calculation template.

Appendix F
Stanford Alternative Means Programs

The reporting period for this credit is July 1 to June 30, to coincide with Stanford's annual GUP water consumption reporting period for SFPUC purchases and water conservation projects. There were no building projects that affected the water bank balance during this period.

Water Bank Balance			
Year	Projects	Change (mgd)	Cumulative Balance (mgd)
2010	Previous Projects under GUP	0.683880	0.683880
2011	Water conservation projects	0.012446	0.696326
2012	Water conservation projects	0.009141	0.705467
2013	Water conservation projects	0.017884	0.723351
2014	Water conservation projects	0.018824	0.742175
2015	Water conservation projects and SESI	0.422232	1.164407

* SESI: Stanford Energy Systems Innovations

F.2 Annual Reporting of Plug-In Electric Vehicle Charging Systems

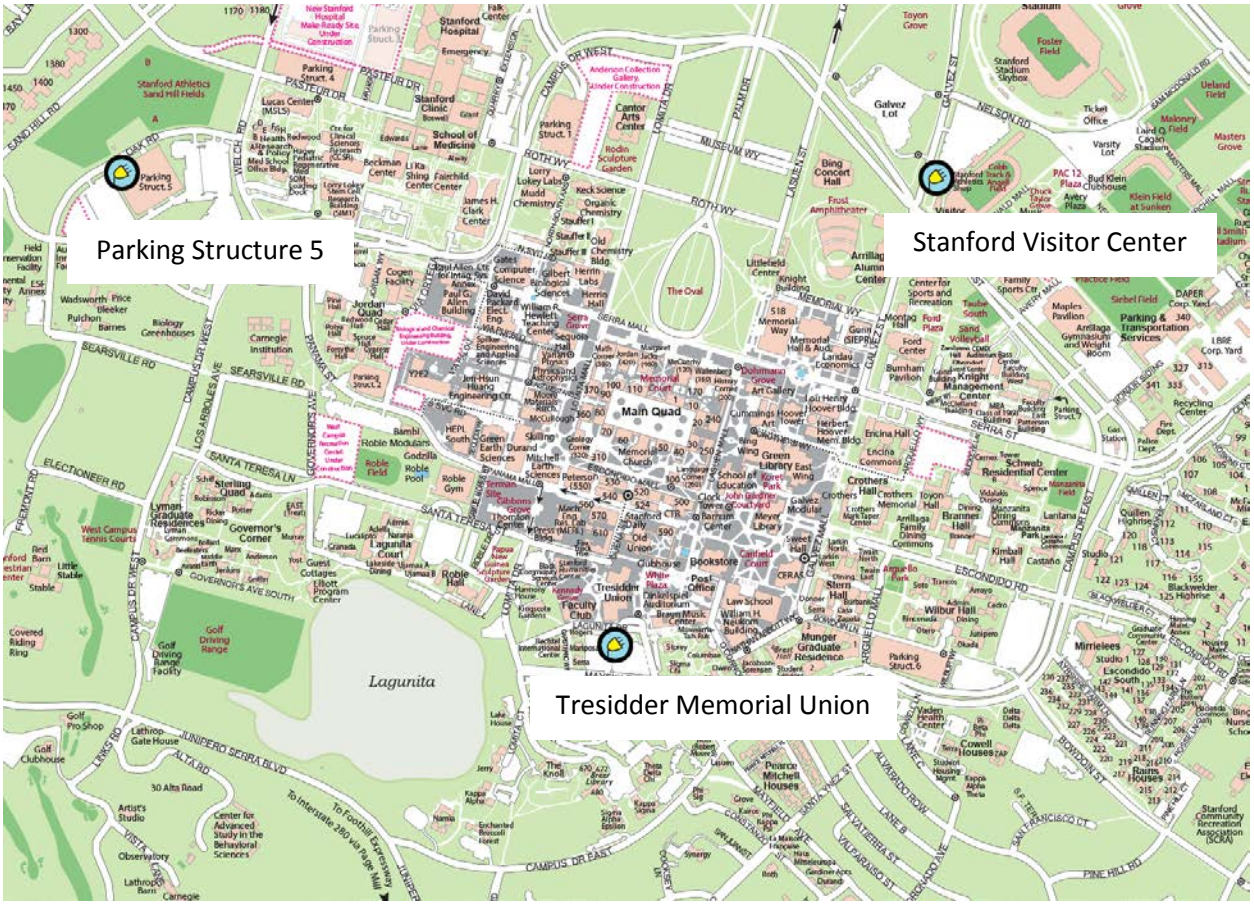
The parking baseline is the total number of parking spaces recorded within the site boundary, in Annual Report 13 (18,270 spaces), plus all projects approved from September 1, 2013 to February 14, 2014 (Acorn parking lot, 12 net new spaces; Searsville parking lot, 592 spaces), or a total of **18,874 spaces**. As of February 14, 2014, there were six parking spaces that had access to EV charging on-campus that counted towards meeting the Ordinance (see Figure F-1).

As of August 31, 2015, the total number of parking spaces on campus is **18,101**, which is below the baseline number of spaces. Therefore, Stanford is in compliance with the County of Santa Clara's Ordinance for plug-in electric vehicle charging systems.

Date	Parking spaces tally	No. of spaces above baseline	No. of EV charging spaces required by PEV Ordinance	No. of EV charging spaces on campus	In compliance with PEV Ordinance
End of FY 13 (August 31, 2013)	18,270	N/A	N/A	N/A	N/A
Baseline as of February 14, 2014	18,874	0	0	6	Yes
End of FY 14 (August 31, 2014)	18,796	(78)	0	6	Yes
End of FY 15 (August 31, 2015)	18,101	(773)	0	14	Yes

Appendix F
Stanford Alternative Means Programs

FIGURE F-1: CURRENT EV CHARGER LOCATIONS AS OF AUGUST 31, 2015



Locations	Number of ports	Charging type
Parking Structure 5	6	Level 2
Stanford Visitor Center	4	Level 2
Tresidder Memorial Union	4	Level 2
Total	**14**	