

5. UC Santa Cruz Long-Range Development Plan 2005–2020

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a. Section Overview

The following section describes an updated framework for the development of the UC Santa Cruz campus as it expands to a projected enrollment of up to 19,500 FTE students (fall-winter-spring three-quarter average). The 2005 LRDP reflects UCSC's academic, research, and service priorities and goals, as well as the campus's longstanding commitment to environmental stewardship and sustainable development. UC Santa Cruz is also dedicated to long-term community partnerships with the City of Santa Cruz, the County of Santa Cruz, and other municipalities and agencies to help build a productive future for the entire region.

The following topics related to projected campus growth are covered in this section:

- **Enrollment and Population:** Describes UC Santa Cruz's projected growth in the context of the state and the region, including a discussion of past and projected demographic trends
- **Building Program:** Delineates the projected space needed to support growth of UCSC's campus academic, research, and service functions
- **Land-Use Plan:** Indicates locations for projected campus development and areas to remain undeveloped under this LRDP
- **Housing and Student Life:** Identifies programmatic goals and physical planning considerations related to housing, academic support services and student life.
- **Landscape and Open Space:** Describes how projected development can be effectively integrated with the unique physical characteristics of the UC Santa Cruz campus
- **Circulation and Parking:** Discusses projected development of campus roads, parking facilities, transit improvements, bicycle pathways, and pedestrian circulation
- **Utilities and Infrastructure:** Addresses projected development of the physical framework required to meet future needs



b. Enrollment and Population

The 2005 LRDP accommodates an increase in student enrollment on campus to a fall-winter-spring three-quarter average of 19,500 FTE by the year 2020 (of which graduate and professional enrollments are anticipated to comprise 15 percent). This number reflects an average of the total number of FTE students enrolled at UC Santa Cruz during the fall, winter, and spring quarters of the academic year (FWS 3-quarter average). This enrollment projection includes only those students enrolled in programs on the main campus, and excludes students who attend in the summer and attend programs at off-site locations. Total enrollment was approximately 14,400 in 2003-04.¹⁸ Growth to 19,500 students would represent an increase of approximately 5,100 students over 2003-04 total enrollment. Additional faculty and staff will be hired to accommodate the growth in students and research.

DERIVATION OF THE ENROLLMENT PROJECTIONS

UC Santa Cruz has consistently articulated a campus vision that encompasses a breadth and depth of undergraduate academic programs, a fully developed range of graduate programs, appropriate professional programs, and a vibrant research enterprise. In addition, UCSC has a regional role as the UC campus serving Santa Cruz, Monterey and Santa Clara counties. Each of these elements results in drivers for future UCSC enrollment. The growth projections articulated in this LRDP were derived after careful consideration by the Strategic Futures Committee (SFC) of both internal programmatic aspirations and external drivers.

Although demand for a UC education would be consistent with a higher enrollment level, the campus has selected to base its 2005 LRDP on a fall-winter-spring 3-quarter average enrollment of up to 19,500 on-campus FTE students—representing a growth rate which it believes it can accommodate.

ACADEMIC PROGRAMS AS A DRIVER

A primary factor in assessing future growth is ensuring UCSC's role as a comprehensive public research university within the University of California system. This requires continued evolution and expansion of existing programs, maturation of others, and implementation of new areas of inquiry. An assessment of potential academic programs was developed after careful consideration of recently concluded 10-year divisional plans, new and existing program development, and faculty input.

STATE DEMOGRAPHICS AND ENROLLMENT DEMANDS

Enrollment pressures on the UC system are driven by a combination of factors including the number of high school graduates, their eligibility, participation rate (percent of eligible

18. Approximately 300 students were enrolled in off-campus programs.

students who elect to attend a UC campus), transfer enrollments, and demand for graduate and professional education (both by students and employers). Consistent with its intent to honor the state Master Plan for Higher Education, the UC system is committed to accepting students from the top 12.5 percent of California's high school class as well as accommodating the top four percent of each high school. Each UC campus shares in this responsibility and seeks to accommodate an appropriate proportion of those students who meet the university's eligibility requirements.

GROWTH IN SUMMER ENROLLMENT

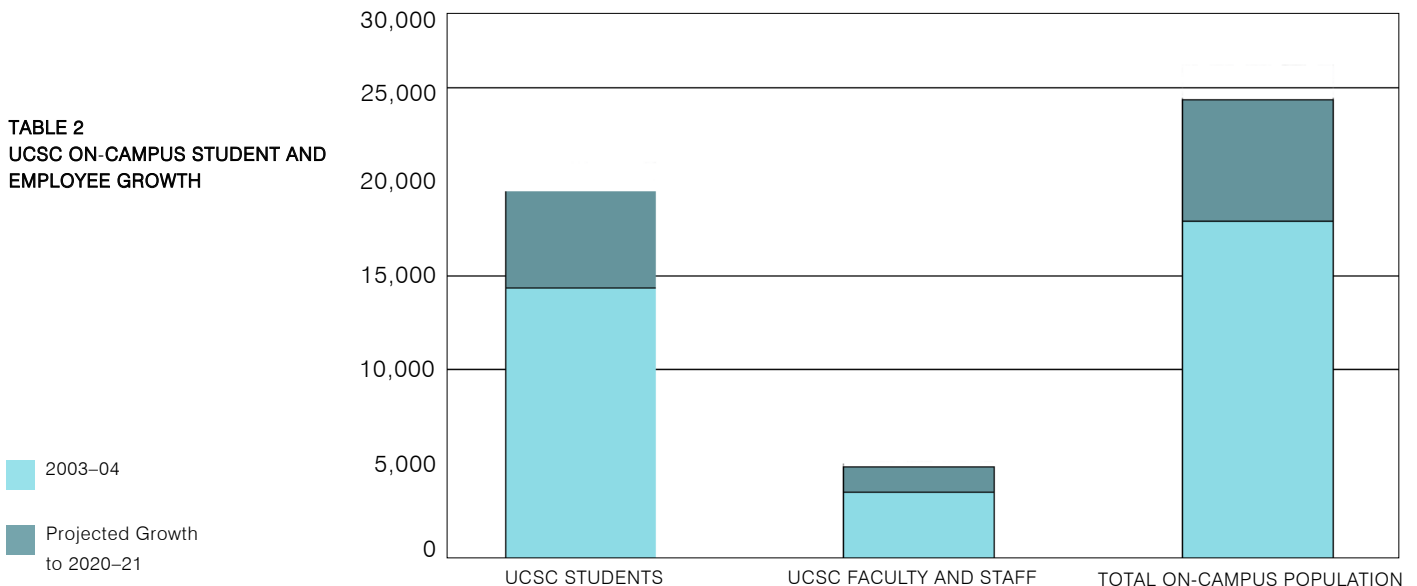
UC Santa Cruz plans to grow its summer programs in order to accommodate increased student demand and to provide opportunities to develop specialized programs. Currently, students enrolled in the summer term are drawn primarily from the campus fall-winter-spring population. Summer enrollments do create additional faculty workload and generate additional faculty positions.

Summer student population for 2020 is estimated at about 1,500 to 1,750 student FTE (about 6,700 to 7,850 individual students) spread out over multiple sessions throughout the summer.

GROWTH IN STAFF AND FACULTY

The number of faculty is projected to increase by about 360, in a direct relationship to the increase in enrollment. On-campus staff growth (which includes researchers and non-teaching academic positions) is expected to increase by roughly 980.

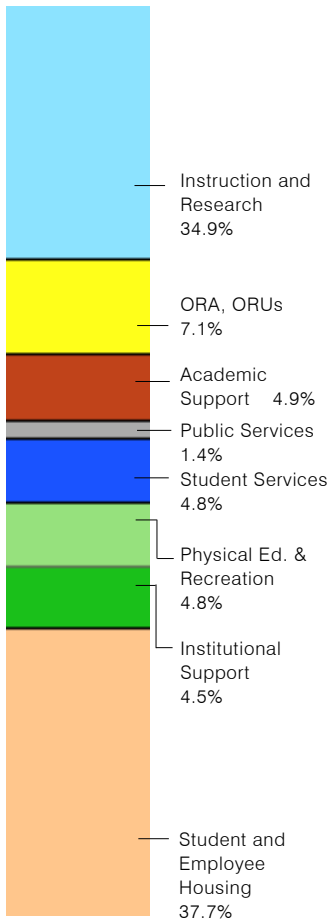
**TABLE 2
UCSC ON-CAMPUS STUDENT AND
EMPLOYEE GROWTH**



c. Building Program

The 2005 LRDP accommodates a building program that UC Santa Cruz will need to implement its academic, research, student life, and housing programs as the campus enrollment expands to support programs associated with 19,500 FTE. The campus's current buildings (existing and approved development) total approximately 3,113,000 assignable square feet (ASF) and (4,825,000 gross square feet (GSF). The additional space needs described in this section total 2,122,000 ASF¹⁹ (3,175,000 GSF). Unforeseen changes in future institutional, resource or implementation actions may necessitate an adjustment in various sub-program space totals, however, under this LRDP the campus will remain within the total level of approximately 8.0 million GSF.

TOTAL ADDITIONAL ON-CAMPUS SPACE PROJECTED



Projected growth in new and existing academic and research programs will drive UCSC's space needs over the period envisioned by the 2005 LRDP. In addition, UCSC is currently short of space to meet the needs of its existing enrollment; therefore, the building program also reflects these unmet space needs. The property at 2300 Delaware Avenue will incorporate research and support uses, and may also be used for non-UCSC affiliated uses.

Facilities that directly support the university's academic mission—such as divisional space (Arts, Humanities, Physical and Biological Sciences, Social Sciences, and School of Engineering), classrooms, libraries, and support space—are primarily state-funded (although some of these facilities may also be gift- or grant-funded). Facilities that are ancillary to the campus academic mission—such as housing and food service space, recreation space, and student services spaces—are not traditionally or historically funded by the state. Other ancillary development, such as roads, parking, bridges, pathways, utility infrastructure, and playing fields are not included in this section.

**TABLE 3
PROJECTED CAMPUS SPACE DEMAND**

	Existing and Approved Space		Additional Space		Estimated Total	
	ASF	GSF	ASF	GSF	ASF	GSF
Academic, Support and Housing	3,113,000	4,825,000	2,122,000	3,175,000	5,235,000	8,000,000

Existing and Approved Space does not include 2300 Delaware Avenue.

19. Square feet numbers are predicated on 100 percent of the California Postsecondary Education Commission guidelines. Actual built area may deviate from projected space.



INSTRUCTION AND RESEARCH

1,108,000 GSF

Additional space needs projected for Instruction and Research and Academic Administration total approximately 1,108,000 GSF. This accounts for divisional space for the Arts, Humanities, Physical and Biological Sciences, Social Sciences, and School of Engineering as well as general assignment classrooms and non-departmental computer laboratories. General assignment classrooms are projected to need approximately 31,000 additional GSF and will continue to be built in conjunction with projects throughout the campus as enrollment increases warrant. The need for non-departmental computer laboratories is projected at 6,500 GSF; these will be built with college and academic core projects as needed.

ORGANIZED RESEARCH UNITS, ORGANIZED RESEARCH ACTIVITIES

225,000 GSF

ORAs and ORUs for the Arts, Humanities, Physical and Biological Sciences, Social Sciences, and School of Engineering are projected to increase 225,000 GSF.

ACADEMIC SUPPORT

157,000 GSF

Most of the projected space needs for Academic Support associated with the Academic Divisions and University Library. The additional University Library space need is projected at approximately 77,000 GSF according to UC Library Standards. Additional library space is projected to be associated with the Science and Engineering Library. The remaining projected need of 80,000 GSF includes space for college administration and the Graduate Division, space for Media Services, and space for the Arboretum.





PUBLIC SERVICES

43,000 GSF

The projected space need for Public Services totals approximately 43,000 additional GSF, and includes facilities such as the Monterey Bay Nature/Orientation Center, a joint visitor facility for the UCSC Arboretum and the Center for Agroecology and Sustainable Food Systems and retail areas.

STUDENT SERVICES

151,000 GSF

Student Services will require approximately 151,000 additional GSF to meet existing shortages of space and to provide for growth. Of this, about 132,000 GSF will be in non-college facilities and 19,000 GSF will support new colleges. Included in the non-college facilities are an addition to the Cowell Health Center, a new student union building, and expansion of the Bay Tree Bookstore. Future college space will include student activity facilities, coffee shops, and college counseling offices. Other future space may be developed to further support UCSC's rich and diverse history of cultural engagement. These spaces may include resource and enrichment spaces for student voice and student productions, student leadership, and student engagement.

PHYSICAL EDUCATION AND RECREATION

151,000 GSF

Physical Education and Recreation will need additional space of approximately 151,000 GSF. This includes an Events/Recreation Center and additional indoor recreation facilities.





INSTITUTIONAL SUPPORT

144,000 GSF

Projected space needs for Institutional Support total approximately 144,000 additional GSF, including 37,000 GSF for campus administration and 107,000 GSF for general services. The campus administration projection assumes that leased off-campus space will continue to be available, or that some or all of the units leasing space would move to UCSC's property on 2300 Delaware Avenue.

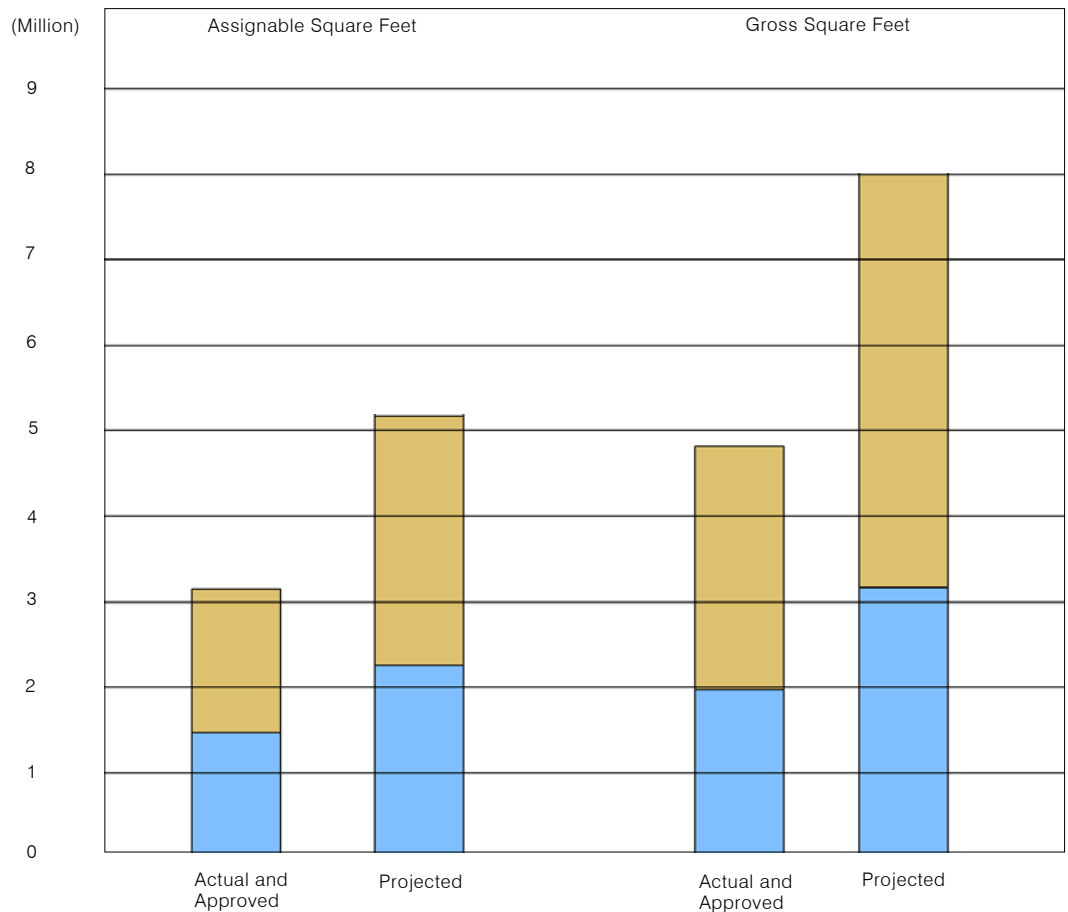
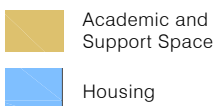
Included with the general services projects are future Environmental Health and Safety and Child Care Facilities. Space for other units located throughout the campus will need evaluation for the location of future buildings or reassignment of space.

STUDENT AND EMPLOYEE HOUSING

1,196,000 GSF

Given the unique characteristics of the colleges and the significance of housing as a whole for the campus, the building program for housing is described in a separate section. The residential college is one of UCSC's most distinctive features, and under this LRDP the residential college will remain a fundamental unit of campus growth.

**TABLE 4
PROJECTED CAMPUS SPACE
DEMAND**



d. Land-Use Plan

Similar to the 1963 founding plan for the campus and subsequent UCSC LRDPs, the 2005 LRDP Land-Use Plan identifies the need to extend development to the north to meet the academic, research, and housing needs of the campus as it matures. The plan balances development opportunity with conservation of natural resources and open space by clustering new potential development areas and recognizing that additional density can be added to existing developed areas. The Land-Use Concept plan, Figure 19, shows how the academic core would expand north within the loop road, with an arc of colleges and housing on the opposite side of a new loop road. Land between newly developed areas is left in a natural state to break down the overall scale and provide habitat continuity. The center of the expanded academic core, a generally sloping area known as the seep zone, is reserved for natural resource education.

The Land-Use Plan, described below in text and in the land-use map, is based on the Physical Planning Principles and Guidelines. It assigns elements of the building program to designated land-use areas and describes general objectives that will guide development within those areas. In some cases, building program elements may be assigned to more than one land-use category in order to offer the campus opportunities to combine and integrate program elements.

The boundaries of the land-use designations on the land-use plan are intended to provide a general framework for campus uses and may be adjusted based on field conditions at the time of implementation as long as the overall area for the given land-use remains the same.

LAND-USE DESIGNATIONS

ACADEMIC CORE (AC)

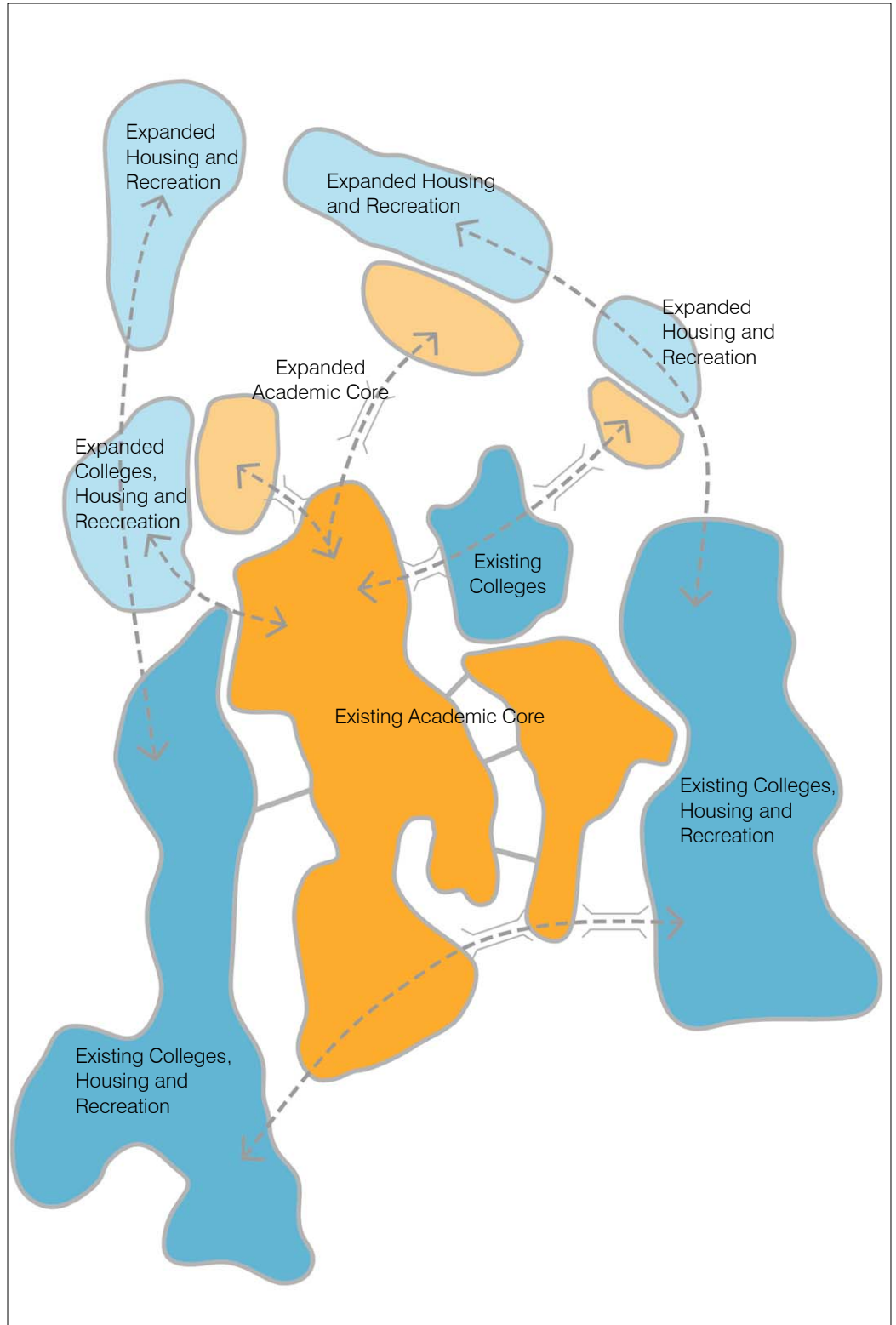
The 2005 LRDP Academic Core encompasses approximately 132 acres. This will provide space and flexibility for future expansion in the north campus for needs anticipated under this plan, including potential professional schools and research functions. The boundary of the Academic Core is defined by Heller Drive to the west, the Great Meadow to the south, Hagar Drive to the east, and a new loop road to the north. Facilities to accommodate the following building program elements will be the principal uses sited in the Academic Core: Instruction and Research, Organized Research, Academic Support, Libraries, Student Services, Public Services, and Institutional Support.

CAMPUS SUPPORT (CS)

Eight separate areas totaling approximately 85 acres are designated Campus Support. The largest of these, at the south entrance to the campus, will accommodate both public functions and operations-oriented functions in the corporation yard. To the extent feasible,



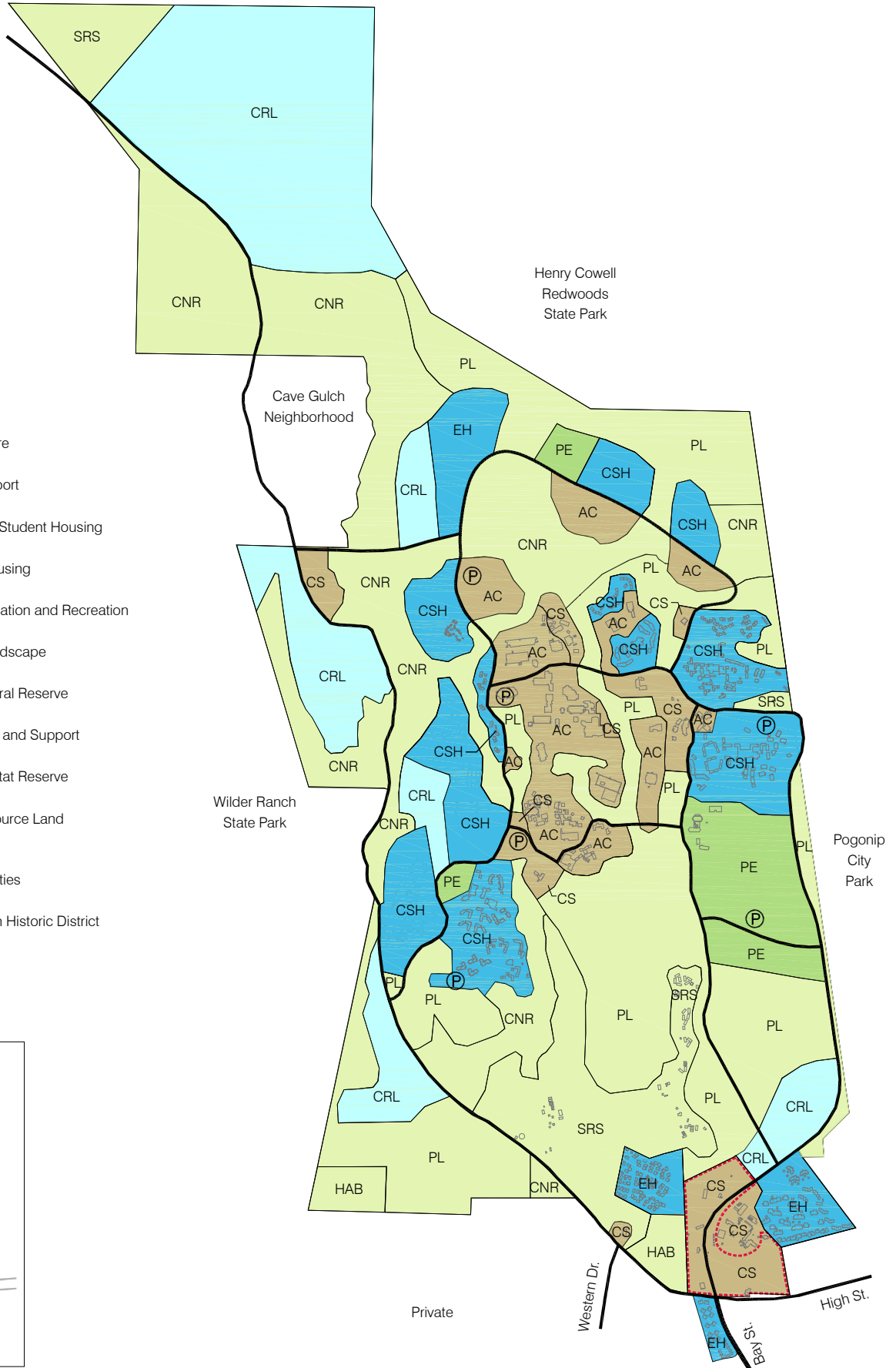
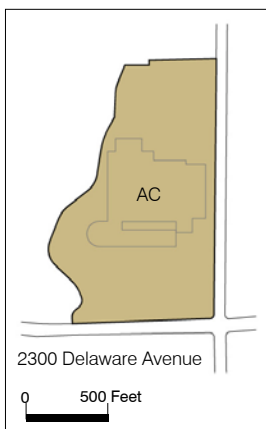
FIGURE 19
LAND-USE CONCEPT

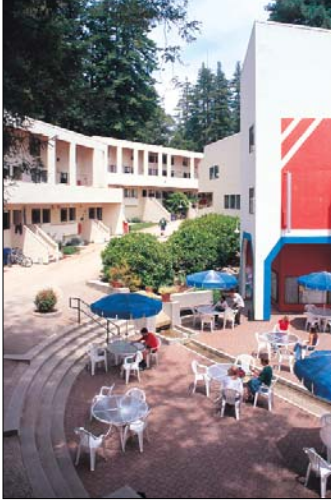


**FIGURE 20
LAND-USE MAP**

Legend

- AC Academic Core
- CS Campus Support
- CSH Colleges and Student Housing
- EH Employee Housing
- PE Physical Education and Recreation
- PL Protected Landscape
- CNR Campus Natural Reserve
- SRS Site Research and Support
- HAB Campus Habitat Reserve
- CRL Campus Resource Land
- P Parking Facilities
- Cowell Ranch Historic District





some facility and operational corporation yard functions will be relocated under this LRDP, primarily to an 8-acre site off Empire Grade. This would allow improvements to the main entrance area for public-oriented and visitor services and to improve efficiency in operations.

The Quarry Plaza area north to McLaughlin Drive will expand to accommodate growth for future Student Service functions, commercial and retail facilities and the Cowell Student Health facility. The area housing the Fire Station will expand to meet projected future needs. A new area is designated for Campus Support east of Earth and Marine Sciences for infrastructure to support expansion of facilities and to supplement the Central Heating and Cooling Plant (another Campus Support area). The area accommodating the University House (the Chancellor's residence) will remain unchanged.

COLLEGES AND STUDENT HOUSING (CSH)

The college arc surrounding the academic core is designated Colleges and Student Housing, and constitutes 228 acres in this LRDP. This area occupies land to the east, north, and west of the academic core, and will accommodate the construction of new colleges, expansion of existing colleges through infill, new undergraduate and graduate student housing, and family student housing projects. In addition, housing-related parking and recreational amenities will be provided in Colleges and Student Housing. Residential facilities may include both residence hall, apartment style, and various suite-type accommodations. (For additional information on college and housing program goals, see section 5e. Housing and Student Life.)

The principal program elements permitted in Colleges and Student Housing include Housing and Food Services, related recreational amenities, related parking, Student Services, Academic Support, Family Student Housing, Childcare, and Physical Education and Recreation. Some facilities for the academic divisions are located in the colleges; it is also anticipated that new colleges will house some Instruction and Research space.

EMPLOYEE HOUSING (EH)

Approximately 69 acres encompassing existing development and undeveloped land are designated as Employee Housing in this LRDP. Existing employee housing near the south entrance, including Ranch View Terrace, occupies approximately 42 acres. A second 27-acre area to the north has been designated for future development of employee housing. Housing for faculty and staff, childcare facilities, and related accessory buildings are consistent with this land use, together with associated parking and recreation space. Additional employee housing could be located on Campus Resource Land.



PHYSICAL EDUCATION AND RECREATION (PE)

Approximately 86 acres of relatively level land in three areas of the campus are designated Physical Education and Recreation (PE) in this LRDP. Two of these areas, located east and west of the Academic Core, already accommodate PE. The western area, approximately four acres, does not have sufficient remaining undeveloped space for expansion of PE and Recreation facilities. The east area, of approximately 71 acres, has adequate space for additional indoor recreation facilities, playing fields, and courts. A third area of approximately 14 acres to the north is currently undeveloped and could accommodate a significant increase in indoor facilities, playing fields, courts, and other recreation facilities, thereby providing a more balanced distribution of recreation opportunities across the campus. This land-use designation can also accommodate parking and transit facilities. A future recreation and events center could be located within this land use.

CAMPUS RESOURCE LAND (CRL)

The 1988 LRDP assigned approximately 471 acres of undeveloped land located in the northern part of the campus to this land-use category. The 2005 LRDP land-use plan designates 335 acres of undeveloped land, mainly located in the far north campus and areas in the coastal zone west of Empire Grade and west of Porter College, to this land-use category. This land-use designation is assigned to lands that are not planned for development under the 2005 LRDP. It is envisioned that these lands would be maintained in their natural state to serve as long-term reserve lands for future use. In the event that the campus determines during the term of the 2005 LRDP that it needs to develop some portion of this land, it will conduct additional environmental review and will seek an LRDP amendment.

CAMPUS NATURAL RESERVE (CNR)

The land use designation "Environmental Reserve" was established in 1988 LRDP in order to protect certain of the campus's natural features and processes for teaching and research. The 1988 LRDP designated approximately 393 acres for this use. The proposed 2005 LRDP renames this land use category Campus Natural Reserve (CNR) and designates 410 acres for this use. Land under this designation would remain in its natural state except as required for maintenance, as teaching and research reserve. Construction in this area is prohibited, except as required in conjunction with teaching and research in the area, or the limited construction of utilities, roads, and paths.

One section of the CNR, the Lower Moore Creek area adjacent to the Arboretum, will be jointly managed under the direction of the UCSC Campus Natural Reserve and the Arboretum and will include a California regional native plant garden, California red-legged frog habitat improvements, and other support and interpretive structures.



SITE RESEARCH AND SUPPORT (SRS)

Three areas totaling approximately 154 acres are designated for Site Research and Support in this LRDP. The first of these areas in the south campus includes land currently used by the Center for Agroecology and Sustainable Food Systems (CASFS) and the UCSC Arboretum. The second area in the far north includes 33 acres. The Chadwick Garden at the east end of McLaughlin Drive, encompasses four acres. The development of new buildings associated with these and future approved research programs is permitted within these designated areas. The principal program elements associated with this land use are Social Sciences, Physical and Biological Sciences, Student Services, and Public Services.

PROTECTED LANDSCAPE (PL)

The natural landscape of UC Santa Cruz has been recognized from the campus's inception as a unique asset that distinguishes UCSC from other universities. In addition to the 420 acres in the CNR, approximately 505 acres of land have been designated in this LRDP as Protected Landscape in order to maintain special campus landscapes for their scenic value and to maintain special vegetation and wildlife continuity zones. To the extent feasible, Protected Landscape will be retained in an undeveloped state as the campus grows. Any development within Protected Landscape will not impinge on its overall character.

The meadows south of the developed center of the campus will be maintained as undisturbed grassland. In these meadows, no building will be allowed. Agricultural research that maintains the visual quality of the lower meadows may be allowed.

CAMPUS HABITAT RESERVE (HAB)

Two areas on campus, which total approximately 25.5 acres, are designated as Campus Habitat Reserve (HAB). The larger of these two areas, a 13-acre parcel on the southwestern corner of the campus adjacent to Wilder Creek, is designated as a reserve to retain high-quality grassland and forest habitat on the campus for the California red-legged frog and the Ohlone tiger beetle. This reserve was established pursuant to a 2005 Implementing Agreement between the U.S. Fish & Wildlife Service and The Regents. The second area, a 12.5 acre parcel, is located in the southern portion of the campus near the main entrance. A portion of the parcel is designated as a management site for Ohlone tiger beetle habitat with the remainder of the site managed for California red-legged frog. HAB lands are protected lands that will remain undeveloped except as permitted by the terms of the Implementing Agreement and associated Habitat Conservation Plan (HCP).

OVERLAY AREAS

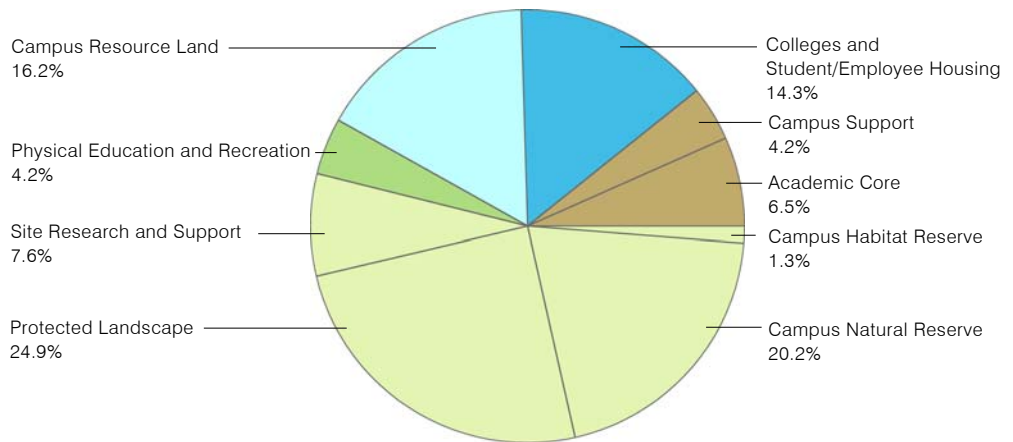
COWELL RANCH HISTORIC DISTRICT

The Cowell Ranch Historic District (CRHD) is an overlay district that encompasses cultural resources of particular significance from the original Cowell Ranch. The Cowell Ranch constitutes a landmark that helps define a strong and unique "sense of place" for UC Santa Cruz. The overlay district is in a Campus Support land-use area. The CRHD is eligible for listing on the National and State Registers of Historic Places. A CRHD Management Plan governs development and protection of structures and landscape in and around the CRHD.

PARKING FACILITIES

The parking overlay areas provide consolidated peripheral parking and reduce the number of parking spaces in the central campus. The 2005 LRDP also provides for limited surface parking in Academic Core, Campus Support, Colleges and Student Housing, Site Research and Support, Physical Education and Recreation, and the Cowell Ranch Historic District overlay area. Existing surface parking lots may be used as future building sites. The Parking Facilities designation is an overlay area in the land-use plan. It represents the general area within which possible future parking facilities could be located, but does not designate specific site and garage configurations.

**TABLE 5
2005 LRDP LAND USE**



e. Housing and Student Life

University-affiliated housing supports the academic mission of UC Santa Cruz by fostering recruitment, transition, retention, development and graduation of both undergraduate and graduate students. Residential life, academic life and student life are the three elements of the UC Santa Cruz college system, the cornerstones for creating dynamic living/learning communities.

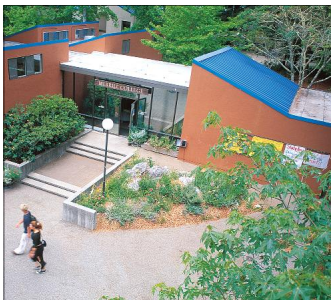
Because campus housing is self-funded, adequate demand must be substantiated to produce on-campus housing. Student housing demand is dependent on several factors that include the student market, product cost, regional housing inventory, and amenities. The character of on-campus student housing should respond to the preferences of students and their diverse needs. In general, on-campus student housing should be available, accessible from the academic core, diverse in respect to housing type, and integrated with other services such as dining, childcare, recreation, parking, and transportation.

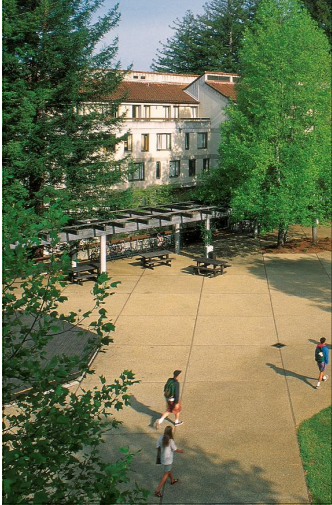
The campus will strive to accommodate reasonable density in new on-campus housing, recognizing the value of campus natural lands and the goal of reducing the potential for sprawl. Increased density is consistent with sustainable design principles and with the vision of the original 1963 LRDP, which predicted an increase in the average building height as the campus matures. The appropriate height and density of new housing development will reflect several factors, including economic viability, 2005 LRDP Physical Planning Principles, social context, and the particular considerations of each site. Considering the large proportion of the overall development program that housing represents, achieving appropriate density is important not only to promote sustainable development practices but also to preserve future opportunities beyond the time frame of this LRDP. The land area identified in the 2005 LRDP for housing uses assumes 50 percent of undergraduate students, 25 percent of graduate students, 25 percent of faculty, and 3 percent of staff could be accommodated in those areas.

In addition to new housing in the residential colleges, other types of undergraduate housing will be needed to serve the diverse student community. UCSC will continue to expand opportunities to diversify its portfolio of housing types and continue to work to meet the needs of the student body.

UCSC will continue to work with the City and county to coordinate overall housing efforts. Developers of regional housing might choose to build housing for campus employees and students. Off-campus student housing may be developed in the context of the regional housing market and could complement other housing opportunities in the local community.

The following section describes the program for various types of campus housing. Given that the ability to produce housing depends in large part on market factors beyond the control of UCSC, these are goals that the campus will strive to attain if economically feasible.





UNDERGRADUATE COLLEGES AND HOUSING

The colleges are an essential part of the undergraduate experience at UC Santa Cruz. All undergraduates are affiliated with a college, including those living off-campus. The plan anticipates the development of one new residential college. Under this LRDP, each of the eleven residential colleges will have an average of 1,500 affiliated students. These may have up to 750 beds each with a possible distribution of 50 percent traditional residence hall space and 50 percent apartment, studio, or suite space. The new college will include support facilities such as food services, recreation facilities, study space, and services (mail room, laundry).

The campus will develop additional infill housing in or near existing colleges where appropriate. New infill housing will be affiliated with the adjacent residential college if possible, and will likely be apartment-style. Economic factors will be considered in determining minimum viable project size.

Undergraduate apartments will likely be needed in addition to the new residential college and infill units. These may be located on undeveloped land north of the core and will also include support functions such as student services and academic support facilities.

GRADUATE STUDENT HOUSING

Increasing the graduate student population has been identified as an important element in meeting UCSC's academic and research goals. To accommodate this population, a new graduate student village and commons will be considered to provide graduate students with a sense of identity and a collegial and supportive residential environment. The majority of this housing would be apartment-style to reflect market preference. If possible, the graduate student village would be located in relative proximity to family student housing, as many graduate students have families and related programmatic needs.

FAMILY STUDENT HOUSING

Family student housing serves undergraduate and graduate student couples with and without children, as well as single parents. Family student housing units are included within the undergraduate and graduate housing goals above. Existing family student housing facilities (199 units) have reached the end of their lifespan as determined by extensive structural analysis and need replacement. Phased redevelopment of this area is projected during this LRDP to provide improved replacement facilities and better utilization of the site. Additional family student housing units may be developed in other locations, preferably on the west side in the vicinity of existing facilities. Close proximity to recreation space and childcare is important.





EMPLOYEE HOUSING

Providing housing opportunities for faculty and staff is an important element of the 2005 LRDP. Currently there are 325 units of existing housing including the approved Ranch View Terrace project (84 units). On-campus employee housing should be accessible to campus perimeter roads and also integrated with other services such recreation, childcare, parking, and transportation.

STUDENT LIFE FACILITIES

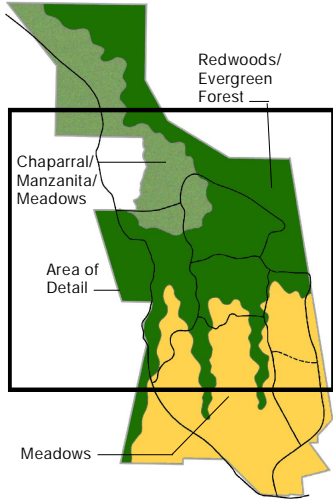
Student life facilities and student academic support services are generally integrated with the Colleges and enrich the university experience of undergraduate and graduate students. These facilities, programs, and services support the development of a vital intellectual community; promote full engagement in university life; and positively impact recruitment, retention, and graduation. To further enhance the overall quality of student life, appropriate social, cultural, retail, and recreational spaces and facilities will be developed centrally to complement the colleges, while also strengthening a developing central hub for a wide variety of student activities, sports and recreation, and academic support services.



f. Landscape and Open Space

LANDSCAPE AND OPEN SPACE FRAMEWORK

LANDSCAPE FRAMEWORK KEYPLAN



The 2005 LRDP builds on the current pattern of development clusters carefully placed through a balance of programmatic need and ecological sensitivity, as shown in Figure 21 below. The open expanse of the Great Meadow will be maintained, with new buildings confined to the forest edge and developed as infill. New development in the lower East Meadow between Hagar Drive and Coolidge Drive will be minimized to maintain the overall sense of an open meadow landscape. Within the current core (bounded approximately by Meyer, Hagar, McLaughlin and Heller Drives), the ravines, Kerr Meadow, and other areas will be retained as natural open space between development clusters. New development parcels to the north of the existing core will be sited sensitively and will maintain this pattern of development clusters surrounded by unbuilt landscape. The far north campus, in the vicinity of Marshall Field, will remain as undeveloped open space in its current natural state under this LRDP. This area requires careful planning and coordination to maintain a balance related to wildlife, hydrology and programs on the Campus Natural Reserve.

FIGURE 21
LANDSCAPE FRAMEWORK:
CENTRAL AND NORTH CAMPUS

LEGEND

- Forest
- Chaparral
- Meadow
- Open Spaces, Playing Fields, Courtyards, and Bridges
- Buildings
- Developed Landscape
- Development Area 2005 LRDP



The LRDP encourages careful design consideration with the natural landscape context and character of each site. Significant existing vegetation, topography, and drainage patterns will be protected as much as possible, and will inform site, building and landscape design. New landscaping and plant material will be chosen to blend with the natural environment through the use of local native materials and species present on site prior to construction.

The plan reinforces the developed landscape framework of the central campus by enhancing the two major pedestrian circulation corridors which run north/south through its developed areas, as shown in Figure 22, Pedestrian Circulation Concept. The first of these is the corridor on the west side, which begins at Oakes College and runs north of the Engineering buildings. This LRDP will reinforce this significant landscape and circulation element and extend it northwest across a new bridge to the expanded academic core expansion area near Engineering, as well as north to future academic and housing areas.

The second circulation corridor east of the academic core focuses on student life. It currently connects Cowell Health Center to Quarry Plaza to Hahn Student Services Building and the Physical Education and Recreation facilities. As these pedestrian corridors traverse significant elevation change, they will be strengthened with infill development along their edges, with well-defined and generously designed pathways, and with a series of developed open spaces along their length, particularly at junctions with east/west pathways or other gathering places.

East/west pedestrian circulation patterns occur mostly at constant elevations. Bridges provide critical connections across ravines to fully integrate all program functions within the academic core and beyond to other areas of the campus. The landscape of the central campus, and its full pedestrian circulation system is an organic web of pathways, roads, and trails that can be understood as a "warped-grid" system as shown in Figure 22. The experience of walking through a mix of natural and developed areas gives the UC Santa Cruz its distinctive character. Improvements to the campus pedestrian circulation system to support enrollment growth are described in more detail in the following section.

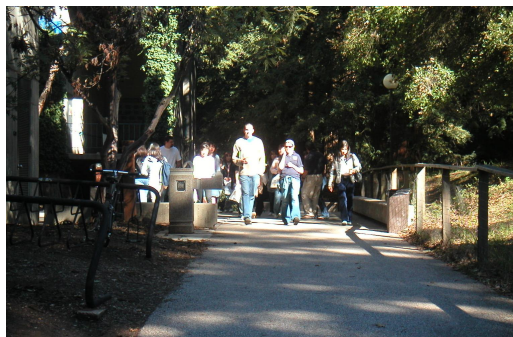
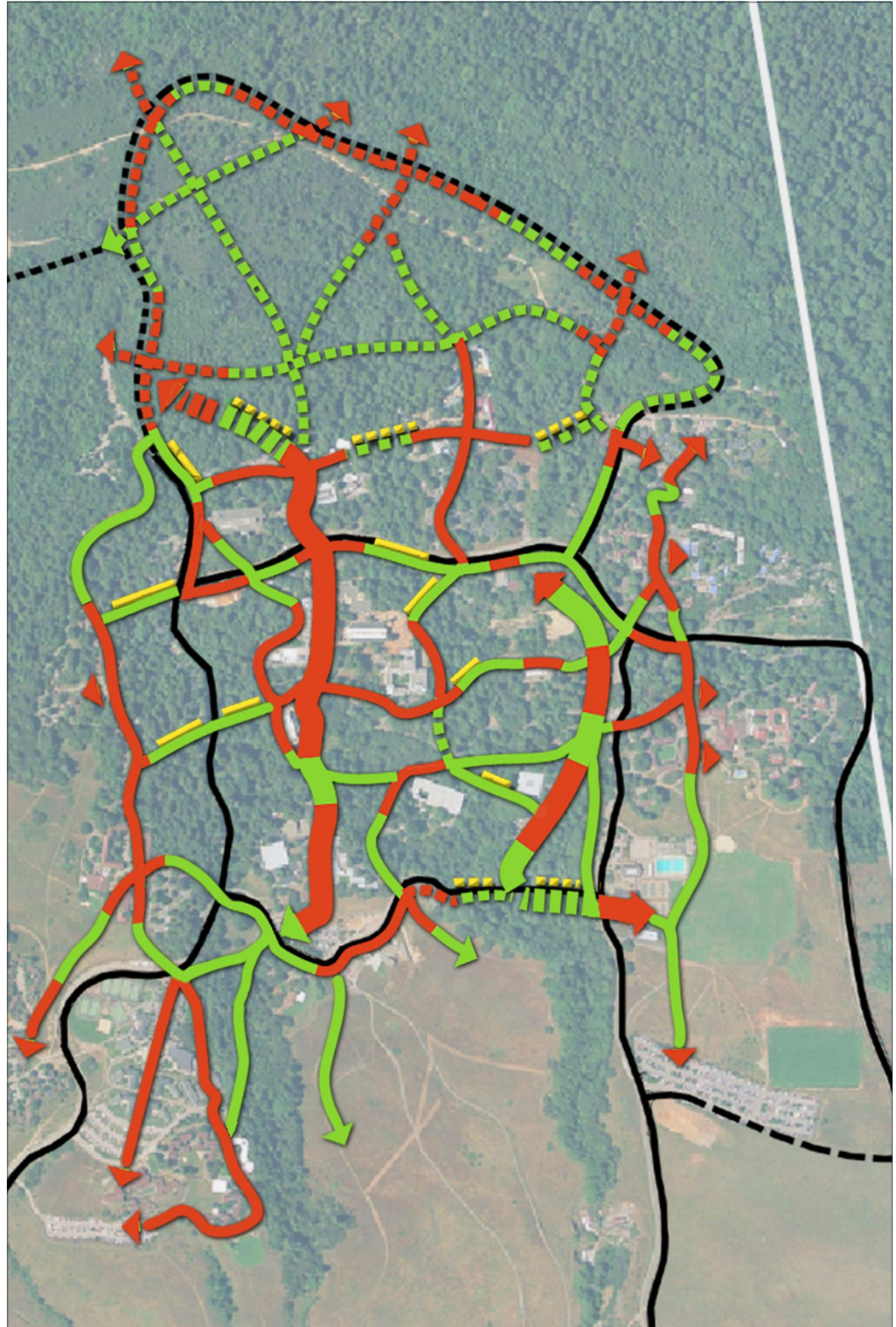
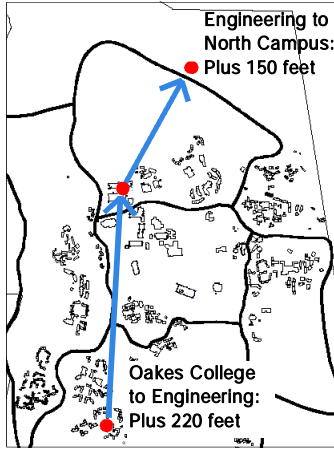


FIGURE 22
PEDESTRIAN CIRCULATION
CONCEPT

Legend

- New pedestrian bridges
- Pedestrian paths through existing developed core area
- Pedestrian paths through existing natural core area
- Proposed pedestrian paths through new development area
- Proposed pedestrian paths through north campus natural area





Relative Elevation

LANDSCAPE STRUCTURE: TOPOGRAPHY

The LRDP, in its patterns of open space and development, uses the topography of the land—its series of stepping terraces punctuated by ravines—to define the unique form of the UCSC campus. The relatively level areas of the current developed campus will be used for carefully sited infill development. New academic and research facilities needing proximity to related existing facilities will be sited primarily on the "peninsulas" of the academic core and in an area north of Engineering identified for core expansion. New infill student housing projects will be located in the vicinity of existing colleges and housing.

North of the developed areas, the campus rises to an upper terrace as shown in Figure 23 below. Use of this level area is integral to this LRDP to support 19,500 FTE students. New housing and recreation space is located outside a new loop road. The expanded academic core is located inside the loop road. The area west of Heller Drive and north of Kresge College, which is within easy walking distance of the academic core, is identified as a location for undergraduate colleges.

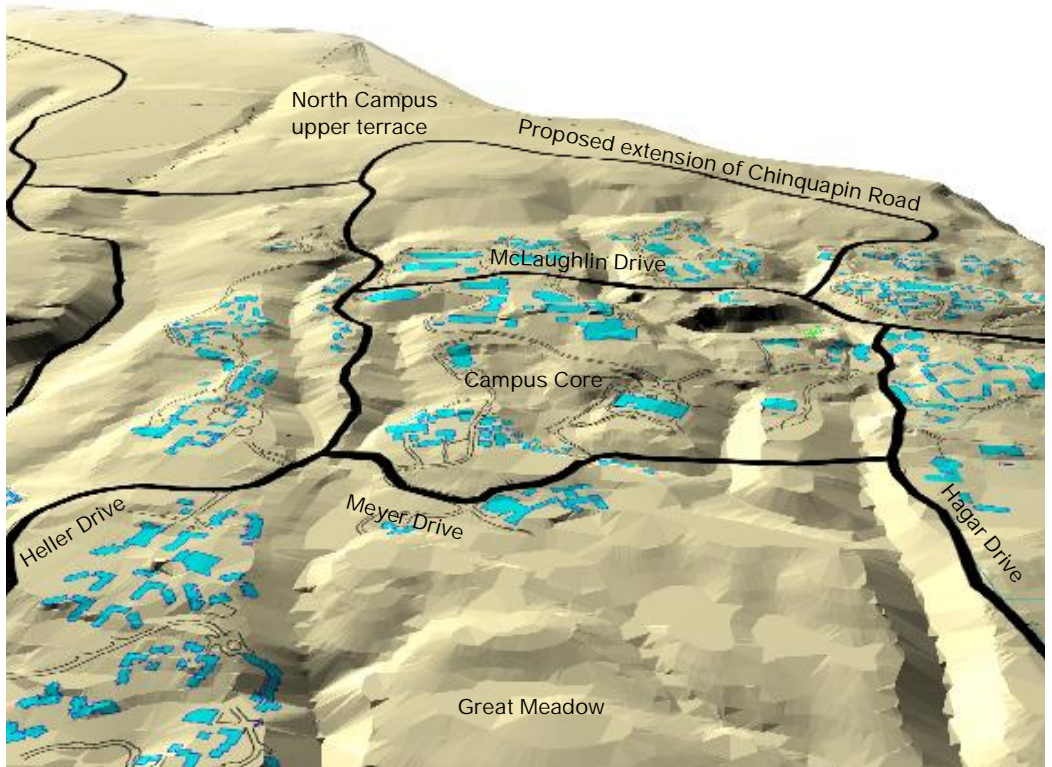


FIGURE 23
LANDSCAPE STRUCTURE:
TOPOGRAPHY



OUTDOOR RECREATION AREAS

Approximately 15 acres of new playing fields are needed to address a current deficit and to serve the projected population. A portion of the north campus has been allocated to Physical Education and Recreation for this purpose, including additional facilities such as courts, a swimming pool, and indoor recreation facilities. Additional playing fields and other outdoor recreation facilities could be developed in the vicinity of the East Remote lot. New colleges and housing development will also include recreation amenities such as playing courts. Natural areas of the campus offer places and pathways for additional recreational activities.

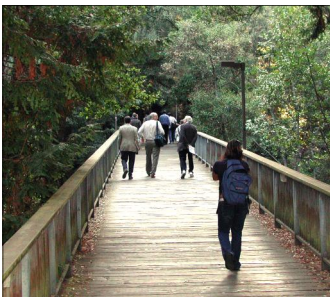


g. Circulation and Parking

UCSC has been highly successful in reducing single occupant vehicle (SOV) use. As of 2004, only about 40 percent of the person trips to and from the campus were made in a vehicle with one occupant. This traffic reduction has been achieved through a combination of parking management policies and Travel Demand Management (TDM) programs that encourage travel via high occupancy vehicles (HOV) while discouraging SOV use. Together, UCSC's parking management and TDM programs have reduced campus traffic generation rates well below comparable rates for other universities or the Santa Cruz region. As the UC Santa Cruz campus matures, filling gaps in the existing circulation network and expansion of circulation and parking infrastructure is essential. The 2005 LRDP proposes a comprehensive transportation system that combines improved campus connectivity, parking collection points, transit hubs, pedestrian, and bicycle-focused routes. This system provides the needed flexibility to support careful expansion into the north campus, as proposed in earlier LRDPs, and promotes an academic environment designed for convenience, contemplation, and interaction, disturbed as little as possible by auto traffic. The circulation and parking system must be flexible enough to accommodate a variety of strategies for improved campus access from the surrounding community. The design of new roads, bridges and pathways will include an exploration of ways to reduce and control runoff.

ACCESS

As most of the campus is bounded by parkland, all campus traffic is channeled through residential neighborhoods of the city's upper westside. The campus currently has only two entrances—the main entrance at the south campus and the west entrance, as shown on Figure 24, Vehicle Access. The 2005 LRDP proposes adding a third access to provide additional egress for fire safety, to support future campus expansion, and to support relocation of some service functions to a corporation yard off Empire Grade. The extension of Meyer Drive serves to improve internal access on campus by linking the east and west sides of the campus and completing a perimeter road to serve the central campus.



NEW ROADS

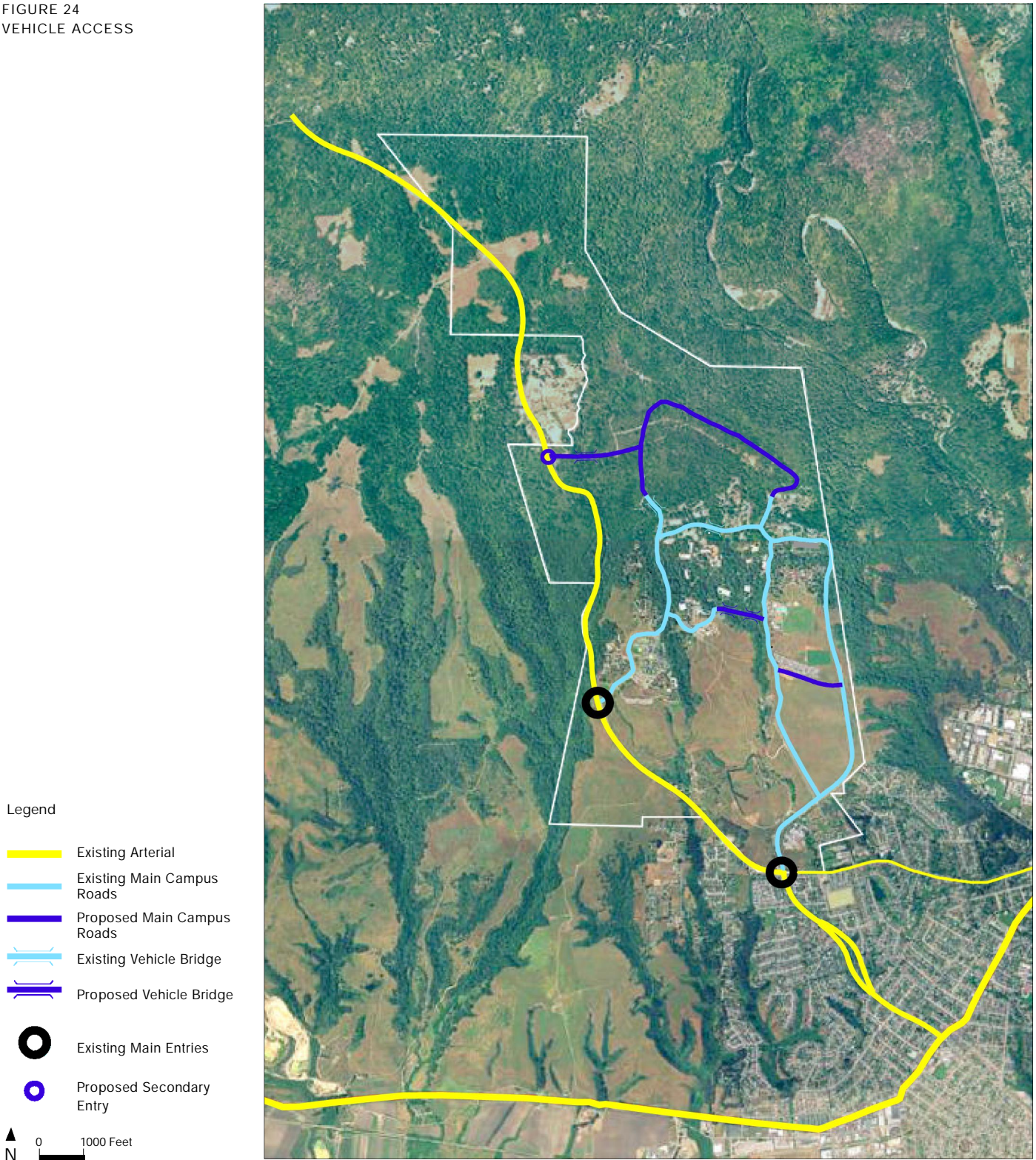
The vehicular circulation system in the 2005 LRDP is generally consistent with the 1988 LRDP. Several proposed roads identified in the 1988 plan are included in this plan to provide access to new areas of the campus, improve cross-campus connections, and improve the efficiency of shuttle access to parking facilities (see Figure 25). These roads will also provide traffic relief on existing roads, creating safer pedestrian and transit-friendly areas. The 2005 LRDP accommodates new road improvements including:

- *Chinquapin Road*

This proposal extends Chinquapin Road to serve areas north of the campus core, including the potential to connect to Empire Grade. The alignment will respect the terrain and sensitive environmental areas of the north campus.



FIGURE 24
VEHICLE ACCESS



- *Heller Drive*

Heller Drive is extended past the existing parking lot to connect with Chinguapin Road. This provides easy access from the new corporation yard to the core.

- *Empire Grade Access*

This road provides an emergency campus egress to the west, allows service access, and access for potential employee housing. The road would require a bridge over the ravine at Cave Gulch.

- *Meyer Drive Extension*

This proposed new road with two bridges will provide a critical cross-campus connection from Meyer Drive's existing terminus at the Music Center to Hagar Drive. The road will be aligned to minimize visual impacts, relieve traffic on McLaughlin Drive, and introduce a new route for transit vehicles. By bridging to the Hahn peninsula, the extension will serve the Hahn Student Services building, the library, and parking areas. Access to Meyer Drive Extension will be designed to serve either general traffic circulation or restricted access for pedestrian, bicycle, transit, and service vehicles. This flexibility is achieved as long as the connection to the Hahn peninsula provides a vehicular turnaround.

- *Hagar Drive to Coolidge Drive Connection*

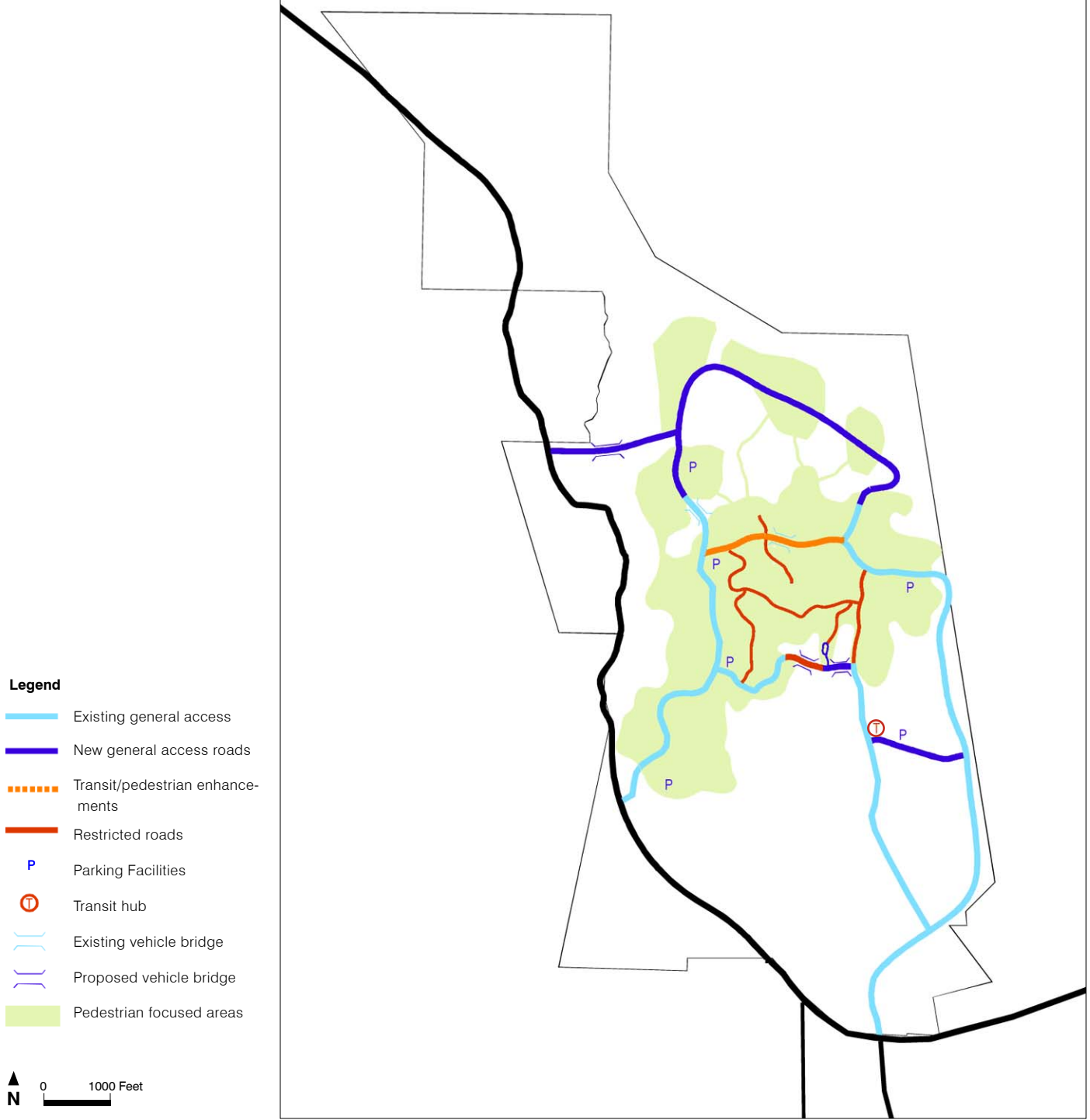
This proposed new road will be located along the south edge of the East Remote parking facility. It will improve the efficiency of ingress and egress at the parking facility and supports the proposed new transit hub in this vicinity. This connection would allow for restricted access on the Hagar Drive (between the East Field House and McLaughlin Drive) as Coolidge Drive/McLaughlin Drive becomes the primary vehicular route accessing the central campus.

With Coolidge Drive serving as primary access to the central campus, automobile traffic would be restricted on some roads within the core such as portions of Hagar Drive to improve pedestrian and bicycle safety and reduce auto traffic at Quarry Plaza. Service and transit vehicles would be permitted, but these roads would emphasize pedestrian and bicycle travel.

NEW BRIDGES

New pedestrian and vehicular bridges are an important part of the 2005 LRDP circulation system (see Figure 25). East/west travel on campus in many areas identified for development is impeded by ravines. Three new bridges for vehicles and pedestrians are shown in the 2005 LRDP: one connecting the extension of Chinguapin Road to Empire Grade and a pair of bridges connecting the Meyer Drive extension to the Hahn peninsula and on to Hagar Drive. Three additional new bridges are identified for pedestrians north of McLaughlin to link existing and proposed campus expansion.

**FIGURE 25
VEHICLE CIRCULATION**





PARKING

The campus today has nearly 5,000 car parking spaces. While various areas on the campus experience higher demands than others, on average, 70 to 80 percent of the campus parking supply is occupied on weekdays.

The growth projected in the 2005 LRDP will increase demand for auto travel and parking. Continued implementation and improvement of Transportation Demand Management measures and additional on-campus housing can maintain existing SOV levels or reduce this demand.

In order to serve the needs of faculty, staff, and students and fulfill the programmatic needs of the campus, the development of as many as 2,100 new parking spaces is proposed (net increase, not including spaces lost to development). These are projected from actual parking ratios derived from parking utilization surveys and applied to projected increases in campus population, of which more than a third are related to on-campus housing.

The parking strategy in the 2005 LRDP relies on a system of consolidated “collector” parking facilities located at the periphery of the central campus and served by high-frequency transit and campus shuttle service (see Figure 25, Vehicle Circulation). Parking will continue to be provided for on-site employee housing. In addition, the plan recommends pursuit of programmatic and policy measures to reduce parking demand on campus. Expansion of peripheral parking facilities and strategically located parking structures will accommodate the majority of the increasing parking demands, with implementation linked to actual and projected parking utilization rates. Individual colleges and buildings will continue to have limited parking close in for critical access needs, such as disabled access, deliveries, and service. With infill development on campus, the number of close-in parking spaces will likely be reduced.

The plan accommodates new parking structures to be located at the periphery of the central campus, to encourage walking and transit use in the academic core. The shift towards additional structured parking reflects a number of factors, including the scarcity of sites for new parking facilities, the likely decrease in surface lot spaces from continuing infill development, and the need to reserve buildable land for the academic program. Since Transportation and Parking Services is self-funded, economic viability of parking structures will need to be considered.

The 2005 LRDP proposes expanding the capacity of the East Collector Lot (formerly East Remote Lot) by constructing one or possibly two decks over the existing surface lot. This would result in an increase of approximately 2,000 additional spaces. This facility would be the campus's primary parking collection point served by regional transit and the campus

shuttle system at an adjacent transit hub. A new road connecting Hagar Drive and Coolidge Drive will improve access to this facility. On the west side of the campus the West Collector Lot (formerly West Remote) could function in a similar fashion. A collector parking facility will be located near the arts center, accessible via Heller or Meyer Drives, that may serve daily and arts events parking needs. A parking collector facility north of Cowell and Stevenson, accessed from McLaughlin Drive, could serve commuter needs. An additional parking facility may be located to serve the west side of the expanded academic core. Each of these structures could have approximately 500-700 spaces.

Limited surface parking will also be provided for new facilities within the central campus to meet accessibility requirements and to accommodate critical access needs. The location, amount and type of surface parking will be carefully considered to address storm water and environmental concerns.

TRANSIT/SHUTTLES

The campus transit system is a crucial component of the comprehensive transportation system. The transit system will continue to emphasize regional transit service provided by the external Santa Cruz Metropolitan Transit District (SCMTD) and an internal campus shuttle system serving the entire campus with transit hubs located at the east and west peripheral lots at parking collection points linking parking to campus shuttle systems. The 2005 LRDP relies on a frequent and reliable full-capacity shuttle and transit system that utilizes existing and proposed roads to serve the campus's growth areas. The 2005 LRDP envisions that the existing transit system and transit facilities will be expanded and configured to take advantage of the campus's loop road system through overlapping loop routes linked at parking collection points. Where appropriate, certain 'Bus Rapid Transit' solutions, such as queue jump lanes or transit-priority traffic signals, may be installed to



allow buses to bypass vehicle backups at intersections. The SCMTD would continue to provide a local and regional transportation alternative to single occupancy vehicle trips.

PEDESTRIAN CIRCULATION

Walking is the primary mode of travel for students within the academic core and within and between colleges. The pedestrian system is made up of a network of paths connecting individual buildings within colleges and inter-connecting the colleges. Most of the roads in the central campus have sidewalks on at least one side of the road, and to the extent possible new roads will have sidewalks on both sides. Crosswalks will be provided at intersections, with preference given to pedestrians inside loop roads.

As described in the Landscape and Open Space section and shown in Figure 23, north/south pedestrian travel is concentrated along two pedestrian spines. The 2005 LRDP reinforces and expands on these primary pedestrian spines and enhances east/west circulation by providing additional pathways and bridges along direct routes between destinations. In this way, proposed improvements would fill gaps in the circulation system. The most obvious of these gaps is the lack of connection of Meyer Drive to Hagar Drive. Extending Meyer Drive to Hagar can connect the East Remote parking and recreation facilities to the peninsula of land with the Hahn Student Services Building, the student services corridor, and the central core of campus. Further traffic reduction possibilities, noted above in the description of new roads, make this dual bridge project a priority.

Another gap is the lack of direct east/west connection between existing parts of the north academic core. Bridged pedestrian connections are needed between Crown College and Social Sciences/Colleges Nine and Ten, and between this area and Communications/Engineering. As the campus expands to the north, the existing pedestrian circulation system will need to be linked to new development areas. In the north, additions and upgrades to the existing unpaved roads could form other east/west routes between the core expansion parcels.

As the campus grows, conflicts between pedestrians and vehicles along roads at key crossing points will increase, particularly along McLaughlin Drive at Science Hill and south of Colleges Nine and Ten. Because of the volume of pedestrians flowing between the upper and lower portions of the campus at class change times, McLaughlin Drive will require innovative solutions to balance vehicular and pedestrian travel.

One of the challenges will be balancing pedestrian flow with transit schedules. High volumes of pedestrian crossings can impede transit vehicle travel speed.

BICYCLE CIRCULATION

Bicycle travel remains an important mode of transportation on campus despite the terrain, and bicycle travel is expected to grow as on-campus housing increases. The plan strives to improve the effectiveness and safety of bicycle travel by completing the campus's bicycle facility system and improving the safety of existing facilities. The bicycle circulation plan calls for Class II²⁰ bike lanes on major roads throughout the campus, both new and existing. Where constraints such as topography limit the ability to widen roads, bike lanes may be installed in the uphill direction, and bikes and vehicles will share the downhill travel lane, specifically northbound on Heller Drive between Meyer Drive and McLaughlin Drive.

Class III²⁰ bike routes, where bicycles and vehicles share travel lanes, are proposed along Steinhart and other campus service roads. With the completion of the Meyer Drive Extension, Hagar Drive between the East Field House and McLaughlin Drive will restrict automobile traffic, allowing only transit vehicles, pedestrians, and bicycles. With this improvement, pedestrian and bicycle conflicts with vehicles will be significantly reduced at Quarry Plaza.

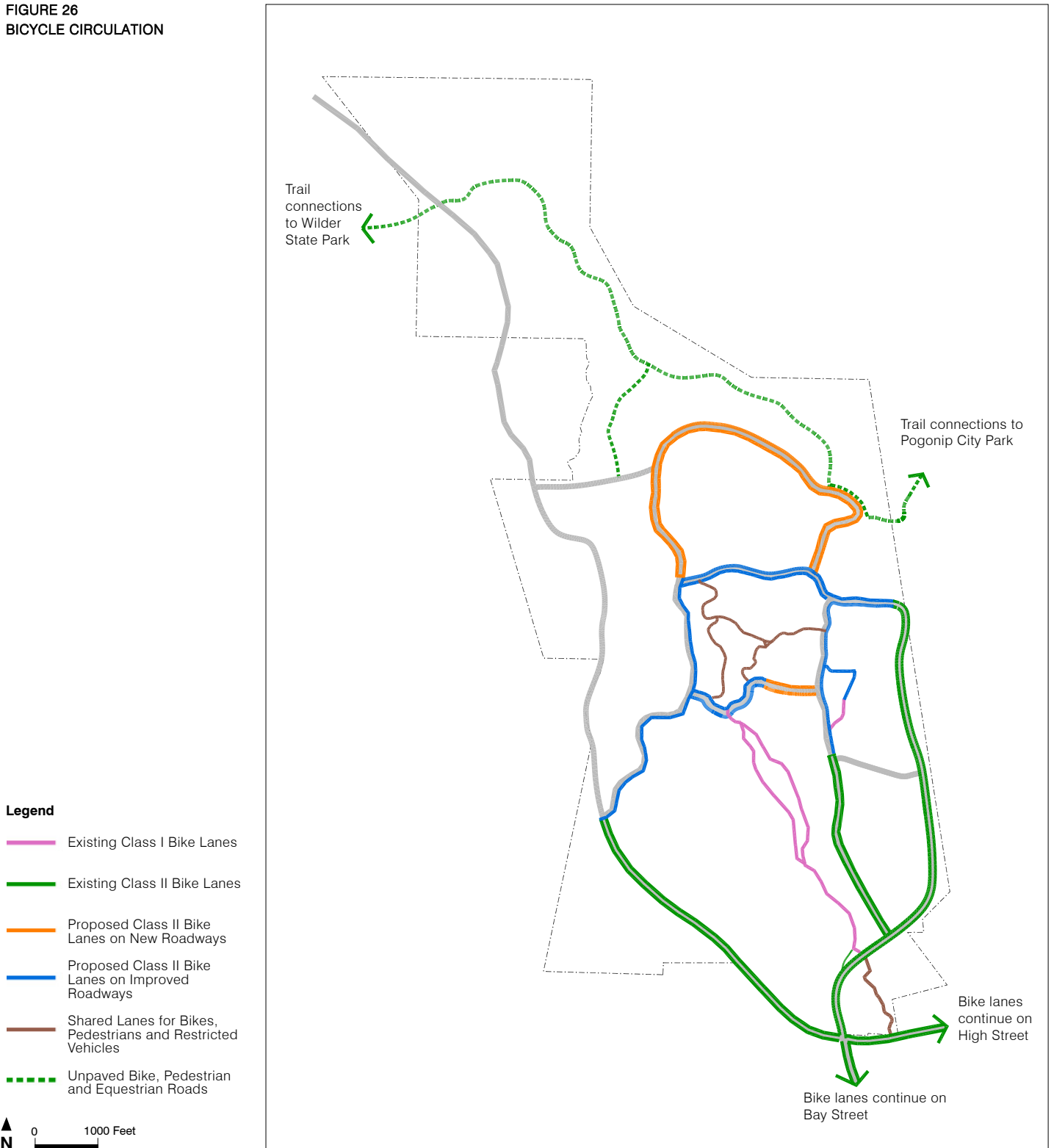
Recreational bike use will continue to be accommodated on designated fire roads and designated unpaved roads through undeveloped campus lands. As development expands to the north, the cross-campus regional recreation connection between the Pogonip City Park and Wilder Ranch State Park will be maintained for pedestrians, bikes, and equestrians.

Campus bike shuttles and transit services are equipped with bike racks that foster bicycle use by those unlikely to ride the entire uphill distance to the central campus. Bike parking facilities will continue to be provided at all major buildings and gathering places.

20. Class II bike lanes provide a striped lane for bicycle use on a road or highway; Class III bike routes provide shared use for bikes and vehicles on a roadway .



FIGURE 26
BICYCLE CIRCULATION



h. Utilities and Infrastructure

WATER

Adequate water supply is a primary issue for UCSC and the City of Santa Cruz given future anticipated shortfalls under drought conditions. Water is supplied to the campus by the City of Santa Cruz Water Department. The campus proposes a water management strategy that builds on existing programs for conservation and explores options for new source development. In addition, UCSC may explore the viability of possible on-campus water supply sources subject to test pump and aquifer capacity.

The water supply system is a complex network with four connections to the City of Santa Cruz system and eight separate pressure zones. Facilities in the campus core will likely require localized pipe upgrades and campus development north of the existing developed campus will require new piping and infrastructure elements, including booster pumps to augment pressure and new storage capacity.

The campus has implemented a range of conservation programs to reduce water consumption as the campus has grown. The 2005 LRDP calls for continuing these measures with additional improvements such as continued education efforts, continued retrofit of existing buildings with more efficient plumbing fixtures, use of ultra-low-flow fixtures in new buildings, and use of rainwater and/or recycled water if feasible for irrigation, cooling towers, and other non-potable uses.

ENERGY

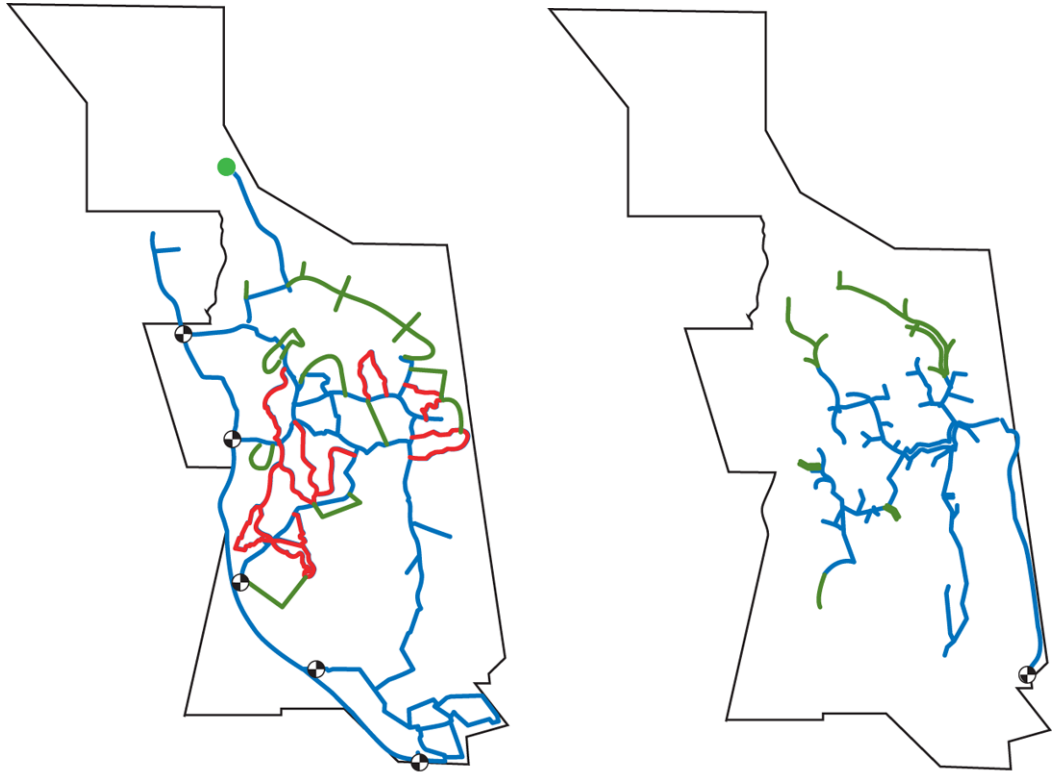
Over the past decades, UCSC has actively pursued energy conservation through energy-efficient new construction practices and energy retrofit programs. The campus will continue to promote energy efficiency and consistent service quality with demand-reduction strategies, compliance with the University of California Policy on Green Building Design and Clean Energy Standards, and self-generation when financially viable.

Campus natural gas and electrical service is supplied by Pacific Gas & Electric (PG&E). The campus-owned electrical network comprises 21kV primary service lines and 12kV distribution lines. This network is mostly buried and has a PG&E service connection northeast of the Hagar Court employee housing complex. Recent campus upgrades have increased feeder capacity. Future campus growth will increase demands on the campus electrical infrastructure and require localized upgrades and line extensions in addition to demand reduction strategies. Reliability of the power supply is particularly important to UCSC's mission as a research institution and will be a key element of future upgrades.

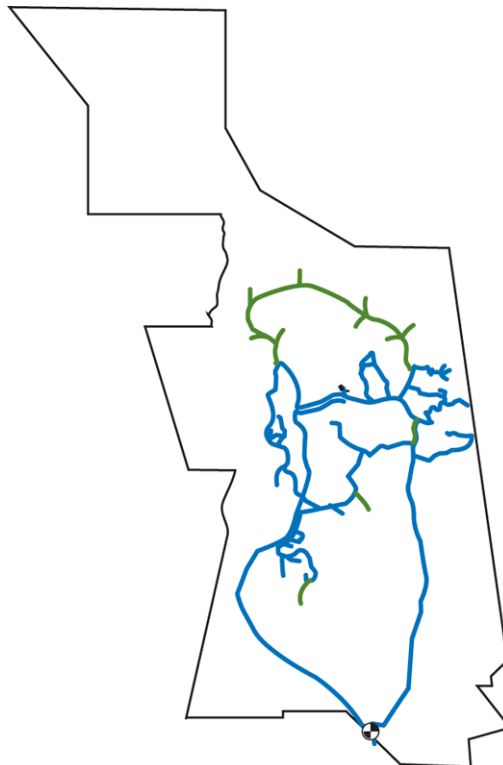
The natural gas distribution system is owned by UCSC and fashioned as a "ladder" system with primary piping extending up Heller Drive and Hagar Drive with cross connecting "ladder rungs" along Meyer Drive and McLaughlin Drive. Recent analysis has indicated a

**FIGURE 27 (LEFT)
WATER INFRASTRUCTURE**








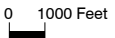
**FIGURE 28 (RIGHT)
ELECTRICAL INFRASTRUCTURE**



**FIGURE 29
NATURAL GAS
INFRASTRUCTURE**



Legend

-  Existing Utility Line
 -  Proposed Utility Line
 -  Upgraded Utility Line
 -  Point of Connection
 -  New reservoir/tower (Fig.27)
 -  Campus Boundary
-  N  0 1000 Feet

need for the repair of deteriorated or constrained areas of the network and the replacement or upgrade of system components to improve network stability and service. The 2005 LRDP will require extension of service to new development areas and a third pressure regulating station. In conjunction with demand reduction strategies, these infrastructure improvements will seek to ensure adequate infrastructure capacity for the plan.

SANITARY SEWER

The existing on-campus sanitary sewer system was sized for 27,500 students and will have adequate capacity for the proposed new development. There are two major trunk sewers on the UCSC campus, one on Empire Grade and the other along Hagar Drive, that combine into a single sewer at the Cook House, which discharges into the city's sewer system at Bay and High streets. New construction will be limited to repair, maintenance, limited upgrades, and extensions to areas of new development.

STORM DRAINAGE

The UCSC campus is unique in relying on a series of natural drainage courses and sinkholes for storm drainage. Storm water drains via a network of pipes into four drainage arroyos—Jordan Gulch, Moore Creek, Cave Gulch, and San Lorenzo River—which lead to a series of sinkholes (except for drainage into the San Lorenzo and the lower reach of Moore watershed). Detention basins and settling tanks serve localized building clusters. While this system meets current overall capacity requirements, there are localized areas of concern. Recent analysis has documented surface flooding, concentrated flows, and associated erosion in some locations. The long-term effect of sediment load on sinkhole capacity is not known and is difficult to determine. Future development will seek to minimize changes to existing hydrological conditions and utilize financially viable sustainable design strategies to manage storm water. These strategies may include minimizing point-source discharges from buildings and paved surfaces by using infiltration drainage techniques when feasible; recycling rainwater collected from impervious surfaces for irrigation or other non-potable uses; or collecting rainwater for controlled aquifer recharge.

DATA NETWORK AND TELECOMMUNICATIONS

Providing data and telecommunications infrastructure with adequate capacity and flexibility to support the educational and research mission of UCSC is a central element of the 2005 LRDP. This technology will serve the campus itself, link it to off-site facilities, and provide new opportunities for students, faculty, and staff through initiatives such as distance learning. Data and telecommunication infrastructure will need to be upgraded to meet short- and long-term needs for bandwidth/density and reliability. New data and telecommunications infrastructure should be flexible enough to accommodate new and emerging technologies.

CENTRAL PLANT

As the campus grows there will be a need to increase the capacity of the central plant system to provide hot and chilled water. The likely infrastructure requirements for the expansion of the hot water system include upgrade/construction of hot water piping and construction of a secondary heating hot water plant in the central campus. This secondary plant would be connected to the existing plant to provide flexibility in meeting peak demands. Additional chilled water capacity will also be required for cooling. This could entail installation of a new cooling tower and thermal energy storage near the existing central plant, or in another location with appropriate pipe connections to the campus system.

