



**P L A N N I N G
C O N T E X T
A N D
D E T E R M I N A N T S**

PLANNING CONTEXT AND DETERMINANTS

Many considerations have driven planning for the new Merced campus. This chapter describes the various elements that have individually and in their totality informed the siting, layout, planning and design of the new campus. Five general themes articulated by Chancellor Carol Tomlinson-Keasey have guided the physical development of UC Merced:

- The campus must capture the wonder and majesty of the University of California in that: there is a sense of place; the substance and quality of the University are evident; the campus setting, through its beauty and ambience, promotes a contemplative spirit and the intellectual growth of students and faculty; and top quality faculty and students are attracted to the campus.
- As the first research university to open in the 21st Century, UC Merced must be at the forefront of technological change.
- The campus must seek to welcome and accommodate students from throughout the San Joaquin Valley and California, especially those from groups that have historically been underrepresented at UC.
- The campus must attempt to achieve a high level of resource conservation, such that the materials and energy used to build the campus and maintain it do not deplete resources available to future generations.
- The campus must set an example for urban growth in the San Joaquin Valley, showing how increases in population can be accommodated while preserving and sustaining the agricultural and environmental basis of its economy and ecosystem.

Academic Planning

Goals and Principles

Academic planning for UC Merced is based on the long-range goal of developing a distinguished general campus of the University of California and is guided by the following principles:

- Fulfill the University of California’s mission through excellent teaching, research and public service
- Create strong graduate and undergraduate programs
- Build an educational network in the Valley
- Link the campus technologically to the world
- Cooperate with UC campuses and National Laboratories, and with the California State Universities, California Community Colleges, and the K–12 schools
- Integrate the University and community
- Reflect the poetry of the San Joaquin Valley.

The Long-Range Development Plan provides for the physical resources to realize these academic goals. Physical development of the campus itself will contribute to another educational goal for UC Merced, an attention to sustainability that infuses the teaching and research mission of the campus, and the co-curricular program for students.

Academic Organization

UC Merced will emphasize links among disciplines and keep the barriers between academic areas as low as possible. Three academic divisions will be formed, each headed by a dean: Engineering, Natural Sciences, and Social Sciences, Humanities and Arts. All three divisions will be full participants in planning and offering the undergraduate general education program as well as undergraduate and graduate degree programs.

The divisions will not open with formal departments, though departmentalization will likely evolve. In keeping with the goal of curricular flexibility and collaboration across disciplinary lines, future departments may assume different forms and configurations of disciplines than are common among existing UC campuses.

A select number of professional schools and programs will also be added as the campus grows and develops. A school of management will be opened during the first five years, to include undergraduate and/or graduate programming in a group of related fields. Education programming will be offered initially through the currently established UC Merced Division of Professional Studies and will be the basis for a formal academic unit incorporating education in the future. As the campus grows, additional professional schools will be planned.

Each of the three academic divisions will develop a small number of areas in depth at the outset, rather than scattering the small number of opening day faculty across a large number of disciplines. This will allow development of early distinction through gathering groups of outstanding faculty in target fields. Areas of strength that have been initially identified for each division are

laid out below. However, faculty recruitment will be opportunistic, as the founding deans seek distinguished groups of faculty nationally and internationally, as a strategy for realizing the academic principle of excellence in teaching, research and service from the outset. Hence, other areas of strength will be developed in addition to, or in some cases, in place of, those described below.

As the campus grows, additional disciplines will be developed until the campus has built up the full range of natural sciences, engineering, social sciences, humanities, and arts fields that define a University of California general campus.

Promising areas for initial developments in the **Division of Engineering** during the first five years include, but are not limited to, computing and communications, energy/environmental resources engineering, biotechnologies, and nano/micro-systems engineering. Biotechnology research across the range of engineering disciplines, environmental monitoring and assessment, and infomatics, including emerging information technologies, will be targets for early research development. The Division will also work aggressively through innovative K–12 outreach programming to diversify the student body in engineering.

The **Division of Natural Sciences** will develop the core areas that need to be in place for a strong science and technology campus: the biological sciences, chemistry, earth sciences, mathematics, and physics. Promising early areas of research excellence that would draw on both natural sciences and engineering include, but are not limited to, biotechnology and structural biology, environmental sciences, and materials sciences. A nano-

technology emphasis in engineering holds promise for leading to a collaborative focus on nanoscale issues in physical and inorganic chemistry, biochemistry, and X-ray laser physics.

The **Division of Social Sciences, Humanities, and Arts** will include about half the faculty at opening day. This faculty will be organized in both traditional and innovative ways. A promising approach is a division of disciplines according to whether they depend on quantitative or textual approaches, with expressive studies included among textual fields. Innovative groupings might also include organizations around methodological approaches, including but not limited to the following examples. A political and economic affairs group would include political science, economics, environmental studies, legal studies, sociology, anthropology, philosophy and history. A human interactions and productions group would include politics, anthropology, economics, psychology, sociology, literature, and the arts.

Graduate Education and Professional Schools

The Dean of Graduate Studies/Vice Chancellor of Research will have lead responsibility for guiding graduate affairs. This will include coordination of graduate program development in both innovative and traditional areas.

The first professional school, to be opened within the first five years of campus operation, will be a School of Management. The School will address a range of regional and state needs for undergraduate and graduate training, in a new and integrated way. Emphases could include, but not be limited to, organizational psychology, business administration, economics, public policy, technology entrepreneurship, and educational leadership. A joint management and engineering program will also be offered.

Research

Individual faculty will be developing a range of areas of research strength for UC Merced, which will be supported by the facilities envisioned in the Long-Range Development Plan. In addition, a series of formal organized research units will focus interdisciplinary faculty research strengths and resources on a select number of critical problems. These research institutes will contribute to realizing the principle of excellence in research from the outset.

The **Sierra Nevada Research Institute** will be a cornerstone of research and education at UC Merced. UC Merced is planning the Sierra Nevada Research Institute to carry out research on critical issues affecting the Sierra Nevada Range and San Joaquin Valley regions of California, including population growth and development, water and watersheds, air quality, fire ecology, biodiversity, climate change, transportation, resource management and policy, and public recreation. Institute faculty will be recruited in a wide range of disciplines: biological sciences, environmental sciences, computational sciences, physical sciences, social sciences, policy studies, and regional planning. Research will be supported by sophisticated technology, including computer databases, remote sensing, and environmental informatics. The research conducted through the Sierra Nevada Research Institute will have applicability to similar natural resource science, planning and policy issues worldwide.

A special research focus of the Institute will be sustainability. With the anticipated significant growth in the population of the San Joaquin Valley, a growth of which UC Merced will be a part, natural resources already under pressure will be stretched even further. Thus, the Valley represents an ideal laboratory to study the constituent natural resources and the phenomenon of growth,

while conducting research on the means of sustaining natural resources. The campus and supporting community will constitute an immediately available laboratory for testing new approaches to sustainability.

The Sierra Nevada Research Institute will support faculty recruitment efforts of all three academic divisions while embodying UC Merced’s commitment to broad, innovative, multi-disciplinary research and teaching programs. The Sierra Nevada Research Institute will also foster lasting, synergistic relationships between the campus and county, state and federal agencies, as well as the private sector.

The **World Cultures Institute** will bring together humanists, social scientists, and artists to study the movements of peoples and their historical and cultural consequences. As a natural laboratory for research of international import, the San Joaquin Valley is defined by the mobility and migration, and sometimes forced diasporas, of peoples affected by historical events. Migration and immigration studies will address questions of building community among a diverse population. The history of migrations and diasporas will be complemented by studies of the impact of such human and social changes on established peoples and resources.

Research themes for the World Cultures Institute include:

- Regional identity and cultural mobility
- Religious identity and religious diversity
- The region’s history of immigration from abroad and the history and consequences of indigenous peoples’ displacement by waves of migration

- The wilderness and coastal impact of the region
- The history of agriculture.

The **Public Policy Institute** will act as a partner research entity with the Sierra Nevada Research Institute and World Cultures Institute, assuring a strong policy element in each.

Curriculum

The academic divisions and research institutes will collaborate and reinforce one another in creating undergraduate and graduate degree programs. UC Merced will offer a select number of graduate and professional programs that meet state and national needs for advanced training. Graduate programs will be offered through graduate groups with flexible structures that allow faculty from a variety of disciplines to participate. In particular, faculty graduate groups based in the research institutes will develop a set of unique doctoral programs. Undergraduate general education will be the responsibility of a campus-based (as opposed to residence-based) undergraduate college system. The three academic divisions will work in concert with the academic leadership of the colleges to create and deliver the general education curriculum. Professional degree programs will be the responsibility of the professional schools, with extensive participation by the academic divisions.

While faculty will be organized in a variety of innovative and traditional ways that encourage new forms of collaboration across traditional disciplinary lines, the undergraduate curriculum will be built around core fields, especially fields that are in high demand elsewhere in UC. The following proposed initial list of opening day majors will be expanded rapidly as the campus grows and develops. There has also been a preliminary endorsement of

an opening day undergraduate management program, perhaps within the proposed economics program.

DIVISION OF ENGINEERING

Computer Science
 Electrical Engineering
 Environmental Engineering

DIVISION OF NATURAL SCIENCES

Physical Sciences
 Biological Sciences
 Mathematics

INTERDISCIPLINARY TRACKS:

Environmental Sciences
 Pre-Health Sciences Program

DIVISION OF SOCIAL SCIENCES/HUMANITIES/ARTS

World History and Cultures [History and Arts]
 Comparative Literature and Languages
 Social Sciences
 Economics
 Public Policy

General Education

The University of California, Merced has set a goal of becoming the 21st century's premiere student-centered research University. Essential service functions will complement outstanding academic offerings in order to transform a collection of buildings into a vital place of learning. The following hallmarks will characterize student life at UC Merced:

- Integration, flexibility and community
- Education on a human scale
- Diversity
- Fully integrated educational opportunities through UC Merced Centers
- New concepts of staffing
- Reliance on technology.

The following principles embody the core philosophy of maintaining small interactive groups within a large organization:

- Students and faculty will engage in general education in small group interactions
- Faculty will participate in curriculum development and in small teaching groups
- Students will be given choice within a coherent general education program
- The faculty structure will stimulate curricular and pedagogical innovation
- General education will be structured to accommodate growth, and
- UC Merced will invite collaboration with other public higher education institutions in the region.

Achieving these principles may be accomplished through an undergraduate college system, to be planned in detail by the incoming academic leadership. As the campus grows beyond its initial small cohort, UC Merced hopes to create a *campus-based* college system, designed to engage all students fully, whether they are in residence at UC Merced from the freshman year on, junior-

	YEARS												
Population	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2014/15	2024/25	2025/26	2026/27	2027/28	Full Dev.
Undergraduate	900	1,801	2,519	3,238	3,957	4,675	5,394	7,241	11,958	12,430	12,901	13,373	22,250
Graduate	100	208	291	374	457	539	622	895	1,478	1,536	1,595	1,653	2,750
Subtotal	1,000	2,009	2,810	3,612	4,414	5,214	6,016	8,136	13,436	13,966	14,496	15,026	25,000
Faculty	100	149	194	241	285	316	342	462	763	793	823	853	1,420
Staff	400	596	757	940	1,112	1,232	1,334	1,617	2,670	2,696	2,798	2,900	4,828
Subtotal	500	745	951	1,181	1,397	1,548	1,676	2,079	3,433	3,489	3,621	3,753	6,248
Total	1,500	2,754	3,761	4,793	5,811	6,762	7,692	10,215	16,869	17,455	18,117	18,779	31,248

Table 3.1
Campus Projections of Students, Faculty and Staff. Student numbers in FTE

year transfer students, or students who complete portions of their education at a UC Merced off-campus center. While the campus residence system will reinforce the college system for on-campus students, the locus of college activities will be in the academic buildings on campus.

A general education institute, featuring intersegmental collaboration with the California Community Colleges and California State Universities in the San Joaquin Valley, is planned to support joint general education development. This will facilitate transfer of students among the Valley’s segments of higher education. This institute will be housed initially in an academic building, with the expectation that it will have a facility of its own as the campus grows.

Formal Review of Programs, Degrees, and Units

The academic programs and units introduced above will undergo appropriate review by campus and systemwide review bodies, as required by university policies and procedures. Systemwide review bodies vary according to the approval sought.

Enrollment and Population Projections

UC Merced is planned to open with 1000 students in Fall, 2004: 900 undergraduates and 100 graduate students, 100 faculty and about 300 staff. The campus is expected to grow rapidly, with an addition of about 1,000 students in 2005 and about 800 students per year thereafter. By 2010–11 the campus will have grown to 6,000 Full Time Equivalent (FTE) students. The proportion of graduate students is expected to grow from 10% at opening to 15% by the tenth year of operation.

This LRDP defines a campus that can accommodate a total of 25,000 students: 21,500 undergraduates and 3500 graduate students, with a faculty and staff of 6,600.

Table 3.1 illustrates projected student, faculty and staff growth at UC Merced.

Campus Land Area Requirements

As described in the previous section, a major research university campus is made up of a number of inter-related program components, and includes a core of teaching, research, and administrative buildings, housing for students and faculty, and facilities and fields for sports and recreation. All these elements require extensive service and support areas much like a small city, which a campus in many ways resembles. These include a corporation yard, campus security and possibly fire services, utility services such as transformer stations and wastewater treatment plants, and parking areas. Like a city, as well, a significant part of a campus is taken up with roads and other circulation elements.

This section summarizes the acreage requirements for each of the program components and other elements comprising the new UC Merced campus. A variety of sources were used for developing these projections, including studies of research universities throughout the United States and the experience of other UC campuses, particularly those that were established in the 1960s.

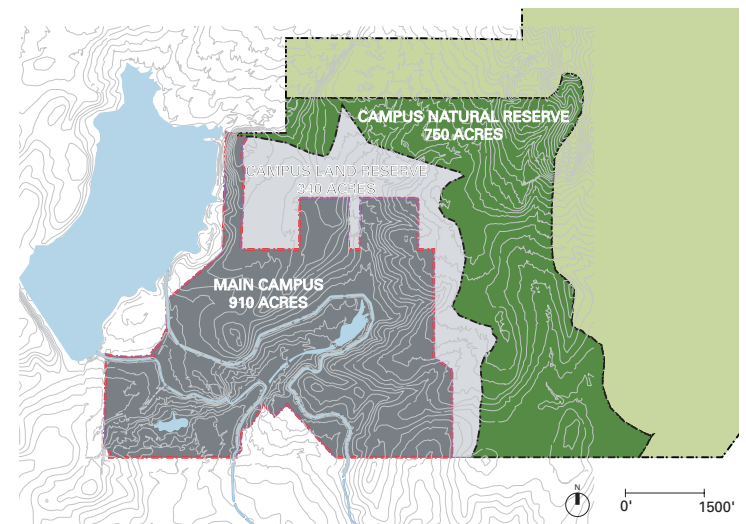
The 2,000 acre Merced campus is comprised of three primary land use elements: the Main Campus, the Campus Land Reserve, and the Campus Natural Reserve. Each of these land components has an important role in the three key missions of the University: teaching, research and public service. A summary of these areas is included in Table 3.2.

Main Campus

The Main Campus incorporates all the program elements that the University can now foresee being needed for a complete new campus. The Main Campus includes the following uses, the circulation system required to serve them, and related open space:

- Academic Core
- Student Support/Service
- Student Housing
- Faculty Housing
- Campus Support (corporation yard, physical plant, etc.)
- Recreation and Athletics
- Parking
- On-Campus Research

Fig. 3.1
Campus Land Use Zones



Campus Land Reserve

The Campus Land Reserve covers 340 acres contiguous to the Main Campus Area. The University has determined that, although only 910 acres of land is required for development of the Main Campus Area, an additional 340 acres should be secured contiguous to the Main Campus Area to preserve the opportunity to accommodate additional development beyond the Main Campus which is presently unknown and unforeseeable. Although the University has no present need for this land, because the 340-acre area currently is available and UC Merced may exist well into the next century or beyond, prudence requires that the University secure this land at the present time.

Because the campus land reserve contains vernal pools and other biological resources of academic interest, it may be used for certain teaching, research, and outreach purposes. For example, undergraduate field study under faculty supervision and K-12 field science preparation are among contemplated uses. Campus faculty may also do advanced field research to better understand the dynamics of this ecosystem.

The Campus Land Reserve will continue to be available for grazing and will be fenced to control access from the Main Campus and to provide a buffer to the Campus Natural Reserve.

Campus Natural Reserve

The University proposes to set aside approximately 750 acres of land as a Campus Natural Reserve. This area would be maintained permanently in an undeveloped state, and would be dedicated to scientific research and education. The Campus Natural Reserve would be managed in a manner consistent with management practices in the UC Natural Reserve System (NRS). It may be proposed for inclusion in the NRS as a means of making its valuable and unique resources available to the larger research community. At present, there is no NRS site in the San Joaquin Valley.

The campus natural reserve would include vernal pool/grassland habitat with not only rare biological resources, but also unique landforms and rare soils of great geological interest. The reserve would be suitable for specialized scientific research and for some teaching uses, especially by advanced undergraduate students or students participating in faculty research projects. However, research would be carefully undertaken to ensure that there would be no impacts to the natural environment.

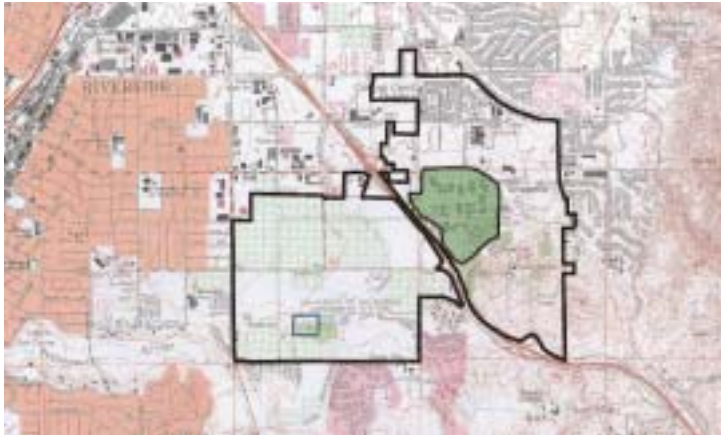
A detailed discussion of the derivation of Main Campus areas is included in Appendix A.

Table 3.2
Summary of Campus
Land Area Requirements

MAIN CAMPUS	PROGRAM IN ACRES NET + Site Circulation
Academic Core	157
Student Services	23
Student Housing	250
Faculty Housing	90
Campus Support	56
Athletics & Recreation	148
Parking	147
On-Campus Research	39
SUB-TOTAL including roadways	910
CAMPUS LAND RESERVE Unknown future needs; natural science field research, education and outreach; maintained indefinitely in current condition.	340
Total Potentially Developed Land	1250
CAMPUS NATURAL RESERVE Campus undeveloped lands, permanently protected and to be used only for limited research and educational use.	750
TOTAL	2000

Comparison of Land Area with Other UC Campuses

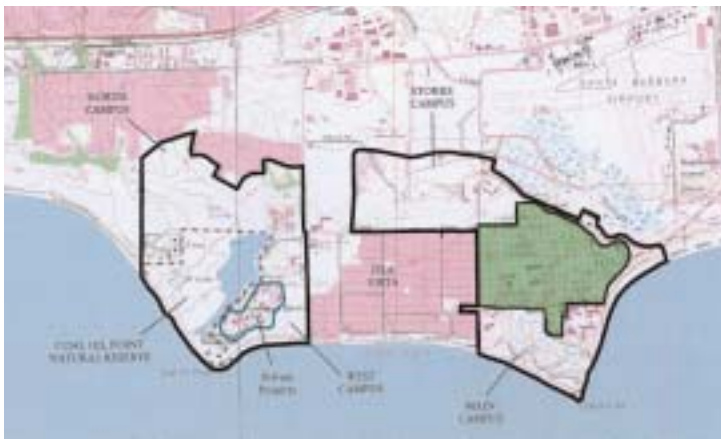
As the following diagrams show, the UC Merced main campus is similar in size to other UC campuses, in particular those that are located in less urban areas. The Academic Core of UC Merced, at 157 acres, is comparable to the academic cores of other UC campuses.



UC Riverside



UC Davis



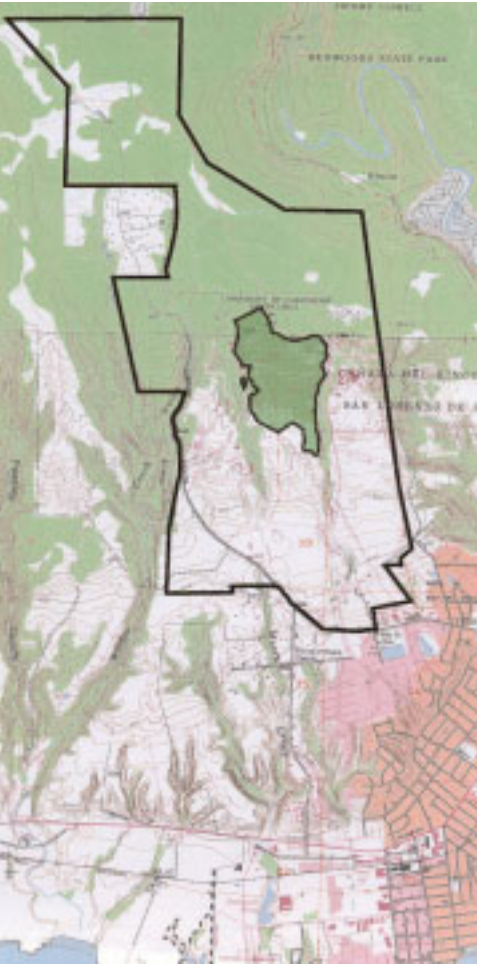
UC Santa Barbara



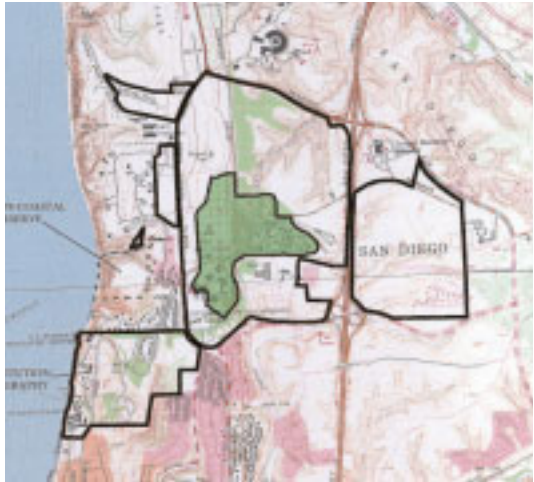
UC Berkeley

Fig. 3.2
Campus Comparisons

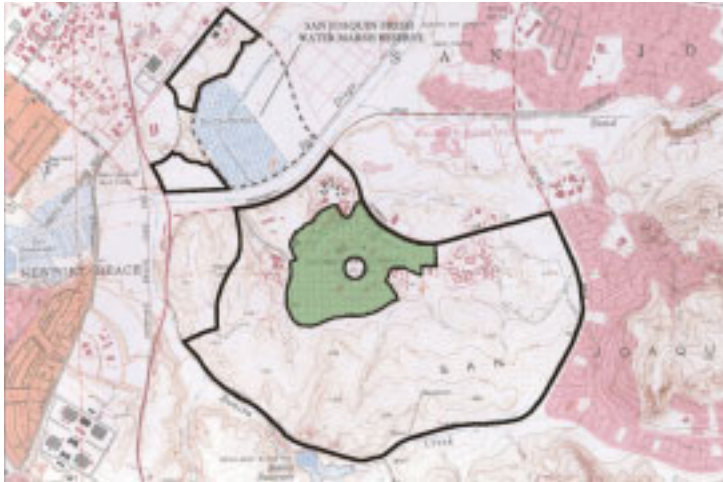
■ APPROXIMATE CAMPUS CORE



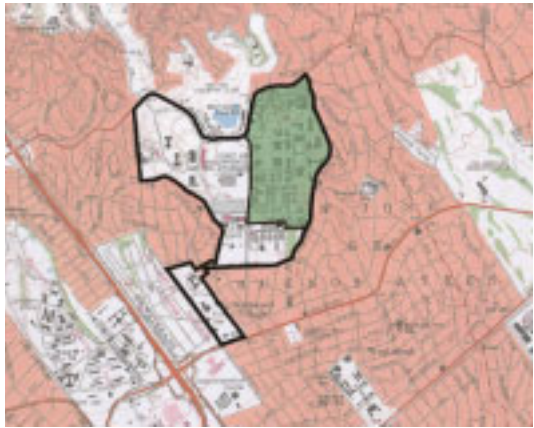
UC Santa Cruz



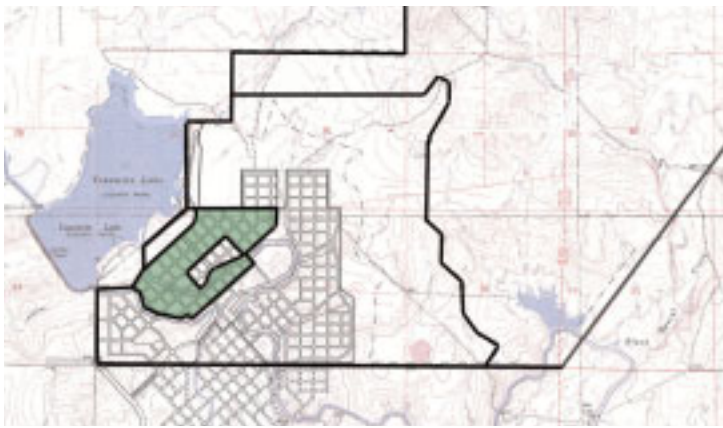
UC San Diego



UC Irvine



UC Los Angeles



UC Merced

Physical Setting

Regional and Local Setting

The setting has had a significant influence on the planning and design of the UC Merced campus. This campus of the University of California occupies a unique niche in the state, not only in terms of the socio-economic and cultural characteristics of its valley location, but also in terms of the form of the land, its physical characteristics, and the pattern of land use and development that has been experienced in the San Joaquin Valley throughout history.

California's great Central Valley is 430 miles long and an average of 50 miles wide—about the size of England, some 15 million acres—and is one of the world's largest valleys. The Central Valley sits at the core of California (Figure 3.3), west of the Sierra Nevada mountains, and east of the Pacific coastal range and drains two major river systems: the Sacramento originating in the north and the San Joaquin from the south. Both rivers eventually pour into San Francisco Bay. The San Joaquin Valley is one of three major subregions encompassing the Central Valley, the other two regions being the Delta and The Sacramento Valley, each distinguished from one another by a low alluvial divide, which leads to a meandering boundary formed by the delta. As the following quotes demonstrate, perceptions of the valley have changed dramatically since American settlement.

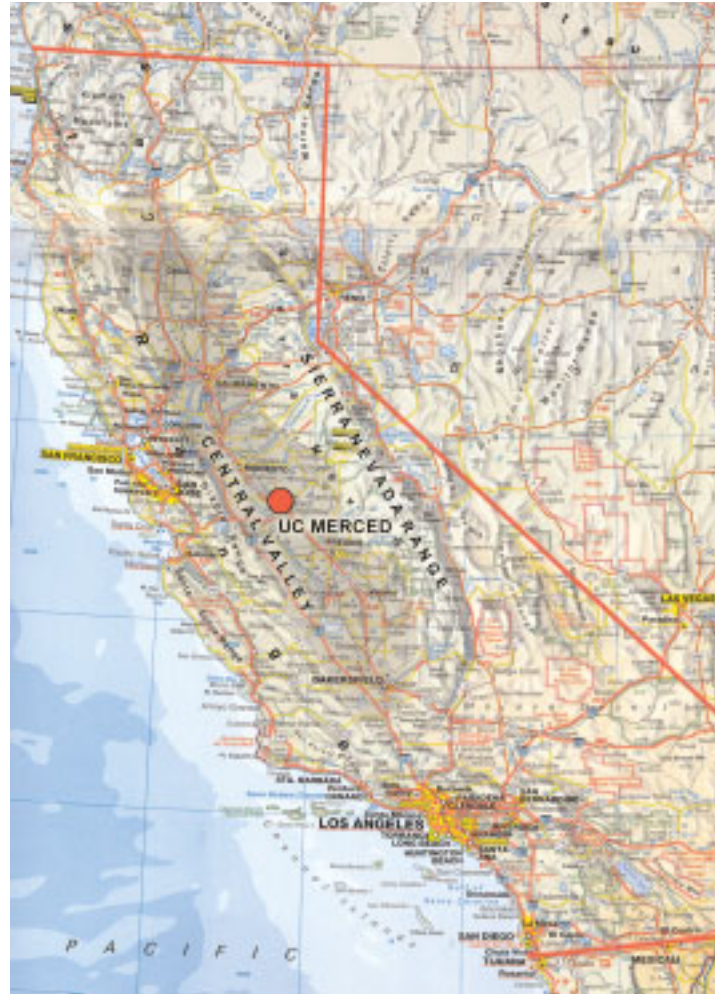


Fig. 3.3
UC Merced and the Central Valley

Fig. 3.4

Plain and Clouds, Merced County 1973. Photograph by Stephen Johnson. All rights reserved worldwide.



Fig. 3.5

California Aqueduct, Interstate 5, Delta-Mendota Canal, Merced County 1985. Photograph by Stephen Johnson. All rights reserved worldwide.



Two views of the Central Valley landscape:

Making your way through the mazes of the Coast Range to the summit of any of the inner peaks or passes opposite San Francisco, in the clear springtime, the grandest and most telling of all California landscapes is outspread before you. At your feet lies the great Central Valley glowing golden in the sunshine, extending north and south farther than the eye can reach, one smooth, flowery, lake-like bed of fertile soil. Along its eastern margin rises the mighty Sierra, miles in height, reposing like a smooth, cumulous cloud in the sunny sky, and so gloriously colored, and so luminous, it seems to be not clothed with light, but wholly composed of it, like the wall of some celestial city. Along the top, and extending a good way down, you see a pale, pearl-gray belt of snow; and below it a belt of blue and dark purple, marking the extension of the forests; and along the base of the range a broad belt of rose-purple and yellow, where lie the miner's gold-fields and the foot-hill gardens. All these colored belts blending smoothly make a wall of light ineffably fine, and as beautiful as a rainbow, yet firm as adamant.

—John Muir, *The Mountains of California*, 1894

Of all California's blighted regions, the one that man has changed most is the great Central Valley, which extends north and south for almost four hundred miles. The Sacramento Valley, in the northern half, was once a sea of grass parted by rivers; the San Joaquin Valley, adjoining the Sacramento to the south, was a region of shallow lakes and bulrush or tule marshes. Both of these sections of the Central Valley supported innumerable animals and birds, among which waterfowl, antelope, and tule elk were only the most common; there were also significant populations of wolves, grizzlies, cougar, deer, and beaver. To the Spanish, centered in the great mission holdings along the coast, the grasslands of the interior were scarcely known, and their destruction was accomplished almost entirely by the wave of Americans that followed hard upon the Gold Rush. Game slaughter became an industry and the carnivores were poisoned; unrestricted grazing by huge livestock herds destroyed the perennial grasses. Oat grass, June grass, and wild rye gave way to tarweed, cheatgrass, and thistle, which were crowded, in turn, by rank annual weeds escaped from the imported food crops of the settlers.

—Peter Matthiessen, "Profile: Cesar Chavez"
The New Yorker, June 21, 1969



Fig. 3.6
 Creek and Moon, San Joaquin County 1986. Photograph by Stephen Johnson. All rights reserved worldwide.



Fig. 3.7
 Fog over the San Joaquin Valley, Highway 140, 1980. Photograph by Stephen Johnson. All rights reserved worldwide.

Merced County forms a cross section of the San Joaquin Valley—from the western boundary with the foothills of the Coast Range across the plane of the valley—bisected by the marshlands of the San Joaquin River and rising again to the eastern boundary of the county at the foothills of the Sierra Nevada. The central portion of the county along both sides of the San Joaquin River contains some of the most valuable agricultural land in the state.

The Merced River flows from the Yosemite Valley across the eastern foothills of Merced County to the San Joaquin River. In the nineteenth century the Merced River was dammed to provide water to irrigate farms in the valley floor. The water from the river and the valuable farmland soils of the central county form the basis for the county's billion dollar agricultural economy.

Most of the land has been altered in order to accommodate agricultural purposes. According to the environmental scientist Garrison Sposito, the San Joaquin Valley is a remarkably productive valley—"the richest agricultural region in the history of the world." (Johnson, Haslam & Dawson, *The Great Central Valley*)

The region as a whole is characterized by annual grasslands, irrigated pasture and croplands, oak woodlands, perennial streams, vernal pool and swale complexes, and riparian forests. The region maintains a rich and diverse setting for plants and wildlife, supporting complex ecosystems for migratory species and transient wildlife, despite the intensive agricultural land uses that dominate the landscape. Agriculture, however, has had a marked impact upon the area's natural landscape. Trees have been removed, native vegetation has been phased out with the introduction of non-native species, and natural watercourses have been modified. Merced County is both physically and economically entwined with farming. It is a major marketing center, on the rail

line as well as the highway. About one-third of all its residents are employed in agriculture, the impacts of which influence virtually every local business.

Along with the rest of the San Joaquin Valley, Merced County's population is growing 2.5 times faster than the rest of the state, which has resulted in a recent increase in development. Still, agriculture is king in Merced County: the area yields quantities of dairy products, grapes, chickens, nuts, alfalfa and a great variety of other produce to rival many states in the nation. It also maintains a transportation infrastructure linking the farm to the processing plants, packaging and storage facilities, and shipping hubs. The San Joaquin Valley counties that abut Merced County also share a focus in agriculture.

The City of Merced lies near the geographic center of the County of Merced and is the county seat as well as the retail commercial center for the surrounding region. The city is approximately four miles long north to south and four miles at its widest point east to west, its city limits delineated to the south by the Merced Municipal Airport and Childs Avenue, and by State Highway 99 to the southwest. The gently rolling terrain of the eastern part of Merced becomes flat as it slopes to the city's southern edge. It sits 130 miles southeast of San Francisco along the State Highway 99 corridor that connects northern and southern California in the inland regions. Due to the city's proximity to Yosemite National Park (just 80 miles from the city), Merced has been the "Gateway to Yosemite" where visitors have stopped for over 100 years, first by train (from the late 1800s until 1940 Merced held a station on the Yosemite Valley Railroad), and now by auto. Merced is also a prototypical Central Valley agricultural town, with a grid that aligns to the original railroad tracks and a Main Street commercial corridor with residential neighborhoods at the periphery. As the

population grew from a few thousand in the late 1800's to over 60,000 by 2001, Merced has emerged as the county's most "urban" city, and was the first in the region to boast a community college, shopping mall and golf course.

The native people of the Central Valley were peaceful subsistence farmers. Miwok and Maidu tribes, whose communities migrated with the seasons, are known to have camped at the banks of Bear Creek, near what is now Merced. With the arrival of the Spanish conquistadors, however, both the native people and their landscape were forever altered: the former being subsumed into another culture, if they survived the initial confrontation, the latter falling victim to European seeds, replacing most native species of grasses and flora within several decades.

It was the fertility of the Central Valley's land that first drew settlers to Merced. The valley's nutrient-rich soil and temperate climate were recognized early on for their agricultural potential. Until the 1850's, the region was primarily inhabited by ranchers who migrated north from Mexico, buying land and settling colonies of laborers on their vast properties. It was the development of the Central Pacific Railroad in the mid 1860s, however, that served to populate the valley, bringing laborers and immigrants to these early agricultural settlements in search of independence and financial success.

Merced was not a city, however, until the arrival of the railroads. At various times, five railroad lines ran through the city. The Yosemite Valley Railroad, built as a link to the Yosemite Valley some 60 miles away, functioned as both passenger rail service for tourists and general freight cargo through the Central Valley and was headquartered in Merced, bringing even more jobs to the city in the years prior to World War I.

Of an equally dramatic impact was the construction in 1888 of a privately-funded dam on the Merced River that made possible the irrigation of thousands of acres of formerly arid land. From what were once desert-like conditions now grew acre upon acre of wheat, tomatoes, alfalfa, almonds, walnuts, pistachios, grapes, and grass for grazing. The dam's irrigation system also created a man-made lake, named Lake Yosemite in deference to Merced's neighboring tourist attraction, Yosemite National Park.

It was the implementation of a formal irrigation system that had the most dramatic impact on the agricultural landscape of the region, and Merced in particular. The combination of the valley's booming agricultural business, increase in population, and access to San Francisco and other developed areas via the railways, created a Merced landowning elite who envisioned Merced as a model town for the Central Valley. Initial lot sales in the city took place in 1872, and followed a general layout that ran parallel to the Central Pacific Railroad Line. Within months, buildings had been erected, and by the following decade, Merced had been chosen as the county seat. Formerly arid portions of the county by 1890 had gained access to water, and grew increasingly productive agriculturally. Good harvests, in turn, brought more immigration, expanded local services, higher incomes, and further development in Merced.

Growth in Merced slowed considerably after 1900. In this period, however, Merced's public services and utilities were established: electrical power, streetlights, a sewer system, and a school system. After World War II, Merced experienced a second population surge that lasted over a decade. The city responded accordingly with the adoption of its first general plan, redevelopment, and the expansion of the city further to the east and north. In the 1960s, Merced established its first shopping mall and junior college in time for the

Fig. 3.8
Main Street, City of
Merced 1915-Present



significant boom in residential construction activity that followed in the 1980s.

The City of Merced's 1990 planning effort, aimed at preparing the community for the significant anticipated population increases forecast by the year 2030, involved the creation of a Conceptual Land Use Plan for the city. Included in the analysis is an examination of the constraints and forces driving local growth, the location and direction of this growth and the appropriate land use patterns to encourage.

The Merced 2030 Plan was a document consisting of different growth scenarios that might occur within the City. The City Council chose a preferred growth scenario which directs Merced's physical expansion to the north toward Lake Yosemite Regional Park. Several urban models were proposed using this paradigm in an effort to address how the City's spatial form may evolve. The following guiding principals were agreed upon: preserving the downtown's economic viability, reducing cross town traffic patterns, and the creation of self contained "satellite" communities. The concept of "villages" was encouraged, in order to promote land uses and street patterns that encourage public transport.

By 1995, Merced's population stood at 61,700. Projections anticipate Merced's population to grow to 250,000 by 2030. However, according to Merced's General Plan, the alteration of the city's historical agricultural character is not anticipated: "Agriculture is, and will continue to be, a major contributor to the overall economic health of the City."

The UC Merced Campus Site

Topographically, the site is relatively flat, and is characterized by a series of small hills and swales trending to the northeast.

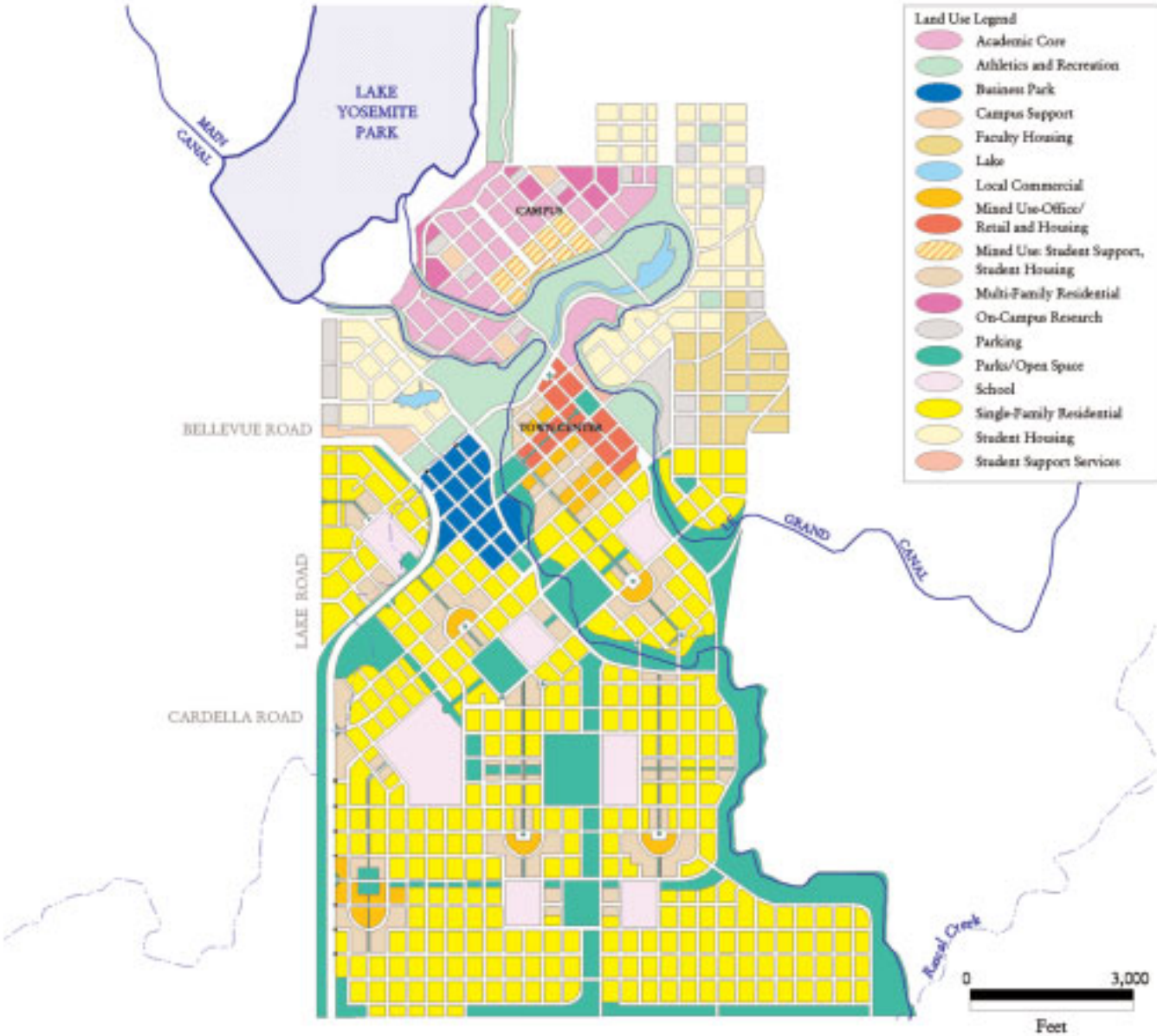
Throughout the site is an extensive network of mounds associated with the vernal pools commonly found throughout eastern Merced County. Annual grasslands are the dominant habitat type on the campus site. Notably, certain non-native grass species and invasive weeds found elsewhere in the region have not taken hold on the campus site, their absence signifying the relatively undisturbed nature of the grassland community there.

Most of the campus site is grazed during the winter and spring as it has been for at least the past 100 years. In addition, the southwestern portion of the site has been developed as a public golf course which includes an 18-hole course, a clubhouse, maintenance building, and a parking lot.

ADJACENT LAND USES

Within the vicinity of the campus site are large areas of undeveloped land and scattered rural residences. While the land between the campus and the City of Merced (two miles to the south) is currently in agricultural use or developed as low density residential, the area is adjacent to the path of growth planned by the City of Merced. The area between the city limits and the campus is currently zoned by the County of Merced for very low density residential development. The areas immediately south of the campus are zoned for agriculture but are under study by the County as the location of a University Community. The concepts for this University Community were originally developed in a joint effort between the University, the City, the County, the Merced Irrigation District, and the trusts which own the campus land and land north of the campus site. While these concepts were developed for a campus and community located in the center of

Fig. 3.9
University Community
Plan, Land Use Diagram,
as of August 2001,
Source: EIP Associates



the Virginia Smith Trust ranch, the basic principles have been applied to the new location, shown in Figure 3.9. The University Community would be sized in anticipation of off campus development generated directly or indirectly by UC Merced. The Town Center of the University Community would be located adjacent to the core of the campus and would provide retail and services to serve both it and the town. The plan for the University Community is being prepared by the County and will be approved as an amendment to the County's General Plan.

The County's Community Plan describes the community as encompassing about 2,100 gross acres. Of this acreage, approximately 1,132 acres will be assigned to housing, 45 acres for mixed use and commercial space, 51 acres for an office and business park, 539 acres for roads and infrastructure, 256 acres for open space and parks, and 110 acres for schools. The community would house about 31,000 people in single-family and multi-family dwellings and would respond to the demands of the new campus in terms of housing and services.

Lake Yosemite lies immediately to the west of the campus site. This lake and its associated park (Figures 3.10 and 3.11) include the recreational resources of the lake, such as grass fields and picnic areas, parking and boating facilities.

CLIMATE

The weather patterns in the California Central Valley are directly related to its geography: the mountain ranges to the west largely buffer the Valley from the marine weather systems that originate in the Pacific, with the exception of the break at the Carquinez Straits allowing for a moderation of climatic conditions in the northern San Joaquin Valley. In Merced, the influence of this marine climate is felt to a limited degree.

Summer temperatures are warm to hot and dry, with clear skies, no rainfall and cool evenings. The winters in Merced are mild, with occasional rains and frequent, heavy fogs: for the period of December and January, 30 days of fog are not uncommon. Winds generally come from the northwest, however, during the winter, cold air from the Sierra Nevada results in easterly winds.

BIOLOGICAL RESOURCES

The vernal pool and swale complexes of the campus site provide the ideal habitat for certain species that thrive in wetland environments and have proven to be sensitive habitats. Vernal pools are shallow ponds formed by winter rains in depressions over hardpan soils. When the pools are inundated they host very small crustaceans known as fairy shrimp that hatch and breed before the pools dry up.

Fig. 3.10 (left)
Lake Yosemite and
Adjacent Regional Park



Fig. 3.11 (right)
Lake Yosemite Regional
Park Picnic Areas



As the waters recede the pools are home to a succession of native plants that form brilliant springtime flower displays, as shown in Figures 3.12 and 3.13.

The vernal pool ecosystems are of great interest to scientists because the flora within the pools has resisted the invasion of European exotics that have largely replaced the surrounding grasslands and because some species of fairy shrimp are extremely rare. Some species of both plants and animals have been listed as rare or endangered under state or federal law.

CULTURAL RESOURCES

The cultural resources of the site include the land's archaeological and historical artifacts, sites and districts, historic buildings and structures, cultural landscapes and sites or resources that concern local Native Americans and other ethnic groups. Two previous archaeological surveys within the proposed project site have been performed, in total covering about 200 acres of the proposed campus area, all of which falls within the lands developed for the existing golf course. The surveys found neither cultural resources, nor archaeological resources. It remains to be researched whether the remaining, unsurveyed 1,800 acres of the proposed project site may contain buried or surface resources.

A farm complex exists on the site that contains a Midwestern three-portal barn, wooden corrals and related structures and sites at the north end of the proposed campus site (Figures 3.14 and 3.15). The barn's evaluation by an architectural historian found that although the structure was built in 1913, it does not qualify for eligibility on the California Register of Historic Places. The analysis of the architectural historian concluded that the barn has not been associated with important people or events nor has it been deemed architecturally significant.



Fig. 3.12
Vernal Pools With Spring Flowering Displays



Fig. 3.13
Vernal Pools, Eastern Merced County 1983. Photograph by Stephen Johnson. All Rights Reserved Worldwide.

Fig. 3.14 (left)
The Smith Ranch Barn



Fig. 3.15 (right)
Smith Ranch Barn and
Surrounding Grasslands



An 18-hole golf course has been developed on 197 acres of the southwestern portion of the site. The golf facility also maintains a clubhouse, maintenance shed and parking area.

GEOLOGY AND SOILS

The foothills of eastern Merced County are formed from ancient alluvium that flowed from the Sierra Nevada. Land holdings are large and many remain in the hands of original families who acquired title to them after American conquest and who still use them for cattle grazing.

The gently sloping hills of the eastern edge of this region gradually flatten into an undulating plateau that drops to the almost flat valley floor. At the point where the valley flattens out the soils change to rich well drained loam. Grazing gives way to row crops and orchards.

Soils on the campus site generally consist of poorly sorted gravel, sand, silt and clay due to 100 years of moderate to intensive grazing. The soils are largely acidic, gravelly and of low fertility. Clay hardpan is common within three feet of the surface. Much of the land consists of a relatively thin layer of soil above impervious rock.

HYDROLOGY AND WATER

West of the campus site is Lake Yosemite, a reservoir formed by water diverted from the Merced River. The lake is filled from the Main Canal entering on the northwest that runs more than 20 miles from dams on the Merced River. Two canals leave the lake on its south eastern shore and cut through the campus site. The larger and more northerly, Le Grand Canal, follows land contours to form a mile long loop through the campus site. The smaller

Fairfield Canal cuts across the southwestern corner of the campus site. Differences in elevation between the canals have permitted the Merced Irrigation District (MID) to install a small power plant on a pipe connecting the two canals.

The entire campus site has limited groundwater recharge potential due to its layer of clay hardpan. There is high runoff potential at the site, due to this condition of the soil.

SCENIC AND VISUAL CHARACTER

The campus site is on the edge of the grasslands plateau. Within the main campus site the land drops southwesterly over seventy-five feet and within a mile to the south, where the planned University Community would begin, the land continues to drop slowly to the south. These subtle but visible changes in level provide the campus with outlooks down to the future adjacent community, to the existing city of Merced, to Lake Yosemite, as well as up to the Sierra foothills and mountains beyond, as shown in Figure 3.15 and 3.16. The site is nearly devoid of trees, except one on the original ranch property and those planted on the golf course.

Lake Yosemite and the Lake Yosemite Regional Park lie directly west of the campus site. The lake level varies seasonally, and in the summer is used for a variety of recreational uses. The park lies on the eastern side of the lake and has been improved with significant plantings of trees, grass areas, parking and service roads.

Views from the campus site itself are varied. On clear days the Sierra Nevada range can be discerned to the east. Gentle ridges of other portions of the Virginia Smith Trust property lie in the

Fig. 3.16
Campus Site, Looking
West to Lake Yosemite



Fig. 3.17
Looking East from
Merced County to the
Sierra Nevada



immediate foreground to the northeast. To the south and south-east, the agricultural lands of the valley can be seen, although this view is subtle, due to the lack of major structures and the preponderance of flat, farmed land. To the southwest, portions of the City of Merced can be seen; again, due to the low intensity of development views are subtle but expansive. Views to the north are of the rolling terrain of the site; ridges obscure longer views north to adjoining properties.

The predominant views from the campus site are to the lake and surrounding park. This view provides a significant visual focal point from the site, with tall trees and the expanse of water comprising the lake.

The grasslands of the site and surrounding upland areas provide subtle but arresting visual displays as seasons change. From the bleached brown and wheat-colored summer appearance, winter brings intense greens, while in spring the vernal pools host a variety of flowering species that add special interest to the landscape.

SITE TOPOGRAPHY AND ASPECT

The campus site slopes gently to the southwest. A linear bowl slices through the site from the northeast, between the canals and flows off the site into Cottonwood Creek. Other minor drainages form slight depressions coming toward the center of the site from the eastern edge. The highest point of the site affords views toward Lake Yosemite, up to the ridges of the surrounding property, east to the Sierra, and south across the agricultural lands of Merced County.

SITE ACCESS

The most immediate access to the campus site is via Lake Road, which runs north and south and leads to Lake Yosemite Regional

Park. From the City of Merced, a number of routes are available to reach the campus, which lies at a distance of about five miles from the downtown area. Key east/west connectors include Bellevue Road and Yosemite Avenue, both of which intersect Lake Road near the campus site. Regional access is gained from U.S. 99 which bisects the City of Merced.

IRRIGATION CANALS

Two primary irrigation canals, the Le Grand and Fairfield, cut through the site. In so doing they isolate and frame a land area that is at a slightly lower level than most of the surrounding campus land. This area is potentially subject to flooding, but is also well located for water reclamation ponds, in addition to other green and open field uses.



Fig. 3.18
Irrigation Canals in Merced
Golf Course



Fig. 3.19
Irrigation Canals in the
Ranch Grazing Lands