AN ADVISORY SERVICES PANEL REPORT

University of California Merced, California

Urban Land Institute

University of California Merced, California

A Vision for a Sustainable Community

April 7–12, 2002
An Advisory Services Panel Report

ULI–the Urban Land Institute
1025 Thomas Jefferson Street, N.W.
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About ULI–the Urban Land Institute

ULI–the Urban Land Institute is a nonprofit research and education organization that promotes responsible leadership in the use of land in order to enhance the total environment.

The Institute maintains a membership representing a broad spectrum of interests and sponsors a wide variety of educational programs and forums to encourage an open exchange of ideas and sharing of experience. ULI initiates research that anticipates emerging land use trends and issues and proposes creative solutions based on that research; provides advisory services; and publishes a wide variety of materials to disseminate information on land use and development.

Established in 1936, the Institute today has more than 17,000 members and associates from 60 countries, representing the entire spectrum of the land use and development disciplines. Professionals represented include developers, builders, property owners, investors, architects, public officials, planners, real estate brokers, appraisers, attorneys, engineers, financiers, academics, students, and librarians. ULI relies heavily on the experience of its members. It is through member involvement and information resources that ULI has been able to set standards of excellence in development practice. The Institute has long been recognized as one of America's most respected and widely quoted sources of objective information on urban planning, growth, and development.

This Advisory Services panel report is intended to further the objectives of the Institute and to make authoritative information generally available to those seeking knowledge in the field of urban land use.

Richard M. Rosan
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About ULI Advisory Services

The goal of ULI's Advisory Services Program is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programs, and policies. Since 1947, this program has assembled well over 400 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalization, brownfields redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organizations have contracted for ULI's Advisory Services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and screened to ensure their objectivity. ULI panel teams are interdisciplinary and typically include several developers, a landscape architect, a planner, a market analyst, a finance expert, and others with the niche expertise needed to address a given project. ULI teams provide a holistic look at development problems. Each panel is chaired by a respected ULI member with previous panel experience.

The agenda for a five-day panel assignment is intensive. It includes an in-depth briefing day composed of a tour of the site and meetings with sponsor representatives; a day and a half of hour-long interviews of typically 80 to 100 key community representatives; and a day and a half of formulating recommendations. Many long nights of discussion precede the panel's conclusions. On the final day on site, the panel makes an oral presentation of its findings and conclusions to the sponsor. At the request of the sponsor, a written report is prepared and published.

Because the sponsoring entities are responsible for significant preparation before the panel's visit, including sending extensive briefing materials to each member and arranging for the panel to meet with key local community members and stakeholders in the project under consideration, participants in ULI's five-day panel assignments are able to make accurate assessments of a sponsor's issues and to provide recommendations in a compressed amount of time.

A major strength of the program is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academicians, representatives of financial institutions, and others. In fulfillment of the mission of the Urban Land Institute, this Advisory Services panel report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

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The panel thanks also those people it interviewed —local residents, public officials, members of the university community, private business leaders, and representatives of nongovernmental organizations and interest groups—for the information and perspectives they provided on the subtleties and complexities of this important project.

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Foreword: The Project, the Issues, and the Panel's Assignment

The project—development of a 2,000-acre campus of the University of California at Merced in California's San Joaquin Valley and development of an adjacent 2,000-acre planned community referred to as the University Community—involves a number of significant factors and issues:

- a world-class public university system;
- the largest intact vernal pool habitat area in California (vernal pools are temporary or seasonal wetlands that provide habitat for many species);
- a highly productive agricultural region;
- an economically depressed region;
- a fast-growing region with an ethnically diverse population; and
- increasing pressures for change in the traditional ways of life in the region.

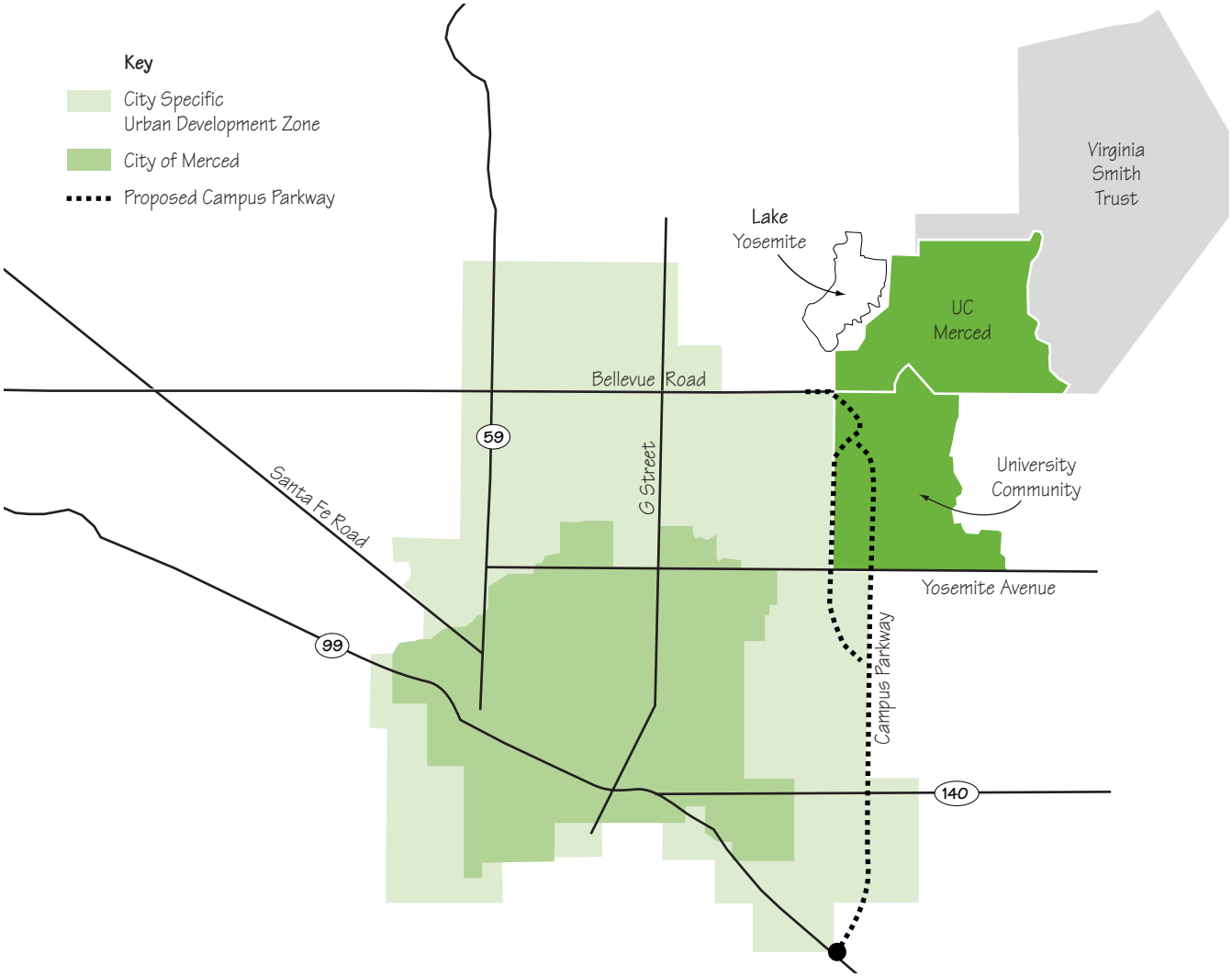
The New Campus

In 1988, the Board of Regents of the University of California launched a search for a site for a new University of California campus in the San Joaquin Valley (also known as the Central Valley). With a population currently at 3.5 million and expected to be approximately 10 million by 2020, the San Joaquin Valley is California's fastest-growing region. College students from this region, as the regents noted, are less than half as likely as their counterparts in the rest of the state to attend the University of California. One reason for this is the lack of a University of California campus in the region. Moreover, the region's overall educational level is low. For example, only 5 percent of Merced County's high-school graduates go on to attend college.

Campuses of the University of California.

A site for the new campus was selected in 1995. Owned by the Virginia Smith Trust (an educational trust), the site is outside the city of Merced. The proposed campus would eventually serve 25,000 students and it would be developed simultaneously with a planned community—jointly developed by the university and the Virginia Smith Trust—that would serve a population of approximately 25,000 to 30,000.

Subsequent studies revealed that the location proposed for the campus was near the center of the largest intact vernal pool complex in the state. According to scientists and planners, a campus on



UC Merced vicinity and land planning map.

the initially selected site would adversely affect the vernal pools and perhaps stimulate growth in the region that could affect areas that are even more environmentally sensitive.

In 2001, the university proposed to relocate the campus about two miles to the southwest of the original site, on the western margin of the vernal pool area and closer to prime agricultural land. In that the university wished to maintain its vision of a planned community next to the campus, the relocation of the campus required planning changes in Merced County to accommodate the new community on land that currently is being used for grazing and row crops.

In March 2001, the Packard Foundation endorsed the new approach and awarded a grant of more than $11 million to assist the university in acquiring the land for the new campus and for an adjoining natural reserve of more than 5,000 acres to protect the vernal pool habitat. In May 2001, the Hewlett Foundation awarded a gift of $2 million to assist in managing the natural reserve.

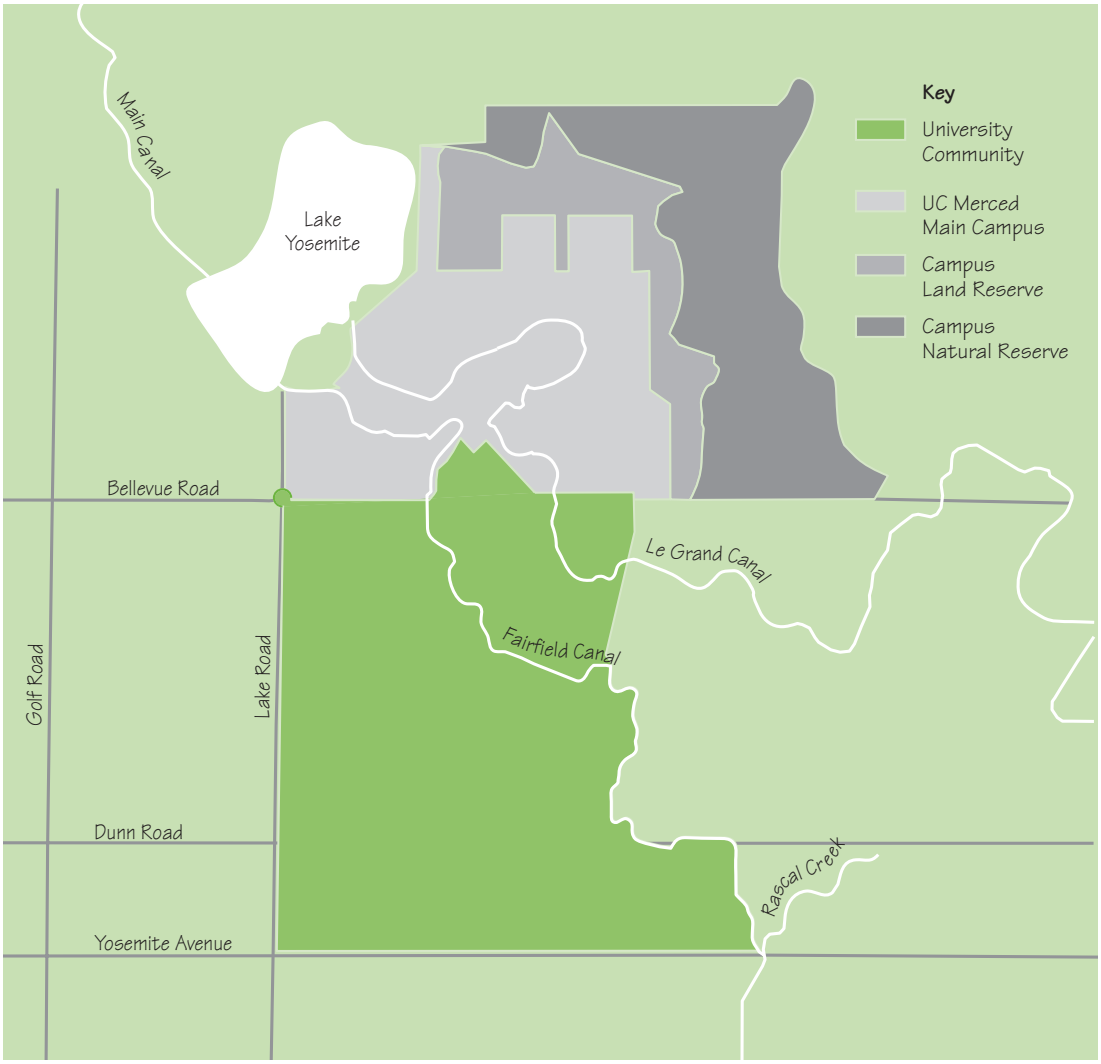
The Study Area

The UC Merced site includes 2,000 acres located approximately six miles northeast of the city of Merced, which is on State Route 99 roughly halfway between the Stockton/Modesto area and Fresno. The UC site includes 200 acres owned by Merced County.

UC Site

The UC site will have three major components: a main campus (910 acres), a campus land reserve (340 acres), and a campus natural reserve of vernal pool habitat (750 acres).

Main Campus. The main campus will incorporate all the program elements that the university can foresee being needed for a complete new campus, including student housing, faculty housing, academic uses, recreation and athletic uses, research



University community site boundaries.

facilities, student-support services, open space, parking, and the circulation system required to serve these uses.

Campus Land Reserve. To accommodate unknown future development needs, the university has set aside 340 adjoining acres for which is has no present need. The campus land reserve adjoins the main campus area to the east and north. While in reserve, this land will be fenced to control access from the main campus and will continue to be available for grazing and as a buffer for the campus natural reserve.

Campus Natural Reserve. The land that the university proposes to set aside as a campus natural reserve includes vernal pool habitat and grassland habitat containing rare biological resources, unusual landforms, and soils of geological interest. Maintained permanently in an undeveloped state, this 750-acre reserve would be dedicated to scientific research and education. The campus natural reserve would be managed in a manner consistent

Figure 1
Campus Land Requirements*

	Acres, Including Circulation
Main Campus	
Academic Core	157
Student Services	23
Student Housing	250
Faculty Housing	90
Campus Support	56
Athletics and Recreation	148
Parking	147
On-Campus Research	39
Total Main Campus	**910**
Campus Land Reserve	340
Total Developed Land	**1,250**
Campus Natural Reserve	750
Total Acres	**2,000**

*As designated in the University of California's long-range development plan for the UC Merced campus.

Figure 2
Population, 1980–2010

	1980	1990	2000	2005	2010
City	36,499	56,216	65,000	85,000	100,880
10-Mile Radius	–	112,947	122,462	130,080	–
County	134,558	178,403	203,560	217,280	231,250

Source: UC Merced briefing book, April 2002.

Figure 3
Race, 1999

	City (percent)	County (percent)
White	37.8%	40.6%
Hispanic	41.4	45.4
Black	6.0	3.6
Asian and Pacific Islander	11.3	6.8
American Indian	0.6	0.5
Other	2.9	3.1

Source: UC Merced briefing book, April 2002.

Figure 4
Households, 1999

	Number of Households	Persons per Household
City	20,435	3.06
10-Mile Radius	41,352	3.12
County	63,815	3.25

Source: UC Merced briefing book, April 2002.

with management practices in the University of California's Natural Reserve System (NRS). It may be proposed for inclusion in the NRS in order to make its valuable resources available to the larger research community. (At present, there is no NRS site in the San Joaquin Valley.)

The Surrounding Community

Agriculture is the economic mainstay of Merced and most other communities in the San Joaquin Valley. Unemployment rates in the region's counties typically range from about 12 percent to 17 percent, with seasonal variations tied to agricultural harvests. Currently, the city of Merced ranks top (331st out of 331) in unemployment among U.S. municipalities, according to the U.S. Bureau of Labor Statistics. On the other hand, Merced County is one of the richest centers of agricultural production in the world. In 2000, its crop revenues exceeded $1.5 billion.

The Panel's Assignment

The panel was asked to assess the effectiveness of the UC Merced long-range development plan (LRDP) in—and to make recommendations for—achieving the university's vision and goals for the campus and the associated University Community. The UC regents and the UC Merced chancellor have established the following vision and goals for the campus and the University Community:

1. Capture the wonder and majesty of the University of California by

- providing a sense of place;
- making the substance, quality, and character of the university evident and pervasive;
- providing a setting that through its beauty and ambience promotes a contemplative spirit and the intellectual growth of students and faculty; and
- attracting top-quality faculty, staff, and students.

2. Embody principles and practices of the 21st century, including

- incorporating state-of-the-art technology for student-support services, faculty research and teaching, and administrative efficiency;
- integrating technology with Web and wireless services to enhance access to information and the flexibility of information resources;
- providing easy access to global business, research, and information networks;
- developing throughout the Central Valley off-campus sites that offer an array of educational and career development services for K-12 students, college-age students, and young professionals;

- ensuring ease of interaction among faculty, staff, and students in a pedestrian-oriented, environmentally responsible campus; and
- promoting a sense of safety and security without physical fortifications.

3. Invite and welcome the young people of the Central Valley and from throughout California by

- being accessible and welcoming to all;
- celebrating diversity, mutual understanding, and respect;
- providing support facilities and services that are responsive to a diverse population;
- promoting knowledge and understanding of differing cultures and global perspectives, in the classroom as well as in extracurricular activities; and
- highlighting drama, visual arts, and music as mechanisms that speak to all students.

4. Relate to the Central Valley setting by

- creating a campus architecture that responds to regional and local climate conditions and promotes maximum outdoor activity;
- using design principles, materials, colors, and shapes and forms in the campus buildings that reflect and enhance the natural features of the valley and foothills; and
- developing patterns of land use that respect the land, water, and natural resources of the site.

5. Remain sensitive to the environment and achieve a high level of resource conservation and environmental preservation by

- making the campus and community a model for energy-efficiency and water management;
- developing to minimize the need and demand for automobile use;
- featuring local and renewable resources whenever feasible;
- building waste minimization and recycling into the infrastructure;
- making education on sound environmental practices part of the classroom and extracurricular message; and
- adopting environmental education as a design objective.

Key Issues

Economic Diversification

Over the past 50 years, UC campuses collectively have had a major impact on the economies and growth of many regions in the state. They have played an important role in growth patterns, economic development, and educational access in the state.

A variety of the state's key industries—such as computer technology, biotechnology, telecommunications, and aerospace—have made use of the intellectual capital and technology transfer afforded by nearby UC campuses to come to maturity. The agriculturally oriented San Joaquin Valley does not have the kind of diversified industrial base found in coastal California.

It is envisioned that the new Merced campus will play an important long-term role in providing intellectual capital to launch new diversified industries in the region.

Growth Management

Accommodating the increase in population that is anticipated over the next two decades will challenge growth policies for every county and municipality in the San Joaquin Valley.

The region contains vital natural resources, including the seasonal wetlands that provide habitat for many of California's native plant and wildlife species. As one of the world's most productive agricultural areas, the San Joaquin Valley contains much agricultural land that is worthy of protection from development.

The UC Merced project presents an opportunity for a creative, long-term planning effort that provides for economic growth and population increase while preventing urban sprawl and conserving important natural resources and farmland.

University Community land use diagram.

A Seamless Border

The successful integration of the new campus with the surrounding community and its ability to function as part of that community are important goals for the university. UC Merced will depend on the community for services, supplies, and students. However, the development of the campus and the growth that will come in its wake may be disturbing to the Merced community.

The development challenge is to create a special place that appeals to students, faculty, staff, and the community at large. This special place should

benefit UC Merced and the University Community both economically and culturally.

The campus will attract new industries and special services that will increase demand for residential development. The need to establish a successful university/community relationship provides an opportunity to develop a setting that is inviting and affordable to current residents of Merced while it also accommodates a new population associated with the university.

Environmental Impacts and Mitigation

The site of the proposed UC campus is in a transition area between prime agricultural land on the valley floor and the Sierra Nevada foothills. Two significant natural resources are present—wetlands (primarily vernal pools) and endangered species (primarily the federally listed fairy shrimp). Also, possible migration corridors for the federally listed San Joaquin kit fox cross areas near the site. These resources are protected under various federal and state environmental laws.

Construction of the UC campus and University Community will eliminate approximately 100 acres of wetlands and associated vernal pool habitat, and thus require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. In order to issue the permit, the Corps must determine that the site of the proposed campus and University Community represents the least environmentally damaging practicable alternative (LEDPA). The LEDPA process involves an analysis of project alternatives that takes into account "cost, logistics, and technology" in light of overall project purposes.

While the Corps administers the 404 program, the U.S. Environmental Protection Agency (EPA) oversees it and may veto permits issued by the Corps. The regional office of EPA can "elevate" its objections to the proposed issuance of a Corps permit to headquarters in Washington, D.C.

Because this project may affect endangered species, the Corps must obtain a determination from the U.S. Fish and Wildlife Service (FWS) that the proposed campus and community will not jeopardize the continued existence of impacted species.

Top: The site of the future University Community is currently in agricultural use. Above: Merced County planning director Robert E. Smith leads the panel on a tour of vernal pool habitat areas. Left: Panelists Jim Goldasich (left) and Jim Meadows conducting an interview.

The initial concerns raised by the Corps and the FWS convinced the university and Merced County to relocate the proposed campus site to the southwest corner of the Virginia Smith Trust property and to relocate the University Community off the Virginia Smith Trust property to the south of the campus. These changes reduce the project's total impact on vernal pool habitat and

transfer some of the impacts of the University Community onto agricultural land.

The university and Merced County, with the assistance of the state of California, have established a regional conservation and mitigation program to protect natural resources in the vicinity of the UC campus and University Community. To date, approximately 25,000 acres of land containing sensitive habitat have been acquired for preservation.

Summary of Findings and Recommendations

The University of California wants to build a great university at Merced in the San Joaquin Valley. Although this undertaking of necessity will start small, the tone and pattern of greatness should be set from the beginning. UC Merced must be distinctive and intellectually prominent, and it must reflect the environment of the San Joaquin Valley. The campus must be woven together with the University Community (the planned-community component of this project) and the San Joaquin Valley community to make a seamless fabric of town and campus connection.

The panel's key findings and recommendations for addressing this vision were arrived at after five days of tours, interviews, and analysis and they are summarized here.

Master Planning

Plan the campus and the University Community as a whole. Do not plan them individually. These two components should be connected with a north/south transportation corridor running from Lake Yosemite to the southernmost border of the University Community.

Have the campus embrace Lake Yosemite, which should be brought to life by improving the park, adding an open-air amphitheater, and designating the lake as the northern terminus of the master plan.

Carefully plan the main north/south street that connects the campus and the University Community as a town center—the center of campus life, the place where people want to be because it is interesting and fun. To enhance the town center ambience, relocate one of the irrigation canals to bring water down the middle of the main street. The main street should transition from campus-serving uses to community-serving uses as it goes from north to south.

To serve expected demand, plan for retail and other commercial development outside the town center as well. A well-designed and pedestrian-friendly shopping center at Bellevue and Lake Road would be one good example. A research and development park could also be planned for this location.

Entry and Arrival

Design and build an appropriate entry statement and create a sense of arrival for the campus. Create the campus's identity—the destination that will define the place for generations to come. Create the icon on the campus—a place, structure, or feature that will be the campus's trademark, the place to meet, the postcard photo scene of the campus.

On-Campus Housing

Focus on campus housing early in the program. The potential housing shortage in the Merced area is such that the number of student housing units should be double or triple what has been proposed for early in the program. Student housing should be built at a higher density than has been proposed as well. Add a retail component in the student housing area to give it the feel of a small main street and to provide a gathering

Clifford W. Graves, vice chancellor for physical planning, UC Merced, briefs the panel on the first day.

Above: UC Merced chancellor Carol Tomlinson-Keasey (left) discusses university policies with panelists George de Guardiola and Paula Konikoff. Right: Panel chair Gadi Kaufmann (right) tours downtown Merced with panelists Nikolai Sklaroff (left) and James Goldasich.

place. Provide rental housing for faculty and staff in the early phases as well, perhaps located initially in the same area as student housing, to be relocated later as needs dictate. Start the development of for sale faculty housing as early as is practical.

Sustainability

Incorporate sustainability from the very beginning of the project. Given the environmental controversy that has troubled this project, this is important. The UC Merced LRDP (long-range development plan) notes that sustainable practices cannot be viewed as expendable add-ons to the development of this campus. Sustainability must be a core value in the development from the very start.

A great opportunity is involved. The world will be watching how this campus uses sustainable practices as it is developed and how those sustainable practices improve its performance. The successful incorporation of sustainable features will strongly enhance the reputation of UC Merced. The failure to develop sustainably will have the reverse effect.

University Community

Consider the campus and the University Community as a single planning unit in planning for the off-campus component. The need for both student housing and faculty housing is great, and sites both on and off campus will be needed.

For now there does not appear to be any advantage for the campus and the University Community to be annexed by the city of Merced. If this situation changes, the annexation option remains open. The university should strive to maintain control of most of the buildings—including housing—on the campus and in the University Community.

Development Potential

The city and county within which UC Merced will begin operations in the first decade of the 21st century are expected to experience substantial socioeconomic changes. The county's long-established agricultural economy will continue to be important with or without the presence of the proposed university.

Economy and Housing

Merced County grew by 25,000 people in the 1990s. According to a March 2000 county report prepared by Economic & Planning Systems (EPS), *Merced County University Community Plan*, the county's population will grow by 2,800 per year from 2000 to 2010, reaching more than 231,000 by 2010 from 203,000 in 2000. (This projection does not take into account the population impact of the new university.) Contributing to this continued growth are job relocations to the San Joaquin Valley, retail and service jobs that result from increases in population, and local demographics, including, for example, large family sizes . Most of the expected population growth will be captured by the city of Merced, which numbered 65,000 in 2000.

Low-paying jobs and persistently weak job creation challenge the valley region. The unemployment rate in the city of Merced is among the highest in the United States, ranging from 12 to 17 percent. Fluctuations in unemployment follow the seasonality of agricultural employment. Low incomes reflect the nature of the agricultural economy.

A historically low level of housing permits makes meeting the housing demands of a growing population difficult. Vacancies for both single-family and multifamily housing are low and provide no cushion for the absorption of growth. Building permits in the city reached 400 to 500 units per year in the late 1990s, but in most years permits are in the range of 200 to 300. A combination of high impact fees and low market rents renders the construction of multifamily housing economically infeasible.

According to the EPS report, the amount of vacant and developable residential land in Merced County is sufficient to meet the university's future housing requirements. In the panel's view, although the proposed University Community provides a development opportunity and has the potential to accommodate the university's housing needs, meeting the university's need for multifamily housing will require a special effort.

University's Impact

The new university will provide the impetus for economic, demographic, and cultural change in the region. Its emphasis on technology is expected to bring in the kind of jobs now seen in Silicon Valley and the Sacramento area. The university's enrichment of the community's cultural environment will enhance the quality of life for all Merced residents.

The new university and the associated University Community will potentially promote economic development and complement development in the nearby cities and county. While the proposed University Community will meet basic local retail

Panelist Robert Gardner at a panel interview.

Figure 5
Potential Development Generated by UC Merced and the University Community, by User and Location

	UC Merced Campus		University Community			Other (Merced County)		
	Housing Units	Retail Square Footage	Housing Units	Retail Square Footage	Commercial Square Footage	Housing Units	Retail Square Footage	Commercial Square Footage
Scenario 1: Indirect Employment Equals Campus Employment								
Students	3,125	10,400	1,875	6,250	–	625	2,083	–
Faculty/Staff	450	31,240	2,300	34,500	650,000	2,300	149,500	
Indirect Employment	–	–	2,300	34,500	650,000	2,300	149,500	2,000,000
Other Residents	–	–	5,125	76,875	–	–	–	–
Total	**3,575**	**41,640**	**11,600**	**152,125**	**1,300,000**	**5,225**	**301,083**	**2,000,000**
Scenario 2: Indirect Employment Is Twice Campus Employment								
Students	3,125	10,400	1,875	6,250	–	625	2,083	–
Faculty/Staff	450	31,240	2,300	34,500	650,000	2,300	149,500	
Indirect Employment	–	–	4,600	69,000	650,000	4,600	299,000	4,000,000
Other Residents	–	–	5,125	76,875	–	–	–	–
Total	**3,575**	**41,640**	**13,600**	**186,625**	**1,300,000**	**7,525**	**450,583**	**4,000,000**

Sources: Economic & Planning Systems; and Robert Charles Lesser & Co.

needs and over time will evolve a town center offering restaurants and other retail amenities, specialty retailing, and services, the retail buying power within the University Community will mostly benefit the city of Merced, where a wider array of community and regional retail opportunities already exists.

Some 200 acres of commercial uses that will be required by UC Merced–related growth will be located outside the University Community. This commercial growth, which will occur within Merced County, represents an important economic development opportunity for the county. The successful development and spin-off of university-supported incubator businesses are another potential source of economic development in the greater community. The potential for development generated by the university and University Community is quantified in figure 5.

Land Use Demand

Housing in the Initial Years

The new university will generate a substantial and consistent demand for new housing throughout the development period (see figure 6). Once the university begins operating, the annual number of building permits in the city of Merced will considerably outpace the modest levels recorded during the 1990s.

During the first year of campus operations, 1,000 new students and 400 faculty and staff members will require housing. While as many as 20 percent of the students will commute from current housing, the remaining 80 percent will require housing on campus or in the community. Current plans for on-campus housing call for providing 456 beds in year one, with the flexibility to accommodate a total of 592, and an additional 400 beds in year two when enrollment will reach 2,100. The planned number of beds appears to fall short of potential student demand. With nearly no vacancies, the local apartment market cannot be considered a viable alternative for students.

The plans for on-campus housing in the initial years of operation appear to fall short by 200 to 300 beds for the first year and by progressively more beds in the following years. Housing shortages could have unintended results. For example, the unavailability of housing may cause potential students to decide to attend other schools. The university should consider adopting more ambitious on-campus housing plans to accommodate the projected student enrollment.

Faculty and other university staff will number 400 in the first year of operation. The fact that the city of Merced's best building permit years of the 1990s saw only 400 to 500 units constructed suggests that the university may not be able to rely on the local building industry to respond adequately. The initial housing development plans prepared by the university do not accommodate faculty or staff on campus. Because the local homebuilding industry will likely not be able to

Figure 6
Housing Demand Projections

	Year 1	Year 2	Year 3	Year 4	Year 5	Buildout
Demand Sources						
Enrollment	1,000	2,100	2,900	4,200	5,500	25,000
Campus Employment						
Faculty	80	140	220	300	400	1,420
Staff	320	560	880	1,200	1,570	4,828
Total Direct Employment	400	700	1,100	1,500	1,970	6,248
Indirect Employment	660	1,120	1,540	1,950	2,266	6,248
Total Employment, Direct and Indirect	1,060	1,820	2,640	3,450	4,236	12,496
Demand Potential (units)						
Student Housing						
On-Campus Multifamily	650	1,365	1,885	2,730	3,57;5	12,500
Off-Campus Multifamily	150	315	435	630	825	7,500
Commuters	200	420	580	840	1,100	5,000
Total Student Housing	1,000	2,100	2,900	4,200	5,500	25,000
Campus Employee Housing						
On-Campus Faculty Housing[1]	26	45	70	96	128	454
Off-Campus Multifamily Housing	206	353	511	666	815	2,386
Off-Campus Single-Family Housing	617	1,058	1,532	1,998	2,445	7,157
Total Campus Employee Housing	848	1,456	2,112	2,760	3,388	9,997
Housing in University Community (units)						
Multifamily Housing	243	432	619	824	1,021	4,261
Single-Family Housing	617	1,058	1,532	1,998	2,445	7,157
Total University Community Housing	860	1,490	2,151	2,822	3,467	11,418
Annual Change	860	630	661	671	645	–
Demand Potential (acres)						
Student Housing						
On-Campus Multifamily[2]	8.1	17.1	23.6	34.1	44.7	156.3
Off-Campus Multifamily[2]	1.9	3.9	5.4	7.9	10.3	93.8
Campus Employee Housing						
On-Campus Faculty Housing[3]	4.3	7.5	11.7	16.0	21.3	75.7
Off-Campus Multifamily Housing[4]	10.3	17;.6	25.5	33.3	40.8	119.3
Off-Campus Single-Family Housing[5]	123.3	211.7	306.3	399.6	489.1	1,431.4
Housing in University Community (acres)						
Multifamily Housing	12.2	21.6	31.0	41.2	51.1	213.0
Single-Family Housing	123.3	211.7	306.3	399.6	489.1	1,431.4
Total University Community Housing	135.5	233.2	337.3	440.8	540.1	1,644.5
Annual Change	135.5	97.8	104.0	103.5	99.4	–
University-Generated Housing Demand in University Community[6]						
Units	344	596	860	1,129	1,387	4,567
Acres	54.2	93.3	134.9	176.3	216.1	657.8

[1] Assuming 33 percent of faculty will be housed on campus.
[2] At 80 beds per acre.
[3] At six units per acre.
[4] At 20 units per acre.
[5] At five units per acre.
[6] Assuming the University Community will capture 40 percent of the housing demand generated by the university.
Sources: Economic & Planning Systems; Sedway Group; and Robert Charles Lesser & Co.

meet the initial spike in housing demand, the university may need to include a much greater level of early housing construction in its planning. The employees who will make the new campus operational must be adequately housed.

Over the first five years, an estimated 1,100 housing units for students (at four students per unit) and 2,000 units for faculty and staff will need to be constructed. Indirect employment—the jobs and households that are created by the local economic activities of the university and the university's students, faculty, and staff—will create additional housing demand. Indirect employment will begin to materialize in earnest in one to two years, reaching 660 jobs in just one year.

Housing at Buildout

The UC Merced LRDP calls for 50 percent of students to be housed on campus. At this level, with a student enrollment of 25,000 at buildout, 12,500 students would live on campus. Assuming a residential suites arrangement (20 suites per acre and four students per suite for a population density of 80 students per acre), 156 acres will be needed for student housing on campus. The university's programming for the campus identifies 250 acres for this purpose, which certainly is adequate. This gives the university the flexibility to provide more on-campus housing should more students than expected prefer campus living or should commuters constitute a lower-than-expected percentage of total enrollment.

The university's programming for the campus allocates 90 acres for faculty housing. Assuming an average density of eight units per acre, 720 faculty households could reside on campus, representing 51 percent of the total faculty. The university may want to consider allocating more land to accommodate more faculty households, as this would create revenue opportunities for the university and provide potential savings to faculty members. This possibility is discussed further in the implementation strategies section of this report.

The plan for the 2,000-acre University Community earmarks more than 1,700 gross acres for residential uses. In theory, this plan purportedly provides for all the residential demand generated by the university—students preferring nearby off-campus accommodations, faculty not accommodated on campus, nonfaculty staff, and spin-off jobholders. However, the University Community falls just short of being able to house all UC Merced-generated demand. Projected demand at buildout approaches 14,000 dwelling units. Assuming that faculty and staff demand is 75 percent single-family and 25 percent multifamily, and that average densities are five units per acre for single-family housing and 20 units per acre for multifamily housing, this level of demand requires about 2,000 gross acres.

But not all the UC Merced–generated housing demand is likely to choose to locate in the adjoining University Community. The panel assumes that 40 percent of the UC Merced-generated demand will be met in the University Community. Given the complexity of household residential decision making and the likelihood of alternative choices in the area, 40 percent seems a likely expectation of capture. Accordingly, the university will generate demand for about 5,000 of the 11,600 units proposed for development in the University Community.

From a planning perspective, 1,000 new students generate demand on campus for 500 to 600 beds or 125 to 200 multifamily units, and they are served by 60 faculty members of which 20 can live on campus. Each addition of 1,000 students generates a total demand for 560 off-campus residential units requiring roughly 80 acres of land. The University Community captures 40 percent of this demand—or 225 units and 32 acres.

The panel concludes that the university will have to be an active participant in ensuring the availability of adequate housing for students, faculty, and staff. It will have to plan extensively to ensure that supplies and labor are secured and existing in-town housing is located and rented.

Commercial Uses

UC Merced will indirectly add jobs to the community (see figure 7). Communications firms and restaurants, for example, will arrive or expand to serve university students and staff. The indirect employment generated by the university will bring substantial economic benefits to the county.

Figure 7
Commercial Demand Projectionss

	Year 1	Year 2	Year 3	Year 4	Year 5	Buildout
UC Merced Employment	400	700	1,100	1,500	1,970	6,248
Indirect Impacts						
Jobs						
Industrial	46	78	107	136	158	460
Office/R&D	209	355	488	617	717	2,728
Retail	104	237	326	413	479	1,885
Other	265	450	619	784	911	1,175
Total Jobs	660	1,120	1,540	1,950	2,266	6,248
Building Square Footage						
Industrial	41,315	70,110	96,401	122,066	141,815	413,630
Office/R&D	73,141	124,118	170,662	216,098	251,061	954,931
Retail	55,873	94,814	130,370	165,079	191,788	754,011
Total Space	170,328	289,042	397,432	503,242	584,664	2,122,573
Land (acres)						
Industrial	3.8	6.4	8.9	11.2	13.0	38.0
Office/R&D	6.7	11.4	15.7	19.8	23.1	87.7
Retail	5.1	8.7	12.0	15.2	17.6	69.2
Total Land	15.6	26.5	36.5	46.2	53.7	194.9

Sources: Economic & Planning Systems; and Robert Charles Lesser & Co.

The EPS (Economic & Planning Systems) report of March 2000 suggests an indirect employment impact of 1.6 additional jobs in the county per university employee and an impact of about 1.0 additional jobs per employee as the university approaches buildout. (The indirect employment multiplier of the university is actually higher than this when effects outside the county, where many university purchases of goods and services occur, are included in the calculation.) As the university matures and incubator R&D efforts begin to flourish, its indirect employment multiplier is likely to increase.

Total indirect employment is less than 1,000 in the initial years of operation and reaches 6,200 at buildout. Distributed among the industrial, office, and retail sectors, these jobs will use more than 2.1 million square feet of space on nearly 200 acres of land. In effect, each 1,000 students generates 250 indirect jobs, creating demand for eight acres of land and 85,000 square feet of commercial space.

The current plan designates 52 acres on the university campus for business park use and to provide incubator business space for university faculty. With more than 125 acres needed to accommodate the industrial and office jobs indirectly generated by UC Merced, 52 acres—some of which is to be used for university incubators—will not be adequate to meet demand. Local jurisdictions will thus benefit from the commercial land demand generated by the university. They will also benefit from the jobs, many of which can probably be filled with retrained, currently low-skilled workers. These pending employment opportunities should persuade local jurisdictions to continue and restructure their job-training programs.

The University Community does not currently have a land use allocation for hospitality uses. As

Figure 8
Retail Demand Projections

	Year 1	Year 2	Year 3	Year 4	Year 5	Buildout
Students						
Number	1,000	2,100	2,900	4,200	5,500	25,000
Annual Spending[1]	$1,000,000	$2,100,000	$2,900,000	$4,200,000	$5,500,000	$25,000,000
Retail Square Footage	3,333	7,000	9,667	14,000	18,333	83,333
Campus Employees						
Number	400	700	1,100	1,500	1,970	6,248
Annual Spending[2]	$600,000	$1,050,000	$1,650,000	$2,250,000	$2,955,000	$9,372,000
Retail Square Footage	2,000	3,500	5,500	7,500	9,950	31,240
University Community						
Population	848	1,456	2,112	2,760	3,388	24,992
Neighborhood Retail (square feet)	8,480	14,560	21,120	27,600	33,884	249,920
Higher-Quality Retail (square feet)	4,240	7,280	10,560	13,800	16,942	124,960
Total Retail Square Footage	12,720	21,840	31,680	41,400	50,826	374,880
All Sources of Demand						
Total Retail Square Footage	18,053	32,340	46,847	62,900	79,009	489,453
Total Acreage	1.7	3.0	4.3	5.8	7.3	44.9

[1] At $1,000 per student.
[2] At $1,500 per employee.
Sources: Sedway Group; and Robert Charles Lesser & Co.

the university and community mature, demand for an economy hotel, such as Marriott's Residence Inn or Holiday Inn Express, will emerge.

Retail Uses

The retail demand generated by the on-campus population—students, faculty and staff—will require only 60,000 to 80,000 square feet of space. Restaurants (primarily fast food) and various convenience items and services will make up the on-campus retail mix. A campus retail area could become a central meeting place and attract various student activities and services, including the university bookstore.

The major source of demand for retail uses currently programmed for the university development is the University Community. If there are 10,000 to 11,000 dwelling units at the University Community and 2.5 to 2.75 persons per household, the population at buildout will be about 25,000 to 30,000. This population could support three neighborhood shopping centers of about ten acres each. A typical neighborhood center anchored by a supermarket and drugstore and providing convenience retail goods and services covers ten acres and requires a population of about 10,000.

The first neighborhood shopping center should be in place after the student enrollment reaches about 5,000. This assumes that the University Community will have about 10,000 residents at that time.

Given the university's location in relation to Merced, region-serving and big-box retailing would be inappropriate at the University Community, but this location offers opportunities for up to 150,000 square feet of upscale retail, including restaurants and some specialty stores (books, jewelry) that would evolve over time in response to the size of the community, its demographics, and the distance to competing retailing locations.

This higher-quality retail could emerge in the form of a town center that would be able to capture some of the retailing demands of the on-

campus population as well as residents of the University Community wanting an attractive, local-serving, pedestrian-oriented retailing environment.

Retail demand from both the campus and the University Community adds up to about 500,000 square feet of space. The proposed plan envisions an excessive amount—716,000 square feet—of retail space.

Implications of an Accelerated Enrollment Schedule

The current plan is to open the university with 1,000 students and increase enrollment by 1,000 students per year. Were the university to choose to double its enrollment schedule—2,000 students in year one and 2,000 new students in each subsequent year—more than 10,000 students would be enrolled after five years and the maximum enrollment would be attained between years 12 and 13.

The land use demands associated with a doubling of the enrollment schedule would be dramatic and would require a sizable undertaking by any master-planned community. Residential demand —from students, faculty, and indirect employment —would amount to 1,100 acres after five years and require the construction of 1,000 to 1,600 housing units per year. The initial neighborhood center would have to be phased in at the end of year two, followed by the second neighborhood center three years later.

Planning and Design

The preparations for the development of a Merced campus and an associated planned community have already encompassed a significant amount of high-quality planning and design work. The panel has reviewed existing plans and offers some refinements to the campus plan and planning for related development areas.

The panel examines specific elements of the existing plan and identifies key areas for protection as the design is implemented. It makes a set of recommendations that will help ensure increased accessibility to and utility of the site, while improving environmental protection and enhancing sustainability.

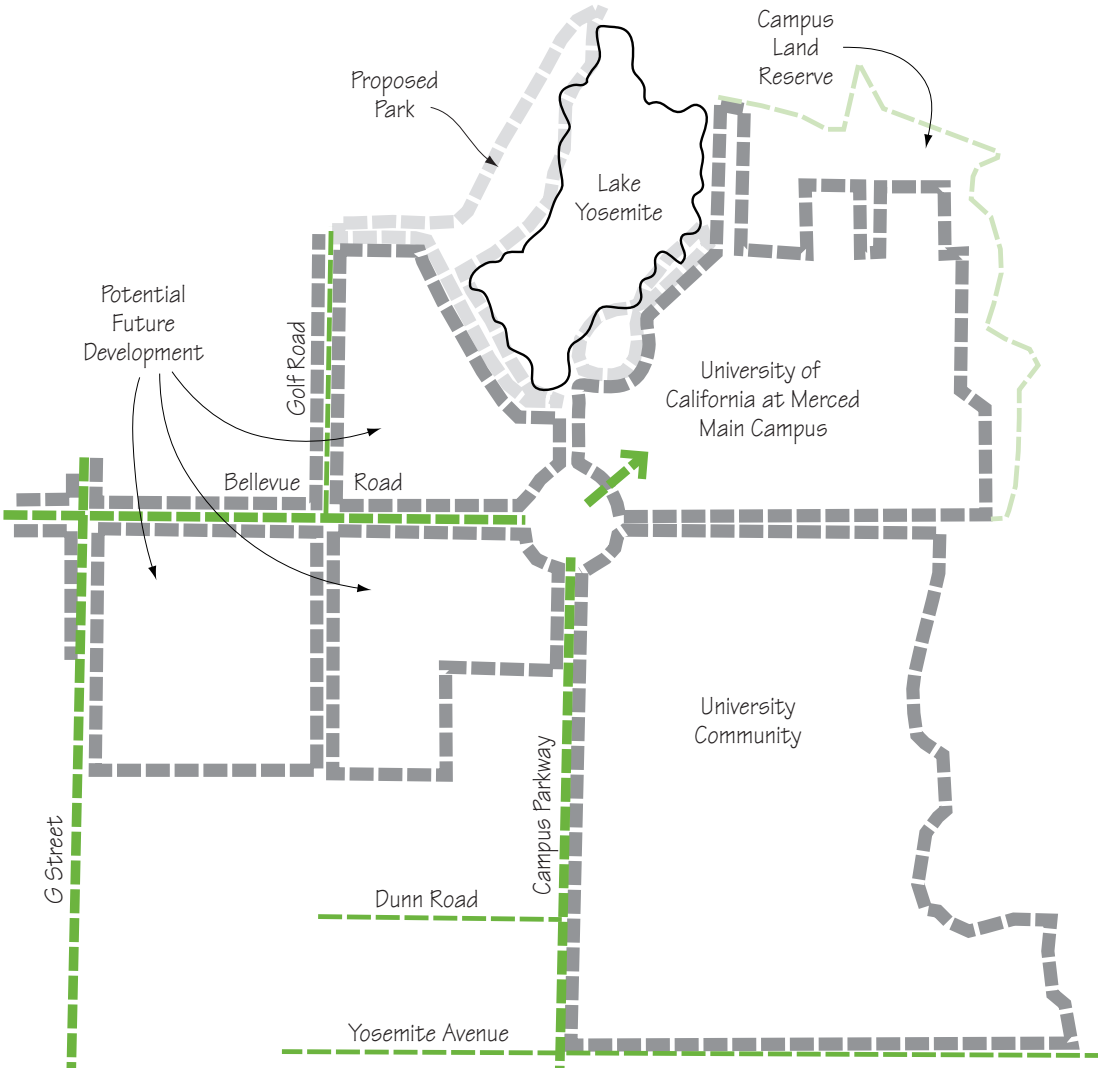
Key Elements of the Current Plans

Many hours and much expertise have been devoted to planning an up-to-date and sustainable university community for the Merced site. Many of the design elements incorporated in the existing plan for the campus are important to emphasize. These key elements include the following:

- Development is oriented to take advantage of the site's environmental features. For example, the streets are oriented to make good use of the cool prevailing winds from the northwest across the lake. For another example, land use planning acknowledges the transition from urban to rural uses at the eastern edge of the site adjoining the reserve land.
- Campus densities are consistent with the goal of creating a pedestrian-oriented environment. As the influence of the campus grows, development densities in surrounding areas will become an issue. The county and city will have to work together to minimize sprawl and encourage infill and redevelopment to accommodate the growth that is surely coming.
- Uses are arranged to respect and be compatible with existing development.
- The street grid is arranged to be easily understood by first-time users and to offer high-quality views to the lake and easy access by foot to the lake. Some improvements are possible that may enable development to take advantage of other significant viewsheds.
- The drainage and irrigation canals are integrated effectively into the plan so that they become aesthetic as well as functional (water supply and flood protection) elements. (The panel suggests incorporating additional water features in the site design.)
- The need to drive is minimized and pedestrian access and travel are promoted. The plan's goal of limiting vehicular traffic on the campus needs to be continually attended to and enforced.
- The concept of designing for sustainability is considered imperative for a 21st-century university. As development takes place, the university must ensure that sustainability is a strong element in the design of the buildings as well as in the land plan.
- Heavy landscaping is planned and shade trees are used as a unifying element and a component of sustainable design. The panel notes that soil conditions may make maintaining plant materials difficult. Proper plant selection, installation, and maintenance will be the key to the long-term health of the landscaping.

In the plan that was developed by the county's planning consultant for the University Community property, the concept for the design of neighborhood cores is, the panel believes, effective. This concept should be (strengthened and) included as a standard neighborhood precinct design governing the development of the University Community property.

UC Merced constitutes a major commitment to bring investment in facilities and infrastructure,



Schematic regional plan.

jobs, and new residents to the region and its development will strongly influence the future of the region. Local jurisdictions have an interest in seeing that development generated by the campus moves south and west in a controlled manner.

LRDP Modifications

The panel recommends the following modifications to the current long-range development plan (LRDP) for the campus.

To Create a Sense of Arrival

First impressions of the campus will create an image of the quality of the campus for prospective students, parents, faculty, and visitors. Elements to create an image of high quality should be in place from the first day of the university's operations. To help provide this image, the following changes should be made in the Phase 1 construction plan:

- Relocate the main entrance to the corner of Bellevue Road and Lake Road. (And establish this as the permanent main entrance to the campus.)
- Relocate or substantially screen parking and tennis courts, so that automobiles do not dominate people's first experience of the campus.

A parkway provides a graceful and memorable entrance to Washington University in St. Louis, Missouri. The panel envisions a similar approach to the UC Merced campus.

- Assure a sense of visual connection between the Phase 1 buildings and the to-be-developed portions of the campus as future phases are developed.

To Improve the Gateway

People will begin to form their first impressions of UC Merced as they approach Merced on Route 99, so signage on the highway will play a role. Impressions will become more formed at the intersection of Route 99 and the Campus Parkway, and landscaping and additional signage at this location are important. The Campus Parkway should have limited access and be well lighted and designed with appropriate geometry. Obtrusive or commercial functions should be screened from view.

The campus gateway or primary entrance should be exciting, simple, inviting, and well landscaped. Signs should be unpretentious and reflect the character of both the campus and community. The campus's native landscaping and canals should be visible from the entrance, with buildings kept low to reveal grassy plains in the background. A feature—a building, a focal point, or an icon—should direct movement. Obvious signage should direct people to the admissions office and visitors parking and minimal signage should direct them to campus precincts.

To Strengthen the Main Street

The LRDP identifies the campus main street as the social heart of UC Merced, the primary meeting place for students, faculty, and visitors. Many student-support services—for example the student center, social clubs, and student bookstore—will be located on the main street. The campus main street will be developed in later phases of the UC Merced project, so there is time to carefully explore the design possibilities. The panel's recommendations for the campus main street include the following:

- At the intersection of the campus main street and the main campus road, erect an icon structure or sculpture that is visible from the main entrance.
- Modify the street's orientation to take advantage of views and provide access to Lake Yosemite.
- Introduce a strong water element. Relocate an irrigation canal to run along the main street or, if that is not feasible, design a water feature that looks like a canal. Include a strong interpretive element with the canal (or its look-alike) to celebrate the historic and economic importance of irrigation and imported water to the Merced region. The water element should not be allowed to divide the two sides of the main street. Rather, its design should promote interaction across the street.
- Landscape the street with a dense tree canopy to make it resemble the city of Merced's tree-lined boulevards.
- Explore opportunities for mixing uses—for example, putting housing or classrooms above ground-floor student- and faculty-support services.
- Increase the allowable building height along the main street to promote a greater density of activity.
- Locate recreational activity anchors at both ends of the street.
- Relocate some of the athletic fields away from the main street. Doing so will add to the appeal of the academic core and the main street. Some of the fields can be relocated to important nodes of pedestrian activity.

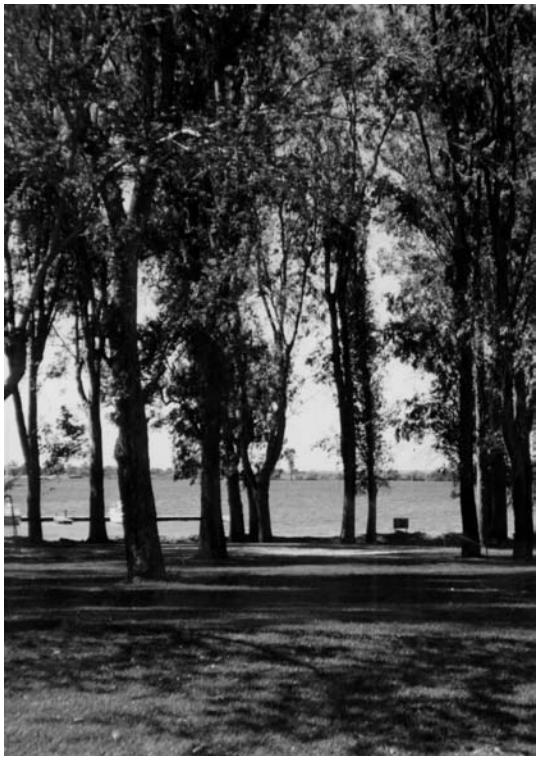
To Integrate the Campus and the University Community

The university seeks a seamless integration of the campus with the University Community to the south. To achieve this important goal, a number of land use planning and design steps are recommended:

- Orient the campus main street to provide the opportunity for its unique character to continue south into the University Community.
- Locate the sports stadium and cultural and performing arts facilities south of the campus so that they help form a community gathering area that will reinforce the integration of the two communities.
- Locate some campus-related uses—such as student-support services and academic-support facilities—in areas within the University Community, thus contributing energy to those areas in the form of faculty and student activity.
- Lay out and design local roadways to favor the use of an integrated system of public transportation and vehicles other than cars.
- Develop a unified street-lighting plan covering fixture locations, materials, light color and spread, and so forth.
- Develop a way-finding system that is integrated and seamless.
- Prepare integrated access plans covering pedestrian travel, bicycles, parking, service vehicles, emergency vehicles, private vehicles, and public transportation.
- Respect connections—views and access—between the campus town center and the University Community.

To Improve Security

The campus will be a 24-hour community. Streetscapes should be designed to maximize the number of eyes on the street. The most heavily used pedestrian spaces should be easily visible from surrounding structures and spaces. Exterior walls should be transparent and lighted from within or lighted with exterior lighting. Entrances to buildings should be lighted so that they can become a place of refuge. Lighting contrasts should be minimized, spaces appropriately lighted, and dark skies preserved.



The prevailing breezes from the lake, filtered through this shady grove of trees at Lake Yosemite Regional Park, will provide natural air conditioning for the heart of the UC Merced campus.

Entrances to the campus should be well lighted. Security measures including cameras should be used, but should not be too obvious. Obvious security measures signal that there is a security problem, which can make potential applicants uneasy.

To Welcome Visitors

Entrances to the campus should be inviting but not visually pretentious or overpowering. There should be simple, direct routes from origins within the surrounding community to the campus entrances. The absence of traffic congestion is a welcoming feature. There should be a simple, direct route from the entrance to the visitors parking areas in front of the admissions office and the student center.

The campus development program should include facilities for joint campus/community services and functions, such as educational, child-care, recreation, and cultural facilities.

To support high levels of activity in the academic core, ample open space—including plazas, parks, generous sidewalks, and planted areas under shade trees—should be provided. Grade changes should be minimized and where the topography causes problems these should be resolved to assure ease of accessibility for the disabled. Ample streetscape amenities—such as landscaping, shade trees, lighting, and street furniture—should be provided.

In critical locations in the academic core, relatively mature trees should be planted to make an immediate impact. Appropriate climate control devices—shades, windscreens or funnels, air conditioning, and heating—should be provided to mitigate extreme weather conditions in exterior waiting areas.

To Establish Character

Design guidelines should be drawn up to help establish the kind of campus character that will support the recruitment of students and faculty. Campus buildings should be designed by signature architects using carefully constructed architectural and open-space design guidelines. Insistence on design excellence as well as a consistent street grid, landscaping, and lighting should be used to help establish design continuity throughout the campus.

The development goal of sustainability makes durability—300-year life spans—an important design criterion. Buildings should be compact, efficient, and economical. Design and planning should emphasize research, diversity, high technology, and sustainability. The campus should be developed in a compact fashion to conserve land and open space, lower the cost of infrastructure, and promote travel by foot and bicycle.

A brief look at some of the history of campus architecture can help define the issues. In 1200, Oxford, despite its status as one of the most prestigious universities in the world, was losing faculty and students to Cambridge. Considerable research revealed the reason to be that Cambridge with its stone buildings was outclassing Oxford with its brick buildings. Oxford changed to stone and the competition began.

In the United States, some of the early college campuses were designed by some of the country's greatest architects. Joseph-Jacques Ramée designed the first American unified campus at Union College in Schenectady, New York. Thomas Jefferson designed the campus of the University of Virginia. Charles Klauder designed the University of Colorado, the University of Delaware, and Franklin and Marshall College. And Ralph Adams Cram, who is best known for his advocacy of collegiate Gothic architecture, prepared the master plans for Princeton and Rice Universities. Across the country, campuses became icons for their communities and their states.

After World War II, colleges began to hire star architects to design individual buildings. The relationship of buildings to each other and to the site was of secondary importance. The emphasis on individual buildings led college presidents across the country to build whatever they wanted whenever they wanted. Campus design was in turmoil.

UC Merced should set the architectural tone for the campus. The panel offers a number of approaches from which the university might choose:

- *Pick a style to which all buildings must adhere.* There are very few examples of the successful use of this practice. As university programs change, building needs outgrow the styles. At Miami of Ohio, for example, progressively bigger buildings made continuation of the quaint redbrick Georgian architecture problematical. According to a study published in the *Princeton Review*, students consider the most architecturally uniform campuses to be the ugliest campuses, for example the State University of New York at Albany and the Rochester Institute of Technology.
- *Make each building a different style.* Campuses with eclectic architecture are frequently rated ugly too. Some Ivy League schools that have consistently selected signature architects are notable exceptions. Wellesley College is arguably one of the most beautiful campuses in the country despite the adjacency of buildings designed over a period of 100 years by different signature architects.

- *Use heavy landscaping to provide continuity to eclectic architecture*. It is doubtful that design controls can be used to create a successful eclectic campus, but landscaping can be, as is demonstrated at Bowdoin College, Indiana University's Bloomington campus, and Lehigh University. At UC Santa Cruz, heavy forest makes it possible to unify eclectic architecture. The lack of trees on the Merced campus, however, makes this solution unlikely.
- *Allow a limited choice of materials for new construction*. If limited to only red brick or purple brick, for example, architects could design red building, purple buildings, or red and purple buildings. This approach, which has been taken by Grinnell College in Iowa and the University of Missouri, achieves both variety and a sense of continuity.
- *Distinguish between standard and signature buildings*. This approach involves selecting a standard set of materials for use throughout the campus, except in buildings designated in . the campus plan as signature buildings, where nonstandard materials should be used. Signature buildings might include the library, the administration building, the student center, and the performing arts center.
- *Choose a different style for different precincts*. This last approach requires dividing the campus into precincts, which can be determined by location or function, and picking different styles for each. Buildings in each precinct are built in that precinct's style. Continuity is achieved within precincts and variety is achieved across the campus.

To Provide the Right Kind of Performance Space

People commonly assume that performance space can be designed to meet community and campus needs, but in reality state-of-the-art community performance facilities and university performance space have quite different requirements—for lobby size; for front-of-house seating areas, acoustics, and stage designs; and for back-of-house rehearsal rooms, workshops, and storage areas. University performance space should be tailored to meet student needs and community space tailored to meet professional needs. Furthermore, in schemes to combine university and community facilities, scheduling and other conflicts occur over rehearsal spaces, scene shops, union requirements, insurance, and move-in/move-out times.

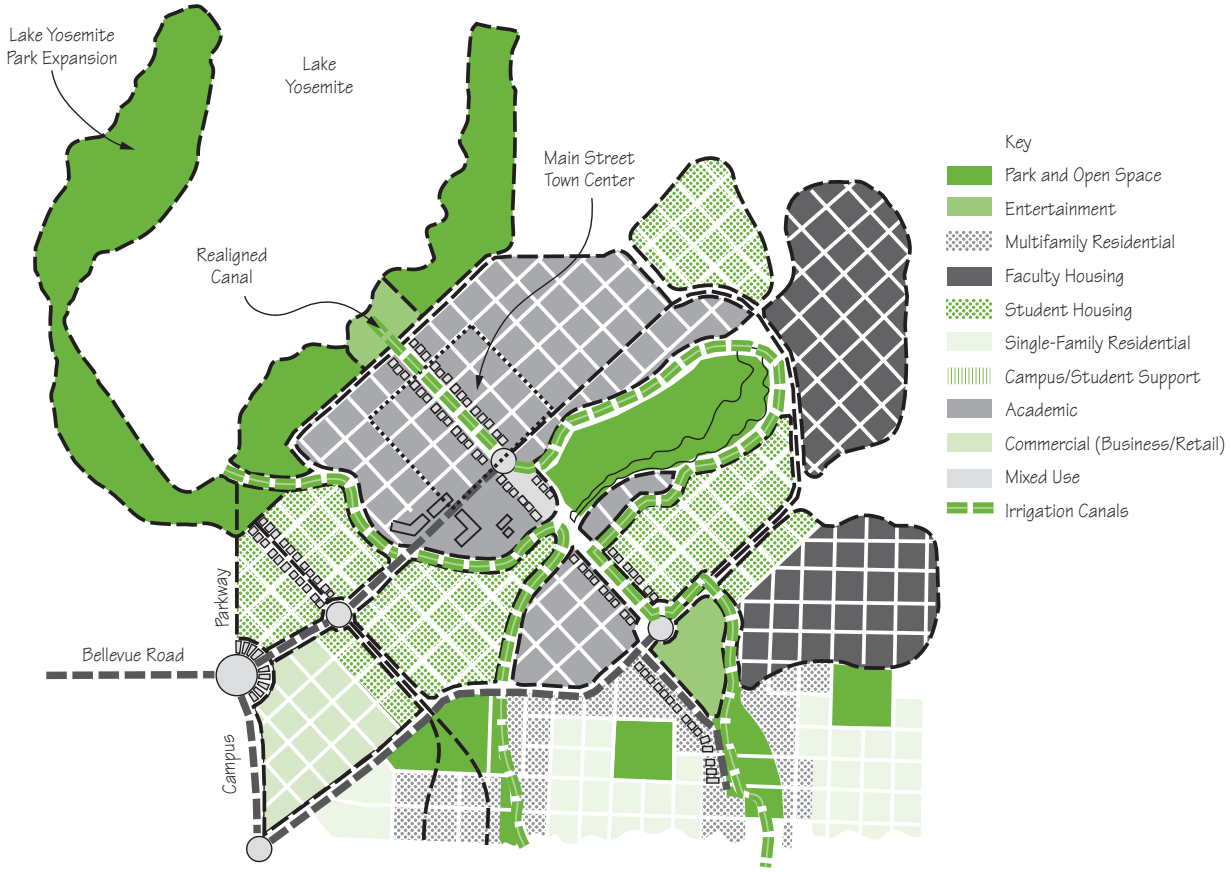
UC Merced should have state-of-the-art facilities designed to the highest standards for student performances. Performances in these facilities will be open to the public and the facilities will be available for community-sponsored performances.

In the meantime, the San Joaquin Valley, which is experiencing unprecedented growth, is underserved by performing arts facilities. The panel recommends that appropriate parties undertake to determine the best regional location(s) for up to three state-of-the-art performance arts facilities—Sacramento, Merced, Fresno, or other communities.

To Connect the Campus with the Region

The panel makes a number of recommendations regarding the Campus Parkway and other transportation elements in the LRDP.

- Route the Campus Parkway directly to the campus and limit access to the parkway and the campus.
- Mark the intersection of the Campus Parkway with Route 99 in a unique and expressive way.
- In order to assure that the roadways and rights-of-way are kept in the best possible condition, vest the state of California or the university with control of the maintenance agreements for the parkway and its entrances.
- Make the parkway rights-of-way wide enough to create a parklike experience.
- Use traffic-calming techniques, such as minimum lane widths, for campus roads in general.
- Use upscale materials such as brick and stone.
- Do not overdesign roads for the automobile.
- In parking areas, avoid broad expanses of asphalt and landscape generously to minimize their negative impacts.
- Create a clear street hierarchy to localize driving and encourage walking and thus reduce



Campus land use diagram.

vehicle use throughout the campus and University Community.

Other Planning and Program Recommendations

The panel makes the following planning and program recommendations for elements not covered in the LRDP.

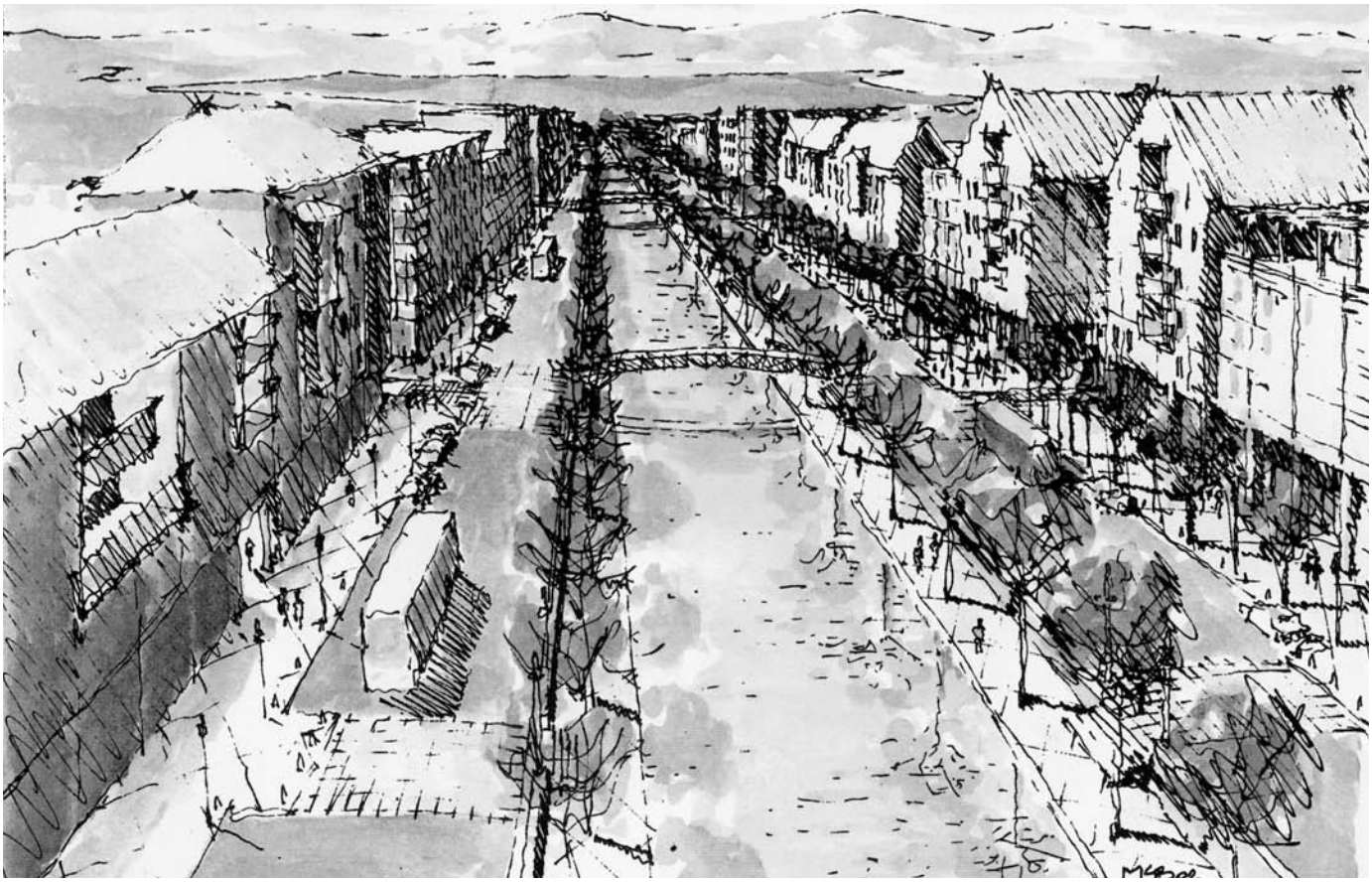
To Create a Memorable Place

All great towns or cities have a memorable place or places, a town square, a fountain, buildings, a ballpark, a public park, a place frequented by visitors and residents. Ghiardelli Square in San Francisco is a good example. University examples include the Campanile at UC Berkeley, the UCLA quad, and the Stanford tower. Great places have in common the ability to assimilate a variety of people of all ages for enjoyment and the celebration of life. A town center, the center of social expression for communities, can be a memorable place.

A town center becomes vibrant through assimilation. The broader the assimilation, the faster the town center will become energized with stores, cafés, restaurants, and public life. The marketing principle that governs the design and development of town centers is to create a sense of place. UC Merced has the opportunity to bring public, private, and university life together during its development activity to deliver a vision of place that will endure and evolve throughout the development of the university and the University Community.

Town Center. The panel recommends developing a town center for UC Merced in several phases, as follows:

- Include minimal retail services in the Phase 1 student housing development. No more than 30,000 to 40,000 square feet will be required. These services can be located in mixed-use buildings on an axis with Lake Yosemite, which would provide a preview of the future and permanent location of the campus main street. Locating retail adjacent to housing will foster the pedestrian orientation sought for the campus.
- Next, develop the campus main street as a location of permanent prominence that is visually and physically connected to Lake Yosemite. In order to create the necessary activity for the campus main street, the university should locate as many services as possible there. The



Town center concept drawing.

campus bookstore, recreation facilities, student union, and other related services will benefit from this setting. Live/work opportunities for faculty and staff will benefit from the adjacency to services. The panel anticipates that between 100,000 to 150,000 square feet of university-related retail and services may be developed along the campus main street.

- Finally develop the town's main street on the south side of Lake Yosemite Park. This mixed-use street would connect to the campus main street with a signature pedestrian bridge across the relocated canal, a bridge that symbolically expresses the partnership of the university and the community. A number of university land uses—such as the performing arts building, athletic facilities, hospitality facilities—should be located at this part of the town center. Together with the critical mass created by the residents of the University Community, such uses would help to support 150,000 to 200,000 square feet of retail, restaurants, and services on the town's main street. National retailers such as Crate and Barrel, Restoration Hardware, and the Gap find such locations appealing. Art galleries, restaurants, cafés, and home-furnishing stores would be drawn by the maturing University Community and nearby neighborhoods.

The panel recommends that all residential neighborhoods and districts be directly connected to the town's main street to encourage walking and cycling. Upon buildout, the town center should form a seamless and undifferentiated destination for the campus, the University Community, and the Merced community. Private as well as university uses may flow from one area to the other and support each other to a large degree.

Three principal design and program elements—connection with Lake Yosemite, the inclusion of outdoor public areas, and the location of

Panelists Doug Betz (left), George de Guardiola, and Steve Noll (seated) prepare a concept for the UC Merced town center.

Two irrigation canals traverse the UC Merced site. These canals can provide open-space amenity value to the campus, as well as development opportunities.

university-related uses north and south on the main street—will stimulate a wide variety of activities and thus help make a vibrant town center. The intersection of the university's entrance road and the north/south main street will serve as the defining and unifying element for the university. Housing and other university uses should be located near here, enhancing and perpetuating the vitality of the main street.

The land use plan must be flexible enough to accommodate the wide variety of land uses that will be attracted to the town center. With time, the town center can be expected to attract, in addition to university uses, prominent corporate headquarters, signature mixed-use buildings, and a variety of housing types.

The retail, restaurant, and entertainment uses initially attracted to the town center must be able to appeal to the general public. The university population alone will not be sufficient support for these uses. The town center's success in assimilating the community will serve as the platform for its growth and identity. A true fusion of the university and community will eventually emerge.

Entertainment District. The panel envisions the emergence of a campus entertainment district featuring sports events, performing arts, and so forth. This district would be designed to be a continuation of the campus town center and to make a connection from the campus community to the University Community. Rather than competing with the city of Merced, such a district would be designed to help maintain the high degree of integration between the campus and the valley community.

Special Events. The market segment that will most influence the ultimate success of the town center will be the population of greater Merced. As the university matures, the students, university employees, and residents of the University Community will play a greater role in the town center's continued success.

To attract the residents of greater Merced, the town center will need attractive public spaces and public events. A simple outdoor stage and theater green (a place for lawn chairs and blankets) would be a good start. Making available an outdoor performance venue for area schools and a venue for other civic events will enhance the university's image and help create a true bond with the surrounding community. Annual signature events will emerge and become the source of great civic and community pride.

The university should forge an alliance with the city of Merced and Merced County to host, program, and supervise special events. During the initial years, these events must be free to the public. Special care needs to be given to the programming of the events. The panel recommends a broad variety, including festivals, concerts, car shows, and theater performances. Events should be attractive to multigenerational audiences. If the events become too focused on a young audience or on seniors, the town center may be deprived of large market segments.

To Provide Community Retail Services

A neighborhood shopping center located at the entrance to the University Community should be

developed during the second phase of development of the university and the University Community. Only one of the three potential neighborhood shopping centers should be developed before the town center along the main street is well established, to avoid limiting its development potential. A major food store, a drugstore, and other community-serving stores will be in demand and they will benefit from a location easily accessed by automobile. Good highway access is also needed for the service vehicles on which such stores depend.

The proposed center could be 150,000 to 200,000 square feet. Its site plan, landscape plan, and architectural style must be compatible with development in the University Community.

To Develop a Successful Business Park

The proposed business park will catalyze economic growth and provide stability for the university. Its location and its architecture should reflect the prominence of the park tenants and the identity of the university. Development of the business park will allow the university to create a long-term relationship with industry and offer industry a place of significance in the community.

The business park needs to be both highly accessible and prominently located. Corporate and R&D tenants must be near the main entrance where they can develop signature buildings that become identified with the university. The initial success of the business park will depend largely on the university's ability to forge relationships with potential tenants, and the ability to provide a desirable location will play a major role in securing these relationships.

The panel believes that the most desirable location for the business park is the southeast corner of Lake and Bellevue Roads at the main entrance to the campus. Signature buildings that symbolize UC Merced's role as a center of research and development can be built at this entrance. Planning should devote a great deal of attention to this gateway that, if properly managed, will create a strong sense of vitality and stability.

The university will have to be proactive to attract the initial tenants to the business park. UC Merced must create a business development group with a mission to attract targeted corporations to Merced. The quality-of-life elements of the university development plan will be important in attracting appropriate users to the business park. UC Merced must convey a strong willingness to partner with industry and to provide the research needed by the targeted tenants. These tenants may fall into three categories: corporate, research and development, and incubator uses.

To Accommodate Housing Demand

The panel's plan incorporates a mix of neighborhoods and districts. Residential neighborhoods are spatially defined; they contain an identifiable center from which a minimum of 80 percent of the housing units can be reached in a five-minute walk; they are usually at a medium to low density. Residential districts are single-use, high-density areas that generally provide the most affordable housing. Residential districts should be located adjacent to nonresidential areas.

The initial residential development within the University Community should be a neighborhood and a district. The neighborhood should have 400 to 500 houses, including attached townhouses, small and medium alley houses, and larger houses on the edge of the neighborhood. The district should have 250 to 300 multifamily units, including live/work units and two- and three-story apartment complexes.

The development of neighborhoods and districts will have several benefits for UC Merced. A variety of housing types within a neighborhood encourages cyclical neighborhoods, or neighborhoods that allow for a natural move-up/move-down cycle without causing the displacement normally associated with changes in lifestyle or income.

The development of neighborhoods and districts containing a wide variety of housing types also allows for a broad range of housing inventory and price, for a level of affordability not normally associated with development of this caliber. Affordable housing is not stigmatized and marginalized in this arrangement, but rather made available in the neighborhood or in the district adjacent to the most desirable attractions of the community.

Above: Lake Yosemite as seen from the park's picnic area. Right: Vernal pools in this part of California are often characterized by large cobblestones.

The development of neighborhoods and districts also minimizes automobile use. Neighborhood residents can satisfy much of their daily travel demand by walking or making short car trips to the neighborhood square. Eventually, the neighborhood squares throughout the University Community may be connected to create a street network for walking, cycling, or transit. The residents of the district will be able to walk to the town center, the business park, and many other activity areas.

To Enhance the Usability of Lake Yosemite Park

Lake Yosemite Park is an important amenity for Merced residents, its mature trees providing refuge from the heat and its water providing recreational opportunities. Its accessibility to students and faculty will undoubtedly affect how the current facility is used, which will require planning attention and in particular the following recommended steps:

- Begin immediate planning (by the county and UC Merced) for adding recreational uses—like those currently found on the south shore—to the west and north shores.
- Begin an aggressive tree-planting program on the west and north shores as soon as planning and environmental review are complete. Plant trees as early as possible to give them adequate time to mature.
- Include community playing fields for organized sports in the expansion areas.
- Improve the existing park so that it can accommodate outdoor special events that can attract community residents to the lake and engage them in the campus main street environment.

To Manage Growth to the South and West

With the implementation of the first phase of campus development and the establishment of the natural reserve northeast of the campus, an urban growth boundary will have been established for the next several years. Therefore, the land between the campus and the existing community will become the focus of development.

The city and county must continue to work together to develop a planning framework for this area. Good planning will contribute much to the overall quality of life in the community.

Environmental Impact

The 2,000-acre UC Merced site is located in rangeland containing various surface-water and wetland resources adjacent to an artificial lake (Lake Yosemite). In an effort to provide insight into the ability of the site—or site design—to enhance the local and regional environment, the panel evaluated the currently proposed campus location as to its potential impacts on the site and the regional natural system. The panel looked at site conditions, examined existing reports, and

interviewed individuals familiar with the site and project.

The current location of the project was selected after an intensive review of several alternatives in light of the stated project purposes. The project's environmental impact statement (EIS) contains an alternatives analysis of a number of sites. A review of alternatives was beyond the scope of the panel's review. Its evaluation is based on a review of the current site plan and project limits with respect to the integrity of natural systems and the EIS.

Proposed Mitigation Plan

The proposed project will impact directly approximately 108 acres of permanent and seasonal wetlands, including vernal pools. The university and its consultants have developed a mitigation plan that is currently undergoing federal permit review. The proposed plan includes the acquisition and preservation of large amounts of land containing wetlands and vernal pool complexes as well as the enhancement, restoration, and creation of wetlands within the watershed. As the review process proceeds, the details of the proposed mitigation plan are likely to be modified or refined.

The mitigation plan proposes a minimum 10:1 ratio (acres of mitigation to acres of impact) for the preservation and enhancement of existing wetlands. For restoration and creation, it proposes a 1:1 ratio. The use of reference wetlands for the comparison of values and functions is proposed to assure that the restored or created wetlands provide comparable natural-system values and functions.

While wetland impacts should be avoided to the greatest extent practicable, they are often an unavoidable part of a project of this size and complexity. In the panel's view, the significant amount of long-term preservation of wetland values and functions proposed and the goal of the project to achieve "no net loss of wetland function" adequately protect regional and local natural systems, especially in light of the important purpose of the project.

Additional habitat protection and wetland mitigation measures potentially could be incorporated into the project design. Fill areas and open-space and recreation areas could be realigned, for example, and collocated with other campus use areas to avoid wetland areas.

Educational programs focusing on the site's natural systems could have a number of positive consequences. For example, areas of wetlands and associated grasslands could be used to teach about the fragility and ecological significance of wetlands in general and vernal pools specifically. Designed to reach all students, such a program would raise awareness and appreciation of the importance of these areas and foster a protection and management ethic among students.

This project sets aside regional conservation areas that can be used for involving advanced students and faculty in the intensive study of wetlands and protected areas. Such research will reveal more about the intricacies of vernal pool ecology and provide a base of understanding for the protection, enhancement, restoration, and creation of vernal pools. UC Merced proposes to become a "major research university for the 21st-century" and its involvement in vernal pool research should help it realize this vision.

The interaction of natural systems with urban development and with agriculture is an important field of study. UC Merced could establish research groups focused on the environment/agriculture interface and the environment/urbanization interface. Their work on the development of methods and procedures that can protect the natural communities found on site and in the region would be generally transferable to other sensitive environmental areas and could increase basic knowledge about sustainable agriculture.

Additional Design Features and Plan Elements

In the panel's view, the university's proposed project offers a significantly diverse and comprehensive element for avoiding and minimizing environmental impacts. The proposed development provides a high degree of protection to the on-site and regional environments. The panel, however, recommends the inclusion of some additional design features and plan elements for environmental

Merced County supervisors Kathleen M. Crookham and Joe Rivero present their views in a panel interview.

protection. These include, but are not necessarily limited to, the following:

- Establish a vernal pool scientific advisory group and charge it with developing a specific process for vernal pool functional assessment. This should be a rapid assessment method that is incorporated into the long-term management protocol of all wetlands protected because of the UC Merced project. Upon completion of the science complex on the main campus, house this advisory group in the natural resources building.
- Initiate development of the project with the golf course area, inasmuch as it involves no permitting issues.
- Use alternative-fuel vehicles wherever possible; include them in the campus vehicle fleet.
- Consider the feasibility of using alternative construction and construction management techniques in order to better protect on-site and off-site natural areas. These should include the use of suitable barriers, careful sequencing and scheduling of construction, and long-term qualitative assessments of restored and enhanced systems compared with native unaltered systems.
- Incorporate the vernal pool complexes and the regional conservation areas into the UC Merced curriculum as a basic course requirement. Communicating an in-depth understanding of the significance and ecological contribution of these important natural systems will promote their protection in both the short and long terms.
- Develop a research base at the university that will expand the understanding of vernal pool complexes; make this research a focal point for the natural resources department.
- Develop an environmental studies program at the university that is sensitive to the interface of the natural environment with agricultural and urban elements. One goal of this program should be to determine methods for protecting important natural systems while accommodating productive agricultural activity and increased urbanization.

Development Strategies

The University of California's goal for its campus at Merced is to celebrate the traditions and reputation of the University of California system while developing a sustainable, 21st-century university that serves the residents of the San Joaquin Valley and the region's agricultural economy.

Realization of this goal will require the cooperation of many parties, including the university system, Merced County, the city of Merced, and the community's residents. Cooperation on the part of these parties entails a need for flexibility, a sense of the importance of building a legacy, a good deal of patience, economic responsibility, and a commitment to sustainable practices. If the local civic leaders who originally brought the campus to Merced can be reenergized and encouraged to become the guardian of these principles of cooperation, the development process can get off to a good start.

UC Merced will start small, but will do well to undertake to create a sense of place and project a sense of substance from the very beginning. The panel recommends design modifications and other enhancements to make the campus distinctive, reflect the environment of the San Joaquin Valley, and foster the integration of the university with its neighboring community. Here again the original local civic leadership can be recruited to help nurture good relations between the community and the university.

Development Sequencing

The panel makes a number of phasing recommendations that will help the development project a sense of place and sense of substance from the outset, including the following:

- Increase the amount of student housing planned for the first phase. Current plans for the first phase include three academic buildings with a total of 280,000 square feet, a central plant totaling 20,000 square feet, and housing and food service for 600 students. The panel suggests that the planned initial amount of housing for students be doubled so that 1,200 students could be accommodated. Any excess capacity could be used for temporary housing for university staff and service employees.
- As soon as practicable after completion of Phase 1, design and install an entry statement at the recommended main entry to the campus —Bellevue Road and the Campus Parkway. This element must be provided by then whether or not the parkway has been extended by that time. UC Merced's long-term image—one that reflects the importance of the university and the splendor of its San Joaquin Valley setting —must be established early.
- Begin work early on the town center water element by realigning the Grand Canal tied to Lake Yosemite, even though the achievement of a true town center may be several years away. The canal will be a major feature of the main street in the core academic area.
- Build a signature performing arts center in the early phases. Like the library, the performing arts center will be a landmark building on the campus and an effective vehicle for engaging the regional community beyond the campus.
- Build the initial athletic facility (up to 80,000 square feet) early and locate it along the main street. The facility will be used by students, faculty, staff, and the public together. It should provide excellent physical fitness facilities as a draw for students and faculty.
- As soon as possible, initiate an aggressive outreach program to attract occupants for the business park. The best candidates will have ties to the mission of UC Merced—relating

Panelist Nikolai Sklaroff directs an interview for the implementation strategies team.

especially to the university's concern with agriculture, the environment, and the business of sustainability.

Utility Services

The goal of sustainability must be knit into the fabric of the university from the very beginning. This means that sustainability should be embedded in the infrastructure of the campus and the University Community

Water

Some of the long-term water needs of the campus should be served by an on-site well system, if feasible. For the short term, the city of Merced can provide water service to the campus and adjacent community through the Bellevue line. As water infrastructure is designed, provision should be made for using stormwater and recycling treated wastewater (gray water) for irrigation.

Wastewater

Over the long term, the university should seek to provide innovative on-site treatment and reuse options for wastewater. For the short term, the city of Merced can provide wastewater services through a 27-inch-diameter sewer line that extends to the campus. The university, of course, should contract with the city for the services it needs. The city can also receive development fees from developers for sewer service.

Electricity

Cogeneration—the simultaneous production of heat and power in a single thermodynamic process—will be the key to sustainability for the campus and for controlling energy costs. The existing power grid needs to be brought to the campus with the understanding that it will be the primary source of power for only the first few years and that it will be used for backup only over the long term. The current Phase 1 plan calls for the use of a chiller plant, which may be suitable as an interim technology. But the long-term goal should be to convert to cogeneration using fuel-cell technology. Eventually, micro-cogeneration facilities might become the most effective option for a sustainable outcome.

Telephone/Cable/Internet

The university's credibility as a center of technology and sustainability necessitates having reliable and redundant sources for high-speed connectivity for voice and data. Faculty and students will insist on wireless connectivity throughout the dorms and academic buildings. The university must be on the technological edge to be a 21st-century technology leader. It may be useful to establish a partnership with a telecom company to assure the best service and technology.

There are not—as there should be—two independent points of entry for fiber-optic service to the community. This situation must be rectified. The fiber-optic wiring of neighborhoods and homes throughout and campus and the University Community is imperative and should be planned and designed in initial construction.

Development Entity

A number of options are available to UC Merced for the implementation of development and improvements. They include the following:

- UC Merced is the master developer and builds all improvements.
- UC Merced is the master developer but hires third-party builders.

- UC Merced is the master developer and hires a firm to be the owner's representative in the day-to-day management of the process.
- UC Merced hires a master developer to take on the responsibility of getting all the improvements built.

For all practical purposes, the development method for Phase 1 is set. UC Merced is acting as the master developer and hiring planners, architects, and contractors to do the work required to open the university on time. For future phases, the university needs to make decisions soon about which model to follow and which development entities will be required.

If UC Merced prefers to continue to act as the master developer, it will need to secure more expertise, including, perhaps, an owner's representative to qualify, select, negotiate with, and supervise contractors in multiple disciplines. The major advantages of this approach include continued control and cost savings.

If UC Merced prefers to hire a master developer, it will retain policy approval power but must be willing to cede control over daily decisions regarding development. The major advantage of this approach is that an experienced, professional, multidisciplinary development firm is in charge of overseeing projects and managing the details.

Whichever model it selects, the university must be willing to empower the owner's representative or master developer. It should not seek to micromanage by committee. The recruitment and retention of tenants and the management of rental property require special expertise. The panel recommends that UC Merced hire third-party property management and leasing professionals to carry out these functions while the campus is being developed.

Implementation Strategies

There are several important guidelines to use in the formulation of implementation strategies. The university need not adopt all of these guidelines, but to the extent it decides to reject them, it should understand the consequences.

Guidelines for the Development Process

View Real Estate as a Long-Term Opportunity

Real estate development grows and changes over the long term. It cannot be seen as a snapshot frozen in time. Continuing sponsorship and ownership of real estate can have a very significant impact on the cost of facilities as well as on the revenues that are received by the university.

Develop to Facilitate University Objectives

Development, ownership, and financing strategies should facilitate programmatic and revenue objectives—and not drive them. In other words, the university must first decide on its goals and then select the appropriate development options to implement them. Development decisions should not be made before deciding goals, objectives, and desired outcomes.

Own the Land

Owning land for development provides a public university enormous financial advantages. University ownership of land can eliminate entitlement fees and put the university in a position to negotiate suitable impact payments based on what its real impact on the community will be. Accordingly, university land should not be sold—either to private or public developers. Nor should the ownership of the land be subordinated to the financing of a facility by a third party.

Own the Facilities

The ownership of facilities offers significant financial advantages to a university. It can obtain tax-exempt financing in the range of 5 percent as compared with an ordinary developer's blended debt and equity capital structure at 10 percent or more. In addition, a university can develop and own facilities without the payment of property taxes and can negotiate a suitable payment in lieu of taxes.

Think of Student Housing as an Opportunity

The construction of student housing by the university should be thought of as an opportunity and a revenue generator—not as a problem. Undergraduate student housing should provide approximately $1,000 per bed in net revenue during the first year and more in subsequent years. Thus, housing 10,000 undergraduates should net $10 million during the first year of occupancy.

Provide Affordable For Sale Housing

Attractive owner-occupied housing can be developed and sold with 100 percent financing and at a price equal to more than four times annual income. A young faculty family can thus afford a better-than $160,000 house. Appropriate mechanisms can be put in place to keep that house as affordable to the second- or third-generation homeowners as it was to the first.

Provide Housing for All University Employees

The university must develop rental apartments to house its lower-paid staff, because private developers will probably not be prepared to do so. Entities such as the Federal Home Loan Bank Board, Fannie Mae, and Community Reinvestment Act banks may provide very attractive funding—including letters of credit, grants, and below-market debt capital—for such housing, giving the university substantial advantages in its development. The university can provide affordable apartments at less than 60 percent of the cost of new privately developed rental apartments.

Develop R&D and Retail Facilities

The university can obtain tax-exempt financing (costing 5 to 6 percent rather than 10 to 12 percent) for building a reasonable amount of commercial space as well as campus main street retail. Furthermore, the university's ability to provide attractive yet affordable housing can be an enormous advantage in attracting R&D firms.

Plan for the Unexpected

In dealing with land assemblage and planning, the university must program itself for success and plan for the unexpected. Had UCLA purchased more land adjacent to its campus when it was beginning to be developed, UCLA would be a far wealthier institution—with an endowment rivaling Harvard's—and would have had more flexibility to grow and develop than it has currently.

Develop to Attract an Excellent Faculty

Universities face very difficult problems in seeking to hire the highest-quality faculty—particularly in scientific disciplines. However, UC Merced may be able to make offers that many leading candidates cannot refuse. If the university is able to offer the following conditions, it will have an advantage in attracting excellent faculty:

- attractive and affordable housing;
- first-class research laboratories;
- incubator space, with seed money and venture capital available;
- a flexible approach to intellectual property;
- lab schools starting with preschool child care and progressing through 12th grade; and
- first-class recreational and cultural facilities.

Speed Up the Growth in Enrollment

The university should consider speeding up its growth—at least until a level of 10,000 to 12,500 students is attained. By accelerating the development of the campus and using other techniques recommended by the panel, the university can create a situation of "build it and they will come." The additional revenue the university will obtain from a higher number of students and faculty earlier will help ensure a more orderly development process.

Above: From the UC Merced campus on a clear day, one can see the Sierra Nevadas across the San Joaquin Valley. Left: Panelist Paula Konikoff reviews notes from the panel interviews.

Go Slow on Annexation

It is premature to deal with the issue of annexation. If the development techniques suggested in this report are followed, there may be little or no reason for the university or the city to move toward annexation. Annexation will potentially limit the university's flexibility without providing any offsetting benefits.

Purchase Municipal Services Initially

In the long term, the greater university community should have sufficient population to demand

Panelist Bob Kronewitter (left) discusses water and sewer infrastructure at the proposed UC Merced with Brian Boxer of EIP Associates, Sacramento.

Panelist Jim Meadows takes the podium at the panel's presentation of its findings.

its own fire, police, and water and wastewater services, and sufficient fiscal ability to provide these services. However, at the outset these services should be purchased on a contract basis from the city of Merced, provided the city will make these services available solely on a fee basis and not require the university to enter into an annexation agreement.

Implementation of Municipal Services

Fire and Police

The city has a professional fire and emergency services staff, while the county's fire department is mainly volunteer. More importantly, the city's fire department possesses the equipment and experience to deal with situations in multistory buildings and urban areas, and the county's does not.

Regardless of the service provider, the location and projected size of the university community make necessary the construction, staffing, and equipping of a new fire- and emergency-services substation. As such services are commonly provided to campus communities by third parties, a long-term contract with the city of Merced should provide the city with sufficient financing to make adequate fire and emergency services available to the university community through all phases of its growth.

With regard to police services, the city has more sworn police officers and vehicles than does the county—and they are responsible for a much smaller geographic area. The city thus is capable of a faster response time than is the county, a crucial factor in maintaining public safety. In the early stages of development and growth, the university community should be well served with police services by contracting with the city of Merced.

Campus communities have police needs specific to a population of students. Once the appropriate critical mass is achieved at UC Merced, the university may create its own police force. Alternatively, the university could reach an agreement with the city for the development of this force.

Water and Wastewater

In the long term, some or all of the needed water services could be provided within the greater university community, but until that becomes economically practicable, potable water may be purchased from the city of Merced on a contract basis. Providing wastewater services involves different costs and considerations, although the underlying principle is the same. Initially, wastewater services may be purchased from the city on a contract basis, until on-site sewer treatment for some or all of the greater university community's needs is a practicable alternative.

Alternatively, as with the police force, the university could enter into an agreement with the city for the long-term management and operation of

water and waste treatment facilities. Until the university community achieves the critical mass to efficiently provide its own utility and infrastructure services, it should contract those services from the city of Merced. In the event the city of Merced is not willing to provide services in the absence of an annexation agreement, the panel recommends that the university seek these services elsewhere.

Conclusion

The goal for the campus at Merced is a university that celebrates the traditions and reputation of the University of California system; becomes a state-of-the-art, 21st-century model for educational institutions; is sustainable; and reaches out to the residents of the San Joaquin Valley to share the benefits of the new campus and to strengthen the community.

Although the proposed configuration of the campus will damage wetlands and vernal pool resources, the project's long-term benefits—including the extensive conservation areas that will be set aside and the economic and cultural impacts of the university on surrounding communities—are substantial and must be considered. The panel has suggested the creation of a scientific advisory group and the establishment of a vernal pool study center at the new university as further mitigating measures.

The success of UC Merced hinges on the ability of stakeholders in the valley and in the university to retain their flexibility and to find the way through compromise. All must share a sense of building a legacy. They must practice patience. The building of a great university takes time and along the way many problems will have to be addressed. The university and the community must show economic responsibility by investing in sustainable practices. These practices may be expensive at first, but they will provide significant economic benefit in the future. The Merced community must lead by example and set the pattern for future growth in the San Joaquin Valley. To demonstrate responsibility and leadership, the university and the community must:

- create a town center that is strong both economically and socially and that will attract people from all over the community;
- ensure that new development is compact, environmentally sensitive, and pedestrian friendly;
- plan for transportation choices, including walking, cycling, and transit as well as driving;
- adopt good urban design practices; and
- be creative about accommodating parking.

The panel has put forth a main street/town center concept that will tie the campus and the University Community together with a strong axis of attractive and vibrant mixed uses. Development of the proposed town center will help blend the campus and the University Community in the seamless fashion the university has been seeking.

About the Panel

Gadi Kaufmann

Panel Chair
Rockville, Maryland

Gadi Kaufmann specializes in strategic planning, transactional and negotiation services, and financing strategies at the asset and the corporate levels (dealing with projects, portfolios, and companies). His experience encompasses public and private sector work on many projects of all types, sizes, and locations.

Since joining Robert Charles Lesser & Co. in 1979, he has managed projects throughout the United States, Canada, and Mexico. His primary focus is major, multifaceted projects and portfolios of institutional, corporate, and international clients.

He is a frequent speaker and author on a wide range of industry topics, and is the managing editor of the firm's advisory newsletter.

Kaufmann is a member of the Board of Trustees of ULI–the Urban Land Institute, chair of ULI's Senior Housing Council, and a member of the ULI Program Committee.

Until 1998, he was an independent director of UDC Homes, a privately held, Arizona-based regional homebuilder with annual sales of $500 million, and a director of Evans Withycombe Residential, a $1.2 billion apartment REIT. Until June 1990, he was a director of Lincoln N.C. Realty Fund, a mortgage REIT.

Kaufmann is a member of the Young Presidents Organization, an international business organization for education and idea exchange, where he has chaired the annual real estate industry roundtable since 1997. He founded the Santa Monica Bay chapter and served as its forum chairman from 1998 to 1999. He has been forum chairman of the Washington Metro chapter since 2000.

Douglas W. Betz

Dayton, Ohio

Douglas Betz serves as a senior partner of Woolpert LLP, a multifaceted national firm, where he is the principal-in-charge of the developer and private sector group. He is experienced in leading multidisciplinary teams of professionals and is responsible for managing special projects that involve planning expertise.

Betz's responsibilities include directing a national practice that focuses on the design of retail projects and also includes theme parks, resorts, industrial/office parks, and correctional facilities. Among the retail clients served are Simon Properties, the Rouse Company, the Taubman Company, Urban Retail Properties, Trammell Crow Company, Target, Circuit City, Kimco Realty Corporation, Regency Realty, Best Buy, Sears, Steiner & Associates, and Cousins Properties.

Betz is a member of the Urban Land Institute and has served on several advisory services panels and several project analysis teams. He is a member of the Community Retail Council and has written for *Urban Land* magazine.

He holds leadership positions at local and state levels in the International Council of Shopping Centers and the National Association of Industrial and Office Properties. He has been active in lobbying efforts on behalf of the real estate industry. He currently sits on the boards of a community performing arts organization and an educational foundation.

Betz is a graduate of the University of Cincinnati, where he received a bachelor's degree in urban planning and design. He has attended numerous continuing education courses at Harvard University and the American Management Institute.

Myron P. Curzan

Bethesda, Maryland

Myron Curzan began his career as a legislative assistant to Senator Robert F. Kennedy, for whom he drafted legislation that provided tax incentives for corporations that create jobs and housing in depressed areas.

As an attorney with the firm of Arnold & Porter, he was involved in governmental, university, and nonprofit housing and other development. In this capacity, he managed the planning and construction of approximately 300 employee-based housing units and a machine shop on the Navajo reservation in Shiprock, New Mexico. The project was recognized by the White House as the most innovative ever undertaken on an Indian reservation.

With Arnold & Porter, Curzan established a real estate development company, MPC & Associates, that specialized in faculty, staff, and student housing programs for universities and medical centers. He developed projects at the University of California, Irvine; Tulane; Dartmouth; Davidson; and Columbia.

With his current firm, UniDev, which specializes in planning and developing housing for universities and university towns/cities, Curzan has worked for the California State University (CSU) in planning and implementing a new campus in Ventura County, for the town of Chapel Hill and the University of North Carolina, and for the city of College Park and the University of Maryland.

Curzan has been active on the boards of WETA, a Washington, D.C., PBS station; the Rocky Mountain Institute; and the George Washington University.

He is a graduate magna cum laude of Columbia College and magna cum laude of Columbia Law School. He holds a master's degree from Yale University, where he was a Woodrow Wilson Fellow.

George de Guardiola

Jupiter, Florida

George de Guardiola was born in Havana, Cuba, and raised in Miami, Florida. He attended California State University in Los Angeles, where he received a bachelor of arts degree in English and continued graduate work in American studies and secondary-school teaching. He was an English teacher from 1972 to 1976 in East Los Angeles.

De Guardiola started working in real estate development in Palm Beach County, Florida. He developed the community of Wellington—the largest master-planned community in Palm Beach County—as well as communities in Boynton Beach and Parkland. He was involved in the development of the PGA National and the Ibis Golf and Country Club in northern Palm Beach County.

He is president of de Guardiola Development, a firm that concentrates in the acquisition and development of master-planned communities and town centers in traditional main street settings. It is currently developing Abacoa Town Center, a development in Jupiter, Florida, with more than 400,000 square feet of retail and office space and more than 1,000 multifamily units; and Abacoa Business Center, which includes more than 1 million square feet of office and flex space and 500 apartments. The Abacoa community includes the Honors College of Florida Atlantic University as well as Roger Dean Stadium, which is the spring training headquarters of the St. Louis Cardinals and the Montreal Expos and home of the Jupiter Hammerheads minor league baseball team.

De Guardiola has been a member of the Palm Beach County Economic Council, the Community Developers Council, and the Governor's Task Force on Urban Growth Patterns. In 1995, he was the recipient of the Northern Palm Beach County Chamber of Commerce Business Leader of the Year award. In 1996, he received the Excellence in Enterprise award for outstanding business leadership in Palm Beach County; in 1999, the Hispanic Chamber's Entrepreneur of the Year award; and in 2000, the Jupiter/Tequesta/Juno Beach Chamber of Commerce Entrepreneur of the Year award.

Robert J. Gardner

Los Angeles, California

Robert J. Gardner is managing director at Robert Charles Lesser & Co., Los Angeles, heading all

residential, commercial, economic, and litigation-support assignments dealing with market evaluation, market positioning, economic base assessment, financial feasibility, and fiscal implications of real estate projects. He manages all public sector engagements, covering market analysis, financial feasibility, consumer research, and fiscal impact analysis. He has 28 years of experience, 16 of them with RCLCo.

Gardner manages urban infill development and economic development projects. He has conducted market research in downtown Los Angeles for most of the new and adaptive use apartment developments. Gardner is currently Boeing Realty Corporation's market consultant as it seeks a new orientation for its 200-acre landholding at Long Beach Airport. He has provided market research and development services to CalPERS (California Public Employees' Retirement System) for its R Street project in downtown Sacramento.

Gardner performed the market and financial feasibility analyses for Riverfront Park, a 1,900-unit residential project west of Denver's Lower Downtown (LoDo) and fronting a future regional park on the South Platte River that will be greater downtown Denver's largest single residential infill development. Currently, he is preparing market, financial, and product programming analyses for a contiguous project with 4 million square feet of commercial space and 2,000 residential units.

Gardner serves on the Board of Directors of the Los Angeles Headquarters Association and on the Steering Committee of the Executive Board of the ULI Los Angeles District Council. He has served on the Board of Directors of the Los Angeles chapter of the National Association of Industrial and Office Properties and was an instructor in NAIOP's course on industrial development.

Gardner has served on three ULI advisory panels. He is a regular speaker at real estate forums throughout California and has lectured on market research and financial feasibility at UCLA extension courses. He holds a master's degree in city and regional planning from UC Berkeley and a bachelor's degree in economics from UCLA.

John James Goldasich

Boca Raton, Florida

John Goldasich has more than 30 years of environmental experience with government, electric utility, and consulting organizations. He has been involved in sea grass evaluation and sea grass plantings; dredge-and-fill impact evaluation and mitigation; bathymetric and hydrographic surveys; water quality studies, environmental impact studies (EIS), wastewater and industrial effluent studies, wetland preservation studies, and wetland mitigation plans; assignments involving ichthyology and aquatic and marine macrofaunal identification and analysis; natural-system studies; vegetative quality evaluations; tropical and subtropical ecosystem analyses; and other areas of study relating to biotic community structure and natural system functions.

Goldasich has been involved in the permitting phase of many projects, and has frequently made public presentations relating to environmentally significant projects and natural-system issues. He is experienced in the project management of environmental investigation projects, and has served as an expert witness on wetland identification, environmental permitting, and habitat quality.

This is the second ULI advisory services panel in which Goldasich has participated. He taught several short courses on environmental permitting for the Florida Chamber of Commerce and participated in an advanced permitting workshop for the Florida Engineering Society. Goldasich helped evaluate the U.S. Army Corps of Engineers hydrogeomorphic wetland assessment technique for flats and depressions of Florida. He is experienced in underwater research and search-and-recovery techniques.

Goldasich received a master of science degree in environmental health sciences from the University of Michigan in 1971 and a bachelor of science degree in aquatic biology from Eastern Michigan University in 1970.

Paula K. Konikoff

New York, New York

Paula K. Konikoff is an independent professional real estate consultant with 20 years of experience in providing clients with advisory, valuation, and other real estate consulting services. Her practice includes designing and conducting due diligence investigations on properties; conducting and evaluating property appraisals; and advising private and public institutions (both owners and lenders) on the acquisition, development, and disposition of their real estate holdings, as well as on their fit within a real estate portfolio.

Konikoff has been retained to provide such services for properties throughout the United States and abroad (from Hong Kong to the Czech Republic). She provides a comprehensive analysis that is particularly valuable for dealing with the growing number of investors and lenders whose portfolio investments in real estate are increasingly evaluated on a national and global level.

Konikoff holds a law degree and an MAI designation. Before she established her independent real estate advisory practice in 1993, Konikoff was director of national real estate valuation services at KPMG. She joined KPMG in 1989 after having served as president of the Hudson Group, a national real estate consulting and appraisal firm. Previously, she had been an attorney in private practice at the Philadelphia law firm of Dilworth, Paxson, Kalish & Kauffman, where she worked in the practices of real estate and corporate law.

Konikoff is an adjunct professor at New York University, teaching graduate and undergraduate courses on real estate finance, real estate markets, and real estate appraisal. She is an instructor for the Appraisal Institute, where she conducts programs on standards of appraisal practice and on professional appraisal ethical rules. In addition, she develops and presents real estate valuation seminars for continuing education credits for CPAs and attorneys. She has also served as an expert witness in a variety of cases in which real estate valuation issues have come into dispute, including, for example, the bankruptcy of Livent, an owner of live-theater properties. She was retained by the Securities and Exchange Commission to testify regarding the value of developments in California that were funded in part by Mello-Roos bonds. She was also qualified by the court as an expert in pension real estate portfolio investments in *JMB v. Cadillac Fairview*.

Konikoff is a member of several committees of the Appraisal Institute and a member of other professional organizations. She chairs the Appraisal Institute's Review and Counseling Committee and the Grievance Committee, and is a member of the committee that reviews the work of appraisers seeking the MAI designation. She is a member of the Real Property Law Committee of the Association of the Bar of the City of New York and is chair of its Program Subcommittee.

Konikoff earned a bachelor of science degree from Temple University and a J.D. from Villanova University School of Law. She is a frequent speaker and author on appraisal and other real property issues.

Bob Kronewitter

Denver, Colorado

Bob Kronewitter has been recognized for his expertise in urban and campus planning since 1970. As campus architect for the Auraria Higher Education Center in Denver, he supervised the transformation of Auraria from a fragmented urban institution into a true downtown campus for 33,000 students. He was responsible for campus planning and architectural, landscape, interior, and graphic design.

As senior architect at Civitas, Kronewitter has been involved with campus planning projects since 1997 including: University of Colorado Boulder, Regis University, University of Southern Colorado, Auraria Higher Education Center, University of Colorado, Fitzsimons, Red Rocks Community College, University of Denver, Colorado Christian College, Southern Illinois University, Cornell University, and National Renewable Energy Laboratories. He has designed residential, office, retail, mass transit, park, and botanic garden uses.

Kronewitter has received many honors and is known as a guest lecturer worldwide. At the American Institute of Architects he is in the College of Fellows, has served as a director and committee chair, and was awarded for outstanding community service. He has received city and state awards for design excellence. Kronewitter has a bachelor of architecture degree from Miami University and master's degrees from Washington University, the University of Notre Dame, and the University of Northern Colorado. He is a registered architect in Colorado, Texas, and California.

James E. Meadows

San Francisco, California

James E. Meadows is a principal with Meadows & Affiliates, an association of experts in base conversion and real estate development. He has been advising clients on real estate matters—including base conversion, homebuilding company startups, and commercial real estate development issues—since 1990.

Meadows was the first executive director of the Presidio Trust, an executive federal agency formed by Congress to preserve and enhance the 1,000-acre Presidio of San Francisco as a national park while achieving financial self-sufficiency by the year 2013. The Presidio has taken a national leadership role in sustainability, historic preservation, alternative energy development, and environmental remediation. In its first 36 months, the Presidio generated more than $25 million in annual rental revenues. Meadows was selected Developer of the Year by the National Association of Installation Developers (NAID) in 1999.

He served as the first executive director of the Lowry Redevelopment Authority, a redevelopment agency formed by the cities of Denver and Aurora, Colorado. As such, he oversaw the redevelopment of the 1,900-acre former Lowry Air Force Base into a mixed-use, master-planned neighborhood including residential neighborhoods, a commercial town center, a college campus for 10,000 students, and 800 acres of parks and recreation space. Lowry won the Installation of the Year award from NAID in 1997.

Meadows was senior vice president and head of homebuilding operations in California and Arizona for Castle & Cooke Homes, a division of Dole Foods. Before that he managed his own commercial building, homebuilding, and land development business in Phoenix and San Diego. He has worked for three national homebuilding, master-planned community, and land development companies in Denver, Phoenix, and Austin.

Meadows is president of the Board of Directors of NAID, a member of Lambda Alpha, and a board member of the Coro Foundation of Northern California. He has served on a variety of panels related to base closures in the San Francisco area, including a ULI advisory panel for Treasure Island. He is a graduate of the U.S. Air Force Academy, is married, and has five children.

Steve Noll

Stateline, Nevada

Steve Noll has been practicing landscape architecture since his graduation from California Polytechnic State University in San Luis Obispo. He spent the first 14 years in San Francisco, where he developed awareness about what physical and social aspects are important for great outdoor spaces. This understanding is reflected in the projects with which he has been involved nationally and internationally.

In 1997, he established a local office of Design Workshop in South Lake Tahoe, California. Design Workshop emphasizes balancing development with the environmental and social aspects that are important to design quality.

As principal-in-charge of the office, Noll has been involved with several land planning and site design projects that ultimately will reshape their communities. In addition, he is involved with many community-based organizations for which he provides guidance in the areas of mixed-use planning, recreation and design planning, multifamily design, affordable housing design, and resort design.

Noll is an outdoor enthusiast and enjoys a variety of activities with his wife and two children.

Nikolai J. Sklaroff

San Francisco, California

Nikolai Sklaroff is a vice president in Salomon Smith Barney's San Francisco public finance office. Salomon Smith Barney is the nation's top-ranked underwriter of tax-exempt bonds. Sklaroff has specialized in public finance for 16 years, serving as a financial adviser, a senior rating-agency analyst, and—currently—an investment banker. He now works primarily with California issuers and specializes in credit-engineering difficult credits for development, redevelopment, and nonprofit projects.

Current and recent clients include the California State University Channel Islands (new campus), San Francisco State University (faculty and staff housing), the Fine Arts Museums of San Francisco (M.H. de Young Museum replacement financing), the California Academy of Sciences (replacement project financing), the Music Concourse Community Partnership (garage financing), the San Diego State University Foundation (The Paseo, a mixed-use development), and the Fruitvale Development Corporation (Fruitvale Transit Village).

Sklaroff joined Smith Barney from Moody's Investors Service where he was a vice president/senior credit officer. As a member of Moody's Public Finance Rating Committee, he was involved in the final rating determination for a broad range of municipal financings. Sklaroff began working at Moody's in 1989, following several years as a financial adviser with Public Financial Management, a Philadelphia-based national financial advisory firm.

Active in industry associations and a frequent speaker on public finance issues, Sklaroff serves on the boards of the Association for Governmental Leasing and Finance, the National Municipal Leasing Association, and the San Francisco Bay Area Municipal Forum.

Sklaroff received a bachelor of science degree in economics from the University of Pennsylvania's Wharton School and a bachelor of arts degree in political science with a concentration in public policy from its College of Arts and Sciences. He received a master of arts degree in Western European economics and politics from the University of Durham, University College, in England. He also studied public administration at Columbia University's School of International and Public Affairs.