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3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

An LRDP is defined by statute (Public Resources Code [PRC] 21080.09) as a “physical development and land use plan to meet the academic and institutional objectives for a particular campus or medical center of public higher education.” In September 1994, The Regents adopted the 1994 LRDP for UC Davis as a guide for the physical development in support of campus needs and goals and campus population growth projected through 2005-06. As of academic year 2001-02, the campus was within the projected overall enrollment and employee growth levels established by the 1994 LRDP. However, projected increases in enrollment over the next few years are expected to result in growth that would exceed the growth levels analyzed in the 1994 LRDP EIR. Therefore, UC Davis has prepared a new LRDP (2003 LRDP) to plan for anticipated growth through 2015-2016. The proposed 2003 LRDP would establish general types and locations of campus development, and land uses to support projected on-campus population¹ growth and to enable expanded and new program initiatives through the 2015-16 academic year.

As discussed in Section 1, the campus proposes to begin implementing five projects under the 2003 LRDP in 2004. These projects are also discussed briefly at the end of this section. Detailed descriptions of these projects and their potential environmental effects are presented in Volume III of this EIR.

3.2 PROJECT LOCATION

The approximately 5,300-acre UC Davis campus is located in Yolo and Solano counties approximately 72 miles northeast of San Francisco, 15 miles west of the City of Sacramento, and adjacent to the City of Davis (see Figure 1-1). The campus is composed of four general campus units: the central campus, the south campus, the west campus, and Russell Ranch (see Figure 1-2). Most laboratory, office, and classroom-based academic and extracurricular activities occur within the central campus. The central campus is bounded approximately by Russell Boulevard to the north, SR 113 to the west, I-80 and the Union Pacific Railroad tracks to the south, and A Street to the east. The south campus is located south of I-80 and north of the South Fork of Putah Creek. The west campus is bounded by SR 113 to the east, Putah Creek to the south, Russell Boulevard to the north, and extends approximately one-half mile west of County Road 98. The south and west campus units are contiguous with the central campus and are used primarily for field teaching and research. The approximately 1,600-acre Russell Ranch portion of the campus lies to the west, separated from the west campus by approximately one and one-half miles of privately owned agricultural land. Russell Ranch was purchased in 1990 and supports campus uses including large-scale agricultural and environmental research, study of sustainable agricultural practices, and habitat mitigation. Russell Ranch is bordered roughly by County Road 96 on the east, Putah Creek on the south, Covell Boulevard on the north, and Russell Boulevard and privately owned agricultural land on the west and northwest.

The University of California also owns properties in the City of Davis, including buildings in downtown Davis, and buildings, parking areas, and vacant parcels in the South Davis Research

¹ The on-campus population includes the students and employees on the UC Davis main campus and at other facilities owned and operated by the University in the City of Davis.

Park, south of I-80 (see Figure 1-2). The 2003 LRDP designates land uses for these properties. In addition, the campus currently leases building space in the South Davis Research Park. The campus anticipates that it will continue to lease space within the City of Davis as needed through 2015-16. Campus employees working in leased building space in the City of Davis are included in the 2003 LRDP faculty/staff population assumptions.

The University of California currently has options to purchase agricultural properties located near the campus, including the 551-acre Kidwell parcel and the 294-acre McConeghy parcel, both located south of the central campus. Both of these parcels consist of prime farmland. The 2003 LRDP does not identify land uses for these parcels because the University does not own any of the parcels, and the LRDP does not propose uses on these parcels as part of the overall growth program. However, these parcels potentially could be purchased for future campus uses like those proposed for Russell Ranch, including agricultural and biological resource mitigation.

3.3 PLANNING PROCESS

In 2000-01, UC Davis began a three-year LRDP update process to help identify strategies for accommodating anticipated growth. The first year of this process consisted of defining campus growth needs and establishing parameters to meet those needs. The second year focused on developing and refining options to address identified growth needs, including multiple iterations of the LRDP and development of a proposed campus Neighborhood Master Plan (NMP). Ongoing discussions with elected officials and staff from key local jurisdictions have also provided important insight and perspective to frame both the process and the substance of the update. This final year, 2002-03, is devoted to preparing technical analyses (including analyses addressing finance, infrastructure, and traffic), reviewing the environmental effects of the growth plan, and refining the growth plan. Planning information and workshop materials were made available online throughout the planning process. To date, 33 public workshops and numerous campus committee meetings have been held to guide the planning process, including the following:

- October 31, 2000: Growth projections for the UC system and additional context for the campus' long range planning process were presented.
- March 29, 2001: Further definition of the campus growth projections and concepts for accommodating this growth were presented.
- June 5-7, 2001 (two workshops): The context for the campus growth planning was presented, and the public joined breakout sessions to discuss and provide input on environmental, community, and economic growth-related issues.
- October 22-24, 2001 (three workshops): The LRDP process was summarized, and the public participated in land use planning exercises to identify locations for land uses on campus maps.
- February 5-6, 2002 (three workshops): The LRDP and NMP growth planning and processes were summarized, four optional configurations of the LRDP and six optional configurations of the NMP were presented, and the public participated in group discussions to assess the LRDP and NMP options.

- April 22-23, 2002 (three workshops): Two preliminary LRDP and three preliminary NMP options were presented at information stations, a presentation summarized the options, and a public discussion identified key issues and comments.
- May 28-29, 2002 (two workshops): Two refined LRDP and three refined NMP options were presented at information stations, goals and issues were discussed during a presentation, and a public discussion identified key comments and concerns.
- November 4, 2002 (scoping meeting): The draft LRDP, three draft NMP options, the draft Research Park Management Plan (RPMP), Stadium diagrams, and the information about the potential environmental effects associated with these project proposals were presented at information stations. Copies of the LRDP's Initial Study were made available for review, information about the environmental review process was provided, and written scoping comments for the LRDP EIR were accepted.
- April 21, 2003 (public meeting): The LRDP, NMP, RPMP, Multi-Use Stadium, Chilled Water Facility Expansion plan, Robert Mondavi Institute, and information about the environmental review process associated with these proposed projects were presented at informational stations.

The following public meetings were held after the DEIR was published:

- April 23, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis City Council.
- May 5 and 20, 2003 (two presentations): The Draft LRDP and NMP were presented and discussed in front of the Davis Open Space Commission.
- May 8, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Recreation and Park Commission.
- May 13, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Planning Commission.
- May 14, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis League of Women Voters.
- May 15, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Safety Advisory Commission.
- May 19, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Business and Economic Development Commission.
- May 22, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Natural Resources Commission.
- June 2, 2003 (first public hearing): Information was presented and formal testimony was recorded at two public hearings.

- June 3, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Chamber of Commerce.
- June 3, 2003: The Draft LRDP and NMP were presented and discussed in front of the Yolo County Board of Supervisors.
- June 9, 2003: The Draft LRDP and NMP were presented and discussed in front of the Davis Finance and Budget Commission.
- July 10, 2003: A public workshop to discuss a potential Neighborhood connection to Russell Boulevard was attempted.
- July 12, 2003: The Draft LRDP and NMP were presented and discussed in front of the Yolo County Planning Commission.
- July 24, 2003: A public workshop was held to discuss aspects of the proposed neighborhood with the West Davis community.
- July 28, 2003: Final testimony was recorded at a second public hearing.

The campus published the proposed 2003 LRDP, NMP, and RPMP for public review concurrently with the 2003 LRDP EIR. The campus anticipates submitting all three to The Regents for consideration of approval in November 2003.

3.4 PROJECT OBJECTIVES

UC Davis is a general university campus offering a broad range of academic and applied disciplines and a rich diversity of professional programs. The campus is renowned for its academic and research activities in a broad spectrum of fields, including agricultural, environmental, and biological sciences. The campus has identified academic goals to continue to fulfill its academic mission, build and expand upon its traditional strengths, and anticipate changing instructional and research programs.

The purpose of the proposed 2003 LRDP is to guide the physical planning and continuing development of the UC Davis campus so as to allow the campus to achieve its mission, which is to support the teaching, research, and public service programs of the University of California. The foundation of campus needs and goals that supports the 2003 LRDP originates from the *2001 Academic Plan for UC Davis* and the academic plans for the campus' Colleges, Schools, and Divisions (Grey 2001).

The 2003 LRDP identifies an overarching guiding objective and three primary goals. The overarching objective is to meet the 2003 LRDP projected enrollment increase, as detailed in the section of the 2003 LRDP on the growth program. Three primary goals are identified to facilitate accomplishment of the enrollment increase in a organized and responsible manner. Planning principles are outlined under each goal to guide future growth and development toward that goal. In addition, the 2003 LRDP identifies numerous specific objectives under separate sections on campus resources, planning areas, and campus land uses. Following are the key objectives for the 2003 LRDP, and the planning principles associated with each goal are listed under the goal.

- **Overarching Objective: Meet the proposed 2003 LRDP growth target of accommodating a campus enrollment level of 32,000 students by 2015-16.**²
- **Goal #1: Create a physical framework to support the teaching, research, and public service mission of the campus.**
 - **Flexibility.** The campus plan must provide a framework that is flexible enough to accommodate new initiatives and constantly evolving academic program needs, while still achieving a connected and cohesive campus environment.
 - **Longevity.** The campus plan should take a long view, recognizing that campuses are lasting environments with long traditions, and generations of people who form positive lifelong memories of their experiences at the university.
 - **Dynamic teaching environment.** The entire campus presents opportunities to create a positive learning environment. Classrooms, teaching labs, research environments, housing areas, shared interactive spaces, a diversity of outdoor spaces, all offer opportunities to express and reinforce the campus as a learning environment.
 - **Accessible research environment.** UC Davis is noted for its wealth of interdisciplinary research, and the ease with which students, faculty and researchers from varied disciplines cross academic boundaries to collaborate. The environment should foster this accessibility and promote interaction, among members of the campus community, and among affiliated public and private sector research partners.
 - **Interactive and welcoming public service environment.** The campus plan should continue to develop the campus as a valuable public place in California and the region, a welcoming environment for the greater public to engage the University of California through education outreach, cultural activities, sporting events, festivals that celebrate the diversity of California.
- **Goal #2. Manage campus lands and resources in a spirit of stewardship for the future.**
 - The campus plan should create a healthy and interconnected natural and built environment.
 - The campus plan should conserve natural resources.
- **Goal #3: Provide an environment to enrich campus life and serve the greater community.**
 - **Meaningful and diverse connections.** The campus plan should create a campus of connected gathering places that promote the interaction

² Approximately 2,000 of these students would be accommodated outside the Davis area at other facilities such as the UC Davis Medical Center in Sacramento, the Bodega Marine Laboratory, and study abroad sites.

between and among students, faculty, staff, alumni, visitors, and community members.

- **A safe and welcoming place to grow.** The campus plan should create a campus with adequate activity, lighting, and modes of access to foster a safe environment, and a place that is “safe” to express diverse views, celebrate diverse cultures, and debate complex issues.
- **An environment “worthy of our affection.”** The campus plan should retain and expand the environmental features that give the campus its distinct identity, and that establish continuity in the landscape from generation to generation. Find opportunities in new development to reflect the uniqueness of the campus, including its historical legacy, land-based heritage, traditions, values, and strengths.
- **A residential character.** The campus plan should sustain and expand the residential character of UC Davis. Provide opportunities for members of the campus community to live locally and participate fully in the life of the campus.

3.5 CAMPUS POPULATION

The UC Davis-affiliated population consists of persons present on the campus on a given day and those in off-campus UC Davis facilities. The on-campus population comprises undergraduate and graduate/professional students, faculty, staff, other non-UC affiliates, visitors, and construction workers. Some of this population also resides on campus, while the majority is daytime population. On-campus population as of 2001-02 is presented in Table 3-1.

**Table 3-1
Projected On-Campus Population Through 2015-16**

	Baseline (2001-02)	Projected (2015-16)	Growth (2001 to 2016)
Students			
UC Davis Students ¹	24,870	30,000	5,130
Community Education Center Students ²	0	2,130	2,130
Employees			
Faculty/Staff ³	10,500	14,500	4,000
Research Park I-80 and West Campus ⁴	0	2,400	2,400
Community Education Center Employees	0	90	90
Elementary School Employees	0	20	20
Other non-UC employees ⁵	150	730	580
Total Students and Employees	35,520	49,870	14,350
Housing Dependents ⁶	925	1,775	850
Total Campus Population	36,445	51,645	15,200

1. Three quarter average headcount (Fall, Winter, Spring), on-campus student population.
2. Full-time equivalent students.
3. Includes UC Davis faculty and Staff (not including student employees) working on campus or in the City of Davis. Growth under the 2003 LRDP includes approximately 1,500 faculty/staff associated with projects approved under the 1994 LRDP but not yet constructed.
4. Includes 1,400 non-UC affiliates working at the proposed Research Park areas north and south of I-80 and 1,000 non-UC affiliates at the west campus Research Park.
5. Includes other non-UC employees working on campus such as food service employees, USDA Western Human Nutrition Research Center employees, and neighborhood service employees (such as mixed-use center employees and apartment staff).
6. Includes non-UC affiliated dependents living in central campus family housing and in the proposed UC Davis neighborhood. Does not include dependents living in Aggie Village.

3.5.1 Students

Student enrollment is discussed in the 2003 LRDP (as it was in the 1994 LRDP) in terms of three-quarter average student headcount (i.e., the average number of students registered at UC Davis and present on the UC Davis campus during the fall, winter, and spring quarters). While the campus operates 365 days a year, the academic year consists of the fall, winter, and spring quarters and two six-week summer sessions. The campus uses the three-quarter average student headcount number for planning purposes.³

As discussed in Section 1.3, UC Davis has identified an average three-quarter student headcount target of 32,000 (averaged over the fall, winter, and spring quarters) through 2015-16. Approximately 2,000 of these students would be accommodated off the main campus at other

³ The term full-time equivalent (FTE) student is another metric that is used by the University of California largely for budget purposes. The number of FTE students differs from the number of students (headcount) who are enrolled at the campus. If each student took a full-time course load, the student FTE enrollment would equal the student headcount enrollment. However, student FTE enrollment is somewhat lower than the total student headcount because students take slightly less than a full-time course load on average. An FTE undergraduate student represents a student taking 45 units of coursework during a three-quarter academic year, based on the concept of an entering freshman making orderly progress over 4 years towards a 180-unit degree. At the graduate level, an FTE student represents 36 units of coursework in an academic year.

facilities such as the UC Davis Medical Center in Sacramento, the Bodega Marine Laboratory, and study abroad sites. Thus, UC Davis anticipates that approximately 30,000 students would be accommodated on campus through 2015-16.

In addition to an increase in the three-quarter average student headcount, the campus anticipates that enrollment in summer sessions will also increase through 2015-16. UC Davis plans to significantly expand its summer session’s programs in the upcoming years as part of the overall strategy to accommodate enrollment growth and as a mechanism to help students complete their undergraduate course requirements within a shorter timeframe. The on-campus summer sessions student headcount is anticipated to increase from 8,280 in 2001-02 to 13,870 through 2015-16, representing a 67 percent increase (see Table 3-2). While this is a larger percentage of growth than the fall/winter/spring student population (with a projected 20 percent increase in student headcount from 2001-02 through 2015-16), the student population during summer sessions would remain substantially less than the student population during the regular school year. To the extent that summer session enrollment increases, the fall/winter/spring average student headcount may decrease. However, the amount of this potential decrease is not known because the behavior of students in response to increased summer school opportunities will only be determined over time through experience. For the purposes of this EIR, the fall/winter/spring average student headcount is assumed to increase to 30,000 through 2015-16. This assumption is conservative in that associated environmental impacts are evaluated for a population that is larger than what could occur if summer enrollment leads to a reduction of students during the primary three academic quarters.

**Table 3-2
On-Campus Student Headcount**

Student Population	Baseline (2001-02)	Projected (2015-16)	Growth Under (2001-2016)
Fall/Winter/Spring Students Average Headcount	24,870	30,000	5,130
Summer Students Average Headcount ¹	8,280	13,870	5,590
Percentage of Fall/Winter/Spring students that attend Summer Sessions	33%	46%	NA

¹ Summer enrollment estimates for 2015-16 are based on 2010 projections and assume that growth from 2010-2016 would occur proportional to growth in the fall/winter/spring student population (the 2010 ratio of summer sessions headcount to fall/winter/spring student headcount, 0.46, is applied to the 2015-16 fall/winter/spring headcount). Source for 2010 summer population: Office of Resource Management and Planning. 2003. Institutional Planning and Analysis, Summer Enrollment Projections (through 2010). Headcount is calculated from the 2010 FTE summer target of 2,500, using an estimate of 8.5 units per summer student.

NA = not applicable

In relation to the increase in the summer student population, faculty and non-UC student service (such as food service) employees could also increase during the summer. However, this growth is anticipated to be minor because the majority of the employee population works on campus year-round. In addition, the overall summer employee population would remain slightly less than the regular school year employee population.

However, peak enrollment is still anticipated to occur during the primary three academic quarters. Therefore, the analysis in this EIR is based on the three-quarter average headcount, with additional analysis provided where necessary of impacts from higher enrollment during the summer quarter.

3.5.2 Faculty and Staff

In response to this increase in students, and due to anticipated increases in research activity, UC Davis expects the campus faculty and staff population to increase from approximately 10,500 in 2001-02 to approximately 14,500 through 2015-16 (Table 3-1).

3.5.3 Non-UC Employees

In addition, UC Davis anticipates that a total of approximately 2,400 new non-university employees could work within the proposed Research Park areas through 2015-16, and the number of non-university employees working on campus in various capacities outside of Research Park areas could increase from approximately 150 in 2001-02 to 750 through 2015-16. Furthermore, with the designation of a community education center on the west campus under the 2003 LRDP, 2,130 non-UC students and 90 employees could be located on campus.

Under the 2003 LRDP, the total on-campus population could grow from approximately 36,445 in 2001-02 to a total of approximately 51,645 through 2015-16 (Table 3-1) (UC Davis 2002).

3.6 EXISTING LAND USES ON THE MAIN CAMPUS

Figure 3-1 shows the existing land use patterns that have developed on the main campus over the years under the 1994 LRDP and previous plans. Campus growth has occurred mainly on the central campus, and as central campus areas have been built out, new development has been focused in the Health Sciences District and on the west campus.

3.7 MAIN FEATURES OF THE 2003 LRDP

The 2003 LRDP updates and refines the 1994 LRDP with the objective of accommodating projected increases in enrollment and providing appropriate space and infrastructure for existing and new initiatives on the campus. The salient features of the 2003 LRDP are:

- Provision of adequate land for academic and administrative buildings to serve the projected population and expansion of campus teaching and research programs.
- Designation of additional land for academic and administrative uses on the central, south, and west campus with the purpose of keeping academic facilities in close proximity to each other.
- Designation of land on the central campus to provide an additional 2,000 beds of student housing. (Approximately 800 of these beds have been approved through Spring 2003.)
- Designation of approximately 225 acres of land on the west campus for the development of a new neighborhood that would include about 500 faculty and staff housing units, and beds for approximately 3,000 students plus their

dependents. The neighborhood also would include other uses such as commercial/office space, a community education center, an elementary school, recreation facilities, and open space. The NMP has been developed for this purpose and is evaluated in Volume III of this EIR.

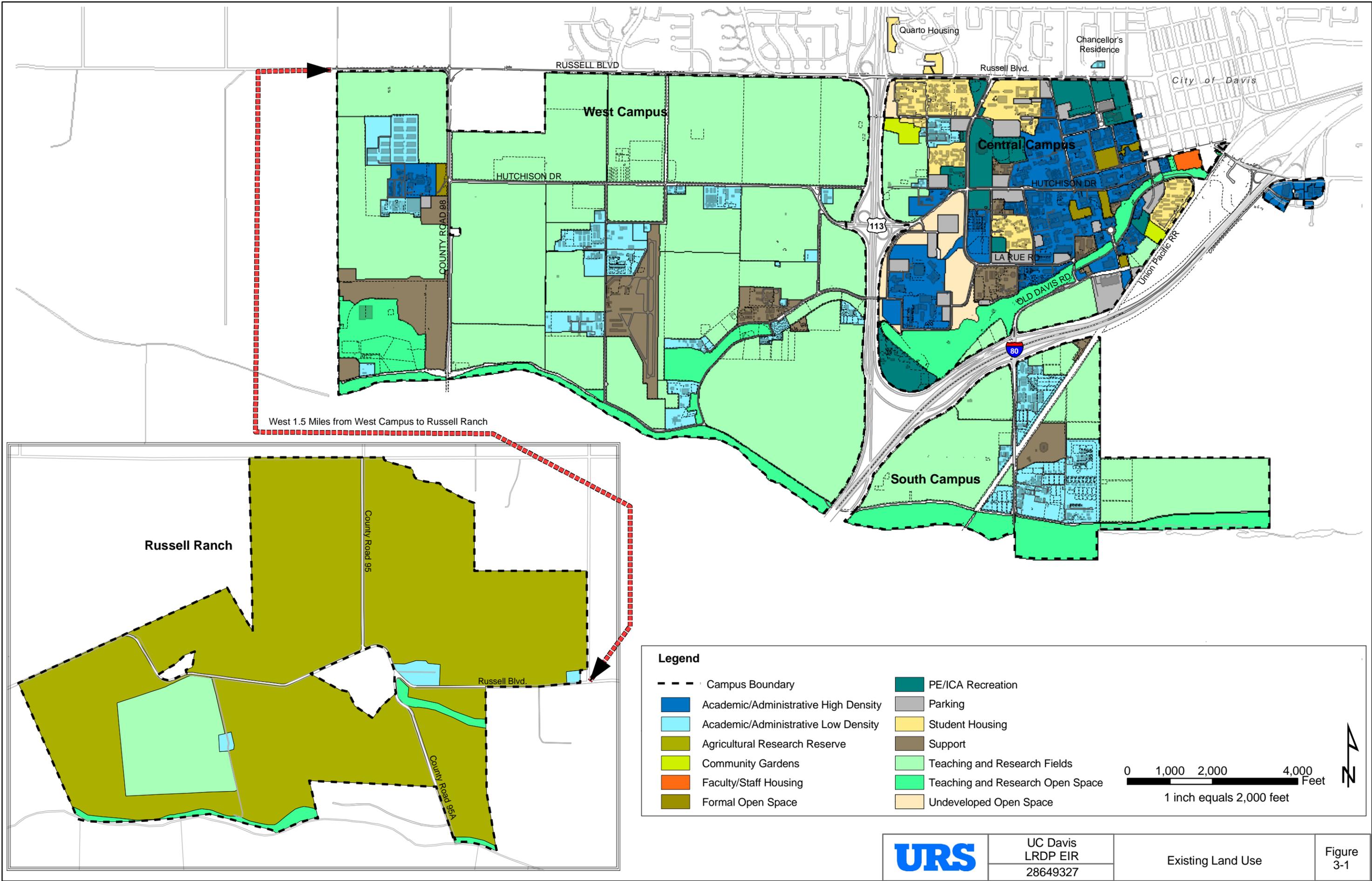
- Relocation of the Equestrian Center recreational program, the Department of Animal Sciences dairy research and support facilities, and the Department of Land, Air and Water Resources field program from the central and west campuses to Russell Ranch.
- Designation of land for the development of Research Park facilities near the campus' southern entry on Old Davis Road and near the University Airport.
- Designation of lands on the south campus for the relocation of support services from the central campus to the south campus.
- Designation of lands on Russell Ranch for implementation of mitigation measures to offset impacts to biological resources.

3.8 LRDP LAND USE DESIGNATIONS

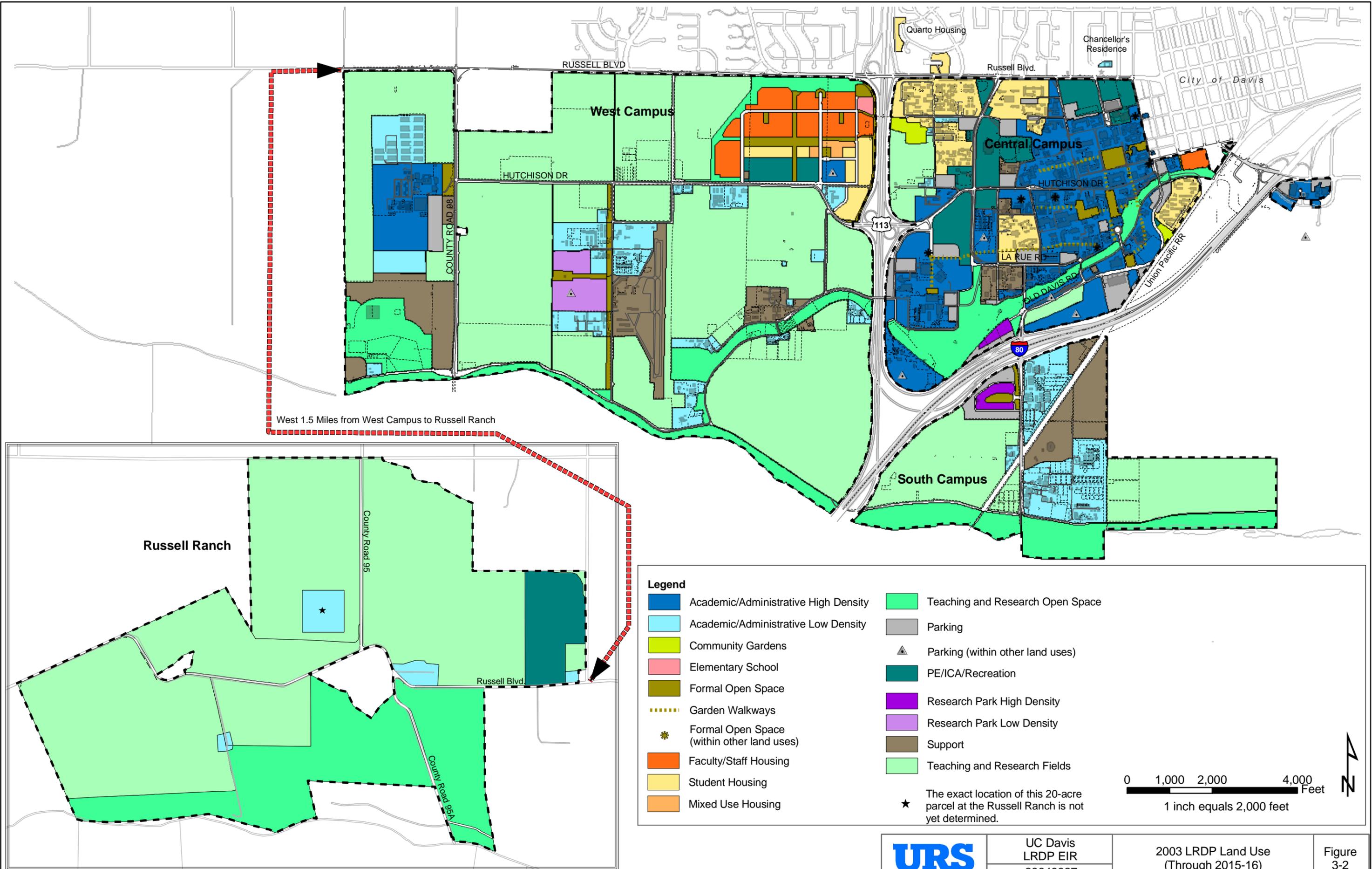
The purpose of the LRDP is to guide the physical development of the campus through 2015. The 2003 LRDP identifies the following land use categories to support anticipated campus growth through 2015-16:

- Academic/Administrative–High and Low Density
- Community Gardens
- Elementary School
- Faculty/Staff Housing
- Formal Open Space
- Mixed-Use Housing
- Parking
- Physical Education/Intercollegiate Athletics/Recreation (PE/ICA/Recreation)
- Research Park–High and Low Density
- Student Housing (Graduate, Undergraduate and dependents)
- Support
- Teaching and Research Fields
- Teaching and Research Open Space

Figure 3-2 shows proposed land uses under the 2003 LRDP. Acreages of land assigned to each major land use are listed in Table 3-3. Each of the LRDP land use categories is described below.



C:/data/ArchiMap_projects/cmd_idrp_2003_landuse.mxd 9-17-2003



**Table 3-3
Acreage by Land Use Category**

Land Use Category	2001-2002 Existing Land Use	2003 LRDP Land Use Designation
Academic/Administrative–High Density	293	441
Academic/Administrative–Low Density	293	316
Agricultural Research Reserve	1,381	0
Community Gardens	12	10
Elementary School	0	3
Faculty and Staff Housing	6	77
Formal Open Space	20	69
Major Roads, Levees, etc.	108	132
Mixed-Use Housing	0	6
Parking	79	92
Physical Education/Intercollegiate Athletics/Recreation	107	195
Research Park–High Density (formerly Enterprise Reserve)	0	12
Research Park–Low Density (formerly Enterprise Reserve)	0	33
Student Housing	118	167
Support Services	213	242
Teaching and Research Fields	2,214	2,722
Teaching and Research Open Space	376	757
Undeveloped Open Space	54	0
Total	5,274	5,274

3.8.1 Academic/Administrative

The Academic/Administrative–High Density land use category designates areas for typically large, multi-story facilities that facilitate the teaching, research, and public service mission of the University of California. Uses include classrooms; research laboratories and research support areas; faculty, student, and staff offices; libraries; program support facilities; student activity space; meeting rooms; space for public service, outreach, and cultural activities; and business/service activities that support the University’s mission. Although most facilities may be occupied by university programs, some may be occupied by university-related public or private partners. The High Density designation also includes small parking lots (under 100 spaces) setbacks, landscaping, on-site utility services, sidewalks, and roads associated with the facilities.

The Academic/Administrative–Low Density category designates areas for the same range of land uses as the high-density designation, but buildings within this designation typically would be one to two stories in height, and primarily would support teaching and research field activities.

In 2001-02, the campus had a total of approximately 4,475,000 assignable square feet (asf) within approximately 6,620,000 gross square feet (gsf) of building space in areas designated for Academic/Administrative–High and Low Density uses. As shown on Figure 3-1, the majority of existing Academic/Administrative–High Density space is located on the central campus within the academic core and Health Sciences District, and at the California National Primate Research Center (CNPRC) on the west campus. The majority of existing Academic/Administrative–Low Density space is within the south and west campuses. As of October 2002, the campus has approved, but has not yet occupied, an additional approximately 615,000 asf (980,000 gsf). It is

anticipated that approximately 130,000 asf (220,000 gsf) of additional new academic and administrative space will be proposed under the 1994 LRDP before the proposed fall 2003 consideration of the 2003 LRDP.

The 2003 LRDP would allow for the development of 2.5 million asf (4.2 million gross square feet) of academic and administrative space on the campus over 2001-02 levels. The majority of new Academic/Administrative High Density development through 2015-16 is anticipated to occur as infill within the central campus' academic core and Health Sciences District and on the west campus at the CNPRC (see Figure 3-2). Infill on the central campus typically would occur either within existing Academic/Administrative High Density areas; as a replacement of existing support, open space, or agricultural areas; or to reflect a change from low-density academic/administrative to high-density development. The 2003 LRDP designates the existing Equestrian Center site (located north of I-80, east of SR 113, and south of the Health Sciences District) as High Density–Academic and Administrative.

The 2003 LRDP also designates an Academic/Administrative–High Density site in the west campus for the development of a Community Education Center that would include facilities for the Los Rios Community College District and other campus-affiliated educational programs. This designation potentially could also provide space for satellite facilities for the Davis Senior High School. In addition, the 2003 LRDP provides an Academic/Administrative Low Density site at Russell Ranch for a potential research dairy (see Figure 3-2). Such a dairy could include structures and land for approximately 1,000 cows.

3.8.2 Community Gardens

The Community Gardens land use category provides for small-plot agricultural lands managed by student groups primarily for household food production. Existing Community Gardens designations include a parcel located adjacent to and south of the Solano Park Housing Complex and a parcel adjacent to and south of the Orchard Park Housing Complex (Figure 3-1). The 2003 LRDP would not change existing Community Gardens designations except for about two acres at Solano Park, which would be converted to a roadway (Figure 3-2).

3.8.3 Faculty/Staff Housing

The Faculty/Staff Housing category designates areas for faculty and staff residential housing. Historically, UC Davis has not provided housing for its faculty and staff. However, in 1997 the campus developed Aggie Village, which includes 21 single-family, detached homes, of which 17 contain cottages, and 16 split-lot townhouses located south of First Street and north of the UC Davis Arboretum. In response to local housing pressures and regional environmental considerations, the 2003 LRDP designates campus land for the construction of Faculty/Staff Housing to meet the increased demand for affordable housing. This housing is expected to help the campus recruit quality faculty, given the high real estate prices over the last decade in California. Although housing within this designation would be designed for faculty and staff, it would not exclude student residents, as is the case at Aggie Village, where cottages may be leased to students by the owner. This designation also includes setbacks, on-site parking, sidewalks, and roads that service the housing.

The 2003 LRDP designates land for approximately 500 Faculty/Staff Housing units west of SR 113, south of Russell Boulevard, and north of Hutchison Drive as part of the proposed Neighborhood. (Detailed and assessed in Volume III of this EIR). A variety of housing options would be developed to accommodate a range of incomes and living preferences. These options would include detached single-family units, townhouses, and apartments. The majority of the detached single-family units would include a separate cottage unit for potential rental to a student, by which homeowners would be able to offset a portion of the cost of their home.

3.8.4 Formal Open Space

Formal Open Space designates the larger landscaped spaces within the central campus to balance and complement the built environment. Formal Open Spaces are those landscapes that are (1) interwoven with the built environment; (2) campus spaces such as the Quad and the Silo District, or neighborhood spaces such as the mall by Storer and Hutchison Halls; and (3) open spaces contained by a single building, like the courtyard of Shields Library. These landscapes, in combination with the teaching and research fields and athletics and recreation fields, create an open space network that varies greatly in scale, use, and character. Existing Formal Open Space areas within the central campus include the Quad, the Mrak Mall, the South Entry Quad, open areas near A Street and the Physical Sciences area landscaping (see Figure 3-1).

The 2003 LRDP maintains the central campus' existing Formal Open Space areas and also identifies potential future sites for Formal Open Space throughout the central campus (see Figure 3-2). In addition, the 2003 LRDP provides for landscaped pedestrian corridors, termed Garden Walks, throughout the central campus to incorporate additional open spaces and encourage separation of pedestrians from bicycles.

Formal Open Space areas are also included in the proposed Neighborhood, to physically and visually connect the Neighborhood with the character of the central campus. The Village Square of the NMP is seen as an extension of the Quad and Silo District in character and function, as it would serve as the central activity node for the Neighborhood. Other Formal Open Space areas in the NMP include the transit corridor and the greenbelts.

3.8.5 Mixed-Use Housing

Mixed-Use Housing is a new land use designation that would be used within the NMP to provide for student, faculty and staff rental apartments in conjunction with parking and some commercial/office space. Approximately 6 acres are designated Mixed-Use Housing on the LRDP land use diagram.

3.8.6 Elementary School

The 2003 LRDP includes a new designation – Elementary School, which provides a site for an elementary school and a park within the NMP. The LRDP land use diagram designates approximately 3.1 acres for this purpose.

3.8.7 Parking

The Parking land use designation provides for major surface parking lots and parking structures. The 2003 LRDP does not identify parking lots as separate land uses within Student Housing, Community Education Center and some Research Park areas, and small parking lots under 100 spaces are included within other land use designations.

Land currently designated and used for Parking on campus is located throughout the central campus (see Figure 3-1). The 2003 LRDP provides for adequate and convenient parking on the central campus by identifying the following existing surface parking lots for potential redevelopment as parking structures: Parking Lot 25, near the Recreation Hall; Parking Lot 53, along the west side of the Health Sciences District; and Parking Lot 47, located south of the Tercero and Leach housing complexes.

To the extent that the proposed NMP (detailed in Volume III of this EIR) provides convenient student, faculty, and staff housing, less parking will be required on campus. Residents living in the proposed NMP would be encouraged to bicycle, take Unitrans, or walk to the central campus, and would be able to buy daytime campus parking permits only by exception, thereby reducing the number of local automobile trips and amount of new on-campus parking. The Neighborhood would also serve to reduce the number of University employees commuting to the campus from other communities. This reduction in commuter trips would in turn lead to a decrease in the amount of new parking needed on the campus.

3.8.8 Physical Education/Intercollegiate Athletics/Recreation

The Physical Education/Intercollegiate Athletics/Recreation (PE/ICA/Recreation) land use designation provides for indoor and outdoor athletic facilities and fields. A large percentage of UC Davis students participate in athletics and recreation activities. These activities are clustered in three parts of the central campus: (1) facilities and fields at the northeastern corner of the campus (including Hickey Gymnasium); (2) facilities and fields along La Rue Road (including the Recreation Hall, Activities and Recreation Center, and Recreation Pool); and (3) the Equestrian Center (located north of I-80, west of SR 113, and south of the UC Davis Arboretum). Additionally, small recreation fields and informal recreation spaces are located near student housing complexes.

Facilities and fields in the area of Hickey Gym include Toomey Field, tennis courts and the surrounding athletic and recreation fields along Russell Boulevard and A Street, some of which are lit at night. The Recreation Hall area includes the Activities and Recreation Center, baseball stadium, a soccer field, and adjacent athletic and intramural recreation fields. The Equestrian Center grounds and facilities include three barns, semicovered paddocks and horse pastures, three all-weather sand arenas, and other riding amenities.

The 2003 LRDP provides for new PE/ICA/Recreation areas on the central campus, west campus, and Russell Ranch (see Figure 3-2). As in the 1994 LRDP, the 2003 LRDP designates a currently undeveloped parcel on the central campus northeast of the Health Sciences District, south of Hutchison Drive, and west of La Rue Road as PE/ICA/Recreation. This site would be developed as a Stadium Complex, including a stadium and practice fields, (detailed in Volume III of this EIR).

The 2003 LRDP changes the designation of a few small recreation/athletic fields in the central campus to accommodate expansion of Academic/Administrative and Student Housing uses. To replace these fields and accommodate expanded need, the 2003 LRDP also designates a parcel of land on the west campus (that currently is used for agricultural teaching and research) as PE/ICA/Recreation. This PE/ICA/Recreation site is included in the proposed NMP. The parcel would provide recreation fields to serve campus demand as well as demand from the new Neighborhood. Volume III of this EIR includes project-specific environmental analyses of the proposed NMP and Stadium Complex. The 2003 LRDP also designates land at Russell Ranch as PE/ICA/Recreation to provide a relocation site for the UC Davis Equestrian Center (currently located north of I-80, east of SR-113, and south of the Health Sciences District).

3.8.9 Research Park–High Density and Low Density

The Research Park designation has been developed by the campus in recognition that public and private research partnerships will be increasingly required to support the academic mission and related campus activities. The Research Park designation (identified as Enterprise Reserve in the 1994 LRDP) provides land to accommodate private, public, and nonprofit entities on campus in order to increase collaboration, research, and teaching opportunities. While facilities for these types of program partners in some cases also might be located in Academic/Administrative land use designations the intent is to concentrate these partners in Research Park areas. Some campus programs also may be located in the Research Park land use designation. This designation would include buildings, and would also provide for parking and ancillary functions to support the primary Research Park uses. The Research Park–High Density designation would allow for large, multi-story facilities whereas the Research Park–Low Density designation would allow for one-story buildings.

The campus anticipates that on-campus Research Park areas would accommodate a total of approximately 528,000 asf (880,000 gsf) of building space and approximately 2,400 non-university employees through 2015-16 (UC Davis 2002). As in the 1994 LRDP, the 2003 LRDP designates three areas as Research Park: a 38-acre west campus parcel located west of the University Airport which is designated Research Park–Low Density, a south campus 27-acre parcel located south of I-80 and west of Old Davis Road, and a central campus 11-acre parcel located north of I-80 and west of Old Davis Road, both of which are designated Research Park–High Density. The proposed RPMP addresses design guidelines for facilities on land proposed for Research Park uses on the central and south campuses (see Figure 3-2). Volume III of this EIR includes a project-specific analysis of the RPMP.

3.8.10 Student Housing

Student housing is basic to the educational mission of the University of California. The University has determined that provision of housing for freshmen and undergraduate transfer students can be correlated to successful student retention rates. The Student Housing land use designation provides for a variety of campus and privately operated student housing types and densities, as well as campus childcare centers, related parking, dining facilities, and housing-related activity areas. Historically, the campus has attempted to provide housing for approximately 25 percent of the student enrollment. The campus goal is to provide housing for all eligible freshmen who wish to live on campus. Residential education programs in the

residence halls supply an important link between the academic and living environments. Housing for students with families and daycare facilities are also provided on campus. Single students have campus housing options in the residence halls, suites of shared rooms, or apartment-style units. Campus student housing accommodated approximately 5,800 students in 2001-02, or approximately 23 percent of the on-campus student population (UC Davis 2002).

The 2003 LRDP includes development of new student housing on the central campus to accommodate approximately 2,000 additional students over 2001-02 levels through 2015-16. The 2,000 new student beds through 2015-16 include approximately 400 new beds approved and under construction as part of the Segundo Housing Infill Project; 400 new beds approved by The Regents in April 2003 as part of the Tercero Housing Improvement Project; and an additional approximately 800 beds that are currently proposed under the 1994 LRDP (as part of future phases of the proposed Tercero Housing Infill Project). The 2003 LRDP provides land for approximately 400 beds near the Orchard Park Housing Complex on a vacant site northwest of the Orchard Park Housing Complex and on a site that is currently developed with greenhouses south of Orchard Park Housing. With these increases, total central campus student housing is anticipated to accommodate approximately 26 percent of the student population through 2015-16. It is assumed that the new student housing would be similar to current housing on campus.

The 2003 LRDP designates additional land for student housing west of SR 113, south of Russell Boulevard, and north of Hutchison Drive as part of the proposed NMP (described in detail in Volume III of this EIR, which also includes environmental analysis of the specific proposed project). Student housing in this proposed development would include apartments and detached cottages on single-family lots that would be available as rental units. Within the Neighborhood, approximately 3,000 upper-division undergraduate and graduate students and their dependents would be accommodated.

3.8.11 Support Services

The Support Services land use category designates land for facilities required to service the campus on a daily basis, including facilities for fire and police protection, supplies, water, wastewater, solid waste, electricity, communications, heating and cooling, building maintenance, hazardous waste, and vehicle maintenance/storage. UC Davis maintains and operates many of its own physical support systems independent of local jurisdictions. This provides the campus with more control over the operation of these systems than if they were operated by outside agencies, and it places UC Davis more firmly in an environmental systems management role than many other UC campuses.

Support Services land uses currently are located on the central, west, and south campuses. These include facilities such as the Campus Landfill and the University Airport on the west campus; the Operations and Maintenance Headquarters, the Fleet Services and Unitrans operations centers, the Central Heating and Cooling Plant and Thermal Energy Storage Plant on the central campus; and the campus Wastewater Treatment Plant and an electrical substation on the south campus.

The 2003 LRDP changes the Support Services designation of the currently developed Operations and Maintenance Headquarters and Fleet Services sites on the central campus to Academic/Administrative–High Density to provide room for expansion of the academic core in this area. To accommodate the support functions displaced by the expansion of Academic/Administrative–High Density uses, the 2003 LRDP redesignates land on the south

campus that currently is used for Teaching and Research Fields, as Support Services. Additional land on the south campus, currently designated for Teaching and Research Fields, would be redesignated for Support Services to provide for expansions of the existing electrical substation (located south of I-80 and northwest of the Union Pacific Railroad) and the existing campus Wastewater Treatment Plant (located in the south campus southeast of the Union Pacific Railroad).

3.8.12 Teaching and Research Fields

The Teaching and Research Fields land use category designates land for teaching, research, and support of academic programs, primarily in the plant and animal sciences. The majority of existing land used for Teaching and Research Fields is located in the south and west campuses (see Figure 3-1).

The 2003 LRDP plans for conversion of land currently used for Teaching and Research Fields at various locations on the central, west, and south campuses to accommodate proposed development, including the NMP, the Research Park Master Plan, expanded support services, and new academic/administrative proposals (see Figure 3-2). To allow relocation of agricultural programs and accommodate proposed expansions of these programs and the relocation of the Equestrian Center program, the 2003 LRDP identifies new sites for Teaching and Research Fields at Russell Ranch. One of these sites would be provided for the eventual relocation and expansion of the existing dairy, which at present is located on the central campus east of La Rue Road. Another site at Russell Ranch would be designated for Teaching and Research Fields for the phased relocation of the Land, Air and Water Resources Department, currently located on the west campus, south of Hutchison Drive.

In anticipation of future campus growth needs, a long-range agricultural land planning study was conducted by the College of Agriculture during the LRDP planning process. The study identified which agricultural activities in the college need to remain at their current sites long-term, and which activities have the flexibility to be moved in the short-term. The results of this study informed the locations and configurations of the proposed NMP and the NMP alternatives that are evaluated in this document.

3.8.13 Teaching and Research Open Space

The Open Space Teaching and Research land use category provides for open lands that directly contribute to teaching and research in the environmental sciences. The majority of existing Open Space Teaching and Research areas are located along the University Arboretum on the central campus and along Putah Creek on the west and south campuses and on the Russell Ranch (Figure 3-1). These lands along Putah Creek are part of the UC Davis Putah Creek Riparian Reserve.

The 2003 LRDP would expand Open Space Teaching and Research areas at Russell Ranch, on the central campus north of the Arboretum and east of the Health Sciences District, in the south campus adjacent to the campus' Putah Creek Riparian Reserve, and on the west campus within the Neighborhood (see Figure 3-2). The Teaching and Research Open Space land use designation would be placed on existing and new areas at the Russell Ranch that would be dedicated to wildlife habitat use and mitigation. Within the Neighborhood, lands to be used as buffers and for

storm drainage facilities, and possibly trails would be designated as Open Space Teaching and Research.

3.9 PUBLIC SERVICES

The discussion below describes the projected increase in demand for campus public services that would result from full on-campus development under the 2003 LRDP and the types of new facilities that potentially could be constructed on campus to meet this demand. The environmental impacts of this future construction are evaluated in this EIR at a program level, and will be analyzed in project-specific documents when specific projects are proposed. Project-specific effects associated with public service facilities included in the NMP are addressed in Volume III.

Increases in campus population, building space, and regulatory requirements will demand higher levels of public services than currently exist. Approximately 242 acres are allowed under the 2003 LRDP for Support, including public services and utilities, to accommodate the facilities required to serve the campus on a daily basis. These services would include the transport and processing of supplies and materials, building maintenance, fire and police, and vehicle storage. The support land use designation also encompasses existing specialized facilities such as the University Airport the campus landfill, the wastewater treatment plant and the electrical substation. Some support uses have been developed previously and will be expanded in support service zones on or at varying distances from the central campus to allow flexibility for various functional demands.

The 2003 LRDP proposes to retain some support services operations on the central campus, while others would be moved to make way for higher-density Academic and Administrative land uses. The existing Operations and Maintenance Headquarters and Fleet Services would be moved to the south campus. The 2003 LRDP would redesignate some south campus lands that are currently used for Teaching and Research Fields as Support for these operations.

3.9.1 Fire Protection

The UC Davis Fire Department provides fire protection, hazardous materials incident response, and emergency medical service on campus. The department's fire protection responsibilities include controlling fires, investigating causes of fires, inspecting buildings for hazard control, and implementing a comprehensive program of inspection and testing of built-in fire protection systems throughout the campus. The campus Fire Department provides the primary response to the central, south, and west campuses. UC Davis offices in the City of Davis, including the South Davis Research Park, and the Cuarto Housing complex, are served by the City of Davis Fire Department. Russell Ranch currently is served by the West Plainfield Fire District.

Growth under the 2003 LRDP, as well as increased density of use on the central campus, would contribute additional campus building space and increased operations that could increase the demand for fire protection. The UC Davis Fire Department utilizes a service standard of response within 6 minutes to 90 percent of the calls received. The department currently achieves this standard; however, additional staff and facilities would be needed to meet this standard under the 2003 LRDP. The NMP therefore includes a site for a public safety station on the west campus that would be developed in conjunction with the new neighborhood. Additional facilities

also could be provided adjacent to the existing Fire/Police station in the Support Service zone designated in the south campus.

3.9.2 Police Services

The UC Davis Police Department provides police protection services for all buildings and facilities either owned or leased by UC Davis. The department operates out of a facility on the central campus, which is shared with the UC Davis Fire Department. Population and building space growth under the 2003 LRDP would increase operations that could contribute to an increased demand for police protection services. The UC Davis Police Department has indicated that it would like to achieve a standard of 1 officer per 1,000 members of the campus population. With the growth envisioned for the west campus, the department anticipates that a public safety station would be established in the NMP. In addition, the Police Department's existing facilities on the central campus could be expanded and/or facilities could be constructed for office-based operations in the Support area in the south campus.

3.9.3 Schools

The Davis Joint Unified School District serves the City of Davis and portions of Yolo and Solano counties. Growth under the 2003 LRDP would increase the on-campus residential population, which could increase the number of school-age children in the area. As a result, a direct increase in demand for local schools could occur under the 2003 LRDP. To offset this demand, the NMP includes a site for an elementary school and a Community Education Center, which would offer a Davis Joint Unified School District satellite high school program.

3.9.4 Parks

The campus provides parks and open space that are available to the on-campus population as well as the general public. In addition, the City of Davis maintains public parks and recreation areas. Growth under the 2003 LRDP would increase the on-campus population, which could increase demand for parks. Increased parks and open space, including expansions of the Arboretum and new recreation fields, are included in the 2003 LRDP. These areas would be situated on the central campus and within the NMP.

3.10 UTILITIES

The discussion below describes the projected increase in demand for campus utilities under the 2003 LRDP and the types of facilities/expansions that could be redeveloped on campus to meet this demand. The environmental impacts associated with utilities are evaluated in the EIR at a program level. UC Davis currently is serviced by the full range of utilities and a well-developed utility infrastructure, augmented by natural gas, electricity, and some telecommunications services from outside providers. The campus upgrades its utility systems regularly, and has a program of upgrades and replacements that will continue throughout the duration of the period covered by the 2003 LRDP. Utility Master Plans for domestic water, stormwater, wastewater, solid waste, electricity, communications, and heating and cooling facilities are developed and reviewed on an ongoing and updated as necessary.

Increases in campus population, building space, and regulatory requirements will demand either higher levels of service than those which currently exist or expansion of existing utility facilities. Utility systems would be expanded and developed as needed, consistent with individual utility master plans. A critical consideration in utilities planning, particularly for electricity, natural gas, and water, is the continued use of strategies to reduce demand, conserve, and recycle appropriately. To this end, the 2003 LRDP includes an assessment of efficient strategies for utility planning. In general, these strategies include installation of Energy Star appliances in the NMP with reduced energy needs, encouragement of energy and water conservation strategies, and water efficient landscape design and use of low-flow irrigation.

Approximately 242 acres are allowed under the 2003 LRDP for Support, including public services and utility uses. This includes approximately 61 acres for the University Airport and approximately 59 acres for the campus landfill. The 2003 LRDP proposes to retain some utility services on the central campus, while others would be moved to make way for higher-density Academic and Administrative land uses. The 2003 LRDP would designate some south campus lands currently used for Teaching and Research Fields as Support. Support land use areas in the south campus would accommodate future expansions of the campus' existing electrical substation and Wastewater Treatment Plant, which already are situated on the south campus. Expansion of steam and chilled water plants would occur on the central campus, and a new electrical substation could be developed on the west campus. Table 3-4 below presents the projected demand for utilities that is expected to result from the implementation of the 2003 LRDP.

**Table 3-4
Existing and Projected Demand for Utilities**

Utility	2001-02 Consumption & Demand		LRDP Consumption & Demand		NMP Consumption & Demand		Total Through 2015-16
	Annual Consumption	Peak Demand	Annual Consumption	Peak Demand	Annual Consumption	Peak Demand	Annual Consumption
Domestic Water	2,661 ac-ft	3,100 gpm	4,877 ac-ft	4,335 gpm ¹	423.7 ac-ft	946 gpm ²	5,301 ac-ft
Utility Water	1,170 ac-ft	1.5 mgd	948 ac-ft	1.8 mgd	436 ac-ft	0.85mgd	1,384 ac-ft
Wastewater	650 mg	1.6 mgd	1,400 mg	3.5 mgd	178 mg	0.35 mgd	1578 mg
Solid Waste	8,700 tons	NA	17,811.6 tons	NA	included in LRDP	NA	17,811.6 tons
Electricity	200,000,000 KWh	34,000 KW	506,000,000 KWh	107,000 KW	13,154,000 KWh	6,473 KW	519,000,000 KWh
Natural Gas	16,800,000 therms	2,900 therms/hr	45,000,000 therms	6,700 therms/hr	1,298,000 therms	495 therms/hr	46,128,000 therms

1. LRDP peak domestic water demand does not include fire water demand projections.
2. In addition to the NMP's peak demand for 946 gpm of water for domestic purposes, the Neighborhood would have a peak demand for fire protection of 2,875 gpm, for a total domestic/fire water demand of 3,821 gpm.

Source: UC Davis Architects and Engineers 2003.
 Phillips, David. 2003a. Memo to Sid England. Domestic Water Projections.
 Phillips, David. 2003b. Memo to Sid England. Utility Water Projections.

3.10.1 Domestic Water/Fire Water

The campus' domestic/fire water system provides chlorinated water for use in campus buildings (such as student housing and laboratories), for landscape irrigation on the west and south campuses (beyond the service area of the utility water system), for the heating and cooling systems at the Central Heating and Cooling Plant (CHCP), and for fire fighting. This system obtains water from six wells that tap into deep aquifers at depths between approximately 1,360 and 1,470 feet below the ground surface. The major elements of this system include the six deep aquifer wells with a total pumping capacity of approximately 5,290 gallons per minute (gpm), approximately 144,000 linear feet of distribution pipelines, an elevated water tower and a ground-level storage tank with a combined capacity of approximately 500,000 gallons, an underground storage reservoir with a capacity of approximately 1.3 million gallons, and a booster pump station that pumps water from the underground reservoir into the water tower to maintain water pressure in the system (West Yost 2000a, UC Davis 2001). While the domestic water system is operated separately from the utility water system (which is used for landscape irrigation), the two can be cross-connected under emergency conditions by opening interconnecting valves and pipelines. Additionally, two utility wells have been constructed to serve as emergency production facilities for the domestic water system. These wells include connections to the domestic water system and chlorination systems. The domestic system can also be connected to the City of Davis water system through two valves. The annual consumption of domestic water as of 2001 was about 867 million gallons per year or 2,661 acre-feet. Of that amount, about 40 percent of domestic water use was associated with cooling towers and boilers; the rest was used primarily within buildings, and a small amount was used for landscape irrigation on the south and west campuses where utility water is not available.

Growth under the 2003 LRDP would increase consumption of domestic water. Based on the projects expected to be built within the time frame of the 2003 LRDP, the annual consumption of domestic water would increase to approximately 5,301 acre-feet, of which about 424 acre-feet would be used at the proposed NMP.

To serve this projected increase in consumption, improvements to the domestic water system being considered by the campus include two new wells and/or a tank on the south campus to provide redundancy for that area and provide increased capacity, a new well on the central campus, a new well or a new tank on the west campus to serve the NMP, and distribution line improvements.

3.10.2 Utility Water

Water for nonagricultural irrigation (about 300 acres) and greenhouse use on the central campus is supplied by the campus utility water system. This system serves about 840 acres of the central campus and does not extend to the west or south campuses or Russell Ranch. Water for the system is obtained from six groundwater wells completed in the intermediate aquifer (depths of 200 to 800 feet). The six operating wells together have a capacity of about 5,045 gpm. The system includes one 100,000-gallon elevated storage tank. The distribution system consists of pipelines ranging from 2 to 12 inches in diameter. As noted earlier, this system and two utility wells can be cross-connected to the domestic water system by opening certain interconnecting valves. Utility water demand is almost completely controlled by campus operations staff in the

Grounds Unit. Landscape irrigation, which makes up the bulk of utility water usage on campus, required approximately 381 million gallons of utility water, or about 1,170 acre-feet per year in 2001.

Growth under the 2003 LRDP would increase the consumption of utility water on the campus. Additional landscaped areas on the central campus would require utility water. Irrigation needs in the NMP area would likely be served by on-site agricultural wells; the NMP area would not be connected to the utility water system on campus. Utility water demand would increase to approximately 1,384 acre-feet with full development under the 2003 LRDP. The campus is considering alternative ways to meet the projected demand, including by constructing two new utility water wells or providing additional storage. Distribution pipeline improvements also would be necessary in conjunction with these alternatives.

3.10.3 Agricultural Irrigation Water

UC Davis purchases 4,000 acre-feet of Solano Project water annually from the Solano County Water Agency. Solano Project water, which is Putah Creek surface water, is stored in Lake Berryessa above Monticello Dam and is delivered to the southwestern corner of the campus via an underground pipeline. This water is used primarily for field teaching and research activities. In addition, the agricultural water system obtains water from 21 main campus wells and 12 Russell Ranch wells that tap into intermediate depth aquifers. UC Davis also has riparian rights to divert water from Putah Creek at Russell Ranch and on the main campus, but the campus has only exercised these rights at Russell Ranch. In addition, Cache Creek water delivered to the campus by Willow Canal is used only on Russell Ranch by a tenant farmer. Agricultural water demand on campus is expected to decrease under the 2003 LRDP, and no system improvements are anticipated.

3.10.4 Storm Water

The existing storm water drainage system on campus consists of collectors, pump/lift stations, transmission mains, and the Arboretum Waterway. The Arboretum Waterway is within the historical North Fork of Putah Creek. This former stream segment has been regraded and is used as a storm water detention pond for the central campus. The general topographic slope of the central campus is to the northeast; therefore, central campus surface water generally drains to the northeast. Piped drainage facilities intercept and collect the runoff and convey it south to the Arboretum. Storm water is discharged into the Arboretum at many locations. From the Arboretum, storm water is pumped to the South Fork of Putah Creek, the principal stream course in the Davis region. Primarily during large storm events, some storm water from parts of the south campus is conveyed directly to the South Fork of Putah Creek. A portion of the west campus along Hopkins Road (including the airport) is served by a piped storm drain system that conveys flows to Putah Creek. On most of the campus teaching and research fields in the west and south campuses and at Russell Ranch, storm water collects, causing local ponding that either percolates or evaporates. Overland flows from these areas of the campus discharge to regional storm water drainage systems.

The 2000 Campus Storm Drainage Master Plan, available for review at the UC Davis Office of Resource Management and Planning, evaluated the existing storm drainage system and found that most areas on the central campus back up under 10-year storm conditions, resulting in

localized flooding near the storm drain inlets. The evaluation also noted that the piped storm drain system on Hopkins Road and some other areas is adequate only for a 2-year storm (West Yost 2000c). In recognition of these current conditions, the campus requires all new projects located on Hopkins Road to include detention basins so that flows into the system can be detained and released over a longer period. To address the issue of localized flooding of agricultural fields between the CNPRC and Russell Boulevard, the campus has approved the construction of a storm water detention basin, regrading of fields, and other related improvements.

Development under the 2003 LRDP would increase impervious surfaces, which would increase the volume of storm water runoff and peak flows. Areas where new storm drains would be needed or existing storm drains would be increased are identified in the 2000 Storm Drainage Master Plan. These improvements will be implemented in conjunction with the development of the campus under the 2003 LRDP. The implementation of the NMP would also require construction of storm drainage facilities, which is discussed and analyzed in Volume III of this EIR.

3.10.5 Wastewater

The existing UC Davis sanitary sewer system consists of approximately 20 miles of sewer main lines, more than 10 miles of service sewers, several sewer pumping facilities ranging from small pumping stations to large lift stations, and a Wastewater Treatment Plant (WWTP) located on the south campus that began operation in early 2000. A few areas of the campus, almost all of which are on the west campus, are served by onsite septic systems. In addition, four research facilities on the west campus generate wastewater that requires a permitted discharge directly to Putah Creek.⁴ The sanitary sewer system collects and conveys flows from residential and nonresidential buildings on campus as well as flows from cooling tower and boiler blowdown. In addition, at two locations on the campus, groundwater flows are discharged into the sanitary sewer system. Infiltration and inflow also adds to the influent flows that eventually reach the WWTP, especially from outdoor catch basins serving animal facilities that are connected to the sanitary sewer system.

The Central Valley Regional Water Quality Control Board regulates the quality and quantity of effluent discharged from the campus' WWTP into the South Fork of Putah Creek. The permitted dry-weather capacity of the WWTP is 2.7 mgd. The highest (peak) monthly flow at the WWTP since its construction has been 2.2 mgd.

Growth under the 2003 LRDP would increase the volume of wastewater discharged into the sanitary sewer system. Except for a few sewer lines on the central campus that currently require upsizing and minor improvements, most central campus sewer lines are of adequate size to handle increased flows due to growth under the 2003 LRDP. No upsizing is expected for the south campus sewer lines. The sewer lines and lift stations on the west campus would need to be upsized to serve the west campus Research Park, CNPRC expansion, and the NMP (West Yost 2000d). Growth under the 2003 LRDP would increase the volume of wastewater received at the WWTP to an estimated peak month flow of approximately 4.8 mgd, including the NMP.

⁴ These include the Center for Aquatic Biology and Aquaculture, Aquaculture and Fisheries, Aquatic Weed Research facility and Hydraulics Laboratory, all of which discharge water from culture tanks, greenhouses or fish holding facilities.

Therefore, an expansion of the campus WWTP would be necessary to support full development under the 2003 LRDP.

3.10.6 Telecommunications

The campus' main telecommunications switching facility is located in the Telecommunications Building on the central campus east of the CHCP. The majority of campus voice and data switching equipment and network infrastructure facilities are owned by the campus and operated by the UC Davis Communications Resources Service.

In 1987, Communications Resources installed a Private Branch Exchange (PBX) voice switching system on the campus to replace telephone service previously provided by Pacific Bell. Copper infrastructure owned by Pacific Bell also was replaced at that time and has since been augmented. The existing system is fully capable of supporting the telephone service requirements that might be encountered through the 2003 LRDP planning horizon, although small site-specific extensions of service may be required to provide service for specific projects.

The existing UC Davis Data Network infrastructure is comprised of an asynchronous transfer mode (ATM) backbone that interconnects Ethernet end stations. The UC Davis Net2 initiative, started in 2001, extended the coverage of the network to another 2,300 locations outside the core area of the campus. Additional upgrades have been implemented in the Engineering and Health Sciences Districts, and currently are underway elsewhere on campus. The fiber optic cable plan reaches the bulk of the buildings within the campus. The core segment interconnects eleven geographic areas of the campus. The standard service level is delivered to the desktop on campus in over 400 buildings (IET/Communication Resources 2001). Development under the 2003 LRDP would increase demand for telecommunications, particularly on the west campus. To meet campus demand, the need for 4,730 new data Network Access Modules (NAMs), 603 new voice NAMs, and associated extensions is anticipated.

3.10.7 Electricity

The current electrical system consists of a Main Substation on the south campus that receives high-voltage power level from PG&E and the Western Area Power Administration and transforms this power for distribution throughout the central, west and south campuses. A small portion of the central campus power is also generated at the campus cogeneration plant, located in the CHCP facility on the central campus. The Main Substation houses four substation transformers, each with a maximum rating of 10,500 kVA, with a fifth transformer designated as a backup. The Campus Cogeneration Plant supplies an additional approximately 2,700 KW. The Electrical Improvements Phase 2B Project completed in 2003 added another 22,400 kVA transformer, which brought total available capacity to 64,400 KW.

The system maximum demand in 2002 was approximately 35,000 kVA, for which the system had adequate capacity and adequate backup capacity. With the completion of the Electrical Improvements Phase 3 Project, the campus Main Substation and electrical distribution system will have the available capacity to serve the needs of the campus until 2010, and to provide adequate backup capacity.

The maximum electric demand on campus by 2015, including the NMP, is anticipated to be approximately 113,500 KW, with most of the new demand stemming from the projected growth

in the Health Sciences District and the west campus. Solutions to supply the electrical capacity that will be needed in the next decades appears to be either the installation of a new 50 mVA substation on the west campus or expansion of the campus Main Substation. New underground infrastructure would be required to bring power from either of these areas to the Health Sciences District and west campus areas. To eliminate major overhead crossing of SR 113, underground feeders installed in the existing bridge would be planned (MTH Engineers 2002).

3.10.8 Natural Gas

Most campus buildings at UC Davis are heated with natural gas, either directly through the use of gas-fired heating equipment within the building, or indirectly through the use of steam from gas-fired boilers in the CHCP. Natural gas is also used in the campus cogeneration facility. In addition to using gas for heating, many campus research facilities use natural gas for laboratory and experimental purposes.

The main campus is served by six natural gas distribution systems, each of which is supplied by PG&E. These systems are referred to as MM1/MM2, MM3/MM7, MM4, MM5, the Primate system, and MM6. In addition, several buildings on Old Davis Road are served directly by PG&E. PG&E also provides natural gas to the CHCP and the Cogeneration System. Several buildings on and near the University Airport on the west campus are supplied with propane tanks, and are not connected with the natural gas distribution system.

Future conditions analysis indicates that due to the growth planned for the west campus, including the NMP, the MM5 peak gas demand on the west campus will increase in 2006 and will further increase in the years between 2006 and 2016. PG&E would need to modify its A Street pipeline or make other system modifications to serve this growth. Three options available to serve the future west campus demand include (1) a new or replacement natural gas pipeline under Russell Boulevard from A Street to a connection near the neighborhood, (2) a new or replacement pipeline along Russell Boulevard from A Street to the campus CHCP with a second natural gas pipeline from the CHCP to the west campus, and (3) a new pipeline from a PG&E main on Old Davis Road near the Union Pacific railroad tracks at the east end of the campus, to the central campus and another pipeline from the central campus to the west campus.

The campus currently has no natural gas distribution system to the south entry area of the campus. Several new buildings are envisioned for this area between 2003 and 2016. As has been the practice in this area to date, PG&E may be asked to provide service to these buildings from existing PG&E mains in the area, or the campus may choose to serve these new buildings by extending the campus gas distribution network.

3.10.9 Heating and Cooling Systems, Chilled Water and Steam

The campus CHCP is located east of Dairy Road and north of Tercero Housing Complex. It houses three steam boilers, a 2.7 MVA cogeneration plant, and nine chillers. The CHCP provides steam to heat large buildings, and chilled water to provide cooling in several buildings on the central campus. Individual heat, ventilation, and air conditioning (HVAC) systems are used in the remaining buildings not tied into the CHCP. Total steam capacity (including a cogeneration unit) is 280,000 pounds per hour at the CHCP.

Chilled water capacity is approximately 9,150 tons/hour at the CHCP. In 2002, a thermal energy storage (TES) plant was constructed on the central campus at a site south of La Rue Road and north of the Arboretum, which increased the total capacity to 19,500 tons/hour (Black and Veatch 2003). Another expansion of this chilled water plant is proposed under the 2003 LRDP, which would add 8,100 tons/hour capacity, and with this expansion, the system would be adequate to serve the campus needs until 2006-07. The Chilled Water Facilities Expansion project, which addresses this expansion, is addressed as a specific project in Volume III of this EIR.

In addition to the central campus steam and chilled water facilities described above, there is a steam generation and chilled water facility on the west campus that serves the CNPRC. This facility has a steam capacity of 20,000 pounds/hour and chilled water capacity of 380 tons/hour. In addition to the Chilled Water Facilities Expansion Project, additional chilled water and steam system upgrades would be needed under the 2003 LRDP, including improvements to the existing generation facilities and distribution extension.

3.10.10 Solid Waste

UC Davis operates a Class III municipal solid waste landfill located on County Road 98 south of the CNPRC, and provides solid waste collection and disposal services for the campus. The permitted rate of fill is 500 tons per day, and the campus currently generates approximately 34 tons of solid waste per day. The landfill unit currently being used has an anticipated life to 2027.

With the implementation of the 2003 LRDP, at full development (i.e. by 2015-16) the campus would generate approximately 12,214 tons of municipal solid waste per year. The proposed NMP could contribute an additional 908 tons per year. The landfill will have adequate capacity until 2023.

3.10.11 Hazardous Materials and Hazardous Waste

During the course of daily operations, which include laboratory research, vehicle maintenance, and building and grounds maintenance, UC Davis uses many materials, some of which are considered hazardous materials. Such hazardous materials include many chemical reagents, solvents, radioisotopes, fuels, paints, cleaners, pesticides and biohazardous substances. The use of these materials generates hazardous wastes that require treatment and/or collection, temporary storage, and disposal. The UC Davis Office of Environmental Health and Safety (EH&S) is responsible for informing the campus community of regulatory requirements and for performing mandatory and voluntary compliance functions related to health, safety and environmental issues. The campus has developed numerous programs related to hazardous materials and wastes that are being implemented to minimize public health and environmental impacts from hazardous materials use. The use of hazardous materials on the campus is expected to increase with the implementation of the 2003 LRDP. The activities and programs that result in this increase would be subject to all existing and future campus safety programs.

3.11 SUSTAINABLE DEVELOPMENT

The concept of sustainable development relates to development that meets the needs of the present without compromising the needs of future generations. The Governor's Executive Order

D-16-00, which became effective August 2, 2000, establishes the following sustainable building goal: "...to site, design, deconstruct, construct, renovate, operate, and maintain state buildings that are models of energy, water, and materials efficiency; while providing healthy, productive and comfortable indoor environments and long-term benefits to Californians." While this Executive Order is only advisory with respect to the University of California, the University encourages design elements and operations that are intended to help provide for a sustainable environment.

In June 2003, The Regents adopted a UC-wide green building policy and clean energy standard. The policy encourages principles of energy efficiency and sustainability in the planning, financing, design, construction, renewal, maintenance, operation, space management, facilities utilization and decommissioning of facilities and infrastructure to the extent possible, consistent with budgetary constraints and regulatory and programmatic requirements. In addition, the policy aims to minimize increased use of non-renewable energy by encouraging programs addressing energy efficiency, local renewable power and green power purchases from the electrical grid (UC Office of the President 2003). Growth under the 2003 LRDP would be required to comply with this policy.

In addition, as discussed further in Section 4.14 Traffic, Circulation, and Parking (Volume II), the campus currently reduces dependency on the automobile by providing expansive bicycle and pedestrian systems and providing the main local transit system for UC Davis and the City of Davis. As discussed further in Section 4.15 Utilities (Volume II), the campus promotes water and energy conservation, has an extensive recycling program, and provides heating and cooling to most central campus buildings via the energy-efficient chilled water and steam systems.

In addition to compliance with the University's new green building and clean energy policies and continuation of UC Davis sustainable practices, the 2003 LRDP includes several objectives that address sustainable development, including those related to providing a healthy and interconnected natural and built environment, conserving water and energy, maintaining the quality of stormwater and wastewater discharges, providing habitat and agricultural reserves, clustering development and preserving farmlands, supporting bikes and pedestrians, providing incentives to decrease single-occupancy driving, converting to alternate fuel vehicles, supporting transit systems, and maintaining open spaces. In addition, the campus will incorporate design features, such as solar and wind optimization, that support the concept of sustainable development. The proposed NMP, described further in Section 2 Neighborhood Master Plan (Volume III), incorporates such environmentally sustainable features.

3.12 CIRCULATION

The campus is served by a well-developed circulation system that provides for a variety of modes of travel – pedestrians, bicycles, transit, and motor vehicles. Much of the central campus has a developed system of pedestrian walks, and some areas are designated for pedestrians only. There is an expansive system of predominantly off-street bike paths on the campus. Unitrans and Yolobus provide transit services. Greyhound and Amtrak provide bus and rail service within walking distance of the central campus.

The 2003 LRDP includes land use designations that would allow the major roadway improvements discussed below. As necessary to implement the LRDP and as funding becomes available, these improvements will be evaluated in detail.

- **Realignment of Old Davis Road:** Old Davis Road between Mrak Hall Drive and A Street could be realigned. The portion of Old Davis Road between California Avenue and Mrak Hall Drive, known as New Davis Road, has already been realigned to serve the Mondavi Center for the Performing Arts (Mondavi Center). The proposed realignment of Old Davis Road would serve the future Hotel, Conference Center, and Graduate School of Management Building. The existing roadway would be used exclusively by bicyclists and pedestrians.
- **Realignment of La Rue Road:** La Rue Road could be realigned to remove the horizontal curve south of Hutchison Drive. With the realignment, La Rue Road would continue south from Hutchison Drive, intersect Garrod Drive to form a T-intersection, and continue to the east past Dairy Road in its current configuration.
- **New Southern Campus Roadway:** A new roadway could be constructed between Old Davis Road and La Rue Road. The new roadway would continue north from Old Davis Road, cross Putah Creek, and intersect La Rue Road south of the future parking structure. With the construction of this roadway, California Avenue between La Rue Road and Old Davis Road would be closed to vehicular traffic except for campus and emergency vehicles. The new intersection formed at Old Davis Road and the proposed roadway would serve vehicles traveling to the central campus towards the north, to the Mondavi Center, future Hotel, Conference Center, and other planned uses to the east, to the Research Park towards the west, and to I-80 towards the south. This intersection would likely be controlled by a roundabout.

3.13 PROJECTS PROPOSED FOR IMMEDIATE IMPLEMENTATION

As noted earlier, five projects are envisioned to be submitted for approval and implementation soon after the approval of the 2003 LRDP by The Regents. These projects, which are addressed in the 2003 LRDP EIR (Volume III), due to project timing, are summarized below:

- **Neighborhood Master Plan.** The proposed NMP is a plan for the development of a multi-use neighborhood, which would provide on-campus housing and neighborhood services for approximately 3,000 students, and approximately 500 faculty and staff housing units. In addition to housing, the project would include recreation fields, green belts, habitat ponds, bike and transit ways, a community education center with potential shared use by high school, community college and UC Davis programs, locally serving commercial services, and an elementary school facility. Under the NMP, approximately 225 acres would be developed on the west campus, in the area west of SR 113, north of Hutchison Drive, south of Russell Boulevard, and east of Olive Tree Drive.
- **Research Park Master Plan.** The proposed RPMP is a plan for the development of a research park on approximately 38 acres of land on the central and south campuses to the north and south of I-80 and west of Old Davis Road. Proposed research park facilities would accommodate private, public, and nonprofit entities in order to increase opportunities for UC Davis/industry collaboration, research,

and teaching. Current agricultural field uses on these sites would be relocated to other campus sites to accommodate the research park uses.

- **Multi-Use Stadium Complex.** The proposed Stadium Complex would include an outdoor stadium with seating for up to 18,000 spectators, standing room for another 2,000 spectators, and two lighted practice fields. The stadium would be designed for football, soccer, and lacrosse. In addition, it could accommodate commencements, concerts, and cultural and festival events. The stadium would be located east of SR 113, south of Hutchison Drive, and west of La Rue Road, on the central campus and would draw on existing parking facilities.
- **Robert Mondavi Institute.** The proposed facility would consist of three buildings to be built in phases and co-located near the southern edge of the central campus. The RMI Academic Building would include laboratories and office space to replace outmoded food science and enology facilities currently in use in Cruess and Wickson halls. The RMI Viticulture and Enology Research and Teaching Winery would be a functioning winery, which would provide processing facilities and laboratories for research and teaching in the Viticulture and Enology departments. The RMI Anheuser-Busch Brewing and Food Science Laboratory would provide modern brewing and food processing facilities, also for research and teaching.
- **Chilled Water Facilities Expansion Project.** This proposed project would expand the campus chilled water plant by adding four new electric chillers, new cooling towers, associated pumps, a thermal energy storage tank, and expand the chilled water distribution system to serve new facilities that would be developed under the LRDP. The project would be located south of the existing thermal energy storage tank southwest of the intersection of La Rue Road and Putah Creek Lodge Road.

Detailed descriptions of these projects and their environmental impacts are presented in Volume III of this EIR.

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