

4.4 PROJECT DESCRIPTION

4.4.A Treatment of Campus Land Reserve and Campus Natural Reserve

This response addresses comments FA1-8, SA10-8, SA10-22, I40-4, I34-2, O25-9, O25-10, O28-24, O28-92, O25-11, SA12-9, O28-65, O28-66, as well as other similar comments, which question the need for the Campus Land Reserve, the size of the reserve, what activities, if any, would occur within the reserve and how it would be managed. These comments also raise questions relative to the Campus Natural Reserve, the need for it to be adjacent to the Campus, and its management.

4.4.A.1 *Campus Land Reserve*

The 340-acre Campus Land Reserve is planned to be contiguous to the Main Campus to handle needs that may arise in the very far term. Universities are institutions that continue for centuries, and any planning for such institutions must utilize a long-term view of development. As pointed out by one of the commenters, most UC campuses start out with an adjacent reserve to accommodate these potential unanticipated future needs. Those campuses that did not or were unable to do so at inception have had great difficulties finding land to accommodate evolving needs. Some of these campuses have dealt with extreme space limitations by developing high-rise buildings and have been struggling with the disadvantages of high-density campus development. In some instances campuses have addressed the problem of land scarcity adjacent to the campus by establishing satellite facilities or by locating selected uses elsewhere. In other instances, campuses have been forced to demolish existing facilities that are still fully functional to make room for other, higher priority facilities. Prudence requires that the University secure a land reserve in order to be able to address needs that may arise in the future but which cannot now be foreseen.

The acreage set aside for the Campus Land Reserve is 340 acres, which if combined with the Main Campus acreage, would result in a total of 1,250 acres. As shown in the table below, this total area is comparable to the total developed and potentially developable acreage at other UC campuses. UC Merced would be in the middle of this range. (The UCLA and the UC San Francisco campuses are not included in this analysis because of their highly urban settings.)

Total Acreage of UC Campuses

Campus	Total Area	Developable Land
Davis	5,300	1,326
Santa Cruz	2,000	824
Merced	2,000	1,250
San Diego	1,962	1,696
Irvine	1,510	1,375
Berkeley	1,232	NA
Riverside	1,106	903

Some commenters have asked whether the Campus Land Reserve would remain wholly undeveloped in perpetuity. The Draft EIR does not suggest that the Campus Land Reserve would be preserved in perpetuity. Rather it notes that because no use of this area is likely to occur for a very long time, it will function like a preserve in the interim. As explained in the Draft EIR, the only activities that could occur in the foreseeable future would be the use of a small portion of the land reserve for teaching and research related to vernal pools and biological resources.

No detention basins are proposed within the Campus Land Reserve. The existing playas, stock ponds (shown on Figure 2-12 in the Draft EIR), and vernal pools within the Campus Land Reserve would not be disturbed or altered. The reserve would continue to be grazed (in accordance with applicable protocols established by the biological resources mitigation program) and would be fenced and signed to control access.

Impacts to environmental resources from potential development of the 340-acre reserve are not specifically analyzed in the Draft EIR because no plans for use of this area other than potential use for teaching and research exist, and no other use of this area is envisioned to occur in the foreseeable future. In fact, any future use of the Campus Land Reserve is speculative at this time, in terms of when it may be used, what it might be used for, and indeed if it might be used for purposes other than teaching and research at all. Furthermore, it is impossible to predict at this point whether other uses would involve physical development, and if so, the scope, nature, and effects of any such development.

Data in Section 4.4 of the Draft EIR describe the biological resources that could be affected in the event of development in this area. Table 4.4-3 in the Draft EIR presents habitat types to be found within the land reserve in acres, and Table 4.4-5 presents the special-status species known to occur within the Campus Land Reserve. These resources could be affected if some portion of the land reserve is developed. However, as noted above, it is impossible to predict actual impacts of use of the Campus Land Reserve in the future because the nature and extent of use is not known, and for this reason, the Campus Land Reserve was not included in the project or the

cumulative impact analysis. Also refer to Section 4.8.C, which addresses the issue of indirect, edge effects of campus development on the Campus Land Reserve.

4.4.A.2 *Campus Natural Reserve*

The Campus Natural Reserve is proposed to be contiguous with the Campus Land Reserve. Its location and boundary was established based on input from UC scientists who used the concentration and value of resources in this area as the basis for defining the Reserve. Evaluation of the most significant resources in the area around the Main Campus showed that an area of about 600 acres upgradient and around the vernal pool containing Conservancy fairy shrimp (*Branchinecta conservatio*) should be protected. To this acreage another 150 acres of resource-rich lands were added to define the Campus Natural Reserve.

As several commenters have indicated, it is correct that a Natural Reserve does not necessarily have to be contiguous with the Campus. However, the Natural Reserve at its proposed location adjacent to the Main Campus and Campus Land Reserve provides numerous additional benefits to the Campus by offering research opportunities that are nearby, while at the same time protecting views from the Campus of vistas beyond. The reserve at its location would serve as natural open space protected from any development between the campus and adjoining areas. The UC Natural Reserve System (NRS) offers numerous examples of reserves adjacent to campuses (in addition to the numerous examples of reserves farther away from campuses). Bodega Marine Reserve, Eagle Lake Field Station, and Valentine Eastern Sierra Reserve are all nonadjacent full-facility reserves.

The Campus Natural Reserve would be an important resource for UC Merced's first signature formal research enterprise, the Sierra Nevada Research Institute (SNRI). The reserve's unique values would aid the SNRI in attracting outstanding faculty and students and the ease of access would be an important factor in its attractiveness. The SNRI would be a symbol of strong commitment to research and academic programming that focuses on environmental issues including natural resources, especially air, water, earth, biodiversity, and land use planning and management. The SNRI would focus on both the Sierra Nevada and San Joaquin Valley, both natural resources and human uses and management of those resources.

The Campus Natural Reserve would include a rich cross section of plant and animal species associated with vernal pool and grassland habitat. The variety of natural resources in the Campus Natural Reserve would support long-term faculty, student, and graduate student research, classroom field study, and docent programs to extend education about this ecosystem to the greater public. A wide array of disciplines likely to be offered at UC Merced including, but not limited to, biology, geology, hydrology, climatology, large-scale ecological processes, and the interface of natural and human practices (e.g., grazing, range management, wetland management) would benefit from the Reserve.

The ability to have such a diverse Natural Reserve in close proximity to the Campus core is an ideal configuration. Typically, natural reserves are located in remote locations. The distance from the campuses affects the frequency at which natural reserves can be used for their intended purposes, due to travel costs, overnight costs if the reserve is especially remote, and the additional cost of time expended in transit. In addition, most Campus Natural Reserves require additional investments to provide living accommodations for site managers and staff. A well-developed natural reserve site is also likely to provide classroom, special laboratory space, and

other teaching facilities for visiting classes and research seminars. With an adjacent Natural Reserve, UC Merced would not need to provide these additional facilities. The existing facilities, including classrooms and laboratories, would support the academic needs of users of the Natural Reserve. Housing with convenient access to the Campus and the Natural Reserve (for example, student housing when the Campus is between academic sessions) could accommodate visiting researchers when they need overnight accommodations. Other Campus services could provide cost-effective maintenance such as Campus Security protecting the Natural Reserve site from disturbances of trespassers.

The Campus Natural Reserve would be permanently preserved and protected from development. It is proposed for inclusion in the NRS and further actions and agreements would be necessary for this inclusion to happen. To discourage the establishment of nonnative plant species and to enhance native species, the land would continue to be grazed. Grazing would be managed in a way that would maximize the value of native biological resources on the site in accordance with the biological RMP. Even if the Reserve were not added to the NRS, no impacts to resources in this area would occur because it would not be developed, a conservation easement or similar mechanism would be put in place, and access to the Reserve would be controlled. The Natural Reserve is intended to function as one component of the program for mitigating the impacts of campus development on biological resources. Additional information on this issue is provided in Section 4.8.D of this Final EIR.

Finally, it should also be noted that the remaining 5,000 acres of VST lands to the north and east of the Natural Reserve would be placed under conservation easements under the RMP for the proposed project. See Section 4.8.D of this Final EIR.

After the certification of this EIR, the University envisions that the County will amend its General Plan to reflect the new Campus in the Specific Urban Development Plan (SUDP) boundary. The revised boundary would exclude lands of the Natural Reserve and the remaining 5,000 acres of the VST property from the Campus SUDP.

4.4.B Data Regarding Campus Size

This response addresses comments FA1-14, I33-19, I34-1, I35-3, I40-3, O22-3a, O23-4, and O28-73, as well as other similar comments, which question the proposal for a 2,000-acre campus and more specifically the reason for proposing 910 acres for the Main Campus.

The LRDP notes that the UC Merced Campus is composed of three major areas: a Main Campus with about 910 acres, a Campus Land Reserve with 340 acres, and a Campus Natural Reserve comprising 750 acres, for a total of 2,000 acres. Section 4.4.A above explains why a contiguous land reserve is proposed, together with a contiguous 750-acre Natural Reserve. The discussion below focuses on the 910-acre Main Campus.

In preparation of the LRDP, the University retained the services of a planning firm that determined the specific program needs of the Campus and then developed estimates of land acreage that would be needed for each program. That analysis is provided in Appendix A of the LRDP and is further explained in Section 4.4.C below. If all the acreage needed for each program element of the LRDP is added together, the resultant size of the Main Campus is 910 acres. The analysis below shows why the Main Campus is proposed at this size and why any reduction in size could not be achieved without sacrificing some program element or an

important objective of the project. The analysis also shows the significant disadvantages of using a higher development density to reduce the size of the Main Campus footprint.

The acreage for the Main Campus is greater than the 745 acres analyzed in the SSEIR. At the time that the SSEIR was prepared a rigorous analysis of the land requirements by each program element of the LRDP was not conducted. The estimate at that time was based on general estimates derived from readily available data from other campuses.

4.4.C Explanation of Land Requirements and Collocation of Specific Programs

This response addresses comments O22-3, O28-55, O28-56, O28-57, O28-58, O28-59, O28-60, O28-61, O28-62, O28-63, O28-64, as well as other similar comments, which raise questions about the basis for the acreages identified in the Draft EIR for specific LRDP program elements/land uses such as academic core, student and faculty housing, student support, etc, and the need for these uses to be contiguous. Comments relating to such issues were also made by the USEPA relative to the CAA (see page 5-24 of the Draft EIR, which explains the relationship between the Draft EIR and the CAA), and one commenter on the Draft EIR attached the letter from the USEPA to their comment letter. Accordingly, comments in the USEPA letter are addressed in the response below as well to the extent they may be relevant to the analysis under CEQA.

This response also addresses comments I40-3 and O22-3a, which question the proposed density of the Campus.

The methodology used to derive the necessary acreage for the proposed campus is summarized in the appendix to the LRDP. As explained in further detail below, the acreages for specific programs were developed by using information from other UC and non-UC campuses depending on their characteristics and similarity to the proposed location, mission, and desired character of UC Merced. No one campus in the UC system or nationally is so close to the proposed campus in mission and location that data from one campus alone could be used to develop the land requirement estimates. Further, while some UC and non-UC campuses provide data that are useful in this regard, other campuses are so different in their mission and location that use of data from these campuses would not meet the objectives of the proposed project. For instance, the UC San Francisco campus with its focused medical program and location in a very densely settled area and UCLA in its highly urbanized setting would not be appropriate campuses to draw data for land use comparisons. The University therefore examined each program element individually and researched appropriate comparable campuses and used data from those campuses to develop the acreage estimates. Nevertheless, because several of the comments received on this issue request land use data for all UC campuses, the data for eight UC campuses (excluding UC San Francisco) is presented in Table 4.4-1 below.

In interpreting these data, the reader is cautioned to bear the following points in mind:

- The numbers reported in Table 4.4-1 represent the land use designations within campuses at the present time, whereas UC Merced acreage is for the anticipated full development (25,000 FTE) under the proposed LRDP. It is conceivable that the acreages at other campuses will increase or be redistributed between uses as the campuses grow. Many UC campuses are in the midst of updating their LRDPs at this time in anticipation of significant enrollment increases.

- Each campus defines its land use designations somewhat differently, therefore comparison in some instances may be difficult.
- Many campuses have mixed land uses, i.e., several land uses occurring within one area or zone, or even one building.

Table 4.4-1
UC Campus Land Uses (in acres)

Campus ¹	Total Campus Area	Total Developed/Developable area ²	Academic Core	Student Support Services	Total Housing (Students/faculty)	Campus Support ³	Athletics and Recreation	Campus Research (Enterprise Area)
UCB	1,232	NA	178	Mixed use applies	121	Mixed use applies	Mixed use applies	Mixed use applies
UCD	5,300	1,326	584 ⁴	22	151	380	124	87
UCI	1,510	1,375	233	Mixed use applies	312	34	138	103
UCSD	1,962	1,696	288	33	98	52	78	67
UCM	2,000	1,250	157	23	340	56	148	39
UCR	1,106	903	114	18	149	17	125	Mixed use applies
UCSB	980	624	136	Mixed use applies	162	27	72	Mixed use applies
UCSC	2,000	824	102	Mixed use occurs for this category within the Academic Core	278	42	88	Mixed use applies
UCLA	435	428	158	Mixed use applies within Academic Core	91	22	62	41 (Mixed use applies within the Health Sci District)

¹ Data obtained from LRDP designations at each campus.

² Developable Area includes campus lands that can be built upon and excludes natural reserves, botanical areas, or agricultural fields (in the case of UC Davis).

³ At UC Davis, includes "Support, Parking, and Developed open space areas." An estimated 22 acres are in student support use.

⁴ High Density Academic (270 acres) and Low Density Academic (314 acres).

4.4.C.1 *Academic Core*

The University utilized national statistics, UC systemwide data, and campus-specific data to derive the academic core acreage. The methodology used to estimate the needed acreage for the academic core essentially involves three steps: (1) estimation of assignable square feet (asf) per FTE faculty; (2) conversion of asf to gross square feet (gsf), and (3) conversion of gsf into acreage. To estimate asf a national factor was utilized. To convert asf into gsf, a UC systemwide average factor was used. To translate gsf into acres of land, data from UC Davis, UC Riverside, and Colorado University Boulder were used, and UCLA was reported only as a point of comparison. This methodology is considered more accurate for developing an estimate of the needed acreage; however, as requested by commenters, data on the academic cores of eight UC campuses are also reported in Table 4.4-1.

Data from certain non-UC campuses were used when representative data from UC campuses were found to be limited to a few data points. Colorado University Boulder was used because like UC Davis (which was the only other UC campus with a rural setting and medium density of development) that campus was comparable to UC Merced's mission and location. The academic cores of UC San Diego and UC Irvine are developed at lower densities and other campuses such as UCLA and UC Berkeley are in highly urbanized settings.

The Academic Core is intended to be a compact, walkable, and bikeable area with limited access for vehicles. The ultimate development intensity of the Academic Core will be medium density. In general, heights will be limited to three to four stories, and block coverage will vary between 40 and 60 percent, with the remaining area consisting of landscaped areas, courtyards and plazas, building service areas, and circulation paths. Density and form are determined by a number of factors including the type and use of building, programmatic concerns, design strategies, building code requirements, and funding limitations.

A number of current academic planning trends on existing campuses support this development pattern. Building code requirements limit the height of laboratory and large classroom/assembly spaces. For example, lab buildings can not be more than three floors high. In general, buildings that do not require the use of elevators are capable of handling a larger number of student movements between classes. They are also easier to service. Construction methods become considerably more difficult and expensive with greater height. Furthermore, research has demonstrated that to encourage student interaction, lower buildings are more desirable than tall buildings. Certain functions, such as faculty and administrative offices, could be accommodated in taller buildings. Nevertheless, the size of funding increments tends to result in smaller size buildings.

In this LRDP, a grid of right-of-ways (more familiar to us as "streets," but in this case serving cars only on a limited basis) is proposed to organize movements of people, infrastructure, and service functions on the campus. Pedestrian, bicycle, and vehicle movements, as well as utility lines and fire access, are proposed to be located within these multipurpose right-of-ways, resulting in a more efficient use of land and organizing the servicing and utilities in a more rational manner, minimizing conflicts. The LRDP proposes to create design guidelines that coordinate building locations and phasing in a way that "land banks," or saves certain areas for future buildings and other campus-related purposes, such as construction staging. For example, it is encouraged that buildings are situated so that they establish frontage along the right-of-way lines, with massing that follows the perimeter of the block. This problem is a typical "urban"

pattern that avoids fragmented open spaces and enlivens the “street”; it also helps to create continuous shading and, thus, eases movement in this climate. By avoiding locations in the middle of a block, more land is preserved for future buildings, and opportunities arise for the creation of shared courtyards and plazas, which foster interaction between the users of different buildings. Buildings are also encouraged in clusters that reduce travel distances and encourage interaction. UC Merced’s compact core is designed so that most areas are within a 10-minute walking distance from each other, facilitating ease of pedestrian and bike movements, encouraging social interaction, and reducing dependence on the car, resulting in less land area dedicated to meet the needs of automobiles.

The proposed pattern of land uses also allows a phasing strategy that focuses new development in close proximity and minimizes the impact on the undeveloped area of the Campus. These design moves are all consistent with a land use strategy to create a sustainable campus and use limited land resources efficiently. Lastly, as noted above, one of the major considerations for the Campus is to have all facilities in the academic core within a 10-minute walking distance, and this goal is achievable without developing high-rise buildings (which are not recommended for programmatic, design, and cost reasons) on the proposed 157 acres that are located centrally on the campus site. The proposed density of development (keeping buildings under five stories) is further supported by an analysis conducted by the University in 1998 that examined each of the nine campuses in the UC system for cost of construction and renovation in buildings taller than five stories. This study found that renovation of taller buildings is on average 15 to 40 percent more expensive than low-rise buildings. As a state-funded campus, UC Merced has to compete with other campuses for funds, and cost factors, whether initial construction costs or long-term operational (including renovation) costs, must be considered from the very inception of the Campus. Furthermore, high-rise buildings would not be aesthetically appropriate for the setting of the Campus. Also refer to Section 4.21.D, which discusses the pros and cons of a high-density campus.

4.4.C.2 *Student Support*

Student services include the student union and commons areas, food service, student health, child care center, career center, alumni center, and other services. National standards defining space needs for such uses are not available. The acreage (23 acres) included in the LRDP was developed based on student services data from the UCLA and UC Riverside campuses. The acreage specified can also be compared with the UC Davis LRDP, which includes 22 acres for this use. Student services, by necessity, must be located on campus and within easy access of the academic facilities and student housing, and cannot be located off campus.

4.4.C.3 *Student Housing*

Student housing is basic to the University’s educational mission. Currently, UC campuses provide housing between 20 percent (UC Berkeley) and 43 percent (UC Santa Cruz) of all students and have established goals of housing 25 (UC Davis) to 70 percent (UC Santa Cruz) of all students. The University has determined that provision of student housing for first-year students and undergraduates can be correlated to successful retention rates. UC campuses offer housing to all first-year students and about 90 percent of first-year students request housing on time and about 75 percent actually occupy it.

As explained in the Draft EIR, UC Merced proposes to house 50 percent of its student population on the Campus. UC Merced would offer a guarantee to house 100 percent of the first-year students, but expects 75 percent will actually occupy it. With this objective, the Campus proposes a housing mix of 75 percent undergraduate housing, 15 percent graduate housing, and 10 percent students with families. Student housing is typically provided in a variety of ways, dormitories/residence halls, suites (apartments without kitchens), and apartments. UC Merced is in the early planning stage and has not as yet developed a specific program for housing. Therefore for developing an estimate of land necessary to house the targeted student population, the LRDP assumed that all student housing would be apartments. The planning team then utilized certain assumptions such as average apartment size, number of stories, and floor area ratio to estimate the land coverage of 250 acres of land.

This acreage is in conjunction with 90 acres for faculty housing within the range of acreage set aside for housing on other UC campuses. At the upper end of the range is UC Irvine with 312 acres in housing, followed by UC Santa Cruz with 278 acres, and UC Riverside with 149 acres. At the lower end of the range are UCLA with 81 acres, UC San Diego with 98 acres, and UC Davis with 151 acres set aside for housing. As a percentage of the total campus acreage, land set aside for housing constitutes 10 to 21 percent of all land at UC campuses.

Numerous compelling reasons for student housing to be located on campus are discussed in detail on pages 5-16 and 5-17 of the Draft EIR and include, among others, the fact that on-campus housing fosters exchange of ideas, stronger interaction among students and between students and faculty, and enhancement of the learning experience. It reduces time lost in travel between home and school, reduces the number of vehicles on the roads and associated congestion, air pollution, and noise effects. In fact, some commenters, including the California Air Resources Board (CARB), have recommended that more on-campus housing be planned to minimize vehicle trips.

As explained in the Draft EIR, the LRDP proposes to house 50 percent of all students on the Campus. It also assumes that 10 percent would be students who would be existing residents of the area and would commute from their existing homes. It also estimated that the remainder (40 percent) would live in the adjacent University Community. The UCP assumes that 58 percent of the students would live in the community. Due to this difference, more housing could be provided in the area than needed to house students. However, as shown in the Draft EIR, this excess housing (which would be multifamily units) could be utilized by the population associated with growth induced by the Campus.

4.4.C.4 Faculty Housing

The proposed LRDP provides 90 acres for faculty housing, including 70 acres for the construction of an estimated 426 single-family homes and 284 multifamily homes to house about 50 percent of the faculty of UC Merced at full development under this LRDP. It also includes 20 acres for circulation (streets and driveways within the housing areas). The appendix in the LRDP explain how this acreage was derived using a lot size of 6,000 square feet for every single-family home and a density of 24 units per acre for multifamily units. These densities are based on single- and multifamily housing densities in the surrounding community. Comparable data are available for the six other UC campuses that provide some amount of faculty housing. UC Davis has about 111 acres in faculty housing and UC Santa Cruz has about 18 acres in this

use. The most ambitious faculty housing program has been undertaken at UC Irvine. In June 1983, The Regents approved the “Establishment of a Nonprofit Corporation to Administer the Irvine Campus Housing Community Program.” The program is designed to provide affordable housing for faculty and staff of the University and to create an academic community in residence on the Irvine campus. This on-campus housing area is planned as a four-phase residential community referred to as University Hills. Approximately 212 acres have been set aside to provide 1,100 faculty and staff housing units, at an average density of 5.5 units per acre (September 1989, University of California, Irvine Long Range Development Plan). To date (December 2001), approximately 838 units have been constructed at an average density of 5.3 units per acre; 180 are rental townhouses and the remainder is a combination of owned single- and multifamily units.

At UC Santa Barbara, faculty townhouses for 65 families are located on its West Campus, adjacent to Isla Vista. Another 50 faculty townhouses are planned on 9 additional acres, at a density of 6 units/acre, in the West Campus area (September 1990, University of California, Santa Barbara Long Range Development Plan).

At the smaller urban campuses in Berkeley and Los Angeles, academic space demands and lack of available developable land means that faculty housing is essentially restricted to locations off the central campuses. For example, at UC Berkeley, faculty housing units are available off campus at the site of a former high school in the city of Berkeley. UCLA provides 12 faculty apartments on campus as part of its Faculty in Residence program; off-campus, UCLA provides housing to approximately 150 faculty members in seven facilities.

The need for on-campus faculty housing and its importance in recruiting and retaining quality faculty is discussed in the Draft EIR and the appendix to the LRDP. Although some faculty housing may be developed in the early years of campus development, the majority of the units would be developed after the Campus reaches 15,000 FTE students, which is estimated at this time to be in 2026–2027. It cannot be predicted what the real estate market in the region will be by that time. Some UC campuses that were developed in the 1960s did not set aside acreage for housing or implement a faculty housing program. As the area around these campuses developed and housing prices in the region escalated, the cost of housing to entry-level faculty became unaffordable. These campuses had to purchase additional land for this purpose so as to be able to offer supplemental faculty housing programs to new faculty to attract them to those UC campuses. While it is true that not all UC campuses have programs to provide faculty housing (six of the nine campuses have the program), its importance to any campus is undeniable, and even more so for a new campus that must offer more than just salaries to attract outstanding faculty.

4.4.C.5 *Campus Support*

The LRDP sets aside 56 acres (44 acres plus circulation) for campus support, which includes facilities such as the campus central yard, cogeneration facility/energy nodes, equipment storage and campus vehicle parking and maintenance, a wastewater treatment facility to produce reclaimed water for nonpotable uses, an environmental safety facility for the short-term storage of hazardous waste, a police station, and a fire station. This acreage was developed based on data from the UC Irvine campus. Although some of the UC campuses have lower amounts of land developed with or set aside for this use (under 21 acres), UC Davis has considerably more

(about 197 acres) set aside for campus support. The acreage included in the LRDP is therefore within the range for UC campuses.

4.4.C.6 *Athletics and Recreation*

The Draft EIR and the appendix to the LRDP explain why about 116 acres of land are needed to develop a NCAA Division I athletics program on the proposed campus. When roads and circulation are added, the acreage increases to 148 acres. The program area for each facility that has been provided in the LRDP is the minimum Division I acreage for that type of facility. For instance, for a Division I aquatic complex, the maximum and optimum facility includes three pools and provision for 5,000 spectators. The minimum in this division is two pools and 3,000 spectators. The LRDP athletics acreage include the latter. Similarly for practice fields, the maximum and optimum number and acreage is five fields on 14.5 acres, the minimum is four fields on 11.6 acres. The LRDP provides for the latter.

Acreage set aside on other UC campuses for athletics and recreation are reported in Table 4.4-1 above, and range from 138 acres at UC Irvine to about 62 acres at UCLA. Of these campuses, UC Berkeley, UCLA, and UC Riverside host Division I programs. Consultation with the UC Berkeley and UCLA athletic program staff indicates that both campuses are experiencing difficulty in accommodating their intercollegiate and recreational sports (PE, intramural, etc.). They often vie for limited sports area and facilities. Many of the sports have to be played off campus. To deal with problems associated with this arrangement, campuses have to juggle playing times, take advantage to the maximum extent possible of the different playing seasons, and have to combine many sports facilities such as soccer and track, water polo and swimming, etc. Staff from UC Berkeley indicated that limited facilities was one of the reasons for their team's relatively poor performance when compared to other campuses.

4.4.C.7 *Parking*

See Section 4.18.E of this Final EIR, which explains how the parking needs of the Campus were estimated and are appropriate for the Campus. The LRDP assumes 20 percent of the needed parking would be in parking structures. The LRDP also assumes a reasonable level of trip reduction (and associated reduction in the need for parking) due to Transportation Demand Management (TDM) programs.

4.4.C.8 *On-Campus Research*

The LRDP sets aside 39 acres for on-campus research. As described in the Draft EIR, this area would house UC facilities that are for research but are not standard laboratories. Examples include large wind tunnels, laboratories involving high usage of electricity or unique processes, and supercomputer centers. It would also be an area for facilities that are collaborative efforts between UC and other entities such as other research institutes and nonprofit organization focused on research.

Existing examples of such facilities at other campuses occupy substantially larger acreages, and some of the other UC campuses have set aside substantially greater acreages for this use (87 acres at UC Davis are in Enterprise Reserve).

Although these types of facilities do not necessarily need to be in the academic core, such research programs benefit significantly from being on the campus. They provide opportunities to faculty and students of the campus for extramural research collaboration and student employment and facilitate technology transfer. Locating these on the campus allows non-UC researchers at these facilities easy access to UC libraries and other services. In some instances, UC campuses have used these research reserves to attract prestigious non-UC research institutes to the campus, which then has been instrumental in increasing the prestige of the campus and attracting top faculty and grants to the campus. Proximity also allows a closer integration between the research conducted in these facilities and the regular day-to-day instruction on campus. Proximity also increases the potential for spontaneous, informal connections that have been shown to be critical in making research partnerships successful.

4.4.C.9 Site Circulation

The LRDP does not separately report the acres of land needed to build on-campus roads that would serve the proposed campus. The land needed for roads is included with other land uses. For instance 20 of the 90 acres set aside for faculty housing would be under roads that would serve the housing areas of the Campus. These estimates of land needed for road right-of-way outside the academic core were derived using digitized maps and aerial photographs of UC and non-UC campuses. The analysis of other campuses showed that area under roads ranges from a low of 17 percent to a high of almost 36 percent of the land area. UC Merced uses a factor of 22 percent. In essence, the acreages of various land uses outside of the Academic Core were increased by 22 percent to provide for roadways. Within the Academic Core, roads have been designed to be narrower and an estimated 15 percent of land is designated for road right-of-ways. These percentages (15 to 22 percent of total land under roads) are consistent with data from 22 cities in the United States that show that roads and highways occupy approximately 25 percent of all developed land in U.S. cities (United Nations 1975). Based on the percentages noted above, about 190 acres of the Main Campus would be under roads.

4.4.D Campus Population

This response addresses FA1-14, which requests clarification regarding on-campus population.

The proposed campus analyzed in the Draft EIR at full development would have a total population of 31,248 persons including students, faculty, and staff. This number is somewhat lower than the 34,200-person campus that was projected in the SSEIR. The population projections for the Campus have been refined, and the current number is considered to be more reflective of the likely campus population given a student enrollment of 25,000 students.

The number (31,248) reflects people who would be students, faculty, or staff at the Campus, but does not include dependents and families of these persons. Section 3 of the Draft EIR reports the total on-campus population, which would include campus students and faculty plus dependents of those students and faculty who would live on campus. As explained in that section, the Draft EIR estimates that 50 percent of the students and faculty and their dependents would live on campus and the rest of the students and faculty and all of the staff would live off campus. In estimating the on-campus demand for housing, public services, and utilities, the number 34,188 was used, which is composed of 16,150 persons (students, faculty, and their dependents) who would reside on campus and 18,038 persons (students, faculty, and staff) who would be day

users. Table 3-4 in the Draft EIR shows how the number 16,150 was derived. The number 18,038 reflecting the day users was obtained by subtracting the resident students and faculty from 31,248.

4.4.E Treatment of Merced Irrigation District's Irrigation Facilities

This response addresses comments FA1-16, LA5-1, LA5-4, LA5-5, LA5-6, LA5-7, LA5-8, LA5-11, LA5-21, LA5-22, LA6-3, and LA6-14, as well as other similar comments. These comments provide or request clarification of various issues related to Merced Irrigation District (MID)-owned facilities that are located on the proposed campus site.

4.4.E.1 *Campus Design and Merced Irrigation District Facilities*

As described in Section 2 of the Draft EIR, two large irrigation canals (Le Grand and Fairfield canals) traverse through the center of the campus site. Yosemite Lateral, a smaller irrigation canal is located within the golf course portion of the site. The Draft EIR did not analyze any specific impacts to MID canals because as explained below and in the Draft EIR, campus design takes the canals into account and proposes to incorporate the canals as amenities. Because impacts to MID facilities have been avoided through design, no mitigation is required.

MID has indicated that maintenance roadways need to be maintained on both sides of both canals for MID crews to be able to access the canals for mechanical cleaning, so long as both canals are used to deliver irrigation water. If certain changes are made to the canals within the Campus (these changes are described in comment LA5-6) and Fairfield Canal is converted from an irrigation conveyance facility to a dedicated flood control facility, MID would be able to conduct channel maintenance using an access road on one side of the canal, and the second side could be utilized to develop pedestrian facilities for the Campus. As shown and discussed in the Draft EIR, the campus land use plan has been designed to accommodate the canals. Because a 150-foot right-of-way has been provided along both canals, a pedestrian path can be accommodated along with a 20-foot clearance along the north side of Fairfield Canal for MID's maintenance equipment. The Campus will, however, work with MID to develop other improvements as necessary to ensure that MID's ability to maintain the canals is not adversely affected by campus development.

The Campus has made provisions in its land use and development plans for canal capacity enhancement by adequately setting back development from the canals and planning bridge crossings to allow MID to widen the canals in the future. The right-of-way as required by MID has been clearly identified on the land use map of the Campus and no infringement with structures and/or appurtenances of this right-of-way would occur. The only improvements that the Campus currently envisions would be implemented within the MID canal right-of-way are landscaping and pedestrian paths, which can easily be removed as and when MID proposes to widen the canals. The campus will continue to work with MID to resolve issues related to the canals, including increasing the size of Le Grand Canal within the existing right-of-way upstream of the Fairfield power plant, as well as the 1-mile loop in Le Grand Canal within the campus footprint. MID's plans to take appropriate measures to increase capacity in the future for purposes of groundwater recharge or any other reason should not be inhibited by the proposed campus. Canal capacity enhancement is a future action to be undertaken by MID for reasons not

related to the Campus and it is not certain when it would be implemented. For these reasons, environmental impacts of canal capacity enhancement are not addressed in this EIR.

The Campus may underground Yosemite Lateral and make other related improvements some time in the future but will not be placing the other two canals in underground pipelines or lining the canals. Based on the recommendations of a qualified engineer, the Campus will fortify canal banks as necessary. Canal banks, especially the raised banks of Le Grand Canal, will be monitored for rodent burrows and any potential weaknesses that could lead to failure.

The Campus proposes to use fencing and landscaping to address safety concerns with respect to the canals. It will fence the entire length of the grade change chute and use fencing and landscaping in selected areas along the rest of the canal lengths within the Campus for safety purposes. The Campus will continue to work with MID to develop adequate and appropriate safety measures with respect to the canals and MID will have approval authority over all measures that are proposed for public safety and canal protection. To avoid impacts to the Fairfield power plant, all structures proposed under Phase 1 of campus development would be more than 110 feet from the power plant and penstock. This requirement will also be implemented in subsequent phases of campus development. The Campus and MID will continue negotiations to develop an indemnification agreement to address MID safety and liability issues.

An ungated spillway is located to the east of Lake Yosemite Dam. This spillway is designed to discharge floodwaters from Lake Yosemite in the event of a 500-year storm event. Floodwaters from this spillway would discharge on to campus lands. MID has informed the Campus of this contingency. It should be noted that the likelihood of release of water via this spillway is very low because the frequency of a 500-year storm event is low (MID has never used this spillway in all its years of operation). Furthermore, the amount of floodwater that is released into Lake Yosemite via Main Canal has been reduced since the completion of the Castle Dam and Reservoir project. According to the operational procedures developed by the USACE for the Castle Dam project, once the irrigation season is over, MID is required to open the gates at two turnouts on the Main Canal and close the gates on the Main Canal check structure to direct floodwaters to Castle Reservoir. With this operation, a smaller amount of floodwater is directed to Lake Yosemite, and the probability that the lake would fill up to levels requiring the use of the spillway is reduced.

Figure 2-9 of the Draft EIR inaccurately showed a new pedestrian path in Lake Yosemite Regional Park, with a portion of the path located on the MID-maintained and operated Lake Yosemite Dam. The Campus does not plan any such path on MID property and the figure has been revised. Although the construction of the Campus adjacent to the park and Lake Yosemite would increase visitation by people living and/or working on the Campus, MID facilities such as the dam and the headgates of the canals would continue to be secured by MID and public access to these areas would not be allowed.

4.4.E.2 *Discharge of Campus Storm Water into Merced Irrigation District Facilities*

As explained in the Draft EIR, campus storm water would be detained in detention basins and then discharged into Fairfield Canal. The Campus would not discharge runoff into Yosemite Lateral. Figure 2-12 in the Draft EIR has been corrected to reflect this change. That figure has also been corrected to show no discharge to Le Grand Canal. The Campus would discharge only into Fairfield Canal outside of the irrigation season and the storm water would not be put to any

use downstream. Storm water from the Campus would combine with other downstream discharges to finally discharge into Bear Creek, east of the city of Merced.

The Campus would enter into an agreement with MID to discharge runoff into Fairfield Canal and would pay applicable fees. As required by MID, site storm water would be detained and then discharged into Fairfield Canal at the rate specified by MID. This rate would ensure that settleable solids in the runoff settle out adequately. Furthermore, by drawing water from the basins in the manner specified by MID, oil, grease, and any floatables in the runoff would not be discharged into the canal. Pollutants such as trash, oil, and grease would also be removed from the runoff by other best management practices (BMPs) that would be implemented on the campus, including the six BMPs that the campus would implement under Phase II National Pollutant Discharge Elimination System (NPDES) regulations (also see Section 4.12.C). The Campus will ensure that landscape tailwater or runoff (including recycled water used for landscape irrigation) is not discharged into Fairfield Canal. To maximize the use of irrigation water and minimize irrigation losses, the Campus would calibrate the operation of irrigation systems so that the amount of water that is applied is appropriate for the landscaping and soil type. Furthermore, the use of recycled water would occur during the dry season when site runoff would not be discharged into Fairfield Canal because the canal would be in use for irrigation deliveries.

If pump stations are used, the Campus would also install high-water-level shutoff sensors at the pumping stations to regulate discharges into the canal. This installation will help ensure that the Campus discharges only what the canal can convey, that campus discharges do not overwhelm the capacity of the canal such that other downstream users of the canal are unable to use the canal for storm water discharge, and that campus discharges do not affect the structural integrity of the canal. As a discharger to MID facilities, it would be the Campus' responsibility to establish and maintain the appropriate instrumentation control system, designed to MID specifications and requirements, for coordinating and monitoring discharges to the canal. According to MID, the Campus would be the first entity to discharge storm water to Fairfield Canal. The City of Merced does not discharge storm water into this canal.

4.4.E.3 *Miscellaneous*

In response to MID's comment, the University is willing to coordinate with MID regarding potential use of surplus surface water from MID for irrigation during years when MID determines that it has surplus water and obtains approval from the State Water Resources Control Board (SWRCB) for sale of surplus water.

4.4.F **Corrections to the Project Description**

As pointed out by the USEPA (FA1-17), a discrepancy occurs in the area of Phase 1 Campus reported in Volume 1 Project Description and the project description in Volume 2. The number reported in Volume 2 is correct. The reporting error in Section 2.0 of the Draft EIR has been corrected. See Volume 2, Section 7 of the Final EIR.

References

United Nations. 1975. Urban Land Policies and Land Use Control Measures, Volume VI.
Global Review.