An aerial photograph of the University of California Merced campus. The image shows a large body of water (Merced River) in the upper half, with a winding path and a small island. The campus buildings are visible in the middle ground, surrounded by green fields and some construction areas. In the foreground, there is a large, flat, brownish field. The sky is clear and blue.

UNIVERSITY OF CALIFORNIA MERCED

2020 LONG-RANGE DEVELOPMENT PLAN

DRAFT

DECEMBER 2019



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INTRODUCTION

INTRODUCTION

The University of California, Merced (UC Merced) aspires to create a collaborative, dynamic and inspiring physical environment that supports the University's research, teaching, and service mission for its students, faculty, researchers, and staff. UC Merced has the opportunity to ensure that its physical form continues to reflect the academic pedagogy of the University. The 2020 Long Range Development Plan (LRDP) articulates and sets forth guidance to plan the campus in a way that facilitates faculty-student interaction and the ease and enjoyment of use of its academic facilities, and to build a sustainable environment that is conducive to learning, creativity, and innovation.

The intent of the LRDP is to create places and activity areas that provide the social and programmatic nucleus of campus life. The LRDP places an emphasis on the planning concept of "placemaking" which guides development by employing architectural design goals to integrate new development with the existing campus fabric in a seamless manner and to appear as if the campus evolved naturally over time.

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The key features of the 2020 LRDP are described below. The 2020 LRDP:

- Implements a mixed-use planning concept that creates a dynamic physical environment and interconnected community for research, teaching, residential life and visiting;
- Incorporates a contextual approach to campus design that will produce a fine-grained development pattern;
- Creates and integrates high quality public realm amenities within and among academic, mixed-use and residential facilities that promotes social interaction and vitality;
- Creates a flexible land use plan that integrates sustainability and is adaptable to accommodate future development needs; and
- Fosters a strong sense of community by providing active connections that enhance pedestrian and transit-oriented mobility on campus.

The 2020 LRDP supports and accommodates a comprehensive academic program that focuses on natural and social sciences research, engineering, and the arts and humanities, as well as the campus' continuing effort to explore and develop new academic program areas. The LRDP accommodates a projected increase in the student population of up to 5,000 students over the next ten years for a total projected student population of 15,000 by 2030. The plan identifies appropriate physical

space adjacent to the existing campus and the infrastructure capacity needed to accommodate this next phase of campus development. It allows for flexibility in the manner in which facilities are added to the campus to serve future enrollment growth. UC Merced's academic goals, the availability of resources, and evolving campus and University priorities will drive implementation of the 2020 LRDP.

The LRDP does not make commitments to specific campus projects, enrollment targets, or a specific implementation schedule. Proposals for new facilities and renovation of existing facilities on the UC Merced campus will be analyzed for consistency with the 2020 LRDP. Proposed projects must be individually approved after appropriate review by the Regents, or by the President or the Chancellor, as delegated by the Regents.



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PHYSICAL SETTING

REGIONAL AND LOCAL CONTEXT

San Joaquin Valley Region

UC Merced is located in the heart of California's San Joaquin Valley. The San Joaquin Valley is one of the most distinctive landscapes of California. This region is over 250 miles long and 50 miles wide and stretches north to south from the San Francisco Bay Delta near Stockton to the Tehachapi Mountains south of Bakersfield. The San Joaquin River, the Valley's namesake, runs the length of the region north from the Tulare Lake Basin. This waterway is fed by the Merced, Tuolumne, Stanislaus, Mokelumne, and Cosumnes Rivers.

Merced County

UC Merced is located in Merced County, which takes its name from "El Río de Nuestra Señora de la Merced" or "River of Our Lady of Mercy," as named in 1806 by Spanish Army Lieutenant Gabriel Moraga. The campus is located approximately 2 miles northeast of the limits of the City of Merced (see **Figure 1.1, Location Map**). It is bordered on all sides by grasslands, except for agricultural lands to the south in an area planned for future development. Water is an important feature in the vicinity of the campus, with the presence of irrigation canals, ephemeral pools, and swale wetlands. Campus views across the expansive open space provide visual links to the area's agricultural heritage and the Sierra Nevada Mountains in the distance.

UC Merced Campus

The UC Merced campus area, as reflected in the 2009 LRDP, consisted of an approximately 815¹-acre campus, located on Lake Road, near its intersection with Bellevue Road. The land immediately south of the 2009 campus boundary is located within Merced County's University Community Plan (UCP). These lands were subdivided in 2017. Approximately 602 acres in the northern portion of the property were assigned to and are currently owned by the University Community Land Company (UCLC). Approximately 654 acres were assigned to and are currently owned by the Virginia Smith Trust (VST) (**Figure 1.2**). The Regents is the sole owner of the UCLC. It is anticipated that the UCLC will be dissolved in 2019 and all of the campus land will be owned by the Regents directly. The Regents' land available for campus development now totals 1,026 acres.

¹ This is net acreage, which excludes the 150-foot canal easements. A portion of the campus was planned on land owned by the UCLC south of Bellevue Road.

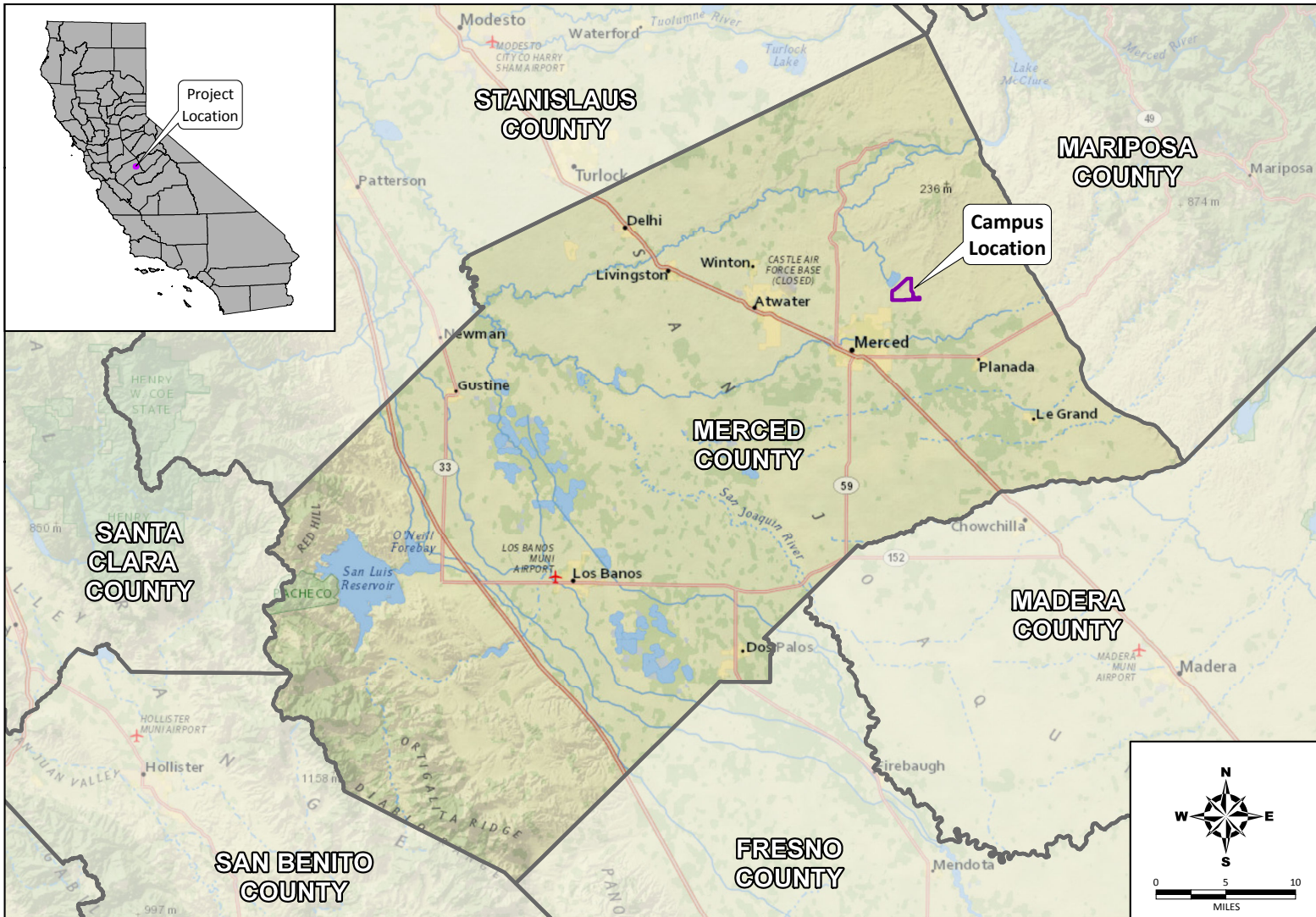


FIGURE 1.1
Location Map

VST Lands

The majority of land owned by the VST south of the campus is currently planted in almond trees. This land has been planned for development since the County's adoption of the UCP. The UCP contemplates a commercial and residential mixed-use development, with substantial open space. The VST is currently preparing a Specific Plan in accordance with the UCP for development of the first phase of the UCP. This first phase will consist of approximately 200 acres of the VST land closest to Lake Road. Most of this area is not planted in trees.

Merced Vernal Pools and Grassland Reserve (MVPGR)

The University owns the adjoining approximately 6,460-acre Merced Vernal Pools and Grassland Natural Reserve (MVPGR). The MVPGR comprises the 5,030-acre Virginia Smith Trust (VST) Preserve, the 1,339-acre Campus Natural Reserve (CNR), and the 91-acre Myers Easterly property (See **Figure 1.3, Conservation Lands**). The MVPGR lands were preserved as environmental mitigation lands associated with the development of the campus and are protected from damage and development in perpetuity under conservation easements.

UC Merced campus is directly adjacent to the MVPGR and is also relatively close to the Sierra Nevada Mountains and Yosemite National Park. This ideal location gives the University invaluable access to field research and teaching opportunities. The MVPGR, containing one of the highest concentration of vernal pools in the Central Valley, protects hundreds of ephemeral pool and swale wetlands spread across a remarkably intact alluvial terrace. As a threatened California ecosystem, the MVPGR ephemeral pools provide wetland habitat for migratory waterfowl and wading birds, and are home to many rare, endemic, and endangered species. Seasonal cattle grazing helps maintain the viability of the vernal pools by controlling invasions of non-native plant species.

While the MVPGR is an excellent research, teaching, and learning resource, its status as environmental mitigation land limits the types of active research and teaching that can be performed on the site. The University is designating a new land use category on campus land adjacent to the MVPGR that will allow a broader range of faculty research to be conducted.

Lake Yosemite Regional Park

The campus is situated south-southeast of the Lake Yosemite Regional Park, which includes a water reservoir owned and operated by the Merced Irrigation District (MID). Lake Yosemite Regional Park is managed by Merced County under an agreement with MID. In addition, two

² Each canal is about 50 feet wide within a 150-foot MID easement.

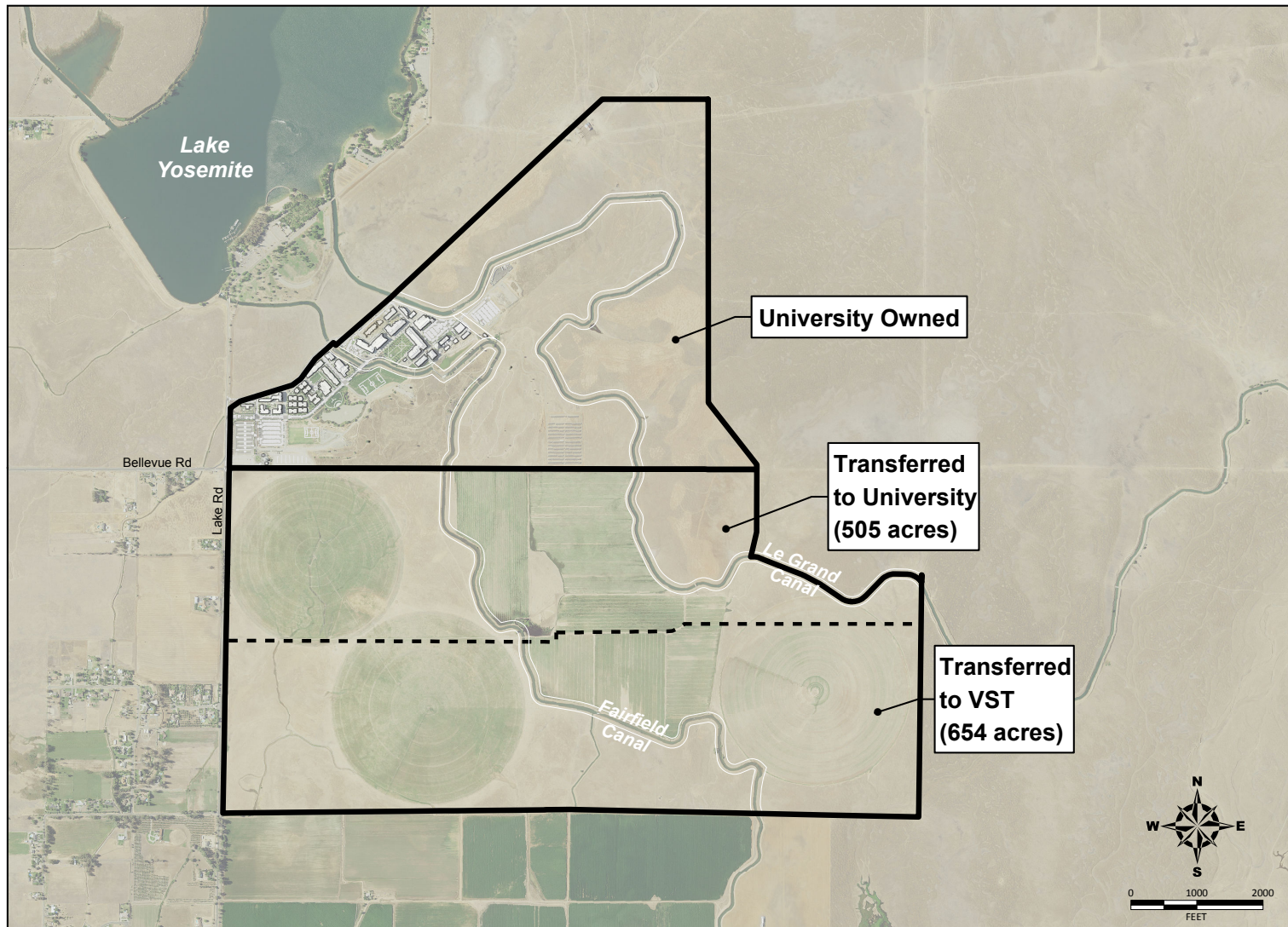


FIGURE 1.2
UCLC Assignment of Land Map

MID canals approximately 50-foot-wide,² the Le Grand and the Fairfield Canals, convey water from the lake to agricultural areas to the south of the campus. Both canals meander through the campus generally following the topography of the land.

Merced County Preserve and Yosemite Lake Conservation Area

The land between the Lake Yosemite Regional Park and the northern boundary of the campus is owned by Merced County. The University purchased a conservation easement that was placed on this property in 2016 as further mitigation for campus development. The property comprises grazing pastures located on gently rolling grasslands, with a concentration of high-quality vernal pools, clay flat pools, and other seasonal wetlands present on the property.

The Yosemite Lake Conservation Area, located to the west of Lake Yosemite, is also protected under a conservation easement as mitigation for campus development. It consists of 25 acres of restored vernal pools and 50 acres of conserved upland habitat for special status species.

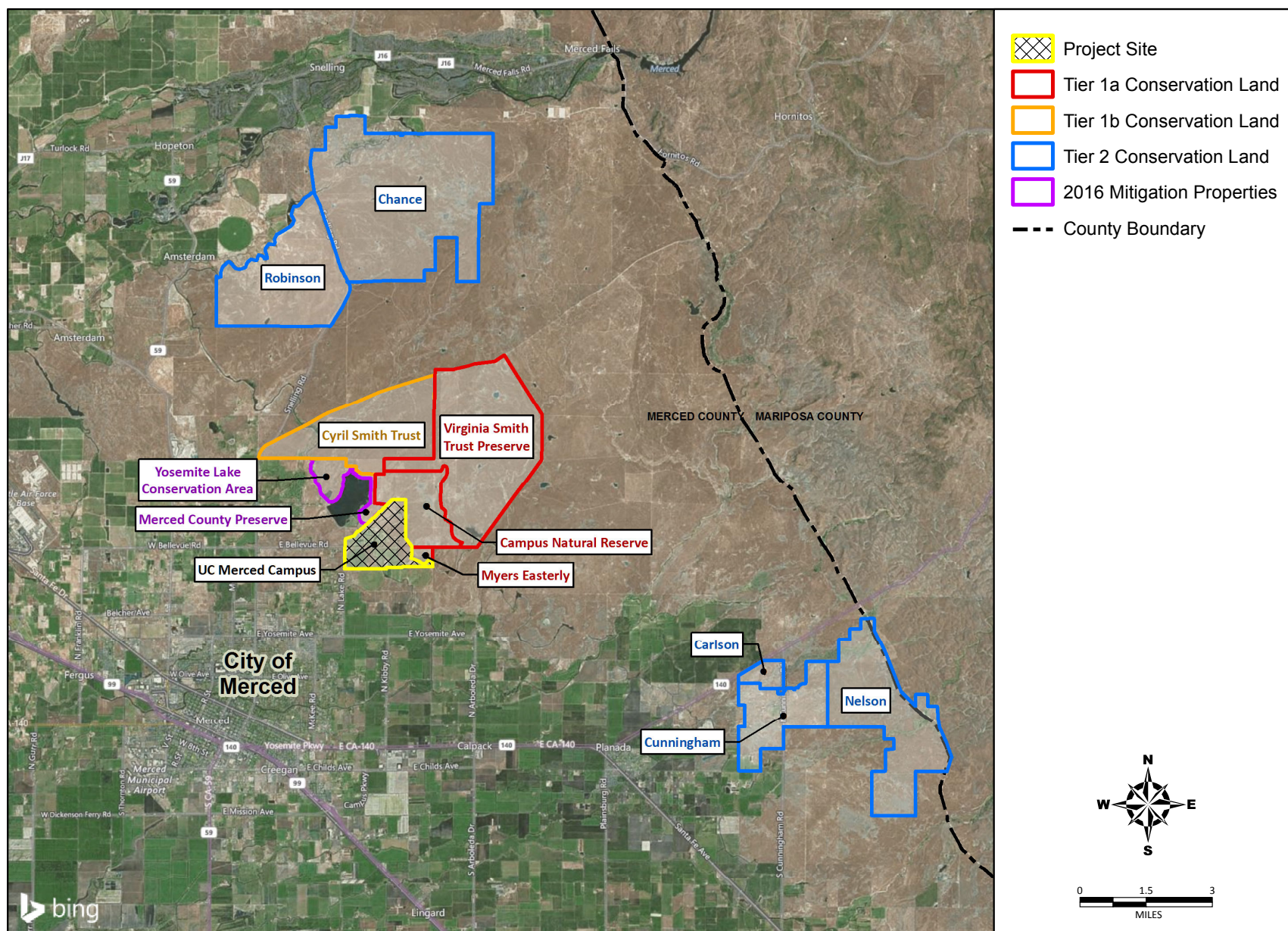


FIGURE 1.3
Conservation Lands

CAMPUS PLANNING

Initial Site Planning

In 1995, the Regents of the University of California selected Merced as the site for the University of California's 10th campus. The UC Merced campus is UC system's first new campus since 1965. In 2001, the UC Merced campus was proposed on a 2,000-acre site north of its current location. In 2002, the site of the campus was moved to a more southerly location that included the former Merced Hills Golf Course site. At the time of campus establishment, the land to the south of the campus was owned by Virginia Smith Trust. In 2002, the University and VST formed a limited liability corporation (LLC) called University Community Land Company (UCLC) for the residential and commercial development of the 830-acre property immediately south of the planned campus site.

2002 LRDP

The Regents adopted the first Long Range Development Plan for the new campus in 2002. The 2002 LRDP planned for a 910-acre campus and a 340-acre development area that was reserved for future needs. Construction of the first phase of the UC Merced campus under that 2002 LRDP commenced in 2002 on the former golf course site. This first phase was designed to accommodate up to 5,000 students, and associated staff and faculty. The UC Merced campus opened for academic instruction in September 2005.

2009 LRDP

In 2008, due to concerns about the impact of future development on wetlands and endangered species, the University worked with the U.S. EPA, U.S. Corps of Engineers, and other state and federal agencies to adjust the campus boundaries and develop a revised plan for the campus to minimize impacts on environmental resources on the site. Once an agreement on the location of the campus was finalized, the University prepared a revised LRDP (2009 LRDP) for the campus. The modified campus site, as defined in the 2009 LRDP, reduced the size of the campus from 910 acres to 815 acres and shifted the campus boundaries slightly to the south in order to ultimately impact fewer seasonal wetlands. The 2009 LRDP (See **Figure 1.4**) planned for the development of the campus on an 815-acre site.

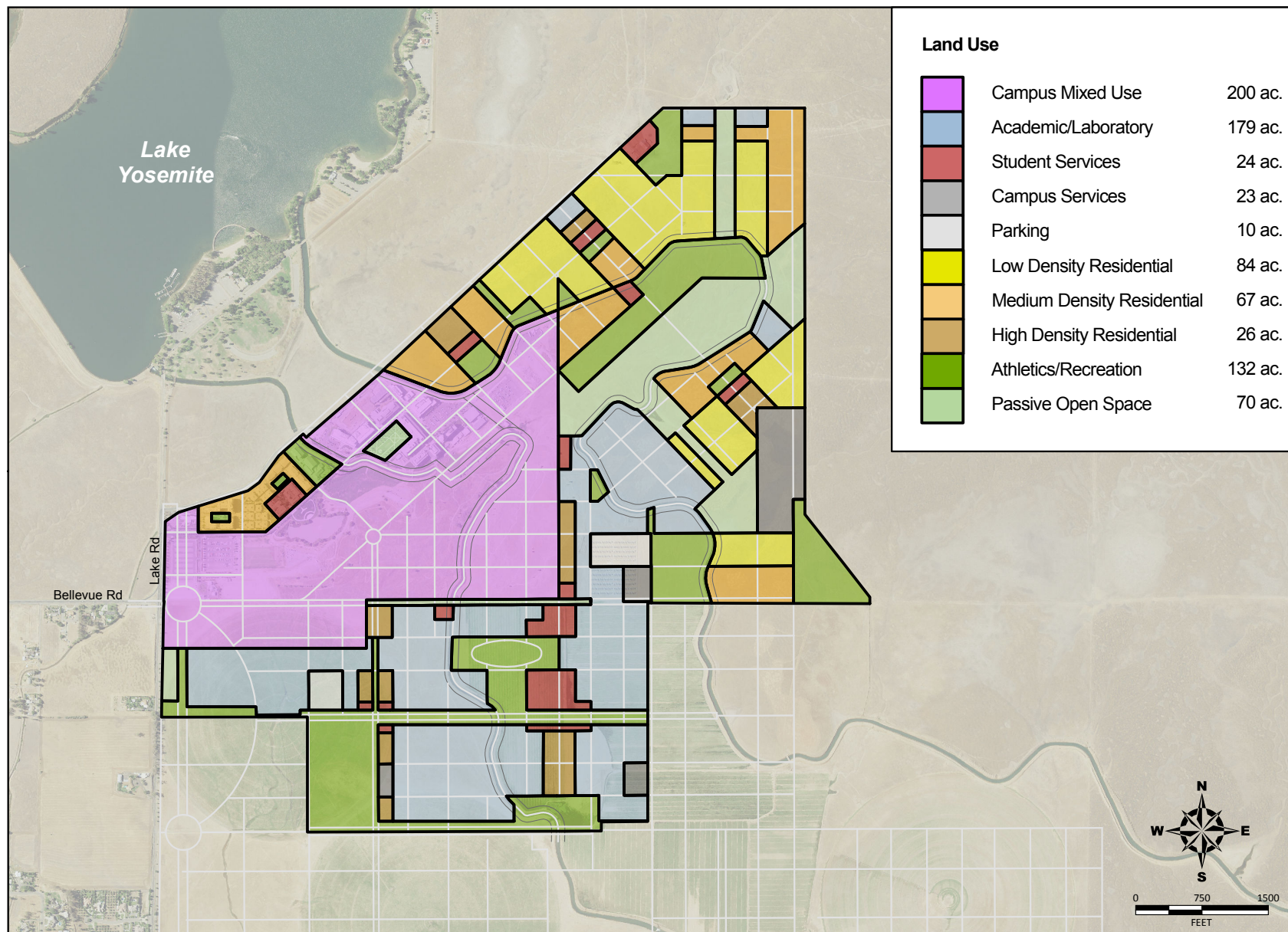


FIGURE 1.4
2009 Long-Range Development Plan Land Use Map

UC Merced Campus Facilities

Phase 1 Development

The Phase 1 development of the campus commenced from the north with the first phase of the campus built on approximately 100 acres in the northern portion of the property. The campus was developed with a mixture of classroom and office buildings, a central library, an academic social sciences and management building, science and engineering buildings, student housing consisting of residence halls and multiple unit housing clusters, a dining facility, a recreation and wellness center, recreation fields, a logistical support/service building, a central plant, and an early childhood education center.

UCM 2020 Project Development (Phase 2)

The 2020 Project is the second major phase of campus development, with facilities that support an enrollment level of approximately 10,000 FTE students. The 2020 Project was designed and is being constructed by a public-private partnership between the University and a single private developer, Plenary Properties Merced (PPM). PPM is responsible for the construction, operation, maintenance, and partial financing of all new facilities associated with the 2020 Project over a 39-year contract.³

Campus expansion associated with the 2020 Project is immediately south and southeast of the developed portions of the campus, west of the Fairfield Canal. It is a phased, four-year undertaking that will result in 1.2 million gross square feet of teaching, residential, research, and student-support facilities. The first phase of 2020 development was completed in 2018. The second phase was completed in 2019.

Circulation System

The circulation system is an important part of the underlying infrastructure of the UC Merced campus. It provides the pathways and connections for mobility, and access to campus services and support functions such as parking, deliveries, and emergency access. Expansion of campus circulation associated with the Merced 2020 Project is currently underway immediately south and southeast of the developed portions of campus. The southwestern portion of this newly developed area will be served by three parallel east-west roads, and two north-south roads. The westernmost of the new north-south roads will connect with Scholars Lane providing access to the western portions of the existing campus. The easternmost north-south road will continue in a northeasterly direction, crossing Fairfield Canal, providing access to the North Bowl parking area.

³ UCM. <http://www.ucmerced.edu/news/2016/uc-merced-kicks-historic-13-billion-expansion>. Accessed on December 15, 2017.

University of California, Merced Downtown Campus Center

The University of California, Merced Downtown Campus Center (DCC) is a 68,000-square foot, 3-story administrative building located in downtown Merced, at the corner of 18th and N streets, across from Merced City Hall. The multi-purpose building is part of a long-term strategy to consolidate administrative staff into a single location and to integrate UC Merced's teaching, research and public service resources into the fabric of the Merced community.

UC Merced Natural Reserve System Facilities

UC Merced manages three Reserves as part of the University of California Natural Reserve System (UC NRS)—the Merced Vernal Pools and Grassland Reserve, the Yosemite Field Station, and the Sequoia-Kings Canyon Field Station. The world-class UC NRS is the largest network of field stations anywhere and its 39 Reserves encompass a “library of ecosystems” of more than 750,000 acres across the state, one of the most physiographically diverse regions in the United States. UC Merced's three Reserves are living laboratories for scientific research, for undergraduate and graduate education, and for public outreach, including K-12 classes, that provides opportunities for visitors to learn more about the ecosystems. The three UC Merced managed Reserves, like all NRS Reserves, contribute to the understanding and wise stewardship of the Earth and its natural systems.

The Yosemite Field Station and the Sequoia-Kings Canyon Field Station provide access to research and teaching in the National Parks and adjacent National Forests. The field stations were established in 2006, within a larger research partnership between UC Merced, Yosemite National Park, Sequoia Kings Canyon National Park, and the U.S. Geological Survey. In 2009, the Yosemite Field Station was accepted into the NRS as its 36th reserve. The Yosemite Field Station, located in Wawona in Yosemite National Park, includes six cabins with accommodations for up to 55 people, as well as office space, a dry lab, and meeting facilities. The Sequoia-Kings Canyon Field Station, located in Sequoia-Kings Canyon National Park, has one small cabin and one research/meeting facility.



THE VISION

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ACADEMIC VISION

The core vision at UC Merced has been to build a UC-caliber research university that serves both a historically underserved student population and a historically underserved region. The campus is establishing much of its distinctive identity around this mission. First, with regard to being a UC-caliber research university, UC Merced is the youngest campus ever to be classified as R2, “Very High Research Activity” by the Carnegie Foundation. From the outset, the University’s research mission was shaped by the intention to serve a historically underserved area. At UC Merced’s founding, the University was tasked to improve the educational, social, environmental, and economic context of the region, and much of the work explicitly focuses on these areas. UC Merced’s work and research are of profound relevance far beyond the San Joaquin Valley. The University can do so because the Central Valley displays emerging and enduring challenges that are replicated in the state, nation, and world. Thus, the UC Merced’s research focus areas, while often applied locally, are global in scope.

UC Merced’s founding research areas—environmental sustainability, social justice, economic opportunity, and health—have been and continue to be central to the University’s work. The University has reaffirmed its commitments through academic planning, focusing these broad areas into specific clusters, programs, interdisciplinary research areas, and organized research units. UC Merced has also developed cross-campus strength in computational research methods and in the development and innovative application of novel technologies. The University’s commitment to research technology is an important part of any growth plans. UC Merced strives to grow an interactive, innovative and translational environment that bundles fundamental research and new technologies, stimulating entrepreneurial activity, socio-economic improvement, sustainable thinking and healthy living by pushing the frontiers of knowledge that is humanly possible. UC Merced can do so by building a complete university, thus far with groups focusing on research in the natural and social sciences, in engineering, in the arts and humanities, with more to come.

Regarding the University’s mission to educate the previously underserved, UC Merced is developing a research-informed teaching environment designed to engage students who lack the social capital that was expected of students in past generations. This is reflected in the built environment as well as in pedagogy—the University has moved from the initial vision of a dispersed campus to a much more compact one to retain the intimacy that UC Merced’s students say is one of the features of the campus that leads to student success. UC Merced has focused construction on smaller classrooms because research shows that class size has a significant impact on first-generation college students. The University is using technology to enhance student

engagement, having built several Technology Enhanced Active Learning (TEAL) classrooms to support problem-based learning. The University has gained a reputation for offering rewarding research experiences for undergraduate students as soon as they set foot on campus.

The UC Merced campus' location on the edge of a grasslands reserve and in relatively close proximity to the Sierra Nevada Mountains and Yosemite National Park provides another set of research and teaching opportunities that impacts how the University plans to build out the campus site. While the MVPGR is an excellent teaching and learning resource, its status as a conservation area subject to conservation easement restrictions limits the kinds of research and teaching that can be performed on the MVPGR. The Research Open Space area between the MVPGR and the developed portion of the campus allows the University to complement the observational research that can be undertaken on the MVPGR with manipulative field experiments undertaken in open space areas with similar physiographic characteristics but subject to fewer restrictions.

As the campus passes 2020 and looks to growing to 15,000 students, these academic considerations will guide the University's planning effort.

CAMPUS POPULATION GROWTH

PROJECTED CAMPUS POPULATION GROWTH

UC Merced opened in 2005 with 865 FTE students, 67 faculty, and about 450 staff. As of Fall 2017, the campus's student population was about 7,967 FTE students and the campus had approximately 384 faculty and 756 staff. By 2020–21, the Campus is expected to reach approximately 10,000 FTE students. It is anticipated that enrollment at UC Merced will grow up to 15,000 FTE students by 2030. Accompanying this enrollment increase will be an increase in faculty and staff from approximately 1,280 in 2020 to 2,411 in 2030. The 2020 LRDP has been developed to accommodate this next phase of campus growth.

Table 2.1, Projected Enrollment and Employment, presents the projected increase in enrollment and employment at the campus through 2030. The numbers reported in the table are current projections. Actual enrollment levels that are achieved could differ from these numbers depending on demographics and the state of the economy, among other factors. However, these are reasonable estimates and show the manner in which campus population is projected to grow. The 2020 LRDP does not commit UC to enrollment growth or development.

TABLE 2.1
Projected Enrollment and Employment

Headcounts	2018	2020	2030	Projected Increase 2020-2030
Students	8,500	9,700	15,000	5,300
Faculty	415	440	786	346
Staff (On Campus)	800	840	1,625	785
Total Population	9,715	10,980	17,411	6,431
Source: Prepared by IRDS, September 7, 2018 Fall 2018 are not census based				

CAMPUS BUILDING SPACE AND PARKING PROJECTIONS

PROJECTED BUILDING SPACE AND PARKING

In order to accommodate the projected enrollment increase and research goals, UC Merced will need to add additional academic, housing, athletic, and support space to the campus. **Table 2.2, LRDP Building Space and Parking Projections**, summarizes the existing and projected building space on the UC Merced campus under full 2020 LRDP buildout conditions. Total building space on the campus, excluding parking structures, would increase from approximately 2.5 million gsf at present time to 4.3 million gsf upon full implementation of the 2020 LRDP. The 4.3 million square feet of new space include a sports arena and other community facilities that mark the maturity of the institution.

TABLE 2.2
LRDP Building Space and Parking Projections

Category	Existing (gsf)	Building Space added by 2020 Project (gsf)	Total after Completion of 2020 Project (gsf) ¹	Building Space under the 2020 LRDP (gsf)	Total Building Space in Horizon Year 2030 (gsf)
Academic Space	695,143	574,445	1,269,600	665,100	1,908,700
Housing	434,515	413,683	848,200	379,500	1,227,700
Student Life and Athletics	82,455	164,571	247,000	357,500	604,500

¹ Numbers in this column have been rounded to the nearest hundreds.



THE PLAN

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LONG-RANGE DEVELOPMENT PLAN ELEMENTS

Long-Range Development Plan (LRDP) Elements

The Long Range Development Plan or “LRDP” is a comprehensive land use plan that University of California campuses prepare to guide their physical growth. 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.” LRDPs are based on the Academic Plan for the campus. An LRDP identifies the policies and physical development needed to achieve the University’s academic goals for an established time horizon and a projected enrollment level. Campus administration and the University of California uses the LRDP to guide future land use decisions.

2020 LRDP Planning Framework

The 2020 LRDP incorporates overall arching planning objectives that are intended to guide future development of the campus as it continues to grow through 2030. The following are the specific objectives that will facilitate accomplishment of the overarching objective to develop a premier research university consistent with the University of California’s mission of teaching, research, and service excellence.

- Meet anticipated increases in enrollment demand for the University of California system, both short-term and long-term;
- Reduce the cost of the next phase of campus development by providing a compact, pedestrian-oriented campus that reduces the need for new infrastructure;
- Plan and develop the campus to facilitate faculty-student interaction, ease and enjoyment of use of academic facilities, and an environment conducive to learning;
- Offer attractive and centrally located on-campus housing, consistent with UC-wide student housing policies; and
- Provide sufficient athletic facilities to offer high quality NCAA, recreational, and club athletic programs commensurate with other premier universities.
- Provide opportunities for on-campus academic field research.
- To the reasonable extent practicable, plan and develop the campus with sustainable design by incorporating energy efficiency, water conservation, protection of biological resources, waste reduction and minimization, on-site stormwater management, and reduced dependence on automobiles.

- Promote community integration and reflect the landscape, history, resources, and diverse cultures of the California Central Valley region in terms of physical development.

Once adopted by the Regents, the LRDP serves as an important policy document shaping campus development, growth and priorities. Notwithstanding its primary purpose, the audience for the LRDP also includes present and future students, faculty and staff, as well as regulatory agencies, political leaders and the people of California.

2020 LRDP Plan Elements

The 2020 LRDP is implemented through five distinctive plan elements that include goals and guiding principles to guide the physical planning and development of the campus, as well as establish a paradigm for the University's physical and environmental character.

Land Use: This LRDP element identifies land use classifications and depicts their location on a land use diagram.

Campus Design: This LRDP element provides guidance on building design and is not intended to be prescriptive (*i.e.* individual goals are considered to be guidelines and projects are not expected to meet every goal or implementation strategy). However, projects should strive to be consistent with the overarching campus design vision as identified in the Physical Design Framework document.

Open Space and Landscape: This LRDP element provides guidance on the design of open space areas on campus.

Circulation: This LRDP element provides a diagram that illustrates a circulation system for the movement of pedestrian, transit, vehicular, service and emergency vehicles on campus.

Utilities: This LRDP element describes the campus infrastructure needed to support and accommodate growth on campus.

The following section describes these five LRDP elements, including goals and implementation strategies for each element.



LAND USE

The 2020 LRDP identifies land use designations to support anticipated campus growth and includes a land use map to inform the pattern of development on the campus. The 2020 LRDP Land Use Map encompasses the additional acreage from the UCLC lands south of original 815-acre campus that were added to the campus, and replaces the 2009 LRDP Land Use Map (**Figure 1.4**). The location of land uses for the campus is illustrated in **Figure 3.1, 2020 Long-Range Development Plan Land Use Diagram**.

TABLE 3.1
Land Use Summaries and Acreages

Land Use Category	Acres
Campus Mixed Use (CMU)	274
Campus Building Reserve and Support Land (CBR/SL)	306
Research Open Space (ROS)	135
Active Open Space (AOS)	9
Passive Open Space (POS)	283
Campus Parkway/Open Space (CP/OS)	19
Total	1,026

Campus Mixed Use (CMU)

The Campus Mixed Use (CMU) designation is assigned to approximately 274 acres under the 2020 LRDP. The allowed uses include academic, instructional and research laboratories, library and learning facilities, research archive facilities, student housing including graduate and faculty, student support services, university affiliate dining and retail, athletic and recreational facilities, administrative, child care, service facilities, warehouse/storage facilities and parking facilities. Ancillary support facilities include administrative facilities, performance and cultural facilities, clinical facilities, research institutes, services supporting academic operations, and alumni and conference center.

The future phasing of campus development will need to prioritize campus locations in terms of proximity to existing infrastructure and utilities. For that reason, it is anticipated that campus development during the 2020 LRDP planning period would include more intensive mixed-use development in the vicinity of the Transit Center area south of the Bellevue East road. New campus development would also likely occur along the perimeter back edge of Cottonwood Meadow.

The enhancement of the entire campus would include development of a gateway campus entry feature at the Bellevue and Live Oak Road Intersection. The Campus Parkway Open Space area would be utilized as a linear park that would be activated with passive recreational facilities. In the course of campus development, incidental parking lots associated with individual buildings or clusters of buildings will be developed, while larger interim surface parking lots will be developed on the edge of the developing campus.

Campus Building Reserve and Support Land (CBR/SL)

The Campus Building Reserve and Support Land (CBRSL) designation is assigned to approximately 306 acres of undeveloped land located east of the Fairfield Canal, north of Le Grand Canal and Ranchers Road, and south of the campus. The CBRSL designation includes areas of the campus that are likely to be developed at some point in the future but have not at this time been designated for specific uses. This land use serves to identify areas that will be targeted for future development, as opposed to other, non-intensive uses such as open space. Potential future uses could include academic, research, student support, athletic, and similar uses as identified in areas designated CMU.

This land use designation allows for support services, solar and energy projects, and small structures of generally less than 10,000 sq. ft. This includes facilities for personnel and equipment related to the operation, safety, and maintenance of University facilities, general maintenance activities, materials handling, utility plants, service yards, recycling areas, and storage. Cattle grazing would also be allowed on lands designated CBRSL.

In the event that the campus determines during the timeframe of the 2020 LRDP that it needs to develop some portion of this land beyond the allowable uses, additional environmental review and an LRDP amendment would be required.

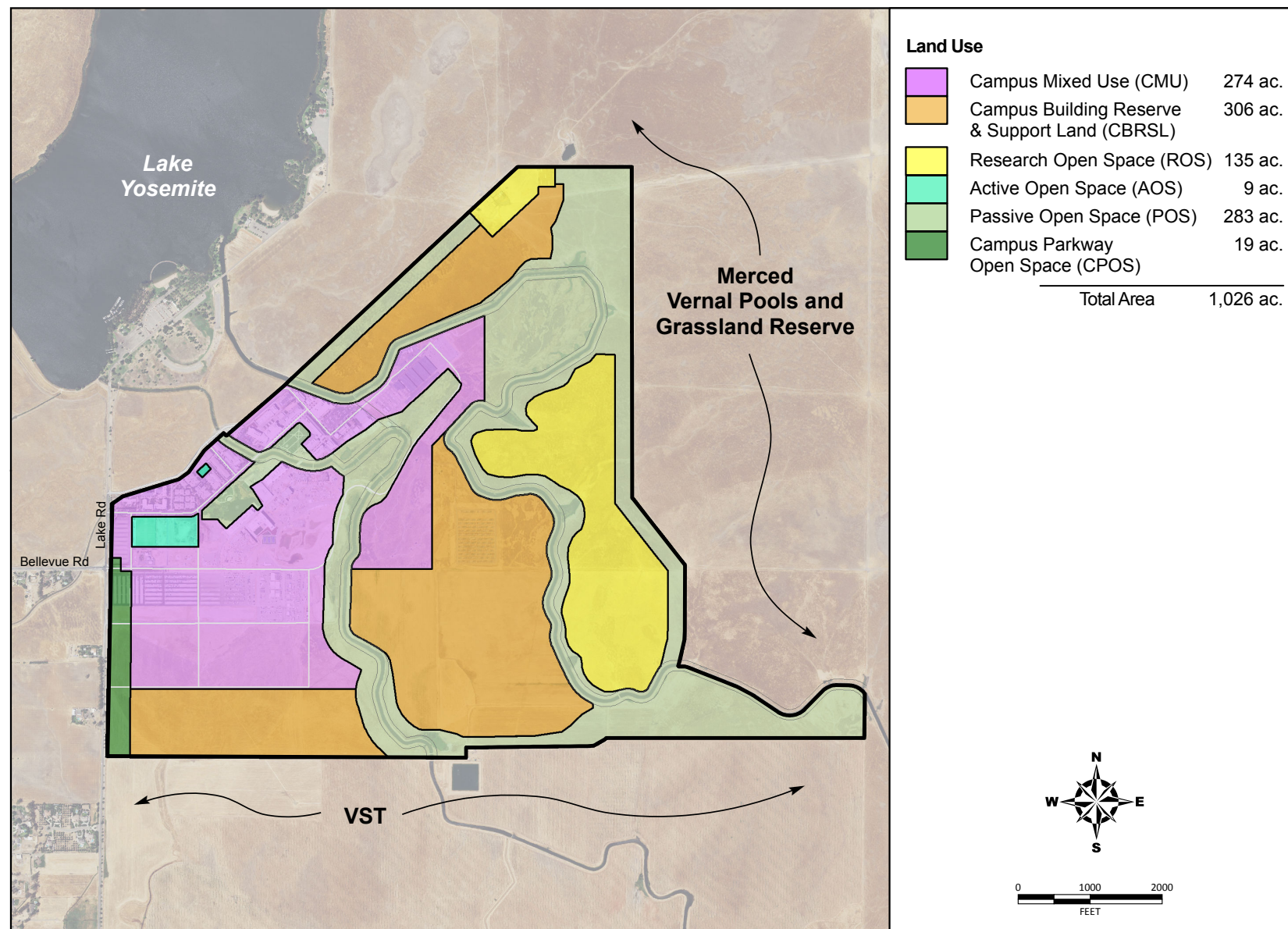


FIGURE 3.1
2020 Long-Range Development Plan Land Use Diagram

Research Open Space (ROS)

The Research Open Space (ROS) land use designation is assigned to approximately 135 acres of undeveloped land located east of the Le Grand Canal. The ROS designation sets aside areas of the campus for active or manipulative field research and experimentation associated with the unique physiographic characteristics of the area (e.g., the vernal pool swale wetlands features present on the land). This land use designation is assigned to lands that are not planned for development. It is envisioned that these lands would be maintained in their natural state except as needed for research, teaching, and educational activities, and maintenance activities to support the University's educational and research mission.

This land use designation allows for campus educational uses, including manipulative research of vernal pools and wetlands. The undeveloped land, specifically areas with existing wetlands feature would be used for living outdoor laboratories, research, and educational purposes for higher and K-12 education. Development in this area is limited to small scale facilities of generally less than 10,000 square feet of building space, such as a field station facility, including overnight lodging to support critical research, education, and outreach programs. Research projects would be evaluated on a project-by-project basis to determine site suitability and duration of time for the use of the site, and would be subject to all campus, state and federal approvals and permitting requirements. This land use designation would allow for a research and education field station facility on a 10-acre site in the vicinity of the old barn site, as well as utilities, parking, paths and trails, and roads. Cattle grazing would also be allowed on lands designated ROS.

Active Open Space (AOS)

The Active Open Space (AOS) designation is assigned to approximately 9 acres of undeveloped land. The AOS designation encompasses indoor and outdoor athletic facilities and fields. The designation also includes setbacks, landscaping, paths, on-site utility services, sidewalks and roads associated with the facilities.

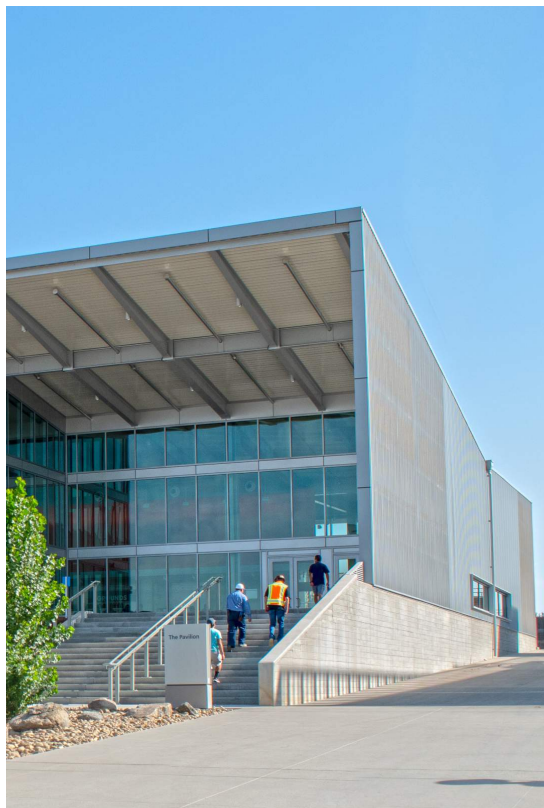
Passive Open Space (POS)

The Passive Open Space (POS) designation is assigned to approximately 283 acres of undeveloped land. The POS category designates large, landscaped and natural spaces within the campus boundaries that can be used for passive recreation such as walking, biking, and observation of nature. It also incorporates the campus storm water management systems, including lakes and detention areas, as well as the irrigation canals that transect the campus. Cattle grazing would also be allowed on lands designated as POS.

Campus Parkway/Open Space (CP/OS)

The Campus Parkway Open Space (CPOS) designation assigns approximately 19 acres of undeveloped land adjacent to Lake Road, one of the primary existing thoroughfares into campus from the City of Merced, for future roadway improvements and expansion. The Circulation Plan provides the approximate location within the CP/OS of the alignment of Campus Parkway which is planned to serve the area in the future.





CAMPUS DESIGN

The Campus Design (CD) element is intended to provide design guidance for buildings and development. The applicability of the campus design goals and the associated implementation strategies depends on specific building program requirements and actual site conditions. The framework of the Campus Design element focuses on eight guiding goals that include designing buildings to respond to site and natural environment conditions; providing visual connections and frame of reference to major campus features; creating activity nodes and points of connection; creating an active streetscape; creating a vibrant live/work environment; creating a high quality public realm; incorporating an architectural contextual approach for building design; and incorporating compatible architectural elements that match existing scale and character of the campus. . The following section provides a detailed description of the guiding goals and the correlating implementation strategy for each goal.

A SENSITIVE RESPONSE TO SITE AND ENVIRONMENT

LRDP GOAL CD-1: DESIGN BUILDINGS TO RESPOND TO SITE CONDITIONS AND THE NATURAL ENVIRONMENT.

Campus buildings should be designed to ensure that the architectural character of the campus will reinforce a specific understanding of the particular environmental conditions of the site.

IMPLEMENTATION STRATEGY

- Design buildings that share a common expression of their relationship to the campus as a whole.
- Position buildings on the site to respond to the immediate environment with regard to building orientation, shading, envelope materials and cooling systems.
- Use building forms to define outdoor gathering spaces that are protected from wind, oriented towards the sun, and shaded for users.
- Design buildings in a manner that is compatible with the surrounding physical environment of the campus.
- Design buildings to respond to natural environment conditions on the site by incorporating wall and fenestration design features that will prevent and reduce wildlife (e.g., birds) fatalities.

A FRAME OF REFERENCE THAT PROVIDES A SENSE OF PLACE

LRDP GOAL CD-2: PROVIDE A VISUAL CONNECTION/FRAME OF REFERENCE FROM NEW CAMPUS DEVELOPMENT TO THE EXISTING CAMPUS.

Buildings should be designed to provide visual connections and frame of reference to the existing campus and landmarks, as well as long distance views of the mountains and other scenic resources.

IMPLEMENTATION STRATEGY

- Incorporate design elements that delineate navigation points to provide a sense of location on campus.
- Orient primary facades of buildings towards existing core buildings, view corridors, and open spaces to facilitate “way-finding”.
- Align building footprints to reinforce and define the view corridors.
- Place buildings on the site to create linear visual connectivity between them. Visual connections may be created with strong building lines, complementary forms and materials, and effective arrangement and massing of buildings.
- Design public spaces to expand the visual experience for users, with orientation towards views and campus landmarks.

A POINT OF CONNECTION AND INTERACTION

LRDP GOAL CD-3: CREATE ACTIVITY NODES OR POINTS OF CONNECTION IN CAMPUS BUILDINGS AND DEVELOPMENT THAT ENCOURAGE SOCIAL INTERACTION AND SCHOLARLY ACTIVITIES.

The character and arrangement of buildings should emphasize academic-oriented social interactions in ways that reinforce interactive learning. This type of personal experience evokes positive human emotions, and provides a level of personal comfort and well-being.

IMPLEMENTATION STRATEGY

- Design buildings to foster collaboration, interaction, and discovery between academic and

research programs across disciplines.

- Vertically zone building programs to integrate functions that engage the largest number of people directly accessible at the ground floor, and design buildings to accommodate a wide range of programs.
- When common and public areas are located on the upper level of buildings, locate them to optimize casual and incidental use.
- Create mixed-use centers/nodes of activity that incorporate linear places for social interaction along specific corridors and routes.

A DYNAMIC AND ACTIVE STREETScape

LRDP GOAL CD-4: CREATE AN ACTIVE STREETScape ALONG THE STREET/GROUND FLOOR LEVEL THAT REINFORCES THE PEDESTRIAN REALM.

The streetscape serves a vital function to provide a point of connection for people to interact and socialize. This careful arrangement of land uses should encourage students, faculty, staff and visitors to socially engage at the street level.

IMPLEMENTATION STRATEGY

- Site buildings on the street edge to reinforce the pedestrian experience and activate public spaces along its corridor.
- Incorporate visible entryways, arcades and common spaces at the ground level to engage the public realm at the street level.
- Create a vibrant streetscape by incorporating active uses on the ground floor including public spaces and common rooms.
- Design buildings to engage the largest number of people on the ground floor of building that includes locating classrooms and lecture halls on the ground floor and lower stories of the buildings, and place more isolated functions, such as research and office use, on the higher stories.
- Incorporate features that enhance the pedestrian realm including seating areas, drinking/hydration station and gathering areas.
- Design the hardscape, landscape, and features of the streetscape to create smooth transitions between adjacent structures, provide continuity, and support a variety of uses and users.

A VIBRANT LIVE/WORK ENVIRONMENT

LRDP GOAL CD-5: **FACILITATE A VIBRANT LIVING/LEARNING ENVIRONMENT BY EXPANDING MIXED USE DEVELOPMENT ON CAMPUS.**

The expansion of new mixed-use facilities will create synergy that will lend to an inspiring and dynamic environment. Mixed use development provides a good opportunity to further enhance the living/learning environment on campus.

IMPLEMENTATION STRATEGY

- Incorporate a mixture of academic, residential, social spaces, and student services for new campus development that provides opportunities for interdisciplinary scholarly activities.
- Locate student services, recreation, commercial activities, and other active programs and uses in prominent locations on the ground level of buildings and along primary, pedestrian-oriented streets to energize ground floor areas with vibrant pedestrian activity.
- Create outdoor areas that accommodate multiple venues for casual and programmed recreational and social activities and events.
- Program residential buildings to include space for advising, space for student groups and opportunities for communal areas to create “living/learning communities.”

A HIGH-QUALITY PUBLIC REALM

LRDP GOAL CD-6: **DESIGN BUILDINGS AND CAMPUS INFRASTRUCTURE TO CREATE AND ENHANCE A HIGH-QUALITY PUBLIC REALM.**

A high quality public realm is essential to developing a thriving, vibrant, sustainable and attractive campus community that everyone can enjoy and take pride in. The public realm should function as a “stage” or “living room” with memorable outdoor spaces and amenities that promote meaningful campus experiences and provides opportunities for students to “see and be seen,” supported by a variety of public spaces.

IMPLEMENTATION STRATEGY

- Use building frontages and landscaping to create a strong street wall that defines the edge conditions of the public realm.
- Design building heights with strong consideration to views from other campus buildings, access to natural light, and creation of shadows in the public realm.

- Locate public spaces so that they are visible and accessible from circulation corridors and buildings that they are intended to serve.
- Create a hierarchy of public spaces that are designed with focal points or “activity nodes”.

A TIMELESS PLACE TO EXPERIENCE

LRDP GOAL CD-7: INCORPORATE A CONTEXTUAL ARCHITECTURAL APPROACH FOR THE DESIGN OF NEW CAMPUS BUILDINGS.

A very distinctive physical and environmental identity has been established at the UC Merced campus. The architectural design concept being conveyed on the UC Merced campus is that of “a living laboratory”, where major academic functions are designed to be transparent and can be observed. It is expected that all new campus development will incorporate a contextual approach that produces a fine-grained urban development structure for the UC Merced campus. Design of new buildings should be similar to the architectural character of the existing campus. The campus embodies agricultural and industrial complexes in that buildings are added over the course of time and demonstrate a common theme that unifies their design. This approach to design combines the California Central Valley heritage with a 21st Century ambition, to create a campus which is of the Valley, while upending traditional notions of what a campus should look like.

IMPLEMENTATION STRATEGY

- Reinforce unique site characteristics to convey a “sense of place”.
- Design buildings in a manner that is compatible with the surrounding physical environment of the campus
- Express building form and function through architectural form and building materials that are durable, sustainable, and adaptable to the Central Valley’s climate.
- Design buildings to consider the heights of adjacent building buildings, access to natural light, creation of shadows in the public realm, and environmentally sustainable opportunities, such as passive heating and cooling elements.

A PERSONAL HUMAN SCALE

LRDP GOAL CD-8: INCORPORATE ARCHITECTURAL ELEMENTS IN THE BUILDING DESIGN THAT ARE COMPATIBLE TO THE SCALE AND CHARACTER OF THE EXISTING CAMPUS.

New campus development should incorporate building forms that have a similar scale and character

similar to the existing campus. The intent is to incorporate architectural elements in the building design to create visual interest, break down the scale of the building and establish a human scale.

IMPLEMENTATION STRATEGY

- Provide massing transitions that break down the scale of large buildings and relate the new development to the scale and character of the existing campus.
- Create a human scale by incorporating recessed wall planes, balconies, building setbacks of upper floors, and articulation of other architectural elements.
- Design stairwells as separate vertical masses, using recesses, materials, or other design features, to add architectural interest and break up the mass of the structure.
- Use street wall massing, architectural detail and articulation, and quality materials to enhance the pedestrian experience of the street front.
- Create a strong street wall using building frontages and landscaping to define the edge condition of the public realm.





OPEN SPACE AND LANDSCAPE

The framework of the Open Space and Landscape element incorporates an open space network and trails system (see **Figure 3.2, Open Space and Trails Map**). The intent is to identify the long-term vision for open space and trails on the campus footprint that could be implemented over time and that would ultimately connect with trails off the campus site. The Open Space and Landscape element is supported by five guiding goals that include creating a distinct regional landscape identity; developing a signature trail system; increasing connectivity from the community to the open space system; maintaining a buffer between the campus and the surrounding conservation lands; and developing a flexible open space that allows storm water detention.

The planning concept for the trails and open space system is a network of trails that provide passive recreational opportunities for students, faculty, staff and the public. The location of the trails could be implemented overtime. The theme of the trails incorporates the following:

- Build upon/enhance the existing trail corridor along Lake Road to improve campus frontage and community links;
- Establish a campus-wide “canal loop” trail that supports cross-country, jogging, cycling, and community health activities etc.;
- Provide a trail along the transitional open space buffer area between the conservation lands and campus development area; and
- Identify trail connections and links to Lake Yosemite and the VST property.

The following section outlines the guiding goals and implementation strategy for each of these goals.

A DISTINCT REGIONAL LANDSCAPE IDENTITY

LRDP GOAL OSL-1: INCORPORATE A LANDSCAPE IDENTITY FOR THE CAMPUS THAT HAS A DISTINCT REGIONAL IDENTITY AND CHARACTER.

The UC Merced campus should embrace the distinct identity of the Central Valley region by incorporating community character into the open space system.

IMPLEMENTATION STRATEGY

- Create and support a legible hierarchy of connected trails and open space areas that reinforce

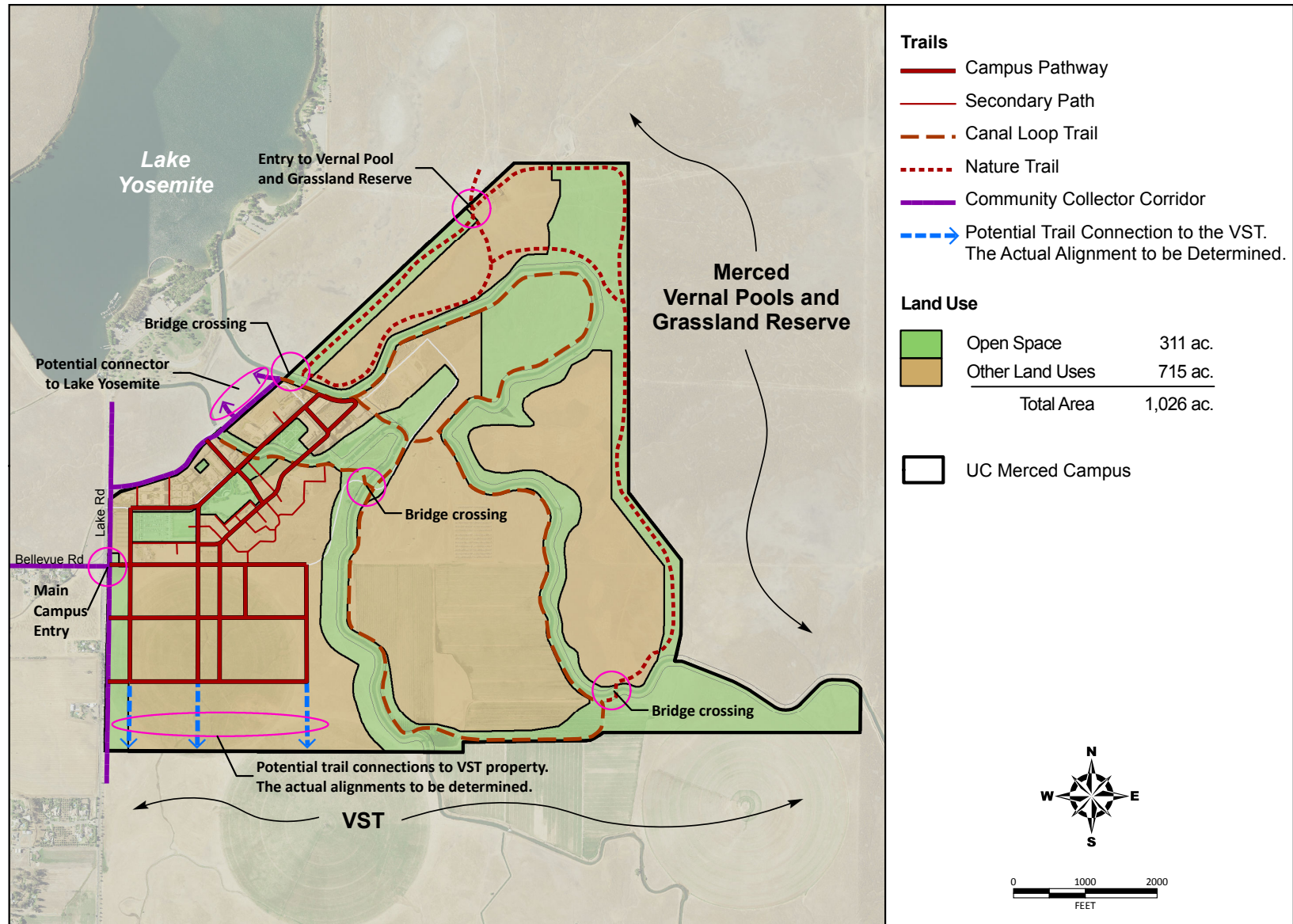


FIGURE 3.2
Open Space and Trails Map

social and cultural links with the local community.

- Create outdoor spaces for cultural, recreational, formal, and informal activities that can take place across the open space system.
- Preserve and protect the area's natural and cultural resources as distinct and character-defining features of the greater Merced community.
- Support education and research activities that strengthen the community's connection to, and understanding of, the regional landscape and natural ecosystems.

A LIVING TRAIL

LRDP GOAL OSL-2: DEVELOP A SIGNATURE NETWORK OF MULTI-BENEFIT TRAILS THAT CONNECT THE CAMPUS AND COMMUNITY TO THE REGION'S LANDSCAPE OF VERNAL POOL AND GRASSLAND HABITAT AND UNIQUE CENTRAL VALLEY HERITAGE.

A trail system can connect the campus and community to the region's landscape of vernal pool and grassland habitat and unique Central Valley heritage.

IMPLEMENTATION STRATEGY

- Create and support a legible hierarchy of trails that connect people to the area's unique setting, key resources, and destinations with signage, amenities, interpretation, access to viewpoints, programs, and activities.
- Engage local partners to develop trails that support the broad needs and interests of Merced's diverse and growing population.
- Engage the campus community in all aspects of the trail planning and development process as a unique educational opportunity that fosters stewardship and campus pride.
- Model leading-edge, sustainable trail development and collaborative resource management practices.

A WELL CONNECTED OPEN SPACE

LRDP GOAL OSL-3: INCREASE CONNECTIVITY TO NATURE, AND STRENGTHEN CAMPUS AND COMMUNITY COLLABORATION.

A comprehensive open space system can support and improve the quality of life, provide alternative transportation options, positively influence public health outcomes, serve as a framework for conservation and educational initiatives, strengthen links between the campus and the Merced community.

IMPLEMENTATION STRATEGY

- Engage community partners in sustainable open space development to improve healthy living.
- Design the campus recreational network to be incorporated into the open space network, moving from natural elements to formalized spaces for recreation.
- Prioritize community engagement, advocacy, and partnerships to cultivate financial resources for mutual open space development, enhancement, and maintenance.
- Orient open spaces, recreation areas, pathways, and stairs to views of hills, mountains, and open spaces, and away from hardscapes and parking lots.
- Identify and work with local community partners to develop open space that have mutual benefits to the campus and the surrounding community.

A UNIQUE AND NATURAL LANDSCAPE

LRDP GOAL OSL-4: MAINTAIN A NATURAL EDGE TO CAMPUS DEVELOPMENT AND PROVIDE A TRANSITIONAL BUFFER TO THE ADJACENT CONSERVATION LANDS.

UC Merced is visually connected to a unique and natural landscape. The campus is located adjacent to open space areas that are characterized by seasonal wetlands and grasslands that are rich in green grasses and wildflowers in the wet seasons and drying to very pale beige in the hot summer. The goal is to develop and maintain an open space system in and around the periphery of the developed portions of the campus that will protect the campus from natural hazards, such as fire or flood, will respect natural resources, and will provide a valuable connection to the native landscape.

IMPLEMENTATION STRATEGY

- Work with community partners to protect and enhance open space resources through conservation, education, and sustainable land management practices.
- Provide an ecological buffer to reduce potential sites of invasion of non-native organisms and the potential for effects of human activity and disturbance from campus on grassland wildlife and sensitive vernal pool species and habitats on the Conservation Lands, including the Merced Vernal Pools and Grassland Reserve (MVPGR).
- Enhance the ecological functions provided by the surrounding vernal pool and grassland ecosystems.
- Use road and trail corridors strategically provide a natural transition from campus buildings and activity centers to the adjacent sensitive vernal pool and grasslands.

A VERNACULAR LANDSCAPE

LRDP GOAL OSL-5: INCORPORATE A VERNACULAR LANDSCAPE VOCABULARY INTO THE CAMPUS LANDSCAPE THEME.

Campus landscape should respond to site microclimate conditions of the campus with appropriate plant selection and placement for intended use. Landscape palettes should be consistent and complement the existing campus landscape.

IMPLEMENTATION STRATEGY

- Design with plant species seasonal color to reflect the dynamic character of UC Merced and to provide changing seasonal experience for pedestrians and users.
- Use a landscape theme and vernacular materials to create continuity through different buildings and blocks.
- Use trees, shrubs, and other landscaping features to soften the edge of buildings, parking lot areas, and utility yards.
- Provide specialized plantings and signature landscape designs in smaller and more intimate public spaces.
- Provide berms in the landscape to soften the spaces between buildings and to emphasize landscape over the hardscape.
- Incorporate “clean” plant species to minimize leaf, flower, and fruit drop, as well as organic matter contamination at air intake vents and other sensitive areas.
- Avoid plants that attract pests, trees with brittle growth that may be subject to breakage, and plants that are known to cause allergic reactions.
- Integrate plant barriers with architectural barriers to minimize wind forces at courtyards, building entrances, and where wind tunnel effect may occur.
- Provide shade by incorporating canopy trees, solar parking shades, awnings, canopies, or other shade structures.
- Integrate the site landscaping with adjacent planting patterns and incorporate native species of trees and shrubs.



CIRCULATION

The framework of the Circulation Element incorporates both a vehicular circulation system and a pedestrian and bicycle trail system (see **Figure 3.3, Vehicular Circulation Map** and **Figure 3.4, Bicycle Circulation Map**). The intent is to provide a comprehensive circulation system that would support growth of the campus over the next ten years and to identify possible future points of connection to the property south of the campus as it develops. The Circulation Element is supported by six guiding goals that include expanding and enhancing the circulation system; expanding and enhancing the bicycle system; increasing pedestrian mobility; transit service that connects to campus activity centers; integrated parking strategy; and utilization of alternative modes of transportation strategies. The following section outlines the guiding goals and implementation strategy for each of these areas.

BICYCLE NETWORK

The bicycle network routes both serve recreational purposes as well as those that maximize efficient and direct access to key locations on campus. (Class I) Bicycle Lanes would provide a direct path into the heart of the campus. Pedestrian paths will be separated from dedicated bicycle paths to minimize conflicts. (Class II) Bicycle lanes would provide on designated roads and would be exclusively for bicyclists. In shared spaces where pedestrians and bicyclists are expected to mix, bicyclists will be instructed to dismount and walk their bicycles.

AN EFFICIENT MULTIMODAL CIRCULATION NETWORK

LRDP GOAL C-1: EXPAND AND ENHANCE THE CAMPUS MULTI-MODAL CIRCULATION NETWORK TO ENSURE EFFICIENT AND SAFE ACCESS TO THE CAMPUS.

There is a primary transportation focus on creating inviting pedestrian, bicycle, and transit facilities in order to reduce personal vehicular traffic, improve safety, and support sustainable University operations. New campus development should provide safe and efficient transportation systems that take into consideration vehicle circulation, transit facilities, and the needs of motorized and non-motorized vehicle parking. The transportation system improvements should be coordinated and phased with the University's future land uses.

IMPLEMENTATION STRATEGY

- Expand and make necessary transportation infrastructure improvements to adequately serve

campus circulation needs.

- Design the campus circulation system to control traffic routing, volumes, and speeds on streets in order to disperse traffic and provide multiple connections to most destinations for all travel modes.
- Ensure that the transportation system and circulation network are coordinated with future land development.
- Coordinate with the City of Merced and Merced County on traffic signalization and the connectivity of the campus to the surrounding transportation network.

INCREASED BICYCLE MOBILITY

LRDP GOAL C-2: EXPAND AND ENHANCE THE BICYCLE NETWORK TO FACILITATE TRAVEL BY BICYCLE.

Provide a continuous and effective bicycle network that will encourage students, faculty, staff, and visitors to bicycle around the campus. The increased bicycle mobility will reduce vehicle trips to and on the campus.

IMPLEMENTATION STRATEGY

- Expand the bicycle network to connect to the transit center, bus stops, parking facilities, major academic and administrative buildings, on-campus housing, and recreational facilities.
- Link the campus bicycle system with the regional bike routes to encourage travel by bicycle.
- Accompany each new building on campus with appropriate additions to the bicycle system, to ensure that the bicycle system expands to keep pace with campus development.
- Create easily accessible locations for safe and secure bike parking.
- Provide short-term bicycle parking facilities at all new buildings, bus stops, parking garages, and near entries where possible.
- Install amenities to serve bicyclists such as water fountains, bicycle maintenance and repair tools, campus maps, secure bicycle parking and lockers, and showers and changing rooms.

A PLEASANT PEDESTRIAN EXPERIENCE

LRDP GOAL C-3: ENHANCE THE PEDESTRIAN EXPERIENCE ON CAMPUS TO FACILITATE AN INCREASE IN PEDESTRIAN MOBILITY.

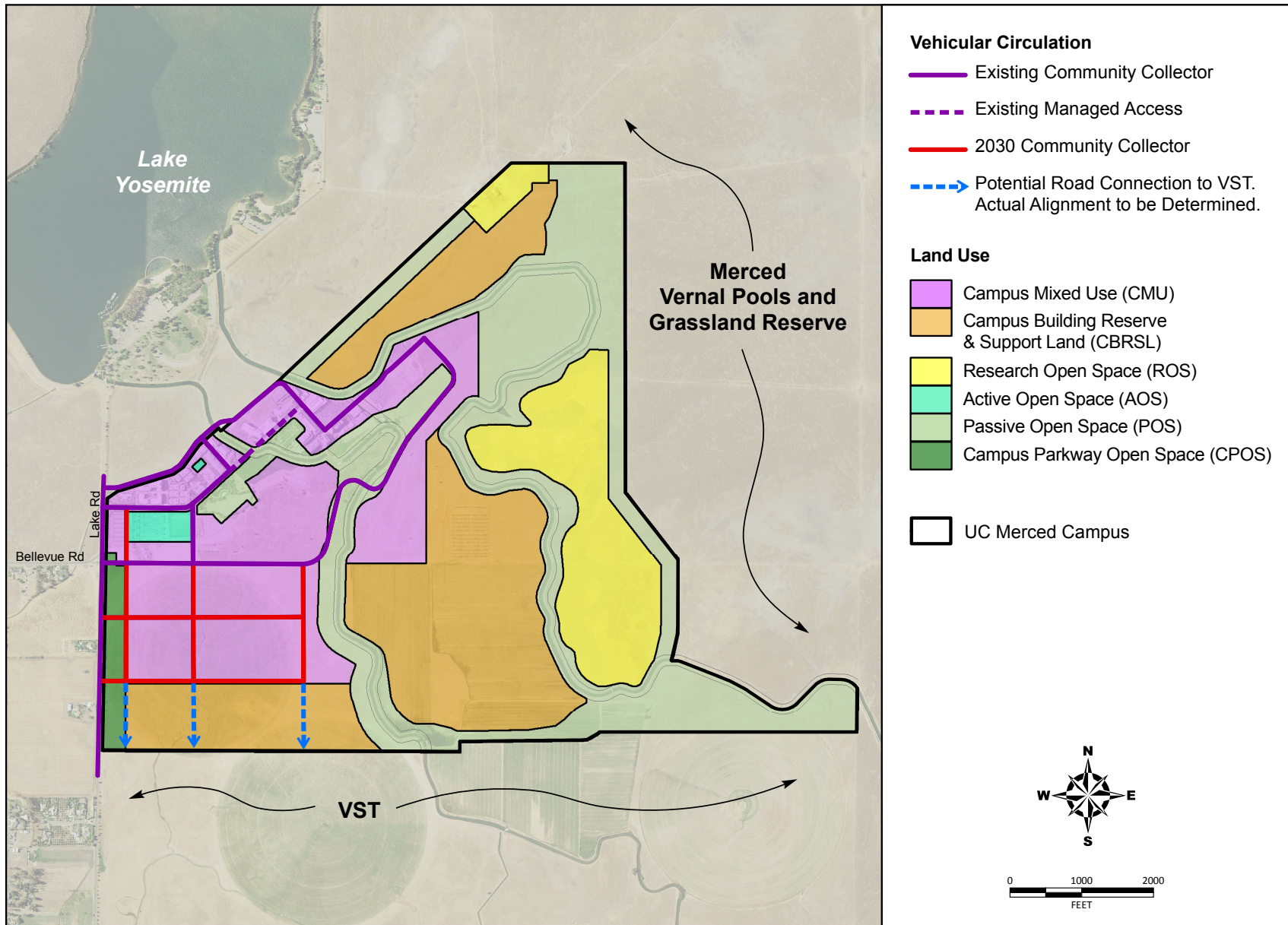


FIGURE 3.3
Vehicular Circulation Map

The circulation system should be expanded with future phases of campus development in mind, such that expansion and transition of pedestrian circulation networks beyond the campus footprint can be accomplished cost effectively, and with minimal negative effect on the existing campus circulation system. The pedestrian route network should have a clear hierarchical relationship throughout campus to provide clearer, more effective pedestrian mobility. Make campus access and circulation safe and efficient for pedestrians by minimizing conflicts between pedestrians, bicycles, and vehicles.

IMPLEMENTATION STRATEGY

- Enhance the pedestrian routes with provision of shade and weather protection, including shade trees, trellises, shade structures and/or arcades, and seating areas.
- Delineated pedestrian routes with features such as crosswalks or plazas. These features should include traffic-calming details such as material changes, and signage for both vehicular and pedestrian users.
- Separate pedestrian and vehicular traffic wherever possible to provide a safe environment for pedestrians.
- Integrate pedestrian pathways into the landscape to the greatest extent possible.
- Provide safe, convenient access for pedestrians to and from public transportation.
- Improve campus circulation by creating pedestrian routes that include connections to building entryways.
- Provide pedestrians access through an opening in the building frontage, such as a courtyard, breezeway, or other means of access.

ALTERNATE MODES OF TRAVEL

LRDP GOAL C-4: DEVELOP A CONVENIENT AND EFFICIENT TRANSIT SERVICE THAT SEAMLESSLY CONNECTS USERS TO THE MAJOR ACTIVITY CENTERS ON CAMPUS.

The LRDP emphasizes community connectivity and promotes transit ridership that will reduce dependence on the automobile. The future expansion of campus should incorporate a transit network that promotes public access to major campus facilities.

IMPLEMENTATION STRATEGY

- Work with local and regional transit providers to coordinate transit service and establish convenient transfers between transit and other modes of travel.
- Promote the transit system by expanding service as necessary and providing shuttle stops.

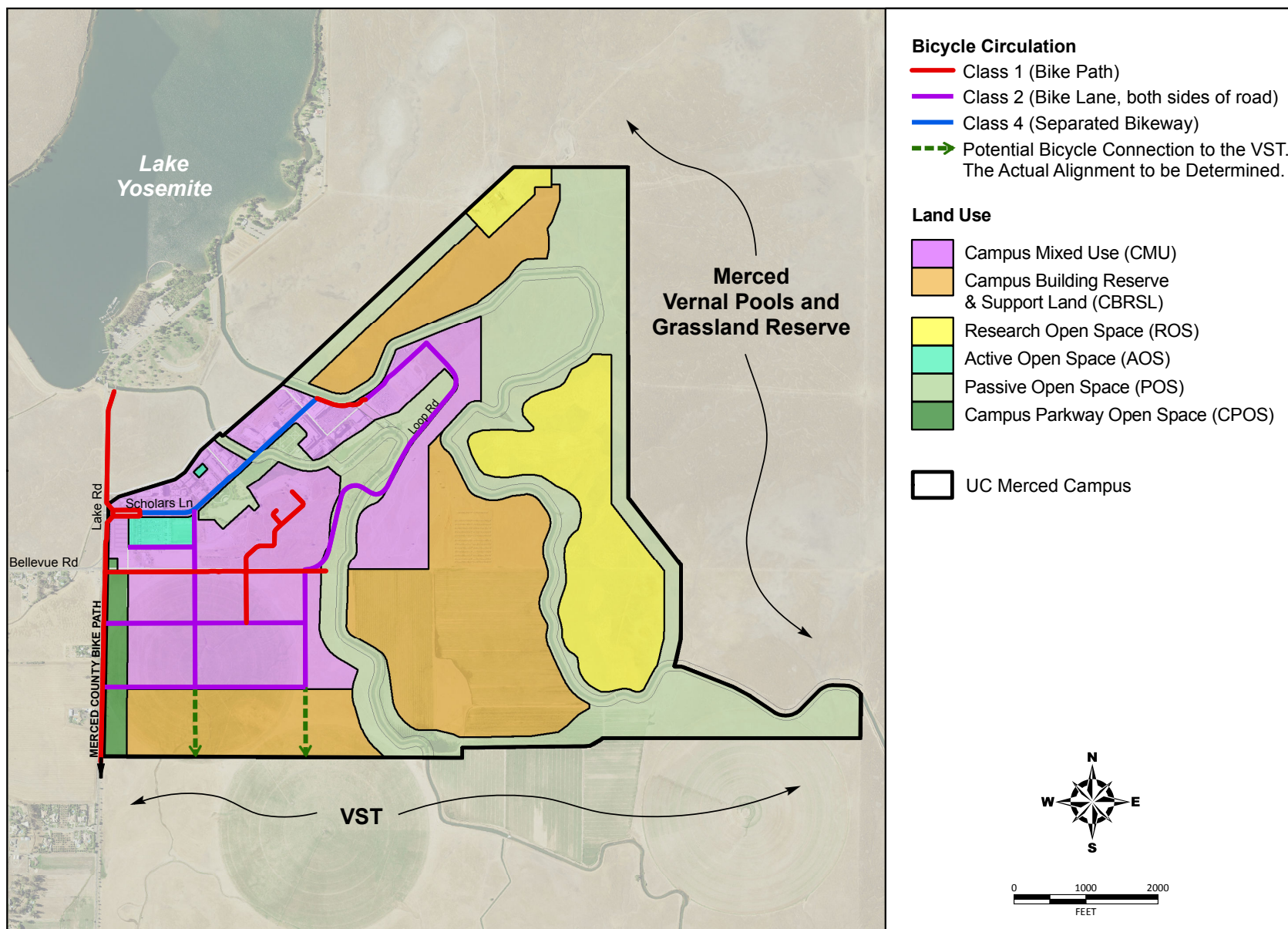


FIGURE 3.4
Bicycle Circulation Map

- Design and locate bus stops to maximize ease of use and information access and promote safety. Provide for wind and rain protection, security, visibility, and lighting at bus stops.
- Maximize ease of use and information access by incorporating appropriate and visible signage, shuttle route map, and timetable service information at every stop.

AN INTEGRATED PARKING STRATEGY

LRDP GOAL C-5: IMPLEMENT AN INTEGRATED PARKING STRATEGY FOR EFFICIENT USE, SAFE MOVEMENT AND CONVENIENT ACCESS.

Campus parking should be designed to provide parking areas that integrate functional designs for safe movement, service, and convenient access. It is envisioned that new development will displace existing parking and the replacement parking will be on the outer edge of campus.

IMPLEMENTATION STRATEGY

- University should monitor parking needs as development progresses and evaluate and implement, as appropriate programs that may include the following:
 1. Consider parking lot and/or permit designation modifications to discourage visitors, faculty, and students from moving vehicles between different parking locations on campus.
 2. Ensure proper signage and traffic circulation to the parking lots to avoid potential confusion and conflicts with pedestrians.
 3. Continue to evaluate academic classroom schedules encouraging more classes to be scheduled in off-peak hours, thus reducing parking demands by increasing utilization throughout the day – “reusing” the same parking space.
 4. Provide preferential parking locations for those who carpool and vanpool regularly.
 5. Pursue off-campus park/ride programs and an off-campus shared use parking lots.
 6. Develop parking to jointly serve multiple facilities to minimize the total amount of parking required and encourage walking between nearby activities.
 7. Provide priority parking for vanpools, carpools, and energy-efficient and low-pollution vehicles, with recharge stations for electric vehicles and, ultimately, a natural gas vehicle charging station.
- Construct new parking facilities at the periphery of the campus core and manage the parking permit system to encourage the use of remote lots in conjunction to decrease the volume of traffic on the interior and loop roads of the campus.
- Design parking lots to support the campus core and not interfere with the public realm

experience of the core campus area.

- Provide connections to the pedestrian and bicycle circulation network from the parking lots with sidewalks and bike paths.

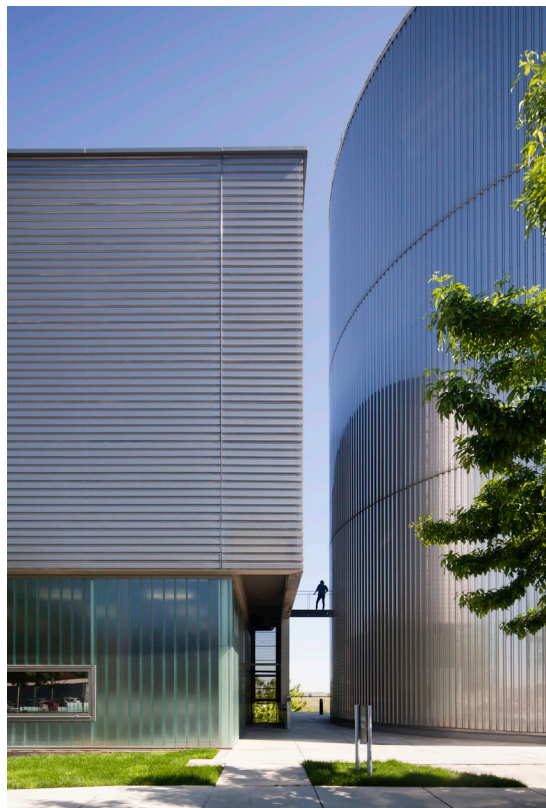
CONVENIENT ALTERNATIVE MODES OF TRANSPORTATION

LRDP GOAL C-6: ENHANCE AND ENCOURAGE THE UTILIZATION OF ALTERNATIVE MODES OF TRANSPORTATION THAT REDUCES DEPENDENCE ON SINGLE-OCCUPANT VEHICLES AND REDUCE VEHICLE TRIPS.

The campus should provide alternative means of transportation intended to reduce the dependence on automobiles. The campus should explore opportunities for expanding on-campus transit, supplement other alternative modes in the campus core, and connect pedestrians to major parking facilities with the campus core.

IMPLEMENTATION STRATEGY

- Implement parking management policies, such as pricing, to encourage use of alternate modes of transportation that include carpooling and public transportation.
- Evaluate opportunities to incorporate bus locations at high activity commuter nodes and provide facilities to assist in attracting riders to the transit system.
- Evaluate the use of telecommuting, and compressed work week to reduce the need to travel to the University.
- Review and revise class scheduling policies to achieve greater balance in daily and weekly class schedules and reduce peak demands on the campus transportation systems associated with student arrival and dismissal.



INFRASTRUCTURE AND UTILITIES

The framework of the Infrastructure and Utilities element focuses on designing infrastructure and utilities to be integral elements of the campus; designing infrastructure, building services and utilities to be energy efficient; integrating the stormwater system into open space areas; designing infrastructure that is reliable and of adequate capacity; integrating infrastructure with building architecture; and designing infrastructure to be living laboratories. The following section outlines the guiding goals and implementation strategy for each of these areas.

A SUSTAINABLE INFRASTRUCTURE

LRDP GOAL IS-1: DESIGN BUILDING INFRASTRUCTURE AND UTILITIES SO THAT THEY ARE INTEGRAL ELEMENTS OF THE OVERALL CAMPUS DESIGN AND PROMOTE A SUSTAINABLE ENVIRONMENT THAT SUPPORTS A COMPACT DEVELOPMENT FOOTPRINT

Infrastructure is a logical extension of the built physical environment. Infrastructure should aspire to improve the quality of life for the campus community.

IMPLEMENTATION STRATEGY

- Design infrastructure to support a compact development footprint and reduce the cost of infrastructure.
- Design Infrastructure thoughtfully to enhance the surrounding physical environment and promote a sustainable environment.
- Adhere to principles of sustainable environmental and financial stewardship in the planning, design, construction, and operations of the campus infrastructure and individual projects.
- Adopt an approach of continuous improvement in the sustainability of campus development, operations and management.

EFFICIENT ENERGY USE

LRDP GOAL IS-2: ENSURE THAT BUILDING ELEMENTS AND FACILITIES ARE DESIGNED SO THAT THE INFRASTRUCTURE, BUILDING SERVICES, AND UTILITIES ARE ENERGY EFFICIENT AND CONSERVE ENERGY AND EMPLOY USE OF RENEWABLE ENERGY SOURCES TO REDUCE CARBON IMPACTS.

The campus infrastructure systems should be designed to be energy efficient and reduce the need for carbon fuels. The opportunity exists for UC Merced to design, operate and maintain leading edge facilities that efficiently use energy, water, and other resources, protect occupant health and improve productivity and learning environments. Site planning at the scale of the entire campus and individual projects will create effective energy production that support human productivity. This commitment relies on an effort to maximize energy efficiency from passive design strategies such as arcades and solar shading to intelligent HVAC systems.

IMPLEMENTATION STRATEGY

- Site and design buildings to take advantage of energy conservation and sustainable materials, systems and practices.
- Design buildings to maximize day lighting and provide occupant control over the interior environment, indoor air quality, and general indoor environmental quality. Wherever feasible and programmatically compatible, occupied building interiors should be naturally lit and naturally ventilated, as a priority in facility design.
- Design buildings to utilize exterior shading to reduce building cooling loads, and utilize exterior circulation systems such as arcades, or covered porches to protect major entries to ground floor functions and to reduce the need for environmentally conditioned space in areas of high traffic.
- Employ passive environmental systems, such as shading, orientation and roof configuration, as design features on campus buildings, employ sustainable materials, and where possible design campus buildings to employ renewable energy production systems.
- Use the sun to make smart decisions about building orientation, shading, envelope materials and cooling systems
- Utilize tree planting and other methods to shade buildings, walking and open activity areas, and to reduce heat island effects of roads and surface parking lots.
- Maximize solar energy production and passive solar design opportunities.
- Design sustainable water systems that promote surface water usage to minimize ground water depletion.

INTEGRATED STORMWATER SYSTEM

LRDP GOAL IS-3: INTEGRATE STORMWATER MANAGEMENT SYSTEMS AND CONVEYANCE SYSTEMS INTO SITE, STREET DESIGN AND OPEN SPACE AND RECREATION PLANNING AREAS.

Open space areas can serve as an integral element of the campus stormwater management system

and can address retention needs during major storm events. Since open spaces serve double duty as stormwater retention and flood control elements, the ground level of adjacent buildings typically should sit well-above the adjacent landscape and provide opportunities for terraces and belvederes. To the best extent possible, work towards percolation of precipitation into groundwater by the use of the Low Impact Development (LID) strategies, or equally effective measures, such as clustering of structures, bioretention areas, planted swales and permeable pavement where appropriate and feasible.

IMPLEMENTATION STRATEGY

- Utilize open space areas for the campus that serve as a stormwater management resource and as a destination for gathering or for large outdoor events.
- Design bioswales where space allows, encourage recharging of the ground water, and provide filtration of sediments out of surface flows.
- Slow the peak flow of rainwater runoff from streets and filter pollutants through the use of bioswales and permeable paving.
- Integrate the stormwater retention and conveyance system with the streetscape, building siting, and open space area design to detain and filter stormwater.
- The following are design concepts and goals that the campus could follow as part of the future development:
 1. Utilize natural conveyance – to the best extent possible utilize natural open channels to convey storm water. These should be considered for both local drainage and along green belt corridors.
 2. Create green belt corridors that tie individual areas to retention zones within the green belt corridors. These corridors should utilize natural conveyance and create opportunities for further water retention and infiltration of runoff.
 3. Create multi-function detention zones to the extent possible – to manage large return period events (i.e., the 100 year/24 hour storm) create multi-function open spaces, such as athletics fields and landscape medians, which can be periodically inundated to provide retention capacity and usable open space when dry.

A FLEXIBLE INFRASTRUCTURE SYSTEM

LRDP GOAL IS-4: DESIGN INFRASTRUCTURE SYSTEMS THAT ARE RELIABLE, COST EFFECTIVE, FLEXIBLE, EFFICIENT AND HAVE THE CAPACITY TO CONNECT TO FUTURE DEVELOPMENT.

A well-designed and efficient infrastructure must allow for the intensification of future development and provide for the integration of new technical systems. Utility design should consider the eventual build-out of 2030 development when sizing collection and distribution facilities. Infrastructure should be built for resiliency and flexibility over multiple decades of use.

IMPLEMENTATION STRATEGY

- Incorporate utility connections and corridors into pathways, bikeways, bridge designs, and canal easements in such a way to minimize the cost of operations and repairs.
- Plan infrastructure to facilitate multi-modal linkages and pathways through the campus.
- Design infrastructure for the efficient integration of multiple programs and uses.
- Install facilities of adequate size and/or capacity such that future phases of campus development will not require replacing or upsizing utility piping or pathways.
- Allow phased installation of equipment (such as pumps or transformers) in the initial construction that include space and terminations for future expansion and system reliability.

AN INVISIBLE INFRASTRUCTURE

LRDP GOAL IS-5: INTEGRATE INFRASTRUCTURE THAT IS RESPECTFUL OF THE BUILDING ARCHITECTURE AND SENSITIVE TO THE BUILT AND NATURAL ENVIRONMENT.

UC Merced's approach to utilities has been designed to establish a resilient foundation for the efficient and effective movement of energy, water and information. The design, development, and technologies used for campus infrastructure place a premium on simple, elegant solutions that minimize waste.

IMPLEMENTATION STRATEGY

- Isolate trash disposal and service areas away from building entries, prominent pedestrian pathways, and open space areas.
- Provide appropriate visual screening of trash disposal areas located outside the building envelope where possible.
- Locate building utilities to avoid visual impacts or impede pedestrian circulation.
- Cluster and screen mechanical equipment on roof top areas to avoid visual impacts.
- Screen or provide mechanical penthouse for rooftop equipment such as HVAC supply.

A LIVING LABORATORY

LRDP GOAL IS-6: DESIGN THE UTILITY INFRASTRUCTURE TO BE A “LIVING LABORATORY” THAT CONVEYS THE CORE VALUES OF THE CAMPUS’ ACADEMIC MISSION.

The campus serves as interactive laboratory for the testing of sustainable infrastructure approaches. The design concept for infrastructure should be that of “a living laboratory” where major utility functions are designed to be transparent and can be observed by people. This acts as an extension of the technology transfer dimension of academic, research and industrial partnership activities.

To date, the expression of sustainable infrastructure design has influenced the form and aesthetics of campus building. For example, the Central Plant provides several viewing areas into the facility that allow the observer to see how the building functions and operates. This concept is articulated in various buildings throughout the UC Merced campus.

IMPLEMENTATION STRATEGY

- Incorporate active and passive energy systems, and water catchments areas to reflect the sustainability mission of the campus.
- Incorporate visible features including daylighting, natural ventilation, solar collectors, green roofs, recycled materials, and other strategies that are integral to the campus fabric.
- Incorporate shade features and ample indoor-outdoor connections, and orient buildings and outdoor areas for optimal solar orientation and to take advantage of cooling summer breezes that provide shelter from winter winds and rain, and other responses to the San Joaquin Valley’s climate.



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