California State University, Sacramento

Campus Master Plan 2015

Foreword

The California State University, Sacramento Campus Master Plan 2015 provides guidelines for the future physical development of the Sacramento State campus. The guidelines, together with illustrations and concepts presented in the Master Plan, provide an integrated framework for the overall campus vision with respect to the University's academic facilities; student and faculty and staff housing; student support services; campus open spaces and landscaping; pedestrian, bicycle, and transit circulation; connectivity; design; sustainability, and other elements that comprise the Master Plan.

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EXECUTIVE SUMMARY

SACRAMENTO
STATE

Executive Summary

The purpose of the California State University, Sacramento 2015 Master Plan is to support and advance the University's educational mission by providing a guide to the development of the physical campus and its facilities over the next twenty years. The Master Plan report describes in detail the vision and goals for campus development to accommodate an enrollment cap of 25,000 full-time-equivalent students (FTES).

The 2015 Master Plan addresses the natural and built environments by identifying the requirements for maintaining and enhancing the physical aspects of the campus to meet the needs for growth and change in a rapidly evolving higher education environment. The Master Plan anticipates these changes by focusing on the facilities needed by the academic program; by campus life programs including housing, recreation, athletics and facilities maintenance; and by the requirements of campus infrastructure including roadways, parking and utilities.

The Master Plan offers guidance for future development that are intended to maintain and enrich the campus as an attractive, accessible, safe and functional environment for learning, living, recreation and culture to serve Sacramento State students, faculty, staff and visitors as well as the surrounding region and its communities. The Master Plan report incorporates Landscape Guidelines, Sustainability Guidelines, Design Guidelines and Phasing/Implementation Guidelines to guide the execution of the Master Plan recommendations. Technical information concerning campus utilities and infrastructure are included in an Appendix and in related reports under a separate cover.

PROLOGUE: CONTEXT AND PROCESS [CHAPTER 1]

California State University, Sacramento, also known as Sacramento State, is the only four-year university in the city of Sacramento, the California state capitol. At 300 acres, with two additional components to the south (Folsom and the Ramona property), the campus is one of the larger in the CSU system. The current full-time equivalent enrollment cap of 25,000 FTES will remain in effect; the current enrollment, as of the 2013 enrollment figures, is 23,837 FTES, with a head counts of 28,811 students. Founded in 1947 and becoming part of the California State University system in 1972, the campus serves students from the counties surrounding Sacramento and other counties throughout the state. The University comprises seven Colleges that offer 58 Baccalaureate degrees, 41 Masters' degrees and 2 doctoral degrees. The University offers an NCAA Division I sports program and provides on-campus housing for 1,656 undergraduate students. Over its 42-year history, Sacramento State has graduated over 200,000 students, including one of every twenty-two Sacramento residents.

The Master Plan process was conducted over a 14-month period during 2013-2014 academic year. The Master Plan team worked with the University's Master Plan Task Force to develop a Vision and seven planning Principles to guide the development of the Master Plan. The planning process included numerous opportunities for campus and community participation, including three campus Forums (each Forum consisting of two or three separate meetings) that were organized to both present and listen to ideas and gather feedback about preliminary planning proposals.

The scope of the Master Plan included the development of new and renewed academic and administrative facilities; additions to the campus housing portfolio; expansion of student life and campus life facilities; functional modifications to pedestrian, bicycle and vehicle circulation systems and parking; improvements and adjustments to landscape and infrastructure systems; and aesthetic enhancements.

EXISTING CONDITIONS [CHAPTER 2]

Designated as a "Tree Campus USA", the campus boasts over 3,000 mature trees and an Arboretum that is a repository for flora from the region and from around the world. The campus is relatively isolated from the surrounding community by a series of natural boundaries. To the west, the campus is bounded by the Union Pacific railway embankment, with only one pedestrian passage, the Hornet Tunnel pedestrian/bicycle route leading to the neighboring 65th Street area. To the south, Highway 50 separates the main campus from the Folsom and Ramona sites. The American River serves as the eastern campus boundary and also provides an incomparable resource to the campus, giving direct access to an extensive regional bike trail system that links the campus with the rest of the Sacramento region. The bike trail and its access to the campus via the Guy West Bridge is a natural invitation to pedestrians and bicyclists to route their journeys through the campus.

The Master Plan team carried out capacity studies based on an extensive analysis of the needs of the academic programs and assessments of the facilities those programs currently occupy. Projects currently part of the existing master plan (updated 2008) have been incorporated, as well as anticipated projects derived from student activity initiatives. The Master Plan is also based on analyses of current vehicle circulation and parking conditions, current landscape conditions, and the effect of existing and potential initiatives on long-term campus sustainability. The results from studies of the campus infrastructure and utilities, some of which were part of the master plan process and others which were parallel investigations, were integrated with master plan proposals for campus development.

VISION, PRINCIPLES, AND PLANNING FRAMEWORK [CHAPTER 3]

The physical campus is a powerful tool of the educational process. The educational experience is found not only in classrooms and laboratories but also in gathering spaces, sports activity areas, dining and housing. To truly create a vibrant 24/7 campus, all of these factors must be considered. The Vision that underlies the 2015 Master Plan was developed through an extensive process of consultation with the Master Plan Task Force, which represented all sectors of the University.

The resulting Vision for the Master Plan targets the support and continued development of Sacramento State as an exemplary CSU campus recognized for its outstanding academic programs and unique student-centered learning experience in an exceptional campus environment. The Vision focuses on supporting the University as an academic powerhouse, emphasizing campus and community connectivity and highlighting Sacramento State's brand and identity. The Task Force developed a series of seven planning principles to serve as the primary criteria for the 2015 Master Plan:

- Create and redevelop a total environment that fosters and emphasizes academic excellence.
- Provide a vibrant and satisfying "Live-Work-Teach-Learn-Play" campus environment that serves the people who study and work here.
- Elevate Sacramento State's presence in the global higher education arena.
- Maximize intra-campus connectivity.
- Maximize connectivity with the surrounding community.
- Showcase and maximize engagement with the American River.
- Optimize physical assets through an integrated and comprehensive planning approach that responds to the academic strategic plan and campus life needs.

Based on observations the planning team was able to make about the campus throughout the process, the Master Planning framework was organized to address six fundamental planning themes that, in turn, provide objectives against which to evaluate the final Master Plan: campus functional organization; open space and pedestrian circulation; building mass and placement; landscape; management of parking and vehicle circulation; and the campus and the community.

2015 MASTER PLAN [CHAPTER 4]

The 2015 Master Plan represents an inclusive, holistic and coordinated series of proposals to guide the development of the Sacramento State campus over the next 15-20 years. Guided by the Master Plan Task Force and based on the Vision principles and planning framework, the Master Plan is explained and illustrated via narrative, diagrams and illustrations that represent the envisioned future physical environment of the campus. This comprehensive Plan includes the development of new land uses; new, remodeled and repurposed facilities; revised vehicle and pedestrian access and circulation; enhanced open space and landscape; new and renewed housing; athletic and recreation facilities; and sustainability initiatives.

The Master Plan capitalizes on the most vivid, character-defining attribute of the campus—its lush, extensive and well-cared-for landscape setting, broadening the influence and reach of this powerful quality by conceiving six central features of the Master Plan that will transform the campus in a phased plan over a twenty-year period:

- The **Hornet Greenway** is a unique organizing landscape and pedestrian circulation feature that serves as the centerpiece of a comprehensive sustainability and stormwater management plan;
- The **Arboretum Expansion** extends the Arboretum, a significant but sometimes overlooked campus resource.
- **North and South Gateways** are reinforced and redefined through signage, landscape and placement of parking facilities that will help distribute traffic, enhance wayfinding and reduce vehicle congestion.
- **Academic Core Renewal** by removing outdated classroom and laboratory buildings that have reached the end of their useful lives and replacing them with landscaped open spaces and new, purpose-built teaching/learning facilities. The Master Plan illustrates four new academic/administrative facilities and seven remodeled and repurposed academic buildings.
- **Expanded Housing Capacity** in North and South Housing Villages to increase and renew the University's undergraduate student housing facilities, add housing for faculty, staff and graduate students, and increase the round-the-clock population on the campus. The Master Plan for the housing villages maximizes views of the American River and incorporates generous open space areas for gathering and recreation, dining and food service, and parking facilities.
- **Student Activities Precinct Additions** including the currently-planned 5,000-seat Student Events Center and additions to the University Union and the Well health and fitness facility.

These Master Plan features are integrated with and threaded through campus open space, vehicle and pedestrian circulation and renewed and conserved landscape. Existing athletic facilities are left as currently existing. The Master Plan includes a relocated transit center at the north, revised bicycle routes through the campus and parking facilities to be phased in as required. The South Campus and Folsom Annex are relatively unchanged, incorporating only a relocated Children's Center and potential parking facilities as needed. The Master Plan does not recommend development on the Ramona site over the 20-year timeframe of this Master Plan.

A significant aspect of the Master Plan is the analysis of existing patterns of vehicle traffic to and from the campus and an assessment of the ways traffic can be reduced through specific traffic demand management initiatives. These initiatives will have the added benefits of reducing campus parking requirements and lowering the University's carbon footprint by cutting greenhouse gas emissions.

Exhibit ES-1: 2015 Master Plan

Exhibit ES-2: 2015 Master Plan Renderings and Key Map

New Administration / Student Services Building at North Gateway

New Riverfront Student Housing (North Housing Village)

Grand Central Quad and Hornet Greenway

Grand Central Quad & Hornet Greenway (Aerial View)

Courtyard of New South Housing Village

New Student Events Center, Well and South Green Student Activities Quad

Pedestrian Portal Between Renewed Hornet Stadium and Student Events Center with PS3 at Right

LANDSCAPE GUIDELINES [CHAPTER 5]

The campus community prides itself on the beauty of the Sacramento State campus, its canopy of mature trees and its designation as a "Tree Campus USA," which form indelible components of the University's identity and brand. The Landscape Guidelines build on this foundation by reinforcing, expanding and, in some areas, redesigning the landscape to more comprehensively serve the campus and substantially elevate campus sustainability.

The Hornet Greenway, to be phased in and developed over the course of the 20-year master plan timeframe, is a new unifying open space feature of the new Landscape Guidelines. As a central part of the campus stormwater management system, along with a system of rainwater gardens incorporated into building sites, the Greenway will operate to retain, infiltrate and clean stormwater runoff to recharge the groundwater and return cleaner water to the American River. The Landscape Guidelines also include the eventual reconstruction of athletic playfields to serve as stormwater retention and infiltration elements.

Other Landscape Guidelines components include the Arboretum Expansion; tree-lined campus roadways; a reordered pedestrian pathway system incorporating new pedestrian promenades that connect new developments in the southern precincts to the Academic Core; reinforced open spaces for recreation and gathering; expanded quads and plazas; ten new flexible art installation sites; permeable paving; and a series of edible garden installations. These features extend the campus aesthetic and work to reinforce the integrative role of open space by creating connections between landscape and structures, and by producing a comfortable, human-scaled setting for educational activities.

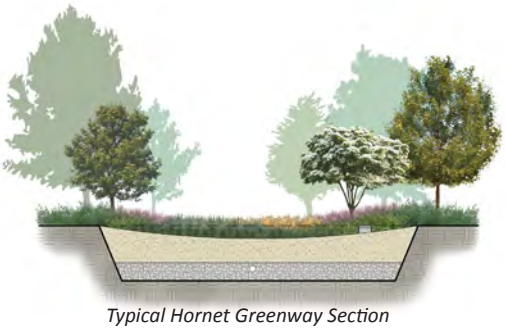
LEGEND

- Hornet Greenway/ Rain Gardens
- Riparian Corridor Planting
- Lawn
- Turf Replacement/ Shrub and Groundcover Planting
- Permeable Pavement
- Existing Tree Canopy
- Large Deciduous Shade Tree
- Large Evergreen Shade Tree
- Large Riparian Tree
- Medium Deciduous Shade Tree
- Small Riparian Tree
- Small Understory/ Ornamental Tree
- Edible Orchard Trees
- (A) Arboretum
- (B) Arboretum Expansion
- (C) Edible Garden (4 sites)
- (D) Consolidated Bicycle Parking (5 sites)
- (E) Art Installation Site (10 sites proposed)
- (F) Outdoor Classroom/ Gathering Area (2 Sites)
- (G) Event Lawn (2 sites)
- (H) Athletic Field (4 sites)
- (I) Intramural/ Informal Recreation Field (3 sites)
- (J) Event Center Entry Plaza (2 sites)
- (K) Expanded Library Quad
- (L) Pedestrian Crossing Plaza
- (M) New Bicycle/ Pedestrian Bridge
- (N) Sciences Esplanade
- (O) Hornet Promenade
- (P) Event Center Promenade
- (Q) Arts Village
- (R) Entry Monument Signage and Landscape

Exhibit ES-3: Illustrative Landscape Guidelines

Exhibit ES-4: 2015 Landscape Guidelines Section Key Map

Pedestrian Crossing at Hornet Greenway

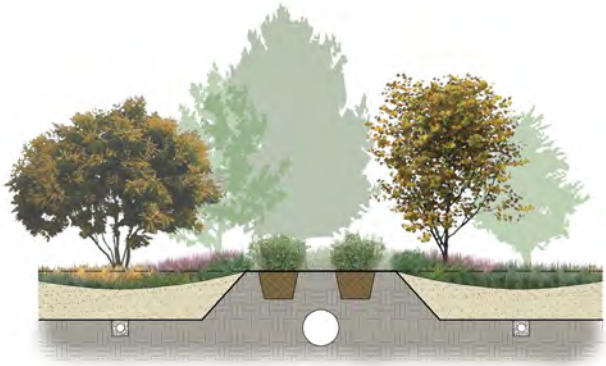


Typical Hornet Greenway Section

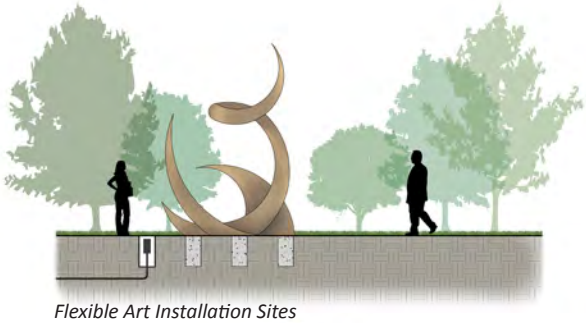
Hornet Greenway at Existing Walkway

Typical Turf Replacement Garden

Hornet Greenway in Paving



Hornet Greenway Rain Garden at Shallow Utility Conditions



Flexible Art Installation Sites

Typical Riparian Corridor Planting (planting does not interfere with operations of Western Ditch)

Hornet Greenway at Existing Tree

SUSTAINABILITY GUIDELINES [CHAPTER 6]

The University strives to achieve the highest standards of sustainability. The Sustainability Master Plan recognizes and incorporates the many programs the University has already initiated, including photovoltaic panels throughout the campus and a smart power-monitoring system. The Master Plan serves to strengthen and support the University's policies and initiatives by describing detailed interventions for stormwater runoff management and alternative power sources and by identifying the elements of development that will boost the University's ability to achieve LEED Gold ratings for its new buildings.

These sustainability programs also provide important educational opportunities by making the campus a living laboratory for sustainability. The University's sustainability initiatives can be integrated with its own academic programs and can serve as a demonstration site for the region's K-12 programs and campus visitors. Furthermore, the University's sustainability programs will serve as an opportunity for Sacramento State to become a model for sustainable practices throughout the state and beyond, increasing the value of its brand.

The Sustainability Guidelines acknowledge the draft of sustainability policies being developed by the Chancellor's Office, and incorporates the analyses and data available from several existing and concurrent reports including the 2009 Sustainable Design and Operations Strategies report and the utilities infrastructure report being produced by the engineering firm P2S for the Chancellor's Office.

DESIGN GUIDELINES [CHAPTER 7]

Led by the University's Design guidelines provide direction over the long term of campus development to ensure that new projects and facilities contribute to the University's overarching view of the campus. Design guidelines are meant to guide decisions rather than regulate future actions, and they are intended to lay the groundwork for creativity. The design guidelines for the Sacramento State campus encourage a high level of aesthetic quality and support an environment of technological change and aesthetic innovation.

The Master Plan's design guidelines address architecture, landscape and signage. They set a series of parameters for new and remodeled buildings and for aspects of campus landscape and sustainability features that will be implemented over the 20-year timeframe of the 2015 Master Plan.

The Master Plan's architectural design guidelines address the relationship between buildings and site, including building orientation to the pedestrian pathway system and to environmental elements such as sun and wind; spatial relationships between buildings and food services; building entries, massing and scale; and colors and materials. Specific guidelines for parking facilities, residential buildings, and site design including site features and furnishings are included. Also included are design approaches to two specific buildings, Sequoia Hall and the Library, to serve as examples of design elements to consider when remodeling campus buildings.

Sustainability guidelines address specific direction for passive design approaches to architectural design, active energy systems, solar energy systems and water conservation. Landscape design guidelines address specific aspects for the landscape including turf replacement, tree succession planting, irrigation systems and art installation sites.

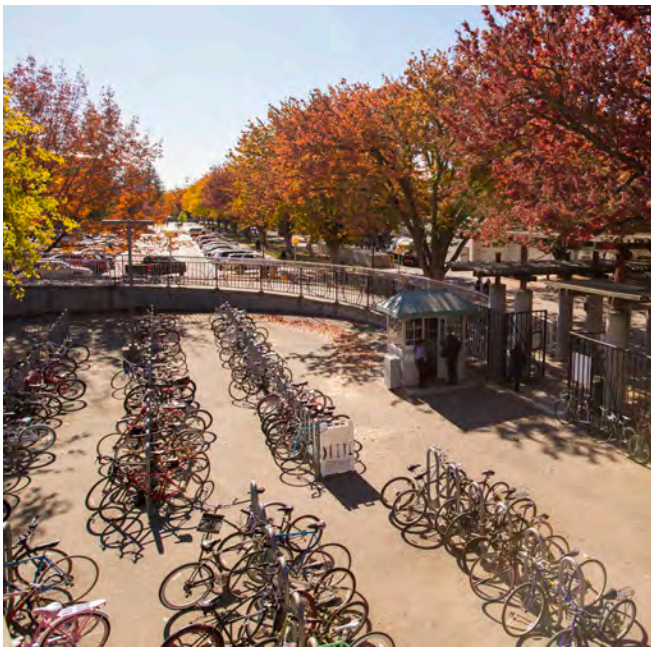
Campus signage and wayfinding design guidelines provide analysis and assessment of existing signage and wayfinding, and direction for new campus entry identification monuments and augmented directional and building signage within the campus and at campus entries.

IMPLEMENTATION GUIDELINES [CHAPTER 8]

The University must continue to function while construction is in progress. The 2015 Master Plan provides a phasing plan for how to construct new facilities and remove antiquated ones without disrupting campus academic, housing, recreation, athletic and maintenance functions.

The Implementation Guidelines identifies thirteen phasing groups, each composed of a series of projects that rely on a specific sequence of development. For example, an existing classroom building which has reached the end of its useful life cannot be removed until new or temporary classrooms are developed to house its functions. Whereas the timing of projects within a group is sequentially dependent, projects from different groups can be built simultaneously. In this way, Master Plan development can take place as funding is available, for both state-funded and non-state-funded projects.

The phasing groups envisioned as being developed earliest in the 20-year Master Plan timeframe are expansions of the non-state-funded facilities: the University Union and the Well health and fitness facility. New academic facilities are phased over the first 10 years, with building remodels phased in over the entire 20-year timeframe. Housing facilities, both new facilities and replacements, are also phased in over the 20-year period. The Implementation Plan is illustrated through tables and campus plan drawings to show changes in the campus over the course of development.



CHAPTER 1

INTRODUCTION AND PURPOSE

SACRAMENTO
STATE

Chapter 1: Introduction and Purpose

California State University, Sacramento is the Sacramento area's only comprehensive four-year university, and is one of the largest of the 23 California State University system campuses. As of the Fall of 2013, the 300-acre campus provides the academic, student life and functional facilities for its current cap of 25,000 full-time-equivalent students and an enrollment of 28,811 students, along with the faculty and staff to serve them. The 2015 Master Plan is a strategy for modifying the physical campus to accommodate the growth and changes the campus is expected to experience over the next fifteen to twenty years.

1.1 CONTEXT OF THE MASTER PLAN

The most recent Master Plan was an update to the 1964 Master Plan, and was revised in June 2007. Although full-time-equivalent (FTE) enrollments have not yet reached the campus cap of 25,000 FTES, the University has experienced moderate but steady enrollment growth. Many of the academic facilities have reached the end of their functional life and will need to be replaced with updated facilities to serve the needs of the University's 21st Century students, faculty and staff.

STATE OF CALIFORNIA MASTER PLAN FOR HIGHER EDUCATION

The State of California Master Plan for Higher Education was established in 1960 to help guide the expansion of California's public higher education system. The Plan represents a pact between the government of California and its citizens to support higher education through tax dollars. The Plan seeks to guarantee that all California high school graduates who qualify have access to higher education through a tripartite system:

- University of California – Open to the top 12.5% of statewide high school graduates, it is designed as the primary academic research institution in the system, covering undergraduate, graduate and professional education. It also holds exclusive jurisdiction within the public higher education system for instruction in law, medicine, dentistry, veterinary medicine, and doctoral programs.
- California State University – Open to the top 33.3% of statewide high school graduates, its main mission is to provide undergraduate education and graduate education through masters' degree programs. Doctorates can only be awarded jointly with UC.
- California Community Colleges – Open to everyone capable of benefiting from instruction, the mission of the community colleges is to provide academic and vocational instruction through the first two years of undergraduate education, and to provide remedial instruction such as language courses, workforce training, and community service courses.

As the population of California has increased exponentially over the past 45 years, the state systems have worked to keep pace by expanding existing campuses and establishing new ones. The pressure from population growth and the demands placed on higher education for a well-trained workforce, as well as the significant economic pressures on state resources over the past eight to ten years, have strained the state's educational systems, prompting all campuses to re-evaluate their resources, potentials and priorities.

HISTORY AND CURRENT STATUS OF THE UNIVERSITY

The campus was founded in 1947 as Sacramento State College and became part of the California State University system in 1972 when state colleges were enfolded into the state higher education system.

The University currently provides education to over 26,000 undergraduate students and nearly 2,800 graduate students (Fall 2103 enrollment figures). Although the majority of students come from the counties surrounding Sacramento, a significant number come from counties throughout the state. The University employs 1,479 faculty, 44.6% of whom are full-time appointments, and 1,270 staff, nearly 90% of whom are full time.

The University comprises seven Colleges, offering 58 undergraduate degrees, 41 Masters' degrees, six post-baccalaureate certificates and two doctoral degrees. The University offers an NCAA Division I sports program as well as numerous intramural activity programs. Currently, 1,656 students live on campus. The University also administers the East Side Lofts complex, which comprises 348 beds. Over its 42-year history as a CSU System campus, Sacramento State has graduated over 200,000 students, including one of every twenty-two Sacramento residents.

In addition to the 300 acres that comprise the main campus, the University has acquired the 7.7-acre parcel just south of the main campus that includes Folsom Hall and the 25.35-acre Ramona site, located south of the US 50 freeway.

Global changes in economic and employment markets, the adoption of new technologies and pedagogies, the need for sustainable buildings and grounds and changing demographics are all part of the context of the 2015 Sacramento State Master Plan. The University has developed new curricula and programs in many fields in response to these global changes and has developed international programs to attract international students to the campus.

Local changes to roadways and vehicle circulation patterns near the campus and changes to local transit systems, including the Light Rail station just south of the campus, new present new opportunities to the University.

Exhibit 1-1: Historic Image of Lassen Hall and Sacramento Hall

MISSION OF THE UNIVERSITY

The campus — its buildings, grounds and facilities — is a physical mechanism that allows the University to fulfill its mission and transmit its values to its students, faculty, staff and the community. The University's Mission Statement, approved in 2004, states:

- California State University, Sacramento is an integral part of the community, committed to access, excellence and diversity.
- California State University, Sacramento is dedicated to the life-altering potential of learning that balances a liberal arts education with depth of knowledge in a discipline. We are committed to providing an excellent education to all eligible applicants who aspire to expand their knowledge and prepare themselves for meaningful lives, careers, and service to their community.
- Reflecting the metropolitan character of the area, California State University, Sacramento is a richly diverse community. As such, the University is committed to fostering in all its members a sense of inclusiveness, respect for human differences, and concern for others. In doing so, we strive to create a pluralistic community in which members participate collaboratively in all aspects of university life.
- California State University, Sacramento is committed to teaching and learning as its primary responsibility. In both the academic and student support programs, success is measured in terms of student learning. In addition, the University recognizes the vital connections between pedagogy and learning, research activities and classroom instruction, and co-curricular involvement and civic responsibility. All students, regardless of their entering levels of preparation, are expected to complete their degree programs with the analytical skills necessary to understand the social, economic, political, cultural, and ecological complexities of an increasingly interconnected world.
- Located in the capital of the nation's most populous and diverse state, California State University, Sacramento is

dedicated to advancing the many social, economic, political, and scientific issues affecting the region and the state. The University's curricular and co-curricular programs continue to focus on these issues through undergraduate and post-baccalaureate programs that prepare graduates for successful careers dedicated to public service and the enhancement of the quality of life within the region and the state. Our research centers and much of our individual scholarly efforts also remain directed at the enhancement of the quality of life within the region and the state.

- At California State University, Sacramento, we are constantly striving to create a sense of unity among faculty, staff, administrators, students, alumni, and community members. In pursuing the combined elements of our mission, we seek to foster a sense of pride in all who view this campus as their own – pride in Sacramento State as the institution of choice among our current students; pride among our alumni in the ongoing impact of the Sacramento State education upon their lives; pride among faculty, staff, and administration in their university's achievement of excellence in teaching, learning, and scholarship; and pride in Sacramento State as an asset to the community among residents of the Greater Sacramento region.

The University recognizes the campus as a tool that will help its students attain their educational goals and contribute to their development. Aligned with the University's commitment to be an active participant in the larger Sacramento community, the Master Plan process, described in detail in Section 1.3 below, included opportunities for community leaders and the community as a whole to engage in the planning process.

ENROLLMENT CAP

Based on the enrollment trends shown in Exhibit 2-2 in Chapter 2, the University made the decision to adhere to the existing campus cap of 25,000 FTES, while focusing on renewal of campus facilities and on ways to further connect the campus to the community.

To assist the University in understanding the impact of various levels of enrollment growth, studies were conducted within the context of the Master Plan project and investigated the capacity of the campus. On the basis of those capacity studies and other factors, the Master Plan presents the anticipated new facilities, removed facilities, remodeled or repurposed facilities, and the pedestrian circulation, vehicle circulation, open space and infrastructure/utilities systems appropriate to accommodate the activities of a 25,000 FTES campus over the next 15-20 years.

1.2 PURPOSE AND GOALS OF THE 2015 MASTER PLAN

The 2015 Master Plan offers ways to implement and translate the University's vision into physical space. It is a guide for long-term land and building use and serves to provide guidance for near-term decisions on program planning and implementation, resource allocation, setting priorities and other University administrative matters which influence the student educational experience at Sacramento State. These daily decisions collectively set a course for the long-term future of the University. The 2015 Master Plan will help ensure that such decisions are consistent with the University's central mission and stated Vision.

The intent of the 2015 Master Plan is to provide the University with a roadmap for the growth, renewal and change of the physical campus with the aim of reinforcing the University's strengths, ameliorating its weaknesses and supporting the University's mandate to provide high-quality education to a large and diverse student body.

The 2015 Master Plan process began with a Visioning component that allowed campus leadership to articulate the University's current vision and to express the University's goals, objectives and renewed commitment to its mission. The Visioning process is described in more detail below. The specific objectives of the Master Plan are detailed in Chapter 3. The goal of the Master Plan itself is to create a framework for developing the physical campus in ways that strengthen the University's ability to:

- Reinforce the University's focus on teaching and learning by providing the appropriate instructional, research and administrative facilities that support the depth of knowledge the University seeks to instill;
- Support opportunities for interaction and collaboration among students, faculty, staff , community members and campus visitors;
- Incorporate new technologies and socially responsible, welcoming physical environments;
- Make efficient use of developable land and create the appropriate balance between built-up areas and open space;
- Continue providing suitable facilities for informal and organized recreation and intercollegiate athletics;
- Provide facilities for student and faculty/staff housing in support of the University's Vision to reinforce and support a 24/7 campus;
- Serve as an accessible, safe and attractive campus for students, staff, faculty and the community;
- Maintain and enhance the physical appearance of the campus;
- Maintain its stewardship of campus landscape and natural resources and reinforce the University's sustainability goals;
- Adequately maintain and manage all campus facilities, systems and infrastructure;
- Serve as a regional center and asset for intellectual development, cultural activity and life-long learning; and
- Continue its strong relationships with the Sacramento community, local and state governments and civic and cultural organizations.

The 2015 Master Plan is a strategic approach to the development of the physical campus that provides support for both immediate and long-term decision-making by:

- Documenting and evaluating existing campus conditions;
- Assessing the implications of enrollment levels for changes to campus facilities;
- Assembling and documenting future campus needs and requirements;
- Identifying appropriate sites for development of new facilities;
- Specifying safe and functional pedestrian and vehicle circulation patterns;
- Quantifying parking requirements and identifying sites for adequate parking facilities;
- Incorporating facilities currently under development and construction into the Master Plan;
- Incorporating sustainable landscape concepts that honor and acknowledge campus natural resources and assets;
- Incorporating analyses and recommendations arising from concurrent and ongoing assessments of campus infrastructure and systems;
- Specifying design guidelines to govern height limits, setbacks, building area, connection with campus open space, building materials for new structures, pedestrian pathways, and vehicle access roads; and
- Recommending a phasing strategy for new, remodeled and removed facilities that preserves campus functions, minimizes disruptions and recognizes funding cycles.

1.3 PLANNING PROCESS

Led by the University's Master Plan Task Force, with the support of the President and campus leadership, the planning process for the 2015 Master Plan took place over a 14-month time period. The process involved full collaboration among the University community and participation from local, regional and community-based agencies and organizations. The Planning Process comprised four phases:

- Phase I: Data Collection and Planning Analysis;
- Phase II: Visioning;
- Phase III: Development of Master Plan Alternatives; and
- Phase IV: Development of Draft and Final Master Plan.

Phases III and IV included campus outreach components which were also open to the community to ensure sufficient channels for input and review by campus and community stakeholders.

To begin the planning process, the University conducted a competitive search and contracted with a professional planning firm, AC Martin, to serve as Master Plan architects and assist in the development of the 2015 Master Plan. The Master Plan architects were responsible for leading the planning process, working with the University to develop a communications and outreach plan, helping the University create and refine a vision for the Master Plan, identifying planning goals, incorporating input from campus and community stakeholders, and illustrating and articulating Master Plan proposals. The Master Plan architects were also responsible for coordinating the efforts of a team of professional consultants, including transportation and parking engineers, civil engineers, landscape architects, sustainability specialists, and signage and wayfinding specialists. The Master Plan team also coordinated with utilities and infrastructure engineers who were engaged in a parallel process of analysis, evaluation and recommendation for the campus utilities infrastructure.

The University's Master Plan Task Force was charged with developing a Vision that would serve as the framework for the Master Plan project, approving the communications/outreach strategy, and reviewing and providing input to Master Plan alternatives and proposals.

During the Master Plan process, the planning team also consulted with City of Sacramento officials and representatives from Regional Transit.

PARTICIPATION IN THE PLANNING PROCESS

The planning process was designed to encourage the participation of student, faculty, staff and community individuals and groups. Three campus-wide Forums were held over the course of the planning project, with each Forum consisting of at least two meetings, held during the day and during the evening, to provide extensive opportunities to participate in the planning process. A special session of the third Forum was convened for community agencies, local government groups, alumni groups and other community-based entities to ensure their input and review were incorporated into the final Master Plan.

To further facilitate broad participation, the University developed a website dedicated to the Master Plan process that was updated as the process continued so that those who were unable to attend meetings could stay informed and provide input through virtual channels. All planning materials used in the campus Forum meetings were posted on the website, and the website provided a readily accessible avenue for input. The planning process was also covered by The State Hornet daily campus newspaper.

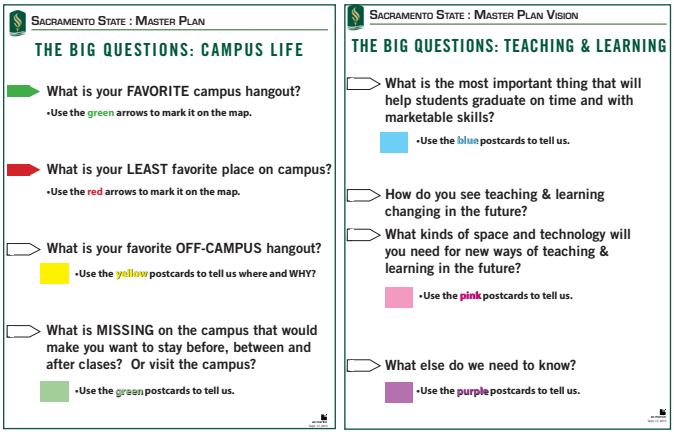


Exhibit 1-2: Sample Question Boards from the First Campus Forum

PHASES OF THE PLANNING PROCESS

Phase I: Data Collection and Planning Analysis

During Phase I, the Planning team reviewed all available studies, reports, publications, data and other documents in order to comprehensively document current conditions and identify needs and requirements for future campus development. The team also toured the campus and was briefed by University staff on current campus conditions, new and anticipated development, and other factors important to the Master Plan.

Phase II: Vision of the CSU Sacramento Campus

A series of three Visioning Workshops were conducted with the Master Plan Task Force. These were designed to articulate the University's Mission and its Vision for future development of the physical campus. The Task Force, assisted by the Master Plan team, developed a Vision Statement, a series of eight Planning Principles, and a number of specific Goals to support each Principle. These Principles and Goals were intended to serve as benchmarks throughout the planning process, to ensure that the University's Vision was enacted through the analyses and recommendations of the Master Plan. The Vision Statement, Principles and Goals are described in detail in Chapter 3 of this report.

During the Visioning phase, the planning team met with the President and with a number of key campus leaders to gain information and perspective about the University's Mission and about the needs and requirements of the University's academic, administrative, housing, student life, athletics and campus support programs and the aspirations, goals and operations of each.

Phase III: Master Plan Alternatives

During the third phase of the Master Plan process, the Planning team designed a series of Master Plan Alternatives and created three-dimensional computer models of the campus to illustrate them. These models formed the basis for discussion at Task Force meetings, at the Forum #2 workshops and at other meetings with campus leadership and stakeholder groups.

Each of the Alternatives accommodated the 25,000 FTES enrollment level that was the basis for the planning process, and each illustrated a distinct way that the facilities required to serve this enrollment level could be achieved on the campus.

Phase IV: Draft and Final Master Plan

The Draft Master Plan was developed on the basis of campus and community responses to the Master Plan Alternatives, distilling the proposed solutions into one plan. This plan was presented at Forum #3, to University staff and other stakeholders, for additional comment and input.

The Final Master Plan described and illustrated in this report is the product of input from many sources and takes into account the University's long-range vision as well as the phasing priorities necessary for long-term fiscal planning and integration with the Chancellor's Office requirements.

Exhibit 1-3: Images from the Campus Forum Meetings

1.4 SCOPE OF THE 2015 MASTER PLAN

The scope of the 2015 Master Plan embraces six specific areas of concern: renewal of academic and administrative facilities; increasing housing for students, faculty and staff; expanding student life and campus life facilities; functional modifications to the campus; adjustments to campus infrastructure and specifically the management of stormwater runoff; and aesthetic enhancements of the campus and its facilities.

The Master Plan describes and illustrates how the University will be able to make the following changes to the campus.

RENEWAL OF ACADEMIC AND ADMINISTRATIVE FACILITIES

- Replace academic and administrative facilities that have reached the end of their useful life.
- Renovate and remodel existing facilities to better serve academic and administrative purposes.

INCREASE CAMPUS HOUSING

- Locate new student housing facilities.
- Phase in the renewal of existing student housing facilities by gradually replacing facilities that have reached the end of their useful life with new housing buildings.
- Expand residential dining facilities to accommodate an increased complement of residential students.
- Develop and phase in apartment-style housing for faculty, staff and graduate students.
- [It is understood that these facilities are non-state-funded.]

EXPAND STUDENT LIFE AND CAMPUS LIFE FACILITIES

- Expand the existing University Union facilities.
- Expand the existing Well facility.
- Develop a new Student Events Center.
- Provide sufficient facilities for informal and intramural sports activities.

FUNCTIONAL MODIFICATIONS

- Support the use of public transit by continuing to provide shuttle connections and bus parking for University and Regional Transit vehicles.
- Make minor changes to campus entries and roadways to will improve the flow of on-campus traffic.
- Redistribute parking facilities to better accommodate on-campus traffic.
- Reorganize the pedestrian pathway system to create a more legible and aesthetically pleasing campus.
- Alter bicycle routes through the campus and identify bicycle and pedestrian zones that will help to increase safety and functionality.
- Use signage and wayfinding systems to create a more legible campus that is easier for visitors to navigate.

ADJUSTMENTS TO CAMPUS INFRASTRUCTURE

- Provide a new central greenway system that serves to enhance the campus landscape, manage stormwater in order to reduce pressure on the existing pumping system in the Western Ditch area, and clean the stormwater before it is reintroduced into the groundwater and/or American River systems.
- Develop new areas of landscape in a sustainable manner.
- Modify and augment campus utilities systems to serve the new and renewed facilities that are part of the Master Plan.

AESTHETIC ENHANCEMENTS

- Develop sites for buildings in a strategic manner to create quads, courtyards and other open spaces that encourage frequent and casual social experiences among students, faculty, staff and campus visitors.
- Reinforce the pedestrian environment of the campus, conserve campus open space and nurture natural areas.
- Increase the size of the University Arboretum and better connect it to the main areas of the campus.
- Enhance the identity of the University and the campus through landscape and identification at campus entries.
- Develop landscape and pedestrian connections in newly developed areas of the campus.
- Use Design Guidelines to direct the design and development of new facilities and integrate their form and materials with existing buildings and outdoor space.

Chapter 2 of this report documents the existing conditions that form the basis and context for the 2015 Master Plan. Chapter 3 describes the Planning Principles to which the Master Plan adhered and the Goals that served as the Master Plan's targets. Chapter 4 describes the 2015 Master Plan in detail. The Landscape Master Plan is described in detail in Chapter 5; the Sustainability Plan is described in detail in Chapter 6. Chapter 7 describes Design Guidelines and Development Standards for implementing the Master Plan proposals. Chapter 8 is a detailed Implementation and Phasing Plan for the Master Plan proposals. Additional reports and documents relevant to the 2015 Master Plan are included in the Appendix to this report.

CHAPTER 2

EXISTING CONDITION

SACRAMENTO
STATE

Chapter 2: Existing Conditions

California State University, Sacramento was the eleventh campus to be established in the 23-campus California State University system, and is the 7th largest campus in terms of enrollment. The 300-acre campus is planted with 3,000 trees, unquestionably justifying its designation as a "Tree Campus USA;" and its links to the Sacramento area's extensive pedestrian and bicycle trails stretching along the adjacent American River make the campus unique in the CSU system for its striking natural setting and its connections to the Sacramento region's extensive natural surroundings. On University grounds is the three-acre University Arboretum that, in conjunction with the Department of Biological Sciences, provides outreach to elementary school programs in the Sacramento area.

2.1 REGIONAL AND COMMUNITY SETTING

Sacramento State is the only 4-year university in the City of Sacramento, the State capitol and the State's 6th largest city, whose population exceeds 477,000. The campus is located several miles south of the downtown area and is bounded by the American River on the east, the Union Pacific Railroad right-of-way on the west and U.S. Highway 50 to the south.

Originally founded as Sacramento State College on September 22, 1947, during a time of intense demand for higher education after World War II, the University's first semester of classes consisted of 235 students enrolled in 44 sections. The University integrated the regional setting into its identity by using as its school colors the hues of green and gold to symbolize the foothills and trees in the surrounding area.

Sacramento State moved to its present site adjacent to the American River in 1953. This site had not been considered developable because it was located within the designated flood plain of the American River. However, with the construction of the flood-control levee in the 1950s, the site became usable and was selected for development of the Sacramento State campus.

The University has a significant impact on the Sacramento Region and California statewide economy. It sustains nearly 9,000 jobs in the region and statewide, generates $816 million to the Sacramento economy, and nearly $1 billion to the State economy, with annual spending from the University exceeding $600 million.

The University makes other important contributions to the surrounding community. Sacramento State has the state's largest cooperative education program, placing students in paid positions in which they receive academic credit. For example, Biology students help the City of Sacramento crime lab conduct DNA matching, Physical Therapy students help stroke victims regain their mobility, and Government students are staffed at the Capitol. The University has one of the largest Criminal Justice programs in all of North America, with nearly 1,500 undergraduate students and 80 graduate students. Nearly 36% of students volunteer through the Sacramento State Serves program, committing more than 2 million hours of service each year.

Exhibit 2-1: Regional Location Map

2.2 ENROLLMENT

University enrollment has been steadily climbing since a dip in enrollment in the mid 1990s, with fluctuations that reflect those in the California economy. As of the Fall of 2013, student enrollment shows the following characteristics.

- In Fall of 2013, 26,012 undergraduate students and 2,799 graduate students were enrolled ('headcount'). University enrollment constituted 23,837 full-time equivalent students (FTES).
- Enrollment reflects overall demographic changes at universities across the country: 14% of undergraduates are 25-29 years old; and 37% of graduate students are 25-29 years old with 39% older than 29.
- Similarly, as on many other CSU campuses, the gender ratio favors female students. In 2013, 56% of undergraduates and 66% of graduate students were female.
- Undergraduate enrollment levels have increased slightly between 2009 and 2013; graduate levels have decreased somewhat over that time period.
- 81% of undergraduates are full-time students -- 19% are part-time -- with the average undergraduate taking 12.4 units. For graduate students, 61% are full-time and 39% are part-time; the average graduate student has a 10.1-unit course load.
- The most popular majors for undergraduates are Business Administration (15%), Nursing (6%), Criminal Justice (6%), Psychology (6%) and Biological Sciences (6%).
- For graduate students, 11% are Social Work majors, 7% are Business Administration majors, 5% are studying Electrical and Electronic Engineering, 5% are Marriage/Family Counseling students, and 4% are Speech Pathology and Audiology students.
- The University awards 6,500 degrees each year and has an alumni base of over 200,000 graduates.
- The 2013 statistical information gathered by the University indicates that the majority of students come from Sacramento County and the adjacent counties of Solano, Contra Costa, Yolo, San Joaquin and Placer, with smaller numbers of students from as far away as Los Angeles, Riverside and San Diego counties.
- In 2013, 6.4% of students lived on campus.

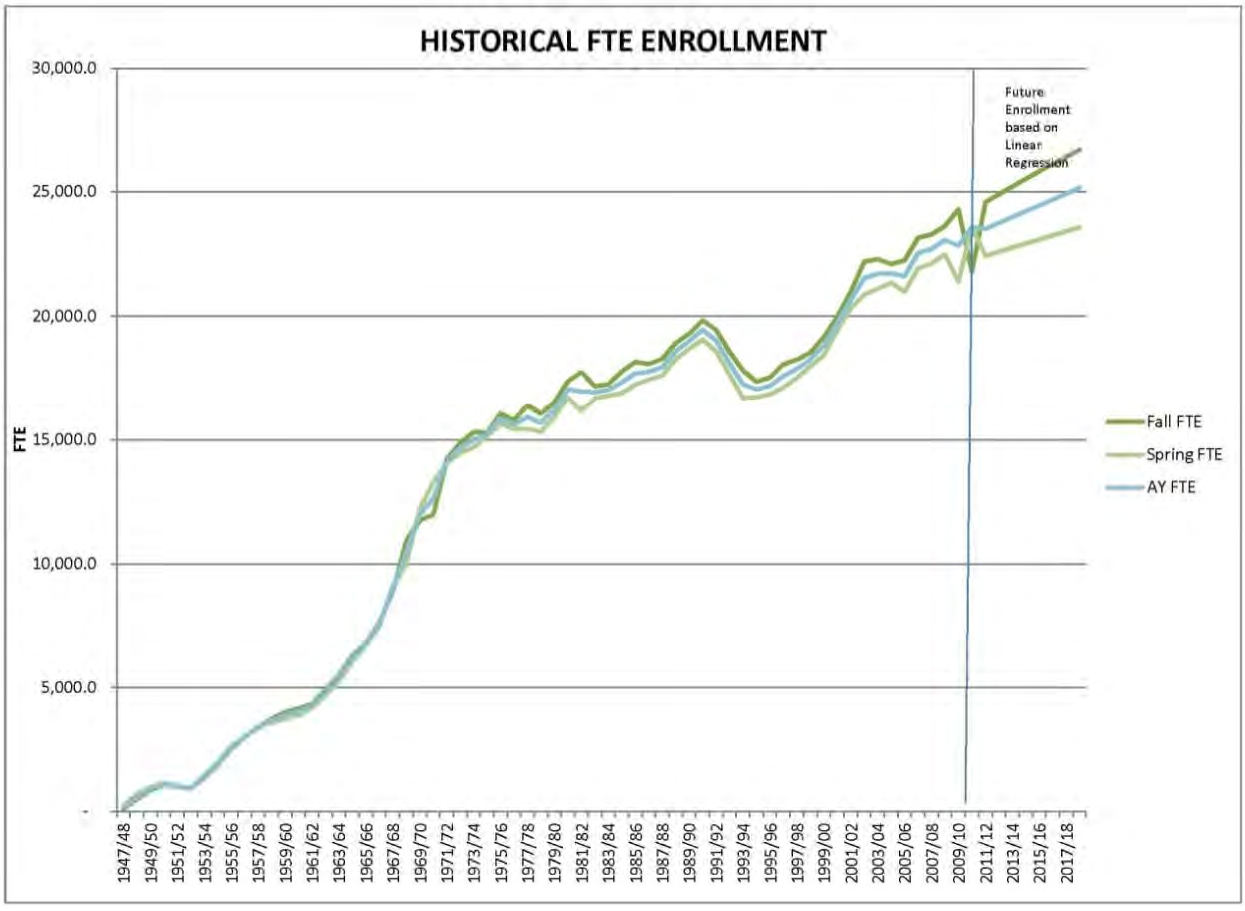


Exhibit 2-2: Historical FTE Enrollment

As the population of California has increased exponentially over the past 45 years, the State systems have worked to keep pace by expanding existing campuses and establishing new ones. The pressure from population growth and the demands placed on higher education for a well-trained workforce, as well as the significant economic pressures on State resources over the past 8-10 years, have strained the State's educational system, prompting all campuses to re-evaluate their resources and potential.

2.3 FACULTY AND STAFF, TEACHING AND LEARNING

In the Fall of 2013, the University employed 1,479 faculty members; of these, 44.6% were full-time and 55.4% were part-time. Overall, 25.8% of the faculty were at the rank of Full Professor, 11.6% were Associate Professors, and 5.9% were Assistant Professors. Initially, 51.3% had Lecturer status. Reflecting these ranks, 39.4% had tenure, while 54.7% are considered non-tenure-track faculty.

These 1,479 faculty members constitute 262.2 full-time equivalent faculty (FTEF) for lower-division classes, 457.3 FTEF for upper division classes, and 132.9 FTEF for graduate classes. Faculty teach non-supervision Lecture, Laboratory, Seminar and Activity sections. In addition, supervision sections include Independent Study, Field Work, Practice Teaching, Work-Study, Thesis and Studio Instruction.

Average undergraduate lower-division class section size is 37; average upper-division section size is 33; and average graduate course section size is 17. Class size varies significantly by discipline, however -- Business Administration and Social Sciences/ Interdisciplinary programs have larger class sizes, while Engineering/Computer Science, Education, Health/Human Services and Natural Sciences/Mathematics have smaller class sizes.

The University employed 1,270 staff members, 89.8% of which were full-time. University staff members fulfill a variety of roles on the campus, including management, other professional, secretarial/clerical, service/maintenance and technical/paraprofessional positions.

FACULTY CHARACTERISTICS	
Full-time faculty	660 (44.6%)
Part-time faculty	819 (55.4%)
TOTAL	**1,479**
RANK	
Full Professor	381 (28.5%)
Associate Professor	172 (11.6%)
Assistant Professor	88 (5.9%)
Lecturer	759 (51.3%)

Exhibit 2-3: Faculty Characteristics

STAFF CHARACTERISTICS	
Full-time staff	1,141 (89.8%)
Part-time staff	129 (10.2%)
TOTAL	**1,270**

Exhibit 2-4: Staff Characteristics

EXISTING ACADEMIC AFFAIRS ASF PER COLLEGE	
	CURRENT SPACE ALLOCATION (ASF)
Arts and Letters	175,849
Business Administration	23,838
Education	29,217
Engineering and Computer Science	99,263
Health and Human Services	159,294
Natural Sciences and Mathematics	133,609
Social Sciences and Interdisciplinary Studies	64,911
Interdiscipline	172,312
Admin	267,970
TOTAL	**1,126,263**

Exhibit 2-5: Existing Academic Affairs ASF per College

2.4 CAMPUS SPACE ALLOCATION

The space allocations for the University's existing facilities are shown in Exhibit 2-7; these figures are derived from campus records. These facilities include academic/administrative buildings, campus support buildings, residence halls and parking structures (parking facilities are described in more detail below). The housing buildings shown comprise on-campus housing facilities for 1,674 residents in the North Housing precinct.

In addition to these facilities, the campus includes 18.5 acres of athletic fields and intramural playfields and 57 acres of surface parking lots.

Sacramento State's 300-acre site includes the triangular site at Folsom Boulevard and Hornet Drive. The University also owns a 25.35-acre site at the corner of Ramona Avenue and Cucamonga Avenue, which is currently vacant.

Campus space was analyzed according to the October 2011 "Campus Space Use Report." The Master Plan Team analyzed space allocations for each college and, within each college, each academic program. These space allocations included instructional space and administrative/office space and other space assigned to or operated within each college.

The total gross square feet of the Academic Affairs and Administration and Business Affairs is shown in Exhibit 2-5. This number will form the basis for determining the University's need for additional space in the 2015 Master Plan.

2.5 EXISTING CAMPUS MASTER PLAN

The existing Campus Master Plan approved in 2010 is a single page document [Exhibit 2-6] which recommends a number of new projects; these were located primarily in the central and southern portions of the campus. Anticipated new projects at that time included:

- A new science complex, to occupy the existing parking Lot 4 to the north of the student bookstore;
- Six new academic buildings;
- Two new parking structures;
- A new student events center; and
- The remodel and/or additions to a number of existing buildings.

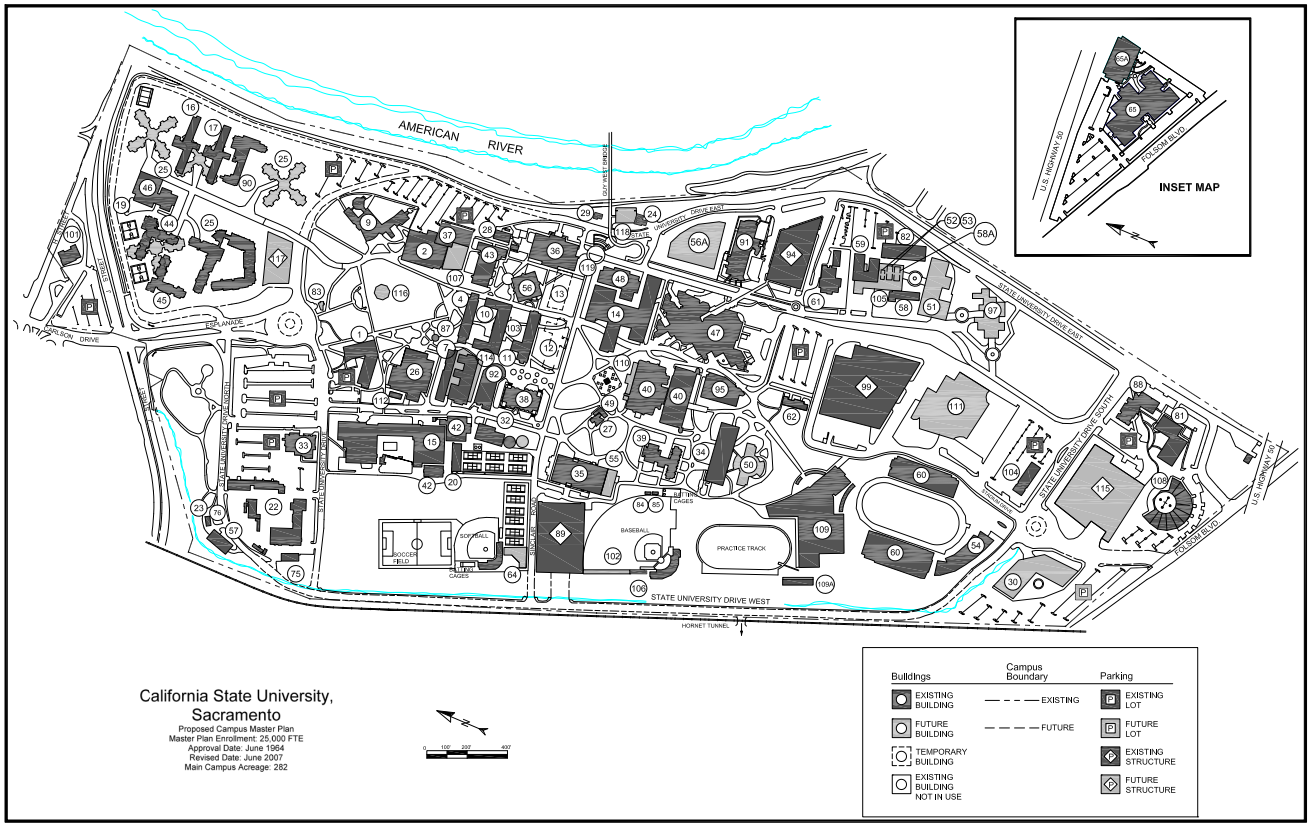


Exhibit 2-6: 2010 Existing Campus Master Plan

EXISTING BUILDING LIST AND SQUARE FOOTAGE				
BLDG. NO.	BUILDING	BUILDING USE	GSF	ASF
95	Academic Information Resource Center	Telecom, Computer, Communication Center	100,041	67,807
11	Alpine Hall	Classroom, Fac. Office	30,550	20,573
104	Alumni Center	Conference Meeting	10,800	9,752
39	Amador Hall	Classroom, Fac. Office	67,138	39,421
25	American River Courtyard	Student Housing	209,050	152,506
82	Art Sculpture	Classroom	12,040	11,540
106	Baseball Storage Facility	Equip. Storage	1,430	1,430
62	Benicia Hall	Classroom / Fac. Office	7,000	4,887
12	Brighton Hall	Classroom, Fac.office	30,000	19,863
10	Calaveras Hall	Classroom, Fac. Office	21,630	13,208
35	Capistrano Hall	Classroom, Fac. Office, Perform.	84,722	46,342
108	Capital Public Radio	Radio Station	19,838	14,201
32	Central Plant	Mech.	13,569	1,794
61	Child Development Center	Day Care	11,054	10,128
61A	Child Development Center Annex	Day Care	2,650	2,650
85	Construction Management	Trailer / Office		
37	Del Norte Hall (Former Bookstore)	Classroom / Office	54,000	48,600
90	Desmond Hall	Housing	53,683	32,330
46	Dining Commons	Dining	22,747	13,987
4	Douglass Hall	Classroom	22,700	12,344
16	Draper Hall	Housing	38,212	22,962
59	El Dorado Hall	Classroom, Lab, Fac. Office	11,029	7,319
59A	El Dorado Hall Annex	Office / Lab	1,560	
54	Eli and Edythe Broad Field House	Office / Locker / Football and Track and Field	26,235	18,914
29	Environmental Health and Safety	Office	1,263	1,029
38	Eureka Hall	Classroom, Fac Office	59,488	37,536
84	Facilities Annex	Archive Trailer		
22	Facilities Services	Office, Shops	35,272	31,744
65	Folsom Hall	Classrooms / Lab/Office	198,692	82,203
49	Food Service-Outpost	Food Service	1,300	1,050
28	Greenhouses	Greenhouse	10,390	3,825
20	Handball Courts	Athletics, Locker Fac.	5,969	
24	Hazardous Materials Mgmt. Bldg.	Chem. Storage	1,381	844
91	Hornet Bookstore and University Enterprise Office	Retail / Office Space	93,170	
31	University Enterprises Offices	Office	6,000	4,467
13	Humboldt Hall	Classroom, Fac Office, Lab	24,908	15,354
17	Jenkins Hall	Housing	38,212	22,962
7	Kadema Hall	Classroom, Fac. Office, Lab	46,184	27,866
26	Lassen Hall	Office, Classroom	80,445	52,829
40	Library North	Library	211,835	148,829

Exhibit 2-7: Existing Building List and Square Footage

BLDG. NO.	BUILDING	BLDG. USE	GSF	ASF
40	Library South	Library	165,239	118,808
92	Mariposa Hall	Classroom, Fac. Office, Lab	78,079	47,947
43	Mendocino Hall	Classroom, Fac. Office, Lab	77,000	51,317
81	Modoc Hall	Classroom, Fac. Office	85,402	62,639
88	Napa Hall	Classroom, Fac Office	33,932	26,440
53	Office of Education	Office	1,200	
27	Outdoor Theater	Performance	2,160	1,728
49	Outpost Food Service	Food Service	1,313	
89	Parking Structure 1 [PS1]	Parking	494,208	
94	Parking Structure 2 [PS2]	Parking	300,035	
99	Parking Structure 3 [PS3]	Parking	983,620	
65A	Parking Structure 4 [PS4]	Parking	56,980	56,980
56	Placer Hall	Classroom, Fac. Office, Lab	67,101	42,598
58	Public Service	Office	11,892	6,417
58A	Public Service Annex	Office		1,440
75	Receiving		5,000	4,905
19	Residence Hall Recreation Facility	Recreation	1,152	1,015
2	River Front Center	Food Service, Office	40,198	26,946
48	Riverside Hall	Classroom, Fac. Office	83,316	56,350
87	Round House Vending	Food Service	707	707
52	Sacramento City Unified School District	Office	720	
1	Sacramento Hall	Office	38,090	24,566
112	Sacramento Hall Annex	Office	3,600	
14	Santa Clara Hall	Classroom, Fac Office, Lab	66,391	47,195
36	Sequoia Hall	Classroom, Fac. Office, Lab	191,137	110,161
9	Shasta Hall	Classroom, Fac. Office, Perform.	62,667	39,971
44	Sierra Hall	Housing	41,662	23,415
42	Solano Hall	Classroom, Fac.office, Lab	66,320	46,887
23	Storage Building	Storage	1,250	1,250
57	Storage Building	Storage	7,800	7,800
33	Student Health Center	Health Center	27,313	14,680
45	Sutter Hall	Housing	40,102	23,515
34	Tahoe Hall	Classroom, Fac. Office	64,764	39,045
47	University Union	Office, Food Service	162,268	121,820
73	Warehouse	Storage	1,500	
109	The Well	Health and Recreation	150,845	113,147
120	Well Support	Health and Recreation	4,800	5
15	Yosemite Hall	Athletics	82,301	60,140
		TOTAL CAMPUS	**5,168,251**	**2,182,930**

Exhibit 2-8: Existing Building List and Square Footage (Exhibit 2-7 Continued)

2.6 CAMPUS BOUNDARIES AND SURROUNDING CONTEXT

The CSU Sacramento campus is located several miles southeast of Downtown Sacramento. The campus, unlike many other CSU campuses, does not have a direct link to the surrounding residential neighborhoods due to its boundaries: the American River and its flood control levee to the east; the Union Pacific Railroad right-of-way forming to the west; Folsom Boulevard and U.S. Highway 50 to the south; and J Street to the north. The Hornet Tunnel, a pedestrian/bicycle route through the railroad embankment, serves as a link to the 65th Street area, the Light Rail station and the Eastside Lofts.

The campus is connected to the American River bicycle trail by the Guy West Bridge, which provides excellent bike access to the campus. It also provides an opportunity for non-campus bicyclists to connect to the larger regional bicycle trail system.

In spite of the bicycle and transit connections to the campus, the physical boundaries described above form barriers between the campus and the surrounding community. As one result of this situation, the Sacramento State campus lacks a distinctive identity at its edges, further increasing its isolation from surrounding community life. Although there are campus identification monuments at the J Street entrance (in the north), they are not easily visible to motorists on J Street. The route to the campus at the south, from US Highway 50 and local surface streets, is less well-marked, and, in spite of the large electronic sign visible from the freeway, the campus is not very noticeable from the south.

Overall, the campus does not currently present a distinct and identifiable face to the community.

Exhibit 2-9: Guy West Bridge

Exhibit 2-10: Bicycle Trail along American River Berm

Exhibit 2-12: Western Ditch and Hornet Tunnel

Exhibit 2-11: Rail Line

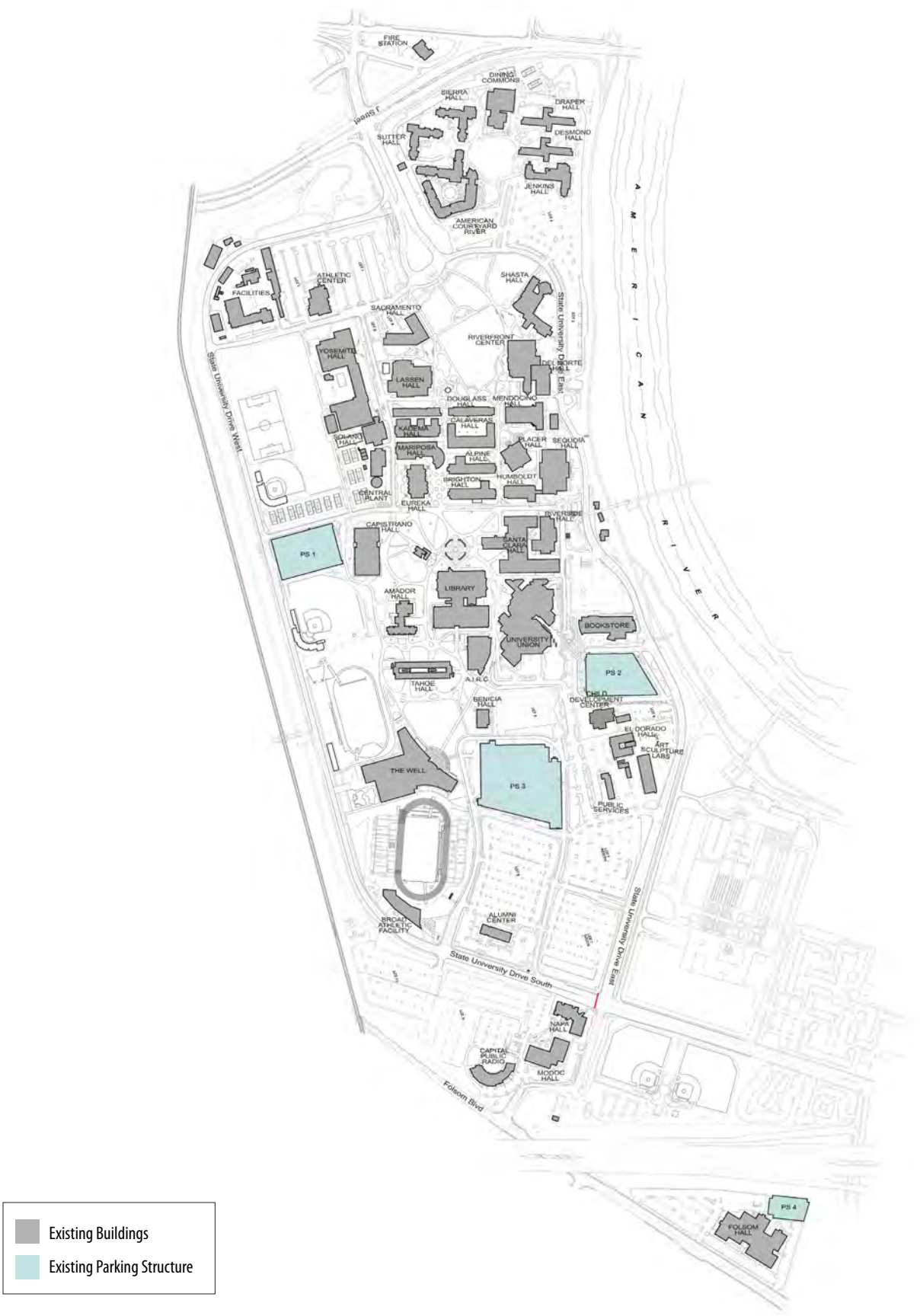


Exhibit 2-13: Existing Campus Map

2.7 CAMPUS LAND USE AND FUNCTIONAL ORGANIZATION

The existing Campus functional zones are shown in Exhibit 2-14. The main academic and administrative functions are in the central area of the site, student housing is to the north, and surface parking lots and parking structures are located around the periphery of the site with the exception of PS3, which is located in the middle of the campus' southern half.

The Academic Core is dense and bisected by Sinclair Road. The Academic Core includes 16 classroom and administrative buildings, several smaller and temporary buildings, and a series of north-south pathways arranged between the State University Drive entry and Sinclair Road. South of Sinclair Road are 7 more academic buildings, the Library and the Academic Information Resource Center -- this area is organized around the large open space known as the Library Quad. Student support facilities, including Hornet Bookstore and University Union, are integrated into the southeast portion of the Academic Core. The new Student Health/Recreation Center (The Well) is located further to the southwest, facing the South Green.

The northeast area of the campus is devoted to student housing, with 1,674 beds in six traditional residence hall facilities and a Dining Commons, all surrounding a large open space. Two surface parking lots and several additional surface parking areas serve the housing area.

Campus Facilities, Maintenance, infrastructure and support services are located in the northwest. The Central Plant that serves the campus is located adjacent to the Academic Core, just north of Sinclair Road.

The southern portion of the campus is largely devoted to surface parking and community-oriented functions. This area includes the Children's Center, the Art Sculpture Lab and the Public Service/ Safety Building. Adjacent to College Town Drive is the Alumni Center, and across the Drive are buildings housing the Extended Education program and the Capital Public Radio facilities.

To the west are the campus playfields used for instructional, recreational and athletic purposes. Hornet Stadium and the Broad Athletic Fieldhouse are located at the southwest corner of the campus. Football, baseball and soccer fields, as well as tennis courts and intramural fields, are located along the Western edge of the campus and face the Union Pacific Railroad embankment.

The campus enjoys considerable expanses of open space throughout the site, much of which is planted with mature trees and shrubs. The University Arboretum located in the northwest portion of the campus constitutes an important natural and educational resource for the University.

Located south of the U.S. 50 freeway, bounded by Folsom Boulevard and Hornet Drive, is Folsom Hall, purchased several years ago and now completing interior upgrades to house the University's nursing programs. A small parking structure is included on this parcel.

South of the campus, at Ramona Avenue, is a 24.35-acre parcel owned by the University that is currently vacant. This land, referred to as the Ramona site, is surrounded by other vacant properties and some light industrial uses. At present the University has no immediate plans for its use but intends to monitor surrounding development to determine how best to make use of this property in the future.

CAMPUS ENTRIES

Campus entries are limited due to the physical boundaries of the campus described above. The northern entry from J Street is well landscaped with a gracious turn-around loop that offers access to State University Drive, which continues along the eastern side of the campus.

There are two ways of entering the campus at the south, although both meet at the intersection of State University Drive and College Town Drive: the main southern campus entry is along College Town Drive, a secondary entry from Folsom Boulevard, which enters the campus on State University Drive, crosses College Town Drive.

Currently, the City of Sacramento is completing plans for an extension of Ramona Avenue that will connect to Folsom Boulevard.

Visitor information kiosks are located at the north entry turn-around loop and at the south entry on College Town Drive south of Parking Lot 8. Although there are identification signs at the main entrances, they are relatively understated and therefore are often overlooked by those unfamiliar with the campus. This makes wayfinding somewhat difficult for visitors.

The problem of campus wayfinding legibility is further exacerbated by the visual separation of the campus from the surrounding community. It has also been noted that the U.S. 50 freeway signage and the directional signage at the off-ramp are not as clear as they should be, leading new campus visitors to become disoriented and unsure how to enter the campus from the freeway and adjacent surface streets.

Exhibit 2-14: Existing Campus Neighborhoods
As received from the Campus.

EXISTING PARKING FACILITY AND COUNTS		
NAME OR NUMBER (B)	CARS	MOTORCYCLES
Lot 1	713	10
Lot 1 Fac. Mgmt	114	8
Lot 2	453	129
Lot 2 Res. Hall	715	0
Lot 3	15	0
Lot 4	484	32
Lot 5	13	0
Lot 6	244	6
Lot 7 Art Lab	21	0
Lot 7 Public Safety	52	18
Lot 7 Fac./Staff	59	0
Lot 7 Student - North	542	0
Lot 7 Student - South	536	0
Lot 7 Student - West	39	0
Lot 8	882	0
Lot 9	848	6
Lot 10	514	0
Lot 11	156	0
Lot 12	80	0
Lot 14	536	4
Lot A	29	0
Lot B	24	0
Parking Structure 1 [PS1]	1772	13
Parking Structure 2 [PS2]	1000	0
Parking Structure 3 [PS3]	2986	15
Parking Structure 4 [PS4]	181	0
Capistrano Hall	5	0
Eureka Hall	4	0
Kadema Hall	2	0
Sequoia Hall	3	0
Shasta Hall	1	0
Yosemite Hall	6	0
Bookstore	6	0
Capital Public Radio	57	0
Library	6	0
Moraga Way	33	0
Old Jed Smith	65	0
Stadium	4	0
USGS	4	0
TOTAL	**13,232**	**241**

Exhibit 2-16: Existing Parking Facility and Counts

PARKING

At present, the Campus has 12,997 parking spaces for vehicles and 241 spaces for motorcycles. These are in surface lots and three parking structures. Exhibit 2-16 shows each parking facility and its parking capacity; Exhibit 2-17 is a map showing the locations of these parking facilities. Of the total, 10,159 campus spaces are reserved for student commuter use; 715 spaces are reserved for residential students.

Parking facilities also accommodate faculty/staff, disabled, visitor, maintenance/service and state vehicle parking. All campus parking is by semester or daily parking permit.

VEHICLE CIRCULATION

Most vehicle circulation is confined to two campus perimeter roads: State University Drive along the eastern side of the campus, and College Town Drive coming from the southeast and continuing along the western side of the campus.

Several campus streets are used for parking access, handicap parking access, and service and emergency vehicle circulation. The campus is bisected by Sinclair Road (closed to vehicle traffic east of Moraga Way), Laurel Bay Road and Arboretum Way, both of which lead from College Town Drive and connect to the campus entry loop at the north. Stadium Drive, coming from College Town Drive at the south, is a short vehicle route that serves Parking Structure 3 and the adjacent surface parking Lot 8.

Parking Structure 1 is accessed directly from College Town Drive on the west, Parking Structure 2 is accessed directly from State University Drive on the east. Parking Structure 3 requires traffic to penetrate further into campus through the surrounding surface lots.

As a result of the within-campus vehicle circulation, vehicle and pedestrian circulation routes cross at several points on the campus, creating pedestrian/vehicle conflicts and potential hazardous conditions.

EXISTING PARKING COUNTS	
PARKING TYPE	EXISTING SPACES
Commuter Student	10,394
Resident Student	715
Faculty / Staff	2,123
TOTAL	**13,232**

Exhibit 2-15: Existing Parking Counts

Exhibit 2-17: Existing Parking Inventory

BICYCLE CIRCULATION

Bicycle circulation is an important element within the Sacramento region, which has an extensive bicycle trail system and many bicycle enthusiasts. Many students, faculty and staff commute to campus via bicycle.

The locations of bicycle 'corrals,' enclosed bike parking racks, are shown in Exhibit 2-18. As with motorized vehicles, bicycle routes cross pedestrian routes at many places on the campus. Although the interior of the Academic Core is officially closed to bicycles, for the most part this prohibition is ignored and it is not generally enforced. In addition, bicyclists from the surrounding area cross the campus in large numbers, using the Guy West Bridge and Sinclair Road as a way to travel west to go through Hornet Tunnel and thereby connect with public bike routes. There is significant concern that this situation will continue to result in accidents and injuries.

The campus needs more bicycle storage facilities for both long-term and short-term bike parking.

PUBLIC TRANSIT AND CAMPUS SHUTTLE

The University supports the use of public transit and provides services that encourage students, faculty and staff to use alternatives to the 'drive-alone' commute (one person per vehicle). The campus is served by several forms of public transportation, and faculty, students and staff can use the transit services for free. Exhibit 2-20 is a map showing transit routes connecting with or adjacent to the campus.

A number of Regional Transit buses enter the campus from the northern J Street entry and park at the southern end of the State University Drive entry loop to pick up and discharge passengers. Regional Transit also provides a Light Rail station just 1/3 mile away; the Light Rail runs from around 5 a.m. until midnight or just after midnight, seven days a week.

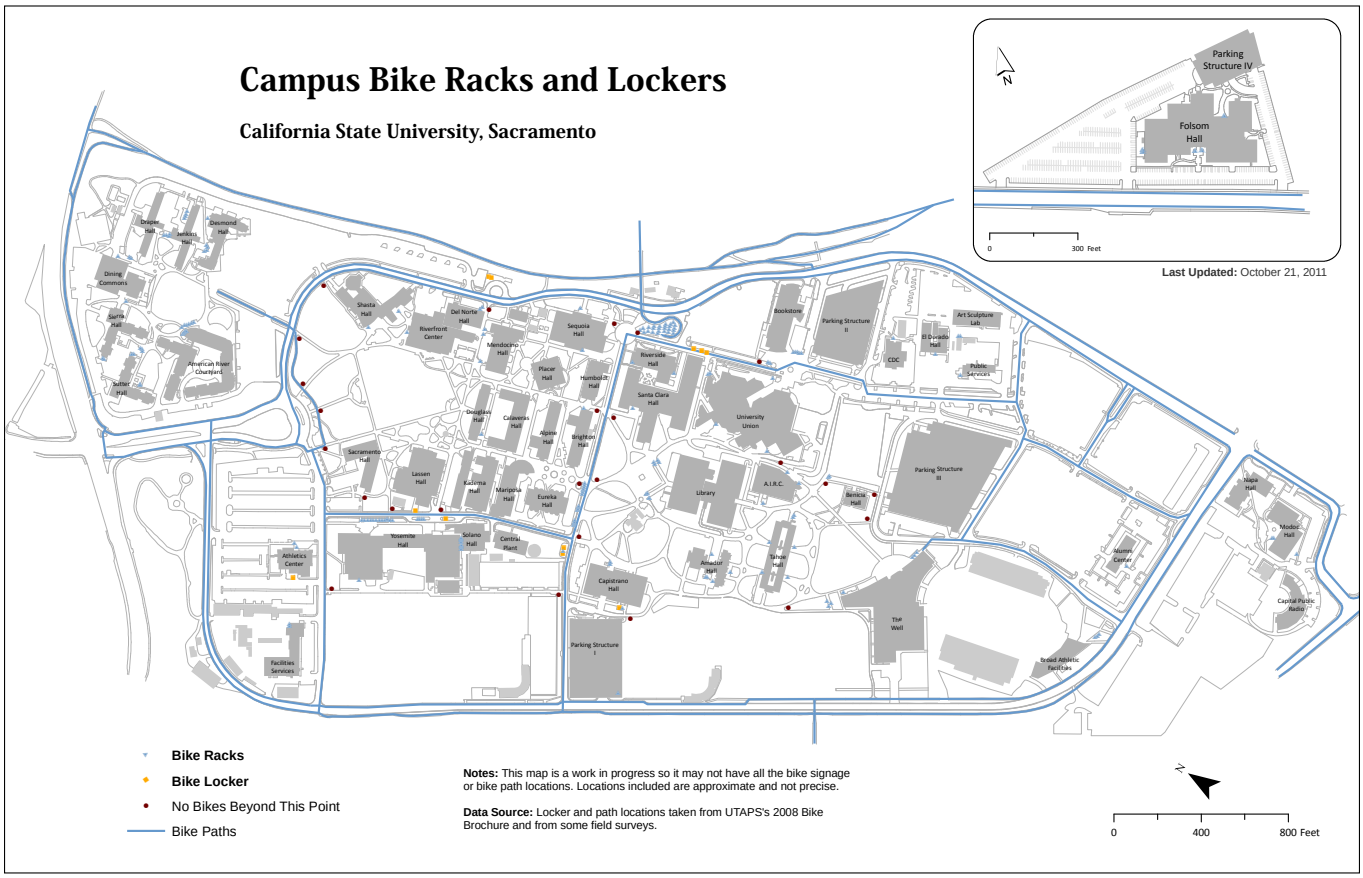


Exhibit 2-18: Existing Bike Routes, Racks and Lockers

The University's shuttle service runs three separate routes and uses State University Drive Campus entry from J Street and the loop road at the north of the campus as its base. It also operates an on-call Night Shuttle from dusk to 11 p.m., Monday through Thursday. The shuttle operates on weekdays during the Spring and Fall when classes are in session. The shuttle does not operate during the summer, winter intersession, Spring Break, or when the campus is closed. The shuttle serves the Light Rail station and many of the surrounding neighborhoods where students live in off-campus housing. The shuttle also helps to connect the main campus with the facilities at the Folsom Annex.

The shuttle system serves to connect students to the campus with frequent and convenient service. The level of service, although quite good, will need to be improved in order to continue attracting ridership and help to reduce automobile traffic accessing the campus and the corresponding parking demand.

Exhibit 2-19: Sacramento Regional Transit Light Rail

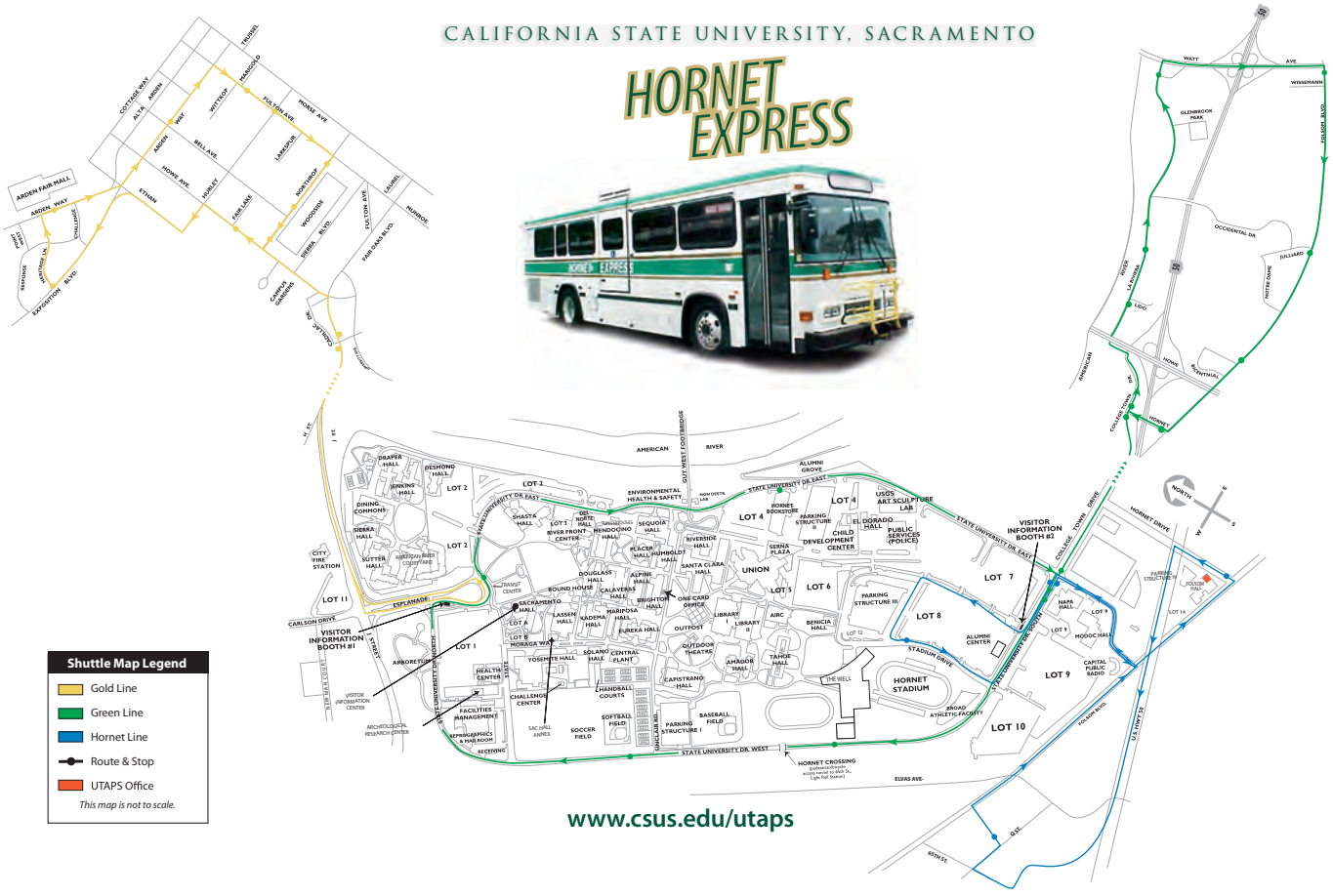


Exhibit 2-20: Existing Hornet Shuttle Map

PEDESTRIAN PATHWAY SYSTEM

The pedestrian pathway system in the center of the campus is a network of paths generally oriented north/south and east/west, with paths leading to all the major campus buildings and important destinations. Two primary pathways connect the northern and southern areas, both running parallel between existing academic buildings and flanking both sides of the Library. The western pathway terminates at the South Green while the western pathway leads into the southern surface parking lots. The primary east/west pedestrian path is along Sinclair Road leading from the Guy West pedestrian/bicycle bridge through the center of campus and connecting with Hornet Tunnel through the Railroad embankment to the west.

Smaller pathways meander throughout the campus, providing access to other buildings and destinations. Because of the number of pathways through the campus, particularly in the Academic Core, the overall sense is one of disorientation, making wayfinding somewhat difficult. In addition, the number of parallel pathways through the campus has the effect of diffusing pedestrian traffic, rather than concentrating it. As a result, an opportunity to create a feeling of campus activity and energy is lost.

The campus has created a signage system that is somewhat effective. The buildings have visible signage, but the campus lacks directional signage that would help new students and visitors navigate this large campus.

Exhibit 2-21: Hornet Tunnel under Railroad Berm

Exhibit 2-22: Pedestrian Undercrossing at the North Campus Entry from J Street

Exhibit 2-23: Existing Pedestrian Circulation

2.8 BUILDING CONDITIONS AND LIFE CYCLE

The existing campus facilities comprise 78 buildings ranging in age from over 50 years to more recent buildings such as the Well, a wellness and recreation center, which was completed in 2010.

The Master Plan team reviewed data on the conditions of existing buildings and conducted visual inspections of most campus buildings. As a result of this analysis, it became clear that many of the older buildings in the campus core had reached the end of their useful "life cycle" due to their age, the condition of their structures and their internal systems. Many of these structures no longer provide adequate, modern spaces appropriate for the functions they were intended to serve. This is particularly true for science laboratories. Furthermore, many of these older buildings in the Academic Core are only one or two stories high. This represents a less than optimal use of land, particularly in light of the University's plans for continuing renewal and infill and the finite amount of campus-owned land becomes more valuable.

Exhibit 2-27 shows the age of campus facilities, Exhibit 2-29 shows their current condition, and Exhibit 2-28 shows the concentration of FTES (full-time-equivalent students) in classrooms in the existing academic facilities. By comparing these three graphic representations of campus facilities, it is clear that the oldest academic buildings within the Academic Core are those in the poorest condition and are also those housing the largest concentrations of students. This analysis suggests that the 2015 Master Plan will involve the replacement of many of these facilities.

Exhibit 2-24: Kadema Hall
Representative of existing buildings that need to be replaced.

Exhibit 2-25: Hornet Bookstore
Representative of a new building.

Exhibit 2-26: Douglass Hall
Representative of existing buildings that need to be remodeled.

Exhibit 2-27: Existing Building Age

Exhibit 2-28: Existing Classroom FTE Usage

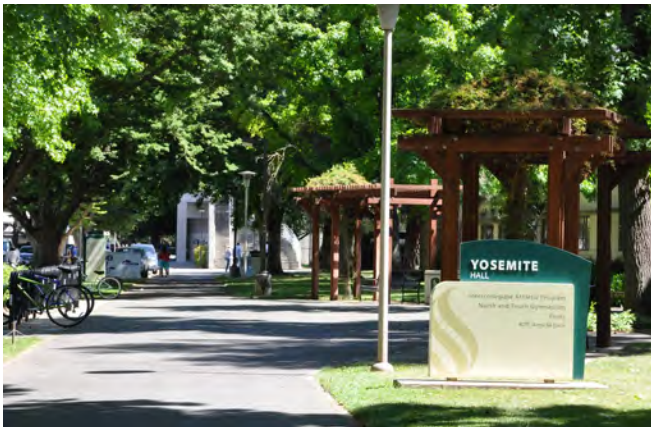
- Recently Renovated
- New
- Minor Remodel
- Major Remodel
- Beyond Useful Life
- Other Replacement Candidates

Exhibit 2-29: Existing Building Condition

Exhibit 2-30: Existing Landscape Features

2.9 LANDSCAPE

The Sacramento State campus incorporates a generous complement of open space. In addition to the Arboretum, there are large quads and open spaces throughout the campus, including the recreation fields and athletic facilities west of the Academic Core [Exhibit 2-30]. The primary open spaces are the Main Quad, the Library Quad at the center of campus, and the newest open space, the South Green at the Well. These open space areas form the framework for campus organization and pedestrian circulation and serve a variety of programmed and informal uses. Some open spaces are furnished with seating and function as destination points for students, faculty, staff and campus visitors.



The campus also has over 3,000 mature trees in a wide variety of species, creating a lush and verdant landscape environment that has led to the campus being designated a "Tree Campus USA." The University has a tree-replacement program which takes into account the age of many of the campus trees and plants replacements for them before they need to be removed due to excessive age.

The University makes good use of its outdoor areas by providing seating and, in many areas, pergola structures to provide shade.

2.10 CAMPUS SPACE NEEDS ASSESSMENT

STATE-FUNDED FACILITIES

Academic and Administrative Facilities

As shown in Section 2.8 above, surveys and analysis of existing buildings conducted during the early phase of the Master Plan process confirmed that a number of the older buildings in the Academic Core have reached the end of their useful lives. Replacement and, in some cases, substantial renovation, would be required in order for the campus to meet its academic mission into the future.

These academic and administrative facilities, now identified as sub-standard, represent a significant amount of the University's state-funded space (507,306 ASF, as shown in Exhibit 2-31) still being carried on the campus space inventory. The campus has been aware of this situation for a number of years but there has been little progress working with the State to replace many of these older structures, at least in part for reasons of budget reductions and prioritization of project funding at the State level.

This situation has penalized the campus in several ways. First, all academic space in Sacramento State's space inventory is considered 'usable' in spite of the fact that a significant portion of it is inadequate. As a result, space assessments show the campus with a surplus of academic space, making it extremely difficult for the University to argue successfully for additional space to replace these below-standard, outdated buildings.

Second, academic space on each campus is analyzed using "The Design and Construction ASF per FTE Model User Guide," which has not been updated since 1998. These standards, which set the amounts of space allowed for different instructional space types, do not take into account changes to teaching pedagogy that have occurred in higher education since those guidelines were established. In order for the campus to successfully meet its space needs into the future, the Master Plan must incorporate a phased strategy to remove/replace or substantially renovate these sub-standard buildings. Such a strategy must reconcile the State standards with the newly identified space needs for 21st Century higher education facilities in order to put the campus on a balanced and rational path for its long term future.

Projected levels of enrollment growth are moderate for the next decade and it is anticipated the current 25,000 FTE enrollment cap would remain in place through the time-frame of the 2015 Master Plan. The capacity of campus facilities and services has been assessed such that the 2015 Master Plan can provide appropriate new facilities -- including instructional space, other assignable state-funded space, and the broad range of student and campus support facilities required -- to meet the needs of this projected student enrollment and faculty and staff.

Athletic and Recreation Facilities

The University has plans to upgrade the seating in Hornet Stadium and to improve a number of the athletic fields. During the Master Plan Visioning process it was determined that the 2015 Master Plan would not contemplate additions to athletic fields or recreational playfields.

NON-STATE-FUNDED FACILITIES

Non-State-funded projects include facilities that are, for the most part, revenue-generating and can therefore support repayment of bonds that are sold to finance their construction. This includes student, faculty and staff housing; parking structures; and student activity projects funded through student referenda that authorize the sale of bonds for each specific project (e.g. University Union, The Well Fitness Center, Student Events Center).

Campus Housing

The Visioning process for the 2015 Master Plan identified the University's desire to increase the student housing capacity on campus and to provide some on-campus faculty and staff housing. The larger purpose of developing additional housing capacity is to increase the 24-hour presence of students on campus and to add adult residents to the campus in order to invigorate campus life and vitality. Furthermore, it is recognized that the increased residential component of the campus will also require the campus amenities necessary to support these 24/7 users such as food service, outdoor gathering and informal recreation areas in addition to expansions of student activity projects as described below.

The 2015 Master Plan identifies locations for new housing facilities: where existing housing for undergraduate students is located; and in the South, where housing would be aimed at faculty, staff and/or graduate students. Typically, each new increment of housing will be initiated based on demand studies conducted by the University. The 2015 Master Plan reflects the additional residential parking required for this increase in residential capacity on the campus.

STATE-FUNDED FACILITIES: REQUIREMENTS PER COLLEGE FOR 25,000 FTE ENROLLMENT CAP					
	2015 MASTER PLAN ALLOCATION TARGET (ASF)	CURRENT SPACE ALLOCATION (ASF)	2015 MASTER PLAN PROPOSED DEMOLITION (ASF)	2015 MASTER PLAN REPLACEMENT (ASF)	2015 MASTER PLAN REPLACEMENT (GSF)[.65]
Arts and Letters	156,410	175,849	59,285	39,846	61,301
Business Administration	19,592	23,838		-4,246	-6,532
Education	74,494	29,217	6,508	51,785	79,670
Engineering and Computer Science	119,899	99,263	45,622	66,258	101,936
Health and Human Services	146,962	159,294	11,305	-1,027	-1,580
Natural Sciences and Mathematics	103,068	133,609	118,788	88,247	135,765
Social Sciences and Interdisciplinary Studies	61,537	64,911	7,141	3,767	5,796
Interdiscipline (shared instructional space)	152,789	172,312	59,644	40,121	61,725
Admin	212,366	267,970	83,776	28,172	43,341
Unapplicable (circulation, mechanical, etc.)			109,089		
Undefined			6,148		
TOTAL	**1,047,118**	**1,126,263**	**507,306**	**312,924**	**481,421**

Exhibit 2-31: 2015 Master Plan ASF/GSF Requirements
State-funded Facilities: Requirements per College for 25,000 FTE Enrollment Cap

Student Activities Facilities

Several student activities projects have been identified by the students as necessary due to current overcrowding of existing facilities. These include an expansion of both the University Union and the Well; these have both been incorporated into the 2015 Master Plan.

When the student referendum that authorized the Well was passed several years ago, other envisioned facilities, originally included in the funding measure, were removed from the project for budgetary reasons. The largest of these was a Student Events Center that would include a 5,000- to 6,000-seat arena for basketball and other student-related events. The Master Plan Steering Committee determined that the Student Events Center should be included in the 2015 Master Plan.

Parking Structures

As noted in Section 2.7 above, the campus currently has sufficient parking, in surface lots and parking structures, to accommodate the existing level of enrollment. With additional enrollment ("head-count"), the campus will need to increase its parking capacity, and the 2015 Master Plan identifies the locations for new parking structures as the need to accommodate additional cars becomes necessary. A strategy to reduce the demand for parking is described in Chapter 4 [Section 4.4].

SPACE NEEDS ASSESSMENT METHODOLOGY

The Master Plan space requirements were derived using the Campus Space Entitlements (CSE) to aggregate the amount of space each academic program requires based on existing FTE counts.

However, as noted previously, these State standards, outlined in the "California State University Capital Planning, Design and Construction ASF per FTE Model User Guide," have not been updated since they were developed in 1998 and do not adequately address contemporary teaching pedagogies. To address this situation, the Master Plan team factored additional square feet into those program functions which would otherwise be deficient by current standards and for today's needs. This included but was not limited to increasing ASF per lecture station from 15 ASF per station to 20 ASF per station, and increasing the ASF per station allocated to lab space in order to more adequately meet current teaching standards in the sciences, engineering and social sciences.

Because the campus is in the process of developing its Academic Plan, the anticipated growth of specific academic programs could not be determined prior to completion of the 2015 Master Plan. In lieu of this, a constant growth factor was applied to all program FTES figures in order to project the Campus Space Entitlements necessary to meet the needs of a 25,000 FTE cap. This number determined the total Master Plan Allocation ASF per College. See Exhibit 2-31.

The Current Space Allocation ASF per College was extracted from the University's Campus Space Use Report. By subtracting the ASF associated with buildings marked for demolition in the Master Plan, the team was able to determine the total academic ASF to remain. The difference between the Master Plan Allocation ASF and the Current Space Allocation ASF and demolition yielded the quantity of ASF replacement per College that is needed and must be incorporated into the 2015 Master Plan. A grossing factor of .65 was applied to the ASF values to determine the replacement gross square feet per College.

In order to improve efficiencies and to create opportunities for more shared spaces, the Master Plan used a strategy to locate replacement ASF for each College (in the form of new buildings, building additions and remodels) near existing buildings occupied by that specific College. For example, a new engineering and computer science building was proposed adjacent to the existing Riverside Hall to allow for shared programmatic elements and facilitate pedestrian circulation between the existing and the new facilities.

CHAPTER 3

VISION, PRINCIPLES AND PLANNING FRAMEWORK

SACRAMENTO STATE

Chapter 3: Vision, Principles and Planning Framework

The physical campus serves the educational process. The educational experience in its fullest sense takes place not only in classrooms, but at meals, in residential areas, in the course of recreational activities, and through informal and casual encounters. The physical campus provides the setting for these experiences to be shared by students, faculty, staff and campus visitors.

The Vision which underlies the Sacramento State Master Plan was developed through a Visioning process undertaken with the Master Plan Task Force in preparation for the Master Plan process itself. In this chapter, the Visioning process is described and the Vision, Planning Principles and Goals that were developed during that process are described and explained.

3.1 THE VISIONING PROCESS

The Visioning process reflected the membership in the Master Plan Task Force, representing all sectors of the University as well as the larger contexts of the City of Sacramento and the region, as consistent with the University's goals to serve the surrounding community and the region. Because of this broad representation and purposeful attempt to maintain a wide planning perspective, the Master Plan addresses both the campus and its relationship to that larger context, including regional transportation initiatives, coordination with local infrastructure issues, and coordination with city agencies and other bodies.

The Task Force developed seven Master Plan Principles, with associated Objectives for each Principle. Although the Objectives, described with the Principles on the following pages, do not all target the physical campus and its facilities and systems, all are important to the University and to the University's focus on increasing its academic reputation, continuing to engage and interact with the community, and increasing the recognition of its brand and identity. Thus, at the start of the Master Plan process, a Vision Statement, Planning Principles and Objectives were tailored to the Sacramento State Mission, culture and campus.

In addition to this Vision-based structure, this chapter includes a Planning Framework that provides a practical approach to preparing the 2015 Master Plan. The Planning Framework addresses a series of planning-level themes, makes observations about the campus based on these themes, and provides benchmarks (or planning objectives) that allow for an evaluation of whether the final Master Plan responds appropriately to its stated goals.

VISION STATEMENT, PRINCIPLES AND GOALS

Over the course of three meetings, and based on extensive discussion, the Task Force developed a Vision Statement that reflects the way the University sees itself in the future, with three sub-sections that describe specific aspects of the University's Vision for the Master Plan:

Sacramento State will become the exemplary CSU campus through outstanding academic programs and a unique student-centered learning experience in an exceptional campus environment.

The Master Plan will support the University to be an Academic Powerhouse, and will emphasize:

- Student Success;
- Academic and applied research programs;
- Student life and athletics; and
- Serving as a Regional economic engine.

The Master Plan will emphasize Campus and Community Connectivity by providing:

- More activities on campus to increase duration of visitors' stays;
- 24/7 internal and external engagement;
- Integration with the community; and
- A vibrant events hub and community crossroads.

The Master Plan will help the University emphasize and highlight its Brand and Identity by:

- Emphasizing the campus as a recognized destination for academics, campus life, environmental stewardship;
- Integrating the University's academic and physical environments;
- Focusing on the campus landscape, the Arboretum and the American River; and
- Highlighting the campus' front door(s) to signal "You've arrived!"

Exhibit 3-1: Master Plan Vision Statement

Principle 1: Create and redevelop a total environment that fosters and emphasizes academic excellence

- Maintain academic programs at competitive levels.
- Support a dynamic and agile physical environment and instructional spaces that respond to changing pedagogies.
- Capitalize on state capitol location and develop partnerships with local, regional and global governments, private industry, and non-profit entities.
- Attract and retain top students, faculty, and staff.
- Develop and foster a culture of applied research.

Principle 2: Provide a vibrant and satisfying "Live-Work-Teach-Learn-Play" campus environment that serves the people who study and work here

- Increase student, faculty, and staff housing options.
- Add retail, food service, child care, recreation, conveniences, and other amenities.
- Continue to improve the amount and quality of activities on campus.
- Increase employment opportunities.
- Create campus as a "living lab" for sustainability and education.

Principle 3: Elevate Sacramento State's presence in the global higher education arena

- Develop an International Center as the campus foundation for a broad-ranging, integrated, globally-focused program.
- Support and promote both student and faculty academic exchanges.
- Develop academic and training programs and international industry partnerships that make Sacramento State students competitive in the global marketplace.
- Develop housing that encourages international students to integrate academically and socially with local and residential students.

Principle 4: Maximize intra-campus connectivity

- Create signature pedestrian walkway through campus.
- Enhance landscape and hardscape.
- Create clear and intuitive wayfinding.
- Create informal spaces and enlivened gathering places.
- Enhance security and safety.
- Provide clear paths of travel for bicycles, pedestrians and vehicles.
- Enhance shuttle service that supports campus properties.

Principle 5: Maximize inter-community connectivity

- Create more direct transit links to light rail.
- Integrate campus transit center.
- Add pedestrian tunnels or elevated walkways.
- Create bike and car sharing programs (Zipcar, Zotwheels Bike Share, etc.).

Principle 6: Showcase and maximize engagement with the American River

- Enhance connectivity to bikeway/pedestrian path and river's edge.
- Maximize view opportunities.
- Enhance academic and research opportunities.
- Provide appropriate riverfront development.

Principle 7: Optimize physical assets through an integrated and comprehensive planning approach that responds to the academic strategic plan and campus life needs

- Provide space that responds directly to FTES projections and needs.
- Provide appropriate redevelopment, density distribution, and mix of uses.
- Create clear and intuitive access, circulation, and balance of parking and transit accommodations.
- Become more fiscally responsible and financially viable.

3.2 MASTER PLAN FRAMEWORK

The Master Plan Framework is a planning approach that provides direction to the Master Plan team. It consists of a series of planning-level themes, each articulated through a description of planning fundamentals, observations of the existing campus and planning objectives that provide direction for how planning elements within both the built and natural environments can be used to support the University's overall mission and make the best use of campus land, facilities and systems.

CAMPUS FUNCTIONAL ORGANIZATION

Planning Fundamentals

Functional organization is the primary driver of a campus master plan.

Observations

The existing functional organization of the campus generally serves the University's mission and purposes well. Academic/administrative, student support, athletic, and housing areas are well defined and organized to support one another.

The older, low-rise buildings in the Academic Core are inefficient and do not provide the facilities the University needs for cutting-edge, flexible classroom and laboratory space.

Planning Framework

The 2015 Master Plan will enhance and improve the functional organization of the campus through the placement of buildings in strategic locations. New and remodeled facilities will serve to expand the University's capacity to fulfill its Mission while conserving open space and strengthening the pedestrian character of the campus.

Planning Objectives for Campus Functional Organization

Functional precincts are areas of the campus primarily occupied by specific functions. To enact this framework, the Master Plan will respond to the following Objectives:

- Functional precincts will be reinforced by new and remodeled buildings and facilities of similar function.
- New functional precincts will be created where needed to support the needs of academic, administrative, student life and campus life programs.
- Campus focal points and gathering areas, including both exterior and interior facilities of singular use and importance, will reinforce functional precincts and pedestrian circulation.
- Food services facilities will be distributed throughout the campus to serve student, staff and visitor needs, to activate functional precincts and to reinforce the pedestrian circulation system.
- Retail, recreational, convenience and other amenities will be distributed on the campus in appropriate areas to provide a vibrant and satisfying 'live-work-teach-learn-play' environment.

- Increased student residential capacity will reinforce the University's active learning programs, support a safe 24-hour environment on campus, include facilities for dining, and incorporate open space to support recreational programs. Student housing for international students will be integrated with housing for domestic residents.
- New residential capacity will be sited and planned to create a strong residential community for graduate students, faculty and staff, including ancillary functions such as small food service or cafe facilities and open space to support informal recreation.
- Campus entries will be clearly defined to reinforce campus identify and convey a sense of arrival. Campus signage will support campus identity and wayfinding.
- The Master Plan will provide appropriate redevelopment opportunities and an appropriate mix of uses.

OPEN SPACE AND PEDESTRIAN CIRCULATION

Planning Fundamentals

Open space is as integral and essential a component of the Sacramento State campus as are its buildings and facilities. The recognition and articulation of open space is an important contributor to organizing land use and creates character-defining features throughout the campus.

Open spaces, through their landscape and hardscape elements and their site furnishings, provide visual continuity and are a unifying element within the campus. Open space also serves to orient users and visitors to the campus, and, in conjunction with identification monuments and markers, demarcates clear entry points and gateways to the University.

Observations

The campus has sufficient undeveloped or under-utilized land to accommodate the majority of the Master Plan's required new development and the available land is sufficient to incorporate new quads, courtyards and open space as essential components of this development.

Pedestrian pathways are numerous, creating many linkages within the Academic Core, but the large number of pathways tend to diffuse, rather than concentrate, pedestrian traffic, missing an opportunity to maximize the pedestrian interaction that would contribute to a strong sense of campus community.

The opportunity exists to more strongly connect the campus open space system with the University's sustainability plans and features.

Planning Framework

Master Plan development will reinforce and extend the existing campus system of open spaces, creating a series of "outdoor rooms" joined by pedestrian pathways. These open spaces support the University's Mission by providing outdoor amenities for the academic, recreational, and social activities that serve everyday life on the campus.

The Master Plan will strengthen pedestrian linkages across the campus, particularly between student housing and the Academic Core. New areas of development in the southern areas of the campus will be connected with pedestrian pathways and promenades in order to ensure pedestrian safety and create coherent and holistic campus open space connectivity.

Planning Objectives for Open Space

To enact this framework, the Master Plan will respond to the following Objectives.

- Open spaces will provide a variety of spatial experiences by way of variations in size, programmed uses, architectural character of surrounding buildings, and landscape.
- Open spaces will include areas of lawn, landscape and hardscape, shade, and site furnishings (seating, lighting, signage) to reinforce their programmed uses.
- Master Plan development will serve to create and define vistas and view corridors through the strategic location of buildings to frame open space and the use of landscaping.
- Master Plan development will target view opportunities of the American River by siting facilities near the River, as appropriate to their functions.
- Safety and security will be given priority when planning all development on the campus, including pedestrian, open space, facilities and automobile areas on the campus.
- Building entries will be located to address adjacent open spaces. Where possible, interior common spaces should be well connected to adjacent outdoor spaces to reinforce casual interaction and support the concept of active learning and collaboration in "outdoor rooms."
- Master Plan development will provide for the revitalization and improvement of natural areas of the campus and reinforcing the connections to these natural areas, particularly the Arboretum and the American River.
- Master Plan development will reinforce and strengthen an integrated pedestrian circulation system to support open space objectives, strengthen the links between campus activity hubs, and strengthen spatial legibility.
- Food service facilities will be connected to and reinforce open space and gathering areas to encourage and provide the setting for informal interaction among students, faculty, staff and visitors.

BUILDING MASS AND PLACEMENT

Planning Fundamentals

The volume of building space, along with its location, scale, and orientation, has a significant and direct impact on the qualities and characteristics of open space, pedestrian circulation, and overall campus organization and functionality. Buildings support the University's Mission by serving as the setting for both programmed and informal activities. Buildings serve to modulate the physical environment to human scale, and make a significant contribution to the aesthetic environment of the campus.

Observations

The central area of the Academic Core is populated by a series of low-rise, older buildings in poor condition that do not serve the campus well.

Anticipated new buildings should be sited, sized, massed and oriented to maximally contribute to the campus ambiance and to reinforce an active, 24/7 campus.

Planning Framework

The placement, scale and massing of buildings will reinforce campus open space and pedestrian circulation systems and will support the University's Mission by providing appropriate facilities for academic, social and recreational pursuits, and by creating an environment conducive to human activities.

Planning Objectives for Building Mass and Placement

To enact this framework, the Master Plan will respond to the following Objectives.

- New buildings will be placed and configured to define campus open spaces.
- The Master Plan Design Guidelines [Chapter 7] will guide the height and placement of new buildings; the height of an individual building will be appropriate to that of other structures abutting the contiguous open space.
- Buildings entries will be readily visible, placed to relate to adjacent open spaces, and configured such that activity from buildings may easily flow into nearby open spaces and pedestrian pathways.
- Future buildings will reflect efficient land use. Small single-story buildings will be avoided in favor of larger, multi-story ones that respect land value, efficiency, and function.
- The mass of large campus buildings will be modulated through the use of fenestration patterns, surface materials, and segmentation within the facade and landscape.

LANDSCAPE

Planning Fundamentals

The quality of landscape and its component parts contribute significantly to the aesthetic character of the campus by reinforcing the integrative role of open space, creating connections between landscape and structures, and producing a comfortable and human-scaled setting for educational activities.

Observations

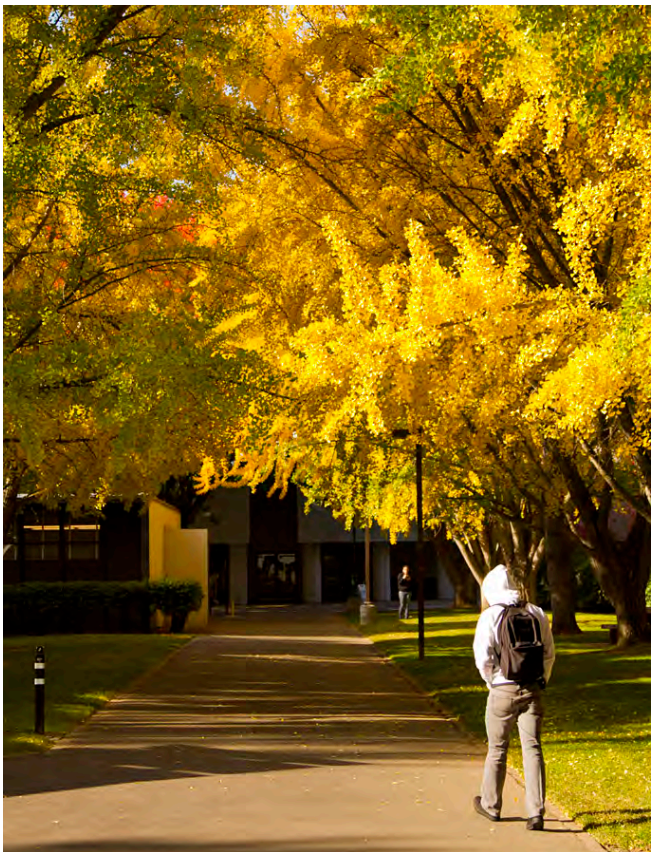
The landscape of the Sacramento State campus is singular in its beauty and abundance, owing to the extensive tree canopy that envelops and helps define the campus. The aesthetic of the tree canopy, a long-time legacy for the Sacramento State campus, is worthy of extension through the areas to be developed.

The campus incorporates remarkable landscape features such as the Arboretum and the riverfront, which should be reinforced so their contribution to the campus is enhanced and used to maximum advantage.

Planning Framework

The Master Plan will reinforce, extend and enhance the existing mature campus landscape through a broad conceptual landscape plan that creates new open spaces where appropriate and reinforces significant existing open space focal points, using landscape to create new focal points and views into the campus.

The landscape plan will focus on sustainable strategies to strengthen the open space and pedestrian circulation systems. It will contribute to strengthened connections between the campus and the surrounding community, including landscape at Hornet Tunnel.



The landscape plan will be integrated with the campus utilities and infrastructure systems as appropriate, and the resulting landscape developments will allow the campus to be used as a 'living laboratory' for sustainability, integrating the natural environment with academic programs.

Planning Objectives for the Design and Development of Landscape

To enact this framework, the Master Plan will respond to the following Objectives.

- Landscaping will be used as visual and connective elements to modulate building scale, create a continuous sequence of outdoor rooms, and provide summer shade.
- Landscaping will be used to support an aesthetically pleasing and functional pedestrian environment and be integrated through the use of plant materials and building features.
- Through use of landscape and campus utility systems, open spaces will incorporate sustainability and stormwater management features in ways that reinforce their beauty and their use as functional campus elements.
- Landscaping will build upon existing plant palettes and make use of consistent themes and characters by deploying and extending well-developed plant palettes, paving materials, light fixtures, and site furniture to emphasize the design of open spaces and reinforce key pedestrian connections and gathering areas.
- Landscaping, with monumentation and an effective signage and wayfinding system, will be used to create welcoming and legible campus entries and a clear pedestrian circulation system.

MANAGEMENT OF PARKING AND VEHICLE CIRCULATION

Planning Fundamentals

The appropriate management of parking facilities and vehicle circulation systems plays a fundamentally important role in the way the physical resources of the campus are used. The Master Plan will promote and mandate systems that bring vehicles onto the campus quickly and rapidly turn drivers into pedestrians.

Bicycles are an important part of the campus circulation system and must be managed commensurate with the management of vehicle circulation.

Management of these resources should include well-planned and supportive use of public transit and other systems that can reduce the traffic coming to the campus and reduce the need for new parking facilities.

Observations

The majority of Sacramento State students commute to the campus, and a significant portion of faculty and staff also commute. Even with a significant increase in student residential capacity and the initiation of faculty/staff housing, commuters will remain predominant on the campus.

The University has bus stops that serve the campus, and operates a shuttle between the Light Rail station and the campus. Similarly, the campus cooperates with local public transit authorities to make these public transit systems compatible with campus needs. An enhanced system of incentives for students, faculty and staff to use public transit will reduce the pressure on campus roadways and parking facilities.

The north and south campus entries are not equally legible or prominent. The north entry is better-marked than the south

entry, in spite of the fact that more people enter the campus at the south. The bus stop at the north is not well-placed because the first view of the campus at the north is dominated by bus parking. The south entry vistas are dominated by surface parking lots and the south entry presents an indistinct and confusing picture to first-time campus visitor.

Bicycle routes through the campus currently pose hazards for pedestrians. A measurable portion of bicycle traffic represents non-University bicyclists seeking convenient connections to the regional bicycle trail system.

More convenient bike storage facilities should be added and evenly distributed across the campus.

The Hornet Tunnel is not sufficient as the sole physical connection from the campus to the 65th Street area and other areas west of the campus.

Planning Framework

The design of the vehicular circulation system will focus on safety, accessibility and support of emergency vehicle, service and maintenance functions. The vehicular circulation system will reinforce campus functional organization and support the pedestrian circulation system.

Planning for parking facilities will target a more even distribution of parking on the north and south ends of the campus to reduce the number of cars traveling on the campus loop roadways (College Town Drive and State University Drive). Parking will be easily accessible from campus entry points and close to the Academic Core without disrupting its pedestrian character. Existing and new housing areas will continue to include parking for residents.

Planning for bicycle circulation will acknowledge the needs of those using bicycles to commute to the campus as well as those using the campus as a through-route. Pedestrian safety will take precedence when planning and designing bicycle routes.

Planning Objectives for the Management of Parking and Vehicle Circulation

To enact this framework, the Master Plan will respond to the following Objectives.

- The University will develop and implement an Alternative Transportation Plan aimed at reducing traffic coming to and leaving the campus; the University may wish to monitor the effectiveness of this Plan in reducing campus trips and parking demand.
- The existing campus shuttle system will be examined as part of the Alternative Transportation Plan to determine whether more frequent shuttles can serve as an incentive to increase the use of the Light Rail or bus access to the campus.
- Parking capacity will expand only when existing parking facilities are not sufficient to serve the population of faculty, staff, students and visitors at the 25,000 FTES level.
- Campus entries will be more prominent and visually defined with signature landscape elements at both north and south campus entry areas. Internal campus signage will direct drivers to parking facilities in ways that minimize circulation on campus loop roads.
- Primary pedestrian pathways may be designed as necessary to accommodate service and emergency vehicles.
- Future campus housing development will include convenient parking to accommodate the needs of student and faculty/staff residents.

THE CAMPUS AND THE COMMUNITY

Planning Fundamentals

Sacramento State serves as a resource for and a partner with the surrounding city and regional communities in developing opportunities for social, educational and economic development. The Master Plan should address campus facilities and systems so that they welcome visitors, create and maintain resources, and are equipped to host events that appeal to the surrounding community.

Observations

Although the campus is physically isolated through its boundaries of the American River, the railroad berm, and U.S. Highway 50, the network of vehicle, bicycle and pedestrian connections including the highway exit, the Guy West Bridge and the Hornet Tunnel provide access to and from the campus.

The 65th Street area to the west of the campus will go through a redevelopment phase in the foreseeable future, providing additional opportunities for integration with the surrounding community.

Planning Framework

Campus planning and development initiatives will maintain and enhance the University's positive relationship with neighboring residential and commercial communities.

Planning Objectives for the Campus and Community

- Campus edges will be enhanced to make the campus more visible to the University's neighbors and to the regional population.
- Pedestrian and bicycle linkages between the campus and the surrounding areas will be enhanced and made more accessible and convenient.
- The goals for Campus development will acknowledge and, where possible, incorporate elements that attract and encourage Sacramento region residents to visit and participate in campus activities and events.

CHAPTER 4

MASTER PLAN

SACRAMENTO
STATE

Chapter 4: Master Plan

The 2015 Master Plan represents an inclusive, holistic and coordinated series of proposals to guide the development of the California State University, Sacramento campus over the next 15-20 years. These proposals are responses to the direction of the Master Plan Task Force, the Vision Statement and Principles, and the Master Plan Framework described in Chapter 3. The Illustrative Master Plan described in this chapter is based upon a Master Plan Program developed over the course of the first two phases of the Master Plan project and address the Master Plan Scope described in Section 1.4.

The Illustrative Master Plan, described in this chapter, represents a comprehensive vision and guidelines for campus development including:

- Land uses;
- New, remodeled and repurposed facilities;
- Vehicle and pedestrian access and circulation;
- Open space and landscape;
- Housing; and
- Athletic and recreation facilities.

The 2015 Master Plan illustrated in Exhibit 4-2 and Exhibit 4-3 is described in broad, conceptual strokes and in a series of detailed diagrams, precinct plans and tables in this and the following chapters. It represents a possible and appropriate way in which buildings, open spaces, pedestrian pathways, roadways, parking and other facilities can be built or modified on the Sacramento State campus to fulfill the University's needs [Chapter 2], and in accordance with the Master Plan Vision, Principles and Planning Framework [Chapter 3]. Specific aspects of the Master Plan are further described in a Landscape Master Plan [Chapter 5], a Sustainability Plan [Chapter 6], and Design Guidelines [Chapter 7]. A proposed plan for Implementation and phasing of these proposals is included in Chapter 8. A schematic approach to the campus infrastructure needed to implement the 2015 Master Plan proposals is included in the Appendix.

This illustrative plan represents one of a number of possible ways the Master Plan can be implemented. Variations on this conceptual plan that respond to emerging needs and specific programs would include alternative configurations for building footprints; alternative arrangements of buildings, open space and other campus facilities; and changes to the implementation and phasing scenarios shown in Chapter 8. These variations are acceptable if they adhere to the Vision Statement and Principles, the Sacramento State Master Plan Planning Framework [Chapter 3] and the Design Guidelines [Chapter 7] described in this report. For the remainder of this report, this illustrative plan will be referred to as the 2015 Master Plan.

Exhibit 4-1: Aerial View of Campus and American River

4.1 2015 MASTER PLAN SUMMARY: SIGNIFICANT FEATURES OF THE MASTER PLAN

The Sacramento State Master Plan has several significant features that form the basis of the 2015 Master Plan as a whole. These features respond to the Master Plan Vision Statement and Principles and to the Master Plan Framework described in Chapter 3; they were formulated and designed in response to specific needs identified in the program developed for the Master Plan in the initial phases of the project. These important components are described in detail with illustrations, in this and subsequent chapters. The six central features of the 2015 Master Plan are:

- Hornet Greenway
- Arboretum Expansion
- North and South Gateways
- Academic Core Renewal
- Expanded Housing Capacity: North and South Housing Villages
- Student Activities Precinct Additions

These significant features are described below. A comprehensive description of the Master Plan begins in Section 4.2.

HORNET GREENWAY

The 2015 Master Plan capitalizes on the distinctive landscape elements of the Sacramento State campus, emphasizing them as both significant organizing features and elements of the campus brand identity. First among these is Hornet Greenway, illustrated in Exhibit 4-3.

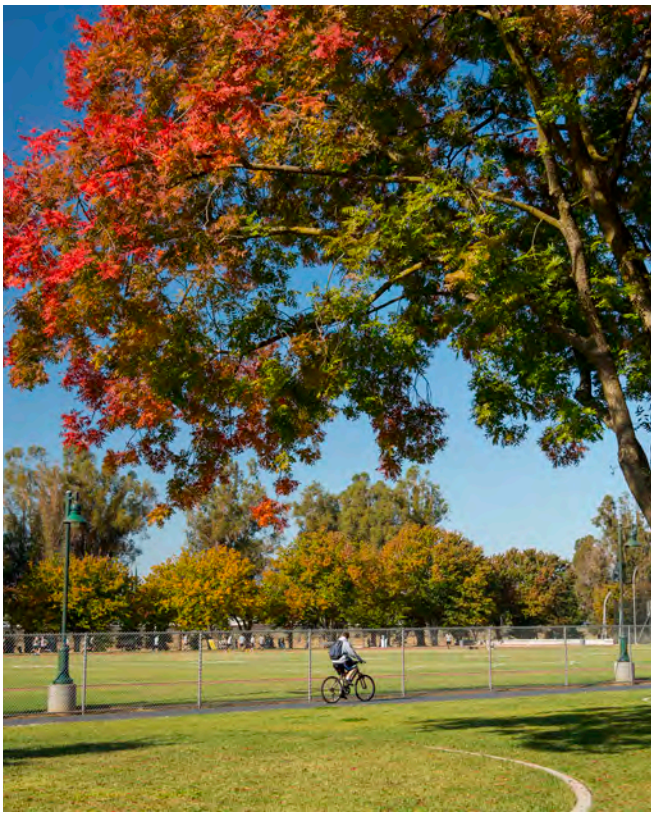
The Master Plan has as its central element a unique organizing feature, Hornet Greenway, which extends north-to-south through the campus and combines landscaped open space with a storm-water management system that significantly contributes to the University's sustainability profile. Hornet Greenway makes use of Sacramento State's singular campus landscape — its capacious open space network and its extensive and lush tree canopy -- a horticultural legacy that makes the Sacramento State campus instantly identifiable and clearly signals to students, faculty, staff and visitors that CSUS will continue to enhance and protect its physical environment.

Exhibit 4-2: 2015 Master Plan

The Hornet Greenway's stormwater management system is described in greater detail in Chapters 5 and 6. The system incorporates a series of linked bioswale areas to capture and filter stormwater and irrigation water runoff before it infiltrates into the water table or returns to the American River. New north-south pedestrian pathways are planned for the edges of Hornet Greenway in the north central area of the campus, and pathways cross Hornet Greenway at strategic points.

The Hornet Greenway links the existing Arboretum and a new Arboretum Expansion with the campus's new and redeveloped major open spaces: the North Gateway, incorporating the State University Drive vehicle entry from J Street and extending to the open space south of the new Administration/Student Services building; the Academic Core, with expanded informal activity space; and the South Lawn student activities quad, further defined by the Well and the new Student Events Center in the Student Activities Precinct. Hornet Greenway extends south of the Stadium and is marked by bioswale landscape features and other landscape components as it continues toward Folsom Boulevard.

Hornet Greenway will change the way stormwater drainage is handled on the campus. While the Western Ditch at the campus's western boundary (an infrastructure system operated by the City of Sacramento) will continue to drain stormwater from the athletic field areas east of College Town Drive, the new greenway system will manage campus stormwater to the east of the athletic fields. As Hornet Greenway moves through a series of large and small open spaces, it is highlighted by a new pedestrian pathway system that concentrates pedestrian activity, particularly within the Academic Core, to create a more vibrant student life experience.



By detaining and filtering a significant portion of the stormwater that lands on the campus, Hornet Greenway is planned to reduce the pressure on the Western Ditch and to decrease the amount of stormwater that needs to be filtered and pumped into the American River.

In addition to its water quality and quantity benefits, the Hornet Greenway will enhance the campus's landscape identity by providing a unique and instantly recognizable landscape feature that complements the campus's abundant tree canopy and designation as a Tree Campus USA.

Hornet Greenway includes a range of features that will tie it into the overall campus stormwater management system and become part of a broader Sustainability Master Plan that addresses stormwater management on a holistic basis.

Additional features of Hornet Greenway, the Landscape Master Plan and the Sustainability Master Plan are described in Chapters 5 and 6.

The Hornet Greenway is also planned as a feature that can contribute to the University's science and engineering curricula and to educate campus visitors about sustainability and the University's sustainability plans. These features include:

- Educational opportunities, such as curriculum tie-ins with the Engineering department, potentially including design, installation, function, maintenance and monitoring of the stormwater management system; and
- Features that facilitate wayfinding by reinforcing pedestrian circulation and framing vistas. The Master Plan recommends that the University develop a system of interpretive signage to illustrate the function and features of Hornet Greenway as a way of educating students, faculty, staff and campus visitors.

The Hornet Greenway will be implemented over time, as buildings are removed, remodeled or newly constructed. In the Academic Core, portions of the Hornet Greenway and associated pathway systems will be built as smaller, older buildings on campus are removed over time. Exhibit 4-11 illustrates buildings to be removed over the course of the Master Plan's implementation.

Exhibit 4-3: 2015 Landscape Master Plan

The University will seek opportunities to construct other segments of the Hornet Greenway as utilities, parking areas, roadways and other components of campus facilities are renewed or redeveloped.

ARBORETUM EXPANSION

The Arboretum, an important campus resource, is an under-realized and under-utilized feature of the campus environment. The Master Plan recommends an expansion of the Arboretum to increase its profile and influence as a campus asset, and to better connect it with the rest of the campus. The Arboretum Expansion also has an important role in the development and life of the Hornet Greenway. A more detailed description of the Arboretum Expansion is found in Chapter 5 [Landscape].

NORTH AND SOUTH GATEWAYS

The Master Plan highlights the north and south entries to create highly recognizable and clear entry experiences for visitors and a gracious arrival sequence for those already familiar with the University grounds. The Master Plan uses buildings, landscape treatments, and signage to emphasize these two campus gateways that serve vehicle, pedestrian and bicycle traffic.

The North Gateway incorporates a new administration/student services building at the apex of the State University Drive turnaround/dropoff. Based on its functions and its physical site, this new building is meant to serve as the true gateway to the campus and as an entry to the Hornet Greenway and associated pedestrian pathway system.

Vehicle circulation is an important component of the North Gateway. The Master Plan includes a separate area for bus parking so that campus shuttle or Regional Transit buses do not block this important -- and for many visitors, first -- view of the campus.

The entry road also provides access to a new parking structure south of Arboretum Way (PS5). This parking facility is placed to reduce traffic on College Town Drive and State University Drive by providing parking for approximately one-third of those who arrive at the campus from the north.

The South Gateway will be landscaped to match the North Gateway to reinforce campus identity; the same monumentation and signage will be used. Existing buildings south of College Town Drive and new housing north of College Town Drive will mark the South Gateway. The Master Plan signage/wayfinding plan [Chapter 7] shows appropriate locations for information kiosks and other signage to assist wayfinding.

Exhibit 4-4: Artist's Rendering of the New Administration / Student Services Building at the North Gateway

Exhibit 4-5: North and South Gateways and Major Parking Facilities

ACADEMIC CORE RENEWAL

The Master Plan focuses on renewal and reorganization of academic facilities in the Academic Core. The Plan recommends new and remodeled classroom and laboratory buildings equipped to support the requirements of 21st century pedagogies. The older, inefficient buildings in the Academic Core that have reached the end of their useful life [Exhibit 4-11] are removed and their functions are replaced in new and remodeled facilities. A new Performing Arts Building is sited adjacent to Shasta Hall to increase the facilities for theater and dance programs. The Library, which now forms the terminus of Hornet Greenway, will also be remodeled.

This reorganization of classroom and laboratory facilities reinforces the existing locations for the University's Schools and creates a more coherent and legible campus environment.

EXPANDED HOUSING CAPACITY: NORTH AND SOUTH HOUSING VILLAGES

One of the key goals of the Master Plan is to promote a "24/7" campus. The most important way to achieve this is to increase the complement of people living on the campus. Exhibit 4-6 shows the Master Plan for two residential areas: the North Housing Village provides residence halls for undergraduates, while the South Housing Village primarily provides housing for faculty, staff and graduate students. The round-the-clock nature of the campus will be reinforced by a corresponding increase in amenities such as food service, study areas, gathering areas and activity venues. The plan to increase campus housing will in turn create a larger base for campus activities by increasing the 24-hour population on the campus.

North Housing Village

The primary aim of the new and renewed residence halls in the North Housing Village is to provide housing for lower-division students in buildings that will support the University's focus on student success and the deployment of living-learning programs. Development here includes an expanded dining hall, provision of open space activity areas, and parking for student residents. Currently in progress, housing targeted to freshmen and sophomores is being developed on surface parking lots; this project is part of the previous Master Plan. Later stages of North Housing Village development involve the replacement of older dormitories and residence halls by new buildings.

South Housing Village

In the South Village, the Master Plan envisions apartment-style housing for faculty, staff and graduate students, as well as apartment-style housing for undergraduate students. This housing development includes parking facilities and shared amenities such as landscaped open space gathering areas, meeting rooms, activity areas, and, potentially, a cafe or other food service amenity.

Consistent with other Master Plan principles, new residential facilities in both the North and South Housing Villages are sited to take advantage of views and access to the American River. Housing will be developed in several stages over the planning horizon of the Master Plan, subject to student demand. [See Chapter 8 for the Master Plan Implementation and phasing.]

STUDENT ACTIVITIES PRECINCT ADDITIONS

The Master Plan capitalizes on the location of the popular Well health and fitness facility and the opportunity to develop a new Student Events Center to create a strong Student Activities Precinct on campus. The Student Events Center is sized to include a 5,000- to 6,000-seat basketball arena and other student-serving uses. The building has been planned to wrap around PS3, an architectural arrangement that uses the site efficiently, creates a gathering and pedestrian space between the Events Center and the expanded University Union, and also serves to camouflage the façade of PS3. The Well and the Student Events Center face onto the large South Lawn student activities quad, reinforcing an existing open space that is made more important by containing some elements of the Hornet Greenway.

Further to the south, but also considered part of the Student Activities Precinct, is Hornet Stadium. The stadium is planned to be improved with new seating and concession/retail spaces at the ground level.

Exhibit 4-6: 2015 Master Plan New Housing

4.2 CAMPUS LAND USE

2015 MASTER PLAN APPROACH TO LAND USE: CAMPUS PRECINCTS

The 2015 Master Plan uses campus land to develop needed facilities while preserving campus open space. The Plan uses new buildings to create or reinforce open spaces of a congenial, pedestrian-oriented scale, and to reinforce existing land uses. The Master Plan makes use of some new building sites that are currently used as surface parking lots and others that are currently occupied by facilities that have reached the end of their useful lives or will do so within the Master Plan's planning horizon.

The 2015 Master Plan builds upon the current distribution of land uses at the Sacramento State campus. In order to provide greater detail about the 2015 Master Plan, the campus was conceptually divided into eight functional and geographical precincts [Exhibit 4-7]:

- North Campus
- North Housing Village
- Academic Core
- Student Activities Precinct
- Athletics and Recreation Precinct
- South Housing Village
- South Campus
- Folsom Annex

Consistent with the Vision Statement, Planning Principles and Master Plan Framework [Chapter 3] that serve as the foundation of the 2015 Master Plan, the precinct plans show proposed development sites that effectively concentrate the use of land within each precinct and provide expansion space for a broad range of programs. The locations of the Master Plan land use precincts are predicated on several factors including functional adjacencies to other related uses, land availability (potential development sites defined in the Opportunities and Constraints phase of the project) and accessibility (pedestrian, vehicle and bicycle).

The development sites shown in the precinct plans have been chosen to achieve the following Master Plan goals:

- Efficiently make use of University-owned land currently occupied by facilities that have reached the end of their useful life cycles;
- Avoid using significant campus open spaces for new building sites;
- Reinforce the campus open space system by using building edges to create new open spaces or delimit the boundaries to existing open spaces; and
- Reinforce the pedestrian pathway system by siting buildings such that building entrances are oriented to campus walkways.

Existing precincts such as the Academic Core, Athletics/Recreation Precinct, the North Campus and the North Housing Village are reinforced and expanded as necessary by incorporating new or renewed facilities and new or renewed open spaces. New precincts include the South Housing Village and Student Activities Precinct. The South Campus has been modified to include the Children's Center and existing facilities along College Town Drive. The Folsom property is considered its own precinct. The Master Plan precincts are linked by a reorganized pedestrian pathway system that focuses on Hornet Greenway and the expanded landscape/open space plan.

The University also owns the Ramona property south of the freeway. This is currently a relatively isolated area, surrounded by industrial uses and vacant land. During the Alternatives Development phase of the Master Plan process, the Master Plan Team investigated various uses for this property and reviewed schematic plans and information previously produced for the University. Because the Master Plan program is readily accommodated on the main campus, the University is content to wait until the surrounding land uses are better established before creating plans for this property. Therefore, the Master Plan is silent on the use of this property.

PRECINCT FUNCTIONS AND FACILITIES: SUMMARY

The Master Plan's building arrangements shown in Exhibit 4-2 and the other exhibits provide general guidelines for the planned new facilities on campus. The exact size and arrangement of new, remodeled, and renovated facilities will be determined at the time of their development.

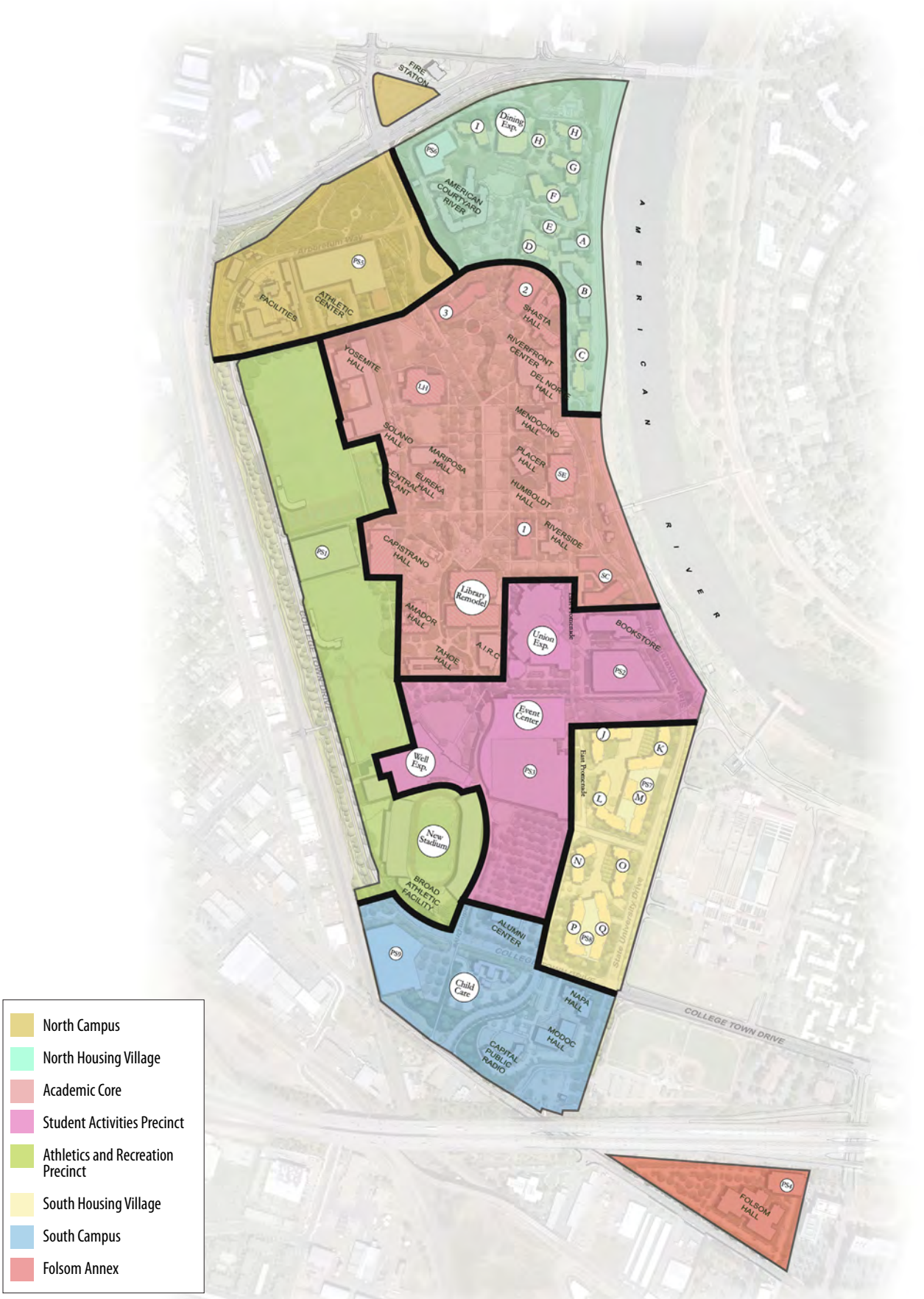


Exhibit 4-7: 2015 Master Plan Precincts

Facilities and improvements in the eight campus precincts are summarized below and described in greater detail in the following sections.

North Campus

- New North Gateway campus entry with relocated Transit Center
- New parking structure (PS5)
- Existing Arboretum and Arboretum Expansion
- New Administrative office building to accommodate Parking Services and Public Safety functions
- Facilities Services and campus support facilities as currently existing
- Athletics Center as currently existing

Renewed North Housing Village

- Two new housing buildings that are part of the existing Master Plan (currently under development)
- American River Courtyard complex retained
- Five existing buildings replaced by new facilities
- Expanded and remodeled Dining Commons
- New parking structure (PS6)
- One existing surface parking lot

Academic Core

- New Administrative/Student Services building
- Three new academic buildings: Science, Engineering and Performing Arts
- Main Quad revised to incorporate Hornet Greenway and become the Grand Central Quad
- Seven remodeled and re-purposed buildings: Sequoia Hall, Lassen Hall, Shasta Hall, Capistrano Hall, Eureka Hall, Amador Hall and the Library

Student Activities Precinct

- New Student Events Center
- Expansion of University Union facilities
- Reinforced South Green/Student Activities Quad
- Additions to the Well fitness facility

Athletics / Recreation Precinct

- Athletic fields and playfields as existing
- Remodeled Hornet Stadium

South Housing Village

- One new housing complex comprised of 2-bedroom apartments for faculty, staff and/or graduate students
- One new housing complex comprised of 2-bedroom apartments for undergraduate students
- Parking Structures PS7 and PS8

South Campus

- New Children's Center facilities and exterior space
- New Ramona Avenue Extension roadway
- New parking structure (PS9)
- South Gateway

Folsom Annex

- Folsom Hall and parking facilities to remain as is.

The tables, maps and diagrams that follow describe facilities in the Master Plan precincts. The tables identify each facility and its function or type. "Remodel" means that the building will be reconfigured to serve new purposes; "renovate" means that the building and its spaces/ finishes will be upgraded. The tables also indicate whether each is intended as new, replacement or remodeled. (These facilities illustrated in Exhibit 4-11 as being removed due to their age and/or condition do not appear in these tables).

Exhibit 4-9 shows the 2015 Master Plan Academic and Administrative facilities; Exhibit 4-8 shows new, replacement and remodeled housing facilities; Exhibit 4-9 shows student support facilities; Exhibit 4-10 shows existing facilities to remain. Those remaining facilities may be renovated and updated, but are not planned to undergo a major remodel.

2015 MASTER PLAN ACADEMIC AND ADMINISTRATIVE NEW AND REMODELED FACILITIES		
FACILITY #	**NEW / REPLACE / REMODEL**	**FACILITY / FACILITY TYPE**
1	New	Academic
2	New	Performing Arts
3	New	Admin/Student Services
NS	New	New Science (Previous Master Plan)
PS5	New	New Offices attached to PS5
SE	Remodel	Sequoia Hall Remodel
LH	Remodel	Lassen Hall Remodel
9	Renovate	Shasta Hall
35	Renovate	Capistrano Hall
38	Renovate	Eureka Hall
39	Renovate	Amador Hall
40	Remodel	Library
9	Replace	Children's Center
109	Remodel	Well Expansion
47	Remodel	Union Expansion
	Remodel	40,000 seat capacity Stadium
	New	Student Events Center w/ 6,000 seat arena
		Total New Facilities 1,300,000 - 1,500,000 Square Feet

Exhibit 4-8: 2015 Master Plan Academic and Administrative New and Remodeled Facilities

2015 MASTER PLAN HOUSING		
FACILITY #	**NEW / REPLACE / REMODEL**	**FACILITY TYPE**
C	Replace	Student Housing @ 300 gsf/bed
D	Replace	Student Housing @ 300 gsf/bed
E	Replace	Student Housing @ 300 gsf/bed
F	Replace	Student Housing @ 300 gsf/bed
G	Replace	Student Housing @ 300 gsf/bed
H	Replace	Student Housing @ 300 gsf/bed
I	Replace	Student Housing @ 300 gsf/bed
J	New	Faculty/Grad Apts (2 br)
K	New	Faculty/Grad Apts (2 br)
L	New	Faculty/Grad Apts (2 br)
M	New	Faculty/Grad Apts (2 br)
N	New	Student Housing @ 300 gsf/bed
O	New	Student Housing @ 300 gsf/bed
P	New	Student Housing @ 300 gsf/bed
Q	New	Student Housing @ 300 gsf/bed
DH	Remodel	Dining Hall Expansion
A	Under Development	Student Housing @ 300 gsf/bed: Riverview
B	Under Development	Student Housing @ 300 gsf/bed: Riverview
		Total New Housing (student beds) 3,000 - 3,500
		Total New Apartments 250 - 300
	Retained	American River Courtyard (existing): 606 beds

Exhibit 4-9: 2015 Master Plan Housing Facilities

POTENTIAL MINOR RENOVATIONS		
FACILITY #	**MASTER PLAN STATUS**	**BUILDING**
32	Renovate	Central Plant
37	Renovate	Del Norte Hall
90	Renovate	Desmond Hall
49	Renovate	Food Service-Outpost
92	Renovate	Mariposa Hall
43	Renovate	Mendocino Hall
81	Renovate	Modoc Hall
88	Renovate	Napa Hall
56	Renovate	Placer Hall
2	Renovate	River Front Center
48	Renovate	Riverside Hall
34	Renovate	Tahoe Hall
15	Renovate	Yosemite Hall

Exhibit 4-10: 2015 Master Plan Facilities to Remain as Existing
Remaining facilities may be remodeled or renovated in the future, depending on campus needs.

Exhibit 4-11: Facilities Proposed for Demolition

Exhibit 4-12: 2015 Master Plan Final Phase

Exhibit 4-12 shows a map of the Sacramento State campus that will serve as the basis of the official 2015 Master Plan to be presented to the Chancellor's Office. This map shows the final phase of the Master Plan, how the campus will appear when all proposed facilities have been constructed. A detailed plan for phasing and implementation of Master Plan proposals is included in Chapter 8 of this report. The Master Plan also includes other existing buildings that may undergo minor renovations, including (list buildings in table 4-10)

4.3 PRECINCT PLANS

NORTH CAMPUS PRECINCT

Exhibit 4-14

The North Campus Precinct is defined as the area north and west of the North Entry: the State University Drive turn-around loop that enters the campus from J Street.

Development in the North Campus Precinct focuses on an enhanced North Entry Gateway to the campus, with a relocated Transit Center and a new parking structure. Also in the North Campus Precinct are a new expansion of the Arboretum; the existing Facilities Services Complex; and the existing Hornet Athletics Center.

North Gateway

Responding to very specific comments about the north and south campus entries during the Visioning and Conceptual phases of the Master Plan process, the 2015 Master Plan designates the north entry from J Street as the North Gateway.

The role of vehicle access for the North Campus precinct is critical for a number of reasons. First, the north entry from J Street is historically the primary entry to the campus, with a significant number of visitors and commuters to the campus arriving at the north. Similarly, the official university address is 6000 J Street, indicating that the north entry is the main entry to the campus. Second, the north entry serves as the main public transit and shuttle access to the campus. Third, the 2015 Master Plan includes several publicly-oriented buildings including a new Administration/Student Services building and a facility for Performing Arts adjacent to the existing facilities in Shasta Hall. Finally, congestion on campus loop roads is exacerbated by drivers who enter from the north driving around the campus to find convenient parking.

For all these reasons, the North Gateway as an important component of the University's identity and branding. In spite of this, and as reflected in the comments referred to above, the north entry is currently less prominent than befits such a large and important institution.

Campus Entry Loop

The 2015 Master Plan addresses all of the important elements of the North Gateway and the campus entry experience. Because wayfinding is so important for first-time visitors and those arriving for public programs and events at the North Gateway, for Landscape Master Plan [Chapter 5] and the Signage and Wayfinding Plans [Chapter 7] provide enhanced landscape and signage for the North Gateway. This includes enhanced monument signage to make the North Gateway more noticeable for those coming to the campus from J Street.

The State University Drive entry from J Street is retained. This entry provides access to a new parking structure via Arboretum Way, to the rest of the campus via College Town Drive and State University Drive, and to the North Housing Village.

Transit Center

The Master Plan relocates the campus Transit Center to the west of the entry loop road to better accommodate Regional Transit buses and campus shuttles and to prevent bus and shuttle parking from interfering with visitors' first view of the campus. The new Transit Center is a key element of the Master Plan approach to traffic and parking management [see Section 4.4], and is planned to provide parking for RT buses and shuttle and to serve as a pick-up/drop off for both campus shuttles and private vehicles.

Exhibit 4-13: Pedestrian Underpass at North Gateway

The new location for the Transit Center is along the western edge of the State University Drive entry loop road, just south of the existing Visitor Information booth. This will allow buses to be partially screened with landscape rather than being highly visible, as they are now, at the end of this important entry road. This relocated transit center will continue to provide public transportation access to the campus in general and to the campus performance venues in Shasta Hall and a new Performing Arts Center.

The pedestrian underpass at State University Drive and Arboretum Way is retained.

Parking Structure PS5

The Master Plan includes an easily-accessible new parking structure (PS5) for those entering the campus at the North Gateway from J Street. This parking facility is specifically located to distribute parking to the north of the campus and to help alleviate on-campus traffic congestion on the campus perimeter roads (College Town Drive and State University Drive).

Campus Safety / Parking Services Building

Adjacent to the new PS5 parking structure, the Master Plan shows a new office building for Campus Police and Safety and Parking Services offices as well as parking for police vehicles.

More details about vehicle circulation and parking are included in Section 4.4 below.

Arboretum and Arboretum Expansion

The Arboretum is an important resource for the University and is a community-serving facility that welcomes elementary school classes and other visitors. Due to its location to the west of the North Gateway at J Street, it can be overlooked by those entering the campus. The Arboretum is retained and expanded via a north-south parcel that creates a landscape link to the main campus open space system and links it to Hornet Greenway south of Bay Laurel Way.

NORTH HOUSING VILLAGE

Exhibit 4-14

The 2015 Master Plan for the North Housing Village provides housing and dining facilities for 2,500 -2,900 undergraduate students. The Master Plan places new housing buildings to create a series of small, mid-sized and large outdoor open spaces, providing each building with at least one exterior gathering area for student activities. Dining facilities are expanded to serve a larger residential population. Parking is provided as part of housing development.

An important Master Plan planning principle is to use new development and facilities to provide better access to and visibility of the American River. The North Housing Village provides an opportunity for the campus to make connections to the American River, the levee along the river and surrounding natural areas, which also serves as a component of the regional bicycle pathway system.

The Master Plan illustrates several ways this can be accomplished: by aligning housing blocks along the River

- Aligning new housing buildings along the American River embankment [Building C and portions of Buildings H, G and F in Exhibit 4-14];
- Creating courtyards and gathering areas that face the river and, where possible, provide bike and pedestrian access to the river;
- Placing multi-purpose and gathering areas so they open to the river or river-facing courtyards; and
- Providing view opportunities from residential windows and, most important, the shared lounges, living rooms and gathering areas within the buildings.

Additional details about the design and siting of housing buildings are included in Chapter 7, Design Guidelines.

Overall Housing Capacity

The Master Plan provides for 2,500 - 2,900 for the North Housing Village. The North Housing Village comprises beds for undergraduate students, including new housing, replacement housing and existing new and replaced housing as shown in Exhibit 4-14.

Included in this total are replacements for 1,066 existing beds in existing residence halls which are considerably aged and have reached or will reach the end of their useful lives during the Master Plan's 20-year time frame: could include Draper, Jenkins, Desmond, Sierra and Sutter Halls [see also Chapter 2]. The American River Courtyard is the only existing residential facility to be retained.

Additional beds in the South Housing Village [see below] will provide additional undergraduate housing and apartment-style housing potentially for graduate students, faculty and staff.

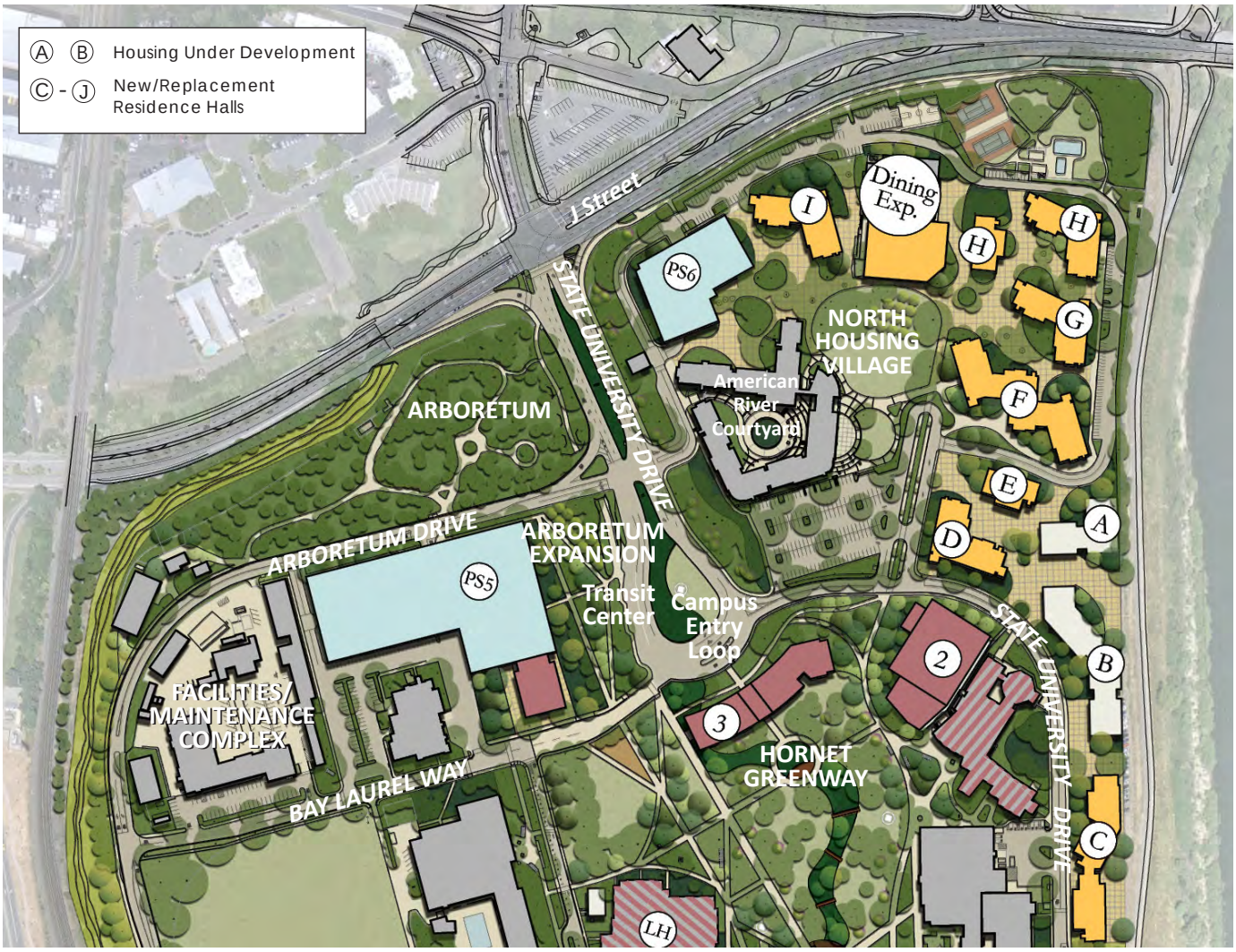


Exhibit 4-14: North Housing Village and North Campus Precinct

The precise number of beds and the timing of these changes will be determined by demand analyses conducted periodically by the University.

Other North Housing Village Facilities

The 2015 Master Plan also retains the main exterior open spaces in the North Housing Village area, expands the existing Dining Center and provides a new parking structure (PS6) dedicated to residential parking, and retains an existing small surface parking lot south of the American River Courtyard.

ACADEMIC CORE

[Exhibit 4-16]

Within the Academic Core, the 2015 Master Plan proposes sites for three new academic buildings and one new Administrative/ Student Services Building shown in an artist's conceptual rendering in Exhibit 4-4. The Plan also proposes the rehabilitation and repurposing of seven existing academic buildings.

Exhibit 4-15: Artist's Conceptual Rendering of a New Housing Building in the North Housing Village
Illustrating a potential connection to the American River berm and bicycle path.

The Academic Core is maintained as the central element of the campus. The Academic Core includes all University classroom and laboratory buildings that form the heart of Sacramento State's academic programs. The Master Plan concentrates academic facilities in the center of the campus, reinforcing this existing land use. The Plan provides the classroom, laboratory, administrative and student services facilities to support the campus enrollment cap of 25,000 FTES.

As discussed in Section 2.9, a survey and analysis of existing building conditions determined that a number of the older buildings in the academic core had reached the limit of their useful lives. Replacement or, in some cases, substantial renovation would be required for the campus to meet its academic mission into the future. The Master Plan strategy for determining how to replace the functions in these buildings is based on the buildings' suitability for remodeling for other uses. Due to the need for specific spatial and mechanical arrangements for 21st Century science and engineering, it was determined that existing laboratory buildings suitable for remodel will be renovated to house new classrooms rather than new laboratories.

New Academic Facilities

New and remodeled facilities are shown in Exhibit 4-16; details are shown in the table in Exhibit 4-9.

Science Building. The proposed Science Building has been recommended for several years and its approval and funding at the State Chancellor's Office has been pending for some time. As noted in the Implementation Plan [Chapter 8], the Science Buildings are the first priority for new academic facilities because a significant number of the other changes to Academic Core facilities will rely upon the new Science Building facilities to be in place. An important example of this phasing is the need to replace the outdated science laboratories currently located in Sequoia Hall and in other two-story buildings. These facilities can be removed and Sequoia Hall can be remodeled to house general classrooms, per the strategy described above, only when the science laboratories are replaced by the new Science Building.

Engineering and Performing Arts Facilities. To meet overall requirements for classrooms and other academic uses, two additional new academic buildings are recommended: a new, four-story Engineering classroom building to be located northeast of the Library, and a new Performing Arts building to be located adjacent to Shasta Hall, the existing Performing Arts facility. This will allow the new Performing Arts building to potentially share

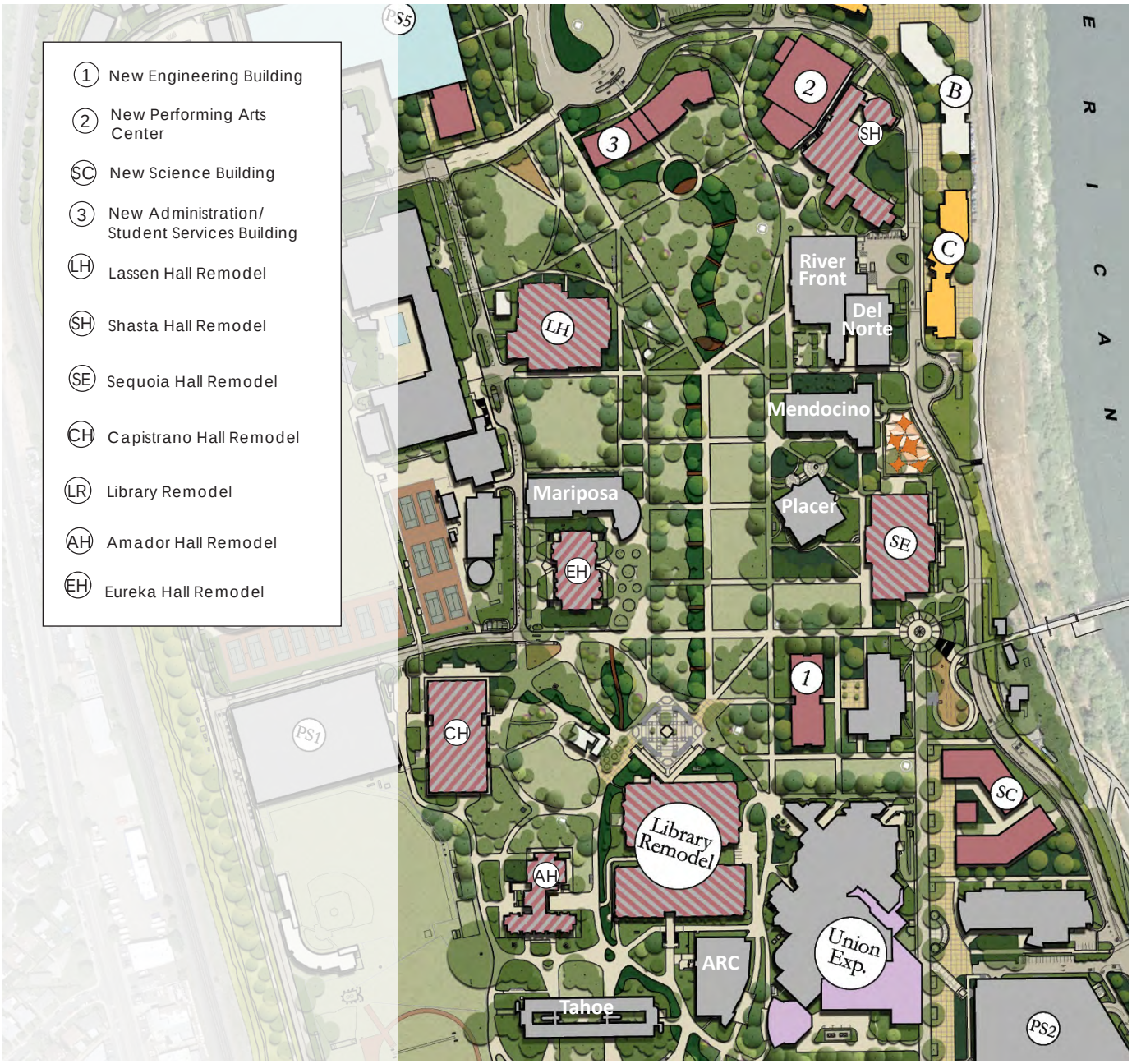


Exhibit 4-16: New Developments and Improvements in the Academic Core

back-of-house and other functions with the existing performance facility.

New Administration / Student Services Building. To replace the functions currently in Sacramento Hall, the Master Plan recommends a new Administration / Student Services Building to be located at the North Gateway, just south of the State University Drive entry loop road.

Also in this building are the Student Services offices currently in Lassen Hall. Combining these functions into a single building at the North Gateway entry to the campus not only concentrates similar uses but makes access to the campus and its services more convenient and accessible for prospective students and their families and other campus visitors.

Buildings to be Removed

Most of the older buildings identified as being past their useful lives are not suitable for any further use and will be demolished. The Plan recommends the removal of these eight academic buildings in the Academic Core: Douglass, Kadema, Calaveras, Alpine, Humboldt, Brighton, Santa Clara and Benicia Halls.

In addition, the Master Plan recommends that Sacramento Hall, which houses administrative offices and functions, be removed because it is beyond its useful life. In the South Campus, El Dorado Hall and the Art Sculpture Lab buildings are also removed.

In all cases, the functions of the removed buildings will be relocated to new or remodeled facilities. Buildings to be removed are shown in Exhibit 4-11.

Buildings to be Remodeled / Rehabilitated / Repurposed

Two buildings, Sequoia Hall and Lassen Hall, are suitable for renovation and therefore will be remodeled to accommodate new uses. Sequoia Hall currently contains science laboratories; these will be moved to the new Science Building. When remodeled, Sequoia Hall will serve the campus's needs for non-laboratory classroom space. Lassen Hall currently houses the University's Admissions offices, which can be relocated in the new Administration/Student Services Building. Lassen Hall, when remodeled, can provide space for classrooms.

Exhibit 4-17: Examples of a Shade Structures for the New Arts Yard

Exhibit 4-18: 2015 Master Plan Arts Yard Location, North of Sequoia Hall

Exhibit 4-19: 2015 Master Plan Academic Buildings

The Master Plan recommends that the Library be rehabilitated/ remodeled to serve the needs of the 21st Century University and its students, faculty and staff. Further recommendations for the Library remodel are in Chapter 7, Design Guidelines.

Eureka Hall and Amador Hall are also in need of renovation, upgrading and modernization. Eureka Hall in particular will need significant modifications in order to improve the entries to the building and to renovate the exterior of the building to allow more natural light to enter the classrooms.

With the growing performing arts programs, the condition of Shasta Hall and Capistrano Hall have been deteriorating due to heavy use. Following the construction of the new Performing Arts Building, the new space can be used to temporarily house the programs of Shasta Hall and Capistrano Hall while they are renovated.

The demolition of the Arts Sculpture Lab and Kadema Hall will require the construction of new art facilities. The classroom space can be replaced by the remodel of Sequoia Hall. The art studio and fabrication space can be housed in a new "Art Yard" located to the north of Sequoia Hall [Exhibit 4-18]. This area can be comprised of flexible classroom space that is open to the outside. Kilns, wood shops and other fabrication equipment can be located here. Large canopies can cover the area; examples of such canopies are illustrated in Exhibit 4-17. These canopies can be highly sculptural and can be a symbol of the Sacramento State's Fine Arts program. The area can be visible so that students, facility and visitors can watch the production processes. This will help promote the arts program, instead of hiding these functions inside Sequoia Hall.

Organization of the Academic Core

As shown in Exhibit 4-20, the new and remodeled academic facilities recommended by the Master Plan work with the existing buildings that will be retained to form zones for each college.

Academic Program Locations

The recommendations for the new locations for specific academic programs are found in the Phasing Plan and shown in the tables in Chapter 8.

STUDENT ACTIVITIES PRECINCT

[Exhibit 4-21]

The Student Activities Precinct, located just south of and adjacent to the Academic Core, includes the University Union, the Hornet Bookstore and the Well health and recreation center. This precinct capitalizes on a number of the largest and most important outdoor spaces on the campus: the South Green in front of the Well, the Library Quad north of the Library, and Alumni Grove, further to the east, adjacent to the American River. Included in this precinct is Hornet Stadium and surface parking Lot 8, which is used for activities associated with athletic and other events. These spaces and facilities, which constitute the center of campus life for students, are augmented and reinforced in the 2015 Master Plan.

Student Events Center

The Master Plan envisions the placement of a new Student Events Center just north of and abutting parking structure 3 (PS3). The Student Events Center as shown in this report, is based on preliminary studies available at the time of this report. The facility is planned to contain a 5,000- to 6,000-seat arena, additional fitness training areas, meeting rooms and other student activity facilities, with retail areas on the ground floor facing the South Green student activities quad.

The Master Plan places this new facility between the University Union and the Well; it is anticipated that the three facilities will share, support and reinforce various campus activities and functions. This building placement also has the advantage of screening the north and west facades of Parking Structure 3 from the interior of the campus, creating a more active and vibrant edge facing the Well and the South Green.

University Union and Well Expansions

Expansions to both the University Union and the Well are proposed within the Student Activities Precinct; these non-State-funded projects are in progress at the time of the Master Plan report.

A new addition on the western side of the Well is based on preliminary studies available at the time of this report. The new addition is planned to include a health center, while a smaller addition on the eastern side is planned to accommodate additional student wellness functions.

Exhibit 4-20: 2015 Master Plan Proposed College Zones

Similarly, additions to the University Union are planned along the southern areas of the site and are expected to include a new auditorium and new ballrooms/meeting rooms.

Hornet Stadium is retained and could be improved with permanent seating. The existing surface parking Lot 8 south of PS3 is planned to remain in the 2015 Master Plan for two important purposes; first, to maintain the required parking supply in this location; and second, to continue providing a location for the traditional "tail-gate parties" prior to football games that are so popular with both alumni and students.

The South Green is reinforced as an important student activities quad. Located between the Well and the new Student Events Center, it is central to the campus open space plan and is also the site of the relocated bicycle path (see Section 4.4 and Exhibit 4-29 below for more details about the Master Plan bicycle plan). The Hornet Greenway, described at the start of this chapter, continues through this area on its way to the South Campus. Equally important is a new open space connection to the American River which runs between the new Student Events Center and the expansion of the University Union. This landscaped open space widens as it moves past new pedestrian promenade that leads to the South Housing Village. The Master Plan anticipates a new bridge at the eastern end of this new open space that connects the campus to the river and Alumni Grove.

ATHLETICS AND RECREATION PRECINCT

[Exhibit 4-21]

The Athletics and Recreation Precinct, located along the western edge of the campus, contains all of the University's intercollegiate athletic playfields and the intramural sports fields and tennis courts.

In general, the facilities currently located in this precinct, including the existing track, baseball, softball and soccer fields, and Hornet Stadium have not been altered in the Master Plan. These are planned to be retained and improved as necessary over time.

The Landscape Guidelines [Chapter 5] and the Sustainability Guidelines [Chapter 6] recommend that the playfields serve as important elements of the campus stormwater management plan. Over time, when the playfields need to be renovated, the Master Plan recommends that they be reconfigured to serve the dual purpose of playfields and stormwater detention basins.

Hornet Stadium Upgrade

Hornet Stadium has planned for a significant upgrade for a number of years, including replacement of the temporary bleacher seating which is moving beyond its useful life. The Master Plan recommends that, along with the new permanent seating, additional functions such as restrooms, ticketing and retail concessions be placed along the pathway leading from surface parking Lot 8 into the South Green student activities quad in order to further activate the pedestrian areas leading to the new Student Events Center and the Well.

SOUTH HOUSING VILLAGE

[Exhibit 4-22 and Exhibit 4-23]

In keeping with the University's vision to create a more 24/7 campus by increasing campus housing, the 2015 Master Plan envisions the creation of a new South Housing Village in the southeastern portion of campus with apartment-style housing targeted toward faculty, staff and graduate students. This second stage of campus housing development is planned in a newly designated precinct

Exhibit 4-21: Student Activities and Athletics and Recreation Precincts

currently occupied by several large surface parking lots, the Children's Center, Public Safety Services Building currently housing the campus police offices, the Art Sculpture Lab and El Dorado Hall.

The South Housing Village is within close proximity to the Academic Core and its site provides potential opportunities for views of and connection to the American River. At the same time, the site is near the South Gateway, making it convenient for the adult residents. This housing development is intended to assist the University to recruit high-quality faculty and staff and to provide a greater residential presence on the campus. The plan is for two-bedroom apartments which could also accommodate graduate students (with, potentially, two students to an apartment) or could augment the undergraduate housing capacity by housing four students per apartment. The exact number and type of units will be determined by the University through a detailed housing study and surveys of potential demand. Residential parking will be incorporated into the development.

As shown in an artist's conceptual rendering of the South Housing Village [Exhibit 4-23], the developments are intended to incorporate generous open spaces for informal gathering, planned activities and other events involving South Housing Village residents. In addition, the Master Plan's intention is to dedicate space in some or all of the buildings to provide a café, gathering areas, activity and/or meeting space.

As shown in Exhibit 4-22, a new pedestrian pathway, the East Promenade, is planned to extend from the central areas of the campus and the Academic Core to the South Housing Village. The new housing village is adjacent to the large open space just to the north, which provides a bridge and connection to Alumni Grove and the American River.

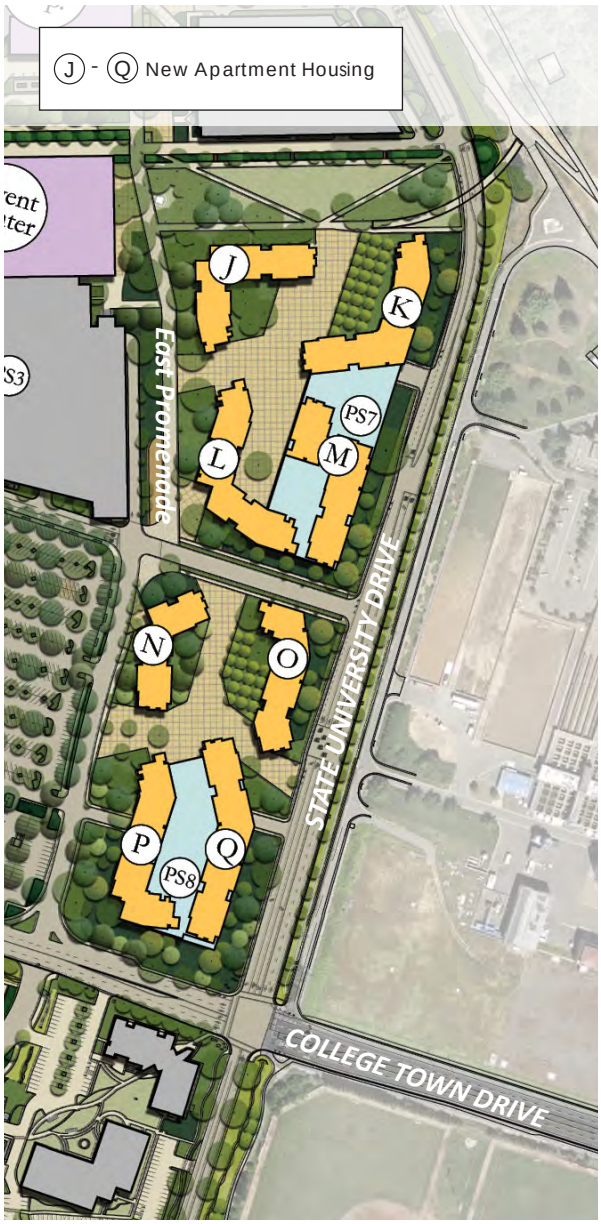


Exhibit 4-22: South Housing Village

SOUTH CAMPUS

[Exhibit 4-24]

The South Campus encompasses the area just south of College Town Drive and includes the Extended Education facilities (Modoc Hall and Napa Hall), the Capitol Public Radio facility and several large unpaved surface parking lots. This area also contains the Alumni Center, just north of College Town Drive. The South Gateway, the Children's Center and the Folsom Annex are all within the South Campus Precinct, along with Parking Structure 9 (PS9).

The 2015 Master Plan envisions that this precinct will continue to serve the University's needs for community outreach, extended education and parking.

South Gateway

The new South Gateway, with signature landscape and signage that echoes the landscape and signage at the North Gateway, will create a strong identity for the University at the south end of the

Exhibit 4-23: Artist's Rendering of the New South Village Housing

campus and will provide a clear signal to visitors that they have arrived on the campus. In progress at the time of the Master Plan report is a project to enhance the signage that guides visitors from U.S. Highway 50 to the campus.

Children's Center

The Master Plan shows the relocation of the Children's Center complex to the South Campus. In this location the Children's Center facilities can be easily expanded with appropriate outdoor play areas and a well-designed drop-off and pick-up area near the main entry to the campus from the south. The footprint shown in Exhibit 4-24 would accommodate approximately 300 children.

Parking Structure PS9

A large parking structure (PS9) is planned along the southwestern edge of the precinct. As described in Section 4.4 and in Chapter 8 [Implementation], the University will be able to determine whether this parking structure is needed or whether efforts to reduce the number of private vehicles coming to the campus is successful enough to eliminate the need to build this final parking structure.

FOLSOM ANNEX

[Exhibit 4-24]

Folsom Hall is a large office complex that was purchased by the University several years ago. Located south of the main campus at the corner of Folsom Boulevard and Hornet Drive, the facility

Exhibit 4-24: South Campus and Folsom Annex

Exhibit 4-25: Existing Central Plant

Exhibit 4-26: Existing Facilities Building

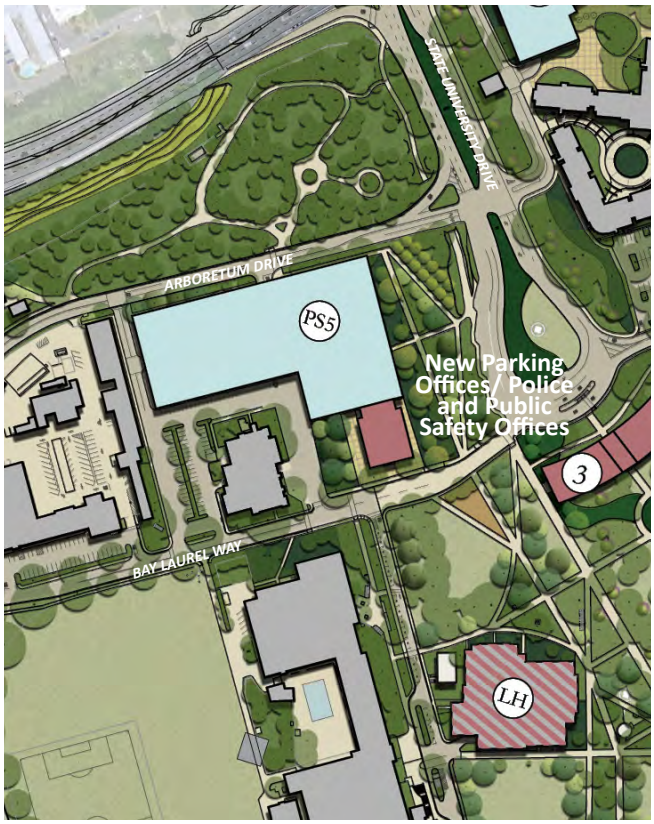


Exhibit 4-27: New Parking Service Offices and Police and Public Safety Offices, Adjacent to PS5

has been renovated over the last several years to house health education programs including Nursing. The Master Plan does not contemplate any changes to the Folsom Annex.

This precinct is served by the campus shuttle and linked via pedestrian pathways. The Master Plan includes a potential project to be undertaken with the City to widen the sidewalk under the freeway to provide a more gracious pedestrian experience and a better bicycle link to the Folsom Annex.

SUMMARY OF CAMPUS SUPPORT FACILITIES

The Master Plan provides for the campus's support facilities; these are distributed through several precincts. Descriptions of existing and recommended site utilities and infrastructure systems are included in Appendix B.

Facilities Services and Maintenance

Facilities Services and Maintenance offices, shops and vehicle parking are planned to remain in their current locations at the north of the campus.

Central Plant

The Central Plant is located just west of the Academic Core, adjacent to the tennis courts, and is expected to remain in place as the campus grows. A second central plant is not required although upgrades are recommended and are described in Appendix B to this report. The report of a concurrent project to assess the University's utilities is available from the University.

Police and Public Safety Services

Police and Public Safety Services, including offices and parking are currently located in the southeastern portion of campus, on the site of the proposed South Housing Village. At the time that these facilities are relocated, the Master Plan envisions these services in

a new facility adjacent to new Parking Structure PS5 in the North Campus, between Arboretum Drive and College Town Drive. The Master Plan provides for office space in a small building abutting the southern edge of PS5, with parking for police vehicles on a portion of the ground floor of the structure. At this new location, police vehicles will have access to a bollarded roadway that is not accessible to the public for fast access to all areas of the campus in case of emergency.

Parking Services

Parking Services offices, currently located in Folsom Hall, are also planned to be located in the new Police and Public Safety facility, adjacent to PS5.

4.4 TRANSPORTATION MANAGEMENT, VEHICLE CIRCULATION AND PARKING

VEHICLE AND PEDESTRIAN CIRCULATION PLANS

Vehicle and Pedestrian circulation are inherently tied together on any campus. At Sacramento State, the Bicycle Circulation Plan is also intrinsically connected to these two circulation plans.

Exhibit 4-28 shows the 2015 Master Plan for vehicle and pedestrian circulation. The North and South Gateways, existing roadways and existing parking structures are retained. The Vehicle Circulation Plan shows new proposed parking structure locations, roadways that are restricted to emergency and handicap access and locations for transit access to the campus.

The Pedestrian Circulation Plan shows a revised pedestrian pattern that responds to Hornet Greenway running through the Campus, beginning in the Academic Core. The Pedestrian Circulation Plan also identifies the existing Hornet Tunnel and the proposed location of a new pedestrian/bike tunnel to the 65th Street area west of the campus. These features are discussed in greater detail below. Walking distances within the Campus are shown in Exhibit 4-31. Although most facilities are within a 10- or 15-minute walk from the Library at the center of the campus, a walk from north to south can take up to 30 minutes.

Transit Center

State University Drive entry from J Street has provided good access with rapid entry and exit for Regional Transit buses and campus shuttles. As discussed in the North Campus section above, the Master Plan relocates the campus Transit Center to a site along the western edge of the State University Drive entry loop road, just south of the existing Visitor Information booth.

The Master Plan location for the Transit Center was a response to the issue of buses and shuttles currently blocking the view of the campus from the north entry, preventing the north entry from being a true gateway to the campus. This new location would allow buses to be partially screened with landscape rather than being highly visible, as they are now, at the end of this important entry road.

This relocated transit center can continue to provide public transportation access to the campus in general and to the campus performance venues in the north. The Transit Center is planned to provide parking for RT buses and to serve as a pick-up/drop off for both campus shuttles and private vehicles. The Master Plan retains the pedestrian underpass under Arboretum Way for safe pedestrian and bicycle access to the campus from the north.

The Landscape Guidelines and the signage/wayfinding recommendations that are part of the Master Plan Design Guidelines [Chapters 5 and 7] show ways to enhance the North Gateway vehicle access to the campus.

Bicycle Circulation Plan

Exhibit 4-29 shows the 2015 Master Plan Bicycle Circulation Plan. The new bike plan is based upon analysis done by the campus prior to the Master Plan project and other analytics developed by the Master Plan team. The Bicycle Circulation Plan distributes bike traffic to ensure access to all areas of the campus, and locates additional bike storage facilities to assist and encourage bike access to the campus for students, faculty, staff and visitors.

The Bicycle Circulation Plan changes a bicycle route that has been used both by those whose destination is the campus and those who are using the campus as 'cut-through' to the regional bike trail system. The new bike plan eliminates Sinclair Road as an option and re-routes the bike path to just south of the University Union and north of the South Green for access to Hornet Tunnel.

The changes to the bike path were made in response to significant numbers of comments during the master plan outreach process that identified the Sinclair Road portion of the existing bike route as hazardous to pedestrians in the Academic Core. Analysis by the Master Plan traffic engineering team shows that for an adult cyclist traveling 11.5 mph, the revised route adds only 37 seconds of travel time to the east-west bicycle trip through the campus.

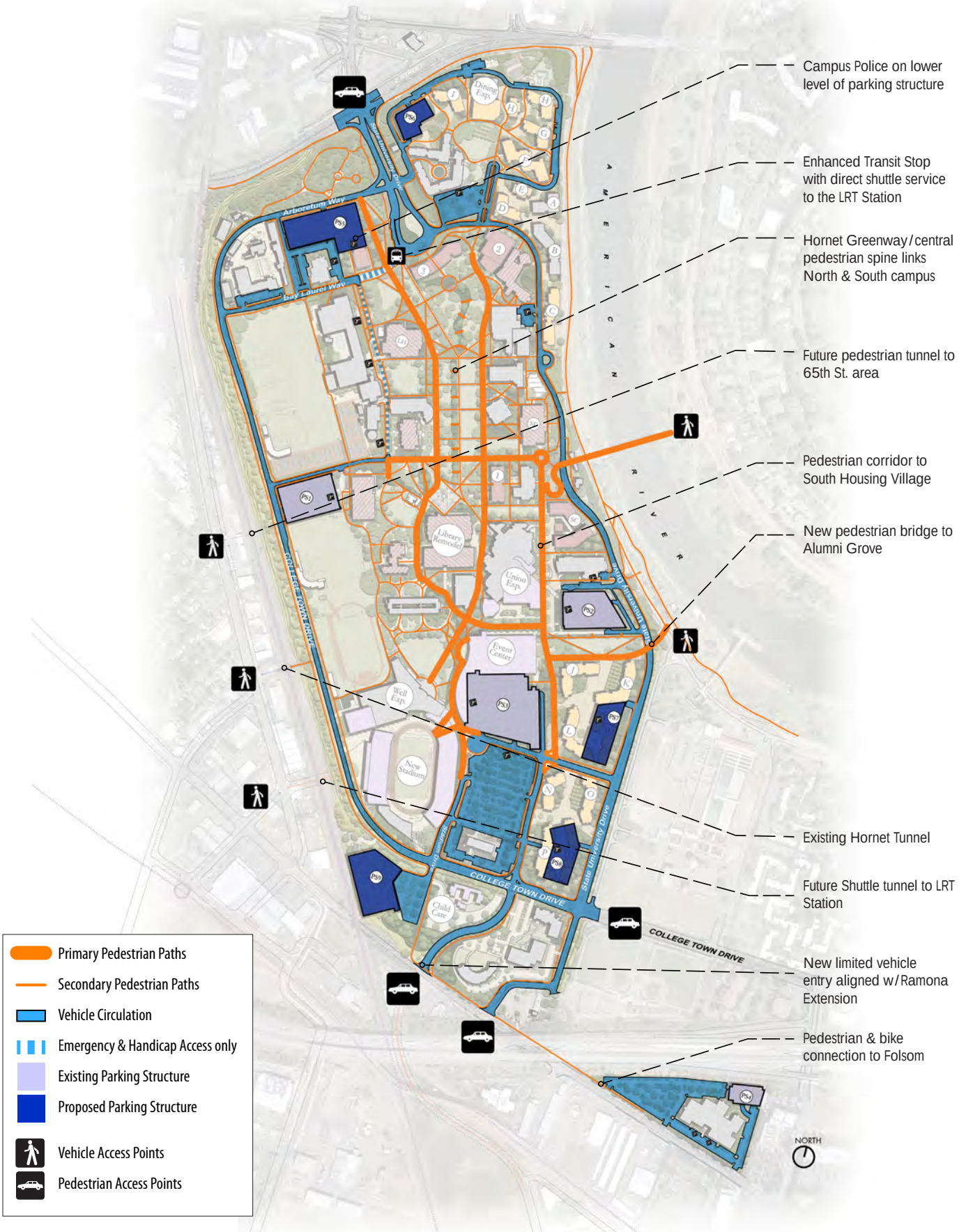


Exhibit 4-28: 2015 Master Plan Pedestrian and Vehicle Circulation

Exhibit 4-29: 2015 Master Plan Primary Bike Routes

Pedestrian Circulation Plan

The Pedestrian Circulation Plan is described in detail in Section 5.4 [Landscape Guidelines].

MASTER PLAN APPROACH TO TRAFFIC AND PARKING MANAGEMENT

Like many other CSU campuses built in the 1950s and 1960s, Sacramento State was originally developed as a commuter campus and therefore required ample parking, typically provided in large surface parking lots on the campus periphery. Several large surface parking lots still remain in the north and south of the campus.

2015 MASTER PLAN PARKING STALL COUNT					
FACILITY #	**NEW/ REPLACE/ REMODEL**	**FACILITY TYPE**	**# STALLS/FL**	**# FLOORS**	**TOTAL STALLS**
PS5	New	Parking Structure: North Campus (with Police and Parking offices)	274	6	1,645
PS6	New	Parking Structure: North Housing Village	107	5	535
PS7	New	Parking Structure: Apartments in South Housing Village	190	3	570
PS8	New	Parking Structure: Apartments in South Housing Village	190	3	570
PS9	New	Parking Structure: South Campus	300	6	1,800
		Total New Parking Stalls			5,120
PS1	Retained	Parking Structure			1,788
PS2	Retained	Parking Structure			1,000
PS3	Retained	Parking Structure			2,987
PS4	Retained	Parking Structure			181
	Retained	Student Lot 1 (Partial)			182
	Retained	Student Lot 2 (Partial)			225
	Retained	Student Lot 3			15
	Retained	Student Lot 8			882
	Retained	Student Lot 9 (Partial)			68
	Retained	Student Lot 11			156
	Retained	Student Lot 14			540
	Retained	Capital Public Radio Surface Lot			57
	Retained	Capistrano Hall			5
	Retained	Eureka Hall			4
	Retained	Kadema Hall			2
	Retained	Sequoia Hall			3
	Retained	Shasta Hall			1
	Retained	Yosemite Hall			6
	Retained	Bookstore			6
	Retained	Library			6
	Retained	Stadium			4
	Retained	USGS			4
		Total Existing Stalls			8,122
		TOTAL CAMPUS PARKING STALLS (NEW + EXISTING)			**13,242**

Exhibit 4-30: 2015 Master Plan New and Existing Parking Stall Count

Exhibit 4-31: Pedestrian Walking Distances

With the growth of enrollments and parking demand, the University added three parking structures (PS1 on the west side, PS2 on the east side and PS3 in the south).

The campus outreach program during the Master Plan process made it clear that vehicle congestion on the campus perimeter roads (State University Drive and College Town Drive) has risen, at least in part because the majority of the parking resources are in the southern half of the campus. In addition, while analyzing the existing campus and planning for the future, it became apparent that the existing surface parking lots were, in many cases, the most logical development sites. In particular, it was logical that much of the campus growth and development would be accommodated in the south, where many of the of existing surface parking lots are located.

Based on these observations, replacement and new parking to accommodate projected campus needs would need to be provided in additional structures. The 2015 Master Plan strategically locates new parking structures both in the north and the south, as well as within the housing precincts.

The Master Plan provides adequate parking for the 25,000 FTES enrollment cap. The Master Plan parking facilities, including existing facilities to be retained, are described in Exhibit 4-35; this table shows size, number of spaces provided and other information about the parking facilities.

Exhibit 4-28 show the location of new and existing parking structures and surface parking lots.

Traffic

At current enrollment levels, traffic congestion in and around the Sacramento State campus is currently at unacceptable levels. The campus has built three large parking structures for commuting students, faculty, staff and visitors. As the campus increases enrollment to its current cap of 25,000 FTE, even with an increased complement of residential students, this situation will progressively worsen unless the campus can successfully change the driving habits of campus users.

VEHICLE TRIPS ANALYSIS: EXISTING CONDITIONS AND FUTURE SCENARIOS				
TIME PERIOD	**EXISTING CONDITIONS: 69% DRIVE-ALONE VEHICLES**	**25,000 FTE WITH EXISTING MODE SPLIT**	**25,000 FTE REDUCING DRIVE-ALONE TRIPS BY 10 PERCENTAGE POINTS**	**25,000 FTE REDUCING DRIVE-ALONE TRIPS BY 19 PERCENTAGE POINTS**
AM Peak Hour Vehicle Trips	4,410	4,420	3,910	3,400
PM Peak Hour Vehicle Trips	4,380	4,580	4,050	3,530
Source: Traffic Counts, January 2014				

Exhibit 4-32: Vehicle Trips Analysis: Existing Conditions and Future Scenarios

2015 MASTER PLAN PARKING SCENARIOS: EXISTING AND FUTURE CONDITIONS				
PARKING TYPE	**EXISTING SPACES: 69% DRIVE-ALONE VEHICLES**	**25,000 FTE WITH EXISTING MODE SPLIT**	**25,000 FTE REDUCING DRIVE-ALONE TRIPS BY 10 PERCENTAGE POINTS**	**25,000 FTE REDUCING DRIVE-ALONE TRIPS BY 19 PERCENTAGE POINTS**
Commuter Parking	12,517	11,377	10,100	8,800
Resident Student	715	1,719	1,719	1,719
Resident Faculty/Staff	0	146	146	146
TOTAL	**13,232**	**13,242**	**11,965**	**10,665**
Source: Existing spaces derived from CSUS parking data				

Exhibit 4-33: 2015 Master Plan Parking Scenarios: Existing and Future Conditions

The Master Plan team's transportation engineers analyzed the vehicle trips for morning (AM) and afternoon (PM) peak periods. This data is shown in Exhibit 4-32. The engineers also analyzed the parking demand, identifying the number of commuter students, residential students and faculty and staff parking stalls currently used and required in the future. This data is shown in Exhibit 4-33 below.

'Mode split' or 'modal share' is the term used to refer to the percentage of travelers using a particular type of transportation or the number of trips using that specific type of transportation; for example, the number of trips by automobile, public transit or bicycle. A review of data at Sacramento State shows that the current mode split is dominated by single-occupant or 'drive-alone' vehicles: of all vehicles coming to the campus daily, 69% have only one occupant. If the University can reduce that percentage, even by a small amount, the impacts in reduced traffic congestion, parking demand and greenhouse gases could be significant.

Mode split is important in developing a sustainable transportation strategy for the campus. Successful solutions that reduce traffic generation and congestion usually involve encouraging the use of alternate means of transportation for those coming regularly to the campus and even for occasional visitors. Alternative transportation modes include public transit, bicycles, ride-sharing, van pools, and increased shuttle use, among others.

In recent years, many campuses and cities have set mode split targets in order to achieve a balanced and sustainable transportation system, usually targeting an increase in the proportion of trips made using more sustainable modes. The goals of such campaigns often involve incentives that encourage people to consider alternative modes of transportation.

Analysis of traffic and parking data. The transportation engineers analyzed current conditions [shown as "Existing Conditions" in 4-32 and 4-33] and then projected these conditions to an increased campus population of enrollments reaching the 25,000 FTES cap.

As the campus grows to its cap of 25,000 full-time equivalent (FTE) students, the corresponding level of traffic growth will depend on the mode split achieved by the University.

Parking

Parking demand at Sacramento State is of course, directly related to the numbers of trips coming to the campus on a daily basis. If the campus can successfully initiate strategies that will change the mode-split and reduce the number of drive-alone trips there would be a corresponding reduction in the parking demand. This can be significant since most new spaces will need to be provided in parking structures, in which each space can be estimated to cost $25,000-$30,000 to build at current construction rates.

Exhibit 4-33 follows a similar logic to Exhibit 4-32 and shows the projected parking demand under three hypothetical mode-split scenarios if the campus grows to its cap of 25,000 FTES enrollments. The number of faculty and staff were increased statistically to match the increase to 25,000 enrollments, and in this table, the parking demand for undergraduate residents and for the faculty/staff South Housing Village are included in the projection of total campus parking demand.

1. With the existing mode split, the parking demand can be projected to be 13,242 parking spaces; this represents 10 new parking spaces beyond the current supply.
2. With a Scenario 1 Mode Split that reduces drive-alone trips by 10 percentage points (from 69% to 59%), the parking demand can be projected to be 11,965, or a decrease of 1,267 from the current supply.
3. With a Scenario 2 Mode Split that reduces drive alone trips by 19 percentage points (from 69% to 50%), the parking demand can be projected to be 10,665, or a decrease of 2,567 spaces from the current supply.

TRANSPORTATION DEMAND MANAGEMENT: MASTER PLAN GOALS FOR REDUCTION OF TRAFFIC AND PARKING DEMAND

Based on the above analysis, the 2015 Master Plan recommends a series of policies and actions that are designed to reduce congestion and parking demand by focusing on reducing the drive-alone mode share a series of strategies that appear to be realistic and consistent with the University's existing efforts in this area of concern are described in Exhibit 4-34.

The 2015 Master Plan has been based on the premise that Sacramento State will adopt the necessary policies and incentives to effect a relatively modest change to the existing mode-split targeting a reduction in drive-alone trips by 10 percentage points -- from the current 69% to 59%. The Master Plan assumes that these strategies will be successfully implemented and that parking demand will be correspondingly reduced. The Master Plan provides a total of 13,200 spaces on the campus to reflect the mode split shown in Exhibit 4-33.

RECOMMENDED STRATEGIES TO REDUCE SINGLE-OCCUPANCY VEHICLE TRIPS		
TRANSPORTATION DEMAND MANAGEMENT STRATEGY	**CURRENT PRACTICE AT CSUS**	**SUGGESTION FOR FURTHER DRIVE-ALONE REDUCTION**
Parking Pricing	Semester Permit Prices: • Student - $162 • Residence Hall - $210 • Faculty/Staff - $63-$212 http://www.csus.edu/aba/utaps/parking/permit-fees.html	• Increase permit fees • Parking pricing based on distance of parking lot from center of campus • No on-campus parking for freshmen
Transit Service	CSUS Commuter Sleeves: • Free for students (paid through student registration fees) • $40 per semester for employees	• Reduce price of staff commuter sleeve • Improve transit access for pedestrians — make it easier to get to the transit station
Bicycle and Pedestrian Amenities	• Bike parking: bicycle compound (staffed to prevent theft), bike lockers, bike racks • Peak Adventures has on-campus bike shop	• Expand additional on-campus bike parking • Construct/staff "bike station" with high-quality bike parking, bike shop, repair station, and commuter showers • Implement bike sharing on campus to connect to the planned Sacramento/Davis system $4M grant funds, launch 2015 • Improve campus access for bicyclists and pedestrians
Campus Housing and Amenities	• 1,674 existing residential units	• Increase the amount of housing and amenities provided on campus
Car-sharing	• Two Zipcars at residence halls	• Work with Zipcar or other car-sharing providers to increase the number of cars on campus, including at non-residential locations • Provide reduced memberships for car-sharing
Ride-matching	• Operated through the Sacramento Transportation Management Association (TMA)	• Setup CSUS-specific ride-matching program using service such as Zimride
Carpool and Vanpool Incentives	• 205 carpool and vanpool parking spaces available • Carpoolers can share a pass but there is no parking subsidy • Vanpool service via Enterprise Rideshare and Sacramento TMA	• Provide reduced-cost parking permits for carpooling/vanpooling
Shuttle Service	• Hornet Shuttle	• Provide more service (increased service hours, frequency, etc.) on Hornet Shuttle • Enhance service between 65th Street Light Rail station and campus

Exhibit 4-34: Recommended Strategies to Reduce Single-occupancy Vehicle Trips

RESIDENTIAL PARKING

Residential parking is accommodated near residential areas. In the North Housing Village, a new parking structure (PS6) is planned for the northwest corner of the village and one surface lot at the southwest corner remains and the roadway is reconfigured to accommodate new facilities. In the South Housing Village, two parking structures (PS7 and PS8) are scheduled to be constructed along with the apartment-style buildings to provide residential parking.

Undergraduate Housing

The increase in campus housing has a direct impact on the amount of parking the University must supply and the number of vehicle trips to the campus. The Master Plan parking projections reflect an increase in undergraduate housing capacity from 1,672 beds today, to up to 2,500-3,000 new beds, plus the existing 606 beds in the American River Courtyard, to be retained.

This increase has a very beneficial effect on the parking facilities the University must supply. By the final phase of the 2015 Master Plan, when all new undergraduate housing beds are constructed, the number of undergraduate residential parking spaces could be more than double, but the number of student commuter parking spaces can decrease, even with no assumed change in mode split for commuting students. With the addition of a transportation demand management strategy like the one being described in this report, the University will see a significant decrease in the number of parking spaces required; this decrease is reflected in the total number of Master Plan parking spaces projected.

Projections for undergraduate student resident parking demand assume that student resident parking is provided at the same per-resident rate at which it is provided today.

South Housing Village: Faculty, Staff and/or Graduate Student Housing

The South Housing Village includes parking for residents; the Master Plan shows 250-300 2-bedroom apartments in this residential complex. There are several different sources of information that can be used to determine the required parking for apartment-style buildings. The Institute of Transportation Engineers' (ITE) Parking Generation shows the average parking generation of a suburban, low/mid-rise apartment to be 1.23 vehicles per dwelling unit. The City of Sacramento Multi-Family Dwelling Unit parking requirement for this area is one parking space per unit. Based on these standards, between 250 and 400 spaces for the apartment village appears appropriate. This is generally consistent with the parking being provided for a similar project in Davis, where the developer is providing 1.18 spaces per unit.

Parking Structures 7 and 8 (PS7 and PS8), shown in the Master Plan, include a total of 1,140 spaces; these facilities will provide parking for residents, with the remainder of the spaces being used for general campus parking supply. When the parking structures are designed, we recommend they include a key-card access to the residential parking area to provide safe access.

COMMUTER AND VISITOR PARKING FACILITIES

The Master Plan adds a total of five parking structures to the campus; for the most part, these are planned for existing surface parking lot sites, shown in Exhibit 4-35. The strategy for providing parking is to better distribute the parking facilities in order to reduce congestion on perimeter roads. For this reason, PS5, a large parking structure in the North Campus is one of the first scheduled to be constructed.

Exhibit 4-30 shows the number of parking stalls planned for the parking structures and surface parking lots in the Master Plan. By the final phase of Master Plan implementation, the campus will have up to 13,242 parking spaces. As mentioned above, this is the level of parking targeted by the Alternative Transportation Plan's target to reduce drive-alone vehicle trips by 10 percentage points. If the campus is successful in further reducing vehicle trips to the campus, it may be possible to omit the final parking structure (PS9) in the South Campus.

All new parking structures can provide parking in five or six above-grade levels including the roof level. Furthermore, the Master Plan recommends that the University consider a new parking management system that assigns commuters to parking zones throughout the campus rather than the current system of open assignments, which encourages drivers to roam throughout the campus seeking a parking space. Such a management system could reduce vehicle circulation on campus perimeter roads and would ensure a more even distribution of incoming vehicles to the campus, making best use of the parking facilities.

Parking Lot 8 within the Student Activities Precinct has been preserved; although this site may become a development site in the longer term, it is an important site for tailgating parties and other student activities.

Exhibit 4-35: 2015 Master Plan New Parking Structures

Exhibit 4-36: 2015 Master Plan Service Access

Exhibit 4-37: 2015 Master Plan Emergency Access

CAMPUS ROADWAYS

The two campus perimeter roads, State University Drive and College Town Road, remain as they exist. With increased parking facilities at the north, it is anticipated that the amount of through-traffic on these roads will be reduced, by reducing the number of drivers seeking parking spaces. As mentioned above, the University may also consider using an assigned-parking permit strategy to better manage the congestion created by those traveling the roadways and parking lots seeking convenient parking.

Within the campus, Bay Laurel Way has been closed to routine traffic between the State University Drive entry loop road and the corner of Bay Laurel and Moraga Drive. Similarly, Moraga Drive has been closed to routine traffic. Both of these roadways are open to service and emergency vehicles and Moraga Drive continues to provide accessible parking.

The loop road within the North Housing Village has been reconfigured to accommodate the new parking structure (PS6) and the replacement housing buildings.

An additional campus entry from the south will be available when the City completes the Ramona Avenue Extension. Although this entry road is not expected to absorb a great deal of the traffic coming from the south, it could help reduce the number of cars attempting to enter the campus at the corner of College Town Drive and State University Drive.

SERVICE AND EMERGENCY ACCESS

Service and emergency vehicle routes and service parking areas adjacent to each building are shown in Exhibit 4-36 and Exhibit 4-37. For the most part, existing service areas have been retained. Wherever possible, proposed new service areas are located so as to serve more than one new or existing building. As with current practice, the major pedestrian pathways through the campus [shown in Exhibit 4-37] will be configured and constructed to accommodate emergency vehicles.

CHAPTER 5

LANDSCAPE GUIDELINES

SACRAMENTO STATE

Chapter 5: Landscape Guidelines

Sacramento State's 300 acres provide a memorable backdrop for the college experience. With the picturesque American River to the east and the University Arboretum, a three-acre botanic garden, to the north, the campus community prides itself on being sustainable and environmentally responsible. The CSU Sacramento campus enjoys a signature landscape environment with over 3000 mature and diverse tree species. Because of the richness of this landscape legacy and history, the campus has been designated as a "Tree Campus USA" by the Arbor Day Foundation.

The quality of the campus landscape is a recognizable part of Sacramento State's 'brand.' The components of the landscape – tree-lined campus roadways, pedestrian pathways, and plazas – are critical features of the campus aesthetic and work to reinforce the integrative role of open space: creating connections between landscape and structures, and producing a comfortable, human-scaled setting for educational activities.

The 2015 Master Plan proposes a program of new facilities, a reorganized pedestrian pathway system, the new Hornet Greenway and Grand Central Quad that organizes landscape and activities in the Academic Core, new housing developments, and new open spaces that are created by the eventual removal of a number of older campus structures and the siting of the new campus features. These master plan features are described in detail in Chapter 4. Phasing and implementation of new facilities and features is shown in Chapter 8.

This Landscape Guidelines chapter should be read in conjunction with Chapter 6, Sustainability Guidelines. These two components of this report comprehensively describe the master plan recommendations for the Sacramento State campus natural environment. Chapter 7, Master Plan Design Guidelines, provides design direction and recommendations for campus landscape, site furnishings sustainability program and signage/wayfinding system, as well as design direction for campus buildings.

Exhibit 5-1: Artist's Rendering of the New Grand Central Quad

The 2015 Landscape Guidelines have been developed to complement and reinforce the features of the Facilities Master Plan. The Landscape Guidelines provide a framework for addressing the use of natural and hardscape materials within campus open space, and is aimed at integrating the University's approach to the design of its open spaces and use of natural and man-made materials. The Landscape Guidelines show how to maintain, reinforce and create the appropriate relationship between open space and the other elements of the campus: pedestrian circulation, roadways, buildings, and parking.

Taken as a holistic plan, the Landscape Guidelines provide a way for the University to use the natural environment to:

- Incorporate landscape into the overall campus sustainability program;
- Integrate the main areas of the campus with the University Arboretum;
- Unify the appearance of the campus and continue the campus tradition of maintaining a diverse collection of trees, shrubs and groundcovers;
- Showcase buildings, open spaces and other campus elements by effectively using plant and hardscape materials;
- Provide a hierarchy and diversity of outdoor spaces and develop or reinforce the recognizable character of the major campus open spaces;
- Reinforce the University's identity and signage/wayfinding system by using an integrated approach to landscape at the campus entries;
- Support and integrate the existing pedestrian circulation system, establish safe pedestrian circulation in areas currently not well-served, and establish human scale in the pedestrian environment;
- Respond to the range of climatic conditions by establishing comfortable micro-climates and providing shade along walkways and in outdoor seating and gathering areas;
- Use lighting, open space and site furnishings to contribute to the perception and actuality of a safe and secure campus;
- Minimize the visual and acoustic impacts of automobiles and parking facilities and soften and/or screen undesirable features in the environment; and
- Conserve human and natural resources by recognizing the need to reduce water and maintenance requirements for planted areas.

5.1 ILLUSTRATIVE LANDSCAPE PLAN

The Illustrative Landscape Plan shown in Exhibit 5-2 and Exhibit 5-4 are conceptual landscape plan for the Sacramento State campus. It is consistent with the Master Plan Principles and Planning Framework developed to enact the Master Plan Vision Statement [Chapter 3]. The Illustrative Landscape Plan represents one of a number of possible ways in which natural and hardscape materials can be deployed on the campus in support of the 2015 Master Plan. Variations on this conceptual Illustrative Landscape Plan are acceptable if the Planning Principles, Objectives and Design Guidelines in this report are observed. For the remainder of this report, the Illustrative Landscape Plan will serve as the basis for the Landscape Guidelines described here and elsewhere.

The Landscape Guidelines:

- Proposals for new open space, landscape character and plant materials to create a signature landscape for the campus and reinforce campus identity;
- Recommendations for the development and reinforcement of the pedestrian circulation system, including recommendations for plant and paving materials;
- Proposals for the selection and use of plant materials for campus open spaces, including redeveloped and new quads and courtyards created by the siting of new buildings;
- Concepts for landscape and hardscape at the new and reconfigured campus entries; and
- Concepts for landscape at campus roadways.

A discussion of sustainability measures that are recommended for the CSU Sacramento campus landscape are shown in Chapter 6. A series of palettes for plant materials is found in Appendix A and suggestions for site furnishings, lighting fixtures and irrigation systems are included in Chapter 7.

LEGEND

- Hornet Greenway/ Rain Gardens
- Riparian Corridor Planting
- Lawn
- Turf Replacement/ Shrub and Groundcover Planting
- Permeable Pavement
- Existing Tree Canopy
- Large Deciduous Shade Tree
- Large Evergreen Shade Tree
- Large Riparian Tree
- Medium Deciduous Shade Tree
- Small Riparian Tree
- Small Understory/ Ornamental Tree
- Edible Orchard Trees
- (A) Arboretum
- (B) Arboretum Expansion
- (C) Edible Garden (4 sites)
- (D) Consolidated Bicycle Parking (5 sites)
- (E) Art Installation Site (10 sites proposed)
- (F) Outdoor Classroom/ Gathering Area (2 Sites)
- (G) Event Lawn (2 sites)
- (H) Athletic Field (4 sites)
- (I) Intramural/ Informal Recreation Field (3 sites)
- (J) Event Center Entry Plaza (2 sites)
- (K) Expanded Library Quad
- (L) Pedestrian Crossing Plaza
- (M) New Bicycle/ Pedestrian Bridge
- (N) Sciences Esplanade
- (O) Hornet Promenade
- (P) Event Center Promenade
- (Q) Arts Village
- (R) Entry Monument Signage and Landscape

Exhibit 5-2: 2015 Illustrative Landscape Plan

LANDSCAPE MASTER PLAN

Approach

The existing campus landscape is characterized by its mature trees and by a series of quads, courtyards and plazas linked by a network of tree-lined pathways. These features provide a gracious and verdant setting for campus buildings and a strong pedestrian-oriented framework for the campus. The quads, courtyards and plazas created or reinforced by the 2015 Master Plan will vary in their size, character and use. The role of trees in providing shade along walkways and in seating areas is particularly important, given the hot, dry climate during much of the year in the Sacramento area. The existing landscape approach makes use of signature tree species such as redwoods and evergreens in some open spaces and along some pathways.

Landscape Master Plan Concepts

Like many established campuses, the existing campus landscape incorporates trees, shrubs and turf grass that require high levels of irrigation and maintenance. Consistent with its emphasis on sustainability throughout the campus, the University has begun to adopt a more sustainable approach to the selection of plant materials and maintenance strategies. The goal of the Landscape Guidelines is to reinforce this approach.

The Landscape Guidelines recommendations focus on using campus landscape as the opportunity for an integrated approach to sustainability and the treatment of stormwater runoff, which is an additional maintenance issue the campus is now confronting.

- Open spaces adjacent to buildings are used as planted water retention areas, or 'rain-gardens'.
- Turf areas are replaced by low-water-use plantings where appropriate.
- Sustainable, drought-resistant plantings are recommended for all areas of the campus.

The Landscape Guidelines retain the formal landscape character of some of the campus' primary courtyards and quads that serve as gathering places and activity areas for the University, and adopts a more informal but sustainable approach in other campus areas.

Quads and courtyards are conceived as pedestrian-oriented oases within the overall campus landscape, with shade trees and convenient seating, appropriate lighting and other site amenities. Pathways between quads and courtyards are planted with trees to promote outdoor comfort.

In contrast the more formal plazas, quads and courtyards, the Landscape Guidelines recommend that informal open spaces be characterized by a more "pastoral" landscape with a more sustainable landscape palette of long-lived, low-maintenance, drought-tolerant plants that reinforce the University's identity. Native trees, native accent and flowering plants and shrubs, and natural-grass groundcovers will add to the "signature" landscape for the campus. A list of candidate tree and plan species that will reinforce these landscape concepts is included in Appendix A.

5.2 FEATURES OF THE 2015 LANDSCAPE GUIDELINES

HORNET GREENWAY

The Master Plan's central organizing feature is the Hornet Greenway. This new passageway through the campus incorporates plantings, pathways and stormwater management features, and will become an indelible component of the University's identity and brand.

The Greenway runs through the entire campus from north to south, linking the Arboretum to the main part of the campus. Within the Academic Core, the 2015 Landscape Guidelines envision a significant expansion of the existing campus open space system by removing older buildings in the heart of the campus that have reached the end of their life-cycle; and their functions are replaced elsewhere. This allows the creation of a large central open space, referred to as the Grand Central Quad. This Quad connects the existing Main Quad and Arboretum with the Library Quad, creating a continuous open space from the north to the midpoint of the campus. The Greenway continues to the south, changing form as it passes through areas of existing and new facilities.

The Hornet Greenway's stormwater management system consists of a series of linked landscape areas constructed to capture and filter stormwater and irrigation water runoff. The cleaned water is then able to flow into the water table or is pumped to the American River. Exhibit 5-3 is a schematic diagram of the way the Hornet Greenway's system will direct and filter stormwater runoff. The pedestrian pathway system through the Academic Core is focused on the Hornet Greenway, with paths placed on its edges and crossings at numerous points.

As shown in Exhibit 5-4, the Hornet Greenway links the existing

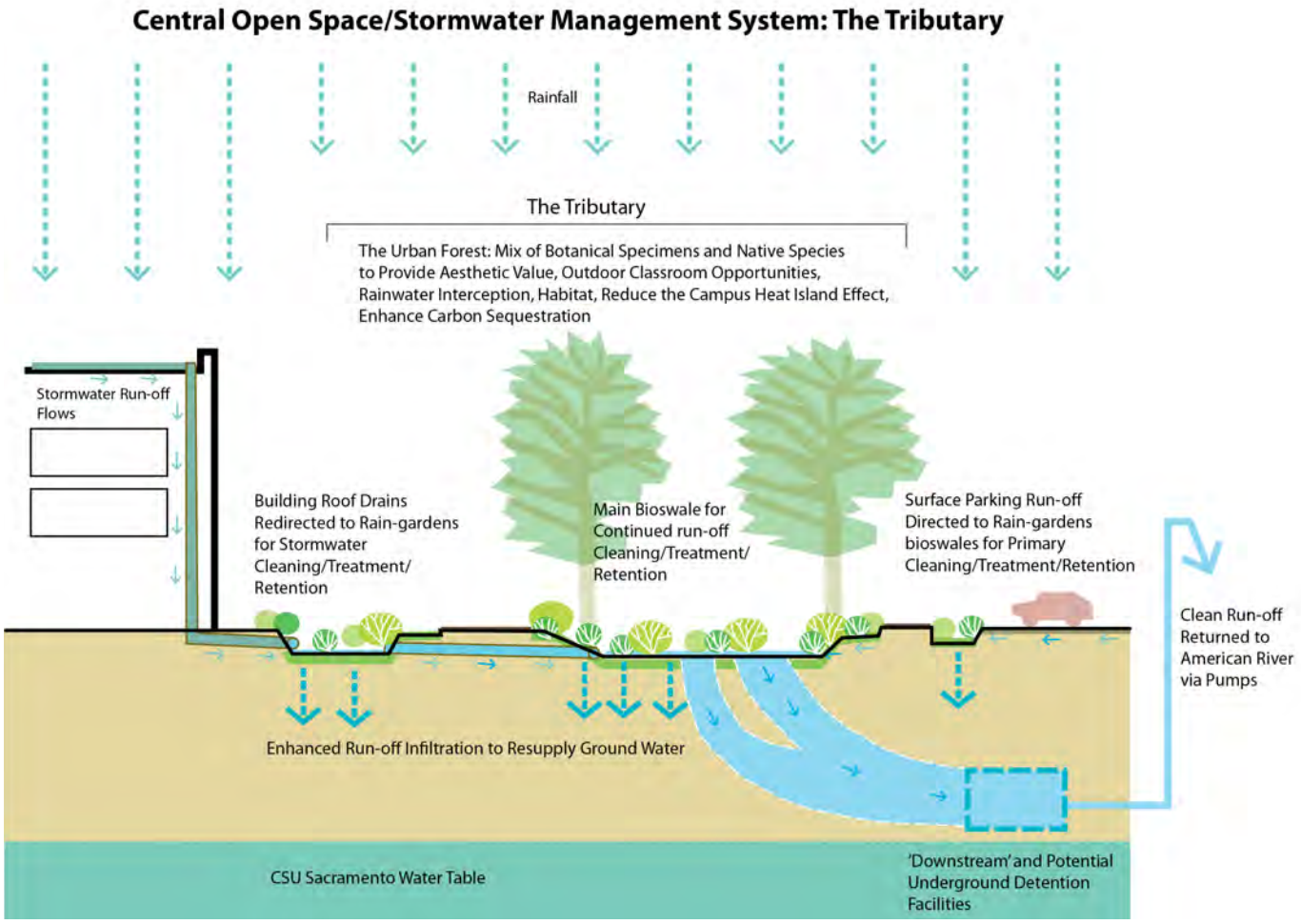


Exhibit 5-3: Campus Stormwater Management System Schematic Diagram

Arboretum and a new Arboretum Expansion in the north with new and redeveloped major open spaces: the North Gateway vehicle/bicycle/pedestrian entry; the Academic Core, with expanded informal activity space; and the South Green student activities quad, defined by the Well and the new Student Events Center. The Hornet Greenway then extends further south past the Stadium. Just as in the larger open spaces, the Hornet Greenway creates and frames retention areas in smaller open spaces that are planted with native, drought-tolerant plants to continue the important bioswale function as the Greenway continues toward Folsom Boulevard. This new landscape/sustainability feature will be implemented over time, as buildings are removed, remodeled or newly constructed.

The Hornet Greenway stormwater management system is designed to improve the quality and reduce the quantity of storm and irrigation water runoff within the campus. Runoff captured by the bioswale areas will be filtered through the planted soil profile to mitigate pollutants in the runoff water before returning it to the American River or infiltrating into the water table. Pollutants include oils and heavy metals associated with vehicles as well as fertilizers, herbicides, and pesticides associated with lawn and plant maintenance. Water quantity mitigation is provided by slowing and detaining run-off within the Greenway planted areas, which will lessen demand and impacts on existing infrastructure and reduce localized flooding.

The descriptions and landscape section drawings that follow illustrate in significant detail how the elements of the Hornet Greenway and other areas of the Landscape Master Plan should be designed and constructed, and how they are expected to operate. This will allow the University to implement the system as the opportunities present themselves.

The Hornet Greenway will be comprised of visually-connected yet

Exhibit 5-4: Landscape Guidelines: Key Map
For landscape section Exhibit 5-5 through Exhibit 5-21.

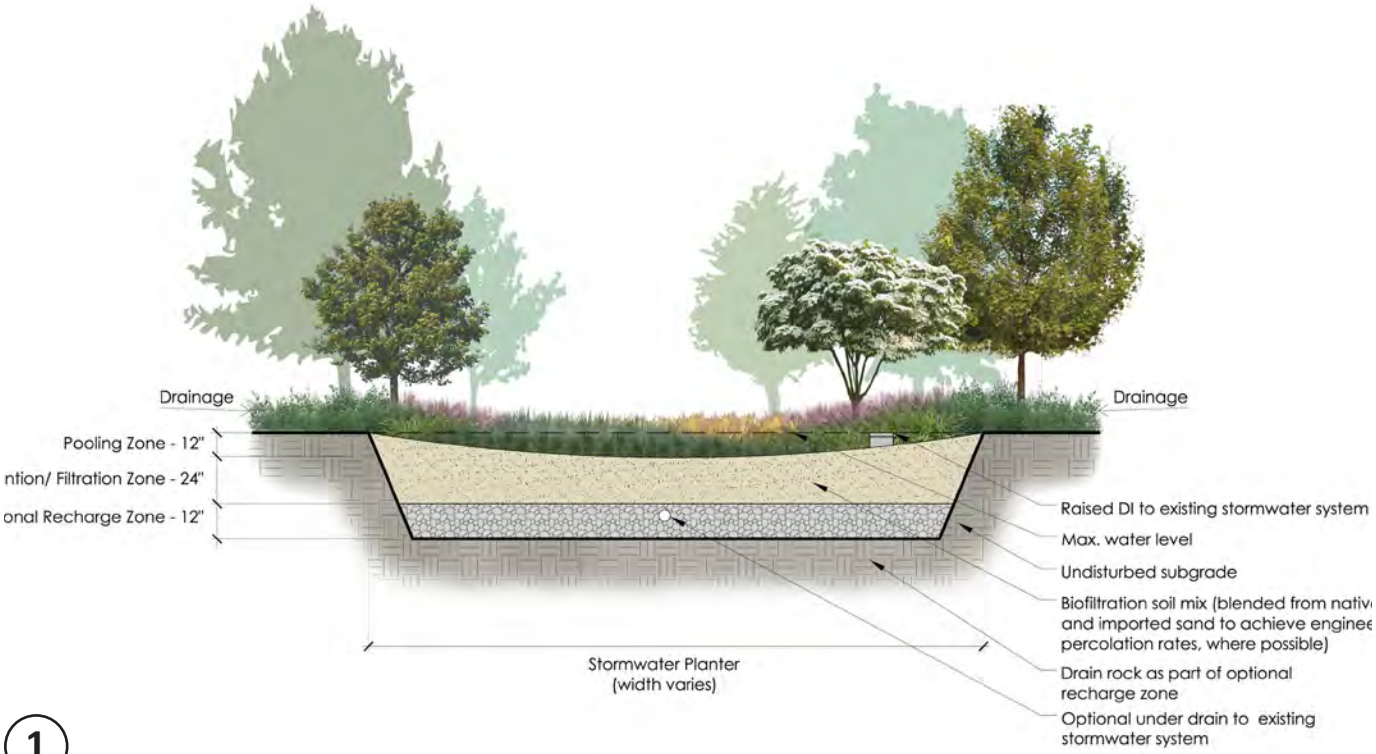


Exhibit 5-5: Typical Hornet Greenway Section

physically independent stormwater management cells positioned at existing low points and drain inlets to maximize the amount runoff captured. Exhibit 5-5 and the landscape section drawings that follow show schematic concepts for the construction of Hornet Greenway and other gardens that are integral to the Landscape Guidelines.

Existing campus conditions can be adapted to this system in the following ways:

- Existing trees and their sensitive root zones will be undisturbed;
- Central campus ground planes will drain to Hornet Greenway bioswale/retention areas;
- Water from outlying areas and building roofs can be piped to Hornet Greenway bioswale/retention areas;
- Planted bioswale gardens at existing drain inlets and low points will capture run off without changing the site's grading;
- Existing drain inlets will be raised to provide overflow drainage during significant storm events; and
- The majority of run off will be allowed to infiltrate back into the water table or move via sub-surface drainage.

In addition to its water quality and quantity benefits, the Hornet Greenway will enhance the University's brand and identity as a sustainable campus. Hornet Greenway will provide a unique, recognizable landscape that is connected, through plantings and hardscape, to the other sustainability features of the campus:

- Stormwater planters and rain gardens will replace smaller lawn areas throughout the campus, activating previously underutilized spaces and reducing irrigation requirements; and
- Stormwater planting palettes include a diverse group of California native and adaptive species.

The stormwater management system offers educational opportunities such as curriculum tie-ins with the Engineering and Biology departments that could include design, installation, function, maintenance and monitoring of the system.

- The Hornet Greenway provides opportunities for overlooks, gathering areas, and outdoor classrooms which directly interact with the bioswale.
- The Greenway will facilitate wayfinding by reinforcing pedestrian circulation and framing vistas.

Exhibit 5-13through Exhibit 5-18 show examples of planted areas similar to the landscape concepts being described in this chapter.

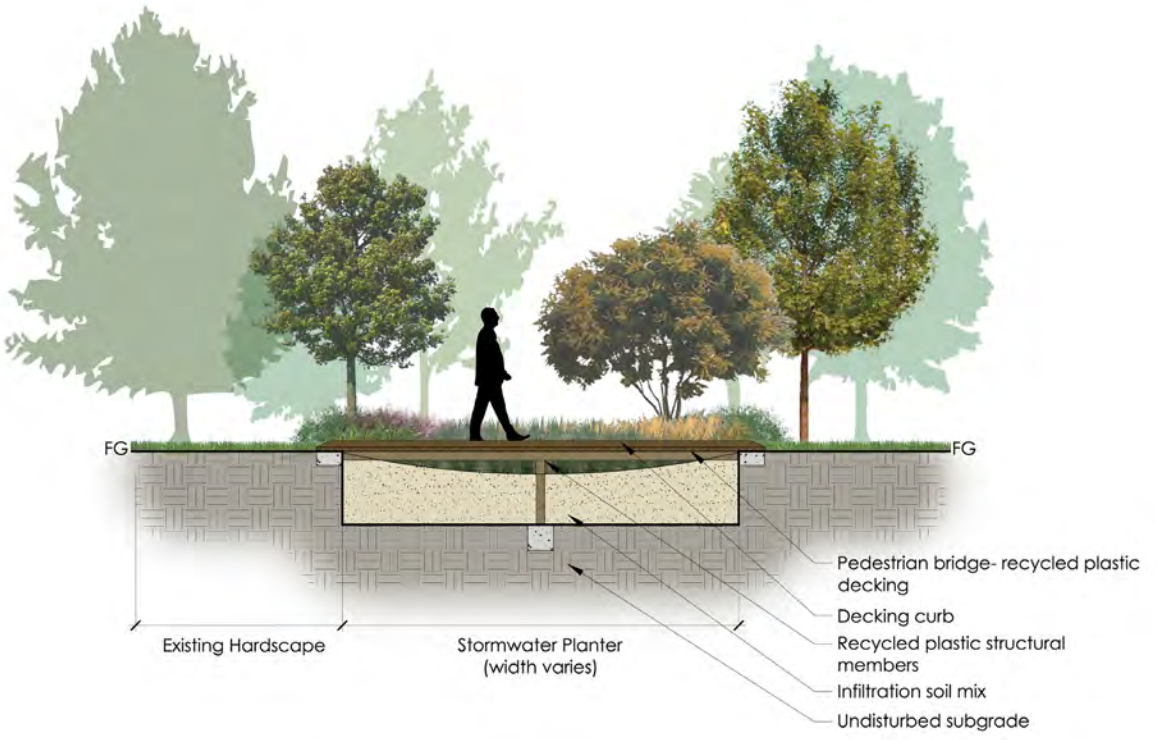


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Exhibit 5-6: Desire Line Pedestrian Crossing at Hornet Greenway

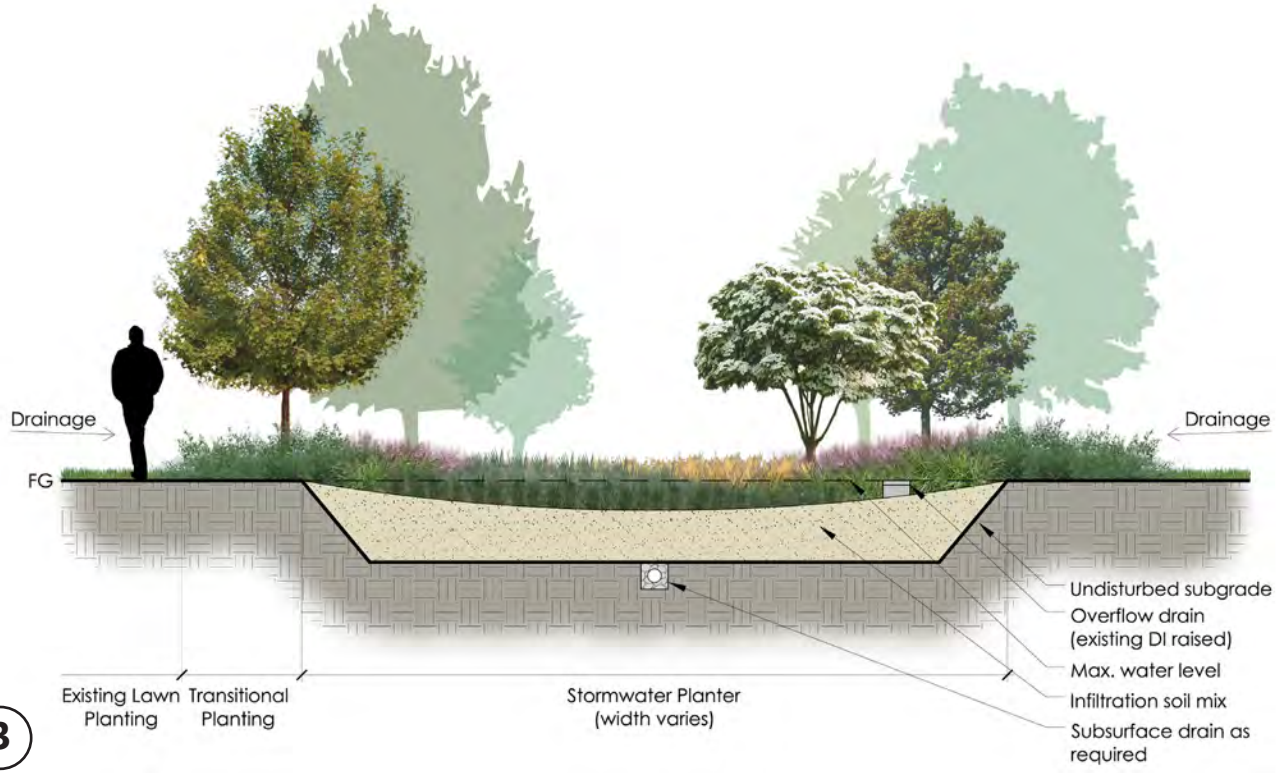

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Exhibit 5-7: Hornet Greenway in Lawn

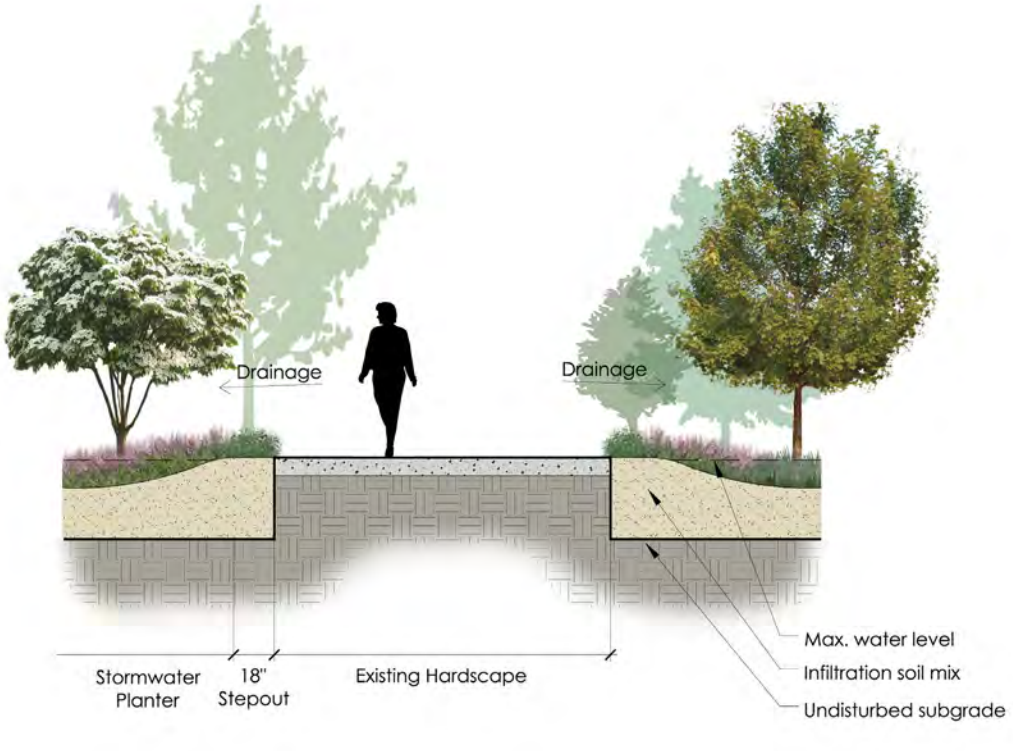

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Exhibit 5-8: Hornet Greenway at Existing Walkway

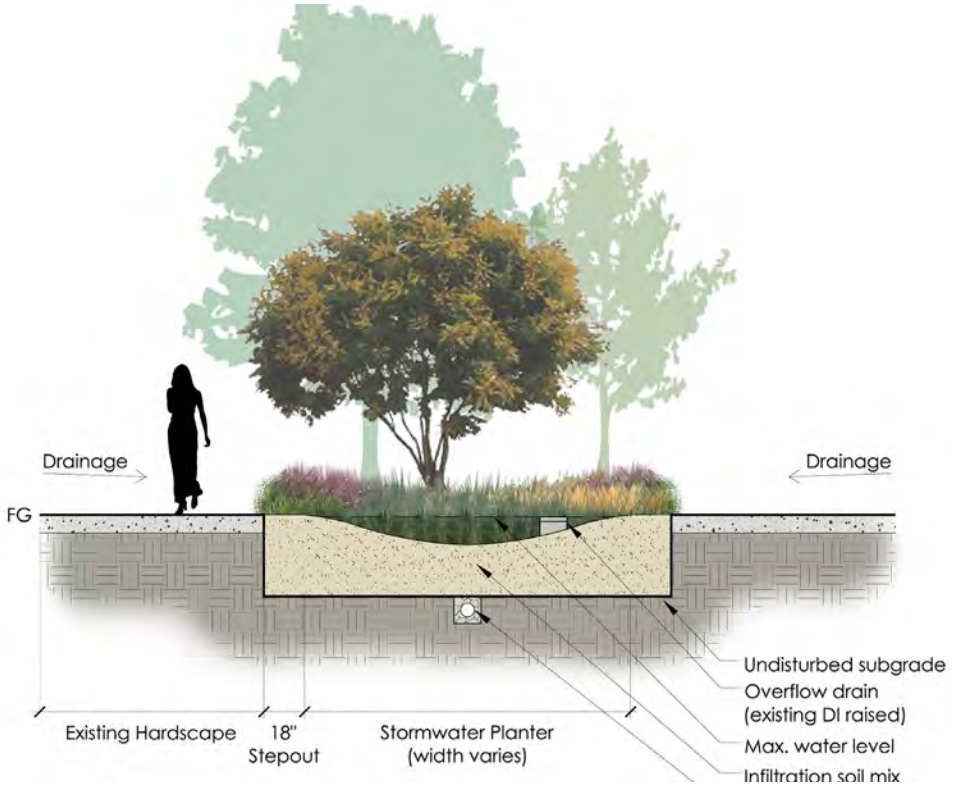

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Exhibit 5-9: Hornet Greenway in Paving

RAIN GARDENS

As shown in Exhibit 5-4, the Landscape Guidelines envisions a series of rain gardens that offer similar benefits as the Hornet Greenway, but on a smaller scale. In fact, the Hornet Greenway is, itself, a very large rain garden.

Rain gardens provide a way for the campus to manage stormwater as it comes off building roofs and horizontal elements. Using small, local landscape areas adjacent to buildings, the stormwater is driven away from hardscape areas toward planted areas or areas with permeable paving. As with the Hornet Greenway, stormwater is infiltrated into the soil where is can be retained and gradually percolate into the ground water table.

A typical rain garden section is shown in Exhibit 5-10. Rain gardens are established where there are existing trees or where there are shallow utility conditions, as shown in Exhibit 5-11 and Exhibit 5-12.

Each rain garden will help manage and mitigate stormwater for the building infrastructure and hardscape within its immediate surroundings. Water collected from building rooftops and parking structures will be directed or piped into an adjacent rain garden for filtration and detention. As with the Hornet Greenway, the existing drainage infrastructure will remain, and existing drain inlets will be raised to provide overflow drainage in significant storm events. All other run-off will infiltrate back into the water table or move via sub-surface drainage. Several additional features of the system include:

- New and existing roof downspouts are recommended to be disconnected from the storm sewer and redirected to the rain gardens;
- Rain garden locations at existing drain inlets and ground-plane low points to capture run-off without changing the site's grading;
- Rain gardens planted with trees and shrubs that require less water than a lawn area of equal size, or even many traditionally-planted landscapes; and
- Rain garden plantings creating a sense of place by adopting the characteristics of site surroundings and extending the campus landscape to the areas near buildings.

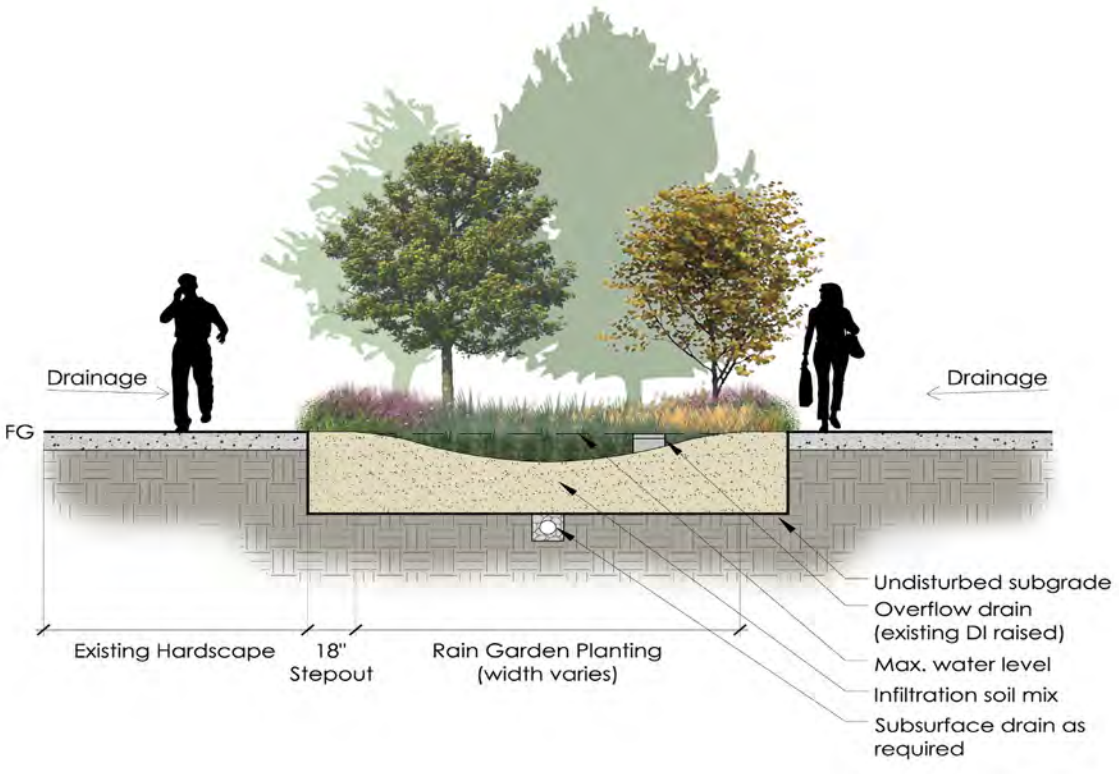

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Exhibit 5-10: Typical Rain Garden

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Exhibit 5-11: Hornet Greenway - Rain Garden at Existing Tree

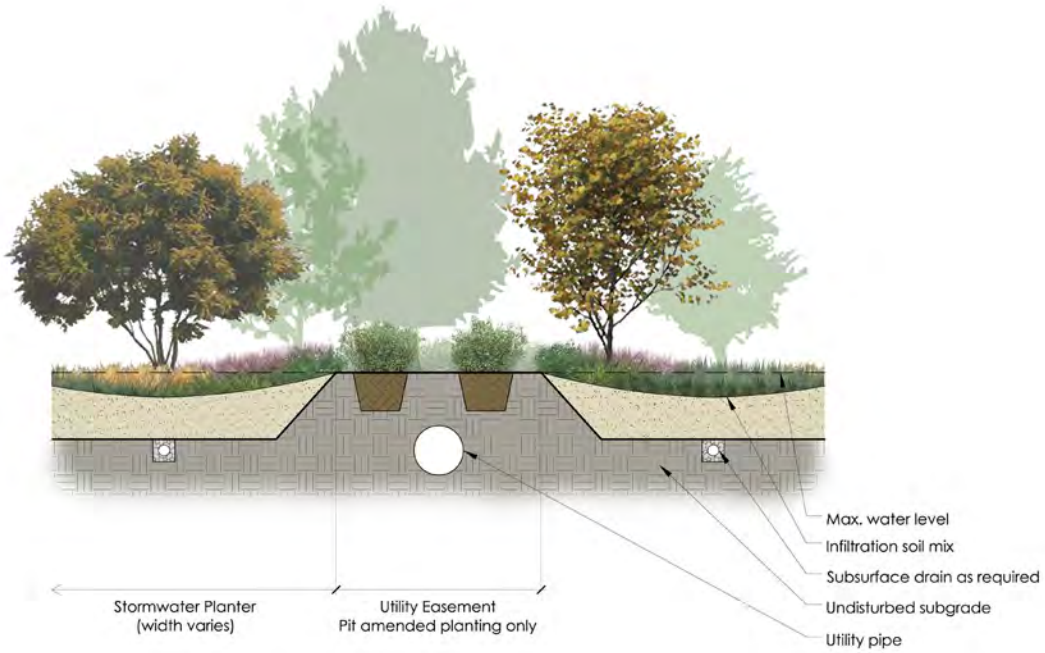

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Exhibit 5-12: Hornet Greenway - Rain Garden at Shallow Utility Conditions

Exhibit 5-13: Example of Rain Garden Planting

Exhibit 5-14: Example of a Stormwater Planter in Lawn

Exhibit 5-15: Example of Rain Garden Planting

Exhibit 5-16: Example of Rain Garden Planting

Exhibit 5-17: Example of a Large Stormwater Planter

Exhibit 5-18: Example of a Rain Garden with "Sustainability Trail" Interpretive Signage

ARBORETUM EXPANSION

The Master Plan proposes to expand the Arboretum, shown as B in Exhibit 5-2, such that it becomes better connected to the primary campus open space system. [The original Arboretum is indicated as A in Exhibit 5-2.]

The Arboretum Expansion will increase the value of the Arboretum as an amenity to the campus, showcase an important campus resource, offer educational opportunities and encourage interaction between the campus and the surrounding community. Possible uses for the expansion area may include:

- Nursery/growing grounds or green houses;
- Functional nursery space for the campus successional tree planting;
- Edible garden demonstration area;
- Drought tolerant planting demonstration area;
- Native planting demonstration area;
- Rain Garden / bioswale demonstration area;
- Outdoor classroom area; and
- Additional specimen planting.

Exhibit 5-19: Typical Turf Replacement Garden

TURF REPLACEMENT PLANTING

In line with the University's ongoing work to create a more sustainable campus, the master plan focus on sustainability, and the Landscape Guidelines envision the selected replacement of some of the areas of turf or ornamental grasses. As shown in Exhibit 5-19, the Landscape Guidelines propose replacing underutilized and small turf areas with shrub and ground cover plantings that use less water and require less maintenance and fertilizer.

- Turf-replacement areas should be planted with low-water-use shrubs and ground covers as illustrated in the candidate plant list [Appendix A].
- Plant species are to have a maintainable maximum height of 42 inches to maintain sight lines through the campus.
- The University should consider raising existing drain inlets in converted turf areas to hold water and allow it to infiltrate into the soils rather than draining directly into the storm drain system. The raised drain inlet will function as an overflow drain during larger rain events. The raised drain inlets should not be higher than the surrounding hardscape [see Exhibit 5-7].

TURF RETENTION BASINS AT ATHLETIC FIELDS

The Landscape Guidelines propose retention basins in all the sports fields, shown as H in Exhibit 5-2. A typical turf retention basin section is shown in Exhibit 5-20. The retention basin is designed to slow down stormwater runoff for a period of time to decrease downstream flooding from larger precipitation events. It provides the time and space for the water to infiltrate into the ground, while providing necessary flood protection. Under the current conditions in which the Western Ditch drainage pumps are not functioning optimally, and given the necessity for the Western areas of the campus to drain toward the Western Ditch, the use of the sports fields to retain stormwater is a good solution.

The Landscape Guidelines and Sustainability Guidelines recommend that, as the sports fields are renovated or replaced, they be reconstructed to provide infiltration and retention, as shown

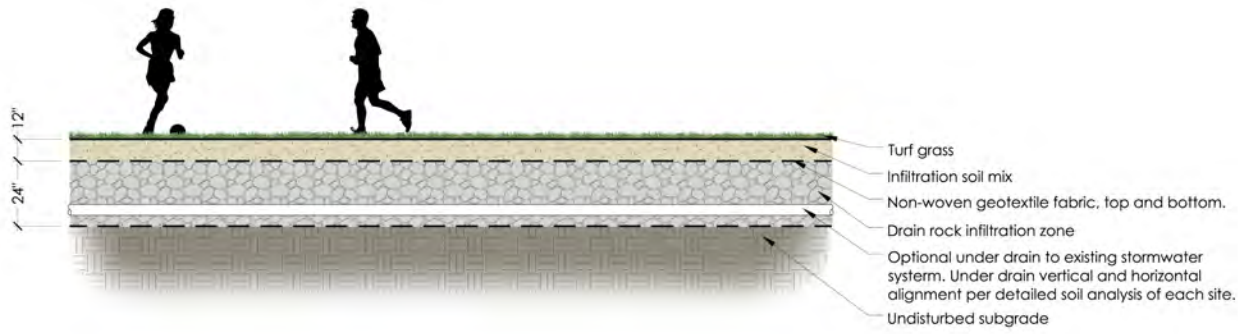

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Exhibit 5-20: Turf Retention Basin

schematically in Exhibit 5-20.

RIPARIAN CORRIDOR PLANTING

The Landscape Guideines propose riparian corridor planting in the area adjacent to the Western Ditch drainage area. A typical riparian corridor scheme is shown in Exhibit 5-21. Riparian plantings will create a natural planting foreground and backdrop to the western drainage ditch area. The proposed plantings will not encroach in the western ditch easement or interfere with the operations of the pump equipment associated with the western ditch. The sides and bottom of the channelized west drainage ditch will not be planted, so that the hydrology of the drainage system is not altered.

The plant palette for the Riparian Corridor area will include native riparian species selected for low water and maintenance requirements. Exhibit 5-22 to Exhibit 5-27 are examples of riparian corridor plantings.

The Landscape Guidelines envision this riparian corridor planting scheme as extending to the south and east edge of campus, creating a visual connection with the existing riparian zone near the Western Ditch. Characteristics of the Riparian Corridor planting include:

- Visual screening and sound attenuation of the raised rail way;
- Increased native habitat;
- Reduced water use by replacing lawn with low water use plant material; and
- Contextually replicated native riparian habitat of the American River.

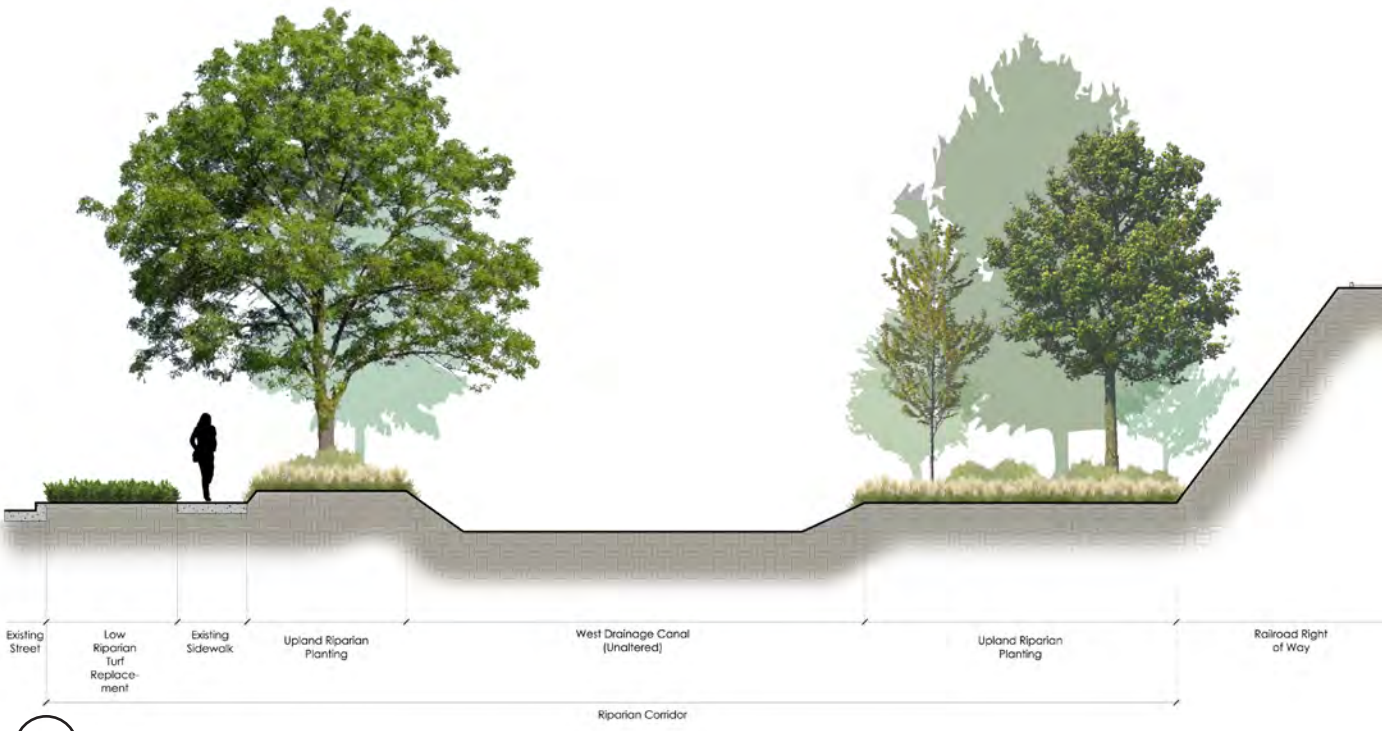

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Exhibit 5-21: Typical Riparian Corridor Planting

Exhibit 5-22: Riparian Plant - Carpenteria

Exhibit 5-23: Riparian Plant - Mahonia

Exhibit 5-24: Native Riparian Plants

Exhibit 5-25: Riparian Plant - Symphoricarpos-albus

Exhibit 5-26: Riparian Plant - Deschampsia

Exhibit 5-27: Riparian Plant - Cunningham

NEW TREE PLANTINGS / CANOPY MAINTENANCE

Successional Tree Planting

The Sacramento State campus has an impressive tree canopy consisting of over 3,000 trees. It is a signature element of the campus and important to Sacramento State's brand and identity.

Many of these trees were planted 30-40 years ago. While this is not of concern for some species, others may be reaching the end of their life-cycle and will need to be replaced. The University has already initiated a successional tree planting program which should be continued through the time-frame of the Master Plan. This will allow the University to be proactive with a phased replanting program, rather than wait for this aging process to play out. The goal of the successional tree planting program is to inform the preservation and maintenance of the campus' mature tree canopy, and to maintain a healthy and diverse tree canopy. More specific goals include:

- Promoting age diversity of tree canopy;
- Promoting species diversity of tree canopy;
- Gathering and maintaining an inventory and analysis of campus canopy trees;
- Planning for the removal and replacement of trees in decline;
- Pruning low branching trees to maintain sight lines into and through the campus;
- Maintaining identified sightlines and vistas free of trees to aid in wayfinding; and
- Introduce understory tree plantings to further develop canopy diversity and to aid in wayfinding.

The first step required to implement a successional tree planting plan is to inventory the existing trees and to have all significant trees on campus surveyed by an International Society of Arboriculture (ISA) Certified Arborist. The arborist should identify the tree by species, size of the tree in diameter at breast height (DBH), the drip line radius (DLR) and rate the health and structural condition of each tree. The assessment of the individual tree's health and condition should follow ISA best practices, similar to the following categories.

1. Tree is in excellent condition. It shows no sign of failure, disease, or structural deficiencies. It is significant to the campus and provides value due to its species, size, or educational value. Loss of this tree would be detrimental to the campus.
2. Tree is in good condition. It shows no signs of eminent decline and provides value to the campus.
3. Tree is in acceptable condition. It may show some signs of weakness, but does not warrant removal in the foreseeable future. It does not have particularly strong value to the campus and does not require special effort to preserve, but should be monitored periodically to ensure that it does not become a safety hazard in the future.
4. Tree is in poor condition. Shows signs of disease, structural deficiencies, or is in an advanced stage of natural senescence. Regardless of its value to the campus, it must be considered for removal for safety and aesthetic reasons.

The next step is to identify those trees in poor or declining health that are to be succeeded. New succession trees should be planted near and around the trees found to be in poor or declining condition (Category 4). A succession plan includes planting a minimum of two new trees for every one tree in poor or declining condition Exhibit 5-28.

As the new trees begin to mature, the existing trees continue to decline until they are required to be removed. At this time the newly planted trees have grown substantially, offsetting some of the canopy loss and becoming a significant part of the campus tree canopy.

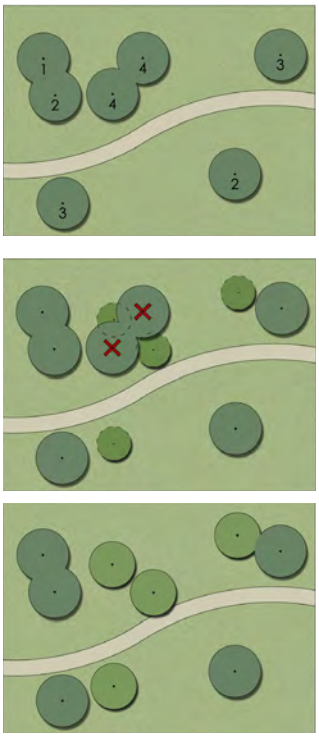


Exhibit 5-28: Inventory of Existing Trees and Identifying Trees in Poor Health

Tree succession planting is an ongoing process, with Categories 3 and 4 trees reviewed every five years for declining status or removal. Guidelines for successional tree planting include:

- Avoiding monoculture plantings of trees;
- Using the campus candidate tree species list as a starting point for selecting trees, however it is best for the University to engage with the Arboretum and consult the arborist for the selection and growing of trees;
- Exploring potential funding, educational and outreach relationships with the Sacramento Tree Foundation;
- Providing regular inspections of the campus canopy by an ISA Certified Arborist; and
- Pruning the existing low hanging tree canopy to maintain sight lines for wayfinding and security.

Exhibit 5-29: Example of Permeable Paving: Modular Pavers

EDIBLE GARDENS

Edible gardens create a viable food source and expose the public to urban agriculture practices. Edible gardens proposed in the Landscape Guidelines will consist of in-ground planting beds, raised planters and orchard trees. There are four sites of edible gardens, shown as C in Exhibit 5-2. More detailed discussion about edible gardens is in Chapter 6, Sustainability.

On-campus edible gardens may serve several roles depending on programming and location, including making orchard trees available to all. The Arboretum edible garden has the potential to provide community and student engagement. Opportunities include:

- Community educational and outreach programs;
- Student education programs/curricula-based programs; and
- Community and student rental plots.

The residence village edible gardens are primarily intended for resident use. Opportunities include:

- Providing food to the student dining hall through partnerships with the food service providers; and
- Making garden plots available for student use.

Exhibit 5-30: Example of Grasscrete Permeable Paving

Exhibit 5-31: Example of Decomposed Granite Permeable Paving

PERMEABLE PAVING

Where possible, the University should install permeable paving at hardscape areas to reduce stormwater runoff and mitigate oils and heavy metals commonly found in hardscape runoff, see Exhibit 5-29 through Exhibit 5-31. Candidate locations include existing surface parking areas, new plaza spaces, pedestrian promenades and expansive hardscape areas. The University should install open cell type pavers in lawn and planting areas to accommodate the Emergency Vehicle path of travel while minimizing hardscape.

In areas where permeable paving is proposed, soil should be tested to determine its infiltration rate and load bearing characteristics. With this data, recommendations can be made for underdrain systems and subsoil stabilization. Permeable paving should be regularly maintained per best management practices to ensure efficient and long term functionality.

5.3 OPEN SPACE AND LANDSCAPE CHARACTER

Fundamental to any University's identity is the landscape character of its open spaces. Currently, the Sacramento State open space areas can be characterized as a series of well-shaded, irregularly-shaped courtyards and quads planted as verdant, irrigated areas, intermixed with more informal open spaces. Some of these areas are recognized with specific names, such as the South Lawn and the Library Quad while others do not have formal designations. The 2015 Landscape Guidelines envision the expansion of this open space system.

COURTYARDS, QUADS AND GREENS

The current campus system of formal courtyards and quads in the Academic Core focuses on three existing campus quads: the Main Quad, the Library Quad at the center of campus and the newest open space, the South Lawn in front of the Well, that together form the largest campus open spaces and serve as its symbolic and ceremonial heart.

Together with the newly created Grand Central Quad in the center of the Academic Core, these quad areas are used for passive recreational activities and for scheduled events such as graduation ceremonies. They are characterized by drifts of large canopy trees and grassy lawn areas. The bordering pedestrian pathways have the effect of reinforcing these large central open spaces. These open spaces form the framework for the campus organization and pedestrian circulation system and serve a variety of programmed and informal uses. Some open spaces are furnished with seating and function as destination points for students, faculty, staff and campus visitors. Some act as outdoor classrooms and event lawns, indicated as F and G in Exhibit 5-2.

The 2015 Master Plan also proposes the creation of a second major open space called the East Mall [see Exhibit 5-33], which will provide a link from the South Lawn student activities quad and the South Housing Village to the American River. Within this open space the plan also proposes a new pedestrian bridge over State University Drive to the top of the flood control levee, providing more direct campus access to the American River Bikeway, the wetlands park areas and Alumni Grove. The bridge is indicated as M in Exhibit 5-2.

New and reinforced courtyards and quads will be developed to provide for a diversity of uses, including interactive gathering areas such as dining terraces and outdoor classrooms [F in Exhibit 5-2], passive/informal recreational areas [I in Exhibit 5-2], and quiet personal spaces such as reading gardens. The proposed character of an open space will reflect and be in concert with the proposed uses for the adjacent building(s). Open spaces can be activated through the selective location of program elements such as cafes, lounges and building entries. It will be important to provide seating in courtyards and quads. Small gathering areas will be provided at key building entries and key pedestrian intersections to encourage increased social interaction between students, faculty and staff.

Landscape character for courtyards and quads will continue with the manicured, somewhat more formal character of these open spaces. However, with the introduction of the Hornet Greenway, more indigenous, drought-tolerant plant materials will be introduced. The plantings will consist of trees, shrubs, groundcover, and lawn, with plants set in a more informal manner. Additional bosques of flowering and canopy trees should be planted as appropriate to create focal areas within the courtyards and quads. A palette of landscape materials for courtyards and quads is included in Appendix A. The use of turf grass is generally reserved for more formal locations.

Special accent planting, such as flowering trees and shrubs, should be used to highlight building entries and add visual interest to outdoor gathering spaces. The use of low walls and other special landscape elements is also encouraged in order to define spaces and create focal points.

Exhibit 5-32: Open Space System

Exhibit 5-33: Courtyards, Quads and Greens

The landscape of courtyards and quads should respond to the Sacramento climate of hot summers and mild winters. Planting of deciduous trees provides shade in the summer and light, sunny spaces that take advantage of mild winter days. Selected and limited use of water in key gathering areas can provide a cool retreat or oases in hot summer months. Low shrubs and groundcovers should be planted adjacent to buildings to soften the edges of the structures and add an element of human scale.

5.4 PEDESTRIAN CIRCULATION

The existing pedestrian circulation on the CSU Sacramento campus is focused on a hierarchy of walkways and paths characterized by a series of north-south pedestrian walks and a primary east-west pedestrian pathway along Sinclair Road. These are augmented by a more informal system of secondary walks and paths. The Master Plan development proposed in Chapter 4 calls for additional primary pathways and for the reinforcement of existing pathways to maintain pedestrian connectivity throughout the campus and to extend this connectivity to the south as the campus develops. Exhibit 5-34 is a diagram of existing and proposed pathways, showing the existing or proposed names for each.

The Pedestrian Circulation Plan will facilitate complete and contiguous navigation throughout campus. The plan increases pedestrian safety by mitigating high-traffic car and bicycle conflict areas. Additionally, the proposed pedestrian circulation expands sight lines and reorganizes existing “tangled” routes into a hierarchy of widths and axes.

PRIMARY PEDESTRIAN CIRCULATION SYSTEM

The Landscape Guidelines highlight primary pathways as promenades. They are shown as thick orange lines in Exhibit 5-37 and are conceived of as pedestrian promenades. The east and west campus link is reinforced by the existing Sinclair Road, now **Sinclair Promenade**, toward the American River. Sinclair Promenade can now function primarily as a pedestrian route because the Master Plan re-routes bicycle through-traffic to a more southern route north of the South Lawn student activities quad [see Section 4.4 for bicycle routes].

Two major north-south pathways are along the edges of the Hornet Greenway. **Grand Central Promenade** connects the North Housing Village to the Library Quad, the Well, the new Student Events Center and the South Lawn student activities quad. The other major north-south pathway along the Hornet Greenway is **Hornet Promenade**, which connects the Arboretum and Arboretum Expansion and the new north parking structure (PS5) with the Library Quad and then intersects with Grand Central Promenade north of the South Lawn student activities quad. The lawn and planted areas associated with the Grand Central Promenade and the Hornet Promenade will create a new activity /gathering space for students, but also serve as outdoor spaces for special events.

Yosemite Promenade is the pedestrian path along Moraga Drive, leading past Yosemite Hall; it intersects with Sinclair Promenade. **East Promenade** follows the route of what was once Jed Smith Drive, and connects the Academic Core with the new South Housing Village. It intersects with **East Mall**, the new open space north of the South Housing Village that leads, via a new pedestrian bridge, to Alumni Grove and the bike path along the top of the American River berm.

Typical promenade images are shown in Exhibit 5-35 and Exhibit 5-36, as a guide to what these pedestrian pathways may look like in the future. Primary pathways will be treated with a consistent quality of landscape, hardscape, signage and lighting. Pedestrian-scale lighting and formal plantings of canopy and flowering trees should be used to reinforce the hierarchy of the promenades within the pedestrian network and orient pedestrians to the circulation network. These promenades will be approximately 10 feet wide where possible in order to accommodate groups of students traveling between classes, as well as emergency and service vehicles.

The proposed East Promenade is currently a mix of pedestrian and vehicle uses, but to enhance safety and create a pedestrian route and gateway to the new South Housing Village, the Master Plan proposes this becomes an exclusively pedestrian pathway. The existing pathway/roadway is well landscaped with mature trees that will be maintained and enhanced as needed. As this pathway continues south when the new housing village is constructed, this same landscape treatment should be implemented to ensure a shady and inviting connection is achieved. This promenade will also be a minimum of 10 feet wide where possible in order to accommodate groups of students traveling between classes, as well as emergency and service vehicles.

The Pedestrian Circulation Plan proposes additional routes and crossings to accommodate ‘desire lines’. Paths forged through turf areas, where grass has been worn away from continuous foot traffic, will be considered for paving. Additionally, desire lines should be analyzed in post occupancy reviews.

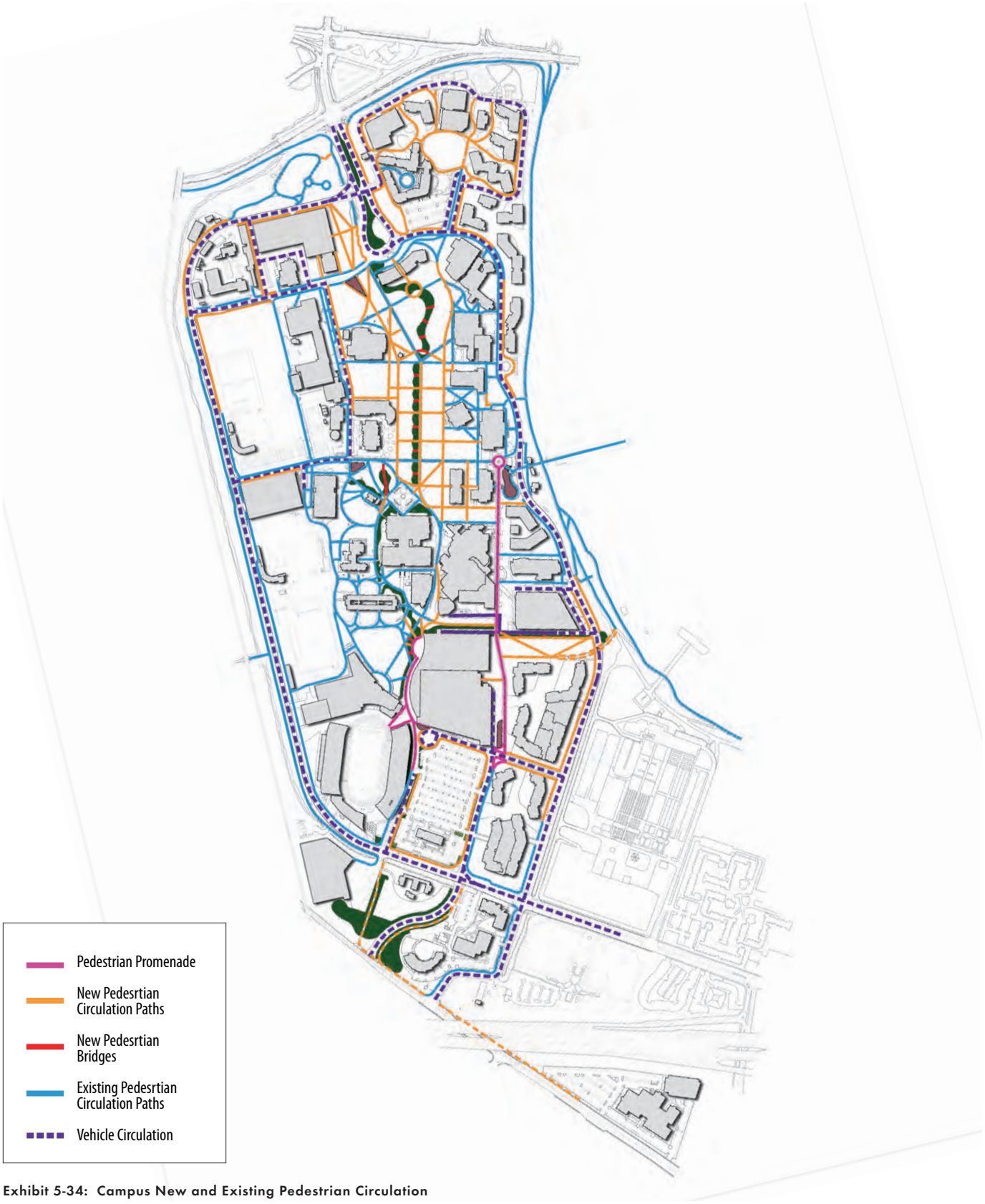


Exhibit 5-34: Campus New and Existing Pedestrian Circulation

SECONDARY PEDESTRIAN PATHWAYS

Secondary walks are meant to be more informal in character, and are based on a loose 'network' of walks and paths that are narrower than the primary pathways. These secondary walks, shown in Exhibit 5-37, frequently diverge from the north-south grid to reinforce diagonal desire lines. Exhibit 5-8 is a section diagram for secondary walks, which are designed to be only as wide as necessary to accommodate passing students, generally 8 to 10 feet wide. These walks should be planted informally with trees to provide interest and shade. Accessibility along pedestrian paths will be designed in a manner that promotes universal design. Walks providing universal access, with a maximum slope of 1:20, are preferred over ramps or stairs. The unavoidable length of ramps will acknowledge and be incorporated into site design, with stairs provided at the sides as complementary elements.

SITE LIGHTING

Comments received in the Campus Forums suggest there are outdoor areas of the campus that are relatively dark at night and feel unsafe to students, faculty and staff walking across the campus in the evening. In some cases, the proposed tree trimming program will increase the effectiveness of existing site lighting.

In general, however, a detailed survey of campus lighting is called for to identify the specific areas in need of additional light and the associated light intensities appropriate for all areas of the campus. The survey would also identify the appropriate fixture types needed to achieve goals related to security, light pollution, site aesthetics, energy conservation and cost. Examples of some suggested light fixtures are shown in Chapter 7, Design Guidelines.

Exhibit 5-35: Example of Pedestrian Promenade

5.5 CAMPUS IDENTITY, ENTRIES, ROADWAYS AND PARKING FACILITIES

EXISTING CONDITIONS

The campus landscape has a significant role to play in the establishment of a strong visual identity and brand. While the CSU Sacramento campus is a significant presence in the Sacramento community, it is virtually invisible, being bounded on three sides by what can be considered visual and even physical barriers (the railroad viaduct, the American River levee and U.S. Highway 50). However, the University's identity can be strengthened at its campus entries.

Even with existing campus entry identification monuments, the Sacramento State campus lacks the strong presence and visual identity appropriate to its size and role within the Sacramento community. This problem is compounded by the fact that the adjacent land uses vary significantly in character from one edge to another and incorporate single- and multi-family residential, industrial and low rise commercial uses. In addition, the current placement of surface parking lots at campus entries, particularly at the south entry along both sides of College Town Drive, creates a nondescript campus entry that lacks the appearance of a well-considered campus of this scale. It is notable that there are no significant indicators along J Street or College Town Drive of the presence of the Sacramento State campus. Similarly, the smaller streets to the south around Folsom Boulevard and the 'Hornet Village' commercial area reveal almost no indication of the presence of the campus.

Exhibit 5-36: Example of Pedestrian Promenade

Exhibit 5-37: Campus Primary and Secondary Pedestrian Circulation

RECOMMENDATIONS FOR CAMPUS IDENTITY, ENTRIES AND PARKING FACILITIES

Campus Entries

Entries present a particularly important opportunity to signal Sacramento State's presence in the community and to reinforce its landscape-based identity. Campus entries are part of both the campus roadway system and the city street system and constitute visitors' first experience of the campus.

Campus entries are critical wayfinding signals for campus visitors particularly since the campus is not visible from the surrounding community due its boundaries. The Master Plan reconfigures and strengthens both the North and South Gateways to become more visible and emphatic Campus entries. The secondary entrance from the Ramona Extension at the south should also be treated as an important campus gateway, with its signage and landscape echoing those at the North and South.

The recommendations for new signage and wayfinding systems described in Chapter 7, Design Guidelines, include a redesigned campus entry monument, shown in Exhibit 5-38. The Landscape Guidelines recommend the addition of highly visible identity features at the campus gateways: a bosque of flowering trees behind the redesigned identification monument will serve as a collective visual signal and entry icon. These entries should be augmented with low-maintenance and low-water-use ornamental grasses, shrubs and low plantings.

Along visible campus edges (J Street and Folsom Boulevard), existing mature tree plantings should be maintained and reinforced with new trees of similar species. Signature tree species will be combined with campus identification monuments to call attention to campus entrances and create a similar look for all campus vehicle entries. Existing plantings will be augmented with trees where necessary to fulfill the purposes of the Landscape Guidelines.

Campus Roadways

Campus roadways present another opportunity to reinforce campus identity and through landscape, serve as part of the campus wayfinding system. State University Drive and College Town Drive serve as the primary internal loop roadways for the campus, and the 2015 Master Plan maintains and reinforces that system by continuing to reinforce the Academic Core as a pedestrian precinct.

A goal of the Landscape Guidelines is to integrate these roadways and make this loop road an identifiable campus circulation route. Currently State University Drive and College Town Drive are planted with canopy trees along the parkways. The Landscape Guidelines recommend reinforcing and supplementing this signature planting with particular emphasis at both the north and south entries. To enhance wayfinding and to help support pedestrian safety, special pavement is proposed at key pedestrian crossings.

Landscape at Parking Facilities

Surface parking lots and parking structures will be landscaped to screen undesirable views, provide visual relief from large expanses of paving, and reduce excessive solar gain. Dense plantings of species such as pines are appropriate for visual screening, and more open drifts of canopy type trees such as Sycamores (or other species) will be used inside parking areas to provide shade and reduce the visual expanse of large surface parking lots. As feasible, berms and taller grasses should also be used to screen parking and service areas.

Bioswales that handle the first flush of storm run-off and discharge will be incorporated into the design of parking areas.

Proposed and existing parking structures should incorporate both physical screening devices (glass, green screens or other elements) and landscape screening to soften these structures' visual impact. Setbacks have been provided on all sides of new structures to allow for ample landscape to further integrate the structure within the context of the overall mature landscape on the campus.

Consolidated Bicycle Parking

Consistent with current practices, the campus bicycle parking is proposed to be consolidated at the edges of a primarily pedestrian campus core, indicated as D in Exhibit 5-2 to discourage bicycle traffic through the campus. Further information about the bicycle routes and parking facilities are included in Chapter 4.

Exhibit 5-38: Example of Campus Entry

Exhibit 5-39: Campus Roadways and Parking Facilities

5.6 FLEXIBLE ART INSTALLATION LOCATIONS

The Sacramento State campus currently has a number of outdoor art installations that enhance campus identity and character. However, because of the permanence of the installation techniques used, these art pieces often become permanent fixtures on campus even as the campus continues to acquire art donations and student and faculty create new art pieces worthy of exhibition. To allow a more flexible approach to exhibiting outdoor art and sculpture, the Landscape Guidelines propose a series of designated sites for art that would have permanent foundations for their installation but would allow them to be easily modified as new art is selected for exhibition. In addition to new art installations, the University may seek new opportunities for sculpture and tributes or recognition of famous composers and artists, including distinguished Sacramento alumni. These tributes and commemorations could take many forms, such as engraved panels, tile mosaics, or banners that are changed periodically throughout the year. Similar theme programs could be developed for the other promenades focusing on significant events in the history of the University, the Sacramento region or State of California. Other topics could include literary quotes from significant authors or tributes to famous University alumni. Implementation of this themed program could involve donations from University alumni and supporters.

The proposed landscape art installations will highlight the University's renowned art department and add another layer of identity and vibrancy to the campus landscape. The locations are indicated as E in Exhibit 5-2. Exhibit 5-40 shows schematic concepts for art installation sites. The sites themselves will be permanent but the art temporary, allowing for a wide variety of art to be displayed. Additionally, the art installations will become focal points that spark interest and dialog between students and faculty. As landmarks, the art will:

- Aid in wayfinding;
- Display student art as part of course curriculum;
- Display visiting artist exhibits;
- Provide a flexible secure mounting base for temporary student art installations;
- Include power for lighting, articulation and movement; and
- Be installed flush with the landscape to provide ease in maintenance, while disappearing into the landscape when not in use.

5.7 IRRIGATION SYSTEMS

It is recommended that all new and renovated irrigation systems on campus comply with the State's Model Water Efficient Landscape Ordinance. To achieve the goal of maximum irrigation efficiency and minimum waste, the Design Guidelines [Chapter 7] describes how new and refurbished irrigations systems should be conceived, installed, operated and monitored.

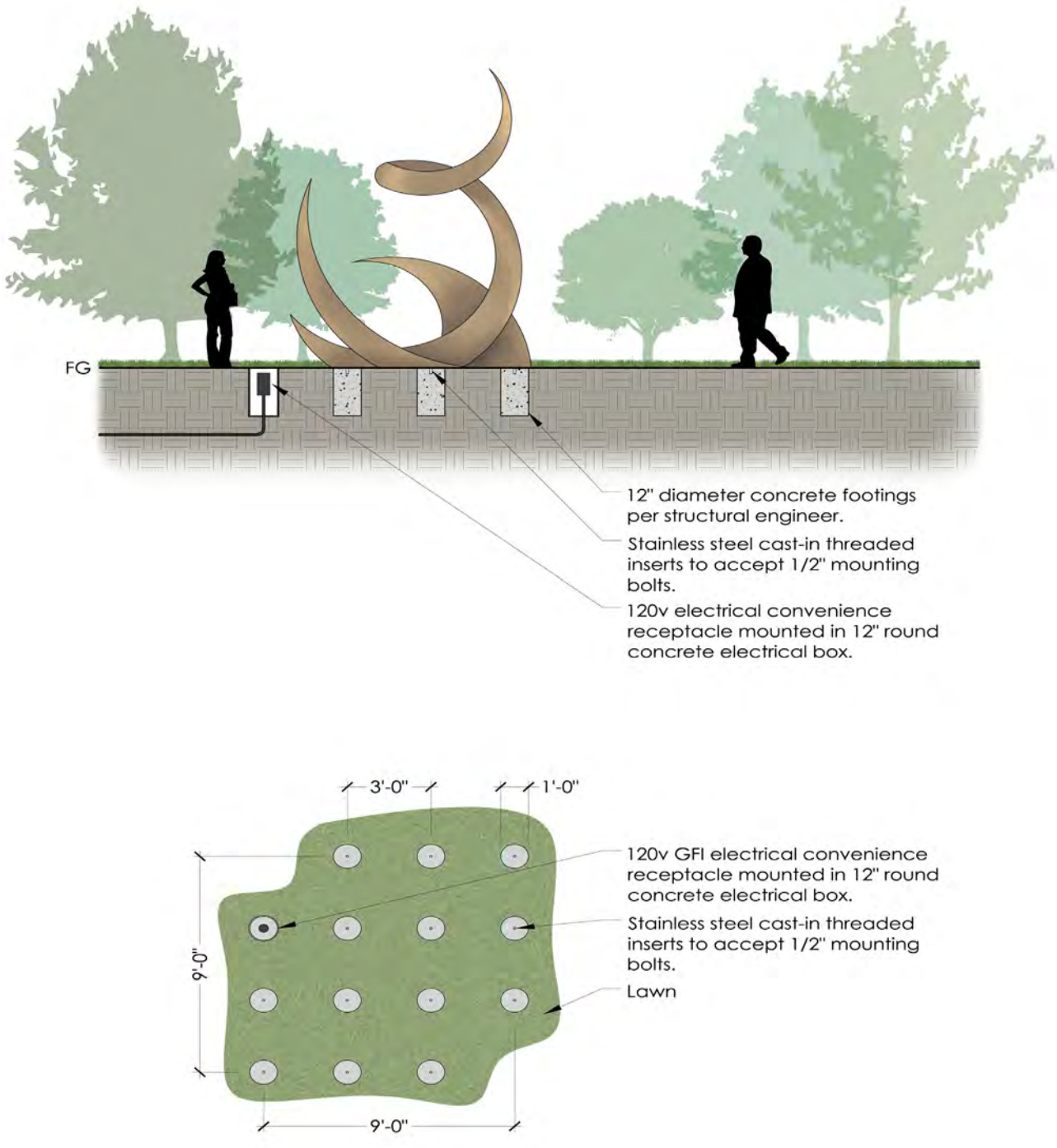


Exhibit 5-40: Flexible Art Installation Sites

CHAPTER 6

SUSTAINABILITY GUIDELINES

SACRAMENTO STATE

Chapter 6: Sustainability Guidelines

Sacramento State serves the capitol region of California, the nation's leading center for the development of sustainability policy. It also champions the highest standards in environmental stewardship, respect for cultural diversity, and responsibility for the careful investment of public and student dollars. This "Triple Bottom Line" of sustainability defines success for a broad set of perspectives from the University's many stakeholders including students, faculty, biologists, policy makers, regional planners and the University's neighboring communities.

The 2015 Master Plan is an opportunity for Sacramento State to implement and further develop its sustainability policies and practices within the contexts of both the physical campus and the University's academic program. The Sustainability Master Plan builds on the work previously achieved and the analyses previously conducted. The Plan sets forth a series of practical ways that campus programs, departments and physical infrastructure can continue to move the campus and all its users further toward environmental sustainability in all of its manifestations. The Sustainability Guidelines focus on campus physical facilities but also addresses other campus sustainability initiatives, including those related to academic programs.

6.1 MASTER PLAN GOALS FOR SUSTAINABILITY

POLICIES, PRECEDENTS AND EXISTING SUSTAINABILITY STRATEGIES

CSU Proposed Sustainability Policy

The California State University System spans 23 campuses across the state and has an annual operating budget of over $5 billion. The campuses have been asked to develop strategic energy plans coupled with sustainability action plans that will become the roadmaps for reaching system-wide sustainability, energy efficiency and climate change goals. In an effort to support all 23 campuses in their individual sustainability initiatives and create clarity and reporting for system-wide goals, the Office of the Chancellor is in the process of drafting a proposed sustainability policy, for Board of Trustees' approval. The draft policy was shared with Sacramento State for consideration in this Master Plan. The policy will address University sustainability, climate action plan, sustainable food service, energy independence goals, renewable energy procurement, energy conservation and utility management, water conservation, waste management, sustainable building practices, physical plant management, transportation demand management, and environmental health and safety.

In 2009, HOK, as a consultant to the University, prepared a report: "California State University, Sacramento Sustainable Design and Operations Strategies Report." This report has been in use by Sacramento State since 2009 to provide a comprehensive framework for furthering the University's sustainable practices on the campus across the following eight areas and extending across all campus business units and operational departments:

1. Campus Sustainability Planning
2. Building Design, Construction and Renewal
3. Energy
4. Landscape and Biotic Environment
5. Transportation and Parking
6. Procurement*
7. Food and Dining*
8. Waste Management*

(*Sections not specifically applicable to this Master Plan)

This report is referred to in this chapter as the '2009 Sustainability Report' and functions as a companion document to describe operational and administrative requirements that must be in place to make best use of the physical Master Plan elements that together achieve sustainable outcomes. For example, the University Sustainability Committee's function as described in the Report (Sustainable Campus Planning, Objective 1.2) is needed to successfully link campus strategies in the Master Plan design to academic programming, and faculty and/or student-sponsored initiatives. Relevant articles in the 2009 Sustainability Report are cited to flag sectors for which recommendations were adopted and for which physical campus elements have related operational or administrative requirements to address.

Exhibit 6-1 is a summary list of the 2009 Sustainability Report's objectives with specific strategies or recommendations addressed in this 2015 Master Plan. The Sustainability Guidelines seek to incorporate as many of the Report's objectives as possible and recommend actionable steps to move toward those objectives.

The University has already implemented certain recommendations of the 2009 Sustainability Report; other elements are addressed specifically through the development of this Master Plan. Where necessary, this chapter expands upon a number of areas where physical infrastructure, facilities and utilities systems need specific identification and elaboration.

The 2009 Sustainability Report references California's state-level standards for conservation and carbon emissions, including the CSU Program for Environmental Responsibility (PER); CSU Executive Order 987; Assembly Bill 32 — the California Global Warming Solutions Act of 2006; and other significant policy documents guiding construction by and facility operations within the University. As the University continues to work towards a more sustainable and energy efficient future, the 2009 Sustainability Report and 2015 Master Plan will work together to guide and inspire future design and operations initiatives at the project level.

HOK REPORT SECTIONS	2009 SUSTAINABILITY REPORT OBJECTIVES DERIVED FROM HOK (2009) "CALIFORNIA STATE UNIVERSITY, SACRAMENTO SUSTAINABLE DESIGN AND OPERATIONS STRATEGIES REPORT."	ACTION		
	SUSTAINABLE OBJECTIVES	MASTER PLAN	PROJECT IMPLEMENTATION	OPERATIONAL/ ADMINISTRATIVE
1	**CAMPUS SUSTAINABILITY PLANNING**			
1.1	Incorporate sustainable strategies into the physical Master Plan and project approval process	x		
1.2	Create academic sustainability plan through the sustainability committee			x
1.3	Utilize space effectively	x	x	x
1.4	Consider the sustainability tracking, assessment, and rating system (STARS)	x	x	x
2	**BUILDING DESIGN, CONSTRUCTION, RENEWAL**			
2.1	Embed sustainability into scope, design, and verification process	x	x	x
2.2	Build a design team committed to sustainability	x	x	x
2.3	Design for flexibility and adaptability	x	x	
2.4	Use sustainable materials and quantities of materials		x	
2.5	Reduce energy loads through passive solar strategies and building design	x	x	x
2.6	Reduce water use	x	x	
2.7	Reduce construction waste	x	x	
2.8	Improve indoor environmental quality		x	x
3	**ENERGY**			
3.1	Energy conservation	x	x	x
3.2	Energy independence	x	x	x
3.3	Measure energy end use	x	x	x
4	**LANDSCAPE AND BIOTIC ENVIRONMENT**			
4.1	Collect baseline landscape data	x	x	x
4.2	Reduce use of water, fertilizer and pesticides in the landscape	x	x	x
4.3	Increase stormwater infiltration and on-site treatment	x	x	
4.4	Maximize open space and habitat in the campus landscape	x	x	
4.5	Use landscape as an educational opportunity through signage, student projects and ongoing outreach	x	x	x
4.6	Eliminate light trespass from the campus and reduce impact on night sky access	x	x	x

Exhibit 6-1: 2009 Sustainability Report Objectives

5	**TRANSPORTATION AND PARKING**			
5.1	Strategically plan to reduce single-occupant vehicle use	x	x	x
5.2	Encourage bicycle riding to campus	x	x	x
5.3	Manage parking to encourage alternative travel and reduce capital costs	x	x	x
5.4	Expand transit ridership	x		x
5.5	Reduce greenhouse gas emissions and resource waste through alternative fuel vehicle and repair practices	x		x
5.6	Increase carpooling share	x		x
5.7	Explore car sharing potential	x		x
5.8	Increase marketing, outreach and publicity of sustainable transportation on-campus	x		x
6	**PROCUREMENT**	N/A		
6.1	Maintain and organize electronic procurement system			x
6.2	Procure sustainable goods and materials			x
6.3	Reduce consumption and waste			x
7	**FOOD AND DINING**	N/A		
7.1	Increase awareness of sustainable food options and opportunities on-campus			x
7.2	Buy local food to lower fuel costs, keep food fresh, and support local economy			x
7.3	Compost and reuse food waste			x
8	**WASTE MANAGEMENT**	N/A		
8.1	Analyze/evaluate current practices		x	x
8.2	Increase awareness, education, and communication around sustainable waste management practices			x
8.3	Establish specific recycling targets, measurements and practices by department			x
8.4	Reduce consumption and waste through source reduction			x

Exhibit 6-2: 2009 Sustainability Report Objectives [Exhibit 6-1 Continued]

The more regionally focused "Executive Order B-18-12" and "Greenwise Sacramento Regional Action Plan: 2020" are also referenced in these Sustainability Guidelines as a guiding set of goals to which the University can be a contributing institution. Where appropriate, the Sustainability Guidelines incorporate and expands upon key elements of other plans developed by the University to address specific initiatives, projects and regulatory requirements such as the Sacramento State Stormwater Master Plan (SWMP), which addresses the water quality of surface runoff from the campus.

The University has established the University Sustainability Committee, which consists of representatives from key campus and external communities and serves to guide the initiation, implementation and coordination of campus sustainability programs. Representatives include those from the Facilities Services Department; Sacramento State faculty; Associated Students; Incorporated Risk Management Services; Dining Services (UEI); Planning and Construction Services; Risk Management and Business Continuity Planning; Procurement and Contract Services; University Parking and Transportation. There is also a separate Sacramento State Recycling Committee.

Of special note, Sacramento State is home to the California Smart Grid Center (CSGC), which is conducting cutting-edge research into the ways the nation's utility future electricity grid can become more secure and efficient — and the way the nation can be prepared to accommodate the wide range of alternative and renewable energy production and storage technologies that will increasingly become the backbone of the national energy mix. The University anticipates that various pilot programs related to the CSGC, such as the Sacramento State Smart Meter Program, will benefit from the presence of the Center at Sacramento State.

VISION STATEMENTS: GOALS FOR THE 2015 SUSTAINABILITY MASTER PLAN

Key sustainability goals were identified for the 2015 Sustainability Guidelines. These goals, shown to the right and on the next page, are clear vision statements for the desired conditions the University wishes to sustain. The goals were developed through a careful cross-analysis of existing policies and precedents with the Master Plan's response to the University's academic program needs. The sustainability goals come from the wide range of stakeholders who comprise this University: its students and faculty, the President and University leadership, the CSU Chancellor's Office, facilities engineers, architects, biologists, policy makers and neighbors). The reports, policies and precedents cited in the previous section of this chapter should be referenced for details.

In the same way that this Master Plan is a primary record of physical changes to the campus necessary for the University to meet the changing and increasing academic needs of its students and faculty, these Sustainability Guidelines provide the forward-thinking lens through which long-term goals for sustainable practices can be realized.

The following Vision Statements articulate the 2015 Sustainability Guidelines Goals, shown in detail at right.

Institutional Frameworks for Achieving Sustainability

The eight Institutional Framework goals focus on: using independently validated frameworks (e.g., LEED, STARS) as rating systems; preserving and leveraging campus open space; implementing measures to divert stormwater in ways that will protect the American River; and reduction of potable water uses.

Energy Efficiency and Renewable Energy Efficiency

The Sustainability Guidelines target reducing energy consumption and moving toward renewable energy resources in order to minimize greenhouse gas (GHG) emissions that contribute to climate change and to reduce demand on limited resources from environmentally sensitive extraction sites; movement toward net-zero energy; and achieving this goal by retrofitting existing buildings and designing new buildings to be ultra-low energy consumers.

Water Efficiency

Sacramento State will pursue water resource conservation to reduce water consumption by 20 percent by 2020. This goal will be achieved using a broad range of initiatives, some of which are already being implemented: developing sustainable landscap-

MAJOR INSTITUTIONAL FRAMEWORK GOALS
• LEED Gold certification for new buildings on campus
• Pursue a rating using the AASHE Sustainable Tracking and Rating System (STARS)
• Open Space – Leverage outdoor open space on campus as an organizing element to promote environmental health and strengthen students' connection with nature
• Campus plan with >30% Open Space after full build-out
• Stormwater – Protect the American River and resident aquatic life from pollutants originating from campus
• Divert 29% of campus stormwater from direct discharge into the American River
• Potable Water – Regionally sustainable demand for limited potable water resources
• No net increase in potable water consumption, using 2014 use as a baseline

ENERGY EFFICIENCY GOALS
• Move toward zero net energy consumption for 50% of the square footage of existing state-owned buildings by 2025
• Move toward zero net energy consumption from all new or renovated state buildings beginning design after 2025
• Target an average EUI of up to 40kBtu/sf-yr for new and renovated buildings

RENEWABLE ENERGY EFFICIENCY GOALS
• Move toward net-zero energy campus where 100% of campus energy use is met by renewable energy generation on a net-annual basis
• Install 6MW of solar photovoltaic and solar thermal power generation capacity

WATER EFFICIENCY GOALS
• New Construction - Use water-saving fixtures to reduce potable water use in new construction by at least 30% and sewage conveyance by 50%, below the baseline case usage based on the Energy Policy Act of 1992 and LEED methodology
• Existing Buildings – Audit water fixtures in existing buildings and prioritize replacement of inefficient fixtures over time to reduce potable water use in existing buildings by at least 30%, below the baseline case usage based on the Energy Policy Act of 1992 and LEED methodology

ing, installing controls to optimize irrigation water use, reducing water usage in restrooms and showers, and promoting the use of reclaimed/recycled water. The use of decorative fountains should be minimized. In the event of a declaration of drought, Sacramento State will cooperate with the state, city, and county governments to the greatest extent possible to effect additional water conservation.

Transportation

The Sustainability Guidelines refer to the Transportation Demand Management initiative described in Chapter 4, which encourages and supports the use of alternative transportation modes in order to reduce greenhouse gas (GHG) emissions that contribute to climate change, reduce other air and noise pollution, and increase opportunities for physical exercise through diversifying modes of transport used on campus.

RECOMMENDATION: ADOPTING INSTITUTIONAL FRAMEWORKS FOR ACHIEVING SUSTAINABILITY

Underlying the simplicity of a concisely-stated set of sustainability goals is a complex network of interrelated issues which must be evaluated, prioritized, reconciled and implemented, often at the project level. The USGBC's LEED rating system and AASHE's STARS program offer valuable tools to facilitate and measure a comprehensive palate of campus sustainability initiatives on an ongoing basis and at the project level.

LEED Gold Certification for New Buildings on Campus

LEEDv4 is the most recent update to the U.S. Green Building Council's (USGBC's) widely adopted green building rating system. Projects beginning in 2015 registering for LEED certification will be certified under this new version. Updates to the rating system include a number of programs, terms and concepts that will help Sacramento State and similar institutions continue to set and meet increasing goals for energy efficiency, building envelope performance, transportation management, water efficiency, healthy building materials and other key sustainability criteria important to the University.

As a rating system developed by national industry consensus and independently verified through third-party certification, transparency and rigor are assured. LEED has become the most trusted green building rating system in California, providing policy makers and practitioners with a powerful tool for measuring and managing environmental building performance. Because of the flexibility of the LEED rating system, the University can establish a high standard level of performance, LEED Gold, without prescribing specific solutions, allowing each project team to innovate and leverage unique opportunities each project presents.

TRANSPORTATION GOALS

- Change Mode Split from 69% single-occupant vehicles to 59% (alternative transportation mode would be SOV, Carpool, Vanpool, Transit, Bike, Ped)

AASHE Sustainable Tracking and Rating System (STARS)

AASHE, the Association for the Advancement of Sustainability in Higher Education, has developed the Sustainability Tracking, Assessment and Rating System™ (STARS®), a transparent, self-reporting framework for colleges and universities to measure their sustainability performance. STARS provides a complementary framework to LEED for understanding sustainability in all sectors of higher education, (including academic programs, research, operations, planning, administration and stakeholder engagement). The program drives the collection of meaningful data over time so that sustainability efforts can demonstrate improvement and grow more focused, pinpointing areas for improvement and quantifying success. Much of the facilities planning, education, and curriculum integration to make CSU Sacramento a "living classroom" may be informed and driven through the STARS tracking and rating process.

6.2 SUSTAINABILITY ACTIONS AND BENEFITS

The 2015 Master Plan, the Landscape Guidelines and the Sustainability Guidelines recommend a series of comprehensive sustainable actions that address landscape systems, alternative transportation modes, green buildings, and campus energy efficiency and independence. These recommended actions and benefits are described in Exhibit 6-3; these individual actions are discussed in more detail in the remainder of this chapter.

Implementing the recommended actions will serve to: raise awareness of protection of local environment/climate; improve human health, comfort and performance; reduce greenhouse gas emissions; conserve natural resources; enhance on-campus sustainable educational opportunities; encourage community participation; and advocate for the concept of environmental justice.

6.3 CAMPUS DRAINAGE AND OPEN SPACE SUSTAINABILITY PLAN

As described in Chapters 4 and 5, the 2015 Master Plan incorporates as its central organizing feature the Hornet Greenway, a new landscape/open space system that serves as stormwater management mechanism in addition to providing large gathering areas and a context for the revised pedestrian circulation system throughout the campus. Among other things, the Master Plan development of the Hornet Greenway is a response to existing campus drainage conditions.

CAMPUS DRAINAGE: EXISTING CONDITIONS

As part of the Master Plan project, a civil engineering report on campus drainage was prepared. It is included in its entirety as Appendix B. Below is a summary of the report as it relates to the Sustainability Guidelines.

Located adjacent to the American River levee, the 300-acre Sacramento State Main Campus is built upon a low flat-lying area that is subject to flooding during storm events. To the south, an estimated additional 900 acres of upstream catchment also drain towards the campus. As a result of this topographic situation, providing for the adequate drainage of stormwater has been a longstanding issue on the campus. To address the drainage situation, campus surface runoff is now collected by numerous drain inlets, funneled into a limited number of surface channels and buried storm pipes, and then conveyed to a series of pumps that lift the water up over the American River levee where it is finally discharged into the river. These high volume pumps, located in four separate locations (lift-stations) adjacent to the levee on the east side of the campus, effectively drain the largest portions of the campus site.

Other pumps and gravity systems drain the western portions of the campus discharging the runoff into the so-called "Western Ditch," an open earthen channel managed by the City of Sacramento. In addition to the stormwater entering from the western portions of the campus, this channel also conveys stormwater received from the entire 900 acres of upstream watershed. The combined flow is conveyed along this channel northward to a high volume pump ("Sump 155") located north of Avenue J; from here it is pumped into the adjacent American River.

Although the campus pumps and the western ditch channel facility have proved effective in controlling campus runoff for 10-year and 100-year storms, occasional local flooding events on the campus have occurred — generally in the low-lying, depressed campus areas. Another issue related to the current campus drainage system is that runoff from campus hardscape surfaces enters the pumps and thus the American River essentially untreated. This is a particularly significant issue because many hard-surface areas such as parking lots and driveways accumulate automobile pollutants. Currently, none of the Campus' hard surface areas receive any biotreatment [see Exhibit 6-5].

OPEN SPACE AND STORMWATER MANAGEMENT

The Hornet Greenway's open space system is designed to act as the primary site for locating a series of bioswales and connected rain gardens that will provide primary water treatment and additional stormwater retention for storm events. A bioswale is a landscape element specifically designed to retain and filter surface runoff water using plants and natural elements in a system that serves to clean the water of silt and pollutants. Within the Hornet Greenway, bioswale areas are to be designed with generous landscape and are properly thought of as bioswale gardens.

Exhibit 6-7 illustrates the stormwater management concept for the campus.

As part of the Sustainability Guidelines, various existing roof drains, parking lot outfalls and roadway drains will be redirected to adjacent surface rainwater gardens and bioswale gardens to clean the runoff and retain it before it enters the underground pipe network prior to being pumped into the American River. At the same time, these facilities will facilitate enhanced infiltration

SUSTAINABILITY ACTIONS AND BENEFITS							
ACTIONS	**PRIMARY SUSTAINABILITY BENEFITS**						
	Protection of Local Environment	Human Health, Comfort and Performance	Reduced Green House Gas Emissions/Climate	Conservation of Natural Resources	Enhanced Educational Opportunities	Community Participation, Benefits	Environmental Justice
LANDSCAPE SYSTEMS AND IMPROVEMENTS							
Increase and enhance park-like outdoor spaces for human comfort and health		X				X	
Maintain and enhance urban forest tree canopy on campus reduce heat island effect, sequester carbon, provide learning opportunities	X		X		X	X	
Hornet Greenway organizing element through campus		X					
Sustainability Trail to highlight campus sustainability features					X	X	
Student housing with adjacent river views and access		X				X	
Landscape plant palette that supports American River health, hydrology and creates habitat	X			X			
Targeted Turf reduction to reduce water and chemical use	X			X			X
New landscape designed to move and absorb stormwater into ground	X			X			
Modify lawns an existing open spaces to improve infiltration capabilities				X			
Green streets using planters and curb-cuts to manage street stormwater runoff (reduce peak flows, filter particulates and recharge aquifers)	X			X			
Utilize roof drain stormwater to irrigate landscape as rain gardens (reduce peak flows, filter particulates and recharge aquifers)	X			X			
Parking Lot 1, Lot 7, Lot 8 and State University Drive improvements to manage street stormwater runoff (reduce peak flows, filter particulates and recharge aquifers)	X			X			
Devote selected campus areas to urban food production to support Campus food service and community needs		X		X		X	X
Wider utilization of campus-generated mulch to reduce landscape irrigation needs; make available to other users			X	X		X	

Exhibit 6-3: Sustainability Actions and Benefits

SHIFTING TO ALTERNATIVE TRANSPORTATION MODES							
Grand park pedestrian and bicycle path network		X	X	X		X	
Improved transit and bicycle access to campus via State University Drive West		X	X	X			X
Bicycle lanes and improved safety features for pedestrians on and near campus		X	X	X			
Enhanced campus transit facilities and circulator shuttles		X	X	X		X	X
Increased carpool parking and electric car charging stations	X		X	X			
GREEN BUILDINGS							
Low-flow and waterless plumbing fixtures in new and existing buildings			X	X			
Whole campus and individual building water use metering to quantify current use baseline and set reduction targets				X			
Campus and building energy use metering to quantify current use baseline and set reduction targets				X			
Follow LEED guidelines and standards for exceeding Title 24 code and optimizing energy performance of buildings		X	X	X			
CAMPUS ENERGY EFFICIENCY AND INDEPENDENCE							
Increase on site renewable power generation with solar photovoltaics and solar hot water systems			X	X			
Study on-campus building solar power production potential (roof area) and estimated full-build-out energy consumption to evaluate a "pathway to Net-Zero Energy Campus".							
LEED v4 certification for new buildings on campus	X	X	X	X			
LEED v4 certification for Major Existing Building Remodels and Renovations	X	X	X	X			
OTHER							
Utilize AASHE STARS reporting tool to evaluate campus sustainability and inform campus initiatives						X	
Re-lamping of outdoor lighting to include cut-off fixtures to reduce light pollution and protect the night sky	X	X	X	X			
Contract with local private entity to achieve 95% diversion of solid waste from landfills, recycle materials, capture embodied energy and create jobs			X	X		X	

Exhibit 6-4: Sustainability Actions and Benefits [Exhibit 6-3 Continued]

of stormwater into the groundwater aquifer. In all cases where additional stormwater water is infiltrated into the underground aquifer, total stormwater pumping volumes are decreased with concomitant savings in energy used to power the pumps.

Similarly, multiple independent and dispersed rain gardens and bioswale gardens will serve similar functions in areas outside the central Hornet Greenway open space system. Playfields located along the western edge of the campus will, over time, be converted to incorporate 2-foot layers of porous substrate, called "turf infiltration" retention/detention sites, beneath their playing surface turf layers. These sites will filter water from adjacent hardscape areas and retain water for a period of time, allowing enhanced infiltration of water into the groundwater aquifer.

Some portions of surface parking lots will be retrofitted with permeable paving to further facilitate stormwater retention and infiltration. Additionally, numerous small open spaces typically existing as irrigated turf areas adjacent to campus walkways will be converted: turf will be removed, the areas will be depressed several inches to retain runoff and then replanted with low-water-use plants. These "turf replacement planting" areas have the additional sustainable advantage of reducing fertilizer and maintenance requirements.

Reducing Stormwater Flows Entering the Pump Systems

This proposed holistic stormwater management system, consisting of Hornet Greenway's system of bioswale garden areas with low-water-use plants, rainwater gardens, turf replacement, playfield turf infiltration and permeable pavement represents a dramatic change in the surface retention, detention, infiltration and natural stormwater biotreatment potential of the campus. Furthermore, the campus drainage 'footprint' will shift toward east/American River pumps, reducing pressure on the western ditch pumps.

This comprehensive approach to creating surface stormwater facilities will, when implemented, dramatically reduce storm-related water flows entering the pump system and the western ditch surface drainage channel. This Low Impact Development (LID)

ESTIMATED CHANGE IN CAMPUS SURFACE AREA			
CATEGORY	CURRENT CAMPUS AREA, PERCENT	MASTER PLAN CURRENT CAMPUS AREA, PERCENT	NET CHANGE
Pervious Area, Retention and Detention	30%	35%	5%
Area Receiving Primary Biotreatment	0%	14%	14%
Turf Area	21.5%	13.4%	8.1%

Exhibit 6-5: Estimated Change in Campus Surface Area

SUMMARY OF STORMWATER LANDSCAPE MITIGATIONS			
OUTFALL	Q10 PEAK FLOW REDUCTION %	Q100 PEAK FLOW REDUCTION %	VOLUME REDUCTION* %
Pump #1 (North)	54%	48%	42%
Pump #1 (Sorth)	41%	39%	16%
Pump #1 (North and Sorth comb.)	47%	43%	29%
Pump #2	31%	28%	39%
Pump #3	0%	0%	0%
Pump #4	59%	59%	0%
Direct Outfall	28%	27%	42%
Shed 5	41%	40%	0%
Shed 6	0%	0%	0%
TOTAL CAMPUS	**41%**	**38%**	**22%**
*Volume Reduction is based on 2 consecutive 10 year, 24 Hour Storm Events			
Peak Flow: A rate of volume per time at an instantaneous point in time of a design storm, measured in cubic feet per second (cfs)			
Volume: The total amount of rainfall associated with a particular storm, measured in cubic feet (ft^3)			

Exhibit 6-6: Summary of Stormwater Landscape Mitigations

Exhibit 6-7: Stormwater Management Concept

approach to stormwater management also eliminates the need to construct more costly 'cistern' type underground detention systems.

The implementation of the stormwater management facilities will have a significant reduction in both the peak flows within the storm drain system and the volume of the storm runoff pumped from the campus into the American River. For example, the estimated peak flow and volume reduction for each outfall is summarized in Exhibit 6-6. The engineering firm Omni-Means modeled the performance of the stormwater plan, analyzing its impact on 10-year and 100-year peak flow storm events using the SacCalc computer program. The Omni-Means engineers found that the planned improvements would result in an estimated reduction in peak flows by 41% for the 10-year event and by 38% for the 100-year event.

Similarly, based upon a soils infiltration study conducted by soils engineering firm ENGEO in conjunction with the Master Plan project, Omni-Means determined that the total volume of water entering the American River would be reduced by 29%. Finally, it is estimated that with the stormwater plan, approximately 90% of the stormwater falling on the campus will receive primary biotreatment before entering the American River. This represents a dramatic increase in clean water entering the American River; it is estimated at only about 10% in its current configuration.

Change in Campus Surface Area Character

The overall estimated change in the character of the surface area of the campus which will have a positive impact on stormwater management is summarized in Exhibit 6-6, which also shows an estimate of the areas to be changed from turf to new reduced water- and fertilizer-demand planting areas including bioswale gardens, rainwater gardens and turf replacement areas.

It is the opinion of the Master Plan team that the potential solutions recommended in the 2012 Storm Drainage Master Plan are no longer necessary due to the proposed stormwater management facilities mentioned in this report. The total area and depth of each stormwater management facility will need to be determined on a case-by-case basis due to storm drain depth and infiltration rate.

New Opportunities for Surface Routing via Bioswales

The Master Plan bioswale system includes Hornet Greenway and rain gardens distributed throughout the campus. Bioswales are post-construction stormwater treatment best management practices (BMP) that treat stormwater vertically through an engineered soil filter media to detain or retain runoff on site. A typical bioswale will have one foot of freeboard from the ground to the area grate (to pond water) and 2 feet of engineered soil. The engineered soil will have 40% voids to retain storm runoff. The total volume of the bioswales is 1.8 cubic feet per square foot of surface area (1.0 cf ponded water above the bioswale, plus 40% x2' = 0.8 cf of water in the soil). This system of linked bioswales allows stormwater to be directed to areas where capacity exists, making the best use of pumping stations.

OPEN SPACE AND THE URBAN FOREST

With approximately 3,000 trees on the main campus, Sacramento State has been designated by the Arbor Day Foundation as a "Tree Campus USA." This designation complements that of the City of Sacramento, which has received the Arbor Day Foundation's "Tree City USA" title, underscoring its aspirations to be known as "City of Trees."

Many of the campus trees are a signature tree species for the State of California, Sequoia sempervirens, or the Coast Redwood. Various existing and planned new trees are also native to the American River flood plain community, thus helping retain the natural environment with its attendant animal and bird species that rely upon native trees for food and shelter. Examples of these plantings include California Sycamore (Plantanus racemosa), Valley Oak (Quercus lobata) and Western Redbud (Cercis occidentalis).

All campus trees contribute to creating a sustainable campus by:

1. Creating shade and thereby reducing the urban heat island effect generated by surface hardscape areas such as roadways and parking lots;
2. Further reducing ambient air temperatures through transpiration and thereby contributing to the reduction of building heat loads and the associated use of fossil fuels used to power building cooling systems;
3. Sequestering carbon in their collective biomass; and
4. Acting as a first interception surface to retain some stormwater.

Beneficial Impact of the Campus Tree Canopy

The beneficial impact of Sacramento State's tree canopy should not be underestimated. Using estimates supplied by the organization American Forests, the 3,000 mature trees at Sacramento State may be sequestering as much as 26 tonnes of carbon dioxide — or the equivalent amount of carbon dioxide used to power 390 typical homes for a year (assuming each home uses 6,000 kWh of electricity per year).

The cooling effect of these trees is also significant, as indicated by studies undertaken by the Sacramento Municipal Utility District (SMUD). A 1995 study prepared for SMUD in conjunction with the U.S. Department of Agriculture Forest Service's (USDAFS) Western Center for Urban Forest Research and Education evaluated the average impact of trees upon the heat loads of the typical homes participating in SMUD's residential Shade Tree program. The study estimated that average cooling energy and demand savings per mature tree was 95 KWh per year, representing a peak generation

capacity of .038 KW. For a home using 6,000 KWh per year which had two trees on its property, this would represent on average savings of 190 KWh/year or approximately 3.2 percent of the home's yearly energy use. Similarly, a follow-up study conducted in 2008 of 460 single-family homes in one randomly-selected Sacramento zip code found that 185 KWh of summertime savings could be attributable to trees planted on the west, south and east sides of the homes surveyed. In general it was found that the highest positive cooling benefits attributed to trees was realized by large trees planted close to the west side of the homes.

In addition to the campus trees, shrubs and grasses also contribute to biomass carbon sequestration and to reducing campus temperatures. These functions are further enhanced by virtue of their growth, stimulated by substantial water uptake from surface retention areas such as bioswale gardens and rainwater gardens. Further, it is proposed that the campus increase the use of mulch generated from onsite biomass clippings obtained through normal landscape maintenance activities. The mulch represents another form of carbon sequestration while at the same time reducing the need for landscape irrigation and chemical-based weed suppression.

6.4 SUSTAINABILITY TRAIL: USING THE CAMPUS AS A LABORATORY

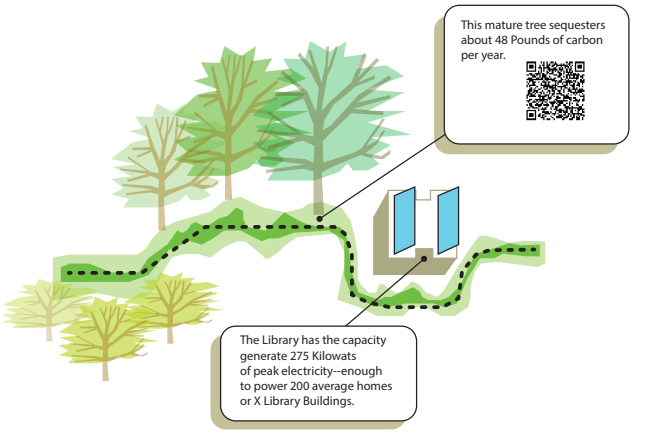
Sustainability has become a cornerstone goal of society and, as it is effectively and increasingly integrated into the Sacramento State academic curriculum and the University's operations, it will also be increasingly important to showcase the sustainability features of the campus. As a educational institution, the University has an inherent interest in helping the community, including its own students, faculty and staff, learn how sustainability can built into both the physical and the philosophical environment and the benefits these actions will confer.

Among the actions AASHE has targeted for integrating sustainability into the higher education curriculum is the use of the campus as a laboratory. The Master Plan envisions this action as encompassing educational activities for both the University's science programs as well as the wider community. By making the campus into a living demonstration of sustainability, the University will attract not only the elementary school classes who currently visit the campus Arboretum, but will draw the attention of the entire K-12 regional system as well as other regional higher education institutions.

The University Sustainability Committee has envisioned establishing a Sustainability Trail as an educational component of Sacramento State's sustainability program. The Hornet Greenway will provide an excellent opportunity for this initiative by serving as an immediately visible focal point for a Sustainability Trail that can be developed to integrate all of the campus sustainability initiatives into a comprehensive informal educational program.

PROPOSED SUSTAINABILITY TRAIL COMPONENTS	
Component	**Description**
American River Courtyard	LEED Gold rating--the building's design exceeds Title 24 energy requirements by nearly 35 percent
Bioswale gardens	Planned for the central open space system and other areas throughout the campus, bioswale gardens provide primary stormwater quality treatment and act to retain and slow stormwater runoff. Associated campus soils and plants to be described as part of the functioning sub-components of these gardens.
Rainwater Gardens	Planned for the central open space system and other areas throughout the campus they: 1) provide primary stormwater quality treatment; 2) act to retain and slow stormwater runoff and 3) provide seasonal water to the campus plants contained within them. Associated campus soils and plants to be described as part of the functioning sub-components of the rain garden.
Central Plant	Diagram depicting campus heating and cooling systems. Description of enhanced features such as thermal storage tank and proposed geothermal subcomponents?
Photovoltaic Electric Systems	Located on various building rooftops such as the existing Library and other planned new central buildings these systems typically built as a result of public and private partnerships, greatly supplement campus energy otherwise purchased at higher rates from SMUD
Building Smart Meters	'Dashboards' located on and/or in campus buildings indicate current hourly, daily energy use compared to average benchmarks for the same building and/or for other typical buildings used for the same purpose—e.g. classrooms
Energy Kiosk	Kiosk that displays current campus energy used by each building/facility comparing it with benchmark usages or targets. It would also display energy produced by campus PV systems.
Water Well	Well location with interpretive sign explaining the use of campus groundwater for irrigation; An associated water meter would indicate current use levels adjusted for season/month.
The Urban Forest	Multiple benefits to the campus and environment as a result of campus trees. Identification of specific trees by species as part of the overall 'campus arboretum', Identification of California native plants and those plants, birds and animals native to the preexisting American River flood plain ecosystem.
Geothermal Energy	Sign indicating the presence of geothermal loops/other systems underground and their role in the reduction energy costs and in fossil fuels used by the campus.
The Well	LEED Gold rating; a campus bike hub

Exhibit 6-8: Proposed Sustainability Trail Components



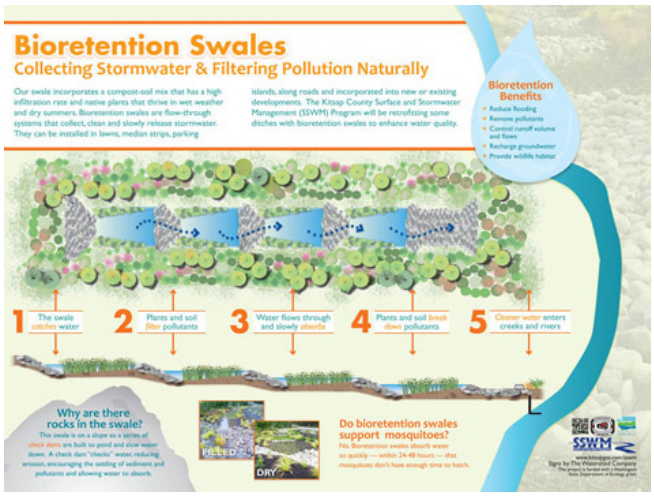


Exhibit 6-9: Examples of Campus Sustainability Trail Exhibits and Signage

The Sustainability Trail envisioned by the 2015 Master Plan would be both a physical route through the campus and an overall philosophy underpinning the University's commitment to sustainability education. The physical Trail would extend from the Arboretum, the Arboretum Expansion and the LEED-Gold American River Courtyard at the north, into the Grand Central Quad and along the main stretch of the Hornet Greenway in the Academic Core, and south to the LEED Gold Well facility in the southwest.

The Sustainability Trail would incorporate existing and planned features of the University's sustainability program such as those suggested in Exhibit 6-8. The interpretive signage and materials now part of the at the Arboretum and the existing campus tree identification signage program would become part of the Sustainability Trail, as would other programs such as the energy reduction systems in residence halls, recycling programs in food service venues, and displays in engineering and science classroom buildings.

Typically each location on the Sustainability Trail would have an interpretive sign describing the sustainability feature of the campus and how it functions [for example, Exhibit 6-9]. The simplicity or complexity of the interpretive signage, including whether the signage elements are digitally interactive or more standard displays, will be part of the responsibility of the University Sustainability Committee. For example, the Committee might choose to work with the Graphic Design faculty to develop a semester project in which students would design the signage program.

Additional components of the University's sustainability program, both existing and future initiatives, should be "mined" for their potential contribution to the Sustainability Trail. For example, a "dashboard" that shows current usage patterns compared to various benchmarks can provide feedback on energy or water use. Using a dashboard to make residential students aware of a particular day's energy use and projected use can help students decide to curtail individual room lighting or computer recharging until an off-peak period, thus reducing the campus expenditure for electricity that day. The efficacy of these dashboard meters should be accompanied by a list of possible steps an individual or even a department could take to conserve energy or water.

In short, the Sustainability Trail has unlimited potential as a platform to promote the University's excellence in an increasingly critical field of science and its contribution as a responsible partner with the community, the Sacramento region and the state of California.

6.5 CAMPUSWIDE ENERGY SYSTEMS

EXISTING UTILITIES AND CENTRALIZED SYSTEMS

During the school year 2013-2014, the engineering firm P2S performed an evaluation and analysis of existing utility systems at Sacramento State as part of a CSU-wide evaluation of campus utility systems. The final report of this study and findings will be made available to the CSU Chancellor's Office and Sacramento State in July/August 2014. Basic recommendations from this report for improving the utility systems are identified below. Some of these recommendations have direct bearing on future strategies for achieving higher levels of energy and water sustainability. The recommendations have been divided between those pertaining to State facilities to be funded by the CA legislature/ CSU Chancellor's Office and those non-state facilities funded through campus organized initiatives including housing, parking and student activity facilities. For further information about existing campus utilities ,see Chapter 2, Existing Conditions and Appendix B.

STATE FACILITIES RECOMMENDATIONS

- Augment thermal energy storage (TES) capacity to offset peak demands
- Implement energy efficiency projects to lower building tonnage requirements
- Extend chilled water piping to serve new buildings and form loop system
- Extend steam piping to serve new state buildings
- Extend existing substation electrical feeders '3' and '4' and '5' and '6' to meet present and future electrical load requirements
- Extend existing Gas, Sewer and Water distribution to new state buildings
- Provide PV systems on new buildings

NON-STATE FACILITIES RECOMMENDATIONS

- Provide satellite plants comprising heat recovery chillers and boilers for residential areas
- Provide PV/Solar Thermal technologies to offset both electrical and natural gas demands
- Extend existing substation electrical feeders '5' and '6' to serve planned NE Housing Facilities

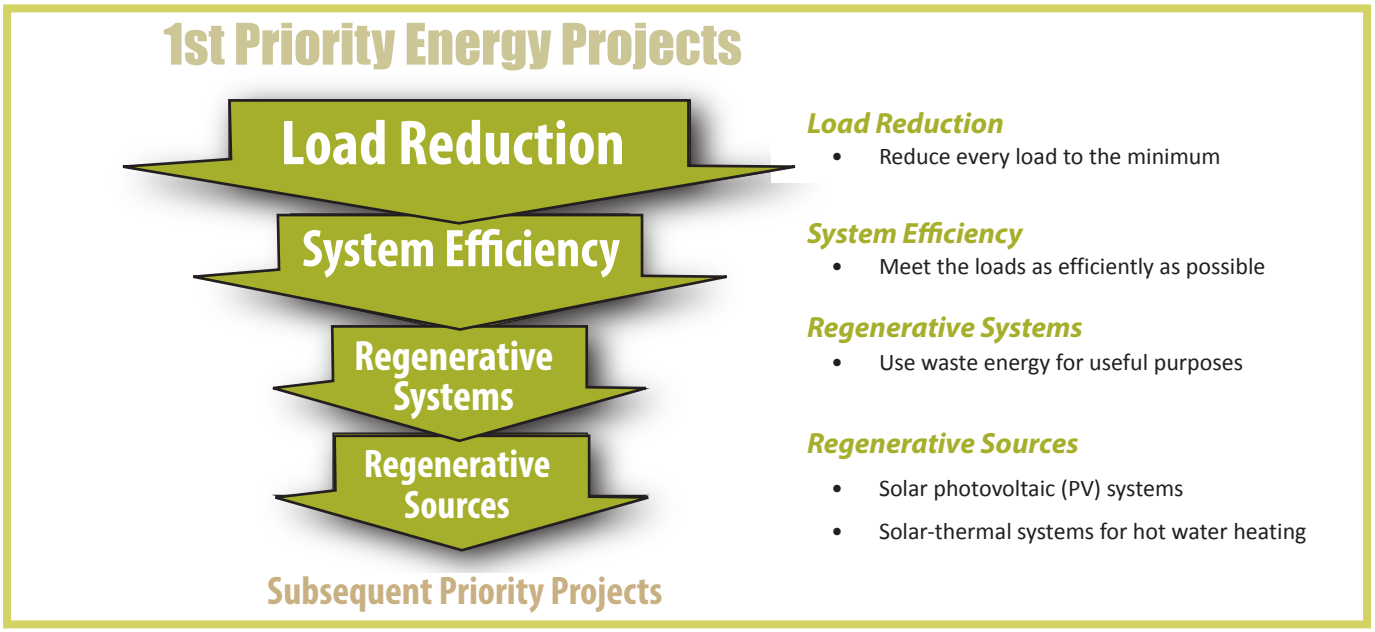


Exhibit 6-10: Increasing Levels of Building Intervention and Sustainability

The Albertslund Maxi Post (Louis Poulsen)

Exhibit 6-11: High-efficiency Glare-free Light Fixture

- Provide new Sacramento Municipal Utilities District (SMUD) electrical service to serve planned South Housing Village
- Provide Pacific Gas and Electric (PG&E) service to proposed new housing facilities
- Provide photovoltaic (PV) systems on existing and future parking structures

SUSTAINABLE DESIGN APPROACH TO ENERGY EFFICIENCY

After evaluating the entire energy picture of the campus, an overall tiered strategy of implementation is being proposed [see Exhibit 6-10]. This strategy focuses on:

- Energy conservation strategies as a way of reducing loads on existing and future central plants, electrical service and other energy generation equipment;
- Making improvements to existing and future system efficiencies; and
- Addressing long term energy through renewable energy strategies such as using 'waste' energy and heat energy from various sytems for useful purposes and establihsing the systems to capture these otherwise wasted resources.

As discussed below, renewable energy strategies appropriate for Sacramento State include photovoltaic, solar-thermal water heating and combined systems strategies.

SITE LIGHTING

There is significant potential at Sacramento State for new high-efficiency outdoor lighting [for example, Exhibit 6-11] that could satisfy three sustainability goals: reduced light pollution of the night sky, reduced energy use, and reduced maintenance costs.

There is an increasing interest in maintaining a clear night sky through the use of outdoor "cut-off" lighting fixtures that are directed downward to reduce the sky glow effect. Similarly, these types of fixtures can contribute to the reduction of general light pollution, which is suspected to disrupt the sleeping rhythms of various animals and, potentially, humans. If existing and future outdoor lighting were to be provided through highly efficient LED light fixtures, significant energy savings and reduced maintenance costs are also attainable. Retrofit installation of LED outdoor lighting fixtures can both reduce the energy use and dramatically reduce maintenance costs because their service life is typically five to ten times that of fluorescent fixtures. However, this is currently an emerging technology. Replacement fixtures must be studied carefully to identify the most appropriate approaches based upon specific application, cost and efficacy of light produced.

Comments received in the Campus Forums suggest there are outdoor areas of the campus that are relatively dark at night and feel unsafe to students, faculty and staff walking across the campus in the evening. In some cases the proposed tree trimming program [see Chapter 5] will increase the effectiveness of existing site lighting. In general, however, a detailed survey of campus lighting is called for to identify the specific areas in need of additional light and the associated light intensities appropriate for all areas of the

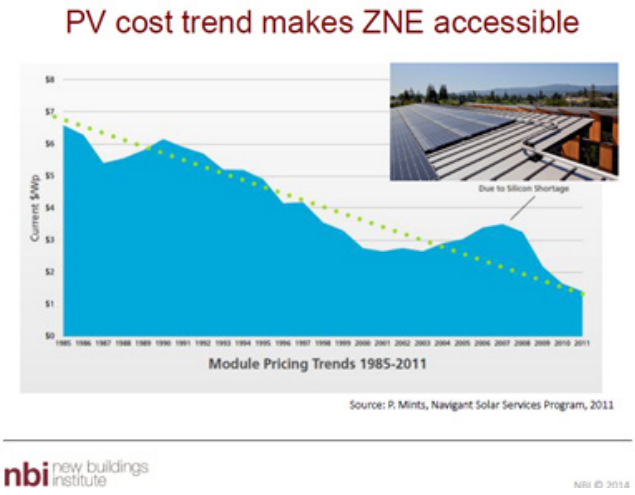


Exhibit 6-12: Photovoltaic Cost Trend

campus. The survey would also identify the appropriate fixture types needed to achieve the combined goals related to security, light pollution, site aesthetics, energy conservation and cost.

SOLAR PHOTOVOLTAIC SYSTEMS

Pushed by advances in photovoltaic (PV) technology, consistent reductions in installed costs, tax benefits and deliberate public policy objectives, the use of solar photovoltaic systems across the nation continues to grow significantly. Exhibit 6-12 shows the decreasing cost trends for PV tehcnology. Sacramento State currently has an installed capacity of 500 KW of DC peak power (500 KW-DC) located on the roofs of the Library and Well. Campus leadership has identified additional PV installation opportunities for Parking Structures 2 and 3 (PS2 and PS3), the University Union, American River Courtyard, Solano Hall and Folsom Hall.

Since there are several emerging funding sources for PV installations, it seems feasible that the University can continue to install PV systems on its facilities in the future. The exact funding mechanism for the systems may vary from third-party installations where benefits are split between the University, the installing company and the Sacramento Municipal Utility District (SMUD) — to University-led installations where benefits fully flow to the university to offset electricity costs.

The engineering firm P2S developed an energy analysis and projection for the campus that suggests that a maximum 60 percent of the peak campus load should be provided by solar PV electricity. Although the campus historic electric load was recorded at 8.7 MW, given future increases in projected peak loads based on the Master Plan build-out, a future total installed PV capacity of about 5 to 6 MW for the campus is a suggested target.

PRIORITY SOLAR PV PROJECTS						
POTENTIAL FOR PV	**BUILDING GSF**	**FLOORS**	**ESTIMATED ROOF AREA, SF (1)**	**PV RATING, KW, DC**	**WATTS/SF**	**ESTIMATED KWH/YEAR (2)**
EXISTING FACILITIES						
University Union	162,268	3	27,045	156	5.75	229,880
Parking Structure 1 [PS1]	494,208	5	49,421	284	5.75	420,077
Parking Structure 2 [PS2]	300,035	4	37,504	216	5.75	318,787
Parking Structure 3 [PS3]	983,620	5	98,362	566	5.75	836,077
Solano Hall	66,320	5	6,632	38	5.75	56,372
Yosemite Hall	82,301	1	41,151	237	5.75	349,779
American River Courtyard	209,050	4	26,131	150	5.75	222,116
Folsom Hall	188,000	3	31,333	180	5.75	266,333
EXISTING BUILDINGS PV POTENTIAL				**1,826**		**2,699,421**
MASTER PLAN FACILITIES						
Parking Structure 5 [PS5]		5	48,150	277	5.75	409,275
Student Housing A	72,000	4	9,000	52	5.75	76,500
Student Housing B	60,000	4	7,500	43	5.75	63,750
NEW BUILDINGS PV POTENTIAL				**372**		**549,525**
TOTAL POTENTIAL				**2,198**		**3,248,946**

Exhibit 6-13: Priority Solar PV Projects

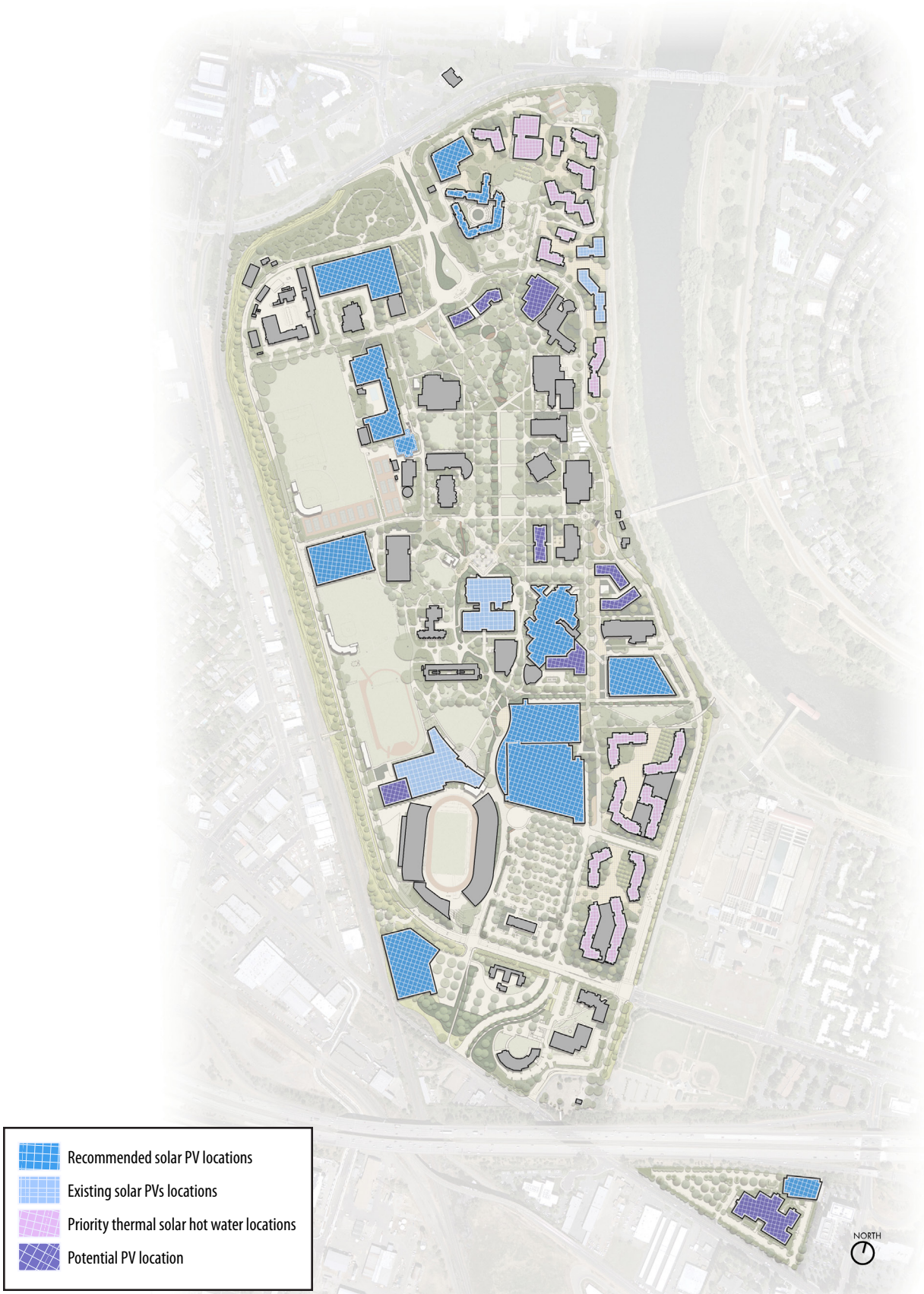


Exhibit 6-14: Existing and Potential PV and Thermal Water Heating Locations

Exhibit 6-13 represents a list of first-priority PV projects for the campus. Identifying which existing buildings would be used should be based upon factors such as roof structural capacity, roof age and/or ease of wiring retrofits. In general, basic solar shade studies would be performed for all proposed building roof surfaces to verify year round solar access for any proposed PV arrays.

These solar performance estimates are based upon the installed capacity and performance estimates provided through the Go Solar California CSI-EPBB Calculator for the Library PV installation as applied to candidate existing buildings and new buildings proposed in the 2015 Master Plan. A conservative factor of 50 percent roof coverage was applied to the candidate buildings to account for mounting/coverage inefficiencies related to roof orientation, shape, and other roof mounted equipment. Module/array orientation is assumed to be true south and a tilt angle of 20 degrees was assumed to favor summer electricity production. For existing buildings, no assessment of structural suitability was made; it was assumed that the roofs could structurally support PV panels and racking systems. To the degree that this assumption is invalid, the total potential would be reduced commensurately.

The following resource was used in these estimates: http://www.rapidtables.com/convert/power/index.htm.

Exhibit 6-14 shows the proposed locations for priority solar projects, hot water projects (see below), existing solar PV's and sites for which the University will determine whether they are suitable for PV systems.

The Sustainability Guidelines propose that most flat-roofed non-shaded roofs on existing and planned future buildings be considered for with solar photovoltaic systems. These structures include academic and administrative buildings, parking structures and campus housing. This would represent approximately 4,600 KW-DC or over nine times the current installed capacity. This amount of power, also expressed as 4.6 megawatts (MW) would be enough to power over 1,100 homes consuming about 6,000 kilowatt-hours each per year.

ON-SITE SOLAR-DOMESTIC HOT WATER

Solar thermal systems have been used effectively throughout the state for the heating of domestic water in both residential and commercial installations. Conceptually, these solar systems are used to assist traditional hot water systems by preheating water and storing it in hot water tanks. Final heating of the water is usually provided by natural gas. On a university campus such as Sacramento State, the main candidate uses for solar hot water include pool heating, shower heating and kitchen hot water uses such as dishwashers.

Given this context, the existing and proposed residential villages are the prime locations for the future installation of solar domestic water installations. Based upon the recent experience with the four-floor American River Courtyard project (which has a solar hot water heating system), a relatively small amount of the total roof area (15-20 percent) is needed to accommodate the hot water heating solar arrays. It is therefore assumed that, for the future, the roofs of multi-building housing projects proposed in the Master Plan (with projected heights of four stories), can be used for both solar domestic hot water arrays and PV arrays devoted to the generation of electricity. Therefore, the conservative PV installed capacity estimates included above should not be affected by assuming that a portion of the associated housing roof areas would also be used to develop solar hot water arrays.

6.6 NET ZERO CAMPUS (BUILDINGS) ANALYSIS

Optimizing the energy performance of buildings on campus is a clear goal of CSU Sacramento and the California State University system-wide. The need to reduce environmentally harmful emissions caused by fossil fuel energy generation and to improve the energy security of its campuses are driving policy and major infrastructure decisions. Likewise, the California State University System has set goals to increase self-generated energy capacity from 44 to 80 MW by 2020 and procure 33% of its electricity needs from renewable sources by 2020. The State of California is also undergoing a coordinated effort through its energy codes, Title 24, and Public Utilities Commission to move buildings toward "Zero-Net Energy" (ZNE) by 2030. ZNE means that buildings generate as much renewable energy on site or nearby as they consume on a net-annual basis (for example, producing surplus during summer and consuming from the grid during winter). Given rapid advancements in technology and an increasing number of example ZNE projects, it is worth considering the question: "What would it take for Sacramento State to become a Net-Zero Campus?" The following analysis was performed:

PHASING

The 2015 Master Plan developed a phasing plan [Chapter 8] that was based on the academic program developed by the University. The phasing plan identifies the sequence in which buildings would be built, renovated or removed over the next 30 years. The analysis was set up to track campus grid energy over time as planned demolitions, new construction, renovations, and expansions occurred on campus.

BUILDING ENERGY USE INDEX (EUI)

Because different building types have very different energy intensities and possibilities for future energy improvements, building Energy Use Index (EUI)numbers were estimated by categories: Academic and Housing (similar EUI); Science; Food Service; and Parking Structures. Existing building energy usage summaries [Exhibit 6-16] including solar energy installation and other Master Plan inputs were evaluated. Energy targets for Net Zero were developed and summarized in Energy Use Index (EUI) targets for each building type and for each time period for construction and renovation efforts. It was assumed that, over time, new technology and cost reductions would allow for more aggressive (lower) EUI metrics for buildings that are constructed and renovated in the more distant phases. Solar energy installation and production were assessed and compared with forecasted campus energy use.

Note: The original data and calculations for this analysis are included in Appendix B.

ASSUMPTIONS OF NET ZERO ANALYSIS

The analysis was based on conservative assumptions overall and took the following factors into account:

- Planned solar installations (described above);
- Existing buildings with no planned renovations will have energy improvements of 30% by 2035; existing buildings to be renovated will not see improvements until their renovations occur;

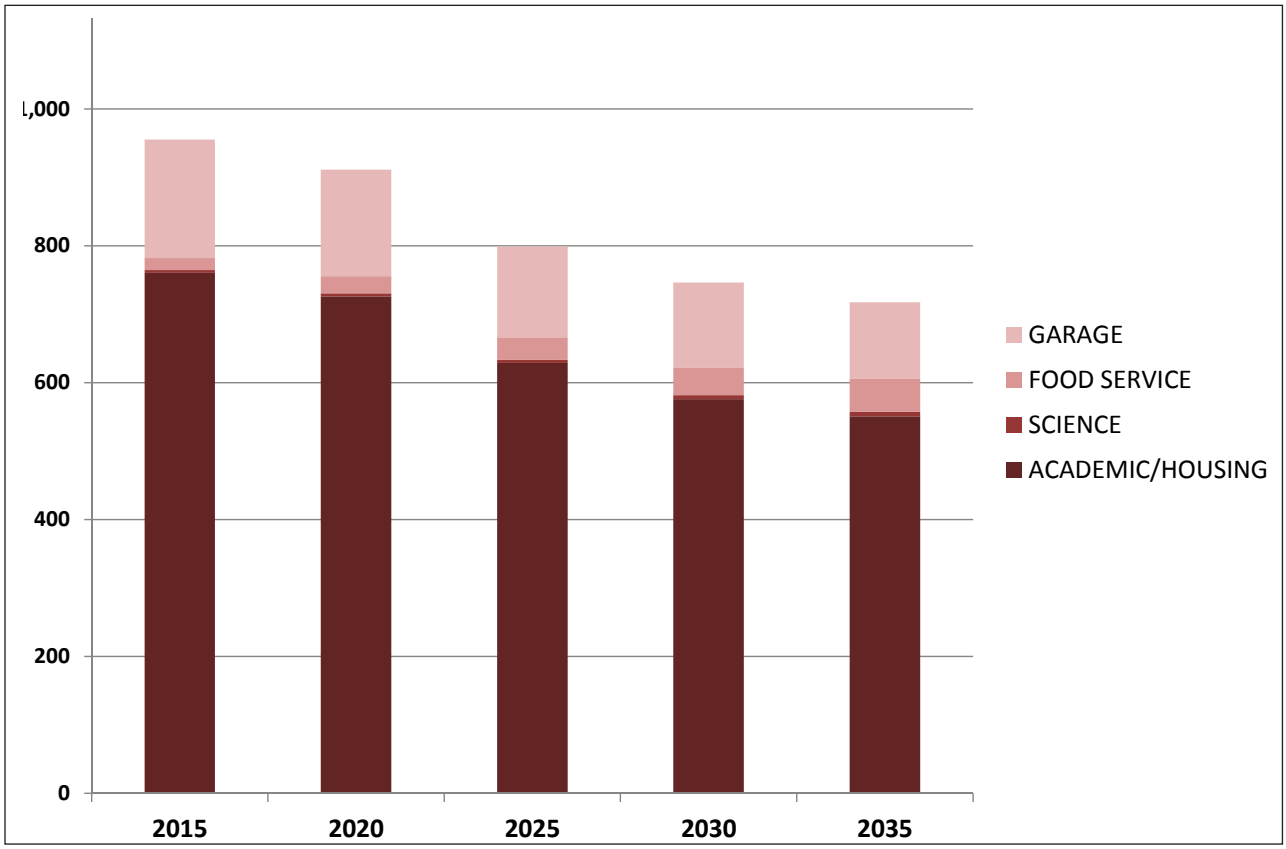


Exhibit 6-15: Energy Usage by Building Type

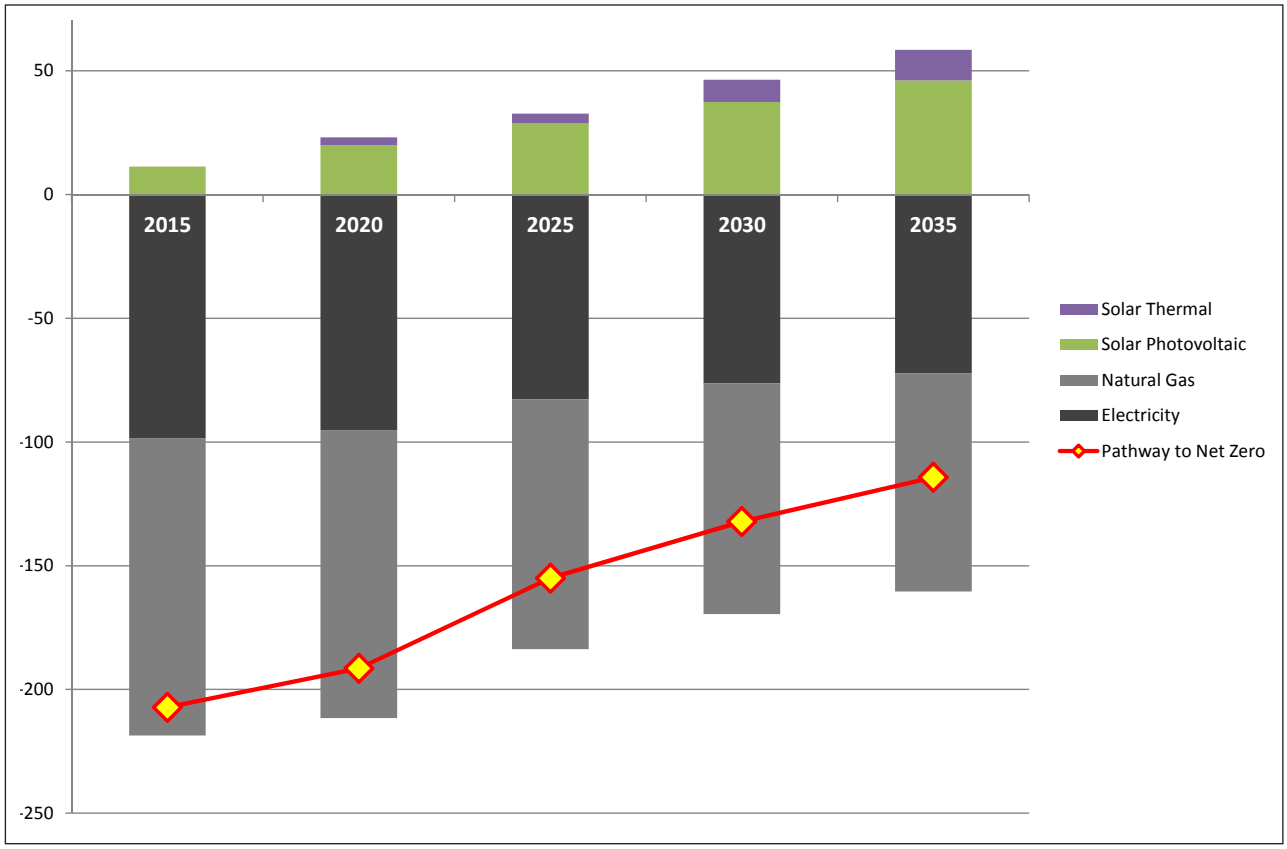


Exhibit 6-16: Pathway to Net Zero

- New buildings have EUI targets that decrease over time; new buildings do no see continued improvements after they are built;
- Solar electricity production per kW of installed capacity is 1,550kWh/kW/yr;
- Solar thermal on new housing will provide 50% of natural gas (assumed 45% of total)

RESULTS OF NET ZERO ANALYSIS

The initial analysis illustrated in Exhibit 6-16 indicates that, based on this analysis, at full build-out, CSU Sacramento would generate approximately 35% of its campus building energy use on site from renewable resources.

There are a number of variables which, alone or in combination, may be evaluated to bring the campus closer to a Net Zero Energy goal. Further studies of combination scenarios is recommended:

- More aggressive EUI reduction targets for new buildings
- Increased production of on-site solar power
- Ground-source heat-exchange technology
- Purchase of off-site generated renewable power
- Reductions in projected building square footage (parking garages for example)

Through the future and ongoing development of campus buildings and infrastructure there will be many opportunities to manage the variables that can move this campus toward Net-Zero or even Net-Positive. Ongoing study of different scenarios, including Building EUI goals, on-site generation potential and other site resources should be pursued.

6.7 BUILDING DESIGN AND RENOVATION

LEED FRAMEWORK

Sacramento State is adopting a goal of having new buildings and renovated existing buildings achieve a LEED rating of Gold. Even though the Leadership in Energy and Environmental Design (LEED) credit-based certification system continues to evolve into a set of more aggressive criteria for evaluating and rating a facility, the Master Plan can recommend that specific credits be captured in the design of new facilities.

Because it is critical that educational facilities have environments that maximize human health and productivity, it is proposed that each academic building be designed to capture all of the LEED credits within the **Indoor Environmental Quality** section of the LEED checklist. Similarly, based upon the stormwater management, alternative transportation, alternative energy and water conservation goals of the Master Plan, it is proposed that each project capture the **Stormwater Design**, **Alternative Transportation**, **Heat Island Effect**, **Light Pollution Reduction**, **On-Site Renewable Energy** LEED checklist credits, as well as at least one half of the credits in the **Water Efficiency** category.

Thoughtful use of passive design principles will go a long way toward attaining a number of these credits and the **Innovation** and **Design Process** credits. For further discussion of design issues relevant to new and renovated buildings [see Chapter 7: Design Guidelines].

Each building project shown in the Master Plan is expected to incorporate site stormwater projects that contribute to the campus-wide drainage plan. For example, projects such as the Lassen Hall Renovation or the Library Renovation, Parking Structures PS5 and PS10 and future Academic Building 1 (see Chapter 4) should be considered as projects that can contribute to the construction of sections of the Hornet Greenway and/or other specific rain garden areas identified on the Stormwater Management Plan [see Exhibit 6-7].

Furthermore, because many of the new building projects will also be replacing aging, inefficient and outmoded buildings, the demolition of existing buildings will, in many cases, be incorporated into the overall 'project' and should therefore be considered as part of the LEED process. In those cases, achieving credits for **Construction Waste Management** and **Materials Reuse** should be part of the overall project approach. In particular it has been noted that some of the large steel frame window units in some existing buildings are of a quality and character that make them good candidates for reuse.

Although all new buildings should be constructed with cool roofs, roof tops should be devoted to solar PV generation facilities where it is determined that these are feasible. It has been determined that green roofs are not suitable for the Sacramento State Campus.

Many of the sustainability strategies described here will also apply to construction of remodeled and renovated buildings as noted above.

WATER EFFICIENCY (BUILDING, DESIGN, CONSTRUCTION AND RENEWAL, OBJECTIVE 2.6)

CSU Sacramento is located on the banks of the American River which gives campus visitors a sense of water abundance, but due to intense agricultural irrigation use nearby and growing urban demand, it is a strategic priority to treat water as a precious resource and take measures to conserve or to reduce water consumption. According to proposed CSU goals and in alignment with LEED criteria, Sacramento State should be able to reduce individual building water consumption by 20% in new buildings, using LEED criteria and by auditing existing buildings.

It may eventually become economical and synergistic with stormwater management strategies to reduce water usage in restrooms by promoting the use of reclaimed/recycled water.

As noted above, the use of decorative fountains should be minimized. Sacramento State will cooperate with state, city, and county governments to the greatest extent possible to effect additional water conservation during drought conditions.

Based on these assumptions, the Master Plan makes the following recommendations:

New Construction

New construction should incorporate water-saving fixtures to reduce potable water use by at least 30% and sewage conveyance by 50%, below the baseline case usage based on the Energy Policy Act of 1992 and LEED methodology.

Existing Buildings

The University should audit water fixtures in existing buildings and prioritize replacement of inefficient fixtures over time to reduce

potable water use in existing buildings by at least 30%, below the baseline case usage based on the Energy Policy Act of 1992 and LEED methodology. Auditing will involve evaluating the cost and cost benefit through water savings for retrofitting old "water hog" fixtures with newer more efficient ones.

EXISTING BUILDINGS TO BE RENOVATED

Many of the existing buildings to remain in the 2015 Master Plan have been identified for renovation. Three of these have been identified for major reconfiguration and renovation as part of their programming to provide vital campus educational functions. These buildings include the four-floor, 377,074 GSF (two-building) Library (constructed 1990); the five-floor, 191,137 GSF Sequoia Hall (constructed 1967); and the three-floor, 80,445 GSF Lassen Hall (first constructed 1954 with updates in 1959 and 1995). These structures will be renovated and/or reconfigured to meet modern classroom standards and demands; as noted in Chapter 7, Sequoia Hall will be completely reconfigured to be used for classrooms when its science laboratories are replaced by the new Science Building (currently in design).

The remodels of these buildings and the other buildings that are planned for remodeling should emphasize making them highly sustainable in the area of **Indoor Air Quality,** ensuring the creation of healthy indoor environments that promote student, faculty and staff productivity. In concept, energy and water conservation retrofit projects should be targeted with a view toward long-term investments that will yield projected payback periods of ten years or less.

Other existing campus buildings should be evaluated so the University can target the next round of water and energy conservation interventions that will yield significant savings in terms of energy and economic payback. For example, it is expected that significant savings in lighting will continue once appropriate indoor LED lights become more readily available at a shorter period payback price point than currently exists.

NEW CONSTRUCTION SUSTAINABILITY STRATEGIES

[See also Chapter 7, Design Guidelines]

The evaluation and analysis of existing utility systems performed by the engineering firm P2S includes basic recommendations for improving utility systems and recommendations for achieving higher levels of sustainability to meet evolving Chancellor's Office and other agency goals. Some of these strategies are summarized below. These strategies should be considered for all new construction; the more aggressive implementation is expected to be guided by the LEED Gold goal for new construction and major remodel projects.

Ultra-low Energy Strategies

- Ground Source Heat Pumps
- Ventilation: Natural, Dedicated Outdoor Air Systems, Demand Control Ventilation
- Radiant Heating/Cooling: Chilled Beams
- Use of earth tubes to precondition outside air on VAV air handling systems

Highly-efficient Thermal and Daylighting Envelope

- Building Orientation and Glazing Ratio
- Seasonal solar access and shading to reduce interior heating and cooling loads
- Daylighting: access and control
- Use of solar tubes to minimize electric lighting
- Use of phase change material on inside walls that will store 30 Btu/ft^2 at 73°F phase change

Interior Interventions

- Plug load reductions -- promoting occupancy control power strips to shut off monitors and other plug loads when not in use
- Use of air speed (ceiling fans) to expand thermal comfort ranges
- Use of energy efficient LED lighting coupled with effective occupancy and automatic daylight control strategies and demand control system
- Promoting task lighting in spaces to reduce overhead lighting power densities (e.g. laboratory buildings)

Other Systems

- Use of energy efficient equipment to minimize energy consumption
- Energy Management Systems
- Building Dashboards/Promoting metering with central display to monitor energy generation and consumption
- Energy recovery systems
- Use of indirect/direct evaporative cooling systems
- Promoting energy efficient distribution transformers to reduce no load and load losses

6.8 SUSTAINABLE TRANSPORTATION AND CIRCULATION SYSTEMS

Sacramento State has principally depended on single occupant vehicle (SOV)/drive-alone mobility for getting students, faculty and staff to and from campus. The 2015 Master Plan recommends a series of policies and actions that are designed to reduce congestion and parking demand by focusing on reducing the drive-alone mode share [Chapter 4].

The benefits of shifting the dominant mode also include significant advances in campus sustainability. With members of the campus community Increasingly seeking alternatives to the drive-alone commute, the University will be able to reduce air and noise pollution and greenhouse gas (GHG) emissions contributing to climate change, and to increase opportunities for physical exercise.

Professor Kevan Shafizadah has been conducting informal surveys of Sacramento State transportation habits for the last six years, and they provide the best look at the relative split between transportation modes. Different transportation modes also have different GHG emissions profiles. If a drive-alone car has an emission factor of 1, a carpool carrying two people would have an emissions factor of ½, or 0.5, because the same amount of emissions per trip is divided by the two occupants. Likewise a bus carrying 30 passengers would have an emissions factor of 1/30, or 0.033. A bicycle or pedestrian has zero emissions.

The scenarios illustrated in Exhibit 6-18 depict the Master Plan Campus population at full build-out based on existing mode split, a modest 15% reduction in SOV trips and an aggressive 27% reduction in SOV trips. Depending on the number of students who live on campus and how public transit infrastructure improves, aggressive targets can be established, in combination with campus advocacy for healthy and more environmentally friendly transportation choices.

To recapitulate the information provided in Chapter 4, where the complete analysis of current and projected mode split is provided, Exhibit 6-19 shows a series of transportation demand management (TDM) strategies the University may choose to continue, adjust or initiate in order to shift the campus mode split away from single-occupancy or drive-alone vehicles; these strategies, as part of an overall approach to traffic reduction, can reduce the University's transportation-related carbon footprint.

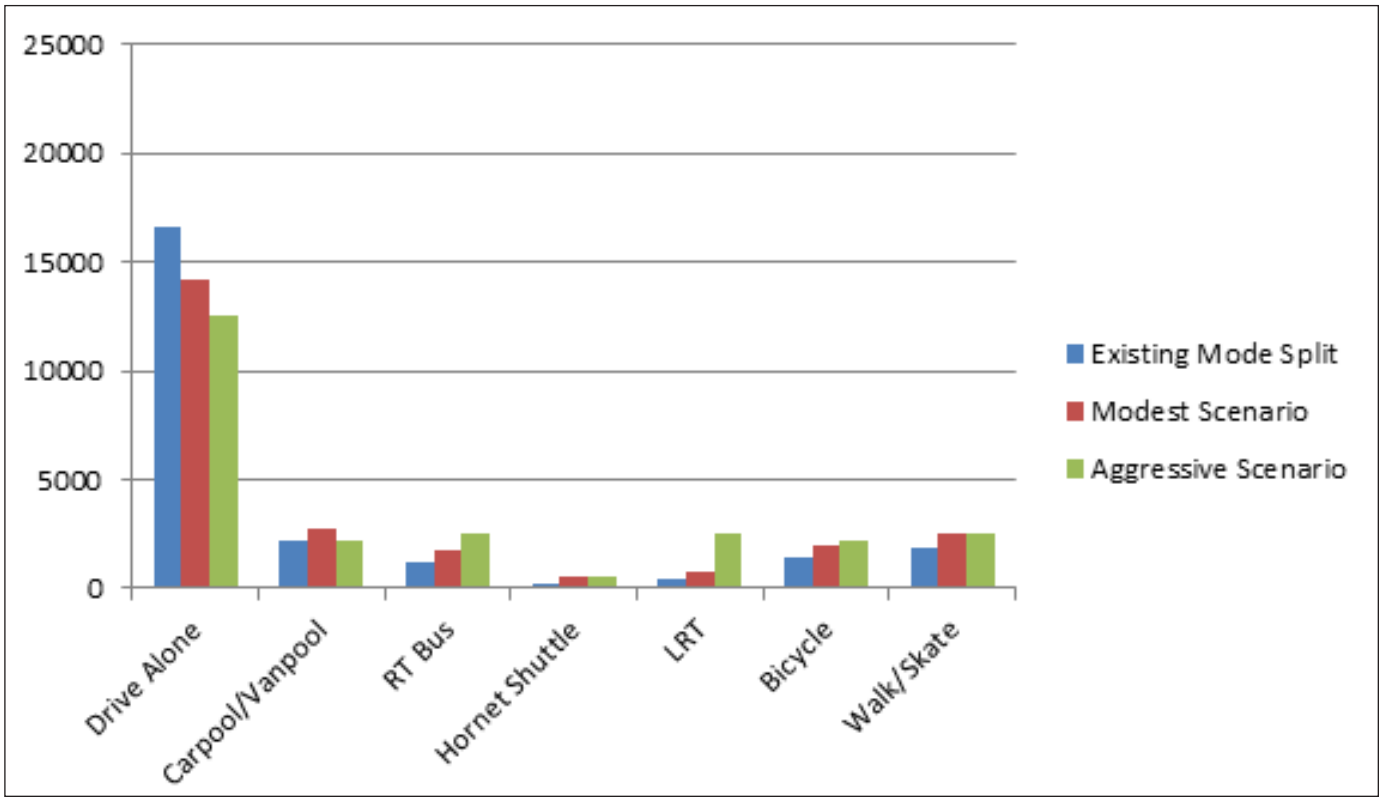


Exhibit 6-17: Existing and Future Mode Split Scenarios

The recommended TDM strategies include adjusting parking prices, working with Regional Transit or other authorities to improve transit service, expanding bicycle and pedestrian amenities, increasing campus housing and amenities, providing car-sharing programs, initiating ride-matching programs, providing carpool and vanpool incentives, and enhancing shuttle service.

It is recommended that the University initiate scenario planning and commuter surveys to model and explore the potential effectiveness of specific strategies. These more detailed analyses can help the University address some of the issues that will affect the achievement of significant modal shifts, including the following: some compelling questions can be answered.

- What would it take for SOV trips to be reduced in half? How are the costs of transportation demand management strategies balanced against the costs saved by avoiding the construction of one or more new parking structures?
- How likely are commuters to travel by bus if the walk to and from the bus were more convenient? Are there ways the University can assist to reduce the obstacle of this "Last Mile" problem?
- How many people would commute by bike if there were more or better bike lanes?
- How do monthly competitions or incentives influence commuter choices and behavior?
- What are the most cost-effective and environmentally beneficial strategies in which the University can invest?

Further transportation scenario analyses can inform these decisions for the long-term benefit and sustainability of the campus.

6.9 HOUSING VILLAGES: NEW CENTERS FOR SUSTAINABLE DESIGN

The Sacramento State Master Plan identifies the expansion of student housing as a cornerstone of the physical plan and sees its development as a way of attracting new students, enhancing student retention, contributing to an active campus, and reaching higher levels of campus sustainability. The plan calls for the reinforcement of the existing student residential area as the North

MODE SPLIT SCENARIOS (FROM PROFESSOR KEVAN SHAFIZADAH)								
EXISTING MODE SPLIT: CSUS TRANSPORTATION INTERCEPT SURVEY SPRING 2008-2013 (SHAFIZADAH)			EXISTING 25,000 FTE		MODEST 25,000 FTE		AGGRESSIVE 25,000 FTE	
SOV/Drive Alone (1)	17,250	69%	17,250	69%	14,750	59%	12,500	50%
Carpool/Vanpool (1/2)	2,160	9%	2,250	9%	2,500	10%	2,250	9%
RT Bus (1/30)	1,200	5%	1,250	5%	1,750	7%	2,500	10%
Hornet Shuttle (1/15)	240	1%	250	1%	500	2%	500	2%
LRT (1/40)	480	2%	500	2%	750	3%	2,500	10%
Bicycle (0)	1,440	6%	1,500	6%	2,250	9%	2,250	9%
Walk/Skate (0)	1,920	8%	2,000	8%	2,500	10%	2,500	10%
DAILY SOV TRIPS	**49,310**		**54,110**		**47,900**		**41,670**	

Exhibit 6-18: Mode Split Scenarios

MASTER PLAN RECOMMENDED TRANSPORTATION DEMAND MANAGEMENT STRATEGIES		
TDM STRATEGY	**CURRENT PRACTICE AT CSUS**	**SUGGESTION FOR FURTHER DRIVE-ALONE REDUCTION**
Parking Pricing	Semester Permit Prices: • Student - $162 • Residence Hall - $210 • Faculty/Staff - $63-$212) http://www.csus.edu/aba/utaps/parking/permit-fees.html	• Increase permit fees • Parking pricing based on distance of parking lot from center of campus • No on-campus parking for freshmen
Transit Service	CSUS Commuter Sleeves: • Free for students (paid through student registration fees) • $40 per semester for employees	• Reduce price of staff commuter sleeve • Improve transit access for pedestrians—make it easier to get to the transit station
Bicycle and Pedestrian Amenities	• Bike parking: bicycle compound (staffed to prevent theft), bike lockers, bike racks • Peak Adventures has on-campus bike shop	• Expand additional on-campus bike parking • Construct/staff "bike station" with high-quality bike parking, bike shop, repair station, and commuter showers • Implement bike sharing on campus to connect to the planned Sacramento/Davis system $4M grant funds, launch 2015 • Improve campus access for bicyclists and pedestrians
Campus Housing and Amenities	• 1,674 existing residential units	• Increase the amount of housing and amenities provided on campus
Car-sharing	• Two Zipcars at residence halls	• Work with Zipcar or other car-sharing providers to increase the number of cars on campus, including at non-residential locations • Provide reduced memberships for car-sharing
Ride-matching	• Operated through the Sacramento Transportation Management Association (TMA)	• Setup CSUS-specific ride-matching program using service such as Zimride
Carpool and Vanpool Incentives	• 205 carpool and vanpool parking spaces available • Carpoolers can share a pass but there is no parking subsidy • Vanpool service via Enterprise Rideshare and Sacramento TMA	• Provide reduced-cost parking permits for carpooling/vanpooling
Shuttle Service	• Hornet Shuttle	• Provide more service (increased service hours, frequency, etc.) on Hornet Shuttle • Enhance service between 65th Street Light Rail station and campus

Exhibit 6-19: Transportation Demand Management Strategies
See also Chapter 4, Section 4.4.

Housing Village, with new and replacement residence halls, and for the development of the South Housing Village, intended to provide housing for faculty staff and graduate students.

Because these new and renewed housing villages represent concentrations of new and improved facilities, they represent significant localized opportunities to achieve high levels of sustainability. The potential to develop integrated designs and to achieve design synergies related to scale and proximity is optimized. The opportunities for achieving sustainability in the housing villages are identified below, grouped by four major thematic area of design focus.

TRANSPORTATION AND CIRCULATION

Increasing on-campus housing is another way to encourage alternative modes of transportation by promoting walking and bicycles. Data gathered from U.S. campuses show that even weekend automobile use is typically curtailed among on-campus residential students, potentially reducing the need for parking. This, in turn, reduces impermeable parking areas and related hardscape surfaces, contributing to a reduced heat-island effect. Sacramento State's good connections to the local and regional transportation system further reduce the need for students living on-campus to need automobiles.

The Master Plan distributes parking structures more evenly throughout the campus, with the aim of reducing traffic on the campus loop roads.

CENTRAL UTILITIES

The housing villages can be designed to utilize efficient central heating and cooling systems. In particular, current practice has demonstrated the advantages of utilizing radiant heating/cooling systems based upon the movement of heating and cooling media — generally water — that reduce the energy costs associated with air handling equipment used in traditional heating, ventilating and air conditioning (HVAC) systems.

The housing villages also represent sites where alternative energy can be utilized. Solar domestic hot water systems can be integrated into building roofs and used to supplement and conserve the use of natural gas. Similarly, the roofs of student housing structures can be used as sites for solar photovoltaic panels, furthering the production of renewable power, reducing the use of nonrenewable resources, reducing the campus carbon footprint and reducing operating costs. Exhibit 6-21 gives an estimate of the photovoltaic potential of each of the proposed housing structures shown in the Master Plan. Based upon the estimated efficiency of the American River Courtyard housing project where only fifteen percent of the roof area is devoted to solar hot-water heating panels, it is estimated that the housing building roof areas could yield the PV power shown and supply domestic hot water to these buildings.

URBAN AGRICULTURE

Student residential villages are also locations where a portion of the site could be utilized for food production that could supplement purchases required by campus food service venues. This form of 'urban agriculture' simultaneously provides fresh produce while reducing the long term energy costs and carbon associated with the transportation of produce to the Campus. The concept would typically call for some student involvement, particularly if vegetable gardens are desired. But it could also take a form minimizing the need for student participation, as would be the case if fruit trees were planted and their upkeep was incorporated into the normal campus landscape maintenance responsibility. The Master Plan indicates "edible gardens" in locations within the housing villages, including within the existing student housing area. Additionally, one "publicly accessible" area for a proposed grove of edible fruit trees is shown for the area immediately west of the North Gateway [Exhibit 6-22].

STORMWATER MANAGEMENT

The historic issues related to effectively handling significant stormwater events at Sacramento State are discussed in detail above. By addressing the entire site of a housing village in a comprehensive and integrated way, constructed hard surfaces —rooftops, service and auto drives, parking areas, and walkways that would normally decrease the overall infiltration capacity/groundwater recharge potential of the site -- can be designed to retain stormwater flows and restore surface permeability coefficients. Further, by diverting water into rainwater gardens, bioswale gardens and vegetated buffers, any pollutants entering surface flows can be filtered and broken down to harmless components before being pumped into the American River or before entering groundwater aquifers.

6.10 ACADEMIC AND STUDENT PROGRAMS

PROGRAMS AND COURSES

The reader is directed to consult the current CSU Sacramento University Catalog for a full listing of current programs in sustainability related fields including Environmental Studies, Civil Engineering, Geography, and other academic programs.

STUDENT INITIATIVES AND COMPETITIONS

Student and other campus users can play a significant role in the University's achievement of higher levels of sustainability by participating in academic programs and exerting direct control over their habits and choices that may affect energy and water use on campus and related reductions in greenhouse gases. A few areas in which students can directly contribute to campus sustainability are outlined below. Ultimately, student creativity, when its expression is encouraged, will result in new opportunities — and achievements — for creating a more sustainable campus.

Commuting and Off-campus Trips

Many students can: a) adjust schedules to reduce the number of daily commutes to the campus and off-campus trips; and b) switch to alternative modes of transportation for daily commutes to the campus and off-campus trips — bicycles, walking, ridesharing, public transit.

Basic Energy and Water Conservation

Especially applicable to students living in campus housing, under various circumstances students can voluntarily: a) reduce the use of electric lights in dorm rooms and common areas; b) reduce the length of showers; c) set dorm room and common area climate controls; and d) shift the charging of plug-loads such as laptops, electric vehicles and smartphones to off-peak hours.

Exhibit 6-20: American River Courtyard

Smart Metering Feedback Response

Related to the achievement of higher levels of energy and water conservation, the ability through smart metering to monitor the building-by-building use of electricity, natural gas and water gives students the opportunity to monitor the impacts of their use patterns on campus facilities. This 'power of knowledge' can enable changes in behavior that reduce energy and water use. Students at another CSU campus, Cal Poly San Luis Obispo, have developed teams based upon campus student housing communities that compete with each other to attain reduced levels of energy and water use and to achieve higher levels of 'waste' materials reuse.

Student Power

Examples of current Sacramento State extra-curricular student involvement in sustainability include events coordinated by the Facilities Services' Sustainability Team such as the annual Earth Day, "Mulching Mania," and a recycling audit of campus trash streams. Other examples of student involvement that would gain momentum as the Sacramento State Campus becomes more residential in nature include -- again from Cal Poly San Luis Obispo -- a Bicycle Coalition, Student Community Services (SCS) Environmental Council (environmental clean-ups, tree planning, etc.) and the Renewable Energy Club (REC).

PHOTOVOLTAIC POTENTIAL OF VARIOUS STUDENT HOUSING STRUCTURES						
MASTER PLAN FACILITIES POTENTIAL FOR PV	EST. BUILDING GSF	FLOORS	ESTIMATED ROOF AREA, SF	PV RATING, KW, DC	WATTS/SF	ESTIMATED KWH/YEAR (2)
Student Housing A	72,000	4	9,000	52	5.75	76,500
Student Housing B	60,000	4	7,500	43	5.75	63,750
Student Housing C	85,600	4	10,700	62	5.75	90,950
Student Housing D	100,000	4	12,500	72	5.75	106,250
Student Housing E	60,000	4	7,500	43	5.75	63,750
Student Housing F	60,000	4	7,500	43	5.75	63,750
Student Housing G	60,000	4	7,500	43	5.75	63,750
Student Housing H	30,000	4	3,750	22	5.75	31,875
Student Housing I	60,000	4	7,500	43	5.75	63,750
Faculty/Grad Apts J	104,000	4	13,000	75	5.75	110,500
Faculty/Grad Apts K	100,800	4	12,600	72	5.75	107,100
Faculty/Grad Apts L	109,600	4	13,700	79	5.75	116,450
Faculty/Grad Apts M	85,800	4	10,725	62	5.75	91,163
Student Housing N	76,000	4	9,500	55	5.75	80,750
Student Housing O	92,000	4	11,500	66	5.75	97,750
Student Housing P	84,000	4	10,500	60	5.75	89,250
Student Housing Q	87,000	4	10,875	63	5.75	92,438

Exhibit 6-21: Photovoltaic Potential of Various Student Housing Structures

6.11 SOURCES

California Environmental Protection Agency. Environmental Justice Program Update. February 2014

http://www.calepa.ca.gov/Publications/Reports/2014/EJUpdateRpt.pdf

Misha Sarkovich, Ph.D., Sacramento Municipal Utility District. "SMUD SHADE TREE AND COOL ROOF PROGRAMS: CASE STUDY IN MITIGATING THE URBAN HEAT ISLAND EFFECTS"

"Tree Facts" http://www.ncsu.edu/project/treesofstrength/treefact.htm

California Smart Grid Center Demonstration Project Retrofitting Existing Buildings for Energy Efficiency and Demand Response

http://www.ecs.csus.edu/CASmartGrid/index.php; www.CypressEnvirosystems.com

County of Los Angeles. Low Impact Development Standards Manual. January 2009

City of Sacramento. Greenwise Sacramento Regional Action Plan. January 20, 2011

City of Sacramento. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD Proposition 84 Grant Application – Implementation of City of Sacramento LID Standards at California State University, Sacramento (Attachment 1 -- Work Plan)

P2S. California State University, Sacramento MEP Master Plan Recommendations (PPT). March 21, 2014

SWRCB. Storm Water Management in California Fact Sheet.

http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/stormwater_factsheet.pdf

CSU Sacramento Facilities Management. Master Plan Update. October 30, 2012

SMUD. SMUD PV Program Handbook, SMUD Photovoltaics Incentive Program. May 11, 2012

Exhibit 6-22: Edible Gardens

CHAPTER 7

DESIGN GUIDELINES

SACRAMENTO STATE

Chapter 7: Design Guidelines

One characteristic of an institution is a pervasive sense of permanence. The Sacramento State campus has a definitive landscape that serves to integrate an extensive campus acreage and an inventory of more than forty buildings, both old and new. Design guidelines that apply to architecture, landscape and signage serve to guide the development of the campus and work toward an increasing visual and aesthetic integration. The design guidelines in this chapter set a series of parameters for new and remodeled buildings, and for aspects of the campus landscape and sustainability features that will be addressed in the next twenty years.

The purpose of the Master Plan Design Guidelines is to unify the campus visual environment. To this end, the Design Guidelines address the visual aspects of building exteriors and the connections between structures, landscape and both pedestrian and vehicle circulation systems.

The Design Guidelines are meant to be used by the campus to guide the development of new architecture and to provide guidance for buildings being remodeled. In order to be useful, the campus must develop an operational mechanism for ensuring that both in-house staff and architects with whom the University contracts for new and remodeled buildings become aware of the design guidelines and adhere to their components. These guidelines should be used as benchmarks for campus review of architecture and landscape architecture projects.

Exhibit 7-1: Campus Under Construction,
American River at Top and Calaveras Hall Foundations Visible.

7.1 THE EXISTING CAMPUS VISUAL ENVIRONMENT

From the establishment of the 300-acre campus located adjacent to the American River in 1953, in each decade Sacramento State has added a variety of classroom, laboratory, student services, recreational, housing and support services facilities to the campus.

EXISTING BUILDINGS

These facilities, numbering some forty structures, reflect a wide range of architectural styles, building materials, heights and massing. Varied exterior building colors also contribute to a lack of visual continuity, further adding to the heterogeneous nature of the built environment. Many buildings reflect outdated color schemes and materials choices; some of these more visually-outdated buildings are scheduled to be removed from the Academic Core, but some will remain over the time frame of this Master Plan. Many of the older buildings have large blank or nearly blank facades or imposing massing that create an uncongenial presence and an environment that is not consistent with human scale. The newer buildings tend to incorporate high proportions of glass and some use metal panels as facade materials.

Exhibit 7-2: Riverside Hall

Exhibit 7-3: Library Building with a Blank Facade

Exhibit 7-4: Amador Hall with a Blank Facade

Exhibit 7-5: Campus Shade Trellis

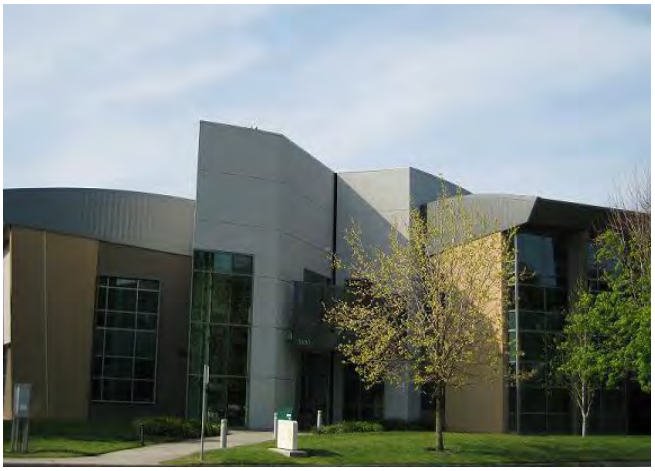


Exhibit 7-6: Napa Hall Massing - Out of Human Scale

CONNECTIONS BETWEEN BUILDINGS AND SITE

A visual assessment of the campus shows that the connections between campus buildings and the pedestrian pathway system are poorly defined. Some buildings have their main entries along minor pedestrian pathways, lack clearly delineated entries, or fail in other ways to take advantage of views to adjacent open spaces. Further, some buildings present massive vertical building walls to the pedestrian and typically lack first floor architectural elements such as wall projections, window patterning, arcades or entries that would provide a more human scale. These flaws serve to negatively affect both the appearance and accessibility of campus buildings and contribute to a somewhat confusing and disorganized campus character.

CAMPUS LANDSCAPE AS A UNIFYING ELEMENT

In contrast to the varied character of campus buildings and the problems of their relationships to one another and to the pedestrian network is the campus landscape. Over the course of seven decades a large number of trees have been planted which have grown into a substantial 'urban forest' of over 3,000 trees. This distinctive canopy of mature trees gives the campus a clear identity and helps to visually tie the campus together. The trees and other mature landscaping serve to moderate the appearance of individual buildings, tempering an otherwise discordant visual diversity of building types and styles.

Another visible and unifying element of the campus environment is a series of wood trellis shade structures upon which vines grow. These independent architectural/landscape elements help to define the campus ambiance as perceived from the pedestrian pathway network.

7.2 MASTER PLAN DESIGN GUIDELINES: PURPOSE AND GOALS

The goal of the Master Plan Design Guidelines is to establish or reinforce the campus "context," including its architectural character and landscape setting, in order to reinforce the educational mission and fortify the campus sense of place. The guidelines will provide direction to the campus and the architects selected for these future projects to ensure consistency and harmony among campus buildings and within the overall campus setting.

The first question that must be addressed in developing appropriate Design Guidelines for the campus is to better define the campus "context." Although other campuses may have a historical context that is worthy of imitation or reference, the Sacramento State campus context is composed of a collection of architectural styles built over an extended period of time. Guidelines for this campus context must rely upon establishing a relatively limited palette of colors and materials that, when applied over time, begins to establish a sense of harmony and consistency. This approach can be applied to both new and remodeled buildings and, when set within the campus's continually enhanced landscape setting, will meet goals for creating a unified campus character and quality.

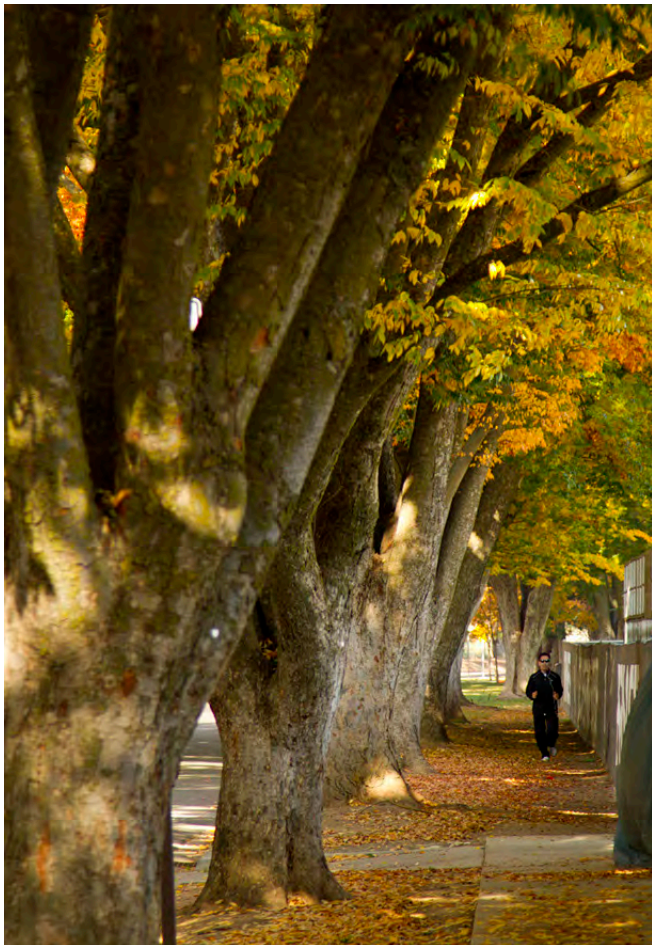


Exhibit 7-7: Campus Urban Forest

The Campus Urban Forest provides design inspiration for new and remodeled campus buildings. The use of wood detailing will unify the campus.

The Design Guidelines provided in this chapter portray ways that new buildings, existing buildings and the landscape environment can work together to form a more cohesive and aesthetically pleasing appearance. The Design Guidelines are based upon the following major goals:

- Enhance and continue the use of consistent design themes to further unify the visual campus environment;
- Use landscaping as a major unifying element in and of the environment;
- Orient buildings to major pedestrian pathways, campus views and visual axes; and
- Provide building features that visually and functionally connect with the pedestrian environment.

7.3 ARCHITECTURAL DESIGN GUIDELINES

Buildings and landscape can be used to define and enhance the University's sense of permanence. This may be achieved through building materials, size and shape of buildings, quality of master planning, architectural design quality, landscape, and site and building maintenance. The economic investment traditionally assumed in a university demands enduring materials. Likewise, to acquire enduring materials requires adequate economic investment in the structure and the quality of design. A simple, consistent color palette can do more to provide a sense of visual unity across a campus than any other element. A color palette is closely tied to the actual materials but a variety of materials and textures can be unified by sharing a common color.

The architectural guidelines developed for the Sacramento State campus have as their primary focus a strong notion of a "family of buildings." This means that the collection of buildings, considering all variations of style, size, function, and age, should share a common visual vocabulary and should appear related without stifling architectural innovation. For example, academic buildings should be designed to be explicitly collegiate in character and should include good proportions, visible points of entry and well-crafted expression of human scaled elements such as windows doors, door frames, steps, ramps and rails.

In general, each individual building should first establish its identity within the greater whole of the campus fabric and then present its individual identity. Visually speaking, all new buildings should contribute as supporting members of the campus image and as components of the network of public spaces.

'MONUMENTAL' AND 'FABRIC' BUILDINGS

Campus buildings can be divided into two main categories: "monumental" buildings that occupy the visual and functional foreground, and "fabric" buildings that occupy the visual and functional background.

"Monumental" buildings are singular in that their functions are not duplicated in other buildings; they serve a larger public purpose and serve as landmark sites, occupying prominent positions within the campus. "Monumental" buildings on the Sacramento State campus would include the Library, which will be remodeled; the new Administration/Student Services building; the new Performing Arts buildings, and some student activity buildings such as the Well and the anticipated Student Event Center. These "monumental" building give focus or visual delight within an area of the campus.

Location is a factor in designating whether a buildings is a 'monumental' or a 'fabric' buildings. Buildings that are sited at the North and South Gateways fulfill the requirements of being designated as 'monumental' buildings if their functions are significant enough to warrant special distinction. An example of a building that does warrant this distinction would be the new Administration/Student Services building.

The massing and architectural details of these 'monumental' or landmark buildings should belong to the campus family but may be more dramatic, more stately and should use more refined materials and detailing in keeping with their function and location.

"Fabric" buildings, in contrast, are visually subordinate and contain functions that are duplicated in other buildings. These buildings require less detailing, and their massing can be simpler. However, these buildings should still be fine and handsome in appearance.

Special attention is given in the Master Plan Design Guidelines to two categories of buildings: residential buildings and parking structures. Residential buildings require thoughtful consideration of their scale and massing, and of their relationship to adjacent open space and structures. Parking structures, although they provide a utilitarian function, are usually the largest structures on a campus; on the Sacramento State campus, both now and in the future, that is certainly the case. The massing, articulation and design element details (stair towers and facade materials) of parking structures are critical to creating a congenial, pedestrian-scale campus.

MATERIALS

The primary design tool for unifying the campus is the use of materials. The following guidelines suggest a specific palette of materials that can be deployed by future architectural designers to acknowledge the "monumental" or "fabric" character of the building being designed.

The recommended materials palette is based on the dominant and defining character of Sacramento State's campus landscape: wood materials that evoke the trees and natural materials which define this campus and serve as the campus "context."

- Exterior building materials should be used to unify the collection of campus buildings.
- Exterior cladding should blend with the 'urban forest': building exteriors should be wood or, more practically, wood-like materials and colors.

Exhibit 7-8: Example of Wood Screen Detailing and Clerestory Windows at the Top of the Structure

- Wood alternatives include: Hemp, Wood Composites, Synthetic Wood, and Bamboo (although often considered a wood, bamboo is a grass). Other Cladding materials include Terra Cotta Rain-Screen façade panels and Fiber Cement Board.
- Wood siding, wood accent units, wood shade structures and wood trellises should be used on ground and second floor facades to provide visual interest, divide the building face and create human scale. Wood accents and shade structures will also evoke and coordinate with the wood trellis structures that currently provide exterior seating on campus.
- Designers should take every opportunity to introduce natural light into buildings, particularly into the lobbies, gathering areas and shared spaces within the building. Roof structures that allow for clerestory windows should be considered.
- Clear, high-performance glass should be used to introduce natural light into structures as well as allowing true color views into and out of classrooms, offices and other campus buildings.
- Polished/reflective metal materials should not be used. Metal buildings, although appropriate for industrial settings and even as temporary facilities, do not fit on the Sacramento State campus.

COLORS

Exterior building colors should be used to unify the collection of campus buildings and to use remodel projects as the opportunity to bring campus colors and materials into better alignment.

The campus must develop an official campus color palette to guide the development of new and remodeled buildings. The guidelines and examples below provide direction for this palette.

Many existing campus buildings that will remain through the time frame of the master plan are primarily white or gray-white. The Master Plan recommends a campus color palette that is oriented around light colors with darker accents. The hue examples shown below are only suggestions for the orientation of the color palette.

- **Primary colors**. On new and remodeled buildings, a limited palette of light neutral colors should be used as building primary colors. Off-white colors should tend toward warm tones.
- **Secondary colors.** Secondary colors should be a limited palette of warm, earth-tone colors.
- **Accent colors. Accent colors** for building details can be warm earth tones or green.
- **The use of green.** Where paint is required, a very few specific green hues should be established for use on campus buildings to establish a consistent 'tie-in color.'

The green hues should be warm (incorporating yellow) rather than cold (incorporating blue) to better blend with and evoke the greens of nature which serve as the connection, inspiration and tie-in to the campus landscape, which represents the campus's strongest visual feature. The examples in Exhibit 7-9 through Exhibit 7-11 are provided as guides to the choices of the official campus color palette.

The official green color that is used for the University's print materials is not an appropriate color for exterior building details. The examples in Exhibit 7-12 are hues that should not be considered for building accent colors.

Deviations from the official campus color palette must be approved by the campus body, committee or department that administers the campus design guidelines,

- When possible, colors should be used to further divide building facades into human scale elements at the ground floor level.
- Warmer earth tone colors in light hues should be used on buildings where there is heavy shade created by a dense tree plantings.

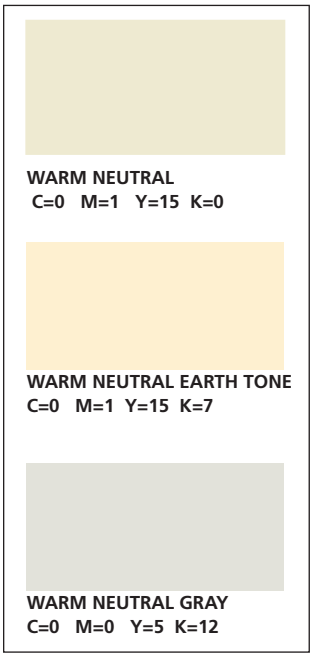


Exhibit 7-9: Examples of Warm Neutral Hues
To be used as primary colors, as described in the "Colors" section above.

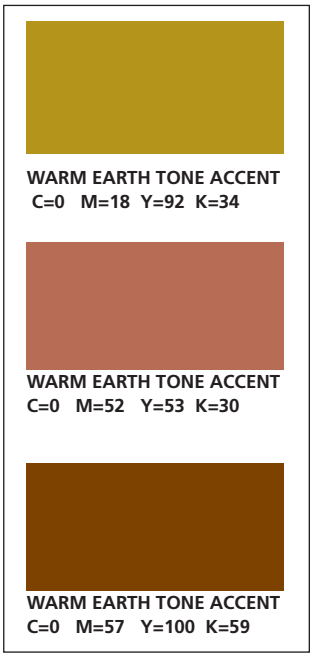


Exhibit 7-10: Examples of Warm Earth Tone Hues
To be used as secondary or tertiary accents, as described in the "Colors" section above.

Exhibit 7-11: Examples of Warm Green Hues
To be used as color accents, as described in the "Colors" section above.

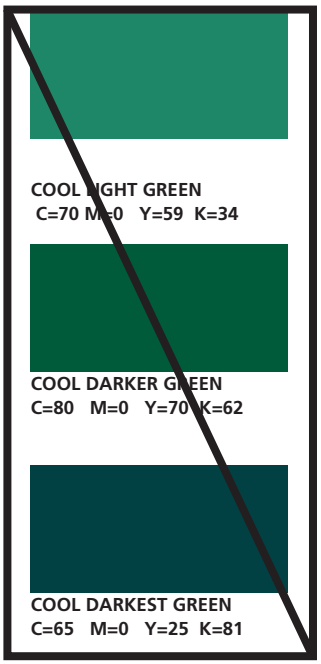


Exhibit 7-12: Examples of Cool Green Hues
Not to be used as color accents, as described in the "Colors" section above.

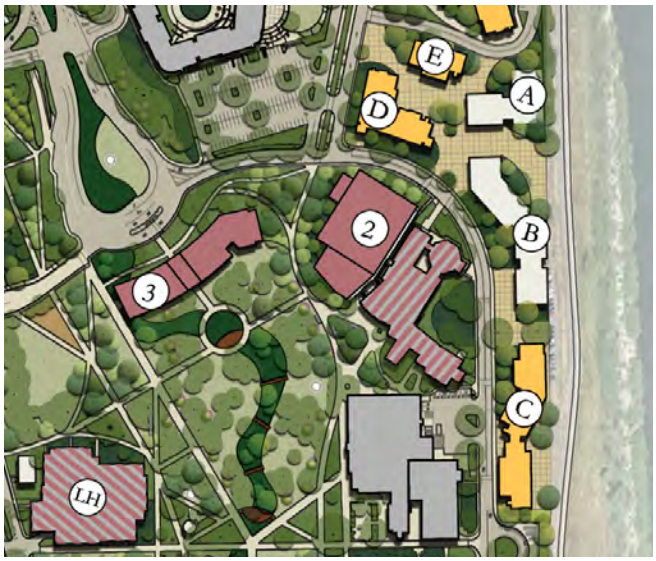


Exhibit 7-13: Example of Building Orientation in the 2015 Master Plan
Building 3, the new Administration/Student Services building, faces both the North Gateway entry road loop and the Grand Central Quad open space to its south. Similarly, Building 2, the new Performing Arts Center, faces onto the Grand Central Quad open space.

Exhibit 7-14: Example of Building Orientation in the 2015 Master Plan
Buildings face onto the new Grand Central Quad/Hornet Greenway and main Academic Core pedestrian routes

BUILDING ORIENTATION

Building orientation is a critical aspect of planning: the position of the building vis-a-vis its neighboring structures, adjacent open space and the pedestrian pathway system; and the building's orientation to environmental elements such as wind and sun are central to a building's function as well as its aesthetics.

Relationship to Open Space

- When possible, use building placement and orientation to create new open spaces such as courtyards, quads and plazas, and to reinforce existing open spaces.
- New buildings should be placed to enclose open space, and, in concert with adjacent buildings, create congenially-sized open spaces throughout the campus.
- New buildings constructed along the perimeters of the Hornet Greenway and Grand Central Quad areas have a special responsibility to the development of these campus features, and should be oriented to face these open spaces, as shown on the illustrative Master Plan [Chapter 4].
- Open spaces between buildings should be designed and sited to accommodate a variety of programmed and informal activities.

Relationship to Pedestrian Circulation System

- Buildings and their entrances function as important components of the pedestrian pathway system.
- Buildings may address more than one pedestrian pathway and are likely to have more than one entry point. The design and orientation of building lobbies should acknowledge their role in the pedestrian experience and wayfinding.
- Further discussion of building entries is included in subsequent sections.

Exhibit 7-15: Building Placement in Relation to Open Space
Proposed South Housing Village buildings are placed to enclose a large open space, to be used for residents' formal and informal activities.

Relationship to Food and Beverage Services

Food services are not incidental to the development of campus facilities. On the contrary, they play a very important role in planning the campus. Food and beverages services, including those within residential areas, serve to attract people and create opportunities for informal social interactions among students, faculty, staff and visitors. Nearby or incorporated food services can serve to attract people to a building or open space, helping the campus to achieve its goal of attracting both the campus and the surrounding communities to events and activities.

Food service is particularly important on a campus where the vast majority of the campus community are commuters.

- Every opportunity should be taken to incorporate food services into ground-floor uses. On a large campus such as Sacramento State, the convenient availability of food and beverage services will help the University achieve the goal of encouraging students, faculty, staff and community members to use the campus as a destination and to prolong their visits to campus.
- Food services should be distributed around the campus in ways that allow them to serve as the 'first stop" on the campus for those leaving their vehicles or bicycles in parking facilities.
- Particular consideration should be given to incorporating food services in or near buildings that will serve evening student and faculty as they make their way to classes; such food services should offer seated snacks and dining as well as take-out.
- The University should consider the use of coffee or food carts in areas where more complete food services are distant from buildings.
- The University's current practice of encouraging food trucks to enter the campus and serve the campus community should be continued. This is highly flexible opportunity to help determine where food services are needed, as part of the planning for future facilities.

Relationship to Natural Environmental Systems: Sun and Wind

- Natural lighting should be introduced into building interiors through windows, clerestories and light shelves. Exterior window shading devices should protect windows from direct sun exposure to help minimize building heat gain and glare, while still affording views of the campus.
- Building orientation should encourage energy efficiency by creating optimum conditions for use of passive and active solar strategies. If optimal orientation can be achieved, heating and cooling requirements can be reduced, saving energy costs and reducing greenhouse gas emissions. See Chapter 6 and Section 7.6 for more information on sustainability guidelines and passive design approaches.
- Buildings should be oriented to maximize benefits from cooling breezes in hot weather and shelter from undesirable winds in cold weather. If natural ventilation is employed, use internal spaces and structural elements to channel air through the building in different directions to achieve good cross-ventilation.
- Buildings featuring courtyards should orient the courtyard to maximize wind in the courtyard and cross ventilation through the building for cooling in the summer.

Exhibit 7-16: Food Trucks on Campus
Food trucks on campus use available resources to create flexible, temporary solutions.

Exhibit 7-17: Indoor Food Services
Indoor food services should be on the ground level, adjacent to and opening onto open space areas.

Exhibit 7-18: Solano Hall Entry
Solano Hall's entry is unwelcoming and inaccessible. Because there are no architectural signals to indicate that the building entry is located at the top of the stairway, this creates an ambiguous presentation to the campus.

Exhibit 7-19: Eureka Hall's Ground-level Facade
Eureka Hall's ground-level facade is blank and inhospitable. Ground-floor uses should be compatible with windows or glazed entry areas that invite pedestrian traffic.

BUILDING ENTRIES

- Primary building entries should be oriented to major campus pathways and open spaces.
- If the building site makes it possible, primary building entries should be placed at the end of pathway axes.
- Secondary but clearly identified entries should access courtyard areas or campus pathways.
- Primary and secondary building entries should receive architectural enhancements as a way of establishing a visual focus and a hierarchy of façade elements. Typically, such architectural enhancements include:
    - The use of accent forms and materials that clearly identify the entry from the building massing;
    - Enhanced materials and/or contrasting colors;
    - Sun shades;
    - Clear glass;
    - Special lighting; and/or
    - Special entry pavement.
- Service entrances and areas should not be located in the fronts of buildings and should be consolidated where possible, along a shared service corridor. Existing service entrances and loading areas that are now fronting streets or the public realm should be appropriately screened. Exhibit 4-36 shows service roadways and the recommended locations for loading areas.

MASSING AND SCALE

A building's massing can be articulated through a variety of visual effects which are used to articulate the facade of a large building or visually give the impression of a change of plane. Building massing, whether for 'monument' or 'fabric' buildings, should be developed to create a comfortable relationship between the scale of the building and the scale of a person. This is especially important for over-scale buildings such as parking structures [see below for design guidelines addressing parking structures specifically].

The massing of a building can be defined as the overall geometry (length, width, and height) of its perceived form. Massing is one of the more significant factors that contribute to establishing the "character" of a specific building.

Of particular importance in defining the massing of a building is the overall height of the form (actual and perceived) as well as the geometry of its roof. Two factors must be considered when determining the appropriate building height for a particular location:

- The first is the overarching principle that future development must make the highest and best use of the limited campus land remaining for development.
- The second is that buildings should be tall enough and massive enough (building length and width) to provide appropriate spatial relationships to existing adjacent buildings and open spaces.

Consequently, the following guidelines should govern the development of campus buildings:

- Buildings are to support the campus civic structure, giving architectural definition to campus streets, quads, and other open spaces. Buildings are to front directly on to these spaces and to support them by their form, massing and the design of their facades.
- Buildings are to be three to five stories tall, and generally a maximum of four stories tall. Academic and research buildings less than three stories in height are not permitted without special approval by administration, since they consume large amounts of land area and limit future growth.
- Building facades are to be articulated into constituent parts to mediate between the pedestrian scale and the scale of the building, provide visual continuity with neighboring buildings and engage the landscape design of open spaces.
- Academic buildings should have a base, middle and top. An articulated ground floor is especially important, as it reinforces a building's connection to the public space upon which it fronts.
- Where appropriate, buildings are to incorporate multiple uses, placing public functions on the ground floor and less public or more utilitarian functions on the upper floors. For example, in classroom buildings, interdisciplinary classrooms should be placed on the ground floor and specialized classrooms on the upper floors.

Exhibit 7-20: American River Courtyard Housing
The American River Courtyard Housing for undergraduate students is sited adjacent to open space that serves programmed and informal uses.

- Large blank walls or an uninterrupted building mass should be avoided in order to enhance the visual and physical experience of buildings, and to reinforce the feeling of safety.
- Building frontages along streets and major paths must create a welcoming and attractive street environment for pedestrians.
- Building transparency plays a large role in achieving safe, comfortable, human scale pedestrian environments. The more transparent a building can be, especially at grade, the more welcoming and friendly it is to the pedestrian and the more it is able to integrate and engage the student, faculty, staff and visitor population.

DESIGN GUIDELINES FOR CAMPUS RESIDENTIAL AREAS

Design guidelines for campus residential areas address three categories of structures: the new undergraduate residence halls and remodeled undergraduate residence halls in the North Housing Village, and the apartment-style housing buildings in the South Housing Village. The design of these residential structures needs special attention to their scale, massing, placement of open space and indoor and outdoor gathering areas, and their connections to the pedestrian and vehicle circulation systems.

Building Orientation

- Housing buildings should have clear and congenial connections to the adjacent campus. Existing and planned new pathways should be landscaped and incorporate uses that encourage gathering and both organized activities and informal interaction.
- Housing buildings should, where possible, incorporate food and beverage services to encourage student interaction.
- When possible, building placement and orientation strategies should be used to create new intimate courtyards for residents to use as their collective 'back yard'. Amenities that support and encourage interaction and social events might include gas grills, defined seating areas with integrated power and data, lawn areas, stepped seating such as amphitheaters or the use of the building's main stairway as an informal seating area.
- Wherever possible, housing buildings should incorporate orientation and access to the American River. Shared spaces, open spaces and gather spaces should incorporate view of the River so that these views are not reserved for private areas but are shared, as much as possible, with everyone.

Exhibit 7-21: New Housing along the American River
The 2015 Master Plan proposes new housing to be developed along the American River, with views and potential connections to the river incorporated into the design.

- Residential buildings should be buffered from roadways by landscape. Pathways that cross vehicle circulation routes must incorporate multiple layers of warning and notification, through change of pavement, change of landscape and signage, that a pathway will encounter a vehicle route.

Building Massing

- Housing buildings will typically be four levels to acknowledge their specific residential function and to be consistent with the scale of other campus buildings.
- Housing buildings should be more residential in their massing although not in their detailing. The design should employ articulated facades and architectural details to distinguish them from academic, administration and recreational buildings.
- The design should manipulate scale to provide visual interest and human scale. Recessed wall planes and building off-sets may help to create shadow lines and visual diversity.
- Indoor meeting and gathering areas should have natural light.
- Interior shared spaces such as lounges, study rooms, living rooms and lobbies should be articulated differently than the student private areas. Opportunities for double height spaces provide large areas for glazing to break up the facades and create interest both inside and out.
- Articulating components and adding features such as canopies, trellis elements and covered entries can help break down the apparent mass of the complex to a more intimate, approachable scale.

Materials and Colors

- Exterior building materials should be chosen for their ability to lend texture and visual interest while providing durable, low-maintenance surfaces. As discussed in the main Design Guidelines section on materials above, the materials palette for residential buildings should incorporate wood or wood-like materials to create a more residential environment and help the buildings relate to the campus landscape.
- Color can provide building identity at entrances or courtyards and can be used to accent building elements to create visual interest and human scale.

  Colors and materials for residential buildings must conform to the approved color and material palettes and be approved by University.
- **Screening.** Unsightly items such as garbage cans, utility boxes, and mechanical equipment shall be screened to conceal them from view of neighboring lots and streets. Screening shall consist of approved fences or landscape buffers. Roof screens should be compatible and complement exterior materials and color.
- Pavers should distinguish between public paths and those in the residential areas.
- Where residential buildings are built together with parking structures, every effort should be made to use the buildings to screen the parking structures from shared open spaces created by the arrangement of housing buildings.

DESIGN GUIDELINES FOR PARKING STRUCTURES

As discussed above, parking structures are often the largest and most prominent structures on a campus. The Master Plan design guidelines for parking structures do not address the engineering of parking structure design, such as circulation, ramping, site constraints, desired efficiencies and parking geometrics. Instead, they address the design of the parking structure building in a way that keeps these large facilities sensitive to scale, form and safety in ways that do not detract from the campus image.

With regard to the size and capacity of parking structures, the University will make decisions about the height of parking structures based on the need to increase campus parking inventory. However, as discussed in Chapter 4, it is anticipated that the need for parking will be reduced over time through use of a Traffic Demand Management program, with the added benefit of reducing the height of parking structures.

Size and Location

- Parking structures should be limited to 6 levels, including parking on the roof level. It is preferable for parking structures to be no more than five levels.
- The Master Plan locates sites for parking structures at the perimeter of the campus with good access from the North and South Gateways.

Form and Massing

- Large blank walls and continuous sloped strip openings on structures facades should be avoided. Ramped areas should be located inside the structures and not at the perimeter.
- Structures should be designed for passive surveillance by maximizing openings and minimizing walls.
- Stair towers should be visible, well-lit and constructed without solid walls for safety. Lighting for stair/elevator towers should allow those elements of the structure to serve as a beacon to pedestrians at night.
- Elevators should be close to the main entrance with the entire interior of the elevator in view when the doors are open. Elevators should be designed so that their passengers are clearly visible to people outside or so that they are clearly visible or audible to security staff via television or sound monitoring equipment.
- The inclusion of office, academic or retail space in the exposed sides of parking structures will humanize adjoining open spaces and should be explored if the program permits.

Exhibit 7-22: Parking Structure Stair Towers
Parking structure stair towers should be glazed to provide maximum visibility and safety.

Exhibit 7-23: Parking Structure PS1
Parking Structure PS1 presents a bleak, unadorned and unscreened facade.

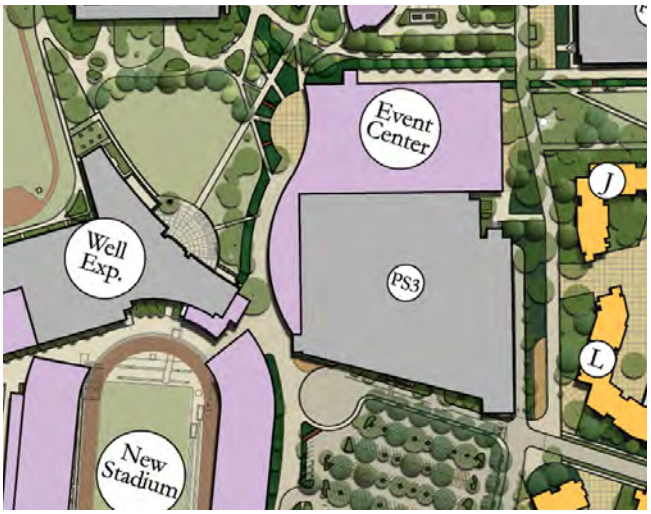


Exhibit 7-24: PS3 Screened by New Student Events Center
2015 Master Plan showing new Student Events Center screening PS3 by wrapping around its west and north facades.

- Scrims and screens on the exterior must follow code requirements for natural ventilation.
- Landscape materials should be used to provide visual screening without compromising visibility and safety.

Color, Materials, Wayfinding

- Within budget constraints, parking structures should be designed to match the vocabulary of color materials and scale of the academic buildings on campus.
- Parking areas and driving lanes should be well-lit. The most effective way to increase the perception and reality of safety within a parking structure is to make walls and ceilings white or very light color. This will reflect and distribute light from light fixtures and reduce shadow areas.
- A well-designed graphics and signage system will effectively communicate necessary information to students, faculty staff and visitors navigating a large, complex and confusing building. Sign messages should be simple and succinct. Level identification theming and other wayfinding aids provide an opportunity to enhance parking interior environments.
- **References for safety and parking structure design.** CPTED on College Campuses: Guidelines for Implementation http://www.ifpo.org/articlebank/cpted.html Lipnickey, Chris (International Foundation for Protection Officers, Naples, FL, May 2004) and http://www.securitymanagement.com/sites/securitymanagement.com (Aegis Security Design, Louisville, KY, Jul 25, 2005)

7.4 SITE DESIGN GUIDELINES

ARCADES AND TRELLISES

The campus includes numerous arcades and trellis structures. These structures may seem incidental to the buildings and large open spaces, but their presence on the campus contributes an important pastoral aesthetic consistent with Sacramento State's designation as a "Tree Campus USA." The Master Plan Design Guidelines reinforce the use of these structures, which are both built elements and landscape elements.

Many of the existing arcades and trellis structures have well established vines that offer shaded seating areas and are very popular with students and campus visitors. They are constructed of wood and, together with the hanging vines, add a warm and inviting element to the campus "furniture."

It is recommended that additional freestanding arcades and trellises be incorporated into campus outdoor spaces, both adjacent to buildings and as part of campus site furniture in open spaces, as development moves into the southern portions of the campus. These elements should include seating and should be placed in both quiet and active campus areas.

The architecture of some of the newest campus buildings (for example, the Well) incorporates the arcade design element, although in the case of the Well, it does not include plant material. The Master Plan recommends that arcades become design elements for new and remodeled buildings. When used at the ground floor, these arcades and trellises serve a variety of practical and aesthetic functions in keeping with the theme of relating to and reflecting the "Tree Campus" aesthetic: they add definition to building facades, provide a transition from the building itself to the surrounding campus landscape, create an informal gathering area, and protect pedestrians from sun and rain.

Exhibit 7-25: The Well Shade Trellis
The shade trellis at the Well provides protection, connection to the landscape and gathering space.

Exhibit 7-26: Shade Trellis
This shade trellis provides seating and protection. See Design Guidelines section on Color for discussion of appropriate colors in outdoor areas.

Exhibit 7-27: Trellis Structures Incorporating Plant Materials
Trellis structures incorporating plant materials soften the connection between buildings and landscape and reinforce the "tree campus" aesthetic.

SITE FURNISHINGS

Suggested site furnishings for the CSU Sacramento Campus have been selected in order to stylistically blend in with existing campus aesthetics while providing a clean, updated look. Based on the pastoral nature of the campus and the dense tree canopy overhead, furnishings that are reminiscent of a classic park bench style but with clean, simple lines are proposed. This classic look blends in with many of the existing furnishings on campus and is one that will not become dated over time.

In addition to being stylistically appropriate, important considerations in the selection of site furnishings include their comfort, ease of maintenance, and life cycle costs. Wooden benches rank high on year-round comfort based on their low thermal conductivity, though they may be more subject to vandalism and other maintenance concerns over time. The life cycle cost of wooden products can vary based on the type of wood, but these products can be a sustainable, long-lasting option when FSC certified hardwood is specified. Though metal benches may become uncomfortable in high or low temperatures, they are very durable which makes them easy to maintain and provides for a low overall life cycle cost.

Wooden picnic tables are suggested based on the aesthetic value that this material provides in the Grand Central Quad's expansive park-like setting as well as the level of comfort associated with the material. Again, although wooden picnic tables are prone to vandalism in some situations, the occurrence of vandalism is likely to be much lower in a university setting than in a more exposed public location.

Movable furnishings such as café style tables and chairs must be robust in design and solidly constructed in order to withstand heavy use while also being light enough to be secured on a nightly basis. Metal is the most suitable material for chairs to meet this criteria, but either wood or metal tables are appropriate. Tables that are designed to accommodate an umbrella can further enhance these furnishings and ensure that metal chairs remain comfortable even in high temperatures.

Trash receptacles with a wooden exterior are most stylistically similar to existing campus receptacles, providing a seamless look, but because comfort is not a factor with these furnishings, metal receptacles can easily provide a highly durable, low maintenance option.

Site lighting includes lighting for pathways, parking areas and buildings. The University is encouraged to engage a consultant to develop a new lighting plan. Some examples of appropriate lighting are shown here.

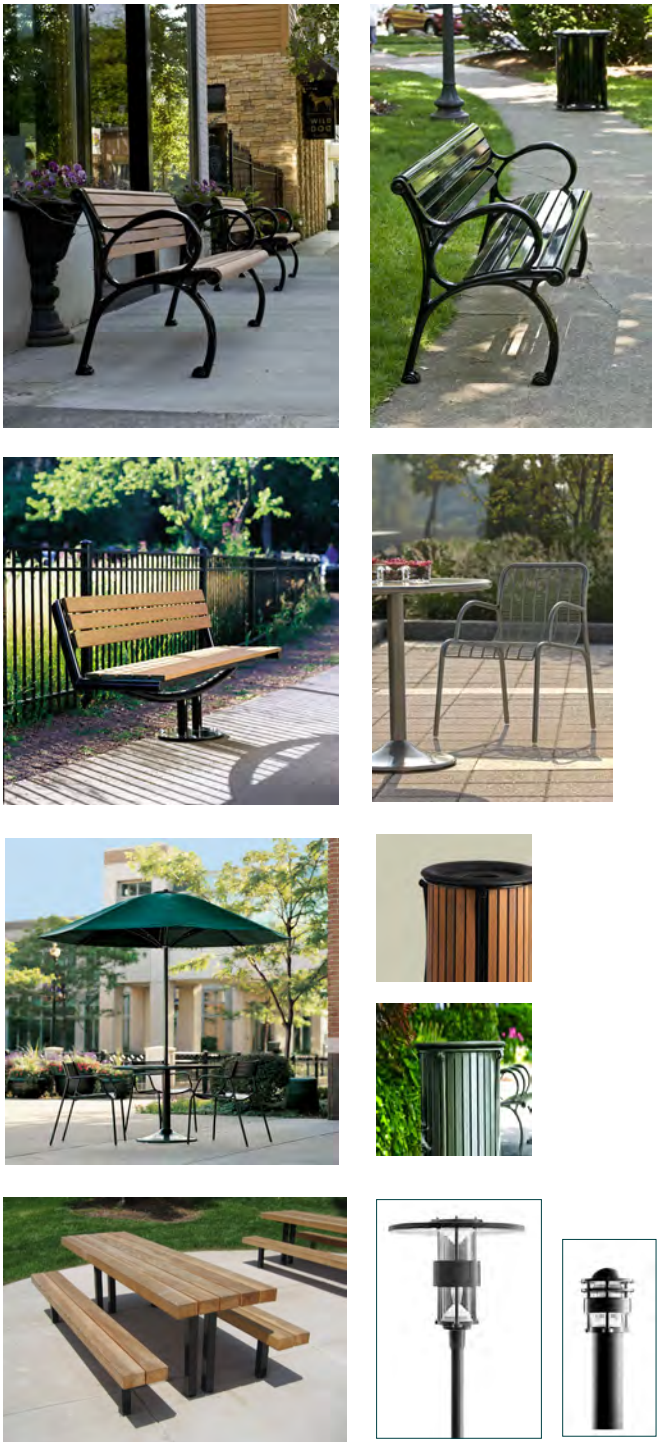


Exhibit 7-28: Recommended Site Furnishings
From top: Benches: Plainwell wood, Plainwell metal, Arcata wood; Loose furniture: landscape forms, Traverse chair; Picnic table: Timberform 2162; Trash receptacles: Plainwell wood, Plainwell metal; Lighting: Poulson lighting standard, Poulson bollard

PEDESTRIAN BRIDGES

A key feature of the open space system envisioned in the 2015 Master Plan is the landscaped Hornet Greenway. This large open space starting in the Academic Core not only provides an aesthetic landscape element through the length of the campus but is also a functional stormwater management component of the overall campus sustainability strategy. The Greenway is integrated with a new pedestrian pathway system that incorporates bridges to cross from one side to another; at times during the year, the Greenway stormwater detention areas will be filled with water, making these bridges even more important.

These small pedestrian bridges should be modest in scale and for the most part constructed using natural materials so as not to compete with the landscape features within the Hornet Creek. Wood or sustainable alternatives such as recycled composites are recommended. Styles may vary; however, they should be designed in a manner that does not to compete with the landscape.

Exhibit 7-29: Examples of Pedestrian Bridges

Exhibit 7-30: Proposed Architectural Wood Accent Treatment on Sequoia Hall

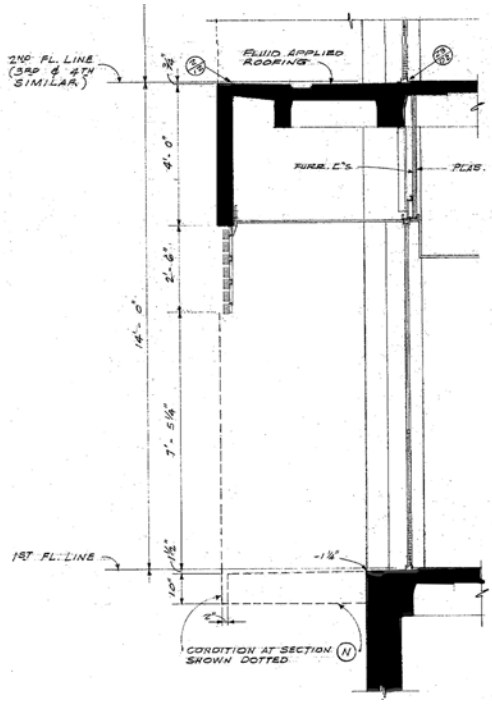


Exhibit 7-31: Wall Section Detail of Proposed Architectural Wood Accent Treatment on Sequoia Hall

7.5 DESIGN APPROACHES TO SPECIFIC BUILDINGS: EXAMPLES FOR REMODELED FACILITIES

The Master Plan Design Guidelines apply to all new and remodeled buildings on the campus. Chapter 4 lists a number of buildings identified as candidates for major remodeling and re-purposing. In this section of the Master Plan Design Guidelines, Sequoia Hall and the Library are selected as examples for the aesthetic and architectural approach to remodeling campus buildings so that they will be integrated with the future campus aesthetic. These strategies can be adapted to the other buildings which will be remodeled and re-purposed over the time frame of the Master Plan.

SEQUOIA HALL

Although Sequoia Hall was built in 1967 and is no longer an appropriate facility for science laboratories, the condition of the building is good and the Master Plan recommends that this building be remodeled and upgraded to provide general classrooms. A change in use from science classrooms and laboratories to general-assignment classrooms is consistent with the strategy

Exhibit 7-32: Exterior of Sequoia Hall, Showing Outdated Colors and Design Elements

described in Chapter 4: it is expensive and sometimes impossible to update science lab buildings to provide the kinds of technology and mechanical systems that 21st Century science labs require. therefore, it is prudent to remodel those buildings to serve other purposes.

The changes to Sequoia Hall are phased for after the new Science Building has been constructed and is in place. Once Sequoia Hall has been remodeled into classrooms, the planned demolition of several of the older 2-story classroom buildings from the 1950s can be initiated. See Chapter 8 for details about Master Plan implementation and phasing.

The basic structure of Sequoia is in good condition. However, the building systems will all need to be upgraded as the building is remodeled for classrooms. This would include the HVAC systems as well as lighting, electrical, and telecommunications and data systems.

Classroom renovations should focus on creating state-of-the-art classrooms with updated flooring, lighting and technology, and media.

Exhibit 7-33: An Example Library Exterior with Wood Accents

Exhibit 7-34: Sacramento State Library

The exterior of the building, although in good shape, should be cleaned and, in keeping with the overall theme of architectural improvements outlined in these Design Guidelines, should include the addition of wood elements to selected areas. This concept is illustrated in the accompanying sketch (and wall section) of the south façade, where it is recommended that the orange porcelain panels be replaced with wood slatted screens to provide a warming effect to this all-concrete building. This same wood screen treatment is also recommended for the covered entryways. There may also be opportunities for the addition of wood trellises in certain locations to further soften the building at the ground plane.

LIBRARY REMODEL AND MODERNIZATION

The Master Plan recommends that the Library undergo a complete remodel. Although the building is in good condition, many aspects of the facility do not serve the needs of a 21st Century university and badly need to be updated.

The 4-story Library was built in two phases, with the Library South being completed in 1990. The building totals over 370,000 gross square feet, and its position on the campus allows it to serve as an anchor for a north-south pedestrian pathway through the Academic Core. The two wings of the Library are connected by a central north-south breezeway, which was planned as a continuation of that a central pedestrian path. A coffee shop, study areas and other activity areas line portions of this walkway.

The building is clad with precast concrete panels and is therefore windowless for the most part. The condition of the Library North is Good and the condition of the newer wing, Library South, is characterized as Very Good (see Chapter 4 for further information on building age and condition).

The interior portions of the Library lack natural light. Because the uses of university library print material collections continue to change, it is no longer a requirement that library interiors be

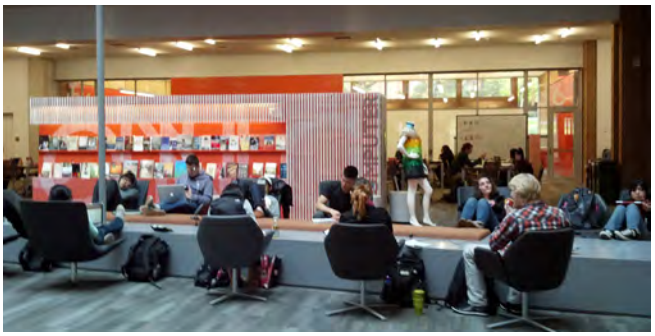


Exhibit 7-35: University of Washington Study/Gathering Area in the Atrium of the Undergraduate Library

Exhibit 7-36: University of Washington Undergraduate Library Atrium

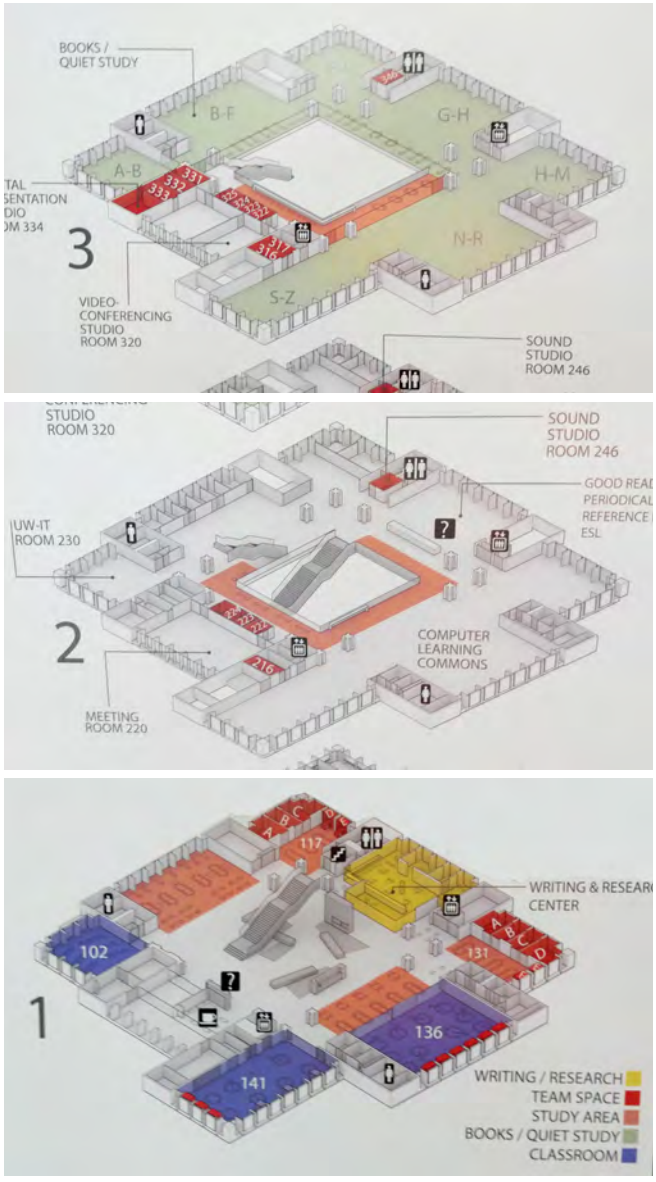


Exhibit 7-37: University of Washington Undergraduate Library Plan Drawings

kept dark so that materials can avoid damage from sunlight. In addition, libraries are now being designed to respond to changes in academic pedagogies, which emphasize group projects. As a result, libraries now focus on gathering spaces and study areas, with collections being accessed on line. Libraries often incorporate cafes and food services to serve their patrons.

The University may want to consider introducing a sky-lit atrium into this building to increase the amount of daylight and make it more appealing to students. Exhibit 7-37 shows plan drawings from the recent remodel of University of Washington's undergraduate library which re-purposed the ground floor for group and quiet study areas and classrooms, and the upper floors for computer labs, study areas and the collections. The connecting stair through the center of the building is beneath the skylight, bring light into the interiors.

Recommendations for Library Modernization and Remodeling

As part of the Library modernization, all or selected portions of this exterior panel system should be replaced with glass to allow more natural light into the building and reduce dependence on artificial lighting. In keeping with the overall theme of architectural improvements outlined in these Design Guidelines, the addition of wood elements to selected areas is also recommended.

The interior functions of the building need to be reorganized and re-purposed to bring the Library up to contemporary standards. In addition, upgrades to the HVAC, lighting flooring and finishes needs to be addressed. Subject to more detailed analysis, the remodel should also employ the following.

- **Optimize the use of space**. The central breezeway and open floors of the Library need to be repurposed and reorganized with additional student study areas, informal seating for students, lighting and study carrels.
- **Create more active formal learning spaces**. Several state-of the-art classrooms should be created to support collaborative learning with team tables, multiple flat-panel display screens and writing surfaces. These classrooms can be open for informal learning when not scheduled for classes.
- **Create joint consultation areas for research and writing.** The remodel should also provide areas where Librarians and writing tutors would be available by appointment or drop-in to assist students with research and writing needs.
- **Provide more spaces for student collaboration** -- with the addition of windows in the Library, new alcoves (for team booths and group work) can be designed into the space;

- **Increase number of group study rooms** -- group study rooms with writable wall surfaces and digital screens should also be created on the first floor and upper floors; and
- **Incorporate quiet zones** -- more areas for quiet study, enclosed in glass, should be created on the third floor.
- Retain and expand the cafe/food service to attract and retain library patrons and to provide needed amenities.

Exhibit 7-38: Shasta Hall
To be remodeled.

Exhibit 7-39: Eureka Hall
To be remodeled.

Exhibit 7-40: Amador Hall
To be remodeled.

ADDITIONAL MASTER PLAN BUILDING REMODELS

Including Sequoia Hall, the Library, and Lassen Hall, a number of other buildings are identified as appropriate for remodeling or renovation over the time frame of the master plan. Lassen Hall will be converted from Student Services to classrooms. Shasta, Capistrano, Eureka and Amador Halls are also identified as candidates for remodeling or renovation over the Master Plan time frame. The University may choose to renovate a number of other buildings, as shown in Exhibit 4-10.

Exhibit 7-41: Lassen Hall
To be remodeled and used for classrooms.

Exhibit 7-42: Capistrano Hall
To be remodeled.

7.6 SUSTAINABILITY GUIDELINES

The Master Plan Sustainability Guidelines -- addressing energy and water conservation approaches -- were developed by P2S Engineers, in collaboration with AC Martin and its consultant team. [See also Chapter 6 for a full discussion of the Sustainability Master Plan and Appendix B, referring to the CSUS Utility Master Plan Update.]

The Master Plan recommends an integrated approach to the design and engineering of all new and remodeled buildings to maximize efficiency of orientation, building envelope, glazing, sun-shades, solar roof panels and solar hot water systems for residential buildings.

PASSIVE DESIGN APPROACHES

- Orient buildings to minimize internal loads and maximize passive heating and cooling to make them more efficient. Proper orientation for daylighting, ventilation and cooling will be the baseline approach to design of all new buildings.
- Floor plans should be designed to block solar heat gain from the western sun and to maximize passive heating during the winter months.
- Building form and orientation should be used to take advantage of the sun, and, with solar roof panels, assist buildings to generate self-sustaining energy power.
- Model energy performance and compare various cost strategies to achieve optimum and economical building envelope combinations to help maximize energy efficiency and minimize operating costs.
- Generate daylighting models to determine the effect of daylight on spaces to minimize electric lighting and resource consumption.
- Use lightweight construction materials with low thermal mass, particularly on walls exposed to the sun. Lightweight construction materials such as timber respond quickly to cooling breezes, allowing the building to cool faster. These materials will be provided with insulation to prevent direct heat transfer and to improve the efficiency of mechanical cooling.
- Use high thermal mass construction materials in conjunction with a well-shaded building to avoid heat gain; incorporate internal insulation to reduce heat transfer. Well-insulated and shaded thermal mass designs lower night time temperatures by 3 to 4°C, decreasing temperature fluctuation between day and night.

ACTIVE ENERGY SYSTEMS

Efficient mechanical and electrical systems will be identified and evaluated to serve proposed facilities. These systems will include some of the following features:

- Separate gas and electric meters tied to Energy Management Systems (EMS) for all major facilities;
- Use of indirect/direct evaporative cooling systems;
- Use of radiant heating and cooling systems;
- Use of earth tubes to precondition outside air on VAV air handling system
- Use of phase change material on inside walls that will store 30 Btu/ft2 at 73°F phase change;
- Use of air speed (ceiling fans) to expand thermal comfort ranges;
- Use of effective control system integration strategies;
- Use of energy-efficient equipment to minimize energy consumption;
- Use of energy-efficient LED lighting coupled with effective occupancy and automatic daylight control strategies and demand control system;
- Promoting task lighting in spaces to reduce overhead lighting power densities;
- Promoting 'occupancy control' power strips to shut off monitors and other plug loads when not in use;
- Evaluating DC distribution and providing the same in office areas;
- Energy-efficient distribution transformers to reduce no load and load losses;
- Metering with central display to monitor energy generation and consumption;
- Use of solar tubes to minimize electric lighting;
- Battery charging stations provided for on-site parking facilities; and
- Promoting the use of cut-off LED lighting outdoors.

SOLAR ENERGY SYSTEMS

Renewable energy technologies utilizing solar will be evaluated to offset a portion of the overall facilities energy consumption and minimize greenhouse gas emissions. The following renewable systems should be pursued:

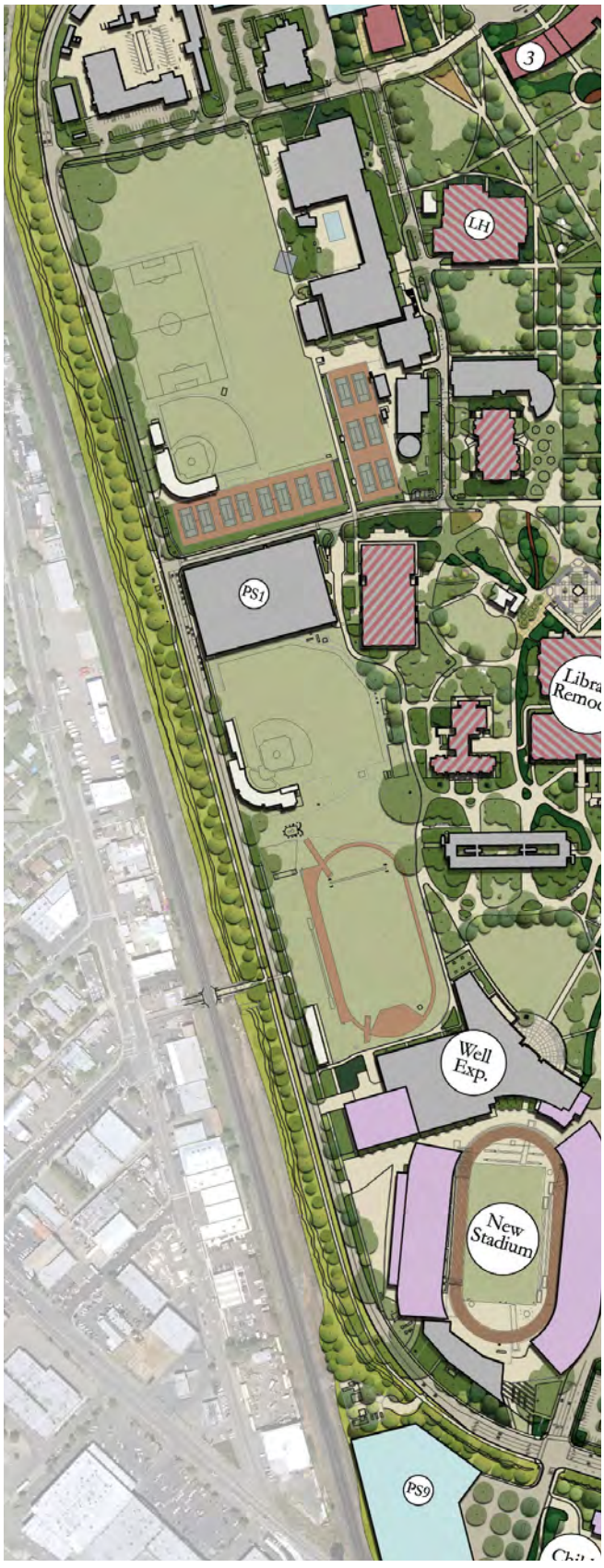
- Use of Solar hot water to minimize use of natural gas consumption;
- Use of photovoltaic panels to offset a portion of the facilities electrical energy; and
- Explore use of hybrid PV/Thermal hot water heating systems (e.g. Cogenra Solar).

WATER CONSERVATION

- Water conservation strategies will be evaluated to maximize water efficiency within each facility.
- Waterless/low gpf water fixtures
- Faucet aerators
- Effective control/reduced use of water for irrigation, use of aerators in faucets
- Roof drains to be directed into adjacent rain gardens and/or bioswales [see also Landscape Design Guidelines, Section 7.7].

DESIGN EVALUATIONS

- All materials and systems designed will be evaluated based on life cycle costs to reduce facilities' maintenance and operation costs.



7.7 LANDSCAPE DESIGN GUIDELINES

The Landscape Master Plan [Chapter 5] calls for the implementation of several large integrated projects and a number of smaller projects located in areas spread across the campus. The Hornet Greenway is the focal point of the Landscape Master Plan [see Chapter 4 for discussion of this project] and incorporates a storm-water management system.

The smaller projects, often similar in nature and design to one another, are the focus of this Landscape Design Guidelines section. Specific directions for the development of recurring landscape elements and improvements such as turf replacement projects and art installation sites are given. These Guidelines should be used in conjunction with both the Landscape Master Plan and the Plant Materials List found in the Appendix A.

TURF REPLACEMENT PLANTING

The Landscape Master Plan recommends that the University replace underutilized and small turf areas with shrub and ground cover plantings that use less water. The campus has many small and narrow triangular and rectangular-shaped turf areas typically located between adjacent pedestrian pathways; these turf areas consume relatively high volumes of irrigation water and are associated with higher maintenance costs. By replacing these areas with lower-water and lower-maintenance plant materials and mulch, water, fertilizer and maintenance costs can be reduced.

- Plant with low-water-use shrubs and ground covers as illustrated in the candidate plant list.

Exhibit 7-43: Western Ditch Adjacent to Campus

- Plant species are to have a maintainable maximum height of 42 inches to maintain site lines through the campus.
- Where possible, raise existing drain inlets in converted turf areas to hold water and allow it to infiltrate into the soils rather than draining directly into the storm drain system. The raised drain inlet will function as an overflow drain during larger rain events. The raised drain inlets should not be higher than the surrounding hardscape.

RIPARIAN CORRIDOR PLANTING

At present campus stormwater flows to the Western Ditch area at the west of the campus, just east of the railroad embankment. The Master Plan proposals for the Hornet Greenway and the associated stormwater management components of the Landscape and Sustainability Master Plans [Chapters 5 and 6] will, once enacted, serve to retain water on the campus so that it infiltrates through the soils and is eventually returned in a cleaner condition to the American River. This new system will reduce the stormwater being managed in the Western Ditch area, but stormwater falling on the Athletics and Recreation Precinct [see Chapter 4 for a complete discussion of master plan precincts] will continue to flow toward the Western Ditch. The engineering studies that address these issues are included in Appendix B.

The Landscape Master Plan proposes that the area just to the east of the Western Ditch be planted as a riparian corridor. The proposed riparian planting area does not invade or interfere with the operations of the Western Ditch, but will create a natural planting area around the western drainage area. The sides and bottom of the channelized west drainage ditch will not be planted, as to not alter the hydrology of the drainage system.

The plant palette will include native riparian species selected for low water and low maintenance requirements. Furthermore, this planting scheme will extend to the south and east edge of Campus, creating a visual connection with the existing riparian zone.

Riparian plantings will provide visual screening and sound attenuation of the raised railway; encourage native habitat; reduce water use by replacing lawn with low-water-use plant material; improve the visual aspect of this area, which is often dry and weed-strewn; and contextually replicate the native riparian habitat of the American River, creating a more congenial western boundary for the campus.

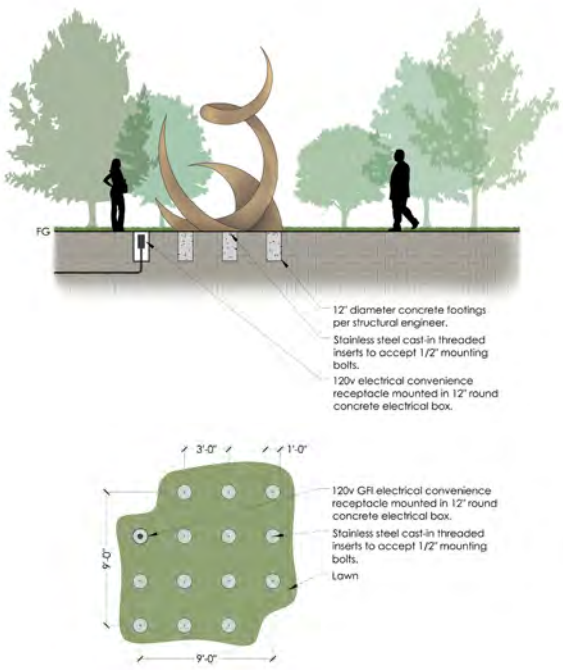


Exhibit 7-44: Proposed Landscape Art Installation System

LANDSCAPE ART INSTALLATION SITES

The Landscape Master Plan proposes flexible art installation sites that will highlight the University's renowned art department and add another layer of identity and vibrancy to the campus landscape. The sites themselves will be permanent but the art temporary, allowing for a wide variety of art to be displayed. [Chapter 5 illustrates proposed sites for landscape art installations.] The art installations will become focal points that spark interest and dialog between students and faculty. As landmarks, the art will aid in wayfinding.

- Display student art as part of course curriculum.
- Display visiting artist exhibits.
- Flexible secure mounting base for temporary student art installations.
- Includes power for lighting, articulation and movement.
- Installed flush with the landscape to provide ease in maintenance, while disappearing into the landscape when not in use.

PERMEABLE PAVING

Where possible, install permeable paving at hardscape areas to reduce stormwater run-off and mitigate oils and heavy metals commonly found in hardscape run-off. Candidate locations include existing surface parking, new plaza space and expansive hardscape areas. Additionally, consider utilizing open cell type pavers in lawn and planting areas to accommodate the Emergency Vehicle path of travel while minimizing hardscape.

In areas where permeable paving is proposed, soil should be tested to determine its infiltration rate and load bearing characteristics. With this data, recommendations can be made for under drain systems and subsoil stabilization. Permeable paving should be regularly maintained per best management practices to ensure efficient and long term functionality.

NEW TREE PLANTINGS / CANOPY MAINTENANCE

As a result of the initiatives identified in the Master Plan new tree plantings will occur associated with various new projects and as aging and diseased trees of Sacramento State's urban forest are replaced to insure a long term healthy campus biota. New and replacement tree species should be taken from the Plant Materials List found in Appendix A. The University Arboretum representatives should also be consulted when identifying trees for th Arboretum and Arboretum Expansion areas.

TREE SUCCESSION PLAN

The goal of the successional tree planting plan is to create a proactive process that will inform the preservation and maintenance the campus' mature tree canopy. A description of the methods to ensure a successful tree succession plan are included in Chapter 5, Landscape Master Plan.

IRRIGATION SYSTEMS

It is recommended that all new and renovated irrigation systems on campus comply with the State's Model Water Efficient Landscape Ordinance. To achieve the goal of maximum irrigation efficiency and minimum waste production the following methods will be implemented:

- Install water meters at all irrigation wells to quantify water use;
- Establish base-line usage numbers when reducing overall water use on campus;
- Install flow sensors and master valves at all irrigation points of connection;
- Install "Smart" irrigation controllers that utilize weather based evapotranspiration data (ETo) or moisture based data (soil sensors) to automatically adjust irrigation schedules;
- All controllers should be fitted with a rain sensor or soil sensor to automatically suspend irrigation during substantial rain events;
- Utilize soak-and-cycle irrigation scheduling to prevent irrigation run-off -- this is especially important when irrigating slopes;
- Install high efficiency rotor type irrigation heads in lieu of spray heads;
- Ensure all irrigation circuits are operating within the optimum pressure range for the irrigation head installed -- this may require the installation of pressure regulation devices;
- Install check valves or anti-drain valves on all irrigation circuits;
- Tune irrigation circuits to minimize run-off;
- Consider installing in-line drip systems (such as Netafim) in smaller or linear planting areas;
- Irrigate trees with deep watering bubblers separately from turf or shrub and ground cover irrigation circuits;
- Install overhead spray irrigation (spray/rotor) 24 inches from impermeable surfaces that drain directly into the storm drain system; and
- Do not use overhead irrigation (spray /rotor) to irrigate planning areas narrower than 6 feet in width or 8 feet in width for turf areas.

7.8 CAMPUS WAYFINDING AND SIGNAGE

CAMPUS WAYFINDING AND SIGNAGE MASTER PLAN

Wayfinding has been described as the process of using spatial and environmental information to find ones way in the built environment. It can also be described as an organized effort to establish and improve the function of a particular environment. Both have been utilized in the development of this Master Plan.

As with most urban environments, a university campus can be very complex. These complexities can translate into confusion and disorientation for the user. By focusing on the challenges of the first time visitor and the campus master plan improvements, a successful, long term wayfinding plan can be established. This plan will rely on the further development and supplementation of the existing signage program, which will include signs that identify, direct, inform and visually enhance the campus. A good sign system provides clear information when needed and recedes into the background when it is not needed.

Exhibit 7-45: Typical Pedestrian Pathway at Eureka Hall and Central Plant

Exhibit 7-46: Vehicle Directional Sign / High

EXISTING CAMPUS SIGNAGE SYSTEM

The existing campus signage system is comprised of eight core sign types.

- Campus Identification Monument Sign [Exhibit 7-48]
- Vehicle Directional Sign / High [Exhibit 7-46]
- Vehicle Directional Sign / Low [Exhibit 7-47]
- Parking Area Identification Exhibit 7-49]
- Pedestrian Directional Sign [Exhibit 7-55]
- Directory / You Are Here Map Sign [Exhibit 7-50]
- Directory / You Are Here Map Kiosk [Exhibit 7-51]
- Building Identification Sign [Exhibit 7-52 through Exhibit 7-56]

Supplemental building directory signs have been added at various locations. Inadequate legibility due to under-sized graphics.

Exhibit 7-47: Vehicle Directional Sign / Low

Exhibit 7-48: Campus Identification Monument Sign

Exhibit 7-49: Parking Area Identification Sign

Exhibit 7-50: Directory / You Are Here Map Sign

Exhibit 7-51: Directory / You Are Here Map Kiosk

Exhibit 7-52: Building Identification Monument Sign

Exhibit 7-53: Supplemental Building Directory Sign 1

Exhibit 7-55: Pedestrian Directional Sign

Exhibit 7-54: Supplemental Building Directory Sign 2

Exhibit 7-56: Supplemental Building Directory Sign 3

Exhibit 7-57: Under-sized Graphics Hinder Legibility

Exhibit 7-58: Under-sized Graphics Hinder Legibility

Exhibit 7-60: Excessive Messaging Hinders Legibility

ASSESSMENT OF CAMPUS WAYFINDING AND SIGNAGE

The existing campus signage is well made, appropriately scaled, and aesthetically pleasing. Although extensive implementation is evident, there remain fundamental gaps in the overall wayfinding system. These gaps are primarily attributed to the following conditions:

- Campus entries lack visual impact due to the blending of monument signage coloration with surrounding greenery;
- Too few signs in key areas, such as vehicular roadways and pedestrian entry portals, is leading to excessive messaging on existing signs;
- Excessive messaging has lead to poor legibility due to under-sized graphics and underdeveloped graphic standards.

Although attractive, graphic composition on some signs can be improved to better utilize the available sign area. Graphic refinement of arrow symbols will also improve legibility.

Campus map graphics need improvement. Additional coloration and stylized graphics will improve legibility, and development of map graphics oriented to viewers direction will improve legibility and comprehension.

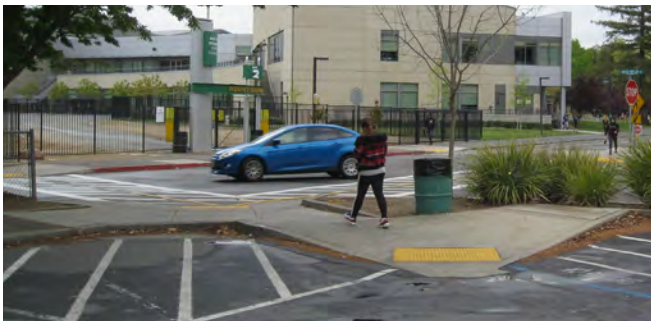


Exhibit 7-59: Orientation Signage Needed at Parking

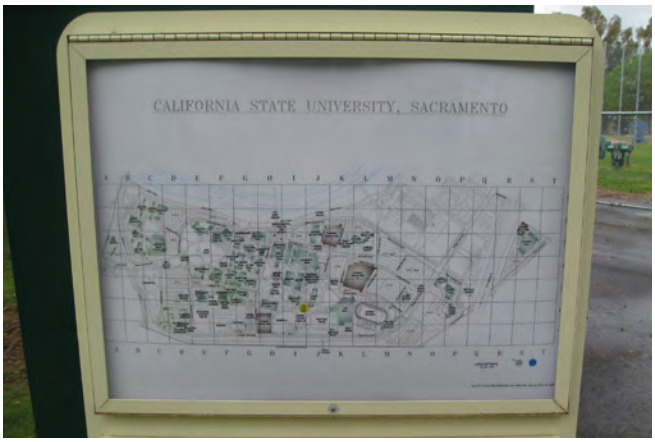


Exhibit 7-61: Campus Map Graphics Need Improvement

VEHICULAR ARRIVAL SEQUENCE

The Vehicular Arrival Sequence Plan is a graphic representation of the expected, first-time visitor vehicular arrival sequence. This study defines key vehicular decision areas that require identification, as well as informational or directional signage. It should be noted that planning of future campus signage will require a more comprehensive examination of user traffic patterns.

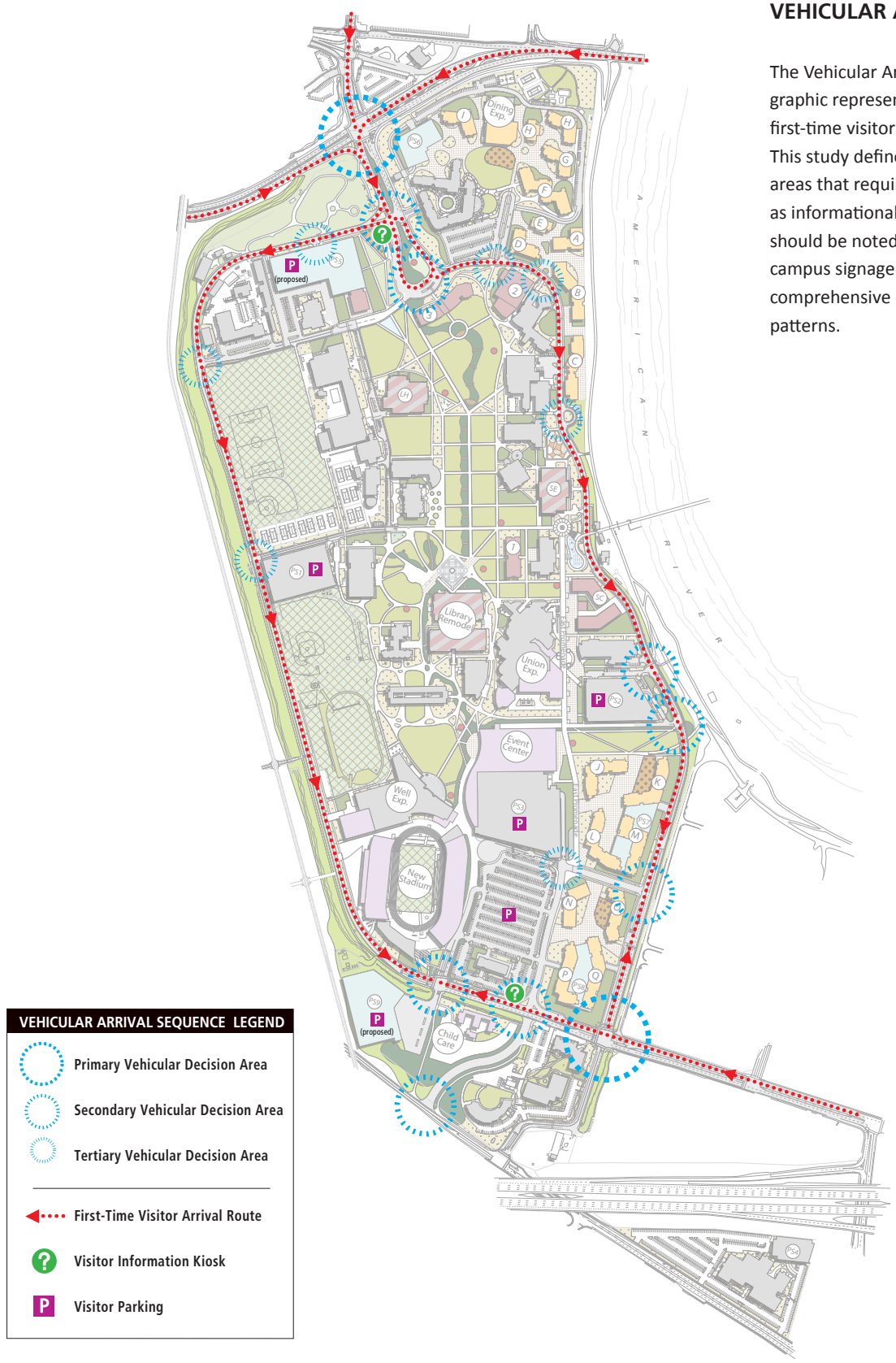


Exhibit 7-62: Vehicular Arrival Sequence Plan

VEHICULAR SIGNAGE LOCATIONS

The Vehicular Signage Location Plan is a graphic representation of the general placement of proposed signage components included in the current campus signage program, as well new recommended sign types. The planning of future sign placement will require a more comprehensive examination of site lines, changing roadway uses, and regular special event needs.

VEHICULAR SIGN LOCATION LEGEND

- Campus Identification Monument Sign
- Vehicle Directional Sign / High (existing)
- Vehicle Directional Sign / High (proposed)
- Vehicle Directional / Low (existing)
- Vehicle Directional / Low (proposed)
- Bicycle Route Identification Sign
- Parking Area Identification (existing)
- Parking Area Identification (proposed)
- Visitor Information Kiosk

Exhibit 7-63: Vehicular Signage Location Plan

PEDESTRIAN ARRIVAL SEQUENCE

The Pedestrian Arrival Sequence Plan is a graphic representation of the expected, first-time visitor pedestrian arrival sequence. This study defines key pedestrian decision areas that require identification, as well as informational or directional signage. It should be noted that planning of future campus signage will require a more comprehensive examination of user traffic patterns.

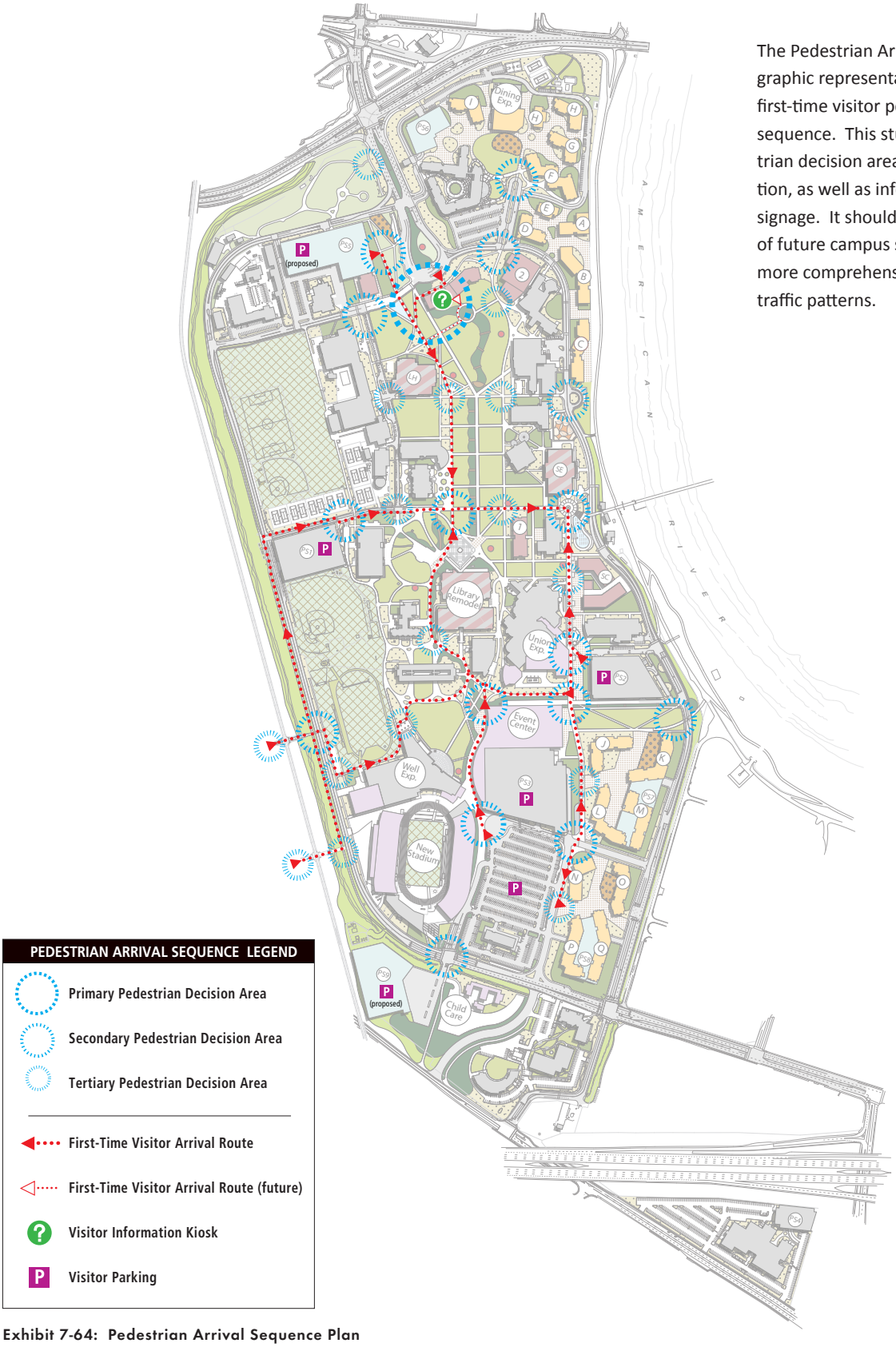
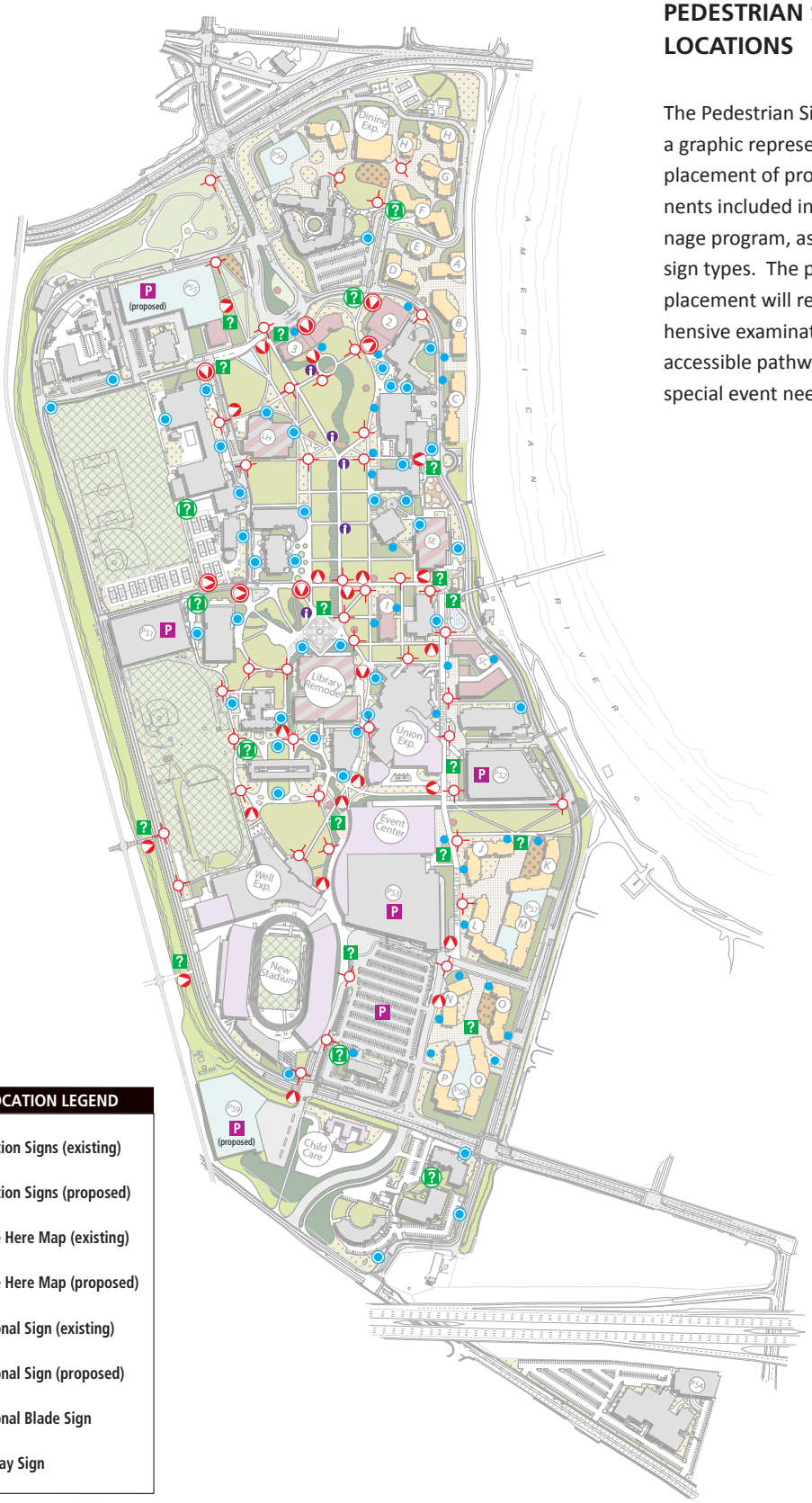


Exhibit 7-64: Pedestrian Arrival Sequence Plan



PEDESTRIAN SIGN LOCATION LEGEND

- Building Identification Signs (existing)
- Building Identification Signs (proposed)
- Directory / You Are Here Map (existing)
- Directory / You Are Here Map (proposed)
- Pedestrian Directional Sign (existing)
- Pedestrian Directional Sign (proposed)
- Pedestrian Directional Blade Sign
- Interpretive Pathway Sign

Exhibit 7-65: Pedestrian Signage Location Plan

PEDESTRIAN SIGNAGE LOCATIONS

The Pedestrian Signage Location Plan is a graphic representation of the general placement of proposed signage components included in the current campus signage program, as well new recommended sign types. The planning of future sign placement will require a more comprehensive examination of sign orientation, accessible pathway locations, and regular special event needs.

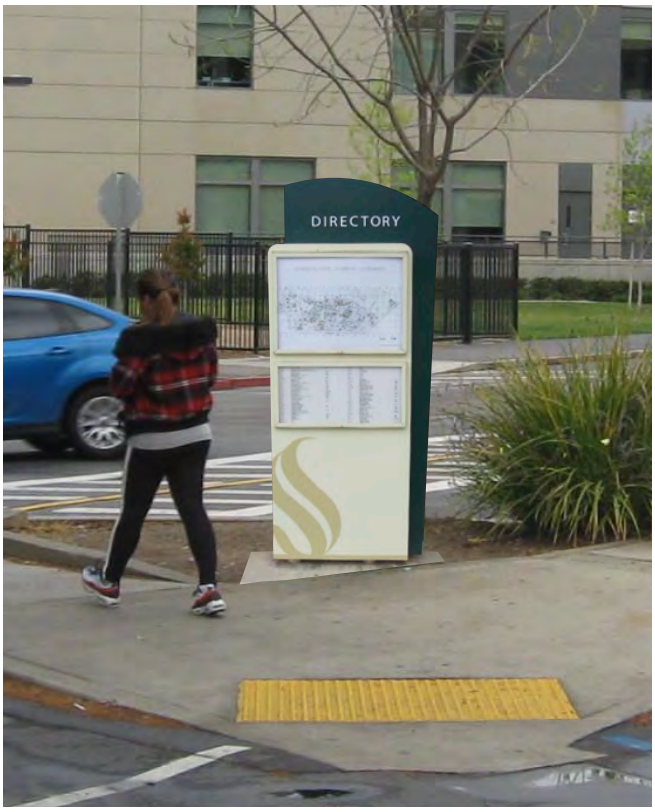


Exhibit 7-66: Campus Maps at Pedestrian Entries

FUTURE CAMPUS WAYFINDING AND SIGNAGE

The success of future campus wayfinding will rely on a number of elements. A combination of adequate signage in key areas, precise sign placement, thoughtful sign messaging and improved graphics will help to ensure that the implementation of future wayfinding phases are successful. Precise planning of future campus signage will require a more comprehensive examination of user traffic patterns, development of sign messaging criteria, and improved graphic legibility standards. Future improvements should include:

- Renovation of campus monument sign coloration to provide greater contrast with surrounding landscape [Exhibit 7-68];
- Adequate orientation signage at parking areas and campus pedestrian entries [Exhibit 7-66];
- Further development of existing signage program to include new sign types that will enhance existing wayfinding and promote future campus improvements [Exhibit 7-67, Exhibit 7-70, Exhibit 7-71];
- Development of messaging criteria and graphic standards that promote improved legibility and effectiveness [Exhibit 7-69];
- Enhancement of campus map graphics through increase coloration and map stylization [Exhibit 7-68];

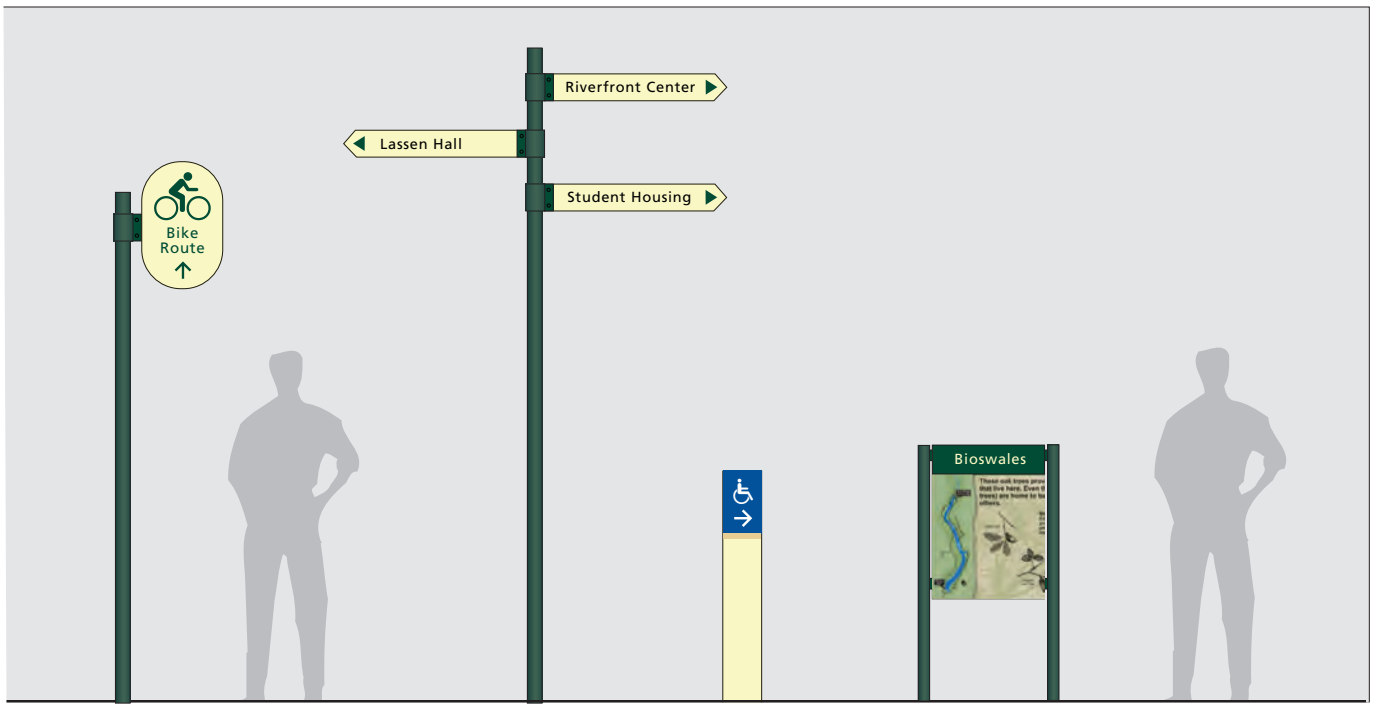


Exhibit 7-67: New Recommended Sign Types

Exhibit 7-68: Improved Campus Map Graphics

Exhibit 7-69: Improved Messaging and Composition

Exhibit 7-70: New Pedestrian Directional Blade Sign

Exhibit 7-71: Improved Disabled Access Sign

Exhibit 7-72: Iconic Campus Entry Sign Examples

- Renovation of campus entry monument signage coloration to create greater contrast with surrounding greenery;
- Adequate orientation signage at parking areas and campus pedestrian entries;
- Further development of existing signage program to include new sign types that will enhance existing wayfinding and future campus improvements; and
- Establish messaging criteria and graphic standards that promote improved legibility and effectiveness.

Exhibit 7-73: Interpretive Display at Hornet Tunnel

CHAPTER 8

IMPLEMENTATION GUIDELINES

SACRAMENTO
STATE

Chapter 8: Implementation Guidelines

These Guidelines provide a conceptual framework for the implementation of the Campus Master Plan over the next twenty years. As the facilities and improvements envisioned in the Master Plan will be developed incrementally over a long period of time, the conceptual framework clusters the future facilities and improvements into thirteen major groups. Each of the major groups could be developed either separately or concurrently with other groups.

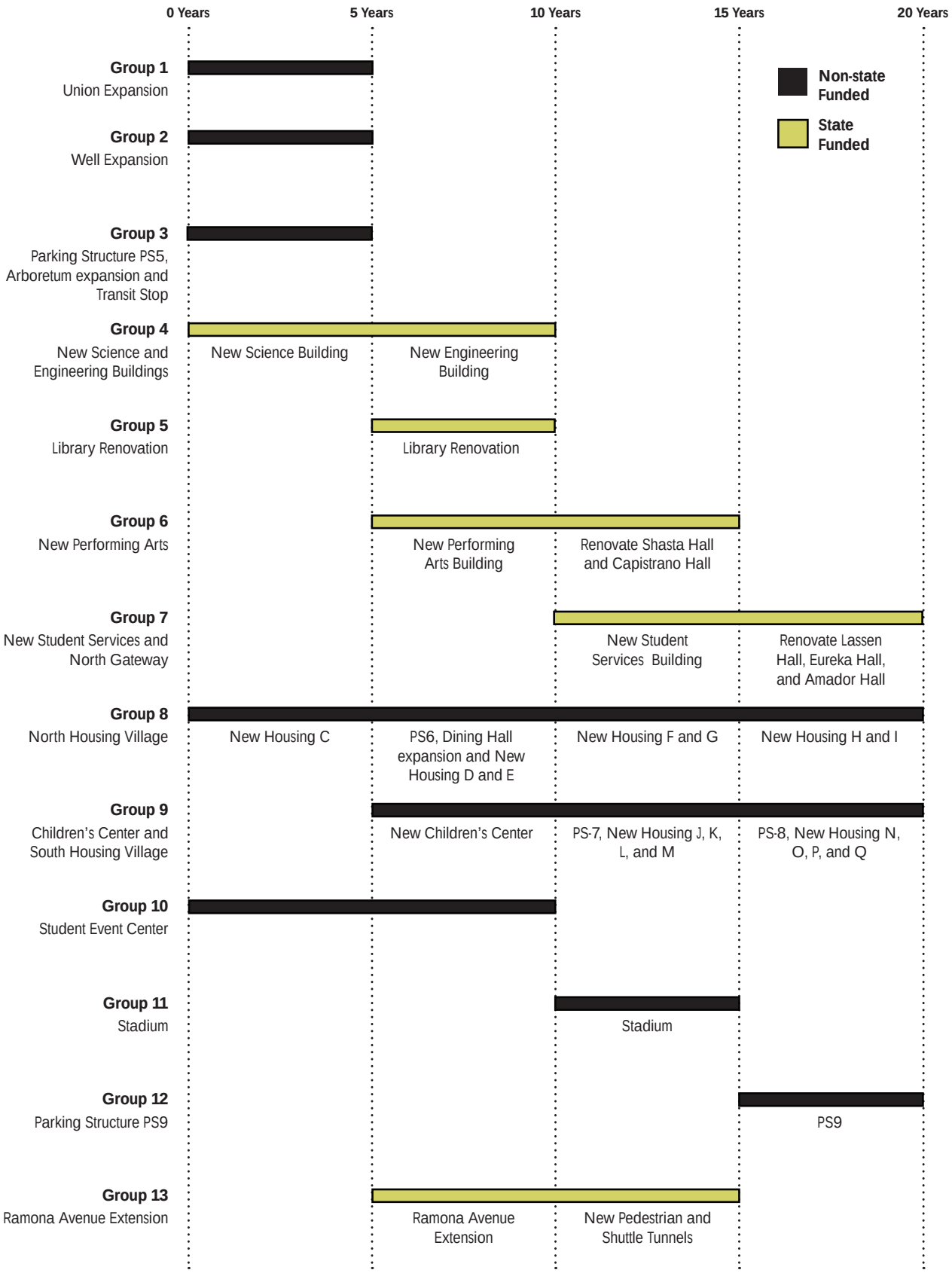


Exhibit 8-1: Conceptual Implementation Framework

Exhibit 8-2: Phasing Guidelines Key Map

GROUP 1: UNIVERSITY UNION EXPANSION

The University Union expansion will address its three primary programs: dining and meeting space, study lounges, and ballrooms. Also included will be a new Auditorium.

On the first floor, dining and meeting room space could increase by 375 seats achieved mostly by enclosing the east walkway. The five new meeting room suites could bearranged to allow catering access. New bathrooms and storage areas will be constructed to serve the increased loads.

The study lounge on the second floor of the Union could be expanded to accomodate an additional 250-500 patrons, located over the new first floor extension.

A new dual-chamber ballroom can be added to the south wing, and the square footage of the existing ballrooms can be increased through reconfiguring the existing layout of the ballrooms and new construction. The reconfiguring will require the construction of new greenrooms, storage, and receiving. University Union Receiving can remain to the south.

The new 300-seat Auditorium could have an independent lobby, separate from the University Union entrance, as well as restrooms, storage, green rooms, a ticket booth, and similar amenities.

GROUP 2: UNIVERSITY WELL EXPANSION

The highly popular Well requires an expansion to serve the increasing number of students who use the activity center. This expansion will include fitness program space, health services offices and a gym addition.

The fitness program space will increase by the addition of new locker rooms, new fitness studio space, and expansion of the second floor gym. Heath Services offices will be added for counseling and psychological services, including three new therapy rooms and additional exam rooms. A new gym addition, at the rear of the existing Well, could include two gym courts and upper deck spectator seating.

GROUP 1: UNIVERSITY UNION EXPANSION				
ORDER	PERIOD (YEARS)	LABEL	CATEGORY	DESCRIPTION
1.0	0-5	UE	Student Activities	University Union Expansion
1.0a	0-5		Landscape	Phase A of new East Promenade

GROUP 2: WELL EXPANSION				
ORDER	PERIOD (YEARS)	LABEL	CATEGORY	DESCRIPTION
2.0	0-5	WE	Student Activities	Well Expansion

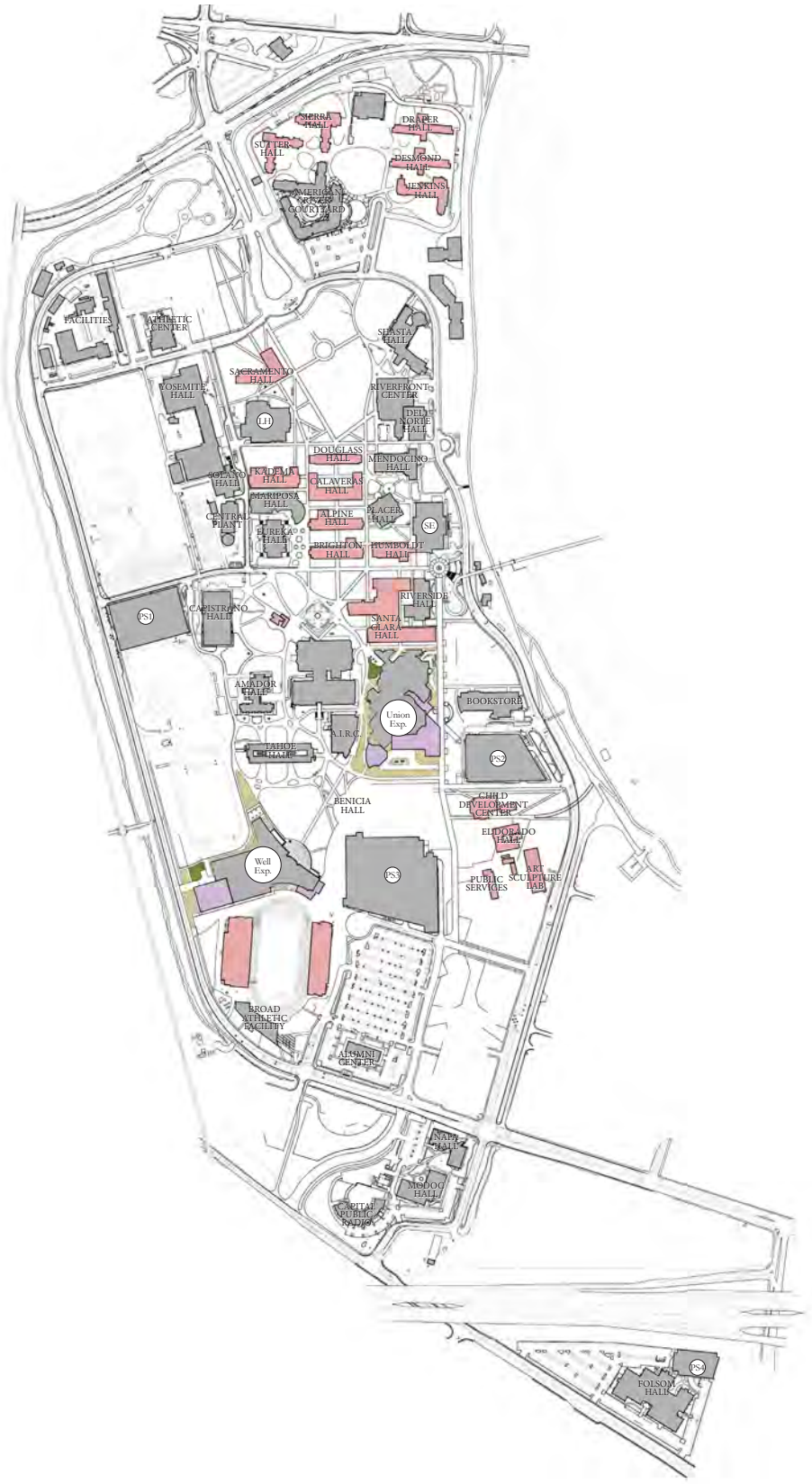


Exhibit 8-3: Groups 1 and 2: University Union and Well Expansion

GROUP 3: PARKING STRUCTURE PS5

Group 3 addresses the need for parking in the North Campus, the Arboretum expansion and connection to the Academic Core, and the relocation of the North Campus transit stop.

3.0: Parking Structure PS5

In Lot 1, adjacent to the Athletic Center, the new PS5 can be constructed. Along the southeast corner of the new garage, a multi-floor office building could be constructed. This can house the Parking Administration Office and Campus Public Services. Upon completion of the structure, the Parking Administration and Public Services can relocate to the new building. Following the relocation, the existing Public Services building could be demolished.

3.1: Arboretum Expansion

Between the east edge of the new PS5 and the State University Drive entry loop, a new Arboretum expansion can be created. The landscape will follow the aesthetics of the existing arboretum and can also include rain gardens to capture the water runoff from the new PS5. The portion of Bay Laurel Way between Moraga Way and State University Drive will be bollarded off to all vehicles (except for emergency vehicles), allowing for a better pedestrian connection to the Arboretum.

3.1a: New Transit Stop

Adjacent to the new Arboretum expansion, a new Transit Stop for Regional Transit and Hornet Shuttle buses will be constructed along State University Drive Loop. The existing north transit station could be removed. Shelters and signage can be constructed along with the Transit Stop.

GROUP 3: PARKING STRUCTURE PS5, ARBORETUM EXPANSION AND TRANSIT STOP RELOCATION				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
3.0	0-5	PS5	Parking	Construct Parking Structure 5; Parking Services offices, Campus Police offices, and police vehicle parking on ground floor. Office Space = 22,050 sf Parking = 555,950 sf
3.0a	0-5		Relocation	Relocate Parking Services and Campus Police Station
3.0b	0-5		Demolition	Demolish existing Public Services Building
3.1	0-5		Landscape	Expand Arboretum to connect to new Grand Central Quad
3.1a	0-5		Site Work	Construct New Transit Stop adjacent to Arboretum Expansion.

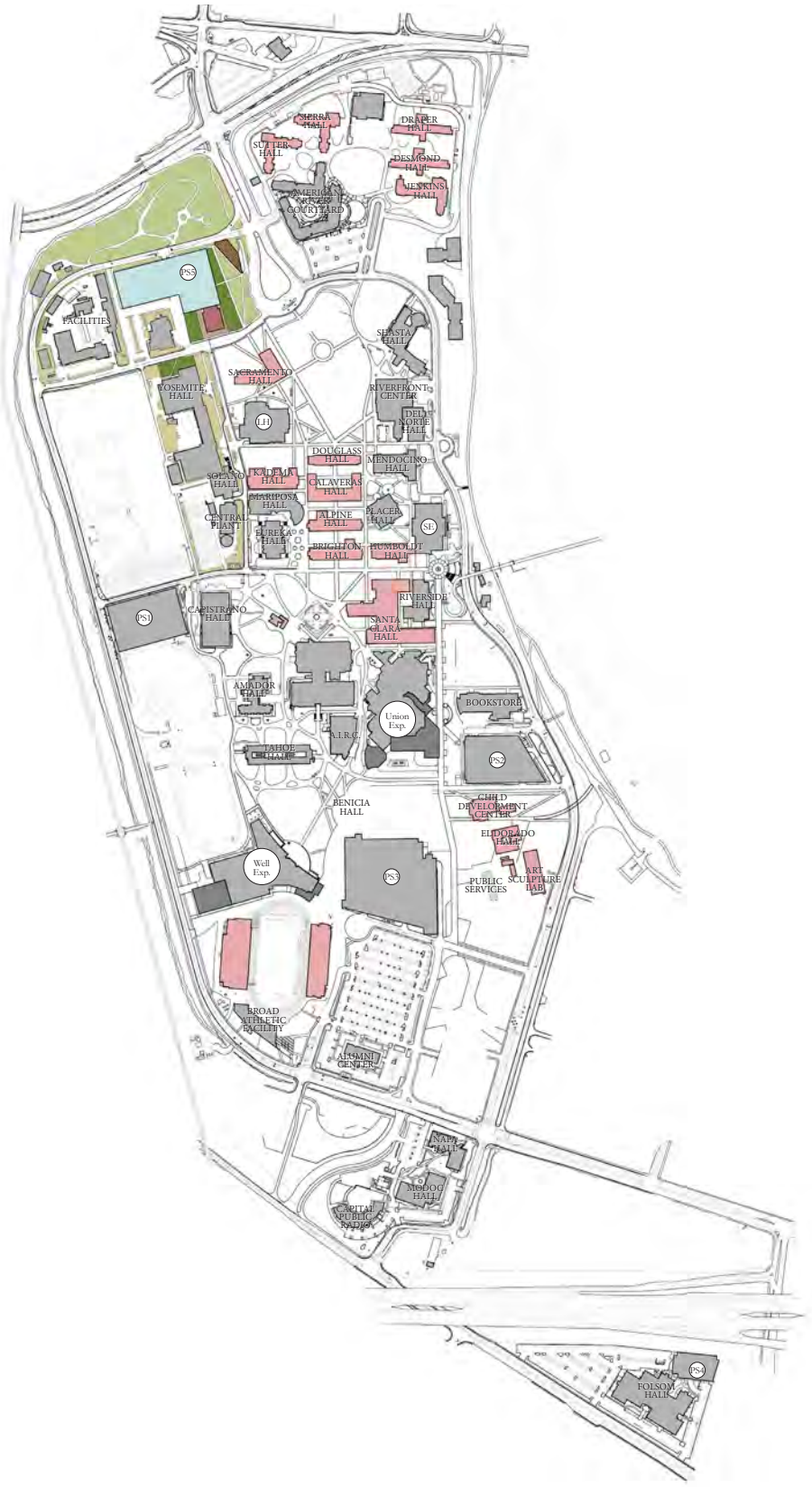


Exhibit 8-4: Group 3: Parking Structure PS5, Arboretum Expansion and New Transit Stop

GROUP 4: NEW SCIENCE AND ENGINEERING BUILDINGS

The construction of the new Science and Engineering Buildings, subsequent renovations of existing buildings housing three programs, and the demolition of facilities that are beyond their useful life would greatly improve the Academic Core of the campus.

4.0 - 4.1: New Science Building

The new Science Building could be constructed in the existing parking Lot 4. The new PS5 would provide the campus with adequate parking when Lot 4 is taken out of service.

The new Science building could be built in phases. The following description of this project is taken from the University's "Draft Science II Feasibility Report", pages 9-10. [The Final feasibility report for the proposed Science Building is subject to change once final funding is approved.]

> "The Departments of Biology and Chemistry will move into Phase A initially. Because of building cost constraints, part of the Biological Sciences Department will not move to the new building. The Ecology and Evolution teaching labs, the specimen collections and some of the biology general education laboratories will temporarily remain in Sequoia Hall. This is a natural division of the department, as these groups need to remain near the specimen collections more than the groups that are moving. Any functions that remained in Humboldt Hall, after the move to Science II, Phase A, will move to Sequoia when Humboldt is demolished. When Phase B is constructed as a new wing on Science II, the programs which remained in Humboldt Hall will move along with the Mathematics and Statistics Departments to the new building. A later phase of the Science II project will gather the physical sciences components of the CNSM: Astronomy, Physics, and Geography, into a new building to be constructed on the Humboldt Hall site. This location, while separate from the Science II Phase A and B building, will keep the physical sciences near the Engineering Sciences and Geology buildings, and help to create a physical sciences neighborhood on campus."

As part of the new Science Building project, the first phase of the East Promenade could be constructed. New planters, seating, shade trees and structures can form the beginning of a new pedestrian promenade that would eventually connect to the new South Housing Village.

4.2 - 4.4: Sequoia Hall Renovation

Following the relocation of the existing science programs from Sequoia Hall into the new science buildings, the building could be renovated and reconfigured to provide classrooms. Sequoia Hall can serve the College of Arts and Letters; a portion of Sequoia Hall can serve the College of Engineering and Computer Science. The Arts and Letters programs can be relocated from Alpine Hall, Kadema Hall, Brighton Hall, Douglass Hall and Calaveras Hall into the renovated Sequoia Hall.

Humboldt Hall could become a staging area for the remaining Engineering and Computer Science programs not relocated to Sequoia Hall from Santa Clara Hall. These programs could remain in Humboldt Hall until the new Engineering Building is built.

To the north of Sequoia Hall, the existing greenhouse could be demolished and replaced with an "Arts Yard." This can then house large fabrication equipment like a kiln and wood shop. To the south, a new high density bike parking facility could be added and the existing amphitheater, renovated to include additional seating and shade structures.

Once all programs have be relocated from Alpine Hall, Brighton Hall, Douglass Hall, and Calaveras Hall, and Santa Clara Hall, these facilities could be demolished. This would make way for the first phase of the new Grand Central Quad, which will include a portion of the Hornet Greenway, rain gardens and activity fields.

4.5: New Engineering Building

To the west of Riverside Hall, a new Engineering and Computer Sciences Building will be provided. The programs housed temporarily in Humboldt Hall can be relocated to the new building. Also, depending on the College's needs at the time of development, the Engineering and Computer Science programs in Sequoia could move to the new building as well. This will allow the College of Arts and Letters to expand into the vacated area of Sequoia Hall.

Humboldt Hall could be demolished once the existing programs have been relocated to the new building. New landscape improvements surround the new building as well as the area where Humboldt Hall once stood. These can include rain gardens, shade trees, activity fields and plazas.

4.6: Central Plant Expansion

The Central Plant can be expanded and upgraded, including the Substation. These upgrades would enhance the feeds to serve the new and existing academic buildings.

Exhibit 8-5: Artist's Rendering of the East Mall and New Pedestrian Bridge to Alumni Grove

Exhibit 8-6: Artist's Rendering of the New Grand Central Quad and Hornet Greenway

GROUP 4: NEW SCIENCE AND ENGINEERING BUILDINGS				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
4.0	0-5	NS	Academic-New	Construct New Science Building (Previous Master Plan)
4.0a	0-5		Landscape	Phase B of new east promenade
4.1	0-5		Relocation	Relocate Science from Sequoia Hall, Placer Hall, Humboldt Hall, Brighton Hall, and Santa Clara Hall (Partial).
4.2	0-5		Academic-Renovation	Renovate and reconfigure Sequoia Hall and Placer Hall. Convert existing Lab space into non-lab classrooms and new Engineering labs
4.2a	0-5		Landscape	Improve Landscape adjacent to Sequoia Hall
4.2b	0-5		Demolition	Demolish Greenhouse
4.2c	0-5		Landscape	Create “Art Yard” north of Sequoia where the former Greenhouse was located
4.4	5-10		Demolition	Demolish Alpine Hall, Brighton Hall, Douglass Hall, Calaveras Hall, and Santa Clara Hall
4.4a	5-10		Landscape	Phase A of New Grand Central Quad and Hornet Greenway
4.5	5-10	1	Academic-New	Construct new Engineering Building
4.5a	5-10		Demolition	Demolish Humboldt Hall
4.5b	5-10		Landscape	New Landscape improvements adjacent to new Engineering Building
4.6	5-10		Central Plant expansion	Central Plant expansion/upgrades and Substation upgrades and enhanced feeds to serve new academic buildings.

Exhibit 8-7: Group 4: New Science and Engineering Buildings

GROUP 5: LIBRARY RENOVATION

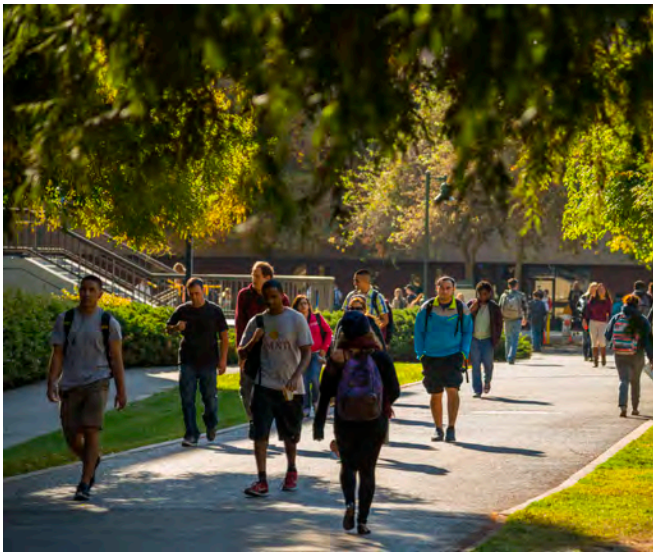
To elevate the Library as the centerpiece of the campus, the Library buildings have been slated for a major renovation.

5.0: Library Renovation

Once Library operations and facilities have been analyzed and a program developed, the Library can be incrementally renovated. High-efficiency stacks will be installed to consolidate storage. Additional study areas can be added for both individuals and groups. Based on the analysis of the structure, new windows along the facade may be added to improve daylighting throughout the Library.

5.0a: Library Quad

The second phase of the new Grand Central Quad could be constructed along with the Library renovation enlarging the existing Library Quad and connecting it to the Hornet Greenway. The Hornet Greenway could be continued from the north, along the north and west side of the Library. The Library renovation will include modifications to the Library's stormwater runoff collection system to connect it with the Hornet Greenway's stormwater network.



GROUP 5: LIBRARY RENOVATION				
ORDER	PERIOD (YEARS)	LABEL	CATEGORY	DESCRIPTION
5.0	5-10	LR	Academic-Renovation	Renovate Library
5.0a	5-10		Landscape	Phase B of New Grand Central Quad and Hornet Greenway

Exhibit 8-8: Group 5: Library Renovation

GROUP 6: NEW PERFORMING ARTS BUILDING

To address the growing Performing Arts program at the University, the Master Plan includes a new Performing Arts building adjacent to Shasta Hall.

6.0: New Performing Arts Building

A new Performing Arts Building could connect to Shasta Hall to shared common areas. The building can contain a new theater, stage craft, storage, classrooms and practice rooms.

6.0a: Shasta Hall and Capistrano Hall Renovation

Existing programs in Shasta Hall and Capistrano Hall could be incrementally relocated to the new Performing Arts building as each existing hall is renovated.

GROUP 6: NEW PERFORMING ARTS				
ORDER	PERIOD (YEARS)	LABEL	CATEGORY	DESCRIPTION
6.0	5-10	2	Academic-New	New Performing Arts building
6.0a	10-15		Academic-Renovation	Renovate Shasta Hall. Use new Performing Arts building as temporary space during renovation
6.0b	10-15		Academic-Renovation	Renovate Capistrano Hall. Use new Performing Arts building as temporary space during renovation

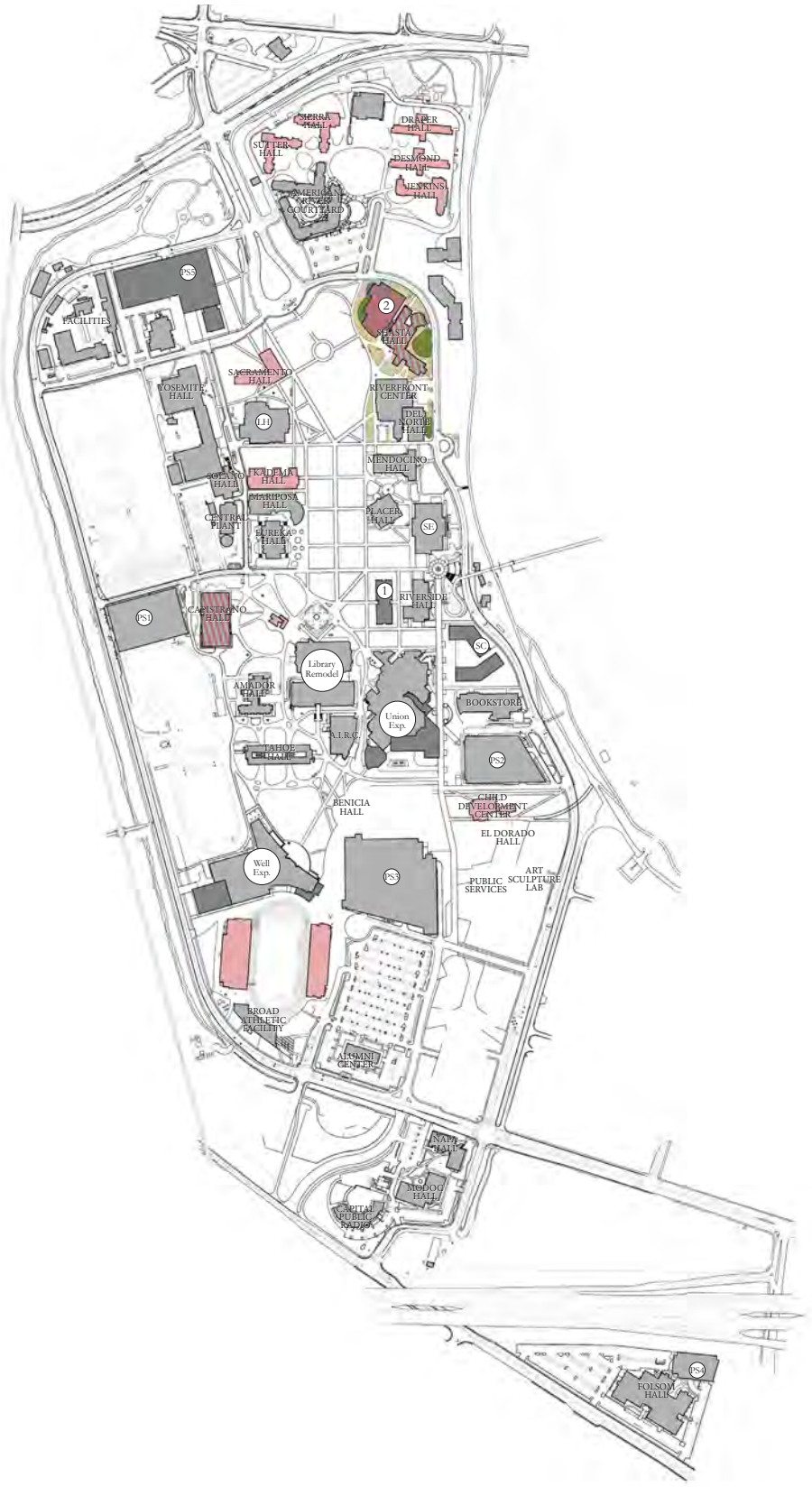


Exhibit 8-9: Group 6: New Performing Arts Building

GROUP 7: NEW ADMINISTRATION / STUDENT SERVICES BUILDING AND NORTH GATEWAY

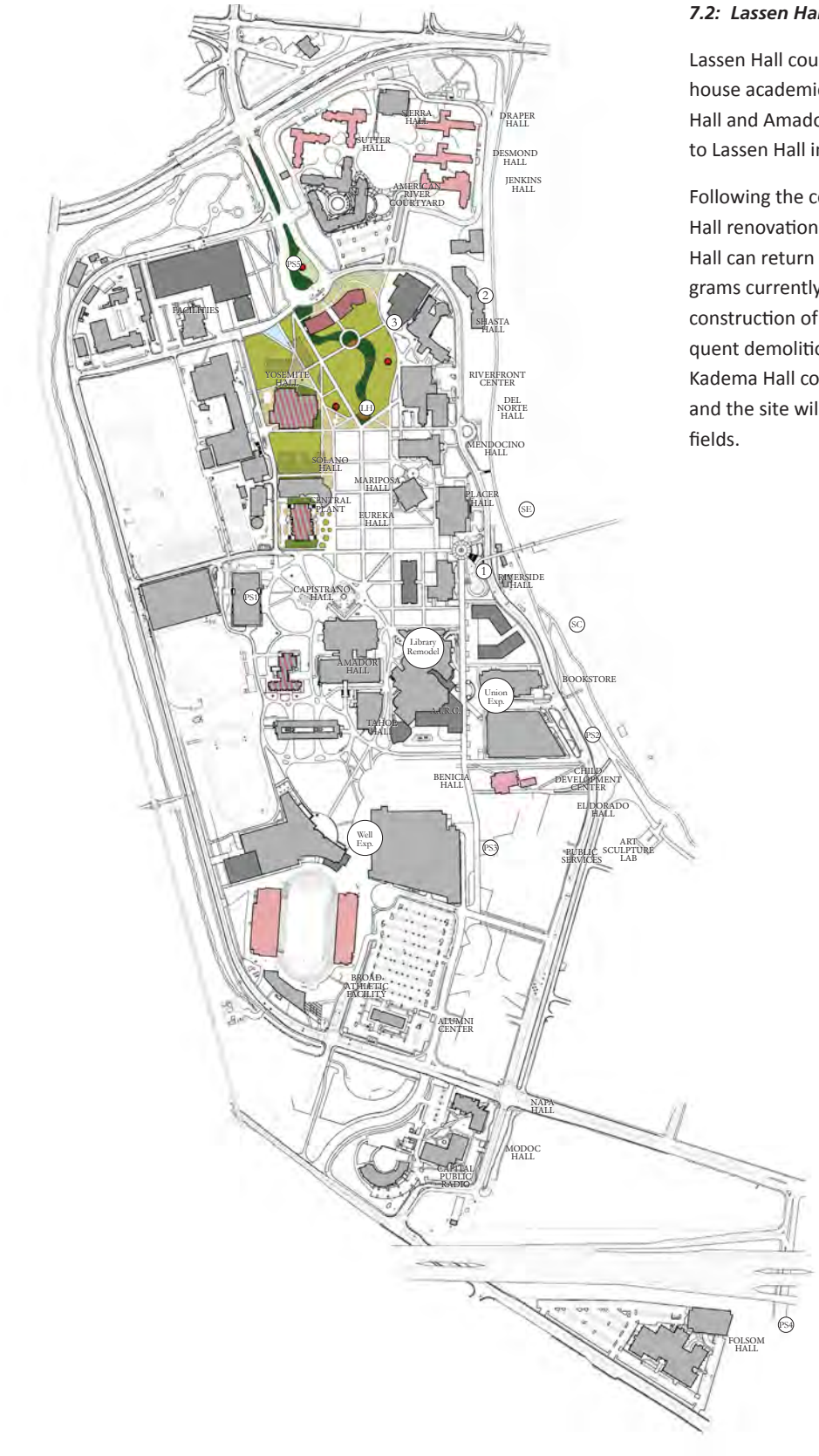
Currently the North Campus lacks a clearly-defined north entry commensurate with the stature of the University. To improve the campus' front door, a new Administration and Student Services Building could be constructed as part of a new North Gateway. This new building can consolidate all of the administration and student services to make it easier for students and staff to take care of business affairs. This building would create a compelling entry sequence at the north and be the first building visitors will see.

7.0: New Administration and Student Services Building

The Master Plan includes new Administration and Student Services Building at the northern-most edge of the Grand Central Quad. Student Services and Administration Offices from Sacramento Hall and Lassen Hall can be relocated into the new Administration and Student Services Building. Following the relocation, Sacramento Hall could be demolished and Lassen Hall renovated.

Associated with the construction of the new building, the north phase of the Grand Central Quad improvement could be completed, including the Hornet Greenway and rain gardens. New intramural play fields could be constructed on the site of Sacramento Hall.

GROUP 7: NEW ADMINISTRATION / STUDENT SERVICES / NORTH CAMPUS GATEWAY				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
7.0	10-15	3	Academic-New	New Administration/Student Services Building (North Gateway)
7.0a	10-15		Landscape	Hornet Greenway and landscape improvements along the north entry
7.1	10-15		Relocation	Relocate Student Services and Administration Offices from Sacramento Hall and Lassen Hall into new Administration/ Student Services Building
7.1a	10-15		Demolition	Demolish Sacramento Hall
7.1b	10-15		Landscape	New Intramural fields on former Sacramento Hall site
7.2	15-20		Academic-Renovation	Renovate and Reconfigure Lassen Hall into new Academic Classrooms
7.2a	15-20		Academic-Renovation	Renovate Eureka Hall (59,488) and Amador Hall (67,138).
7.3a	15-20		Demolition	Demolish Kadema Hall
7.3b	15-20		Landscape	New Intramural fields on former Kadema Hall site



7.2: Lassen Hall Renovation

Lassen Hall could be renovated and improved to house academic programs. Programs within Eureka Hall and Amador Hall could be temporarily relocated to Lassen Hall in order to renovate these buildings.

Following the completion of Eureka Hall and Amador Hall renovations, the programs temporarily in Lassen Hall can return to their original buildings. The programs currently being held in Kadema Hall, after the construction of the new Science Building and subsequent demolition, can be relocated into Lassen Hall. Kadema Hall could be demolished after the relocation and the site will be transformed into intramural play fields.

Exhibit 8-10: Group 7: New Administration / Student Services Building and North Gateway

GROUP 8: NORTH HOUSING VILLAGE

This group addresses the aging residence halls in the North Housing Village and the desire of the University to increase the student housing on campus.

8.0: Student Housing C

In existing parking Lot 2, north of Shasta Hall, the first new component of student housing could be constructed. The new Student Housing "C" could be laid out in such a way to take advantage of views and pedestrian connections to the river.

GROUP 8: NORTH HOUSING VILLAGE				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
8.0	0-5	C	Housing	Student Housing @ 300 gsf/bed
8.0a	0-5		Relocation	Relocate Students from Sutter Hall to new housing [C]
8.0b	0-5		Demolition	Demolish Sutter Hall
8.1	5-10	PS6	Parking	Construct Parking Structure PS6
8.2	5-10	DH	Housing	Dining Hall Expansion
8.2a	5-10		Landscape	Improve Student Housing Quad
8.3	5-10	D	Housing	Student Housing @ 300 gsf/bed
8.4	5-10	E	Housing	Student Housing @ 300 gsf/bed
8.4a	5-10		Relocation	Relocate Students from Desmond Hall to new housing [D and E]
8.4b	5-10		Demolition	Demolish Desmond Hall
8.5	10-15	F	Housing	Student Housing @ 300 gsf/bed
8.5a	10-15		Relocation	Relocate Students from Jenkins Hall to new housing [F]
8.5b	10-15		Demolition	Demolish Jenkins Hall
8.6	10-15	G	Housing	Student Housing @ 300 gsf/bed
8.6a	10-15		Relocation	Relocate Students from Draper Hall to new housing [G]
8.6b	10-15		Demolition	Demolish Draper Hall
8.7	15-20	H	Housing	Student Housing @ 300 gsf/bed
8.7a	15-20		Relocation	Relocate Students from Sierra Hall to new housing [H]
8.7b	15-20		Demolition	Demolish Sierra Hall
8.8	15-20	I	Housing	Student Housing @ 300 gsf/bed

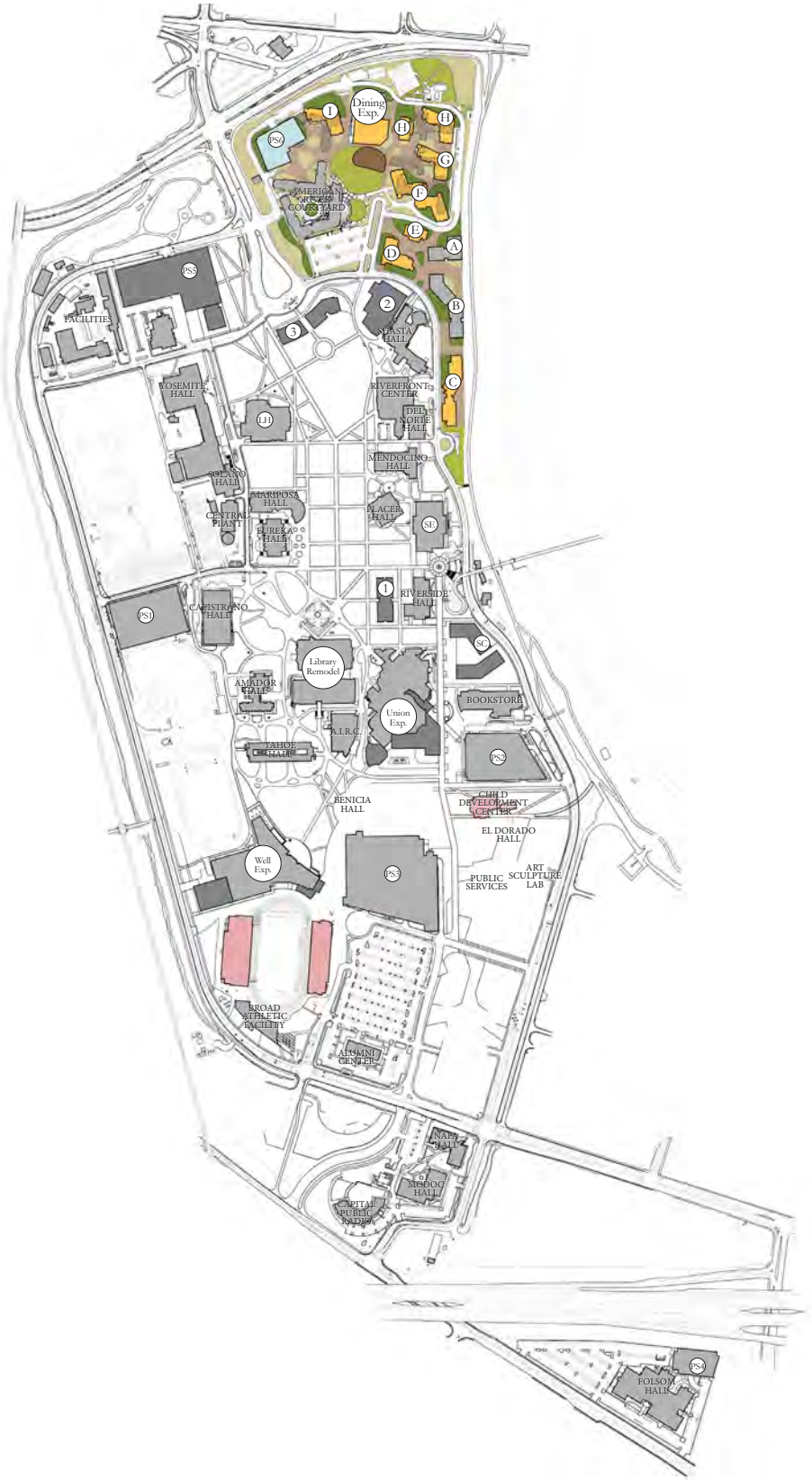


Exhibit 8-11: Group 8: North Housing Village

The existing tenants of Sutter Hall could be relocated to Student Housing "C". Sutter Hall could be demolished and a new parking structure constructed on its site. This parking structure would serve only on-campus residents parking needs.

8.1: Parking Structure PS6

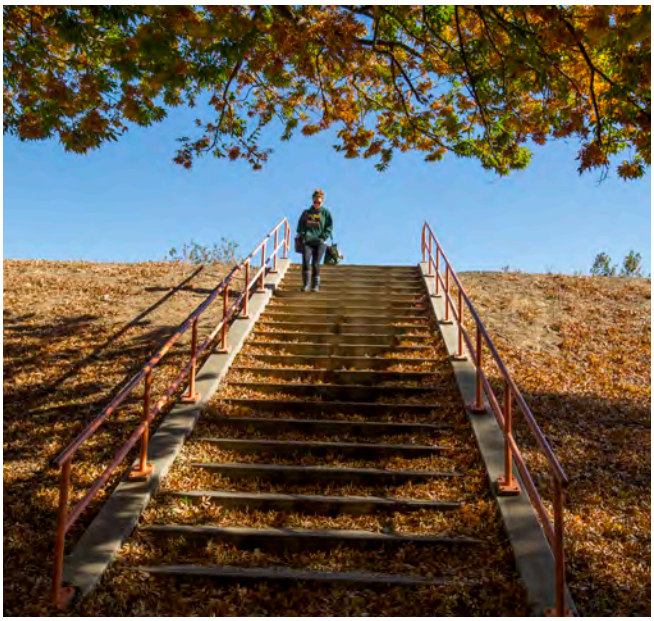
A portion of the housing loop road at the southwest corner of the existing American River Courtyard could be closed to through traffic. A new access road could connect the loop road directly to State University Drive at the intersection of Arboretum Way.

8.2: Dining Hall Expansion

To serve students living on campus, the existing dining hall could be expanded. In addition, the quad in front of the dining hall could be improved with renovated playfields, edible gardens and rain gardens.

8.3 - 8.8: New and Replacement Student Housing

Following the completion of the expanded student dining hall, Student Housing "D and E" could be constructed to the west of Student Housing "A and B." The existing bed-space in Desmond Hall could be relocated to the new housing and Desmond Hall demolished.



On the site of Desmond Hall, Student Housing "F" could be constructed. The current bed-spaces in Jenkins Hall could be relocated to this new housing and then Jenkins Hall demolished. This strategy can continue until all of the outdated housing is replaced with new housing. Student Housing "G" will be constructed on the site of Jenkins Hall and can replace Draper Hall. Draper Hall can be demolished and replaced with Student Housing "H." Sierra Hall bed-spaces could be relocated to Student Housing "H" and Sierra Hall could be demolished. Student Housing "I" can be built on the vacated site of Sierra Hall.

Group 8 Landscape Improvements

Associated with all of the new housing, new landscaping could include rain gardens, seating areas, and plazas.

NOTE: Redevelopment of the North Housing Village to receive upgraded central plant components.

Exhibit 8-12: Artist's Conceptual Rendering of New Riverfront Housing
Located in the southern part of the North Housing Village.

GROUP 9: SOUTH HOUSING VILLAGE

Further expanding the University's goal of creating a more vibrant 24/7 student life, additional housing is included in the Campus Master Plan to create a new South Housing Village.

9.0: New Children's Center

A new Children's Center could be constructed just south of the Alumni Center on the south side of College Town Drive. The new Center would serve the growing number of children projected for the Children's Center. New playgrounds would be constructed adjacent to the center. Upon completion of the new construction, the existing Children's Center would be demolished.

Any remaining programs in the Art Sculpture building and El Dorado Hall could be relocated to the renovated Sequoia Hall and the new "Arts Yard" (Group 4).

9.1 - 9.2: New Pedestrian Corridor and Bridge to Alumni Grove

Just south of Atlas Cedar Way a new pedestrian corridor and pedestrian bridge to Alumni Grove would be constructed. The new bridge over State University Drive would provide a direct pedestrian and bike link to the bikeway along the American River. The new corridor can contain play fields, rain gardens, and a portion of the Hornet Greenway's network.

White Poplar Way could be realigned to have a more direct intersection with State University Drive. White Poplar Way could terminate before Stadium Drive with a large cul-de-sac for drop-off. Stadium Drive could also be realigned to directly enter parking Lot 8, on axis with Cottonwood Way.

9.3 - 9.6: Faculty, Staff and Graduate Student Housing

South of the new pedestrian corridor, a new housing complex could be constructed to start the development of the new South Housing Village. This will be comprised of mostly two bedroom apartments for faculty, staff and graduate students. Parking Structure PS7 could be a component of the new housing complex. PS7 can be a three-floor podium with Apartments "K" above.

To the west of the new housing complex, the second phase of the East Promenade could be constructed, completing the link from the South Campus up to the new Science Buildings [Group 4].

9.7 - 9.10: Student Housing

The second housing complex grouping in the South Housing Village could be constructed to the south of the new White Poplar Way alignment. This housing complex is envisioned to be two-bedroom apartments. "P" and "Q" could be constructed above a new parking podium, Parking Structure PS9.

New plazas and edible gardens would fill the courtyards created by the new housing. At the corner of College Town Drive and State University Drive, a new landscaped vehicle entry and signage would be installed to create a new South Gateway.

9.10b: South Gateway

The southern entry to the campus is currently nondescript and does not provide an appropriate major entry for such a large and respected institution. A new South Gateway could be constructed and landscaped, including new monumentation signage and landscape to match that of the North Gateway.

Exhibit 8-13: Artist's Conceptual Rendering of the New South Housing Village

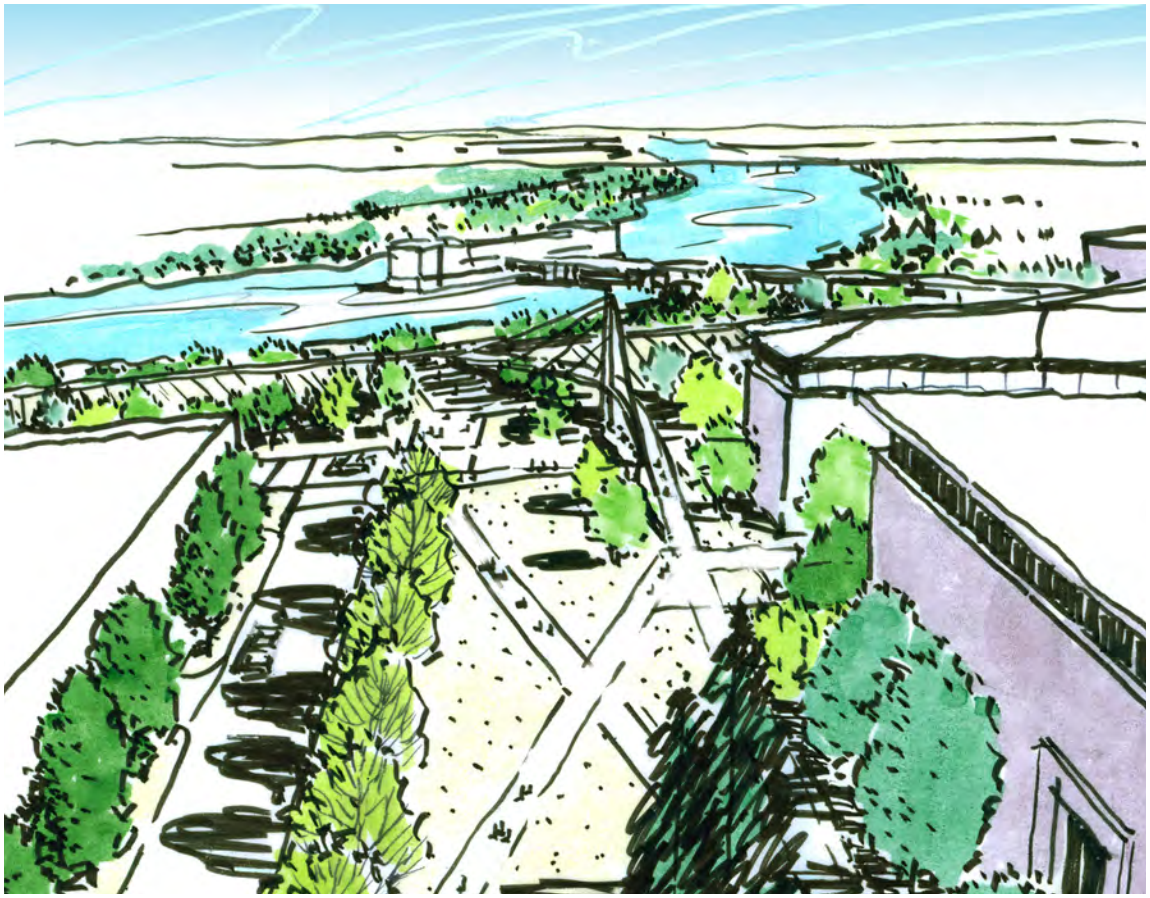


Exhibit 8-14: Artist's Conceptual Rendering of the East Mall, New Pedestrian Corridor and Bridge to Alumni Grove, North of the New South Housing Village

IMPLEMENTATION GROUP 9: SOUTH HOUSING VILLAGE AND NEW CHILDREN'S CENTER					
ORDER	**PERIOD (YEARS)**	**LABEL**	**PROJECT CATEGORY**	**PROJECT DESCRIPTION**	**FUNDING SOURCE**
9.0	5-10 years	9	Children's Center	New Children's Center and associated exterior play areas. Relocate existing Children's Center to the new facilities.	
9.0a	5-10 years		Landscape	South Campus Landscaping/ playgrounds	
9.0b	5-10 years		Demolition	Demolish Existing Children Development Center Facility	
9.0c	5-10 years		Demolition	Demolish Art Sculpture (15,132) and El Dorado Hall (11,898)	
9.1	5-10 years		Landscape	New pedestrian corridor	
9.1a	5-10 years		Landscape	New Bridge connecting to the riverfront bike way and Alumni Grove	
9.2	5-10 years		Site Work	New Roadway connecting PS3 directly to State University Drive	
9.3	10-15 years	J	Housing and Parking	2 bedroom apartments (Faculty/Staff/Grad Students)	
9.3a	10-15 years		Landscape	Phase C of new East Promenade	
9.4	10-15 years	K and PS7	Housing and Parking	2 bedroom apartments (Faculty/Staff/Grad Students)	
9.5	10-15 years	L	Housing and Parking	2 bedroom apartments (Faculty/Staff/Grad Students)	
9.5a	10-15 years		Landscape	Phase D of new East Promenade	
9.6	10-15 years	M	Housing and Parking	2 bedroom apartments (Faculty/Staff/Grad Students)	
9.6a	10-15 years		Landscape	New Housing Courtyard	
9.7	15-20 years	N	Housing and Parking	Student Housing @ 300 gsf/bed	
9.8	15-20 years	O	Housing and Parking	Student Housing @ 300 gsf/bed	
9.9	15-20 years	P and PS8	Housing and Parking	Student Housing @ 300 gsf/bed	
9.10	15-20 years	Q	Housing and Parking	Student Housing @ 300 gsf/bed	
9.10a	15-20 years		Landscape	New Housing Courtyard	
9.10b	15-20 years		Landscape	New Landscaping and south entry gateway (Vehicle)	

NOTE: New South Housing Village development to receive stand-alone central plant. Square footage allocated per bed includes square footage for student services, community gathering space, including amenities and dining.

Exhibit 8-15: Group 9: South Housing Village and New Children's Center

GROUP 10: STUDENT EVENTS CENTER

Group 10 is associated with the new Student Events Center. This Center can house the growing need for student event space such as indoor athletic completions, concerts, graduations and other student-oriented events and activities.

10: Demolition of Benicia Hall

To provide the new Student Events Center, Benicia Hall would need to be removed. The existing programs associated with the College of Education could be relocated to Lassen Hall (Group 8 consolidates a majority of the College of Education in the Lassen Hall remodel).

10a: Student Events Center

The primary component of the Student Events Center is a 6,000-seat arena. Additional components can include, offices, club rooms, retail areas, locker rooms, storage, facility support, and dinning facilities. The primary entry could be located along the northwest facade with service entries along the east edge.

The Student Events Center is envisioned to wrap the existing Parking Structure PS3, helping to conceal the parking structure's facade. The Student Events Center could also form the east edge of the reconfigured South Lawn student activities quad.

10b: Student Events Center Landscape Improvements

With the new Student Events Center, the South Green could be renovated. The Hornet Greenway could be constructed through the South Green continuing the site drainage network to near Hornet Stadium. A new permeable plaza could be constructed adjacent to the Student Events Center and could continue toward the south to Stadium Drive to form a new pedestrian entry and link surface Lot 8 with the South Green student activities quad.

GROUP 10: STUDENT EVENTS CENTER				
ORDER	PERIOD (YEARS)	LABEL	CATEGORY	DESCRIPTION
10.0	5-10 years		Demolition	Demolish Benicia Hall
10.0a	5-10 years	EC	Student Activities	Construct Student Events Center
10.0b	5-10 years		Landscape	South Green student activities quad landscape improvement including Hornet Greenway and south campus pedestrian entry

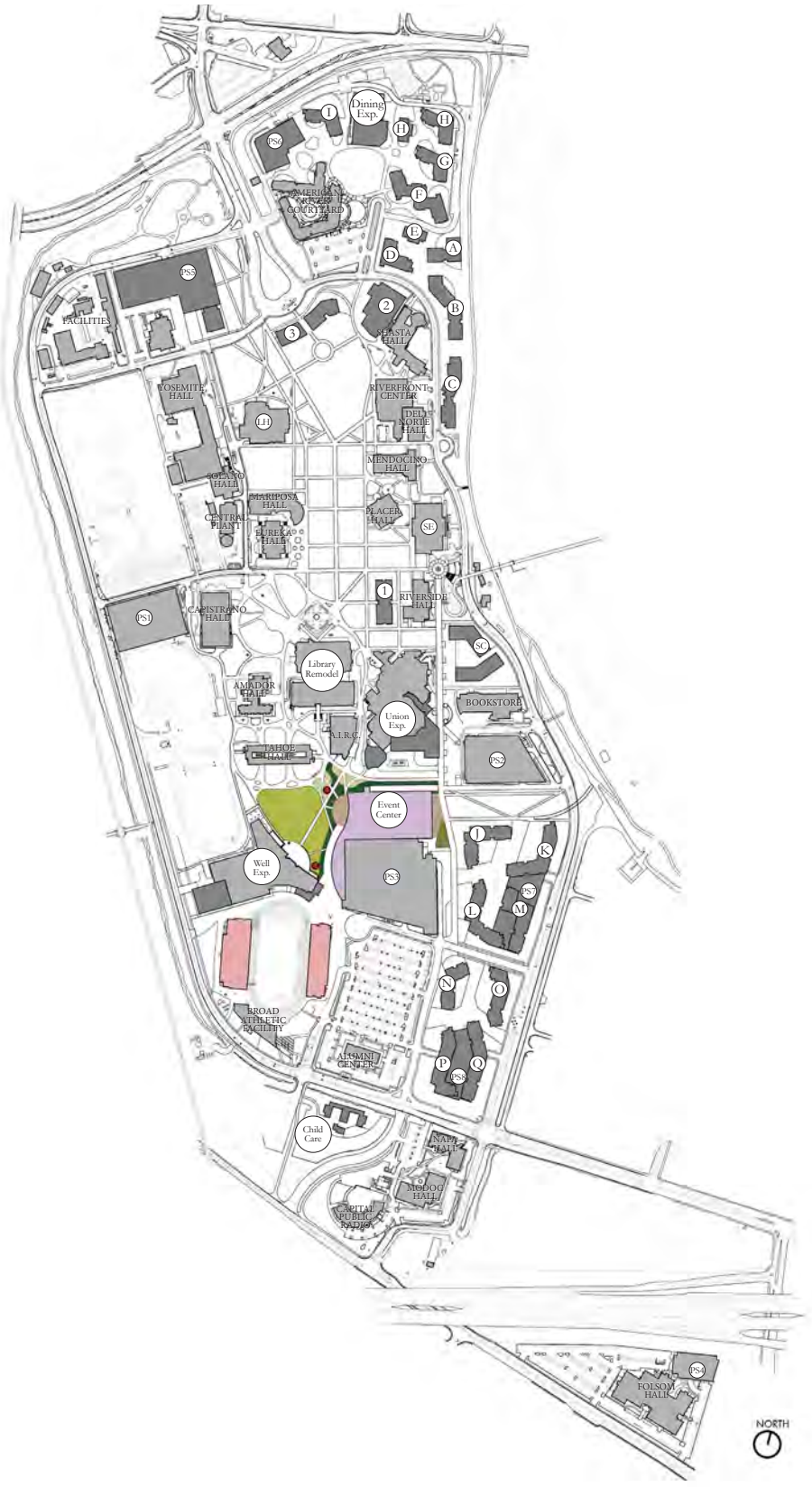


Exhibit 8-16: Group 10: Student Events Center

GROUP 11: IMPROVED HORNET STADIUM AND RENOVATED ATHLETIC FIELDS

The existing Hornet Stadium has temporary bleachers which are past their useful life. The improved stadium can serve the growing athletics programs at Sacramento State as well as becoming a premiere venue for other community events.

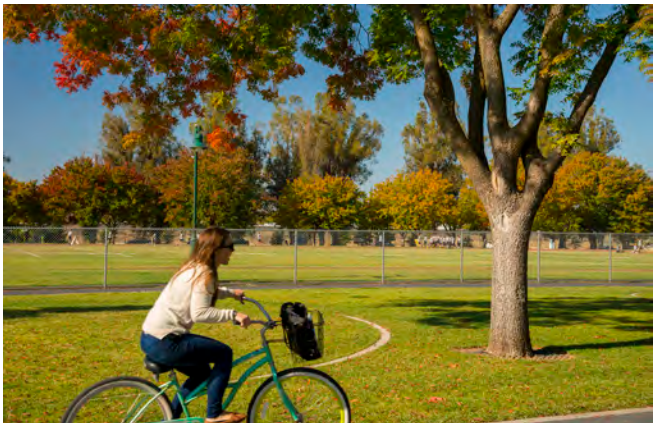
11.0: Hornet Stadium

The existing temporary bleachers would be removed and Hornet Stadium improved with permanent seating and other features. The stadium could provide 40,000 seats. Below the bleachers can be locker rooms, storage, retail space, and athletic offices.

Hornet Stadium, along with the new Student Events Center [Group 10] can frame a pedestrian-oriented south campus entry. This landscaped entry could contain a portion of the Hornet Greenway's network.

11.1: Renovated Athletic Fields

As a component of the campus stormwater management system, the athletic fields can be remodeled to add subsurface layers that will serve to retain and infiltrate stormwater runoff.



GROUP 11: IMPROVED HORNET STADIUM				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
11.0	10-15 years		Student Activities	Improved Stadium with permanent seating and retail spaces
11.0a	10-15 years		Landscape	Hornet Greenway and landscape improvements along the South Greenway
11.1	10-15 years		Athletic Fields Renovation	Renovate existing athletic field to serve as stormwater retention areas

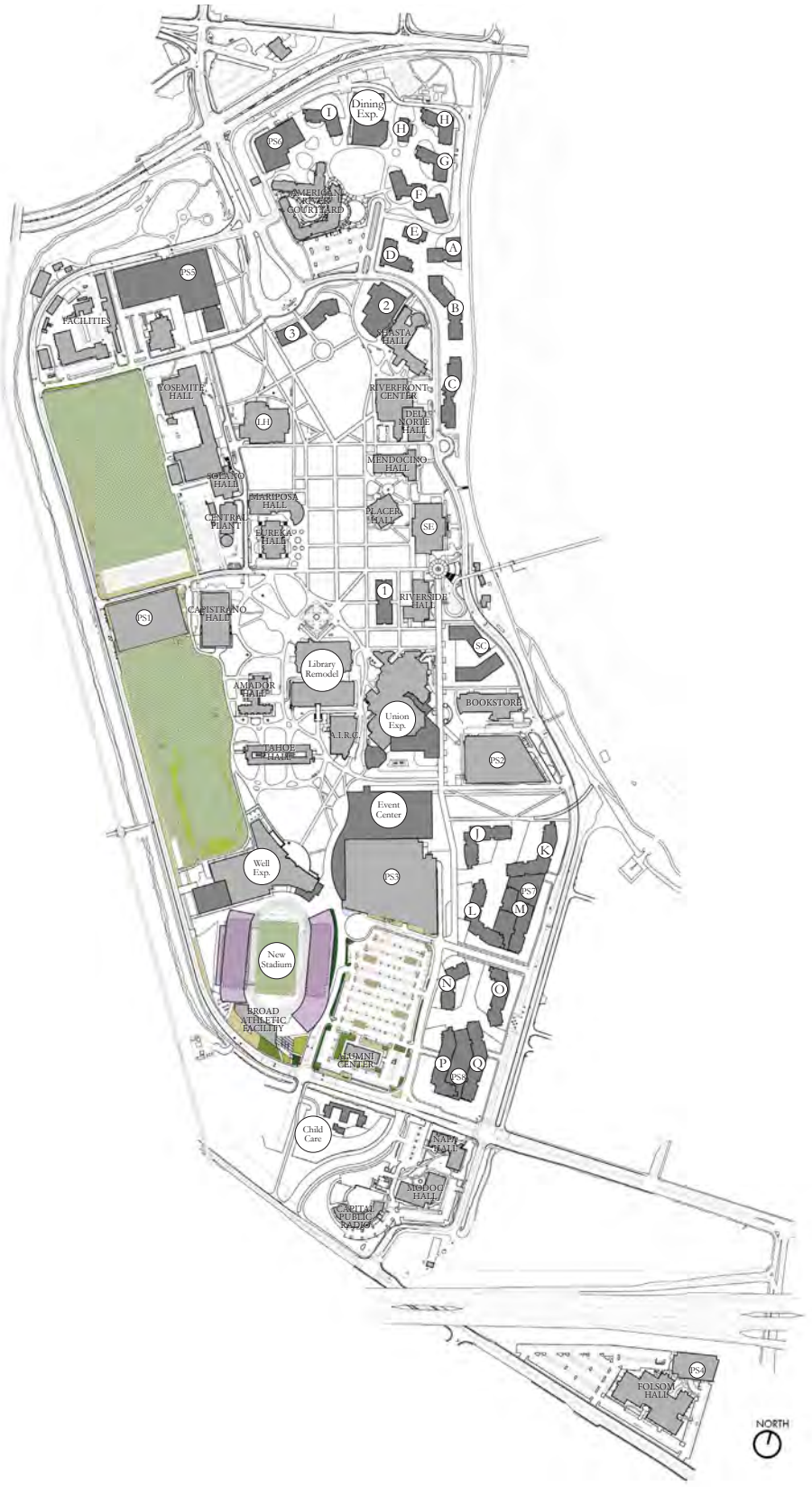


Exhibit 8-17: Group 11: Improved Hornet Stadium and Renovated Athletic Fields

GROUPS 12 AND 13: PARKING STRUCTURE PS9 AND RAMONA AVENUE EXTENSION

12: Parking Structure PS9

A new parking structure could be constructed on existing parking Lot 10. This new PS9 will primarily serve as event overflow parking. If the Master Plan goal of reducing single occupancy vehicle travel is successful, this parking structure may not be necessary.

To the south of the new structure, a large rain garden to gather and properly direct storm water could be established. This feature, part of the Hornet Greenway system, would also serve as a landscape buffer along Folsom Boulevard.

13: Ramona Avenue Extension

In response to the City of Sacramento's proposal to extend Ramona Avenue to Folsom Boulevard, the Master Plan includes a continuation of Callery Pear Way down to the new intersection. The new roadway can create a much-needed additional campus exit but will have limited entry from Folsom Boulevard because of the intersection's proximity to locks below the rail line to the west.

The new roadway can be lined with new landscaping to match the lush tree-scape throughout the Sacramento State campus, and to augment the campus identity as a 'Tree Campus USA'.

GROUP 12: NEW PARKING STRUCTURE PS9				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
12.0	15-20 years	PS9	Parking	Construct Parking Structure PS9
12.0a	15-20 years		Landscape	Landscaping and retention basins

GROUP 13: RAMONA AVENUE EXTENSION				
ORDER	**PERIOD (YEARS)**	**LABEL**	**CATEGORY**	**DESCRIPTION**
13.0	5-10 years		Site Work	Ramona Avenue Extension
13.0a	10-15 years		Site Work	Pedestrian and shuttle tunnels under existing rail line
13.0b	10-15 years		Site Work	Sidewalk widening under the freeway overpass

Exhibit 8-18: Groups 12 and 13: New Parking Structure PS9 and Ramona Avenue Extension

APPENDIX A

LANDSCAPE PALETTES

SACRAMENTO STATE

Appendix A: Landscape Palettes

The Master Plan Landscape Palettes provide recommendations for plant materials consistent with campus standards and the campus aesthetic.

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
EXISTING TREE CANOPY			
Abies procera	**Noble Fir**		
Acacia spp.	Acacia		
Aesculus hippocastanum	Horse Chestnut		
Ailanthus altissima	Tree of Heaven		
Alnus rhombifolia	**White Alder**		
Araucaria araucana	Monkey Puzzle Tree		
Araucaria heterophylla	Norfolk Island Pine		
Arborvitea spp.	Thuja		
Arbutus unedo	Strawberry Tree		
Betula pendula	European White Birch		
Callistemon rigidus	Crimson Bottlebrush		
Calocedrus decurrens	**California Incense Cedar**		
Carpinus caroliniana	American Hornbeam		
Casuarina spp.	She-Oak		
Cedrus deodara	Deodar Cedar		
Cedrus libani var. atlantica	Atlas Cedar		
Celtis sinensis	Chinese Hackberry		
Ceratonia siliqua	Carob		
Cercis canadensis	Eastern Redbud		
Cinnamomum camphora	Camphor		
Citrus spp.	Citrus		
Cornus florida	Flowering Dogwood		
Cupressus sempervirens	Italian Cypress		
Cydonia oblonga	Quince		
Eriobotrya japonica	Loquat		
Eucalyptus globulus	Eucalyptus		
Eucalyptus polyanthemos	Eucalyptus		
Eucalyptus sideroxylon	Eucalyptus		
Fagus spp.	Beech		
Feijoa sellowiana	Pineapple Guava		
Fortunella spp.	Kumquat		
Fraxinus spp.	Ash		
Fraxinus uhdei	Evergreen Ash		
Fraxinus velutina	**Velvet Ash**		
Fraxinus velutina 'Modesto'	**Modesto Ash**		
Ginkgo biloba	Maidenhair Tree		
Gleditsia triacanthos	Honey Locust		
Grewia biloba	Bilobed Grewia		
Hibiscus syriacus	Rose of Sharon		
Juglans nigra	**Black Walnut**		

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Juniperus chinensis	Chinese Juniper		
Juniperus spp.	Juniper		
Lagerstroemia indica	Crepe Myrtle		
Laurus nobilis	Bay Laurel		
Liquidambar styraciflua	American Sweetgum		
Liriodendron tulipiferia	Tulip Tree		
Magnolia grandiflora	Southern Magnolia		
Magnolia soulangeana	Saucer Magnolia		
Malus spp.	Crabapple		
Maytenus boaria	Mayten		
Metasequoia glyptostroboides	Dawn Redwood		
Morus alba	White Mulberry		
Nyssa sylvatica	Tupelo		
Picea pungens	Blue Spruce		
Picea spp.	Spruce		
Pinus canariensis	Canary Island Pine		
Pinus halepensis	Aleppo Pine		
Pinus picea	Pine		
Pinus radiata	**Monterey Pine**		
Pinus sabiniana	**Gray Pine**		
Pinus spp.	Pine		
Pinus thunbergii	Japanese Black Pine		
Pistacia chinensis	Chinese Pistache		
Pittosporum spp.	Pittosporum		
Platanus hispanica	London Plane Tree		
Podocarpus spp.	Shrubby Yew Podocarpus		
Populus alba	White Poplar		
Prunus cerasifera 'Krauter Vesuvius'	Cherry Plum		
Prunus laurocerasus	Cherry Laurel		
Prunus serrulata	Japanese Cherry		
Prunus subhirtella var. pendula	Weeping Higan Cherry		
Pyrus calleryana	Callery Pear		
Quercus ilex	Holly Oak		
Quercus lobata	Valley Oak		
Quercus phellos	Willow Oak		
Quercus rubra	Northern Red Oak		
Quercus spp.	Oak		
Quercus suber	Cork Oak		
Quercus wislizenii	Interior Live Oak		
Robinia pseudoacacia	Black Locust		
Robinia spp.	Locust		

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Salix exigua	Narrowleaf Willow		
Salix matsudana	Chinese Willow		
Sambucus spp.	Elderberry		
Schinus molle	Pepper Tree		
Sequoia sempervirens	Coast Redwood		
Sequoiadendron giganteum	Giant Sequoia		
Syagrus romanzoffiana	Queen Palm		
Thuja spp.	Arborvitae		
Tilia americana	American Linden		
Triadica sebifera	Chinese Tallow Tree		
Ulmus parvifolia	Chinese Elm		
Umbellularia californica	California Bay		
Washingtonia robusta	Mexican Fan Palm		
Xylosma spp.	Xylosma		
CANDIDATE TREES			
Large Deciduous Shade Trees			
Acer rubrum	Red Maple	H	60'x40'
Acer rubrum x fremanii 'Autumn Blaze'	Autumn Blaze Maple	H	60'x40'
Alnus cordata	Italian Alder	M	40'x25'
Carpinus betulus	European Hornbeam	M	40'x40'
Celtis occidentalis	Common Hackberry	L	50'x50'
Celtis sinensis	Chinese Hackberry	M	40'x40'
Cinnamomum camphora	Camphor Tree	M	60'x60'
Cornus controversa	Giant Dogwood	M	50'x50'
Fagus sylvatica	Beech	M	60'x40'
Fraxinus americana	White Ash	M	80'x50'
Fraxinus velutina	Arizona Ash	M	40'x40'
Gleditsia triacanthos	Honey Locust	M	50'x50'
Koelreuteria bipinnata	Chinese Flame Tree	M	40'x30'
Liriodendron tulipifera	Tulip Tree	H	70'x40'
Metasequoia glyptostroboides	Dawn Redwood	H	90'x20'
Pistacia chinensis	Chinese Pistache	M	50'x50'
Platanus x acerfolia	London Plane Tree	M	60'x40'
Platanus racemosa	**California Sycamore**	**M**	**50'x50'**
Pyrus calleryana	Flowering Pear	M	50'x50'
Quercus frainetto	Hungarian Oak	M	100'x70'
Quercus garryana	**Oregon Oak**	**M**	**80'x50'**
Quercus lobata	**Valley Oak**	**L**	**70'x70'**
Quercus phellos	Willow oak	M	80'x40'
Quercus robur	English Oak	M	60'x30'
Quercus rubra	Red Oak	M	70'x50'

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Sophora japonica	Japanese Pagoda Tree	L	60'x60'
Ulmus hybrid 'Accolade	Hybrid Elm	M	70'x60'
Ulmus hybrid 'Danada Charm'	Hybrid Elm	M	70'x60'
Ulmus hybrid 'Frontier'	Hybrid Elm	M	40'x30'
Ulmus hybrid 'Patriot'	Hybrid Elm	M	50'x25'
Ulmus hybrid 'Triumph'	Hybrid Elm	M	55'x50'
Ulmus parvifolia 'Emer II'	Allee Chinese Elm	M	70'x60'
Zelkova serrata	Sawleaf Zelkova	M	60'x60'
Large Evergreen Shade Trees			
Calocedrus decurrens	**California Incense Cedar**	**M**	**60'x30'**
Cedrus atlantica	Atlas Cedar	M	60'x30'
Cedrus deodara	Deodar Cedar	M	80'x40'
Ceratonia siliqua	Carob	M	50'x50'
Magnolia grandiflora	Magnolia	M	50'x45'
Picea pungens	Colorado Blue Spruce	M	40'x20'
Pinus canariensis	Canary Island Pine	L	70'x35'
Pinus coulteri	**Coulter Pine**	**L**	**60'x30'**
Quercus agrifolia	**Coast Live Oak**	**VL**	**50'x50'**
Quercus chrysolepis	**Canyon Live Oak**	**L**	**50'x50'**
Quercus suber	Cork Oak	L	50'x50'
Quercus virginiana	Southern Live Oak	M	60'x120'
Quercus wislizenii	**Interior Live Oak**	**VL**	**50'x75'**
Sequoia sempervirens	**Coast Redwood**	**H**	**60'x30'**
Sequoiadendron giganteum	**Giant Sequoia**	**M**	**80'x40'**
Riparian Trees			
Alnus rhombifolia	**White Alder**	**H**	**70'x50'**
Betula nigra	River Birch	H	50'x40'
Nyssa sylvatica	Tupelo	M	50'x25'
Platanus racemosa	**California Sycamore**	**M**	**60'x40'**
Populus fremontii	**Fremont Cottonwood**	**M**	**60'x30'**
Salix matsudana ' Navajo'	Hankow Willow	H	40'x50'
Sambucus Mexicana	**Blue Elderberry**	**L**	**20'x15'**
Umbellularia californica	**California Bay**	**M**	**25'x25'**
Medium Shade Trees			
Acer buergerianum	Trident Maple	M	25'x25'
Acer truncatum 'Norwegian Sunset'	Norwegian Sunset Maple	M	25'x25'
Carpinus betulus	Hornbeam	M	30'x30'
Cercis canadensis	Eastern Redbud	M	30'x30'
Fagus sylvatica 'Dawyck'	Dawwyck Beech	M	50'x20'
Ginkgo biloba	Maidenhair Tree	M	50'x40'
Nyssa sylvatica	Tupelo	M	50'x25'

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Tilia cordata	Little Leaf Linden	M	45'x25'
Umbellularia californica	**California Bay**	**M**	**25'x25'**
Small Understory/ Ornamental Trees			
Acer circinatum	Vine Maple	H	15'x15'
Acer palmatum	Japanese maple	M	20'x20'
Aesculus californica	**California Buckeye**	**VL**	**20'x30'**
Arbutus unedo	Strawberry Tree	L	25x25
Camellia japonica	Camellia	M	12'x12'
Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	M	20'x20'
Cercis occidentalis	**Western Redbud**	**VL**	**15'x15'**
Cornus florida	Flowering Dogwood	M	30'x30'
Cornus kousa	Japanese Dogwood	M	20'x20'
Feijoa sellowiana	Pineapple Guava	L	20'x20'
lagerstroemia indica	Crape Myrtle	M	20'x20'
Laurus nobilis	Bay Laurel	M	20'x20'
Malus spp.	Crabapple	M	20'x20'
Magnolia soulengiana	Tulip Tree	M	2'x25'
Prunis spp.	Flowering Cherry	M	25'x25'
CANDIDATE RIPARIAN CORRIDOR PLANTS			
Achillea milliforium hybrids	Common Yarrow	L	3' x Spreading
Aquilegia formosa	**Western Columbine**	**L**	**2'x1.5'**
Arctostaphylos 'Emerald Carpet'	**Groundcover Manzanita**	**L**	**1'x5'**
Arctostaphylos 'Howard McMinn'	**Manzanita**	**L**	**4'x6'**
Artemesia 'Powis Castle'	Artemesia	L	3'x6'
Baccharis pilularis	**Dwarf Coyote Bush**	**L**	**2'x6'**
Bouteloua gracilis	**Blue Gamma**	**L**	**2'x1'**
Carpenteria californica 'Elizabeth'	**Bush Anemone**	**L**	**6'x6'**
Calamagrostis 'Karl Foerster'	**Reed Grass**	**?**	**3'x4'**
Carex divulsa	Berkeley Sedge	M	1.5'x2'
Ceanothus maritimus 'Valley Violet'	Valley Violet Maritime Ceanothus	L	2'x5'
Deschampsia caespitosa	Tufted Hairgrass	L	2'x2'
Epilobium canum	California fuchsia	L	3'x4'
Eriogonum arborescens	Santa Cruz Buckwheat	L	2'x2'
Eschscholzia californica	California Poppy	VL	1'x1.5'
Festuca californica	California Fescue	M	3'x2'
Festuca mairei	Atlas Fescue	L	3'x3'
Lomandra longifolia 'Breeze'	Dwarf Mat Rush	L	3'x3'
Mimulus aurantiacus	Sticky Monkey Flower	L	2'x2'
Muhlenbergia capilaris	Muhly Grass	M	3'x6'
Muhlenbergia rigens	Deer Grass	L	4'x4'
Sisyrinchium bellum	Blue Eyed Grass	VL	2'x2'

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Rhamnus californica 'San Bruno'	Coffeeberry	M	4'x4'
Ribes Ribes sanguineum var. glutinosum	Currant	L	4'x4'
CANDIDATE GREENWAY / RAIN GARDEN PLANTS			
Achillea milliforium hybrids	Common Yarrow	L	3' x Spreading
Carex divulsa	Berkeley Sedge	M	1.5'x2'
Cornus stolonifera hybrids	Red Osier Dogwood	H	varies
Juncus effusus	Soft Rush	H	2'x2'
Juncus patens	**California Gray Rush**	**H**	**2'x2'**
Panicum virgatum	Switch Grass	M	3'x3'
Sisyrinchium bellum	**Blue Eyed Grass**	**VL**	**2'x2'**
Deschampsia caespitosa	**Tufted Hairgrass**	**L**	**2'x2'**
Bouteloua gracilis	**Blue Gamma**	**L**	**2'x1'**
Calamagrostis 'Karl Foerster'	**Reed Grass**	**?**	**3'x4'**
Dietes iridioides	Fortnight Lily	L	3'x3'
Iris Douglasiana	**Douglas Iris**	**L**	**2'x3'**
Mahonia aquifolium 'Compacta'	**Compact Oregon Grape**	**M**	**3'x3'**
Mahonia repens	**Creeping Oregon Grape**	**L**	**1'x3'**
Muhlenbergia capilaris	Tufted Grass	M	3'x3'
Muhlenbergia rigens	**Deet Grass**	**L**	**4'x3'**
Lomandra longifolia 'Breeze'	Dwarf Mat Rush	M	3'x3'
Salvia spp. (multiple)	Sage	Varies	Varies
Symphoricarpos albus	**Snowberry**	**M**	**4'x4'**
Rhamnus californica 'San Bruno'	**Coffeeberry**	**M**	**4'x4'**
Ribes Ribes sanguineum var. glutinosum	**Currant**	**L**	**4'x4'**
Westringia fruticosa 'Morning Light'	Coast Rosemary	M	3'x3'
CANDIDATE LAWN SPECIES			
90-10 Fescue/Kentucky Bluegrass Mix	90% Fescue, 10% Kentucky Bluegrass	H	
CANDIDATE CAMPUS SHRUB AND GROUNDCOVER PLANTS (TURF REPLACEMENT)			
Acacia redolens	Acacia	VL	4'x15'
Acanthus mollis 'Latifolius'	Bear's Breach	M	3'x3'
Armeria maritima	Common Thrift	M	1'x1'
Aucuba japonica 'Nana'	Japanese Aucuba	M	3'x3'
Baccharis pilularis	**Dwarf Coyote Bush**	**L**	**2'x6'**
Berberis thunbergii 'Aurea'	Japanese barberry	L	3'x3'
Buxus microphylla ' Compacta'	Littleleaf Boxwood	M	1'x1'
Callistemon viminalis 'Little John'	Dwarf Bottlebrush	L	3'x3'
Carpenteria californica 'Elizabeth'	**Bush Anemone**	**L**	**6'x6'**
Ceanothus maritimus 'Valley Violet'	**Valley Violet Maritime Ceanothus**	**L**	**2'x5'**
Cotoneaster horizontalis	Rock Cotoneaster	M	2'x15'
Cotoneaster microphyllus	Rockspray Cotoneaster	L	3'x6'
Dietes iridioides	Fortnight Lily	L	3'x3'

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Epilobium canum	**California fuchsia**	**L**	**3'x4'**
Erigeron karvinskianus	Sant Barbra Daisy	M	1'x3'
Euonymus japonicus 'Silver Princess'	Evergreen Euonymus	L	3'x3'
Forsythia x intermedia 'Gold Tide'	Forsythia	L	1.5'x4'
Gaura lindheimeri 'Siskiou Pink'	Gaura	M	2'x3'
Hebe “coed”	Coed Hebe	M	3'x3'
Hemerocallis hybrids	Daylily	M	3'x3'
Ilex vomitoria 'Nana'	Dwarf Yaupon Holly	M	3'x3'
Iris Douglasiana	**Douglas Iris**	**L**	**2'x3'**
Juniperus horizantalis 'Blue Chip'	Juniper	L	1'x7'
Lantana 'Confetti'	Lantana	L	3'x8'
Mahonia aquifolium 'Compacta'	**Compact Oregon Grape**	**M**	**3'x3'**
Mahonia repens	**Creeping Oregon Grape**	**L**	**1'x3'**
Mimulus aurantiacus	**Sticky Monkey Flower**	**L**	**4'x4'**
Myrtus communis 'Compacta'	Dwarf Myrtle	L	3'x3'
Nandina domestica 'Gulf Stream'	Heavenly Bamboo	L	4'x4'
Phormium tenax 'Maori Queen'	New Zealand Flax	L	3'x4'
Pittosporum tobira 'Wheeler's Dwarf'	Wheeler's Dwarf Pittosporum	M	3'x5'
Rhamnus californica 'San Bruno'	**Coffeeberry**	**L**	**5'x5'**
Rhaphiolepis indica 'Clara'	Indian Hawthorn	L	4'x4'
Rhododendron spp.	Rhododendron	M	Varies
Ribes malvaceum	**Chaparral Current**	**VL**	**5'x5'**
Rosa californica	**California Rose**	**L**	**3'x6'**
Rosa 'Flower Carpet'	**Carpet Rose**	**M**	**3'x3'**
Rosmarinus officinalis 'Prostratus'	Rosemary	L	2'x8'
Rubus sp.	Bramble	M	Varies
Salvia spp.	Sage	L-M	Varies
Ternstroemia gymnanthera	Japanese Ternstroemeria	M	4'x6'
Viburnum tinus	Laurustinus	M	4'x6'
Westringia fruticosa 'Morning Light'	Coast Rosemary	M	3'x3'
CANDIDATE EDIBLE ORCHARD TREES			
Almond	All-in-one'		
Apple	Empire', 'Gravestein', 'Pink Lady'		
Apricot	Blenheim' ('Royal'), 'Katy'		
Asian Pear	Shinseiki'		
Cherry	Bing', 'Rainier'		
Fig	Black Jack', 'Mission'		
Lemon	Eureka', 'Improved Meyer'		
Lime	Bearss'		
Loquat	Eribotrya japonica 'Macbeth', Champagne'		
Mulberry	Morus nigra 'Black Beauty', 'Wellington'		

BOTANICAL NAME	COMMON NAME	WATER USE	HEIGHT X WIDTH
Nectarine	Arctic Rose', 'Heavenly White', 'Liz's Late'		
Orange	Cara Cara' Navel, 'Washington' Navel, Valencia, 'Moro' Blood		
Peach	Arctic Supreme', 'Babcock', 'Donut', 'O'Henry'		
Pear	Sensation Red Bartlett', 'Comice', 'Seckel'		
Persimmon	Fuyu', 'Chocolate'		
Pineapple Guava	Feijoa sellowiana		
Pistacio	Kerman'		
Plum	Burgundy', 'Santa Rosa', 'Golden Nectar',		
Pomegranate	Ambrosia', 'Eversweet'		
Quince	Apple', 'Pineapple'		
Tangerine	Mandarin 'Clementine', 'Dancy'		
*Bold Lettering Denotes Native Species			