



LAS POSITAS

COLLEGE

2018 FACILITIES MASTER PLAN

2018 FACILITIES MASTER PLAN



LETTER OF INTRODUCTION

Placeholder

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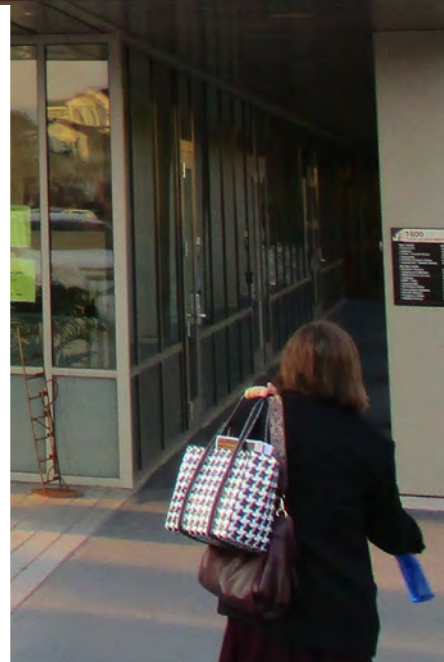
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CHAPTER 1: FACILITY MASTER PLANNING PROCESS

The Chabot-Las Positas Community College District (District) has provided high quality, affordable and accessible higher education to Alameda County residents for nearly 60 years. Together, Chabot College, Las Positas College and the District Centers, serve over 26,000 students annually. Students take a variety of occupational, transfer and professional development courses while they prepare for four-year institutions, continued education, career opportunities or specialized training. The Las Positas College campus, located at 3000 Campus Hill Drive in Livermore, CA, is a core component of the District and serves over 9,000 students annually.

On March 2, 2004, Alameda County voters approved Measure B, which authorized the sale of \$498 million of capital improvement bonds enabled the District to repair, renovate, acquire, construct and equip college buildings, site and infrastructure at all the sites. The District successfully completed numerous projects at each campus and established classroom sites in Dublin.

On June 7, 2016, Alameda County voters approved Measure A, which authorized the sale of an additional \$950 million of capital improvement bonds to help the District fund additional major projects. For Las Positas College, this additional funding provides a strategic opportunity to modernize the existing campus with new and remodeled buildings, new sports and recreational facilities, improved landscaping and outdoor spaces, enhanced sustainability, upgraded infrastructure, and improved mobility and parking (see **Table 1.1**).

Table 1.1 Measure A Approved Projects

Las Positas College
Academic Support and Office
Public Safety Complex
Advanced Manufacturing and Transportation
Agricultural Sciences: Horticulture
Agricultural Sciences: Viticulture
Roadway and Infrastructure Improvements
Temporary Office Complex

Project Purpose and Goals

The purpose of the 2018 Facilities Master Plan (FMP) is to envision a future campus site plan, priority projects and action steps to guide development of the Las Positas College campus over the next 15 years and beyond. Bond measure funding has allowed College leadership to examine current campus conditions and consider a preferred future for the campus in light of evolving needs and opportunities. This document is grounded in technical analyses, builds on extensive community comments and ideas, and draws on goals from previous facility, strategic and educational master plans. The FMP and other key planning documents will guide decisions related to new campus projects (see **Table 1.2**).

The FMP is designed to be a living document that will be reviewed and updated by the College approximately every six years. While the document identifies the approximate location, sizing and programming for future projects, the final detailed designs of new projects will be developed as projects are funded, comprehensively programmed and executed. As such, the FMP is intentionally flexible to accommodate future academic and community needs, resource allocations and phasing considerations.

The FMP identifies guiding design principles for the development of buildings, outdoor spaces, mobility and infrastructure upgrades, and other physical improvements envisioned for the campus. Most importantly, it outlines a clear path for creating new and improved facilities that will support the academic, athletic and recreational environments desired by Las Positas College—a transformation that will further demonstrate the College’s commitment to student success.

Table 1.2: Current and Previous Plans

Document Name	Date
Five-Year Capital Outlay Plan	2020 - 2024 2017 - 2021
Las Positas College Educational Master Plan	2015 - 2020
Chabot-Las Positas Community College District-Wide Strategic Plan	2015 - 2020
Facilities Master Plan	2012
Las Positas College Design Guidelines	2007
Information Technology Master Plan	2014
Design Standards Manual	2018
District Design Guidelines	2006

THE PRIMARY GOALS OF THE LAS POSITAS COLLEGE 2018 FACILITIES MASTER PLAN UPDATE ARE TO:

- **Enhance academic and student life** through strategic program adjacencies supported by a vibrant open space network.
- **Construct efficient, sustainable and flexible classrooms, labs and offices** that respond to emerging pedagogies.
- **Improve access, wayfinding and the campus entry experience.**
- **Expand infrastructure and technology** necessary to support new development.
- Align the programs and goals included in the **Educational Master Plan** with new or remodeled spaces on campus.



The college community has been included throughout the Facilities Master Plan update process.



Las Positas College has an open, attractive campus setting.



New and remodeled buildings will enhance the campus environment.

Planning Process and Campus Community Engagement

This FMP is the result of a 16-month process that involved technical analyses and broad campus community engagement. In October 2017, Las Positas College initiated a collaborative approach to updating the FMP, involving professional consultants and diverse campus stakeholders.

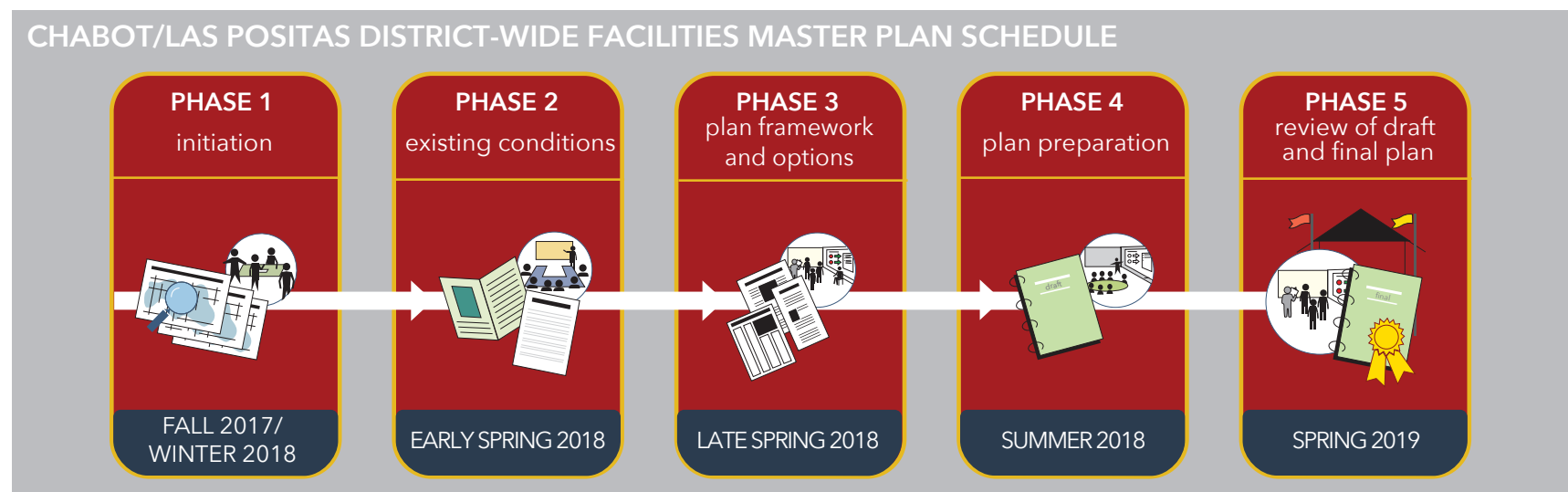
Throughout all phases of the planning process (see **Figure 1.1**), the College worked closely with faculty, staff, administrators and students to review existing campus conditions and identify a range of future opportunities. The robust engagement process included multiple rounds of meetings with the following groups:

- Executive Committee
- Facilities and Sustainability Committee
- Maintenance and Operations

- Information Technology Staff
- Classified Senate
- Academic Senate
- Student Government
- Security Master Plan
- Campus-wide Open Houses
- Current Students
- Current Faculty and Staff
- The broader Livermore Community

Input from the campus community shaped the future site plan and will inform future decisions and investments.

Figure 1.1: Plan Schedule



LAS POSITAS COLLEGE STUDENT SURVEY

As part of the engagement process, the College conducted a Las Positas College Student Online Survey between March 5 and May 28, 2018. Students provided valuable insight into how they currently use the campus and where they would like to see improvements. Following are student survey response highlights (see **Table 1.3**).

Table 1.3: Student Survey Response Summary	
Respondents	<p>Total Respondents: approximately 510</p> <p>Gender: female (64%), male (35%), and no response (1%)</p> <p>Ages: 18-29 (60%), 30-39 (11%), 40-49 (10%), and 50+ (19%),</p>
Time on Campus	<p>Typical Days on Campus: every weekday (43%), 2-3 times a week: (45%), and no response (12%)</p> <p>Typical Time Spent on Campus: 3-5 hours (41%), most or all of the day (33%), and no response (26%)</p> <p>Primary Reason for Being on Campus: attending class</p>
Transportation	<p>Primary Means for Getting To/From Campus: drive alone (85%)</p> <p>Preferred Mode of Travel other than Driving Alone: carpool/carshare (46%), on-demand car service (11%), bus (20%), and other (23%)</p> <p>If you drive alone, what would it take for you to use another mode of transportation?</p> <ul style="list-style-type: none"> ▪ Improve bus service, connections and discounts - 45.05% ▪ Create a carpooling program - 32.75% ▪ Better support car/ride share - 20.88% ▪ Improve bicycle facilities - 13.19%
Safety and Night Use	<p>How often respondents were on campus after 5pm: 2+ times a week (nearly 50%), about once a week (20%), rarely (20%)</p> <p>Recurring comment:</p> <ul style="list-style-type: none"> ▪ Create better lighting throughout campus, especially in parking lots
Top Three Improvements	<p>Top three improvements to invest in (in priority order):</p> <ul style="list-style-type: none"> ▪ Parking ▪ Classrooms ▪ Restrooms <p>Recurring Comment:</p> <ul style="list-style-type: none"> ▪ Improve the on-campus experience for students through new classroom formats and more student-centered activities
Other General Comments	<ul style="list-style-type: none"> ▪ Bring departments/divisions together ▪ Consolidate uses ▪ Develop taller buildings ▪ Create beautiful, active open spaces ▪ Students appreciated the landscape and outdoor spaces most in terms of facility quality and availability

Document Organization

The FMP document is organized into six chapters, followed by appendices.



Facility Master Planning Process

Presents the project purpose and goals and describes the technical analyses and broad campus community engagement that formed the basis of this plan.



Existing Campus Conditions

Provides an overview of Las Positas College conditions, including demographics, program demands and physical conditions, as well as recommendations for addressing challenges.



Academic Goals and Space Planning

Describes how the academic priorities of the District and Las Positas College are reflected in the physical design of the campus.



Campus-wide Improvements

Presents campus design goals, the future site plan, improvements, and design principles that will guide all new projects.



Major Projects

Identifies priority projects including location, size and pre-programming for each.



Implementation Action Plan

Provides project prioritization, a phasing plan and cost estimates to guide implementation of the Facilities Master Plan.



CHAPTER 2: EXISTING CAMPUS CONDITIONS

Demographics, regional economic and market trends are key determinants of the direction of the Facilities Master Plan, as are Las Positas College's established priorities. This chapter describes the College's background and current context, including statistical impacts, program demands, Las Positas College's mission, vision and values, and physical campus conditions. The overview of physical conditions includes the existing site plan, buildings, parking and circulation, the open space network, utilities and technology. This chapter concludes with a series of recommendations for addressing current challenges and anticipated needs.

Las Positas College Context and Overview

Las Positas College is located on 147 hilltop acres overlooking Livermore’s hills and nearby Murray Ranch. The College was first established as an extension center of Chabot College at Livermore High School in 1963. The College moved to its current site in 1973, became an independent College in 1988, and received full accreditation in 1991. The College serves the Tri-Valley region, the south-eastern portion of Alameda County, including cities of Dublin, Livermore and Pleasanton and several unincorporated areas of Alameda County, including Sunol. Las Positas College also serves some students from other areas, including San Joaquin and Contra Costa Counties (see **Figure 2.1**).

DEMOGRAPHICS AND ENROLLMENT TRENDS

Enrollment at Las Positas College has generally increased since its founding, with peaks occurring during economic downturns. Currently, over 9,000 daytime and evening students are enrolled. Students coming from the Northern San Joaquin Valley represent a large source of recent growth, which is expected to continue as students are drawn to the growing Tri-Valley economy.

With approximately 41 different countries represented in the student body, there is a need to expand programming to better accommodate students of diverse ethnic and cultural backgrounds. A majority of Las Positas College students identify as an ethnic minority with the percentage of White student attendance decreasing and Latino students increasing. Latino and White students represent a larger share of enrollment at the College than they do in Las Positas College service area cities, while African American and Asian students represent a smaller percentage of the student body than they do in the local population.

There has been a dramatic increase over the last 10 years in the percentage of low-income students at the College. Further, many Las Positas College students are assessed as unprepared for college upon arrival, requiring them to enroll in Basic Skills programs for Math and English. Las Positas College has been successful at addressing the academic needs of their diverse student body and have significantly higher program completion rates than the state average, but may begin to see an increased need for basic skills courses as students are drawn from previously underserved communities.

The College plays a major role in regional advancement by providing transfer-targeted and basic skill education as well

as mid-level job training. More Las Positas College students are seeking to transfer to universities and fewer are seeking associate degrees only, job-related goals or personal development. The proportion of students aged 24 or younger is increasing, while the number of students over 40 is decreasing. Students are taking higher unit loads than in previous years, increasing their likelihood to be on campus and utilize college resources more frequently.

Current College offerings include 17 Associate Degrees for Transfer, 44 Associate Degrees, and 43 Certificate of Achievement programs. In addition, the College offers community education courses geared toward personal development and cultural enrichment. Key industry sector related programs addressed in this facility master plan include: Advanced Manufacturing and Transportation (Welding, Engineering Technology & Automotive); Public Safety (Administration of Justice, EMS/Paramedic & Fire Sciences); and Professional and Technical (Science, Technology, Engineering & Mathematics).



The Las Positas Central Quad

ADJOINING DISTRICTS

The Chabot-Las Positas Community College District is adjoined on three sides by other community college districts, which together serve the region's post-secondary education needs. The following list provides a brief overview of other local districts by outlining their constituent colleges and general service areas:

- **Ohlone Community College District:** Comprises Ohlone College, which has campuses in both Fremont and Newark. Serves the cities of Newark, Fremont, and parts of Union City.
- **Peralta Community College District:** Comprises Merritt College, Laney College, Berkeley City College, and the College of Alameda. Serves the cities of Berkeley, Emeryville, Oakland, and Alameda.
- **San Joaquin Community College District:** Comprises San Joaquin Delta College. Serves all of San Joaquin and Amador Counties.
- **Contra Costa Community College District:** Comprises Diablo Valley College, Contra Costa College, and Los Medanos College. Serves all of Contra Costa County.
- **West Valley - Mission Community College District:** Comprises West Valley College and Mission College. Serves the cities of Santa Clara, Campbell, Saratoga, Burbank, Cambrian Park, and Lexington Hills.
- **Foothill - De Anza Community College District:** Comprises Foothill College and De Anza College. Serves the cities of Cupertino, Los Altos, Los Altos Hills, Mountain View, Palo Alto, Stanford, Sunnyvale, and parts of Saratoga and San Jose.
- **San Mateo County Community College District:** Comprises Cañada College, Skyline College, and the College of San Mateo. Serves all of San Mateo County.

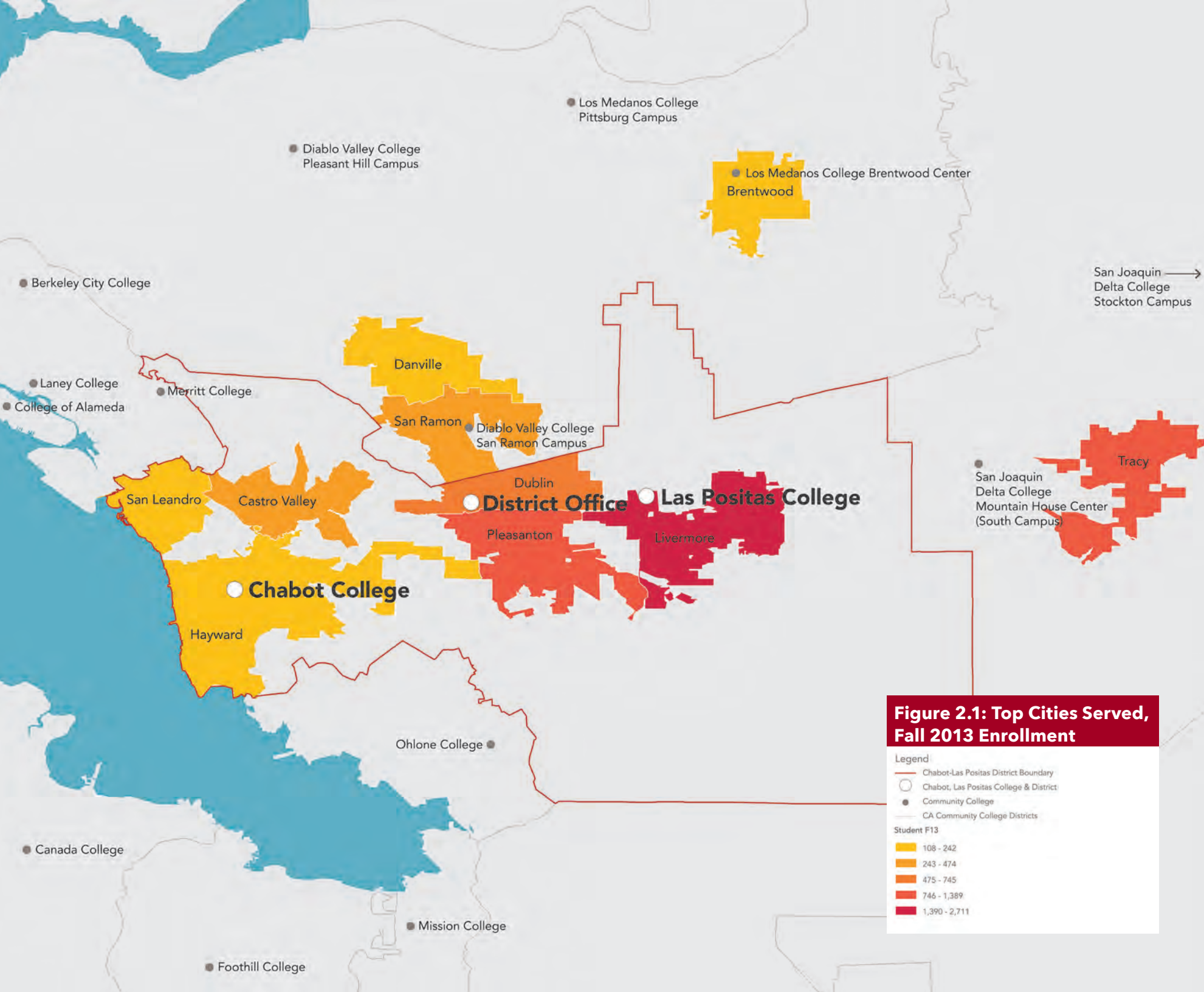


Figure 2.1: Top Cities Served, Fall 2013 Enrollment

Legend

- Chabot-Las Positas District Boundary
- Chabot, Las Positas College & District
- Community College
- CA Community College Districts

Student F13

- 108 - 242
- 243 - 474
- 475 - 745
- 746 - 1,389
- 1,390 - 2,711

MARKET DEMAND

The demand for education projected from 2019 through 2028 in Las Positas College's service area is closely related to population and employment in adjacent cities as well as the larger region. The trade, transportation and utilities sector provides the largest number of jobs in the region (30,062 jobs), closely followed by the professional and business services sector that provides the area with 29,512 jobs. Employers of note include: Safeway, Clorox, Lam Research, TopCon, Workdays, Oracle, and Kaiser Permanente.

The Tri-Valley's main employment sectors have experienced differential rates of growth since 2005. The sector group that added the most jobs was business, scientific, and management services, which nearly doubled its employment in the past 11 years. About 30% of all new jobs created in the Tri-Valley since 2005 were in this group. Though it added a smaller absolute number of jobs, the education, health care, and social assistance sector is the fastest growing in the Tri-Valley, increasing its employment by 94% since 2005 – this falls in line with trends seen nationally. The only sector to lose jobs over this time period is construction, which decreased its employment by about 6%. When drilling down into specific industries, hospitality is becoming an increasingly significant part of the Tri-Valley economy. Employment in accommodation and food services more than doubled from 2005 to 2016, now accounting for about 9% of Tri-Valley jobs. A further dive into sub-industries reveals that five of the top 15 sub-industries in terms of absolute employment growth between 2005 and 2017 have a high percentage of STEM related occupations:

1. Computer Systems Design and Related Services (+2,225 jobs)
2. Outpatient Care Centers (+1,974 jobs)

3. Navigational and Control Instruments Manufacturing (+812 jobs)

4. Software Publishers (+750 jobs)

5. Computer Equipment Manufacturing (+500 jobs)

Employment and growth of the Professional, Scientific, and Technical sector is stronger in the TriValley Area, than in the San Francisco Bay Area as a whole with an indicator of 25.7% growth projected. Agricultural Sciences shows significant growth with an indicator of 16.7%. Employment in Advanced Manufacturing and Transportation is significant and expected to grow with an indicator of 10.95% in the TriValley Area. The Public Safety sector is positioned to experience growth in the TriValley Area as well with an indicator of 10.3%. Las Positas College has seen growth in enrollment in each of these disciplinary areas, and further growth will be possible as this plan is implemented.

Significant population growth will also drive future demand, with the populations of Dublin, Pleasanton and Livermore projected to increase 70%, 20% and 40%, respectively, between 2010-2035. The resident population is growing more quickly in the Dublin/Livermore area than in the rest of Alameda County, which indicates that enrollments at Las Positas College will increase more quickly than at other regional colleges.

A general increase in the cost of education across the marketplace is also driving increased demand for transfer programs such as those offered at Las Positas College.

(Sources: EMSI, East Bay Development Alliance, Innovation TriValley)

LAS POSITAS COLLEGE'S MISSION, VISION, AND VALUES

As Las Positas College advances new development opportunities on campus, all proposed changes should support Las Positas College's overarching mission, vision for the future and core values

MISSION

Las Positas College is an inclusive learning-centered institution providing educational opportunities and support for completion of students' transfer, degree, basic skills, career-technical and retraining goals.

VISION

Las Positas College strives to be California's premier Community College, setting the standard through opportunities for developing knowledge, skills, values and abilities that foster engaged and contributing members of the society.

VALUES

Las Positas College thrives as a collaborative teaching and learning community committed to integrity and excellence by:

- Encouraging and celebrating lifelong learning
- Responding to the needs of the ever-changing workplace
- Demonstrating civic, social and environmental responsibility
- Promoting ethical behavior, tolerance and mutual respect in a diverse community
- Fostering a climate of discovery, creativity and personal development
- Holding firm to the belief that each of us makes an astonishing difference

Facility Master Plan Purpose

The FMP provides a menu of improvements for the District and Las Positas College to use in configuring projects, supporting capital fund requests, applying for State funding and successfully obtaining funds from other sources. While drawings in the FMP may appear specific, in particular initiatives, the diagrams and pre-programming descriptions are conceptual placeholders appropriate for the identified programs. The design of each site and facility project will take place as projects are funded and detailed programming occurs. The FMP remains flexible in response to resource allocations, unanticipated changes and phasing capabilities.

Along with research and data, the FMP also informs the annual update of the Las Positas College Five-Year Capital Plan. Working in tandem with the Education Master Plan, the Five-Year Capital Plan utilizes the FMP to:

- Align facilities for educational programmatic needs and market demands.
- Prioritize capital projects.
- Identify project funding.
- Update infrastructure to support educational facilities.
- Improve seismic reliability and effectiveness of facilities.
- Support student activities on campus.
- Improve the exterior environment and landscaping to support education and retain students.
- Engage the campus community.

Sustainability

Las Positas College will continue to incorporate principles of environmental sustainability in the development and maintenance of buildings and campus-wide infrastructure. The District requires that all new buildings achieve a LEED Silver standard, which improves the energy and water efficiency of the building and impacts the types of materials that can be used in its construction. In addition, water conservation, stormwater management, heat island effect reduction and light pollution prevention are means District-wide objectives for meeting LEED standards. With 50% of its energy derived from renewable sources, Las Positas College utilizes significant solar panel installations with 2.3 MW of power generated on campus.

The FMP identifies key recommendations that build upon previous design standards to support environmental sustainability (see **Chapter 4**). This involves improving efficiencies related to landscaping, maintenance, operations, and building footprints, enhancing pedestrian experience, and improving transit and active transportation connections. These measures and programs will help ensure that the campus achieves ecological balance and promotes resource conservation where possible.



Native, drought-tolerant landscaping reduces water usage.



Energy efficient lighting reduces cost and is more sustainable.



Pretreating stormwater water on site helps improve water quality.

Existing Campus Site Plan and Buildings

The Las Positas College campus is characterized by a sense of openness, reinforced by visual connections across campus and to the surrounding landscape. The existing campus roads and buildings are structured around an elliptical Campus Loop that encircles the academic core and primary parking areas (see **Figures 2.2** through **2.6**). North of the Campus Loop, the upper area of campus is primarily used for athletics and Maintenance & Operations. Existing original buildings tend to be located in the lower campus area and are primarily one-story wood framed structures with relatively small classroom sizes. These facilities have significant constraints in terms of construction quality (40-year lifespan), energy efficiency, instructional capacity and accessibility.

Due to the prevailing conditions of existing older buildings, this plan is focused on replacing, rather than renovating, these older buildings. Measure B funds allowed the College to begin this process with selective removal of original one-story modular buildings and construction of new buildings. This strategy created a pedestrian Campus Boulevard, linking academic precincts and a series of plazas. New buildings have been added in the upper and lower portions of campus, significantly expanding use across the site and conveying a more contemporary ambiance in these areas of campus.



The campus includes a combination of older one story buildings and newer, more modern facilities.

Figure 2.2: Existing Campus Site Plan

- Legend**
- Campus Boundary
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - Tree Canopy
 - Bus Stop or Ride Share Pick Up/Drop Off
 - Portable Buildings / Sheds
 - 2012 - 2013



Figure 2.3: Existing Building Uses

- Legend**
- Campus Boundary
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - Tree Canopy
 - Bus Stop or Ride Share Pick Up/Drop Off
- Building Use Code**
- Class
 - Lab
 - Office
 - Library
 - Physical Education
 - Assembly
 - Other



Figure 2.4: Existing Building Ages

Legend

-  Campus Boundary
-  Open Space
-  Athletic Fields
-  Parking Areas
-  Solar Panels
-  Tree Canopy
-  Bus Stop or Ride Share Pick Up/Drop Off
-  Portable Buildings / Sheds
-  2012 - 2013
-  2010 - 2011
-  2009 - 2010
-  2005 - 2007
-  2001
-  1997
-  1995
-  1993
-  1987
-  1975 - 1978



Figure 2.5: Existing Building Conditions

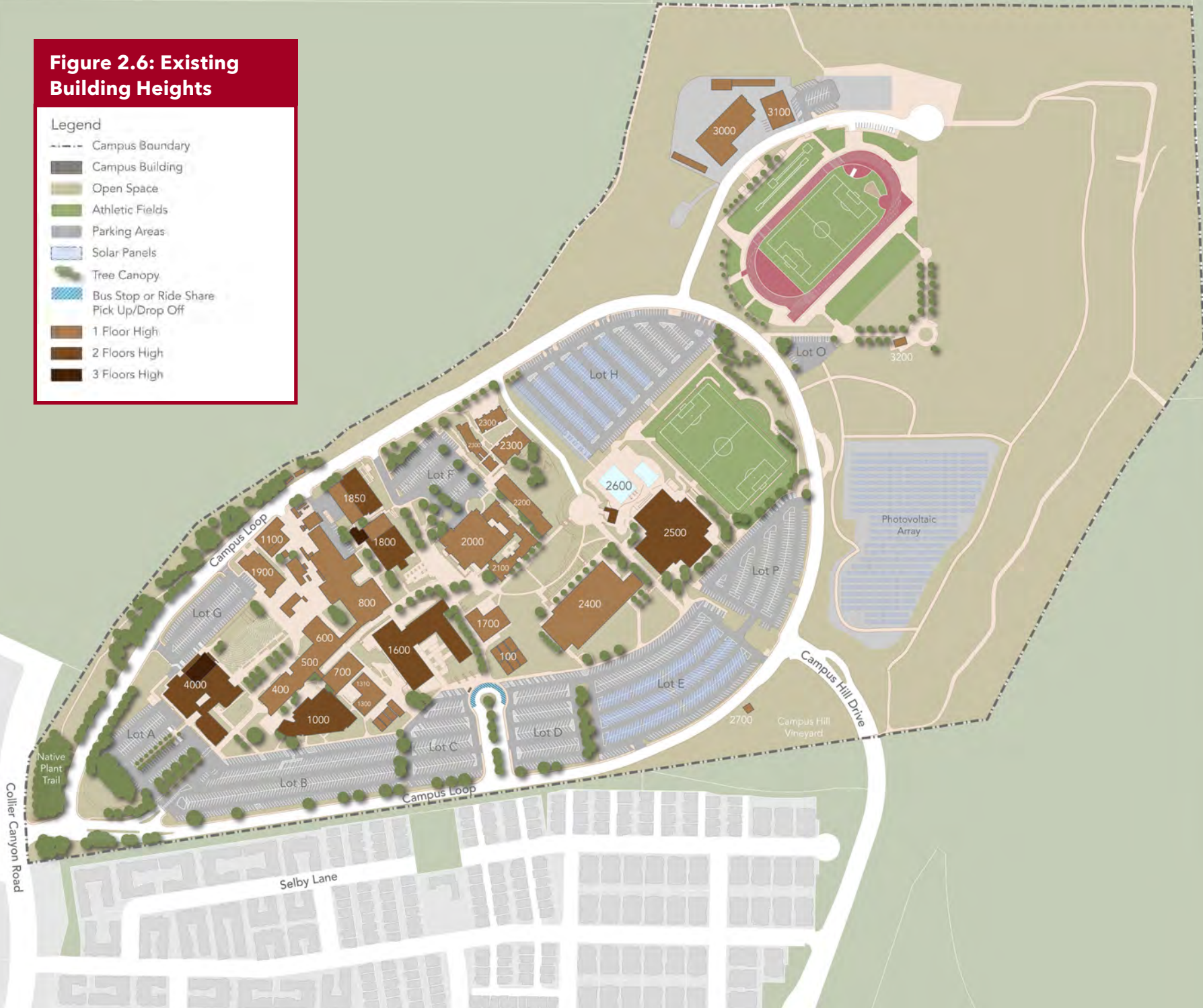
- Legend**
- Campus Boundary
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - Tree Canopy
 - Bus Stop or Ride Share Pick Up/Drop Off
 - Portable Buildings / Sheds
 - Original
 - Original Usable
 - Original w/Retrofit
 - 1980's or Newer
 - Nominally New



Figure 2.6: Existing Building Heights

Legend

-  Campus Boundary
-  Campus Building
-  Open Space
-  Athletic Fields
-  Parking Areas
-  Solar Panels
-  Tree Canopy
-  Bus Stop or Ride Share Pick Up/Drop Off
-  1 Floor High
-  2 Floors High
-  3 Floors High



Campus Entry, Parking, and Transportation

Las Positas College has two significant entry points. To the west, the original entry at Collier Canyon Road features gateway elements that offer a strong sense of arrival. The newer entry on Campus Hill Drive is more frequently used by the campus community and offers attractive views, but lacks strong gateway features. Both entries connect to Campus Loop Road and feed into parking lots that wrap around the campus. Entries are being redesigned to improve accessibility and a sense of entry.

The dominant mode of transportation to campus is by automobile. Parking studies show that Parking Lots C, D and E regularly reach maximum capacity, while other lots, such as Parking Lot B, consistently have available capacity. There is currently no system for displaying information about parking space availability in real time. Occupancy rates in 2018 during the construction of Building 1000 showed that during mid-semester peak hours there are approximately 270 parking spaces available, which has increased to 370 stalls now that there is no construction staging on Parking Lot B. These findings indicate that while there is a parking shortage during peak hours in some parking lots, there is some capacity in other lots (see **Appendix C: Parking Studies**). Community members reported that a system indicating where parking is available would decrease frustration due to a perceived lack of parking.

Wheel Bus loops into Las Positas College from Campus Hill Drive and Collier Canyon Road, with a centrally located pedestrian drop off area.

Pedestrian connectivity from the parking lots could be improved with dedicated pedestrian areas. The expansive parking areas, along with limited wayfinding signage, contribute to a disorienting experience upon entering campus.

Vehicular use is restricted on campus beyond the parking areas.

There are Class I (separated multi-use) Bicycle/Pedestrian paths on roads adjacent to campus, Class II (striped) and Class III (shared route) Bicycle Lanes along Campus Loop road, and eight areas for on-campus bicycle parking. However, there are gaps in these networks (see **Figure 2.7**).

There are plans to expand and develop multi-use trails along the outer edges of campus and into surrounding areas.



Bus transit is convenient with a central bus stop.



There is prominent gateway signage at the Collier Canyon campus entrance.



Parking is located on College Loop Road and at parking lots surrounding the campus.

Figure 2.7: Existing Transportation System

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - Tree Canopy
 - Bus Stop or Ride Share Pick Up/Drop Off
 - Transit Stop
 - Transit Route
 - Route-Number
 - Existing Class I Bike/Pedestrian Path
 - Proposed Class I Bike/Pedestrian Path
 - Class II Bike Lane
 - Bike Parking
 - Sidewalk
 - Crosswalk



To East Dublin/
Pleasanton BART

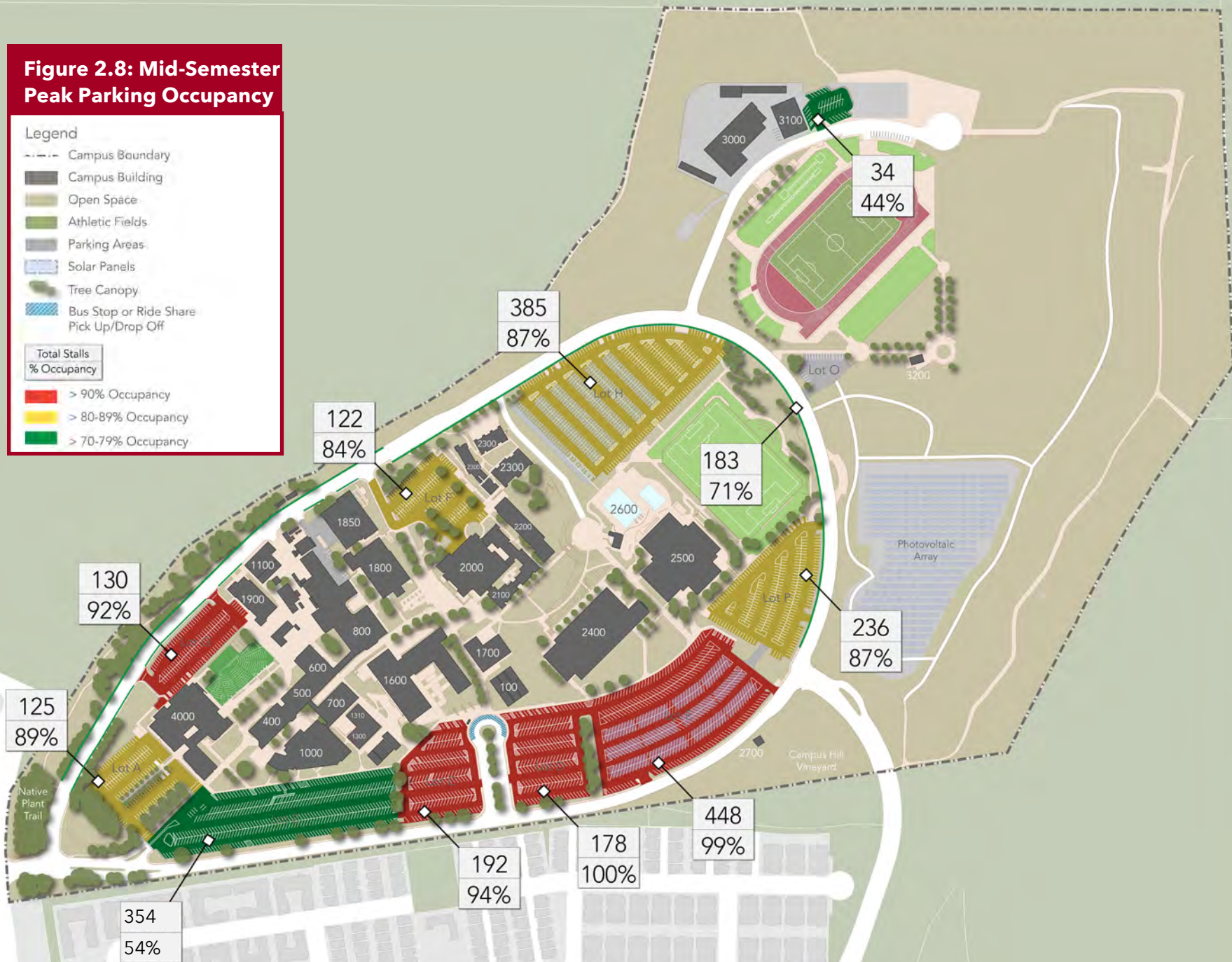
To Livermore

Figure 2.8: Mid-Semester Peak Parking Occupancy

Legend

- Campus Boundary
- Campus Building
- Open Space
- Athletic Fields
- Parking Areas
- Solar Panels
- Tree Canopy
- Bus Stop or Ride Share Pick Up/Drop Off

Total Stalls	% Occupancy
	> 90% Occupancy
	> 80-89% Occupancy
	> 70-79% Occupancy



Pedestrian Circulation and Wayfinding

The campus is organized around a pedestrian-focused academic core and series of pathways that lead to the core (see **Figure 2.9**). Strong visual connections within the campus, especially along the central pedestrian spine, help with orientation. While there is a strong axis through the center of campus, pedestrian circulation elsewhere on campus lacks a strong hierarchy.

The existing campus layout lacks necessary clustering or adjacencies for several programs, creating a disorienting pedestrian experience. Though signage exists and is generally consistent in style, a lack of consistency of placement, scale, legibility of signs, and numbering systems within facilities can cause confusion for students and visiting users. These factors can make campus wayfinding and orientation challenging for newcomers to campus.













Buildings are connected with wide pedestrian pathways.



Newer buildings tend to be more clearly signed than older facilities.

Figure 2.9: Existing Pedestrian Facilities

Legend

-  Campus Boundary
-  Campus Building
-  Open Space
-  Athletic Fields
-  Parking Areas
-  Solar Panels
-  Tree Canopy
-  Bus Stop or Ride Share Pick Up/Drop Off
-  Sidewalk
-  Crosswalk



Open Space Network and Landscape Areas

Campus open space consists of a network of programmed and unprogrammed areas (see **Figure 2.10**). Primary open space and gathering areas include the Central Plaza located near the library, large lawn areas, and pedestrian spine, while secondary open spaces are found along smaller paths and in between buildings. Some of these areas, such as those between Buildings 2200 and 2400, are wide, sloped and lack human scale, rendering them underutilized as recreational spaces and used for circulation instead. The northeast portion of campus includes programmed athletic areas, undeveloped open space and a large photovoltaic array. The lower athletic field is heavily used and needs replacement, while the upper track and field is used for soccer and walking and receives less use.

The campus plant palette is varied with older areas of campus featuring mature vegetation. Parts of campus where new facilities have been built tend to have a more distinct, climate appropriate, modern plant palette. Both formal and informal plantings are found throughout campus. Areas of formal planting highlight the campus core and provide seasonal interest. According to the Las Positas College Design Guidelines (2006), the campus core should be “lush and have shade trees to help protect against the heat typical of the summer months.” However, many high usage areas where students congregate lack the necessary shade canopy to ensure comfort in Livermore’s hot climate. Site furnishings and materials are not uniform throughout campus, and there are distinct differences between the older and updated areas of campus.

Several landscape themes have been established in different parts of the campus, including: campus as a park, native Californian garden, botanical garden and agricultural landscape. Going forward, the open space network and landscape areas should seek to reinforce these themes and meet objectives outlined in guiding campus documents. Las Positas College Design Guidelines (2018) objectives include using the landscape to: enhance the learning environment; create a campus core that is relaxed, inviting, comfortable, beautiful and sustainable; and establish the campus as a focal point of local community. Further, the Las Positas Facilities Development Plan (2005) provides recommendations for sustainability, such as converting water intensive planted areas into places to feature xeriscaping or plants with low water requirements.



The Campus has many open, grassy areas surrounded by trees and shrubs.

Figure 2.10: Existing Open Space Network

Legend

- Campus Boundary
- Open Space
- Athletic Fields
- Permeable Surface
- Vineyards and Native Plant Trails
- Open Grasslands
- Bus Stop or Ride Share Pick Up/Drop Off
- Tree Canopy



Campus Utilities and Technology

Significant portions of existing major infrastructure systems on campus require upgrades (see **Figure 2.11**). New facility regulations, including those for buildings, energy, landscape, stormwater, earthquake and fire, trigger the need to update utility and technology infrastructure (see **Appendix D**: Infrastructure Data).

The Facilities Department has acknowledged that the College's switch gear must be replaced and the boiler repaired. Campus pathways and cabling infrastructure, and WAN services are adequate. The network is operationally stable and backbone fiber cabling has capacity for additional buildings. Building 1900A does not have sufficient space for DAS plans and IT needs more space for its network, headend, server room and backup systems, which are currently unreliable. IT requires more receiving, storage, and setup space than is currently available. Building 1900 has a generator with an automatic transfer switch for power backup which is being improved, as well as a cooling system from the Central Plant (see **Appendix E**: Utility System Map and Diagrams).



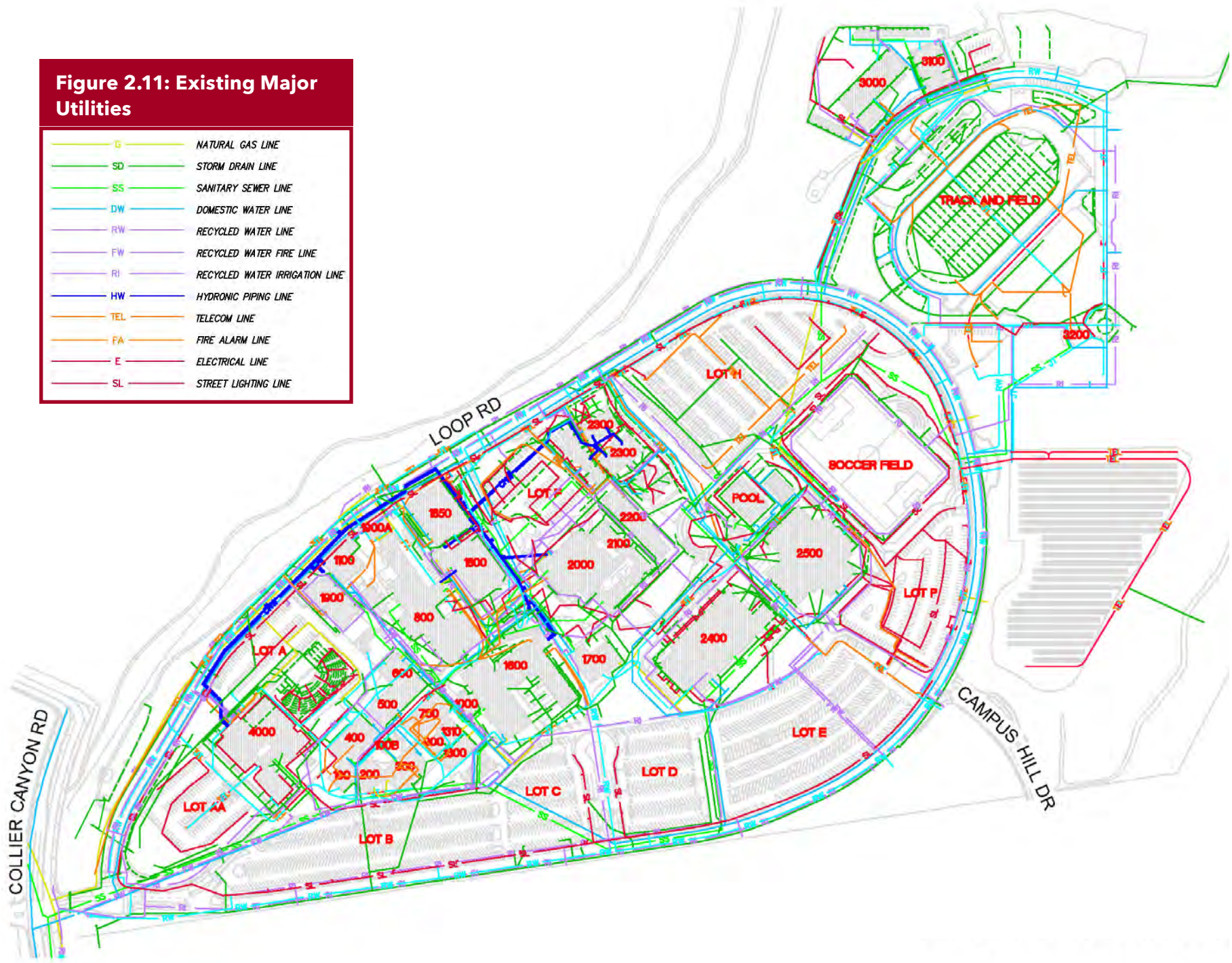
Technology and computer labs support many academic programs.



IT storage and services support student and programs.

Figure 2.11: Existing Major Utilities

—G—	NATURAL GAS LINE
—SD—	STORM DRAIN LINE
—SS—	SANITARY SEWER LINE
—DW—	DOMESTIC WATER LINE
—RW—	RECYCLED WATER LINE
—FW—	RECYCLED WATER FIRE LINE
—RI—	RECYCLED WATER IRRIGATION LINE
—HW—	HYDRONIC PIPING LINE
—TEL—	TELECOM LINE
—FA—	FIRE ALARM LINE
—E—	ELECTRICAL LINE
—SL—	STREET LIGHTING LINE



Irrigation and Stormwater Systems

Las Positas College aims to maintain efficient irrigation and stormwater management. The campus consists of a series of drainage basins and several detention basins to enable retention and infiltration (see **Appendix F**: Irrigation and Stormwater System Maps and Diagrams). Reclaimed water is used for almost all vegetation on campus, although restrictions on reclaimed water, identified by the City of Livermore Water Reuse Program, present limitations. The Las Positas College Design Guidelines (2006) include technical guidelines for irrigation and stormwater specifications.

Environmental Resources

Environmental resources add value to Las Positas College's campus. Well-established vegetation is a major asset that enhances water and air quality, as well as character and comfort. A major strategy for maintaining the attractive, park-like campus setting involves protecting mature vegetation, including trees greater than 24" circumference or 7.6" diameter.

In order to protect biological resources on campus, current practices include avoidance and minimization measures from the Eastern Alameda County Conservation Strategy for sensitive species.

Major Directions and Recommendations

Las Positas College is committed to preparing students for the modern workplace and developing a sustainable campus. In order to achieve this, improvements need to be made to the overall site plan, existing and new buildings, transportation systems, infrastructure, technology, landscapes and open spaces.

The following recommendations address key campus needs and challenges:

- **Provide new, flexible academic space that allows for modern immersive pedagogy** in all new and remodeled buildings
- **Enhance campus entries and clarify wayfinding** to improve campus image and orientation.
- **Cluster programs/uses** to continue to build departmental synergy and enhance academic, social and extracurricular life.
- **Create taller, more efficient buildings with the flexibility** to increase capacity as the student population grows.
- **Upgrade infrastructure to support campus-wide sustainability** goals, such as energy-efficiency and multi-modal transportation.
- **Use climate appropriate, drought-tolerant and low-maintenance** vegetation, reduce high-water use plants and pursue opportunities for Low Impact Design (LID).
- Design all new and remodeled buildings to **meet current standards for safety, accessibility and energy efficiency.**



Enhancing landscape with climate appropriate plants will improve sustainability.



Replacing older buildings with new taller buildings will expand space and improve efficiency.

```
1 #include "lpclib.h"
2 #include <cmath>
3 #include <stdlib.h>
4 using namespace std;
5
6 void Adjust(string & s);
7
8
9 int main()
10 {
11     string userText;
12     cout << "Enter some text\n";
13     userText = GetLine();
14     Adjust(userText);
15     cout << "Your text is now\n";
16 }
17
```



3

CHAPTER 3: ACADEMIC GOALS AND SPACE PLANNING

Update first sentence to read: The District's Strategic Plan and the Las Positas College Educational Master Plan and evolving academic goals and marketplace needs are integral to long range planning. . The Chabot-Las Positas Community College District regularly revisits educational plans to stay ahead of evolving needs and inform District-wide decision-making and resource allocation. This FMP works hand in hand with these plans to support the highest caliber academic experience. Programmatic and physical changes on campus should advance the overarching goals outlined in these plans.

District Strategic Plan

Chabot-Las Positas Community College District Strategic Plan (2015-2020) outlines a vision, operational guidance, key priorities and goals for both campuses and the District office.

STRATEGIC PLAN GOALS

- **Educational Excellence:** Promote student success with all relevant support services.
- **Curriculum Relevancy:** Ensure students benefit from the latest and most innovative curriculum available.
- **Community Collaboration:** Support the health and economic vitality of our region.
- **Supportive Infrastructure:** Improve our infrastructure and operations through ongoing assessments and capital investments.
- **Organizational Effectiveness:** Improve organizational processes to enhance its instructional effectiveness and ensure fiscal accountability and integrity.



The Las Positas College Educational Master Plan 2015-2020.



Las Positas College Educational Master Plan

The Las Positas College Educational Master Plan (2015-2020) works in conjunction with the Strategic Plan to meet student needs through long-range planning of instructional and student support programs, facilities and technology. The Plan includes a series of goals to keep planning on-course.

EDUCATIONAL MASTER PLAN GOALS

- **Educational Excellence:** Ensure excellence in student learning by providing quality teaching, learning support and student support services.
- **Community Collaboration:** Ensure excellence in student learning by collaborating with community partners to provide educational opportunities that best serve the needs of our students and our community.
- **Supportive Organizational Resources:** Ensure excellence in student learning by strengthening fiscal stability, providing appropriate staffing levels, meeting evolving technology needs and expanding or updating facilities.
- **Organizational Effectiveness:** Ensure excellence in student learning by improving organizational processes and fostering professional development.



PROGRAMMATIC DEMANDS AND SPACE NEEDS

As part of the FMP update process, the College underwent a detailed pre-programming process to ensure that each new building project or remodel reflects the programming needs and space desires of the students, faculty and staff. This resulted in many new spaces being identified as needed on campus, either currently (because they do not exist and there is a deficiency) or in the future (based on program growth and new teaching methodologies). Further, there are opportunities to remove and replace small, modular structures occupying the central campus with more efficient buildings and higher quality purpose-built program space. To refine this approach and create more accurate assumptions, the FMP is focused on ensuring that there is appropriate enrollment for the major projects identified by the College.

ENROLLMENT

The student body at Las Positas College is estimated to grow 1% per year.

Many members of the Las Positas College community feel that enrollment has been constrained by the availability and doctrinal appropriateness of the existing instructional space. This FMP is intended to address both of these issues by outlining the construction of an adequate amount of space divided into appropriately sized and located instructional and support areas. There is a significant amount of instructional space available on Fridays, in early mornings, and after 4:00 pm. This is a common occurrence at institutions of higher education. At Las Positas College in particular many students work and rely on light Fridays as work days. Faculty members have also reported that it is difficult to fill classes outside of peak hours. The space needs calculation process does not propose shifting these trends,

although that is a possibility the College could investigate.

There are many programs at Las Positas College that show over 90% fill rates for their courses, on average. There are also quite a few that have average fill rates over 100%. The programs that show indicators of space needs including high market demand, high fill rates and large wait lists, as well as those that deliver the most Weekly Student Contact Hours, will be the programs prioritized for new buildings. The College also plans to replace buildings that no longer adequately serve the programs they house due to age, condition or design. Removing these buildings provides an exceptional opportunity to optimize programmatic adjacencies and provide excellent buildings and landcapas to serve the Las Positas College community.

Table 3.5: Enrollment for the District and Las Positas College

Years	WSCH Forecast -District	WSCH Forecast - LPC	Headcount	FTES (Semester)	FTES (Year)
2018	246,282	103,438	9,159	3,301	6,603
2022	253,360	107,638	9,744	3,410	6,821
2027	262,531	113,129	10,241	3,584	7,169
2032	272,074	118,899	10,763	3,767	7,534

Participation rate of 2.14% - from fall census 2016 - maximum participation in previous 5 years

WSCH data - Chabot Las Positas Community College District - February 5, 2018

	LPC Existing - 2018 from FUSION as of 10/24/18	Projected total ASF in 2032 (Subject to Future Adjustments)
Lecture ASF	49,173	75,000
Lab ASF	81,036	150,000
Office ASF	45,944	60,000
Library ASF	27,150	36,408



CHAPTER 4: CAMPUS-WIDE IMPROVEMENTS

This chapter includes core components of the FMP: design goals, the future campus site plan and proposed improvements related to building adjacencies, wayfinding, access and circulation, and infrastructure. Guiding design principles presented in the second part of the chapter provide more specific design direction to ensure the desired character for buildings, landscaping, pedestrian/bicycle amenities and signage, as well as practices that support long-term sustainability and health. As the campus grows and redevelops over time, development should occur in accordance with the future site plan and campus design goals and principles. The next chapter (**Chapter 5**) details the individual projects that comprise the overall site plan.

Campus Design Goals

The following design goals should guide future expansion and renovation of Las Positas College:

- **Enhance Accessibility:** The campus should allow safe and convenient access to/from campus and comfortable circulation within campus via clearly delineated pedestrian paths.
- **Preserve Assets:** Facility assets should be preserved based on criteria, including safety, efficiency, seismic analysis and pedagogy.
- **Incorporate Sustainability:** New projects need to achieve a minimum LEED Silver rating and all campus improvements should demonstrate Las Positas College's commitment to advancing the goals of adopted climate action plans (American College and University Presidents Climate Commitment, 2007; Chabot and Las Positas Colleges Climate Action Plans for the American College & University Presidents Climate Commitment, 2010).
- **Support Human Interaction:** Campus design should encourage interaction in a variety of spaces, from indoor and outdoor study areas to lively gathering spots. Thoughtful building and program adjacencies can create synergy and strengthen campus cohesion.
- **Accommodate Projected Student Population:** Facilities should have flexibility to accommodate projected growth in student population and program areas.
- **Provide Facilities and Infrastructure for all Programs:** All facilities should provide capacity, configuration and up-to-date equipment and technology to best support program and pedagogy.
- **Reinforce Community Identity:** The campus should provide a strong and recognizable visual presence to welcome visitors and serve as a source of community pride.



Provide new and flexible classrooms.



Ensure all programs are supported with modern facilities and equipment.



Ensure campus assets and the sense of community are supported and enhanced.

Future Site Plan

The future site plan for Las Positas College draws on extensive college-wide input, the existing conditions analysis, population and program demand projections, as well as goals set forth in previous facility, strategic and educational master plans. The site plan includes the following major components to create the exceptional academic, athletic and natural environment envisioned for Las Positas College (see **Figure 4.1**):

- Remove, renovate or replace older and outdated buildings.
- Ensure strong connections between programs and departments through intentional physical adjacencies.
- Enhance mobility and access for all users entering the campus and improve circulation within the campus core.
- Create well-delineated campus entries and strengthen wayfinding throughout the campus.
- Create new pedestrian gathering spaces, open space and enhanced landscaping.
- Improve infrastructure to support modern buildings and meet LEED Silver standards.
- Prioritize major projects (detailed in **Chapter 5**).

Implementation of all new projects should follow the design principles presented later in this chapter.

The future site plan adds a new Academic Support and Office Building around a portion of the existing Library to create better adjacencies between academic support services (library, tutoring, study) and faculty offices. This upgraded facility is envisioned as a core building by the academic, administrative and recreation buildings. New buildings nearby for STEAM Arts and Sciences, and the Student Center will further add to the vitality of the campus core.

The built environment on campus will be enhanced through the removal and replacement of several land consumptive, one-story buildings (800, 600, 500, 400, 700, 1300) with dense three-story structures. In turn, this efficient use of land will also free up significant areas to be repurposed as new open spaces and which will enhance pedestrian circulation throughout the campus. New major gathering areas in the central campus will create better clarity and access between the north and south sides of campus.

A relocation and expansion of the Applied Technology and Public Safety programs to new buildings in the northeastern part of campus will accommodate program expansion and allow development of a new Fire Tower and training complex. Additionally, Horticulture will move to the northeastern part of the campus with expanded academic growing fields north of the sports fields. Viticulture will be located on the south side of campus near the Campus Hill Vineyards, and will include a tasting room and event space to draw the broader community.

Adjacencies of new buildings, academic and social spaces will be strategically sited to stimulate vibrant activity nodes around five major areas: Academic Support and Office; the Student Center; STEAM Arts and Sciences; Applied Technology; and Public Safety. Efficient buildings, contemporary architecture and high-caliber learning environments will enhance Las Positas College's character and identity.

Figure 4.1: Future Site Plan

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - New Turf Fields
 - Circulation
 - Plaza
 - Bus Stop or Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter



Buildings to be Removed

Based on an analysis of building age, safety and functionality, the College identified a number of buildings that are outdated and need to be replaced as part of the FMP process (**Table 4.1** and **Figure 4.2**). The following factors further contributed to the building removal decision-making process:

- Operations and upgrade costs necessary to comply with current building and safety codes
- Inadequate internal spaces and the relative return on investment needed to offset cost of renovation
- Inefficient design and/or poor aesthetic quality
- Lack of sufficient spaces appropriate for modern pedagogy

Buildings and facilities will be demolished in phases to make space for new buildings, expansions to existing buildings and expansions to open space/landscaped areas.

Beyond safety and cost efficiency, strategic removal of buildings provides significant opportunities to better site new buildings and create modern spaces, larger classrooms, more functional and flexible meeting spaces, new faculty and staff offices and other new uses that will benefit the entire campus community. All current uses and programs housed in buildings slated for removal will be moved into new or remodeled buildings.

Table 4.1 : Buildings to be Removed

#	Building Name
100	Classrooms
400	English Classrooms and Lab
500	Fine Arts
600	Math Lab, Integrated Learning Center
700	Visual Communications (VCOM), Photography Studio, Computer Lab
800	Auto Tech and Welding Labs, Lecture Hall, Computer Labs, Smog Referee Center, Horticulture, Viticulture, Garden Classrooms, Greenhouse
1300	Veterans Resources Center, Bookstore
1700	Campus Safety, Student Health Center, Copy Center, Mail Room
2100	Faculty Offices
2200	Classrooms

Figure 4.2: Buildings to be Removed

Legend

- - - Campus Boundary
- Campus Building
- Open Space
- Athletic Fields
- Parking Areas



Adjacencies

Given available bond funding and plans for removal of outdated buildings, Las Positas College has an opportunity to site facilities, programs and open spaces to strengthen departmental connections and student life. Clustering related academic, social and extracurricular programs and spaces can stimulate vibrant activity in “nodes” across campus. Optimizing adjacencies at Las Positas College involves clustering specific buildings and programs around the following broad categories that have potential to create the greatest synergy (see **Figure 4.3**):

Figure 4.3: Major Program Adjacencies

Legend

- Campus Boundary
- Campus Building
- Open Space
- Athletic Fields
- Parking Areas
- Solar Panels
- New Buildings
- Buildings Identified for Renovation
- New Turf Fields
- Circulation
- Plaza
- Ride Share Pick Up/Drop Off
- Existing Tree Canopy
- New Tree Canopy
- New Native Landscape
- Bioswale Planter



Landscape Master Plan

The Las Positas College campus landscape is integral to the identity of the College and a reflection of its values. Central to this is the establishment of a landscape framework that is appropriate for the region and balances landscape aesthetics with best management practices. Las Positas College takes pride in demonstrating leadership in sustainability, and the campus landscape design strives to reflect that mission. With the increasing need to reduce water use demands, native and adapted plants should be used throughout the campus. The overarching landscape concept is to create a central core campus landscape at the interior of the campus that transitions in a gradient to native plantings at the perimeter (see **Figure 4.4**). The core campus landscape is characterized by park-like and botanical plant species, largely non-native. This concept closely follows the objectives and themes set forth in the Las Positas College (LPC) Design Guidelines (2006).

Key Landscape Master Plan goals include:

- Create **gateways** that articulate vehicular and pedestrian entries.
- Create **landscape connectivity** by linking the perimeter to the site through the parking while providing shade and habitat.
- Create a clear **pedestrian spine** that acts as a physical and visual link through the campus and between buildings.
- Link the pedestrian gateways to the spine through **transitional passages**.
- Balance water use and human experience by **focusing intensity** along the campus spine.

Using these goals as guidelines, the Master Plan concept organizes the campus into landscape types, or zones, to inform design decisions. These types are in keeping with existing landscape themes and further defines a framework for landscape design. Further, it is important that the site-specific landscape designs of spaces are sensitive to maintaining view corridors, human comfort and public safety as identified in the Design Guidelines.

The campus is divided into seven landscape types:

- Vehicular Gateway
- Pedestrian Gateway
- Passages
- Campus Spine
- Building Entries
- Parking
- Native California Landscape

This Landscape Master Plan excludes the “Agriculture Landscape” theme identified in the existing LPC Design Guidelines. As a learning environment, areas designated for viticulture or other agricultural use and demonstration areas, as indicated in the FMP, should be determined, cultivated, and maintained by the faculty and instructors of these programs. The landscape edges surrounding designated agriculture areas should be treated as the landscape type as identified in this Landscape Master Plan. Additional productive landscapes and agricultural plant materials may be integrated into other landscape areas at the guidance of the faculty and College operations and maintenance team. These additions should take into consideration matching water use demands, maintenance, land use and safety.

Figure 4.4: Conceptual Planting Diagram

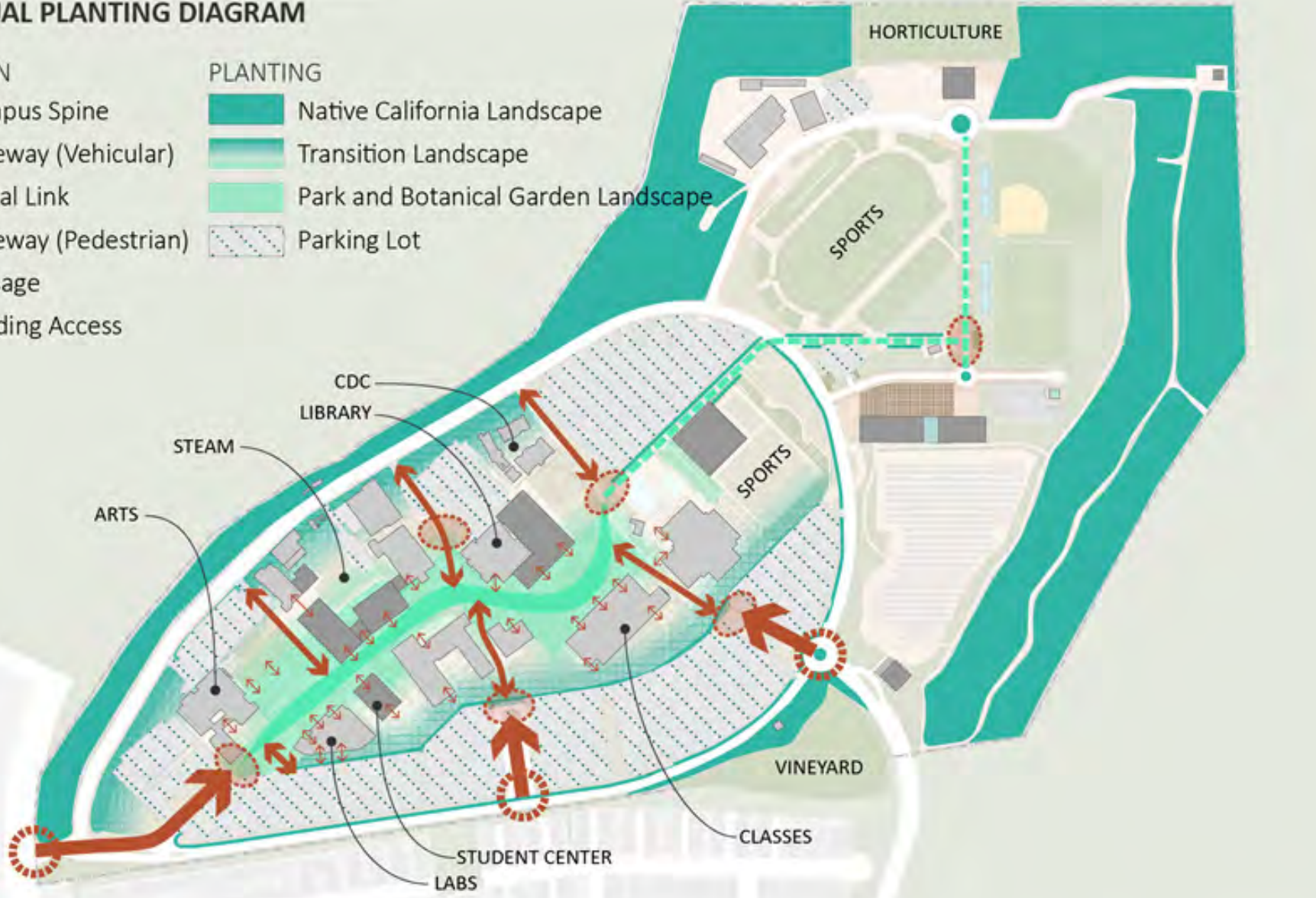
LAS POSITAS COLLEGE CONCEPTUAL PLANTING DIAGRAM

CIRCULATION

- Campus Spine
- Gateway (Vehicular)
- Visual Link
- Gateway (Pedestrian)
- Passage
- Building Access

PLANTING

- Native California Landscape
- Transition Landscape
- Park and Botanical Garden Landscape
- Parking Lot



VEHICULAR GATEWAYS

Vehicular gateways serve as visual cues and entries to the campus. These areas consist of planting, signage and wayfinding elements that establish the character and identity of the campus. Further, gateway designs should maintain and frame view corridors into the campus. The plant palette for this landscape type is a simplified selection of plants that blend both native plants and the park-like plantings of the central campus spine.

Landscape design for vehicular gateways includes the following improvements:

- Include **variation** in planting height and a diverse blend of texture and seasonal flowering.
- Use **trees and taller plantings** to create a backdrop for the entry and to establish a formal structure around the perimeter of the gateway feature area.
- Group lower level plantings in large **massings**, arranged in either formal or organic patterns.
- **Maintain views** to signage and view triangles; ensure that plantings do not obstruct views.
- Ensure easy **accessibility** to higher maintenance plantings and designated areas for seasonal plantings for year-round variation.



Native, drought-tolerant landscape will improve aesthetics and sustainability.

PEDESTRIAN GATEWAYS

Like vehicular gateways, pedestrian gateways act as a visual indicator for the entries into campus. These are places where pedestrians move from the parking areas into campus. Pedestrian gateways should be welcoming and allow visitors to decompress as they enter the campus.

Landscape design for pedestrian gateways include the following improvements:

- Design for basic **human comfort** with shade, protection from the elements, and visibility and safety.
- Allow **clear views** into campus and maintain plantings to avoid obstructing signage and lighting.
- Include landscape structures or use planting configurations that create the **sense of passage** through and entry as well as shade at gathering areas.
- Group understory plants in a pattern of **massings**.
- Ensure consistency with plant palette for vehicular gateways, but adjust/reduce to a more **human scale**.
- Use **annual plantings** to highlight these key entry locations and act as an attractive beacon for campus visitors entering from the parking lots.



PASSAGES

Passages are the transitions between the parking and pedestrian gateways and the core of campus at the central campus spine. This landscape type is characterized by a mix of native plantings and park-like plantings that form a transitional gradient through the corridor.

Landscape design for passages includes the following improvements:

- Enhance the feeling of **enclosure** along the pathways while maintaining critical **view corridors** and building entries.
- **Unify spaces** between campus buildings with a consistent planting palette.



CAMPUS SPINE

The central campus spine is the unifying landscape link through the center of campus. Consistent with the LPC Design Guidelines, the landscape of the campus spine shall be a combination of park setting and botanical garden elements. The central campus spine is also seen as a confluence of students, faculty, and visitors that will pass through, gather, rest and connect with nature. As such, the spine provides an opportunity for learning and for the display and identification of unusual plant specimens.

Landscape design for the campus spine includes the following improvements:

- Blend a common, **unifying plant palette** with highlighted areas of **specialty plantings**; the design of these spaces should occur in consultation with LPC Grounds Manager.
- Include **lush shade trees** to increase human comfort in the summer months, especially at gathering areas along the spine.
- Develop **understory plantings** with primarily low-water and non-native plants, including shrubs, ornamental grasses, groundcovers, turf areas, and, at nodes, seasonal annual plantings that require irrigation.
- Ensure planting is **low-maintenance and well-maintained**.
- Look for opportunities along the spine to **feature special plant collections**, such as a rose garden.



BUILDING ENTRIES

Building entries can create diversity while remaining cohesive by using consistent plant palettes that unify adjacent buildings. Each design can be unique and expressive to relate to the building functions, academic focus, building identity, and educational opportunities.

Landscape design for building entries includes the following improvements:

- Closely **mimic the plant palette** of the adjacent landscape.
- Specify central **California native plants** along parking lot side entries.
- Integrate **park-like plant materials** along entries from the spine will use trees and plantings in these areas to help **strengthen and identify** building entries and uses.



PARKING AREAS

The parking lots of the Las Positas College campus can be used as a visual connector that bridges the internal campus landscape to the native perimeter and beyond. Shade trees and native plants can be used that minimize water demand, reduce heat island effect, and improve human comfort. Dense planting would occur in the parking lot perimeter and along parking circulation corridors. These plantings visually and physically tie gateways through the parking to passages and the campus spine through designed landscape patterns that direct the eye towards the campus core. As identified in the design guidelines, the parking lot is an opportunity to demonstrate sustainable best practices such as bioswales that filter run-off, shade to reduce heat island effect, permeable paving to reduce run-off and improve infiltration.

Landscape design for parking areas includes the following improvements:

- Use native and adapted plants to minimize and potentially **eliminate the need for irrigation.**



NATIVE LANDSCAPE

Inspired by the campus' north perimeter native California landscape, the native landscape area is seen as an opportunity to connect the campus to its context. In keeping with the LPC Design Guidelines, plantings surrounding the property and trails will create a transition from the botanical landscape of the campus core to a drought-tolerant native landscape with opportunities to incorporate drought-adapted ornamental species. The design of this landscape will be coordinated with the LPC Grounds Manager. As an extension and contrast to the plant identification of the central campus spine, plant identification will be installed to highlight native and unusual plants along trails. This open space at the perimeter of campus offers opportunities for both physical education and of native California plant horticulture.

This landscape type includes the following improvements:

- **Respect and enhance established native plants** whenever possible.
- Prioritize low-maintenance and low-water demand plants to **minimize energy and water inputs** and further meet the Las Positas College sustainability goals.
- Use an **informal design** layout.
- Preserve key **view corridors**, as outlined in the LPC Design Guidelines.
- Create bioswales to **mitigate stormwater quality and quantity** where drainage and stormwater runoff are issues.



Mobility Improvements

Mobility improvements at Las Positas College aim to strengthen vehicular, transit and bicycle access to/from the campus and create a comfortable pedestrian environment throughout the campus core (see **Figures 4.5** through **4.11**).

PEDESTRIAN CIRCULATION

Ensuring pedestrians have a safe and convenient circulation through the campus is a key goal of the College. The FMP includes the following pedestrian programs:

- Provide **new sidewalks** on the existing road north of the Athletic Fields leading to the M&O facility and **establish bollards** near the existing roundabout in front of the Horticulture facility to regulate access.
- Ensure that **adequate sidewalks** are provided on all new roads serving the Advanced Manufacturing and Transportation facility, Public Safety Complex, Horticulture facility, Teaching Winery, and Athletic Fields.
- Install **new crosswalks** at the intersection of Campus Hill Drive and Campus Loop road and at all existing and new outer loop road intersections.
- Improve **pedestrian safety** in all parking lots by providing continuous sidewalks, crosswalks, and striping to help clarify pedestrian paths of travel.
- Maintain the existing pick-up/drop-off locations and **create additional pick-up/drop-off locations** near the Mertes Center for the Arts (Building 4000) at the south side of campus, at the Sciences Technology Center (Building 1850) on the north side of campus, and at Lot O/sports fields on the north side of campus.
- Improve **pedestrian wayfinding** campus-wide through improved signage, clearer sight lines, sculptures and other landscaping features.

BICYCLE CIRCULATION

The College will work with the City of Livermore to improve bicycle facilities and make it easier for cyclists to access the campus. The FMP includes the following bicycle programs:

- Encourage **bicycling to/from campus** by providing safer bike routes and supportive infrastructure, such as lockable bicycle racks and/or lockable bicycle lockers, at main entrances and key areas of student activity.
- Work with the City of Livermore to establish a **bike-sharing program** that would allow students to pick-up/drop-off rented bicycles near campus entrances.

TRANSIT

The College will continue to work with Wheel Bus to improve bus transit. For purposes of this FMP, the future site plan assumes that the current bus stop location will remain between Lots C and D. The FMP includes the following transit programs:

- Coordinate with Wheel Bus to **improve bus transit frequency** and access to the campus.

VEHICULAR ACCESS

The FMP includes the following improvements to vehicular circulation:

- **Establish automatic retractable bollards** at the roundabout on the northeast side of campus to enforce separation of uses on the outer loop network. The existing road north of the Athletic Fields will serve only the M&O facility whereas the southern and eastern roads will serve the Advanced Manufacturing and Transportation facility, Public Safety Complex, Horticulture facility, and new Athletic Fields.
- **Utilize automation technology** when needed to remove bollards and accommodate full access for emergency and maintenance vehicles.
- **Redesign Campus Hill Drive entrance** with a new roundabout at the Campus Loop to create a more defined entry point and provide efficient traffic flow and access. The roundabout will feature attractive signage and art to signal a grand entrance.
- **Redesign the Collier Canyon Road entrance** to improve flow of traffic and pedestrian/bicycle safety.
- Provide a **safer entrance to Lots A and B** by squaring off the intersection with the Campus Loop.

PARKING

Parking is a key component of the overall campus environment. While the FMP encourages multimodal transportation improvements and methods other than single-occupancy vehicles to access campus, the efficient management of parking will be key for ensuring there remains a positive experience for students, faculty and staff. While the analysis conducted as part of the FMP update process indicated that there is adequate parking to serve the current needs of the College, there will be increased parking demand of approximately 380 additional spaces by 2026. To fully address these issues, the FMP includes the following parking programs:

- Restripe parking lots to provide spaces at **90-degree angles** to maximize land use efficiency.
- **Add a new parking lot adjacent to the new Viticulture Building** to support this program.
- **Add a new parking lot adjacent to the new Horticulture Building** to support this program and additional athletics needs in the northeastern part of campus.
- **Expand Lot O** to serve new projects and athletic needs in the northeastern part of campus.
- Utilize Advanced Manufacturing and Transportation, and Public Safety buildings' outdoor staging area as **additional parking during peak periods** to serve these programs where needed.
- **Add parking spaces** by the athletics fields at the northeast side of the campus.
- Install a new **Parking Information Management System** that includes digital signs at the entrances to each parking lot that indicate the current vacancy of parking spaces. This real-time information will help students, faculty and staff easily identify where available parking spaces are located.
- Increase the **enforcement of existing parking regulations** and focus on those with outstanding citations or frequent violations.
- Increase efforts to both **publicize and incentivize the use of transit options** for enrolled students.

Figure 4.5: Pedestrian Circulation Improvements

Legend

- Campus Boundary
- Campus Building
- Open Space
- Athletic Fields
- Parking Areas
- Solar Panels
- New Buildings
- Buildings Identified for Renovation
- New Turf Fields
- Circulation
- Plaza
- Ride Share Pick Up/Drop Off
- Existing Tree Canopy
- New Tree Canopy
- New Native Landscape
- Bioswale Planter
- Internal Pedestrian Circulation



Figure 4.6: Pedestrian Facilities

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - New Turf Fields
 - Circulation
 - Plaza
 - Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter
 - Existing Sidewalk
 - New Sidewalk
 - Existing Crosswalk
 - New Crosswalk



Figure 4.7: Bike Facilities

Legend

- Campus Boundary
- Campus Building
- Open Space
- Athletic Fields
- Parking Areas
- Solar Panels
- New Buildings
- Buildings Identified for Renovation
- New Turf Fields
- Circulation
- Plaza
- Ride Share Pick Up/Drop Off
- Existing Tree Canopy
- New Tree Canopy
- New Native Landscape
- Bioswale Planter
- Existing Class I Bike/Pedestrian Path
- Proposed Class I Bike/Pedestrian Path
- Class II Bike Lane
- New Class II Bike Lane
- Existing Bike Parking
- New Bike Parking

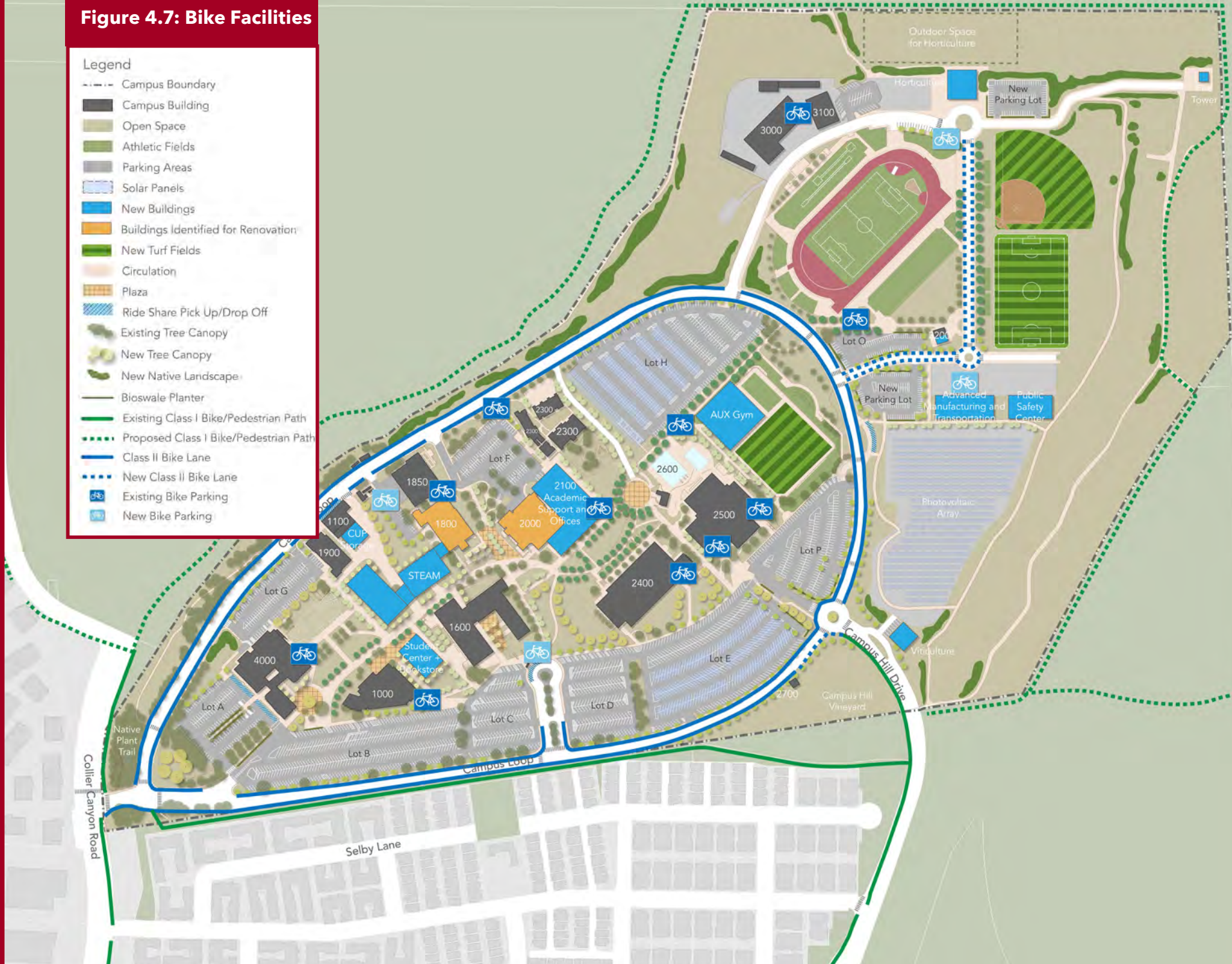


Figure 4.8: Transit Facilities

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - New Turf Fields
 - Circulation
 - Plaza
 - Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter
 - Transit Stop
 - Transit Route
 - Route Number



Figure 4.9: Vehicular Circulation

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - New Turf Fields
 - Circulation
 - Plaza
 - Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter
 - Existing Road
 - Proposed Road
 - Limited Access Road





Figure 4.10: Pick-Up and Drop-Off Locations

- Legend**
- Campus Boundary
 - Campus Building
 - Open Space
 - Athletic Fields
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - New Turf Fields
 - Circulation
 - Plaza
 - Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter
 - Existing Pick-up/Drop-off Location
 - New Pick-up/Drop-off Location



Figure 4.11: Proposed Parking Facilities

- Legend**
-  Campus Boundary
 -  Campus Building
 -  Parking Areas
 -  Solar Panels
 -  New Buildings
 -  Buildings Identified for Renovation
 -  Ride Share Pick Up/Drop Off



Infrastructure Improvements

Each new major project included in the FMP will require either infrastructure upgrades or the construction of new infrastructure. The following is a summary of infrastructure improvements that will be needed as the FMP is implemented over time, including general assumptions and specific infrastructure improvements needed for each major project (see **Chapter 5** for the detailed pre-programming for each major project).

General Assumptions

The following general assumptions were made in order to prepare a detailed infrastructure analysis for Las Positas College:

- C3 and hydromodification requirements will apply to all projects as they are part of “single plan” of development.
- The preliminary stormwater facility sizing is based on existing condition of 100% Grass, Hydrologic Soil Group C (NSCS Web Soil Survey)
- Las Positas College lies within a landslide zone per California Department of Conservation GIS Map of Earthquake Zones of Required Investigation. All proposed utilities shall meet current requirements for construction in a landslide zone.
- Las Positas College lies within a liquefaction zone per California Department of Conservation GIS Map of Earthquake Zones of Required Investigation. All proposed utilities shall meet current requirements for construction in a liquefaction zone.
- The following will use the following General Sustainability Practices:
 - Properly store and limit use of hazardous materials, seek out environmentally friendly alternatives.
 - Incorporate tree planting into stormwater plan and use trees to reduce energy consumption.
 - Use biotreatment and infiltration Best Management Practices (BMPs) to reduce detention requirements.

Guiding Design Principles

BUILDING

The following guiding design principles support Las Positas College's overarching campus goals. They provide high-level design direction and build upon successful elements from past plans while focusing new, improved ways to create a more sustainable, dynamic and beautiful Las Positas College campus. In addition to the goals and principles outlined in this FMP, other technical resources approved by the District and College also provide critical direction. In particular, the Las Positas College Design Guidelines (2006) provide additional detail regarding landscape design elements, such as hardscape, site furnishings and more.

BUILDING AND FACILITY SITING

Intent: Ensure the placement of new buildings and facilities on the Las Positas College campus provides easy and safe access, supports program adjacencies, activates open space areas and supports campus-wide sustainability.

- Consider aligning final building footprints similar to the footprints outlined on the conceptual future site plan to provide the most **efficient use of space**. Building footprints should conform to the following guidelines.
 - Represent the most **efficient use of space**
 - Create new **program adjacencies** that consolidate uses and bring Departments and Divisions together.
 - Provide buildings with rooms that have more **flexible uses**.
 - Enhance the **pedestrian experience** by aligning new buildings with existing ones to create a clear pedestrian pathway with landscaped amenities.
 - Support **mobility, educational, and sustainability goals** of the project.

- Ensure building footprints facilitate external circulation and allow for maximum **accessibility and connectivity** on campus.
- Orient buildings in a way that takes into consideration **future development phases**.
- Orient primary building facades, entrances and active uses to **face the central court area**. This will help activate this important, central gathering area on campus.

BUILDING MASS AND SCALE

Intent: Maintain the sustainability benefits of larger buildings while designing them to have an accessible, human scale and create inviting, adjacent open spaces.

- Utilize setbacks and step-backs to reduce the bulk of buildings, reduce shadows cast from buildings and respect the **human scale** to create inviting open spaces.
- Ensure adequate floor to ceiling heights to ensure **flexible use** in buildings (including offices, laboratories, classrooms, community gathering, etc.)
- **Delineate building entrances** with key vertical and horizontal elements, including lighting, vegetation and art elements.
- Ensure buildings have **color and materials palettes** that are harmonious with innovation and technology and respond to sustainability objectives (e.g., low energy construction materials, low radiant heat properties, durability, etc.).
- Seek out building materials that are locally made, produce minimal pollution, and have **minimal adverse environmental impact**.

BUILDING ORIENTATION AND EFFICIENCY

Intent: Orient and design buildings to take advantage of natural lighting as a means of reducing overall building energy demand.

- Orient and shape buildings to **reduce heating and cooling** energy use.
- Provide exterior shading to southern glazing to **minimize unwanted solar heat gains** and allow for natural daylight.
- Provide appropriate exterior shading on east and west glass to **address direct solar gains at low sun angles**.
- **Orient service and utility areas away** from primary gathering and pathways, and screen with landscape elements when possible. Passive uses could face the north side of buildings where natural lighting and heating are not as crucial.
- Design and install **high-efficiency lighting systems** into buildings.
- Consider the use of **light shelves** to extend the range of daylighting into the building.
- Use a combination of **low ambient lighting** with the space sub-divided into smaller zones for lighting control purposes, and high-quality task lighting with personalized controls in open office environments.

NATURAL HEATING AND COOLING

Intent: Ensure that all buildings utilize innovative technology, design approaches, and materials to maximize natural heating and cooling as a method for reducing overall building energy demand.

- Design and construct all buildings to **reduce heating and cooling loads** and subsequently minimize space conditioning energy use.
- Incorporate **high-efficiency heating, ventilation, and air conditioning** (HVAC) systems in buildings.
- Place occupancy controls in all rooms and dimming controls where applicable in order to reduce lighting energy use and act as a part of **high-efficiency lighting** design.
- Use supply ventilation with filtration systems for **fresh air ventilation** in buildings.
- Conduct third-party verification of building envelopes and mechanical measures to ensure **quality installation** that meets design expectations.
- Incorporate miscellaneous **load controls** and occupant **feedback mechanisms** in buildings.
- Conduct **building-wide commissioning** of buildings prior to occupancy to verify building systems performance and ensure quality installation that meets the design expectations.
- Design building rooftops to allow for photovoltaic to cover up to 75 percent of total **rooftop areas in order to maximize on-site energy production**.
- **Install high-efficiency appliances**, such as energy star appliances, low-water use appliances, and ultra-high-efficiency fixtures (UHEFS) when possible.
- Apply features to roofs that **reduce heat gain** and improve energy efficiency, including “cool roof” materials (e.g. lighter colored, higher albedo materials) that reduce solar reflectance, plants or other materials/colors that minimize urban heat island effect.

Guiding Design Principles

LANDSCAPE

Las Positas College landscape themes include campus as a park and campus as a botanical garden. The following guiding principles for sustainable landscape practices, site furnishings and materials are designed to support these themes while also providing a landscape that is beautiful and efficient to maintain.

LANDSCAPE PRACTICES

Intent: Provide a landscape that enhances Las Positas College's park-like and botanical garden themes, is sustainable and efficient to maintain.

- Include **California native and climate appropriate** (Mediterranean) non-native plant species that do not require excessive watering. Decisions about specific plant species will be based on Las Positas College Design Guidelines (2006) and consultation with the Grounds Manager.
- Select plants that are **low-maintenance** and have a clean, compact appearance.
- **Replace non-actively used turf grass** with water conserving drought tolerant grasses that do not require biweekly mowing or other climate appropriate, drought tolerant ground cover.
- Comply with all **Model Water Efficient Landscape Ordinance (MWELO)** requirements to promote the conservation and efficient use of water.
- Group plants with similar **water requirements** to eliminate over-watering and under-watering plants.
- **Increase shade trees** with the goal of enhancing comfort in seating, walking and gathering areas.

- Consider **Low Impact Development (LID)** design and materials whenever possible.
 - Install landscaped **stormwater planters, in-ground planters and swales** where possible.
 - Install **permeable pavers/paving** in strategic locations to supplement other LID strategies.
 - Use LID treatments as opportunities for **educational signage** about the environmental benefits of biofiltration.
- Implement **soil management** techniques to promote and maintain healthy soils, such as adequate mulching to slow evaporation and erosion, control weed growth, and add soil nutrient content.
- Provide adequate mow-bands and hardscape around site elements to ensure mowing and **maintenance efficiency**. This includes adequate (12" minimum) hardscape material around signage, light poles and other site furnishings.
- Consider **Crime Prevention Through Environmental Design (CPTED) strategies** for all projects to deter crime and increase safety on campus. These include designing buildings, facilities, landscape and lighting that establishes good natural surveillance, access control and maintenance.

LANDSCAPE MATERIALS AND FURNISHINGS

Intent: Thoughtfully select materials and furnishings that are attractive, environmentally friendly and enhance pedestrian comfort.

- Encourage use of **pervious materials** whenever possible, especially around tree wells and in parking areas.
- Maximize high albedo or **reflective materials**.
- Place tables, benches and other seating elements in areas with **options for shade** (shade structures or tree canopy).

Figure 4.12: Open Space Network

- Legend**
- Campus Boundary
 - Campus Building
 - Parking Areas
 - Solar Panels
 - New Buildings
 - Buildings Identified for Renovation
 - Plaza
 - Ride Share Pick Up/Drop Off
 - Existing Tree Canopy
 - New Tree Canopy
 - New Native Landscape
 - Bioswale Planter
 - Open Space
 - Athletic Fields
 - Permeable Surface



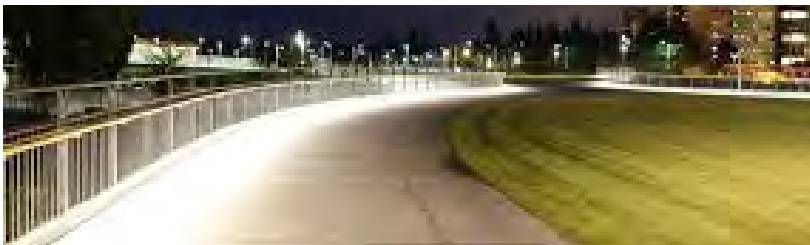
- Provide **secure bicycle parking** for students and faculty. Consider locations that connect to off-campus bicycle infrastructure, transit and primary campus entries.
- **Design efficient exterior lighting** to minimize glare, prevent light spillover, conserve energy, be dark sky compliant and consistent with City of Livermore standards.
 - Incorporate **smart controls and/or bi-level occupancy controls** on outdoor lighting when possible.
 - Consider installing **lighted pavement modules** (e.g., glow in the dark) or **photovoltaic powered light fixtures** that do not use any electricity in strategic locations.
- Provide **pedestrian-friendly furnishings and materials at bus stop and drop-off areas**, including accent paving materials that heighten visibility, clearly defined crosswalks that improve safety, trash/recycling receptacles, seating and shade/shelter elements.
- Expand **tree planting and pedestrian refuge** in parking lots to where possible.
- Ensure that all **crosswalks** have ramps and warning strips that comply with Americans with Disabilities Act (ADA) standards.
- Promote the use of **electric vehicles** and other low-polluting vehicles by providing dedicated parking spaces equipped with electric vehicle (EV) charging stations for students, faculty and staff. EV parking spaces with charging stations must meet or exceed CALGreen Tier 1 minimum requirements (four percent of total parking required for non-residential construction).
- Provide clearly identified **separate receptacles for waste, recycling and compost**, and encourage creative and sustainable methods for collecting, treating and/or reusing post-consumer waste and compost when possible.
- Incorporate waste collection and compaction receptacles that use **solar power and smart technology** when possible.



Permeable paving reduces stormwater runoff and recharges groundwater



Parking lots can be retrofitted with planting areas to reduce heat islands



Lighting is an essential design element on campus

LANDSCAPE LIGHTING

Intent: Ensure that lighting throughout campus provides adequate illumination for pedestrian and vehicular safety, enhances wayfinding, and creates beauty on campus.

Lights are (and should be thought of as) design elements in and of themselves. A prime goal of exterior lighting is to treat both lighting fixtures and the light they provide as elements of campus design. Along main pedestrian corridors, rows of lights can “indicate the way” through the campus, for newcomers. Light poles can be seen beyond many common obstructions in the landscape, such as planting and fences. As repetitive elements, they can aid in wayfinding from parking lot entry points. At the pedestrian level, bollard lights, which are more closely spaced, indicate the way ahead, along paths. Bollard lights should be of uniform type, throughout the campus.

Exterior lighting in common (pedestrian areas) should be:

- Controlled by timer-controllers, in combination with photocells, to **minimize wasted energy during daylight hours;**
- Designed to **minimize contrasts between different illumination levels;**
- Designed with shielded fixtures to **minimize glare** to residential neighbor areas;
- Designed to **minimize light-spill into the night sky;**
- Designed to **provide a combination of lighting types** in major pedestrian-traffic areas. This would include uplighting on buildings and into trees, to provide context (which improves the pedestrian’s sense of safety) for pedestrians.

Lighting Fixtures

Light poles should be painted a particular color, per one of two possible goals:

- Either painted with one color that is consistent throughout the campus to provide for **visual uniformity** (especially important in a visually non-uniform campus setting);
- Or, with a **coordinated color scheme**, in which one color is used for each campus corridor/pedestrian route, with colors for all the corridors coordinated so that, though different, they are mutually harmonious.

Wall-mount lights should be:

- Of a design that is **esthetically appropriate** to the type of fence, wall, or building on which they are to be mounted;
- Placed in **locations that are compatible** with the design of the fence, wall, or building on which they are to be mounted.

Lighting fixtures should be selected to meet the goals of the areas being lit. For example:

- **At major intersections/pedestrian nodes** (e.g., path intersections): Have a high Color Recognition Index (a CRI rating of 100 is ideal), allow for facial recognition such as illumination at + 3fc, and have inverter or battery backup.
- **Outdoor classroom courtyards**: Have good color rendition, minimum of shadows.
- **Emergency egress route**: Illumination at +.1fc min; 1.0fc aver. (40:1 max:min. ratio), measured at the ground, with inverter or battery backup.

- **Other pedestrian paths**: Illumination at + 1fc min., normal power
- **“Back of the house”** areas: security lighting, motion-sensor controlled.

Lighting Economic Goals

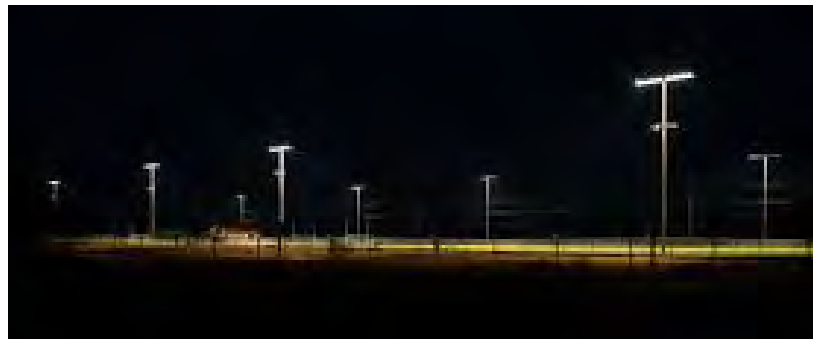
- Fixtures should be retrofitted to **LED lamps**, for energy and cost savings
- **Kelvin “warmth” levels should be medium warm**, i.e., approx. 2700K – 3000K
- Incorporate **smart controls and/or bi-level occupancy controls** on outdoor lighting when possible.
- Consider installing **lighted pavement modules** (e.g., glow in the dark) or **photovoltaic powered light fixtures** that do not use any electricity when possible.



Lighting should complement building features



Solar lighting can increase lighting economy



Lighting should minimize glare into night sky and surrounding properties

Guiding Design Principles

SIGNAGE AND WAYFINDING

Intent: Establish an overall signage and wayfinding program that visually knits the campus together, is clear and legible, corresponds to building architecture, and provides a cohesive and comprehensive system that is easily recognizable and can be implemented and updated overtime.

- Create **gateway signage** that enhances the campus entry experience by designing gateway signs that are iconic yet compatible with other campus signage.
 - Create a **campus entry hierarchy** with monumental gateway elements at the primary entry and different features at secondary gateways and minor entry areas to reflect their place in the hierarchy through scale and form.
 - Reinforce connections between gateways and campus entries with **strong landscape forms** (e.g., formal planting, robust tree canopy, etc.) that provide visual connections to entry areas.
- **Maintain trees and shrubs** to provide unobstructed sightlines between primary readers and all signage on campus.
- Use durable materials, graphics, fonts and colors that follow or complement the Las Positas College **campus standards** for all campus signage (e.g., logo, text, etc.).
- Develop signage at **building entrances that is compatible** with similar signs for other campus buildings. Locate building identification number so it is visible to pedestrian readers and also emergency vehicle drivers.
- Chose the appropriate method for **signage lighting**.
 - Use **ground-mounted fixtures for up-lighting** that are low profile and can be positioned to avoid glare and can be screened.
 - **Avoid over lighting** and spill that causes light pollution.
 - **Illuminate building-mounted signs** with ambient building lighting and halo lighting.
 - Internally illuminated letters, backlighted panels and digital displays are not acceptable.
- Locate **campus maps and directional signage** at key orientation locations (e.g., near pedestrian egress in parking areas, in entry areas, at convergence of major pathways).
- **Explore opportunities for educational and interpretive signage** to highlight important features on campus, including those that support sustainability or are culturally significant to the Las Positas College community.
- **Explore opportunities to install public art** that relates to the Las Positas College community that can enhance campus character, wayfinding and/or entry experience.

COMMUNITY HEALTH

Intent: Create an environment that supports community health. This includes the physical, emotional, social and ecological aspects of health for all members of the Las Positas College community.

- Expand transportation infrastructure to support options **for both active and public forms of transportation**, encourage physical activity, and reduce the amount of single occupancy vehicles (SOVs) driving to and from campus.
- Encourage expansion of **bicycle infrastructure**, including bicycle routes, paths and secure bicycle parking on campus.
- Provide **healthy food options** at all on-campus dining facilities and events.
- Integrate **health and wellness programs** into Student Center programming and make sure these programs are visually and physically accessible to all.
- Increase **tree canopy campus-wide** to increase opportunities for carbon sequestration and benefits to air and water quality.
- **Reduce use of toxic** cleaning supplies, pesticides, herbicides and fertilizers on campus whenever possible.



TECHNOLOGY AND UTILITY INFRASTRUCTURE IMPROVEMENTS

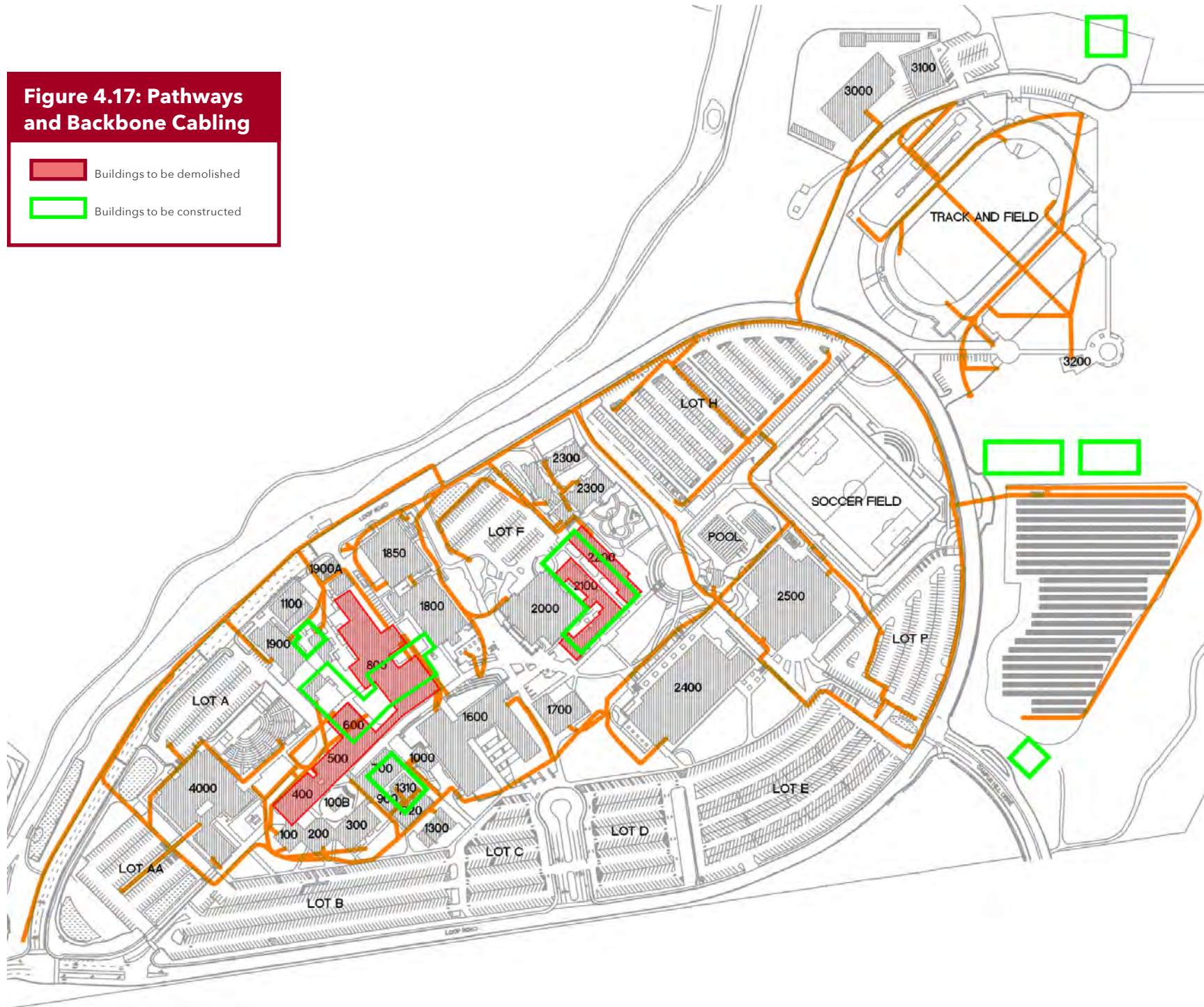
Implementation of the FMP will entail changes to the College's telecommunications and utility infrastructure, including increased shared storage spaces for Buildings 1100 and 1900. The following items are envisioned as part of the expansion of both buildings:

- **Replace** the current HVAC and **provide** a dedicated cooling plant to B1900 (24x7 with backup)
- **Replace** the transfer switch
- **Increase** the receiving/storage/setup space
 - **Vacate** the space currently used in B3000 for computer storage
- **Build out** a space for a DAS headend and wireless providers' "POP" (point-of-presence) equipment

It is anticipated the existing campus utility infrastructure will be able to accommodate the new buildings planned in the FMP. Though some pathways and backbone cabling have been identified for demolition as part of future projects, the remainder of the campus telecommunications and network infrastructure (underground pathways and backbone cabling) will be addressed per project, in matching sequence (see **Figure 4.18**). Each new building will be designed in accordance with the District's cabling infrastructure and security standards.

Figure 4.17: Pathways and Backbone Cabling

-  Buildings to be demolished
-  Buildings to be constructed





CHAPTER 5: MAJOR PROJECTS

The planned growth of the Las Positas College campus will include a range of new buildings and athletic facilities designed to serve the specific needs and desires of the campus community. As identified on the Future Site Plan, this includes 11 individual major projects, including five previously approved projects, three previously prioritized projects and three newly identified projects, and that will help transform Las Positas College into a more vibrant and functional campus with attractive new modern facilities (**Table 5.1** and **Figure 5.1**). The following chapter provides an overview of the pre-programming approach for new major projects, followed by individual building summaries that include a description, internal adjacencies and pre-programming assumptions. This is followed by a summary of the existing Measure B projects that are already underway on the campus.

Chapter 6 provides further detail on facilities projects, including project prioritization, a phasing plan and cost estimates to help guide implementation of the FMP.

Building or Facility	Type
Academic Support and Office	New Building
Public Safety Complex	New Building
Advanced Manufacturing and Transportation	New Building
Agricultural Sciences: Horticulture	New Building and Outdoor Fields
Agricultural Sciences: Viticulture	New Building and Outdoor Fields
Roadway and Infrastructure Improvements	Infrastructure
Temporary Office Complex	Temporary Buildings

MAJOR APPROVED PROJECTS

Pre-Programming Approach

A key component of the FMP process was to engage the campus community to fully understand the types of uses and spaces needed and desired by different administrators, divisions and departments. This process resulted in the programming development of each new facility that includes adequate space to accommodate projected campus growth over the next 15 years. These projections were developed in four parts:

- **Existing Space Evaluations:** This included evaluations of current size and functionality of existing buildings and rooms on campus.
- **Campus Discussions:** This included a range of meetings held on campus with the various user groups to understand both their current and future space programming needs.
- **National Benchmarks:** This included comparing current and future College spaces against established standards for each type of space/use. This process also involved looking at key comparable projects identified by College committees during the campus discussions, including projects at similar colleges.
- **Campus Committee Pre-Programming Input:** this included reviewing draft programming tables and assumptions provided by campus committees.

The purpose of this analysis was to ensure that current and future programs are accounted for in each new, modern building, and that these buildings are large enough to accommodate the anticipated growth in programs and services for Las Positas College students. The pre-programming estimates are not intended to represent the final programming for each new building. That level of refinement will take place once each building goes through detailed programming as part of the architectural design for the project. During that process, the College will again reach out to each department/user group on campus to further refine the programming and ensure the new buildings includes the desired uses and features.

PHASE 2

Many of the projects described below will be completed in two phases. The first phase will accommodate immediate needs and accounts for current funds available. Phase 2 projects will accommodate longer-term growth and may require securing additional funding. These projects are summarized on page 114.

ABBREVIATIONS

The following abbreviations are used in the pre-programming tables:

ASF: Assignable Square Footage (ASF) includes Instructional and office support spaces such as waiting, reception, program storage, copy/work areas, lounge and breakout areas.

OGSF: Overall Gross Square Footage (OGSF) is the sum of Assignable and Non-Assignable Square Footage.



Academic Support and Offices

The new Academic Support and Office building will be strategically located in the core of the campus and integrated with Building 2000's Library so it is easily accessible to students and faculty. It will provide a range of uses that will help promote and foster multi-media and inter-personal learning connections. The space will have modern computer labs and study areas that are quiet and safe, as well as flexible space for collaboration and gathering. This is a place where students can learn and grow together. Major pre-programming uses in this building include:

- **Classrooms/Labs:** New modern classrooms and lab spaces to support the English and Math programs with support spaces.
- **Tutoring Center:** Large tutoring space and individual study rooms that will support the Reading and Writing (RAW) Program, Math Learning Center, science programs and English as a Second Language. It will include a new Math Emporium, Proctoring Center and other support spaces.
- **Computer Studies Program:** Computer Studies labs, Maker Spaces (both digital media and hardware), a

large open computer lab, network lab and support spaces.

- **Library Shared Space:** Various shared spaces that can be used by different divisions and departments. This includes a computer lab, reading and study room, and Adaptive Technology center. It also includes large collaborative and gathering spaces.
- **Faculty Spaces:** Approximately 85 faculty and 40 adjunct faculty offices, a Dean Suite, lounge and breakout rooms, and conference rooms of various sizes.

The new building is programmed to be approximately 88,500 gross square feet, which is an adequate size to accommodate the current and projected space needs for the desired programs and services (see **Table 5.2**).

BUILDING 2000

This project includes the renovation and expansion of the existing Library to provide more space for Library stacks, processing and support, and offices (see **Table 5.3**). The renovation to the existing building will provide more space to further expand and support Library operations (see **Table 5.4**).

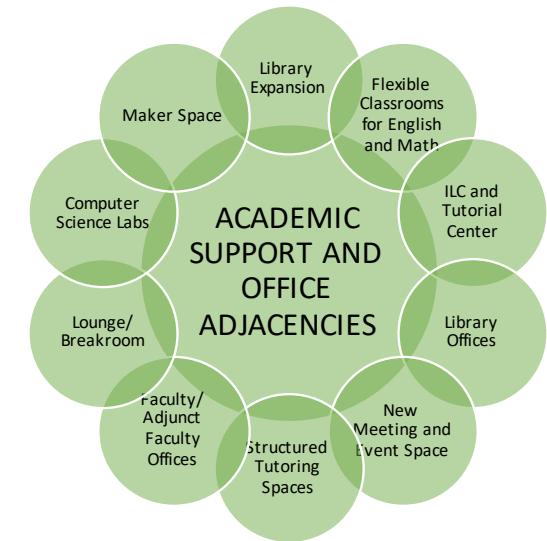


Table 5.2: Building 2100: Academic Support and Office Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Classrooms/Labs			
Classrooms (8@ 1,000 ASF)	8,000*	408A, 408B, 403, 402,101,102, 103, 104	6,467
English Staff Work Spaces	300	402	120
English Computer Labs (2 @1,250 ASF)	2,500	405, 406	1,941
Subtotal	10,800	-	8,528
Tutoring Center			
Math Learning Center	3,500	New	
Tutoring Area - Combining Tutoring, RAW	3,500	2401,2401D, 600	5,574
Tutor/RAW Study Rooms -Various Sizes	2,000	2401 E-M, 603, 604	1,777
Tutoring Center Work Spaces (3+ check-in desk)	400	2410A,C	300
Math Emporium	1,500	607	1,134
MLC/Emporium Staff and Support (3 + support)	300	601, 606A	245
Proctoring	1,400	606	304
Student Support/Service Area	500	New	
Subtotal	13,100		9,334

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Computer Studies Program			
Computer Studies Labs (5 @ 1,200 ASF)	6,000	804A, 804B, 805A, 805B, 803 Partial	4,674
Maker Spaces- (Hardware based)	1,500	New	-
Open Computer Lab - 80 stations)	2,500	803 Partial	3,500
Network Lab	1,000	805C	400
Computer Lab Support Staff Work Spaces	300	803 Partial	250
Subtotal	11,300		8,824
Library/Shared Spaces			
Computer Lab	1,200	Bld 2000	1200
Read/Study Rooms	1,200	New	
Circulation/Reference Desk	300	New	
Adaptive Technology	500	New	
Collaborative/Gathering Space	1000	New	
Coffee/Food Shop	500		
Subtotal Library/Shared Space	4,700		1,200

Programming is continued on the following page

* Additional program area is listed in the Phase 2 project description

Academic Support and Offices Continued

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Faculty Spaces			
Faculty Offices (85 @ 100 ASF)	8,500	Bld 2100	
Adjunct Faculty Work Stations (25 @ 40 ASF)	1,000	Bld 2100	
Dean's Suite	1,500	Bld 2100	
Lounge/Breakroom/Workroom	550	Bld 2100	
Conference Rooms (6 - various sizes)	1,800	New	
Subtotal Faculty Space	13,350		7,170
Building Summary			
Subtotal ASF	53,250		35,056
Circulation and Support Uses (hallways, restrooms) NEW Non-Assignable	28,755		18,930
TOTAL OGSF (avg 65% Efficiency)	82,005		53,986

Table 5.3: Library Addition Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Library Processing and Support	1,000	New	
Library Stacks	1,000	New	
Library Offices	500	New	
TOTAL OGSF	2,500		

Table 5.4: Library Renovation Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Library Renovation (B2100)	4,000*	Room 2401	8,000
TOTAL - Renovations	4,000		8,000

* Additional program area is listed in the Phase 2 project description



Public Safety Complex

A new Public Safety Complex will be built near the existing sports fields in the northeastern portion of the campus. This new facility will be designed to meet the needs of Fire Technology, Administration of Justice and Emergency Medical Services (EMS) programs and enrich the types of programs and activities the College can offer (see **Table 5.5**). The building will also be located adjacent to the new Advanced Manufacturing and Transportation building to allow the two departments to share an entryway, classrooms and common areas, and build stronger linkages between the various programs. Major pre-programming for this building includes:

- **EMS Simulation Labs:** Two large labs that will house rescue and simulation equipment.
- **Classrooms and Computer Lab:** Classrooms and computer labs that are flexible in format and easily adaptable to a variety of academic and teaching needs.
- **EMS Situation Rooms:** A series of rooms that can be configured to teach students in and test them on a variety of medical emergency scenarios.
- **Lockers and Showers:** On-site facilities for male and female students.

- **Conference Room, Meeting Room and Kitchenette:** Spaces large enough to host a range of events and activities that support the Public Safety programs on campus.
- **Fire Tower:** A new fire tower located in the northeast corner of the campus that will include a Class A burn room.

The Public Safety Complex also includes an array of outdoor uses just north of the building, facing and accessing the new perimeter road (see **Table 5.6**). This area is pre-programmed to be large enough to house emergency vehicles and apparatus (in a carport) as well as outdoor classrooms and lab space.

This project also includes the creation of a Fire Tower training facility that will be tucked into the canyon near the northeast corner of the campus (see **Table 5.6**). The tower will be used for both LPC Fire Tech training courses and County Fire and regional training. It will include a modern configuration that will allow Fire Tech to conduct a range of scenario trainings, including a Class A burn room. The location of the Fire Tower was selected to minimize smoke impacts on the campus as well as the surrounding Livermore community.



Table 5.5: Building 3400: Public Safety Complex Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Simulation Labs (2@ 750) Driving/Firearms	1,500	2201, 2203	2,222
Classrooms (4 @1150 w/ integrated storage)	4,600	801	1,875
Classrooms 2@ 1000 ASF	0*	2206	1,833
Computer Lab/Classroom -Share with Auto	0*		
EMS Situation Rooms (3@1000) fixed furnishings	3,000		
Mat Room	1,700		
Locker Room w/Showers (15 men and 15 women)	1,500	New	
Administration of Justice Storage -	500	Bld 2100	
Faculty Spaces			
Faculty Offices (5 offices @ 100ASF)	400	Bld 2100	360
Meeting Room/Kitchenette	300	New	-
Dean Suite with Admin	1,000	Bld 2100	360
Conference Room	400	New	-
Subtotal ASF	14,900		6,975
Circulation and Support Uses (hallways, restrooms)	6,369	-	2,302
TOTAL OGSF (75% Efficiency avg)	18,625		9,277

Table 5.6: Building 3400: Public Safety Complex Outdoor Spaces and Fire Tower Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Emergency Vehicle & Apparatus Carport (4 bays)	3,500*	Bld 600	
Classroom/Vehicle Lab	500		
Fire Tower (7 stories)	7,000	New	
Class A Burn Room	0		
TOTAL - OGSF (100% Efficiency)	11,000		

* Additional program area is listed in the Phase 2 project description

Advanced Manufacturing and Transportation

A new Advanced Manufacturing and Transportation building will be built to meet the needs of the Auto Technology and Welding programs and enrich the types of programs and activities the College can offer. This new facility will also be located adjacent to the new Public Safety Complex to allow them to share an entryway, classrooms and event spaces, while also building better linkages between the various programs. Major pre-programming for this building includes (see **Table 5.7**):

- **Auto Tech:** Multiple automobile bays, including a dedicated smog bay, with high ceilings. It also includes specialty labs, Auto Tech parts and tool storage area, and support uses.
- **Welding:** A welding lab with a two ton overhead crane, welding rod and tool rooms.
- **Shared Support Uses:** Classrooms, computer lab, collaborative study spaces and gathering areas. These uses may be combined/shared with the Public Safety Complex when more refined building programming is determined as part of the detailed architectural design process.

- **Faculty Space:** Space for faculty offices, administrative support and a break area.
- **Advanced Manufacturing:** Classrooms and labs to provide training on programming and uses of advanced manufacturing equipment (advanced manufacturing processes include 3.0 manufacturing, laser technologies, and computer automated manufacturing)

This project also includes a significant amount of outdoor space that is needed to support Auto Tech and Welding programs. This includes vehicle carports with auto lifts, a covered welding yard and student project storage area, and secured covered storage for both Auto Tech and Welding (see **Table 5.8**).

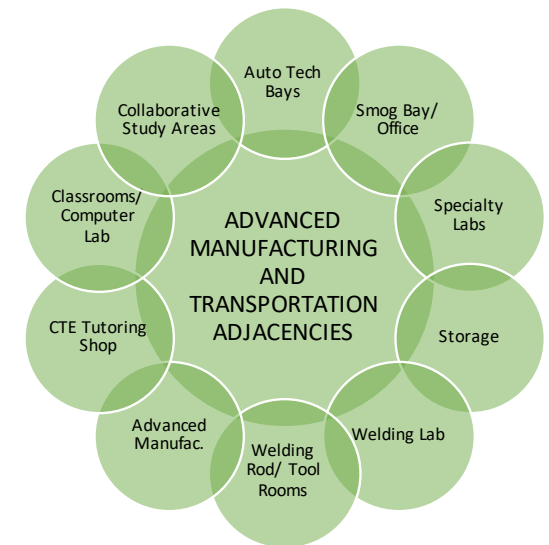


Table 5.7: Building 3500: Advanced Manufacturing and Transportation Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Auto Tech			
Auto Tech (8 bays)	5,000	809 Partial	3,300
Auto Tech Smog Bay	625	809 Partial	552
Smog Office	500	817A	72
Specialty Lab -3various size	3,000*	815, 816, 817	1,280
Auto Tech Parts	1,000	809 Partial	1,100
Auto Tech Tools	800*	808 Partial	845
Tech support Area	100*		-
Welding			
Welding Lab w/2 ton overhead crane	4,500*	810 Partial	2,700
Welding Rod Room	200	810A	145
Welding Tool Room	800	808 Partial	200
Advanced Mfg. Lab(s)	3,000	810 Partial, 815	820
Welding Inspection Room	0*		-
CTE Tutoring Shop Area	0*		-
Shared Support			
Classroom (1@1000)	1,000	New	
Computer Lab	1,500	New	
Collaborative/Study/ Gathering Area- incorporate in Lobby	0	New	
Faculty Space			
Faculty Offices (4@ 100 ASF plus work/break area)	400*	810B, 817B	200
Admin Support	150		-

Building Summary

Subtotal ASF	22,575		11,014
Circulation and Support Uses (hallways, restrooms)	4,515		2,754
TOTAL OGSF (80% Efficiency avg)	27,090		13,768

Table 5.8: Building 3500: Advanced Manufacturing and Transportation Outdoor Spaces Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Auto Tech Vehicle Carport (10 bays) -4 with auto lifts	6,000	Bld 800 uncovered	1,400
Welding Covered Outdoor Yard w/Overhead Crane	3,500	Bld 800, uncovered	1,600
Covered Student Project Storage	0*	B800, uncovered	-
Secure Storage for Welding (metal Bld)	2,000	B800, uncovered	-
Secure Storage for Auto (metal Bld)	2,000	8 40' Containers	1,920
TOTAL - OGSF (100% Efficiency)	13,500		4,920

Agricultural Sciences: Horticulture

The Horticulture program will have a new building and expanded outdoor growing and greenhouse space in the northeastern portion of the campus. This new facility will be constructed according to current best practices and equipment to fully support programs and teaching needs. Pre-programming for the buildings portion of this project includes new, increased classroom and lab space, office space and a resource library (see **Table 5.9**). There will also be a new approximately 3,100 square foot greenhouse developed adjacent to the main building.

To support the Horticulture program, this project also includes an extensive expansion and upgrade of outdoor facilities and fields (see **Table 5.10**). This includes space for new orchards and growing grounds, equipment and soils storage areas, a headhouse, a shade house, and a student project area that will function as an outdoor classroom.

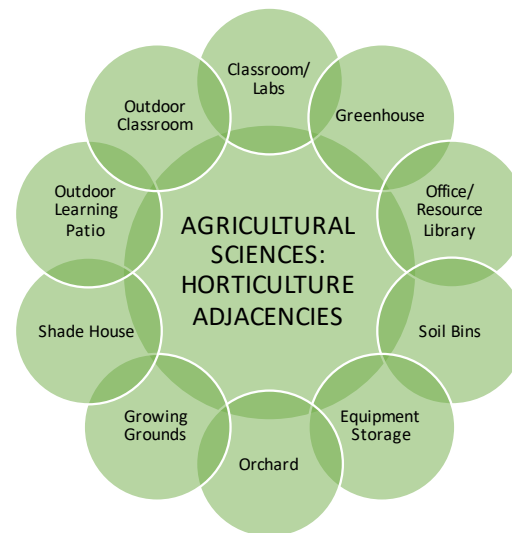


Table 5.9: Agricultural Sciences - Horticulture Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Classroom/Lab	1,500	802 partial	
Greenhouse	1,600*	807	1,500
Office/Resource Library	500	New	.
Subtotal ASF	3,600		1,500
Circulation and Support Uses (hallways, restrooms, etc.)	900		375
TOTAL OGSF (80% Efficiency)	4,500		1,875

Table 5.10: Agricultural Sciences - Horticulture Outdoor Elements Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Soil Bins	1,000	Bld 800	
Equipment Paved Area	5,000	Bld 800	
Orchard	40,000	New	
Growing Grounds	24,000	New	
Shade house	2,000*	Bld 800	1,000
Equipment Storage	1,500	New	
Outdoor Learning Patio (Covered)	1,600		
Student Project Area - Outdoor Classroom	2,000	Bld 800	
Total Outdoor Areas	71,100		1,000

* Additional program area is listed in the Phase 2 project description

Agricultural Sciences: Viticulture

A new Viticulture facility will be built near the existing vineyards. The location of the building is also ideal because it is at the main entrance to the campus and on a higher elevation, allowing it to be used as an event space with expansive views of the campus and surrounding landscapes. This new facility will be constructed with modern methods and equipment to fully support programs and teaching methods. Major pre-programming for this project includes (see **Table 5.11**):

- **A winemaking facility**
- **A Visitor Center with tasting room and patio**
- **Equipment storage**
- **Visitor parking**

To support the Viticulture program, this project also includes an outdoor patio and crush pad, equipment storage areas and expansion of the vineyards (see **Table 5.12**). This project will also likely be tied to the redesign of the Campus Hill Drive entry road to campus with a new roundabout and access point to the building.

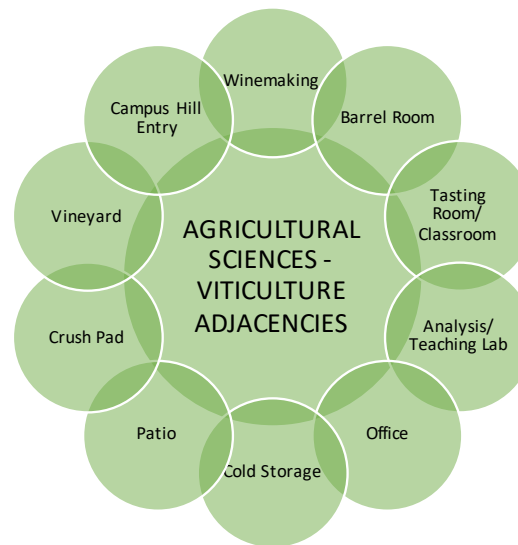


Table 5.11: Agricultural Sciences - Viticulture Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Winemaking	1,500	806	1,011
Barrell Room	800	New	-
Tasting Room/Classroom	1,800	1815	480
Analysis and Teaching Lab	500	1814	-
Office/Support	500	806	100
Cold Storage	250	New	-
Subtotal ASF	5,350		1,591
Circulation and Support Uses (hallways, restrooms, etc.)	1,338		398
TOTAL OGSF (80% Efficiency)	6,688		1,989

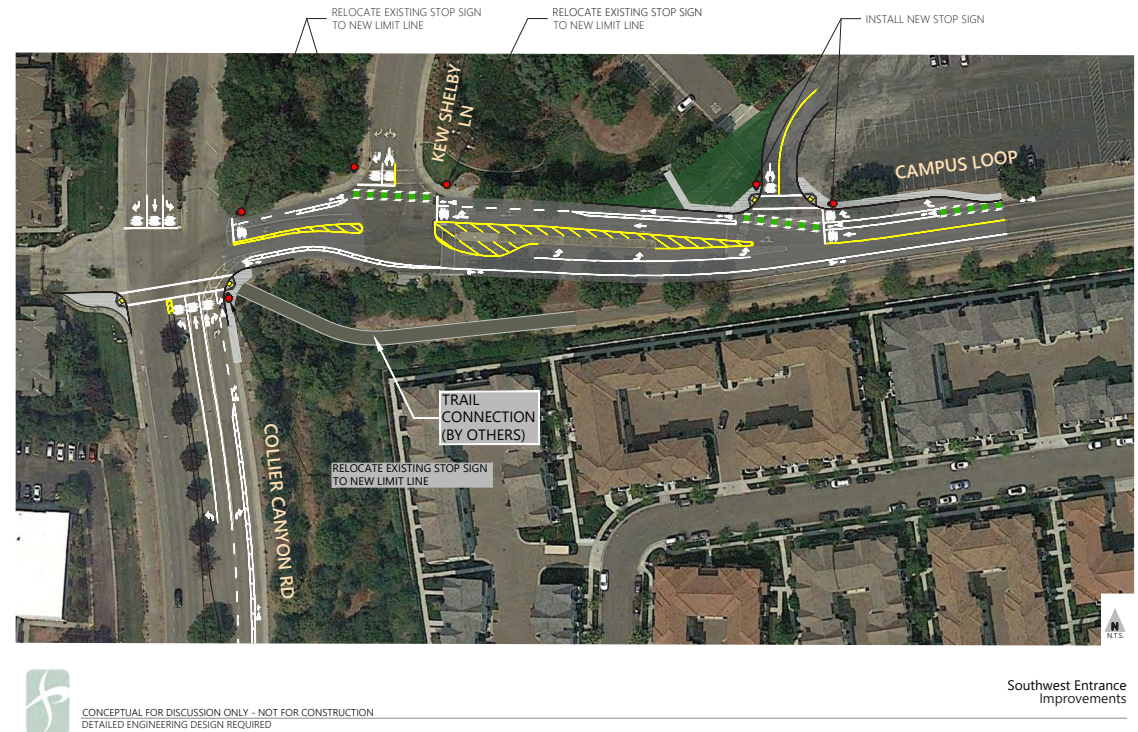
Table 5.12: Agricultural Sciences - Viticulture Outdoor Elements Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Patio (Covered)	2,000	New	
Crush Pad (Covered)	2,000	New	
Equipment Storage	2,500	Vineyard	
TOTAL - Outdoor Areas	6,500		

Roadway and Infrastructure Improvements

Infrastructure at Las Positas College will be updated alongside campus buildings. The two primary intersections that provide access to the campus will be updated. The intersection at Campus Hill Road and Campus Loop Road will become a four-legged roundabout, and will provide access directly into Parking Lot P. The roundabout will ease congestion and improve safety at this intersection. The intersection of Collier Canyon Road and Campus Loop Road will be improved to facilitate bicycle access, improve pedestrian safety, and reduce congestion by providing turning lanes into Parking Lot B.

Additional infrastructure projects will be associated with building projects, including access roads to and between new facilities as well as parking lots near those facilities.





PREVIOUSLY PRIORITIZED PROJECTS

Athletic Fields

This project will occur in two phases. First, the existing synthetic turf soccer field adjacent to Building 2500 will be renovated and resurfaced to serve the community in the near term.

The second phase will include the creation of two new sport fields and associated buildings in the northeastern portion of the campus adjacent to the existing track. The location for these fields allows the College to easily expand athletic programs while also creating an “athletics district” tied to the existing track and field facility. Major pre-programming uses for these fields includes (see Table 5.23):

- **Softball Field**: A new softball field with synthetic turf, dugouts, field lights and fencing.
- **Soccer Field**: A new soccer field with stands, field lights and fencing.
- **Team Rooms**: Six team rooms to support various sports programs

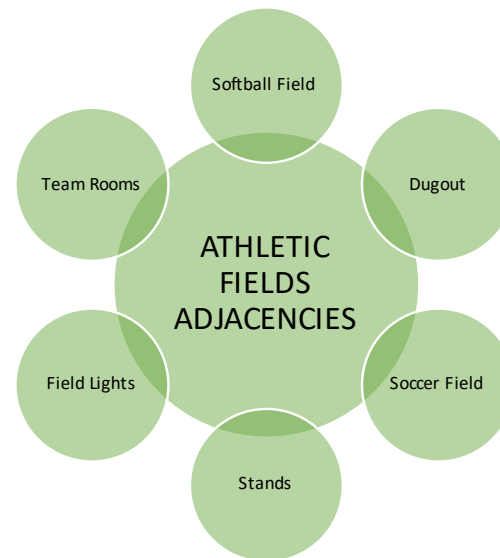


Table 5.24: Athletic Fields Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Soccer Field Renovation			
Soccer Field	0	Existing	70,000
New Softball Field			
Softball Field-Synthetic Turf	75,000	New	-
Dugout/Fencing	800	New	-
Field Lights		New	-
New Soccer Field			
Soccer Field	70,000	New	-
Stands (2 sets 500 seats)	2,000	New	-
Field Lights	-	New	-
Fencing	-	New	-
New Team Rooms			
Team Rooms (6 Rooms @ 500 ASF)	3,000	New	-
Athletic Fields Total			
Subtotal ASF	150,800	-	-
Circulation and Support Uses (hallways, restrooms)	-	-	-
TOTAL NEW OGSF (100% Efficiency)	150,800	-	70,000

STEAM: Arts and Sciences

The new STEAM buildings will be a comprehensive center for the sciences and arts at Las Positas College. They will be designed as a major, modern facility located at the core of the campus adjacent to current science buildings. The project includes two separate major components: STEAM-Arts and STEAM-Sciences. This project could be designed as an integrated building that houses both uses or as two separate buildings (one for each use).

The major pre-programming for the STEAM-Arts uses includes (see **Tables 5.13** through **5.15**):

- **Arts and Media Programs:** Classrooms and labs for Studio Arts (ceramics, sculpture), Photography (with darkroom), Graphic Design and Media, Fashion/Interior Design, as well as an arts gallery, journalism workroom, and radio/TV studio.
- **Faculty Space:** Additional faculty and adjunct faculty offices and work area.
- **Outdoor Garden and Display:** Outdoor space to showcase student work and art exhibits.

The major pre-programming for the STEAM-Sciences uses includes (see **Tables 5.16** through **5.18**):

- **Biosciences:** Wet labs, lab support spaces, a cadaver room and shared learning labs.
- **Chemistry:** Chemistry labs, lab support spaces, and special small group labs.
- **Shared Spaces:** Modern and flexible classrooms, computer labs, study spaces, and collaboration spaces.
- **Faculty Spaces:** Faculty and adjunct faculty offices, a faculty work area, Dean Suite, conference and meeting rooms, and break/support spaces.

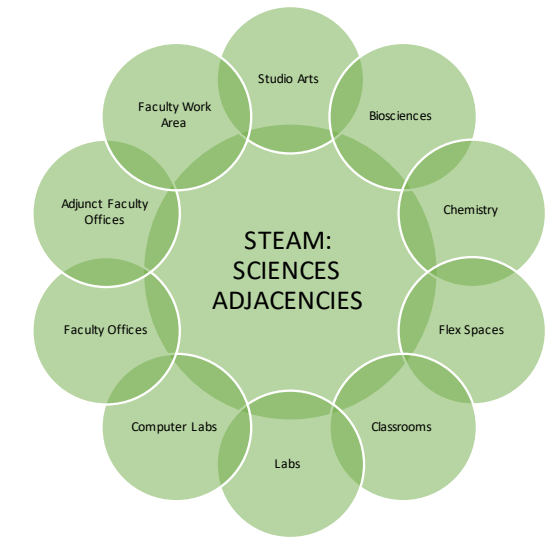


Table 5.13: STEAM Arts Building Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Studio Arts-2 Labs @ 1500 Drawing and Painting	3,000	500, 501	2,085
Arts Lab 2@ 1500 (Ceramics, Sculpture)	0*	New	-
Photography (w/darkroom + 3 new processes) work room, storage,	3,500	715,703,709	2,552
Graphic Design and Media computer lab and integrated shared spaces with Photo	3,500	702, 713	1,760
Fashion/Interior Design -Remodel 2414	1,500	802 partial	650
Arts Gallery	1,000*	New	-
Journalism Workroom	1,500	2409	1,176
Commercial Music/ Broadcast Radio	2,000	New	
Classrooms and Labs			
Classrooms (3 @ 1,000 ASF)	2,000*	New	4,000
Computer Labs (2 @ 1,500 ASF, Interiors, Shared)	1,500*	New	
Faculty Space			
Faculty Offices (5 @ 100 ASF)	500	New	
Faculty Work Area	200	New	
Adjunct Faculty (6)	300	New	
Building Summary			
Subtotal ASF	20,500		
Circulation and Support Uses (hallways, restrooms)	8,815		
TOTAL OGSF (70% Efficiency)	29,315		

Table 5.14: STEAM Arts Building Outdoor Areas Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Outdoor Garden and Display Garden	1500	New	
TOTAL OGSF OUTDOOR AREA	1500		

Table 5.15: Building 4000 Renovations Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Building 4000	3,000	Building 1800	4,000
Amphitheater -Add Covered structure, lighting, sound systems	5,000		5,000
Total Renovations			9,000

* Additional program area is listed in the Phase 2 project description

Table 5.16: STEAM Sciences Building Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Biosciences			
Wet Labs (7@ 1,350ASF each)	9,450	New	
Cadaver Room	500	1,857	
Lab Support	3,000	New	
Shared Learning Labs 1@750 & 2 x 250ASF)	1,500	New	
Chemistry			
Chemistry Labs (6 @ 1,500 ASF)	9,000	1802, 1805, 1807	
Lab Support	3,000	1812, 1803	
Special Labs (small group) (1@ 750 & 3x 250 ASF)	1,500	1806, 1807	
Shared Spaces			
Classrooms (shared) (4 @ 1,000 ASF)	2,000*	1816	3,000
Computer Labs (1 @ 1,500 ASF)	1,500*	New	1,500
Study and Collaboration Spaces	1,000	New	
Faculty Spaces			
Faculty Offices (18 @ 100 ASF)	1,800	Bld 2100 partial	
Faculty Work Area	250	New	
Adjunct Faculty Work Stations(10)	400	Bld 2100 partial	
Dean Suite	1,500	New	

* Additional program area is listed in the Phase 2 project description

Conference & Meeting Rooms	500	New	500
Break/Support	500	New	
Building Summary			
Subtotal ASF	37,400		
Circulation and Support Uses (hallways, restrooms, etc.)	20,196		
TOTAL OGSF (65% Efficiency)	57,596		

Table 5.17: STEAM Sciences Building Outdoor Areas Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Demonstration Garden (Horticulture)	3000	New	
TOTAL - Outdoor Area	3000		

Table 5.18: Building 1800 Renovations Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Building 1800	10,000	Various	10,000
Total Renovations			10,000



Student Center

The new Student Center will be built within the campus core and designed to meet student's daily needs and activities. It will be designed to be the students' home-base on campus - a place to connect with friends, pursue extracurricular passions, and be active members of the Las Positas College community. Major pre-programming uses in this building includes (see **Table 5.19**):



- **Student Union:** A Student Union, event space, dedicated Food Pantry, and space for Student Government and Clubs.
- **Health Center:** A range of services, conference areas and offices to support student health services.
- **Bookstore/Copy Center:** Expanded bookstore with retail uses, offices, work room, copy center and storage.
- **Outdoor Patio:** Additional outdoor spaces linked to the Student Center (see **Table 5.20**).
- **Veterans Center:** Expanded space for Veterans uses and services.

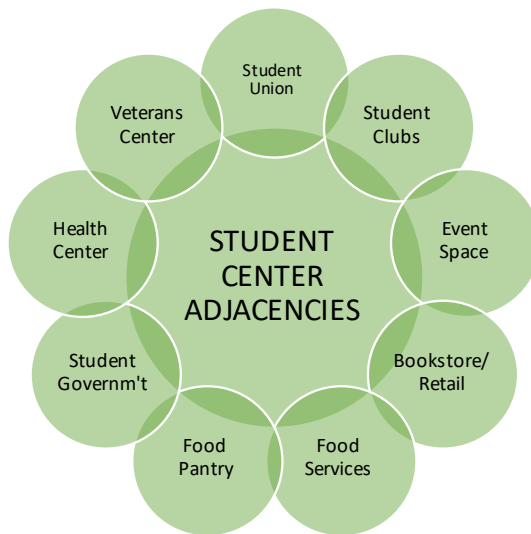


Table 5.19: Student Center Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Student Center			
Student Union/Event Space	10,000	New	
Food Services: Dining (Remains in 1600)	0	0	
Food Services: Event Servery, Storage	0	New	
Food Pantry	600	New	
Student Government	1,500	1643 Partial	
Student Clubs	1,500	1643 Partial	
Health Center			
Health Center	1,700	1705-1711	
Veterans			
Veterans Center - Open Study	1,000	1316, 1318	
Veterans Center - Conference Room	1,000	new	
Veterans Center Offices (4 @ 100 ASF + Support)	500	1311, 1314, 1315	
Veterans Center Computer Lab	500	1317	
Veterans Center Computer Lab	500	1317	
Bookstore/Copy Center			
Bookstore - Retail	2,000	1300	
Bookstore Storage	500	1301	
Bookstore Office/Work Room	300	1302, 1303	
Copy Center	1,000	1740	
Building Summary			
Subtotal ASF	22,100		
Circulation and Support Uses (hallways, restrooms, etc.)	7,293		
TOTAL OGSF (75% Efficiency)	29,393		

Table 5.20: Student Center Outdoor Spaces Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Patio	2,000	New	
TOTAL OUTDOOR AREA	2,000	-	

Table 5.21: Building 1600 Renovations Pre-Programming

Specific Uses	Total Reno.	Current Location	Exist. Sq. Ft.
Bld 1600 For Safety Office	2,500	Room 1643	2,500
Total Renovations			2,500

Auxiliary Gym

The new Auxiliary Gym will be built on a portion of the existing turf field in the northern part of the campus (within the Loop Road) after replacement fields are constructed. The new gym will be designed to accommodate a range of athletic and event uses. Major pre-programming uses in this building includes (see **Table 5.22**):

- **Three basketball practice courts**
- **Classrooms**
- **Athletics offices**
- **Storage and support uses**
- **Locker, shower and laundry facilities**

Because this building will be constructed over a portion of the existing turf field, the project also includes reconfiguring the remaining area of the turf field so that it can be used as a flexible practice and recreation field. Existing lights and fencing will remain for the portion of the turf field that remains (other lights and fencing will be removed to provide space for the Auxiliary Gym).

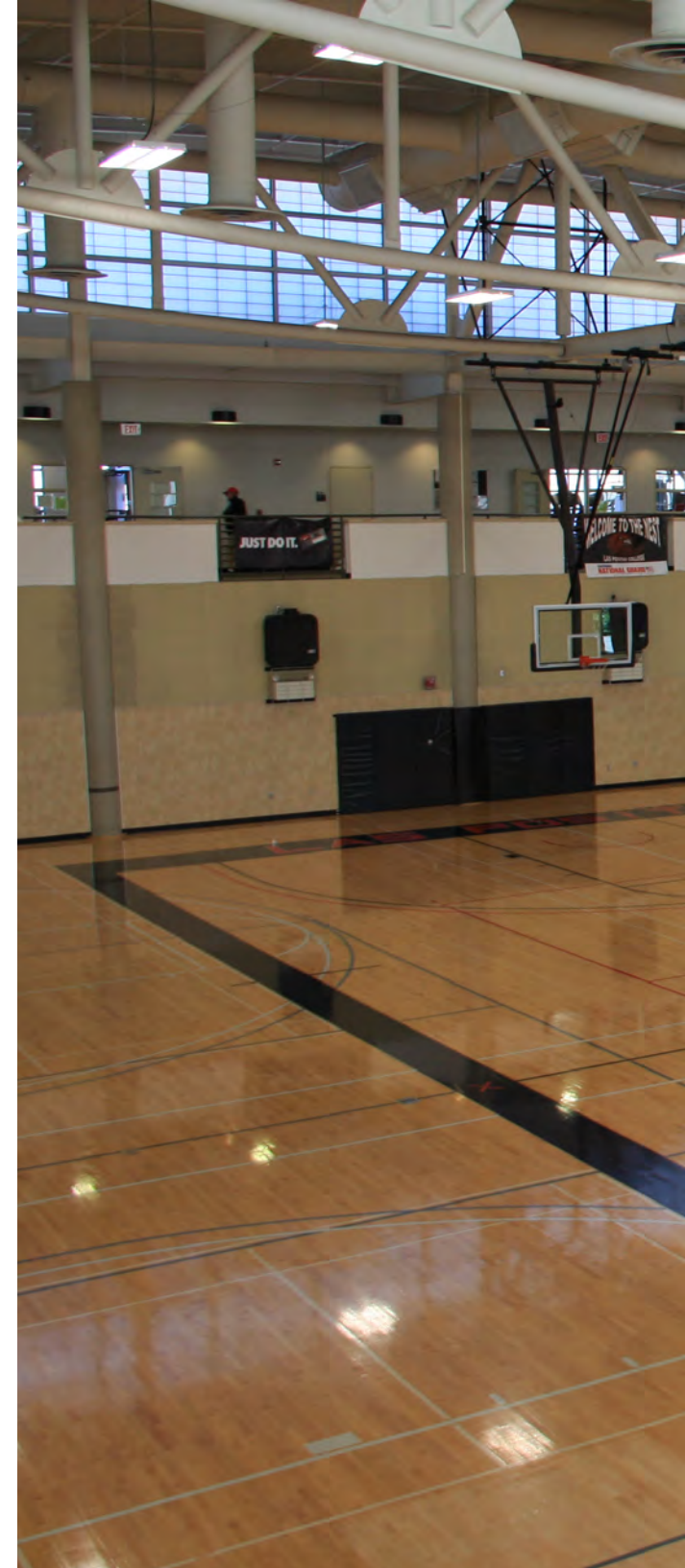
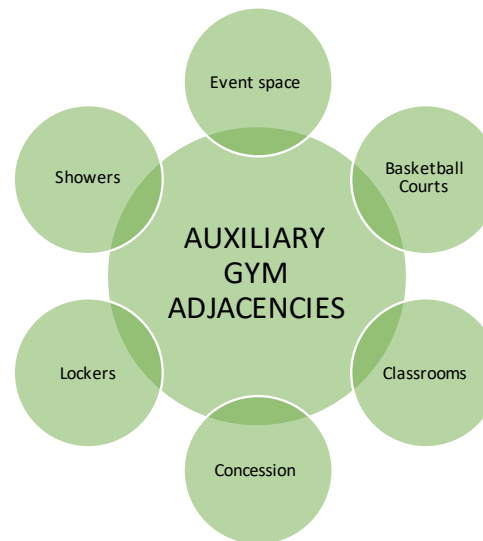




Table 5.22: Auxiliary Gym Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
Gym: 3 Practice BB Courts (2 cross-court)	15,000	New	
Offices/Support	1,000	New	
Locker/Shower/Laundry/Storage	4,000	New	
Storage	1,500	New	
Classrooms (2 @ 1,000 ASF)	2,000	New	
Building Summary			
Subtotal ASF	23,500		
Circulation and Support Uses (hallways, restrooms, etc.)	4,700		
TOTAL OGSF (80% Efficiency)	28,200		

Temporary Office Complex

As part of the overall building construction process, the College will need to locate some uses in temporary facilities as buildings are demolished and new buildings being constructed. The primary need is to temporarily house faculty offices and administrative support spaces when the current Building 2100 is demolished to make way for the new Building 2100 (see **Table 5.25**). The College will use Lot G as the location for a Temporary Office Complex that will include a series of modular buildings with full ADA accessibility, telecommunications, restrooms, infrastructure, and other features.



Table 5.25: Temporary Office Complex Pre-Programming

Specific Uses	New Sq. Ft.	Current Location	Exist. Sq. Ft.
75 Faculty Offices (5@ 2160 GSF Modular)	10,800	New	-
Deans Suite, Conference, Admin Support (1@2160 GSF modular)	2,160	New	-
Restroom Unit	600	New	-
Raised, covered walkway with ramps	3,000	New	-
Project Summary			
Subtotal ASF	16,560	-	-
Circulation and Support Uses (hallways, restroom)	-	-	-
TOTAL OGSF (100% Efficiency)	16,560	-	-



NEWLY IDENTIFIED PROJECTS

Phase 2

The projects summarized on this page represent expansions of the projects listed earlier in this chapter. The College anticipates developing these projects in response to potential programmatic needs that may arise in the future. The College does not anticipate that Measure A funding will be adequate to fund these projects, unless projects are re-prioritized following the completion of the FMP.

Table 5.26: Phase 2 Projects	
Specific Uses	New Sq. Ft.
Phase 2 Classroom Building	
Classrooms - 10 @1,000 Sq. Ft.	10,000
Computer Labs - 2 @ 1,500 Sq. Ft.	3,000
Total ASF	13,000
Phase 2 Public Safety and Advanced Technology Building	
Classrooms - 2 @1,000 Sq. Ft.	2,000
Computer Labs - 1 @ 1,500 Sq. Ft.	1,500
Specialty Auto Lab - 2 @ 1,000	2,000
Tools Area Expansion	400
Welding Inspection Room	400
CTE Tutoring Shop	1,000
Tech Support Space	400
Welding Lab Expansion	1,500
Welding Indoor Storage	1,000
Public Safety Auto Bays	3,000
Total ASF	13,200
Horticulture	
Greenhouse Expansion	1,500
Shade House Expansion	100
Sculpture/Ceramics	3,000
Total ASF	4,600
General	
Renovation of Building 1800	-
Additional Parking	-
Dark Sky Space (Planetarium)	-





COMPARABLE PROJECTS

This section provides examples of recently constructed projects in California and other states that are similar to the projects proposed at Las Positas College College in terms of their use types. The comparable projects are listed by relevant new building at Las Positas College. Each project description includes the size of the project, year of completion and cost. As at Las Positas College, each of these projects were designed to serve the particular programs, enrollment levels and populations at each institution.

ACADEMIC SUPPORT AND OFFICE

Foothills-De Anza Community College District Offices Building

Size: 24,000 Sq. ft

Year of Completion: 2018

Cost: \$21.3 Million

Description: This building includes administration, including chancellor of the college district and employees in human resources, business services, purchasing and the district's charitable foundation, a boardroom, storage for records and equipment and an employee break room.



Hudson Valley Community College Administration Building

Size: 43,000 Sq. ft

Year of Completion: 2014

Cost: \$7.4 Million

Description: The new, three-story 43,000 square foot building in the core of the college campus houses all of the administrative offices, which were previously located off campus, as well as seven classrooms.



Grossmont College Student and Administrative Services Building

Size: 83,966 Sq. ft

Year of Completion: 2011

Cost: \$38.5 Million

Description: The expansion encloses the interior courtyard and has improved access to student services including admissions and records, assessment, counseling, transfer center, international students, veterans affairs, and financial aid. The complex also houses administrative and support services offices. (Project size and costs combined with Student & Administrative Center)



PUBLIC SAFETY COMPLEX

Santa Rosa Junior College: Public Safety Complex

Size: 7,355 Sq. ft

Year of Completion: 2019

Cost: \$5.7 Million

Description: The center will be the largest provider of in-service training for law enforcement personnel north of the Golden Gate Bridge, offering administration and classroom buildings, an emergency medical care laboratory facility, an indoor firing range, a large multipurpose building, a state-of-the-art scenario training village, and a driving instruction area with skid pad.



Southwest College: School of Career & Technical Education

Size: 53,000 Sq. ft

Year of Completion: 2014

Cost: \$17.1 Million

Description: This building houses Workforce Development and Corporate Relations Offices, the Career and Workforce Center, the Environmental and Technical Science Program, the Business Department, as well as all the required faculty offices and ancillary spaces.



Allan Hancock College: Public Safety Complex

Size: 56,000 Sq. ft.

Year of Completion: 2013

Cost: \$40 Million

Description: This facility includes a fire training center, rescue training, EVOC track, shooting range, and fitness track. It is a premier training location for Fire, Law Enforcement, EMS, and Environmental Health and Safety. Parts of the complex are available to private safety contractors, the entertainment industry, advertising and marketing agencies, various clubs, and others.



ADVANCED MANUFACTURING AND TRANSPORTATION

Cerritos College: Auto Technology

Size: 10,500 Sq. ft

Year of Completion: 2017

Cost: Donated (P3)

Description: This center houses Auto Technology, Collision Repair, Mechanical Repair, Brake Lab, and an Auto Partners Building. It is State-of-the-Art and includes Advanced Transportation Technology Energy Center for alternative fuel vehicles.



AGRICULTURAL SCIENCES: HORTICULTURE

Fullerton College: Horticultural Center

Size: Expansion adds 26,900 Sq. ft., bringing total to 32,300 Sq. ft

Year of Completion: 2019

Cost: \$12 Million

Description: This center will have new greenhouses, an instructional facility with lecture space and lab space for the biotech program and kitchen facilities for the food/nutrition program.



AGRICULTURAL SCIENCES: VITICULTURE

Cal Poly: Viticulture and Winery Technology

Size: 14 Acre vineyard and 20,000 Sq. Ft Center

Year of Completion: 2019

Cost: \$8 Million for Viticulture Center

Description: This site includes vineyard, on site winery, classrooms, laboratories, cellar, and bottling area. Gray water will be harvested for irrigation, and will include solar panels, geothermal energy, and a green roof.



STEAM: ARTS AND SCIENCES

Cerritos College: Mathematics/Computer Information Science Building and Fine Arts Complex

Size: Math bldg: 33,000 Sq. ft Fine Arts: 55,000 Sq. ft

Year of Completion: 2019

Cost: Math bldg: \$22 Million Fine Arts: \$33.5 Million

Description: Both buildings include offices, classrooms, study centers, and computer labs. They also meet the California Green Building Standards Code CALGreen for energy efficiency.



Merritt College: Health and Science Bldg

Size: 110,000 Sq. ft

Year of Completion: 2015

Cost: \$59 Million

Description: This building includes rooms for science, nursing, technology, mathematics, and business technology. It has achieved LEED Gold Certification, and has a facade screen that mimics/represents DNA.



San Diego City College: Science Building

Size: 98,000 Sq. ft

Year of Completion: 2013

Cost: \$57.4 Million

Description: The building includes new classrooms, labs and state-of-the-art technology, a teaching garden, a rooftop observation deck and a planetarium for the Astronomy, Life Sciences and Physical Sciences programs.



STUDENT CENTER

University of Colorado Boulder: Center for Academic Success

Size: 114,000 Sq. ft

Year of Completion: 2018

Cost: \$10 Million

Uses: This center houses career services, advising center, tech support, classroom space, conference rooms, a 250-seat auditorium, and an underground parking garage.



Mesa College: Student Services Center

Size: 85,000 Sq. ft

Year of Completion: 2013

Cost: \$45 Million

Description: This new four story building includes facilities for student services on campus, including Admissions, Financial Aid, Evaluations and Testing, Counseling, student government, Disability Support Programs and Services (DSPS), Information and Outreach, classrooms, conference areas and a Terrace Café.



Miramar College: Cafeteria/Bookstore & Student/Campus Center

Size: 76,700 Sq. ft

Year of Completion: 2012

Cost: \$40 Million

Description: This three-story building houses a cafeteria, bookstore, multi-purpose room, convenience store, coffee shop/caf  and meeting rooms and offices. It also houses student support services such as admissions, counseling, financial aid, and student activities offices.



Measure B Projects

In addition to the new Measure A projects identified above, Las Positas College has also worked to implement an extensive amount of improvements funded through Measure B (**Table 5.25**). These projects range from building remodels to new buildings. The table provides a summary of all Measure B funded projects and their current status (as of October 2018).

#	Location	Current Status (October 2018)
1	Multi-Disciplinary Education Building	Complete
2	B2400 - Repairs	Complete
3	Child Development Center	Complete
4	College Center for the Arts	Complete
5	Science & Technology	Complete
6	PE Complex (Gym)	Complete
7	Student Services & Administration	Complete
8	Buildings - 500, 600, 700, 1700 Renovations	Complete
9	Buildings 100, 700, 900, 1300, 1700, Renovations/ Repurposing	Ongoing
10	Library, Building 2000 Remodel	Complete

Table 5.25: Measure B Projects

#	Location	Current Status (October 2018)
11	Maintenance and Operations Facility	Complete
12	Building 100A - Construction	Complete
13	New B100, Academic Building, FPP	Complete
14	Building 700 Renovation	Complete
15	Temporary Relocatable Project	Complete
16	Campus Repairs (Exterior Paint & Fencing)	Complete
17	Central Utility Plant	Ongoing
18	Districtwide Information Technology Building	Ongoing
19	LPC Program & Construction Management	Ongoing
20	Campus Entry Enhancements	Ongoing
21	Campus Boulevard Phases I-III	Ongoing
22	PE Phase III/Collier Creek (Outside Campus Loop Road)	Ongoing
23	Aquatic Center & Soccer Fields	Ongoing
24	Utilities Infrastructure Upgrade	Ongoing
25	Parking Lot H & Solar PV System	Ongoing
26	Fire Alarm / Security Upgrade	Ongoing



CHAPTER 6: PROPOSED IMPLEMENTATION PLAN

Implementation of the 2018 Facilities Master Plan requires clear vision and a logical strategy for phasing key improvements that will stimulate, frame and complement new projects. Rather than establish one preferred scenario for implementation, the implementation methods delineated in this chapter provide direction with the flexibility to adjust to unforeseen challenges and opportunities. This chapter outlines a methodology for implementation that is logical and deliberate, including criteria for prioritizing new projects and development phasing.

Note: This chapter shows draft phasing. All phasing is to be confirmed.

Note: This chapter shows draft phasing. All phasing is to be confirmed.

Plan Administration

The FMP consists of a vision for the physical development of campus, planning and design principles, and a set of design concepts that will guide future campus development. The plan considers both near term and longer term needs of the College. To this end, the plan should be continuously monitored and reviewed as it is implemented to ensure that the policies and strategies remain relevant and effective. As inconsistencies are identified, the plan may require periodic updates through amendments.

The successful execution of the vision set forth by this FMP will be achieved over time. It will require the careful shifting of existing uses, demolition of outdated facilities and construction of new buildings over a 15-year planning horizon for the plan vision to come to fruition. The priority projects funded by Measure B that are not yet complete have been included in the overall phasing structure. Subsequent projects follow the logical steps in a phasing structure designed to achieve both the near and long term goals of the campus. A primary goal in this staging and scheduling process is to minimize the number of times each use is shifted. This section illustrates how that can be achieved, noting the various steps in the process.



STEP #1: DEVELOP SWING SPACE

- Provide additional temporary swing space, in the form of six modular facilities, in Parking Lot G.
- This allows for the **removal of buildings 2100 and 2200.**
 - The uses previously located in Building 2100 will be temporarily housed in the new modular facilities.
 - The uses previously located in Building 2200 will be temporarily housed in the existing Building 100 (modular facility).

Note: This chapter shows draft phasing. All phasing is to be confirmed.



STEP #2: BUILD THE ACADEMIC SUPPORT AND OFFICE BUILDING

- A new **Academic Support and Office** building would be constructed in the location of the former 2100 and 2200 buildings, creating a nucleus of student energy about the relative center of campus.
- Remove the six, temporary modular facilities, as well as the Building 100 modular facility.
- Move all of the uses from Buildings 400 and 600 and some from 500 to the new Academic Support and Office building.
- Install new landscaping on the site

Note: This chapter shows draft phasing. All phasing is to be confirmed.



STEP #3: BUILD APPLIED TECHNOLOGIES AND PUBLIC SAFETY FACILITIES AND IMPROVE ROADWAYS

- Construct three new facilities in the upper campus; the **Advanced Manufacturing and Transportation** building, the **Public Safety Complex** building, and the **Fire Tower**, located north of the Photovoltaic Array.
- Install new landscaping surrounding the new buildings.
- Create **new roadway connections** to tie the new facilities into the existing circulation for the campus.
- **Update key intersections** at Campus Hill Drive and Collier Canyon Road.
- During this project phase, move programs from Building 800 to new campus facilities to prepare for demolition in the subsequent project phase.



STEP #4: BUILD HORTICULTURE AND VITICULTURE

- Create a new Horticulture area that includes a facility and associated outdoor fields, on the northern edge of campus, just north of the existing athletic fields.
- Expand viticulture facilities at the **Campus Hill Drive** entrance by both expanding the existing vineyard and creating a new building that includes additional facilities such as a tasting room, outdoor patio, and outdoor storage.
- Install new landscaping surrounding the new buildings.
- The remaining uses currently located in Building 800 will be transferred to new campus facilities to prepare for demolition in the subsequent project phase.

Note: This chapter shows draft phasing. All phasing is to be confirmed.



STEP #5: SWING USES AND DEMOLISH OLDER BUILDINGS

- Demolish **Building 800** once its uses have been relocated in Project phases 3 and 4.



STEP #6: BUILD THE STEAM ARTS AND STEAM SCIENCE BUILDINGS

- Construct a new **STEAM Arts and STEAM Sciences** buildings in the location of former Buildings 600 and 800.
- Begin the transfer of remaining uses from Buildings 500 and 700 once the new STEAM building has become operational.
- Install new landscaping surrounding the new buildings.
- Demolish Building 700.

Note: This chapter shows draft phasing. All phasing is to be confirmed.



STEP #7: SWING USES AND DEMOLISH OLDER BUILDINGS

- Transfer the uses from Building 1300 to Buildings 400 and 500.
- Demolish the 1300 building



STEP #8: BUILD THE STUDENT CENTER

- Construct a new **Student Center** in the location of the former 700 and 1300 buildings.
- Install new landscaping on the site

Note: This chapter shows draft phasing. All phasing is to be confirmed.



STEP #9: DEMOLISH BUILDINGS 400 AND 500

- Demolish Buildings 400 and 500 – this will be the last proposed demolition on campus
- After the **demolition of Buildings 400 and 500**, restore all existing landscape areas.



STEP #10: BUILD THE AUXILIARY GYM AND SPORTS FIELDS

- Construct a **new auxiliary gym** on the north side of the existing soccer field.
- Replace the remainder of the existing soccer field with new turf on the south side of the auxiliary gym.
- Create new athletic fields, including a bleacher-supported multi-use field and a baseball diamond, to the east of the existing athletic field.
- Install new landscaping surrounding the new facilities.



APPENDIX

APPENDIX

The Appendix to the Las Positas College Facilities Master Plan provides technical analysis that informed the planning process and will inform implementation. This includes:

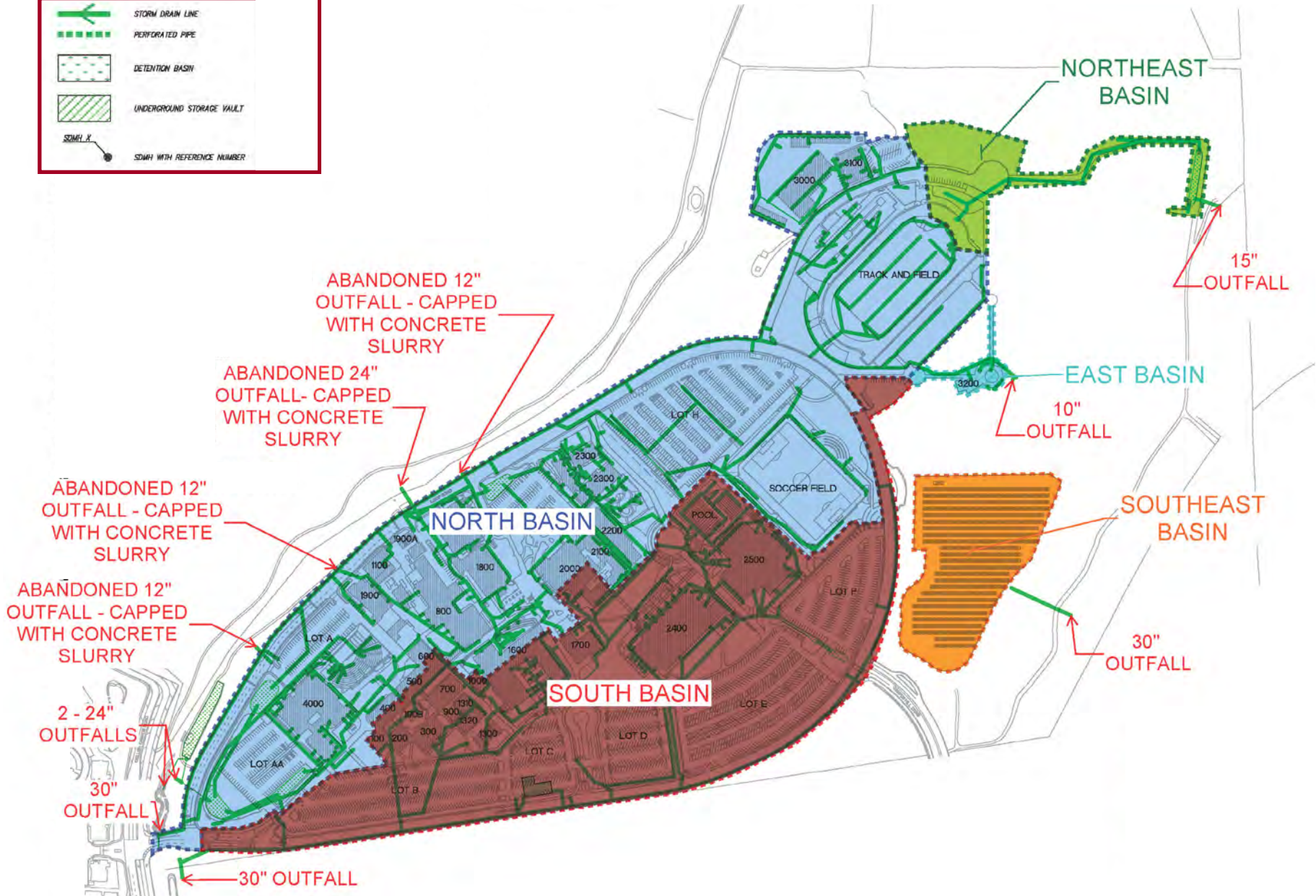
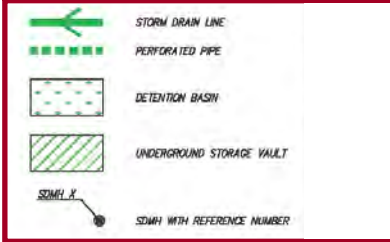
- Appendix A: Utilities
- Appendix B: Structural Engineering
- Appendix C: Landscape Planting Palette
- Appendix D: Parking Study



APPENDIX A: UTILITIES

This Appendix summarizes the anticipated utilities needs Las Positas College will encounter as part of the buildout of this master plan.

Figure 2.12: Existing Drainage Plan





Replacing older buildings with new taller buildings will expand space and improve efficiency.



Replacing older buildings with new taller buildings will expand space and improve efficiency.

ACADEMIC SUPPORT AND OFFICE UTILITIES

The following infrastructure improvements will be necessary to support this project (see **Figure 4.12**)

Sanitary Sewer

- Install sanitary sewer service line.

Stormwater

- Bioretention = 4% of impervious area
- Detention can be reduced due to existing impervious
- Demolish storm drain lines and associated area drains located in the footprint of the proposed building.

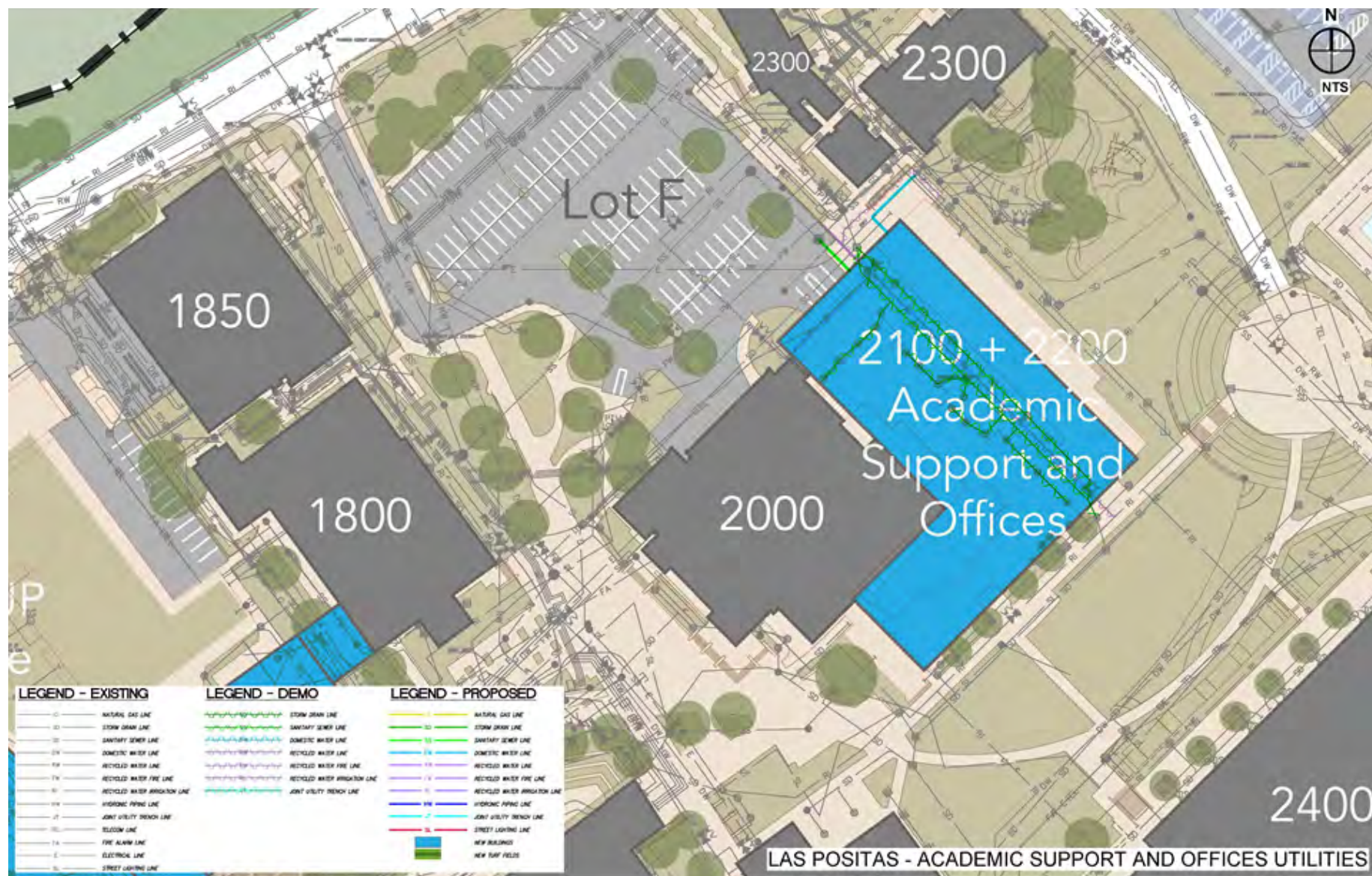
Domestic Water

- Install domestic water service line.
- Low water pressure in the upper portion of campus due to significant elevation change was identified in the existing conditions report. Test water pressure to determine if a domestic water booster pump is required.

Recycled Water Fire System

- Demolish recycled water fire service line within the footprint of the proposed building.

Figure 4.12: Academic Support and Office Utilities



ADVANCED MANUFACTURING AND TRANSPORTATION, PUBLIC SAFETY COMPLEX, AND FIRE TOWER UTILITIES

Due to extensive infrastructure improvements that would be needed to serve the northeastern portion of campus and the timing of the major projects, it is assumed that the Advanced Manufacturing and Transportation building, Public Safety Complex and Fire Tower will be developed as one project. It is also assumed that these projects will be developed prior to the Athletic Fields. The following infrastructure improvements will be necessary to support these combined projects (see **Figure 4.13**)

Roadways

- Approximately 500 linear feet of proposed access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings from Campus Loop Road to the proposed roundabout.
- Approximately 800 linear feet of proposed access road from the proposed roundabout adjacent to the Public Safety building to the existing roundabout adjacent to the proposed Horticulture Center
- Approximately 900 linear feet of proposed access road from the existing roundabout adjacent to the proposed Horticulture Center to the proposed Fire Tower.
- Approximately 1,200 linear feet of pavement restoration for the proposed upsizing of the existing domestic water main if the Advanced Manufacturing and Transportation, Public Safety, and Fire Tower buildings are built prior to the Horticulture building.

Sanitary Sewer System

- Dumping of hazardous fluids is prohibited. No storm or sanitary sewer drains should be installed in working areas.
- Automotive and welding work areas and material storage should be covered.
- Storage and reuse/pretreat vault may be required for firefighting flows.
- A pre-application process with the City of Livermore's Sewer Department is recommended.
- Install approximately 550 linear feet of 8" sanitary sewer main and four sewer manholes in proposed east/west access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings.
- Install approximately 600 linear feet of 8" sanitary sewer main and two sewer manholes in proposed north/south access road fronting the proposed football and softball fields.
- Extend approximately 1,200 linear feet of 8" sanitary sewer main and seven sewer manholes in the existing east/west access road fronting the proposed Horticulture building and continuing along the proposed access road to the Fire Tower.
- Install approximately 50 linear feet of 4" sanitary sewer service line to serve the existing Field House (Building 3200).
- Install approximately 150 linear feet of 6" sanitary sewer service line to serve the proposed Advanced Manufacturing and Transportation building.
- Install approximately 150 linear feet of 6" sanitary sewer service line to serve the proposed Public Safety building.
- Install approximately 50 linear feet of 6" sanitary sewer service line to serve the proposed football field.
- Install approximately 50 linear feet 6" sanitary sewer service line to serve the proposed softball field.
- Install approximately 20 linear feet 6" sanitary

sewer service stub to extend beyond the edge of the existing access road for the proposed Horticulture Center if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center.

Stormwater

- Stormwater runoff must be separated from firefighting flows. Divert firefighting flows to sanitary sewer.
- Bioretention = 4% of impervious area, including road.
- Detention will include road.
- Automotive and welding work areas and material storage should be covered.
- Extend storm drain main north on Campus Loop Road and east on access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings.
- Extend storm drain main to the south and west from the existing storm drain stub located southeast of existing roundabout adjacent to proposed Horticulture Center.
- Install storm drain service lines in the area of the proposed fire tower and connect to the adjacent existing storm drain manhole southwest of the Fire Tower.
- Existing infiltration basin southwest of the proposed Fire Tower should be evaluated for retrofit to manage increased stormwater runoff from the proposed fire tower access road and the proposed Fire Tower.

Domestic Water System

- There is an existing 4" domestic water main loop east of Campus Loop Road that

surrounds the existing field house and existing track field.

- Demolish the entire 4" domestic water main loop east of Campus Loop Road, approximately 2,500 linear feet, if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center. Coordinate domestic water main demolition, replacement and connection of existing domestic water services with CLPCCD. This work will also be noted under the Horticulture Center.
- Install approximately 2500 linear feet of 8" domestic water main loop east of the Campus Loop Road if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center. This work will also be noted under the Horticulture Center.
- Reconnect the existing domestic water service to the existing Field House (Building 3200).
- Reconnect two existing domestic water services to the existing track field.
- Reconnect the 1" domestic water line connection to an existing Air Release Valve.
- Reconnect the 4" domestic water service just south of the existing Maintenance & Operations building (building 3000).
- Install approximately 125 linear feet of domestic water service line to serve the proposed the Advanced Manufacturing and Transportation building. Sizing dependent on water demand for buildings.
- Install approximately 125 linear feet of domestic water service line to serve the proposed Public Safety building. Sizing dependent on water demand for buildings.
- Install approximately 60 linear feet of domestic water service line to serve the proposed football field. Sizing dependent on water demand for associated structures (bathrooms, concession stands, etc.).

- Install approximately 60 linear feet of domestic water service line to serve the proposed softball field. Sizing dependent on water demand for associated structures (bathrooms, concession stands, etc.).
- Install approximately 30 linear feet of domestic water service stub to extend beyond the edge of the existing access road for the proposed Horticulture Center if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center.
- The existing conditions report identified low water pressure in the upper portion of campus due to significant elevation change. Test water pressure to determine if a domestic water booster pump is required.

ADVANCED MANUFACTURING AND TRANSPORTATION, PUBLIC SAFETY COMPLEX, AND FIRE TOWER UTILITIES CONTINUED

Recycled Water Fire System

- Demolish approximately 300 linear feet of 8" recycled water main within footprint of the proposed Advanced Manufacturing and Transportation, and Public Safety buildings and shared plaza.
- Extend existing recycled water main approximately 275 linear feet on south side of Advanced Manufacturing and Transportation, and Public Safety buildings to provide fire connections to the proposed Advanced Manufacturing and Transportation, and Public Safety buildings.
- Install approximately 475 linear feet of 8" recycled water main from the main in Campus Loop Road east to the roundabout on the proposed access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings.
- Intercept and reconnect the existing 8" recycled water fire service for the existing Field House (building 3200) in the proposed east/west access road towards the west end of the proposed Advanced Manufacturing and Transportation building.
- Install approximately 800 linear feet of 8" recycled water main in the proposed north/south access road fronting the proposed football and softball fields.
- Install 950 linear feet of 12" recycled water main from existing main in the existing roundabout adjacent to the proposed Horticulture Center along the proposed fire access road to the proposed Fire Tower.
- Install approximately 50 linear feet of recycled water fire service to the proposed football field.

- Install approximately 50 linear feet of recycled water fire service to the proposed softball field.
- Install approximately 30 linear feet of recycled water fire service stub to extend beyond the edge of the existing access road for the proposed Horticulture Center if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center.
- Install fire hydrant at SE corner of Campus Loop Road and proposed access road. Coordinate with CLPCCD, California Fire Code and authority having jurisdictions to provide required number of fire hydrants.
- Install fire hydrant between football field and softball field off of the adjacent access road. Coordinate with CLPCCD, California Fire Code and authority having jurisdictions to provide required number of fire hydrants.
- Install fire hydrant adjacent to proposed Fire Tower. Coordinate with CLPCCD, California Fire Code and authority having jurisdictions to provide required number of fire hydrants.
- The existing recycled water pipe may be made of asbestos cement concrete.

Recycled Water Irrigation System

- Demolish approximately 600 linear feet of 8" recycled water irrigation main within footprint of the proposed Advanced Manufacturing and Transportation, and Public Safety buildings and plaza.
- Install approximately 500 linear feet of 8" recycled water irrigation main in the proposed east/west access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings and reconnect to existing 8" recycled water irrigation main in proposed roundabout.
- Intercept and reconnect the existing 8"

recycled water irrigation service for the existing Field House (building 3200) in the proposed east/west access road towards the west end of the proposed Advanced Manufacturing and Transportation building.

- Install a 40 linear feet irrigation service stub for the softball field off the existing recycled water irrigation main in the proposed north/south access road.
- Install a 40 linear feet irrigation service stub for the football field off the existing recycled water irrigation main in the proposed north/south access road.
- Install approximately 20 linear feet of recycled water irrigation service stub beyond the edge of the existing access road for the proposed Horticulture Center if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center.
- It is assumed that the proposed fire tower will not require a recycled water irrigation service connection.
- The existing recycled water pipe may be made of asbestos cement concrete.

Hydronic Heating & Cooling

- It is assumed that the proposed Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings will not utilize the campus hydronic heating and cooling system.

Joint Utility Trench

- Demolish approximately 500 linear feet of existing joint utility trench conduits/conductors within the footprint of the proposed Advanced Manufacturing and Transportation and Public Safety buildings and shared plaza.
- Install approximately 450 linear feet of proposed joint utility trench conduits/conductors from the existing joint utility pipes/cabling in Campus Loop Road east on the proposed access road fronting the proposed Advanced Manufacturing and Transportation and Public Safety buildings.
- Intercept and reconnect or reroute 4 existing joint utility trench conduits/conductors feeding adjacent existing vaults to the proposed joint utility trench conduits/conductors shown in the proposed east/west access road fronting the Advanced Manufacturing and Transportation, and Public Safety buildings.
- Install approximately 950 linear feet of proposed joint utility trench conduits/conductors from the existing joint utility trench conduits/conductors in the existing access road to the proposed Fire Tower along the proposed Fire Tower access road.
- Install approximately 150 linear feet of joint utility trench conduits/conductors from the proposed joint utility trench conduits/conductors in the proposed east/west access road to serve the proposed Advanced Manufacturing and Transportation building.
- Install approximately 150 linear feet of joint utility trench conduits/conductors from the proposed joint utility trench conduits/conductors in the proposed east/west access road to serve the proposed Public Safety building.
- Install approximately 65 linear feet of joint utility trench conduits/conductors from the existing joint utility trench conduits/conductors in the proposed north/south access road to serve the proposed football field.
- Install approximately 65 linear feet of joint utility trench conduits/conductors from the existing joint utility trench conduits/conductors in the proposed north/south access road to serve the proposed softball field.
- Install approximately 125 linear feet of joint utility trench conduits/conductors from the existing joint utility trench conduits/conductors in the existing access road to extend beyond the edge of the existing access road for the proposed Horticulture Center.
- It is assumed that the existing joint utility trench conduits/conductors provide power and communication utilities. We will address street lighting and natural gas separately from the joint utility trench because both street lighting and natural gas do not appear to be included in the joint utility trench in this area of the campus east of Campus Loop Road per the 2014 Las Positas College Utility System Map Plan Set prepared by SANDIS.
- It is assumed that the utilities in the existing joint utility trench have sufficient capacity to provide service to the proposed Advanced Manufacturing and Transportation building, Public Safety building, Fire Tower, Horticulture Center, Football field and Softball field (four buildings and two athletic fields). A review of the existing joint utility system in its entirety with CLPCCD and the utility providers is required.
- It is assumed that the capacity and infrastructure for the existing communication utilities, specifically internet, is adequate for the future needs of this campus. A review of the type and capacity of the existing communication utility system is required for the entire campus.
- It is assumed that the utilities in the existing joint utility trench will be intercepted, each with its own vault or handhole at point of interception, to provide service to the proposed facilities (four buildings and two athletic fields).
- It is assumed each service (six total) will be routed to a central location where necessary metering and equipment (e.g. electrical panel, gateways, etc.) is to be located. Metering and

equipment to be designed by others. Power and communication infrastructure after metering and equipment by others.

ADVANCED MANUFACTURING AND TRANSPORTATION, PUBLIC SAFETY COMPLEX, AND FIRE TOWER UTILITIES CONTINUED

Natural Gas System

- Install a 20 linear feet gas service stub to serve the proposed Advanced Manufacturing and Transportation building. Sizing dependent on demand from proposed building and related exterior improvements.
- Install a 20 linear feet gas service stub to serve the proposed Public Safety building. Sizing dependent on demand from proposed building and related exterior improvements.
- Install a 60 linear feet gas service stub for the softball field off the proposed gas main in the proposed north/south access road. Need and sizing of gas service is dependent on demand from proposed improvements.
- Install a 60 linear feet gas service stub for the football field off the proposed gas main in the proposed north/south access road. Need and sizing of gas service is dependent on demand from proposed improvements.
- Install approximately 100 linear feet of gas service line to beyond the edge of the existing access road for the proposed Horticulture Center if the Advanced Manufacturing and Transportation, Public Safety and Fire Tower buildings and associated access roads and pavement restoration are installed prior to the proposed Horticulture Center. Sizing dependent on demand from proposed building and related outside improvements.
- It is assumed that the existing natural gas system is not included in the joint utility trench in this area of the campus east of Campus Loop Road per the 2014 Las Positas College Utility System Map Plan Set prepared by SANDIS.
- It is assumed that the existing natural gas system has sufficient capacity to provide

service to the proposed Advanced Manufacturing and Transportation building, Public Safety building, Fire Tower, Horticulture Center, Football field and Softball field (four buildings and two athletic fields). A review of the existing natural gas system in its entirety with CLPCCD and the utility provider is required.

- It is assumed each service (six total) will be routed to a central location where necessary metering and equipment is to be located. Metering and equipment to be designed by others. Natural Gas infrastructure after metering and equipment by others.
- The pipe material used for the existing active natural gas lines on the campus is a mix of steel and plastic.

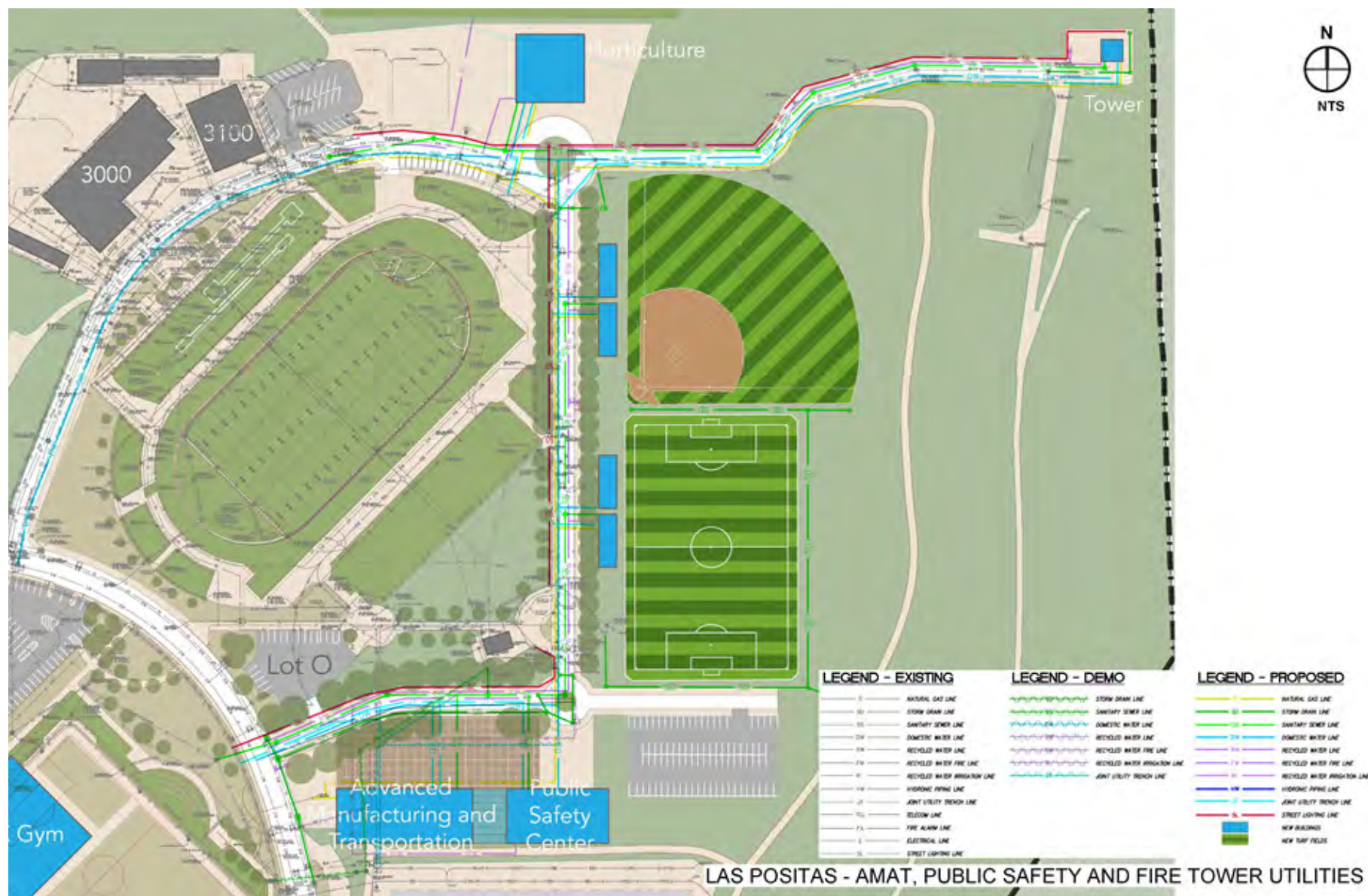
Street Lighting (roadway-scale lighting, pedestrian lighting or both)

- Install approximately 550 linear feet of proposed street lighting conduits/conductors from the existing street lighting conduits/conductors in Campus Loop Road east on the proposed access road fronting the proposed Advanced Manufacturing and Transportation, and Public Safety buildings connecting to the existing street lighting conduits/conductors adjacent to the proposed round-about.
- Install approximately 650 linear feet of proposed street lighting conduits/conductors from the existing street lighting conduits/conductors northeast of the existing Field House (building 3200) along the west side of the proposed north/south access road fronting the proposed athletic fields and connecting into the proposed street lighting conduits/conductors for the proposed fire tower.
- Install approximately 1,250 linear feet of proposed street lighting conduits/conductors from the existing street lighting conduits/conductors on the north side of the existing access road adjacent to the parking lot serving building 3100 to the proposed Fire Tower

along the proposed Fire Tower access road.

- It is assumed that the existing street lighting conduits/conductors are not included in the joint utility trench in this area of the campus east of Campus Loop Road per the 2014 Las Positas College Utility System Map Plan Set prepared by SANDIS.
- It is assumed that the existing street lighting conduits/conductors have sufficient capacity to provide street lighting along the proposed access roads fronting the proposed facilities (four buildings and two athletic fields). A review of the existing street lighting system in its entirety with CLPCCD and the utility providers is required.
- It is assumed that the existing street lighting conduits/conductors will be intercepted, each with its own vault or handhole at point of interception, to provide lighting along the proposed access road fronting the proposed facilities (four buildings and two athletic fields).

Figure 4.13: Advanced Manufacturing and Transportation, Public Safety Complex, and Fire Tower Utilities



AGRICULTURAL SCIENCES: HORTICULTURE UTILITIES

It is assumed that this project will be built after the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements projects (as noted above). The following infrastructure improvements will be necessary to support these combined projects (see **Figure 4.14**).

Sanitary Sewer System

- Connect to sewer stub installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Stormwater System

- Provide runoff collection system and swale for agricultural grounds
- Over-size water quality facilities for bulk storage area due to high TSS
- Bioretention = 570 square feet (4% of impervious area)
- Detention = 2,800 cubic feet

Domestic Water System

- Connect to domestic water stub installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Recycled Water Fire System

- Connect to recycled water fire stub installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Recycled Water Irrigation System

- Extend the recycled water irrigation stub installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project to the proposed Fields for Horticulture.

Hydronic Heating and Cooling

- It is assumed that the proposed Horticulture Center will not utilize the campus hydronic heating and cooling system.

Joint Utility Trench

- Connect to the joint utility trench conduits/ conductors installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

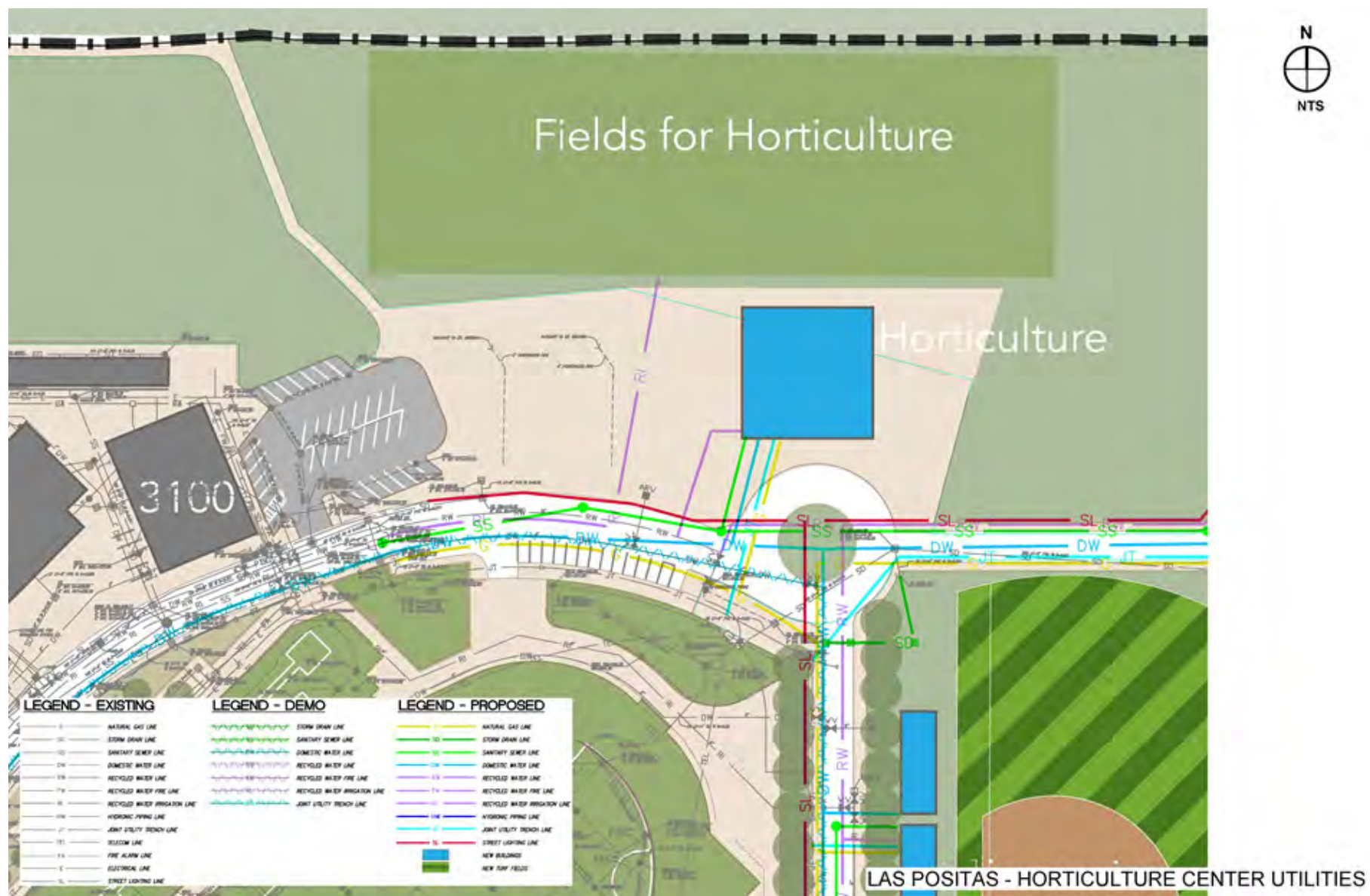
Natural Gas System

- Connect to the natural gas service stub installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Street Lighting

- It is assumed that the street lighting installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project is adequate and that no additional street lighting is required.

Figure 4.14: Agricultural Sciences - Horticulture Utilities



AGRICULTURAL SCIENCES: VITICULTURE UTILITIES

It is assumed that this project includes the Viticulture building, approximately 800 linear feet of pavement restoration in Campus Loop Road for the sewer extension, and approximately 350 linear feet of pavement restoration in Campus Hill Drive for the remaining required utility extensions. The following infrastructure improvements will be necessary to support these combined projects (see **Figure 4.15**).

Sanitary Sewer

- Extend 1,000 linear feet of 8" sanitary sewer main east on Campus Loop Road and southeast on Campus Hill Drive and install 7 manholes.
- Install 60 linear feet of sanitary sewer service line.
- Since the location of the proposed Viticulture Center is lower in elevation than most of the campus, the sewer may need to be pumped.
- Wine making may occur in this building. Effluent from winemaking typically has a low pH. Dumping of fluids <6.0 pH is prohibited. Pre-treatment may be required. A pH Neutralization Tank may be required to avoid costly damage to the sewer lines.
- Pre-app with Sewer Department is recommended.

Stormwater

- Install approximately 400 linear feet of storm drain line and 4 structures minimum from the storm drain main in Campus Loop Road southeast on Campus Hill Drive to capture

runoff from proposed impervious surfaces.

- Since the location of the proposed Viticulture Center is lower in elevation than most of the campus, the storm drain may need to be pumped to the creek.
- Bioretention = 220 square feet
- Permeable Pavement = 2,000 square feet
- Hydromodification = 1,200 cubic feet

Domestic Water

- Install approximately 300 linear feet of domestic water service line from the existing domestic water main in Campus Loop Road.
- Low water pressure in upper portion of campus due to significant elevation change was identified in the existing conditions report. Test water pressure to determine if a domestic water booster pump is required.

Recycled Water Fire System

- Install approximately 250 L linear feet F of recycled water fire service line from the existing recycled water main in Campus Loop Road.
- The existing pipe that this proposed service line is tying into may be made of asbestos cement concrete.

Recycled Water Irrigation System

- It is assumed that the established vineyard has existing irrigation.
- Install approximately 300 linear feet of recycled irrigation line from the recycled irrigation main in Campus Loop Road southeast to the proposed building on Campus Hill Drive for any proposed landscaping.
- The existing pipe that this proposed irrigation line is tying into may be made of asbestos cement concrete.

Hydronic Heating and Cooling

- It is assumed that the Viticulture Center will not utilize the campus hydronic heating and cooling system.

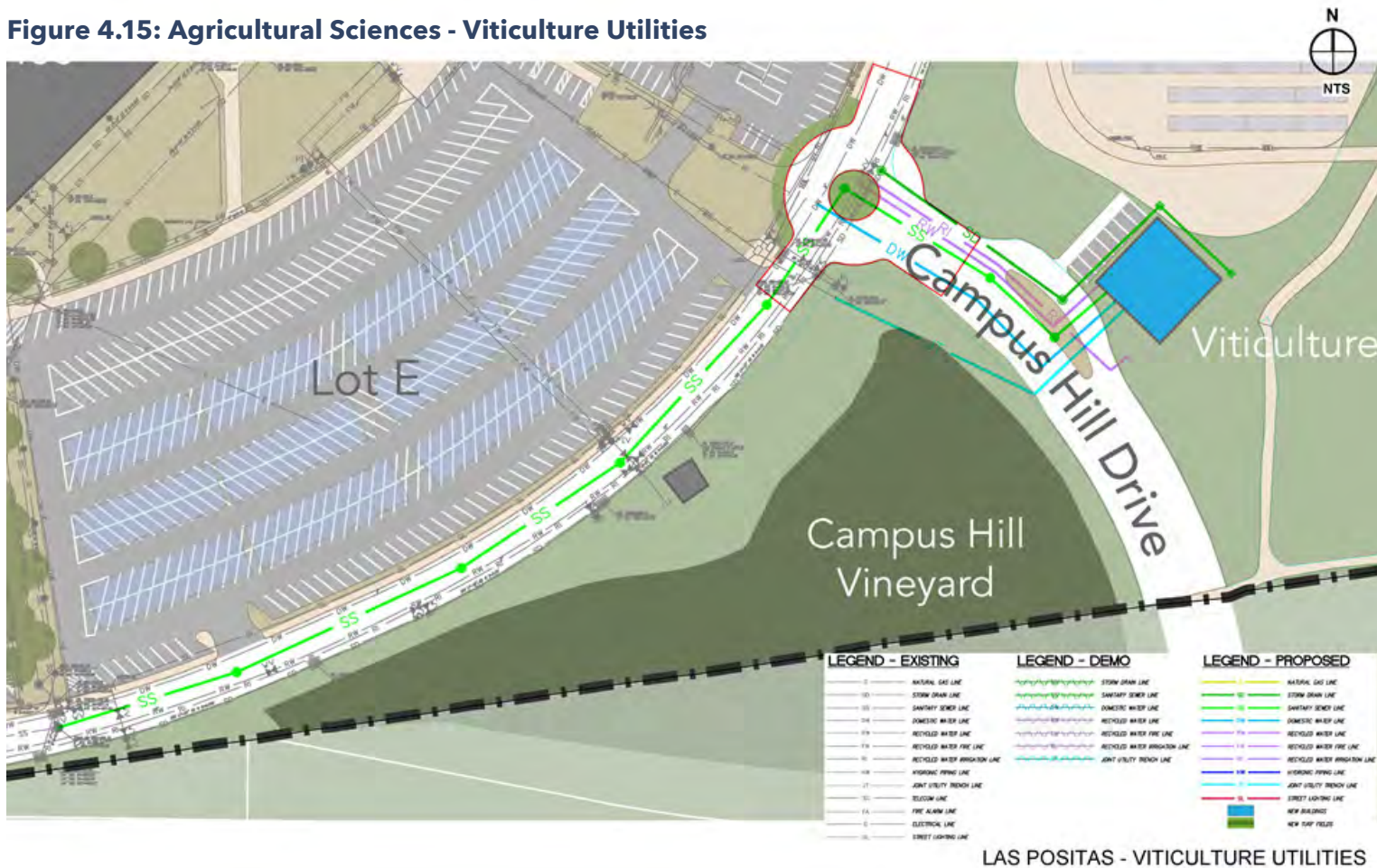
Joint Utility Trench

- Install 300 linear feet of joint utility trench conduits/conductors from the existing joint utility trench stub shown at the south corner of Campus Loop Road and Campus Hill Drive to the proposed Viticulture Center.
- It is assumed that the existing joint utility trench conduits/conductors provide power, communication and natural gas utilities. We will address street lighting separately from the joint utility trench because street lighting does not appear to be included in the joint utility trench in this area of the campus per the 2014 Las Positas College Utility System Map Plan Set prepared by SANDIS.
- It is assumed that the utilities in the existing joint utility trench have sufficient capacity to provide service to the proposed Viticulture Center. A review of the existing joint utility system in its entirety with CLPCCD and the utility providers is required.
- It is assumed that the capacity and infrastructure for the existing communication utilities, specifically internet, is adequate for the future needs of this campus. A review of the type and capacity of the existing communication utility system is required for the entire campus.
- It is assumed that the utilities in the existing joint utility trench will be intercepted, each with its own vault or handhole at point of interception, to provide service to the proposed Viticulture Center.
- It is assumed this service will be routed to a central location where necessary metering and equipment (e.g. electrical panel, gateways, etc.) is to be located. Metering and equipment to be designed by others. Power, communication and natural gas infrastructure after metering and equipment by others.

Street Lighting (Roadway-scale lighting, pedestrian lighting or both)

- It is assumed that the existing street lighting located in the median on Campus Hill Drive is adequate and that no additional lighting is required.

Figure 4.15: Agricultural Sciences - Viticulture Utilities



ATHLETIC FIELDS UTILITIES

It is assumed that this project will be built after the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project. This project includes installation of a softball field and a football field with individual utility services for each athletic field.

The following infrastructure improvements will be necessary to support these combined projects (see **Figure 4.16**).

Sanitary Sewer System

- Connect to each sewer stub (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.
- Concessions may require source controls such as grease interceptor.

Stormwater

- Turf areas with gravel reservoir do not require C3 WO or HM
- Bioretention = 1,770 square feet (4% of impervious area)

- Detention = 7,600 cubic feet

Domestic Water System

- Connect to each domestic water service stub (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Recycled Water Fire System

- Connect to each recycled water fire stub (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.
- A fire hydrant between the two fields on the east side of the proposed access road was to be installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Recycled Water Irrigation System

- Connect to each recycled water irrigation stub (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Hydronic Heating & Cooling

- It is assumed that the proposed athletic fields and associated buildings will not utilize the campus hydronic heating and cooling system.

Joint Utility Trench

- Connect to the joint utility trench conduits/ conductors (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety

Complex, Fire Tower and associated roadway improvements project.

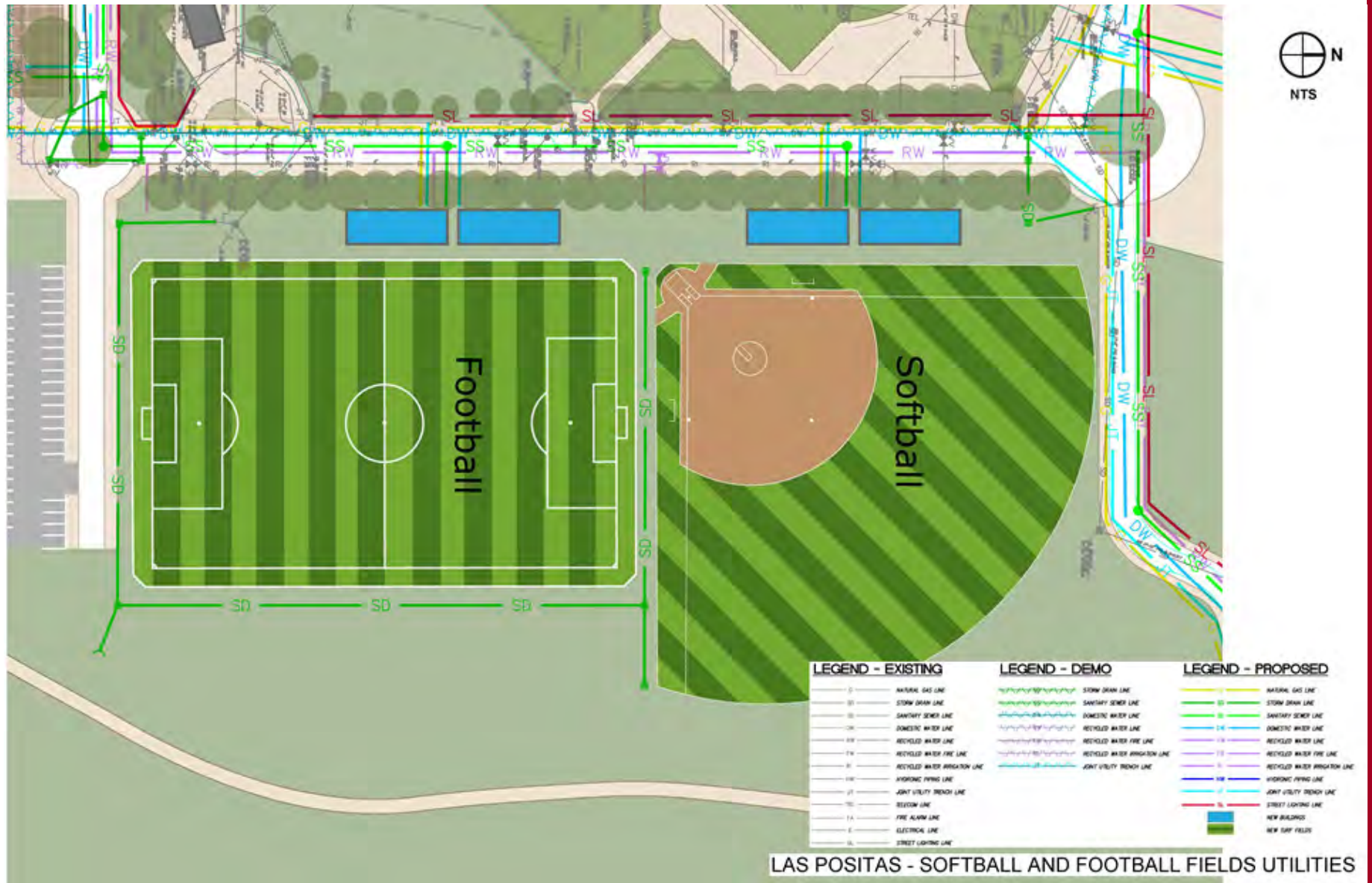
Natural Gas System

- Connect to each natural gas service stub (two total) installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project.

Street Lighting

- It is assumed that the street lighting installed under the proposed Advanced Manufacturing and Transportation building, Public Safety Complex, Fire Tower and associated roadway improvements project is adequate and that no additional street lighting is required.

Figure 4.16: Athletic Fields Utilities



TEMPORARY OFFICE COMPLEX UTILITIES

This project includes a series of portable buildings to be installed on Parking Lot G. The following infrastructure improvements will be necessary to support these combined projects (see **Figure 4.17**).

Sanitary Sewer System

- Install a proposed manhole at the existing bend with a cleanout in the existing 6" sanitary sewer line southeast of building 1900.
- Install 350 linear feet of 6" sanitary sewer service and three additional manholes extending southwest from the proposed manhole adjacent to building 1900 to the proposed portable in Parking Lot G. The sewer will need to be pumped to the proposed manhole adjacent to building 1900.

Stormwater

- Installation of portables is assumed to be non-land disturbing and therefore does not trigger C3 or HM.
- Utility trenching within existing pavement is considered repair and does not trigger C3 or HM.

Domestic Water System

- Install 25 linear feet of domestic water service line from the existing 8" domestic water main in Campus Loop Road to the proposed portable in Parking Lot G.
- Low water pressure in the upper portion of campus due to significant elevation change was identified in the existing conditions report. Test water pressure to determine if a domestic water booster pump is required.

Recycled Water Fire System

- Install approximately 50 linear feet of recycled water fire service line from the existing 12" recycled water main in Campus Loop Road to the proposed portable in Parking Lot G. Coordinate with CLPCCD, California Fire Code and authority having jurisdictions to confirm if a sprinkler system is required for a portable classroom building on a school campus.
- Install a fire hydrant between Campus Loop Road and Parking Lot G. Coordinate with CLPCCD, California Fire Code and authority having jurisdictions to provide required number of fire hydrants.
- The existing recycled water main may be made of asbestos cement concrete.

Recycled Water Irrigation System

- It is assumed irrigation is not required for this proposed facility.

Hydronic Heating and Cooling

- It is assumed that the proposed portable buildings will not utilize the campus hydronic heating and cooling system.

Joint Utility Trench

- It is assumed that the existing joint utility trench conduits/conductors provide power and communication utilities only. We will address street lighting and natural gas separately from the joint utility trench because both street lighting and natural gas do not appear to be included in the joint utility trench near Parking Lot G per the 2014 Las Positas College Utility System Map Plan Set prepared by SANDIS.
- It is assumed that the utilities in the existing joint utility trench have sufficient capacity to provide service to the proposed portable buildings in Parking Lot G. A review of the existing joint utility system in its entirety with CLPCCD and the utility providers is required.

- It is assumed that the capacity and infrastructure for the existing communication utilities, specifically internet, is adequate for the future needs of this campus. A review of the type and capacity of the existing communication utility system is required for the entire campus.
- It is assumed that the utilities in the existing joint utility trench will be intercepted, each with its own vault or handhole at point of interception, to provide service to the proposed portable buildings.
- It is assumed this service will be routed to a central location where necessary metering and equipment (e.g. electrical panel, gateways, etc.) is to be located. Metering and equipment to be designed by others. Power and communication infrastructure after metering and equipment by others.
- Install approximately 125 linear feet of joint utility trench conduits/ conductors from the existing vault adjacent to Mertes Center for the Arts (building 4000) in Parking Lot G to the proposed portable buildings.

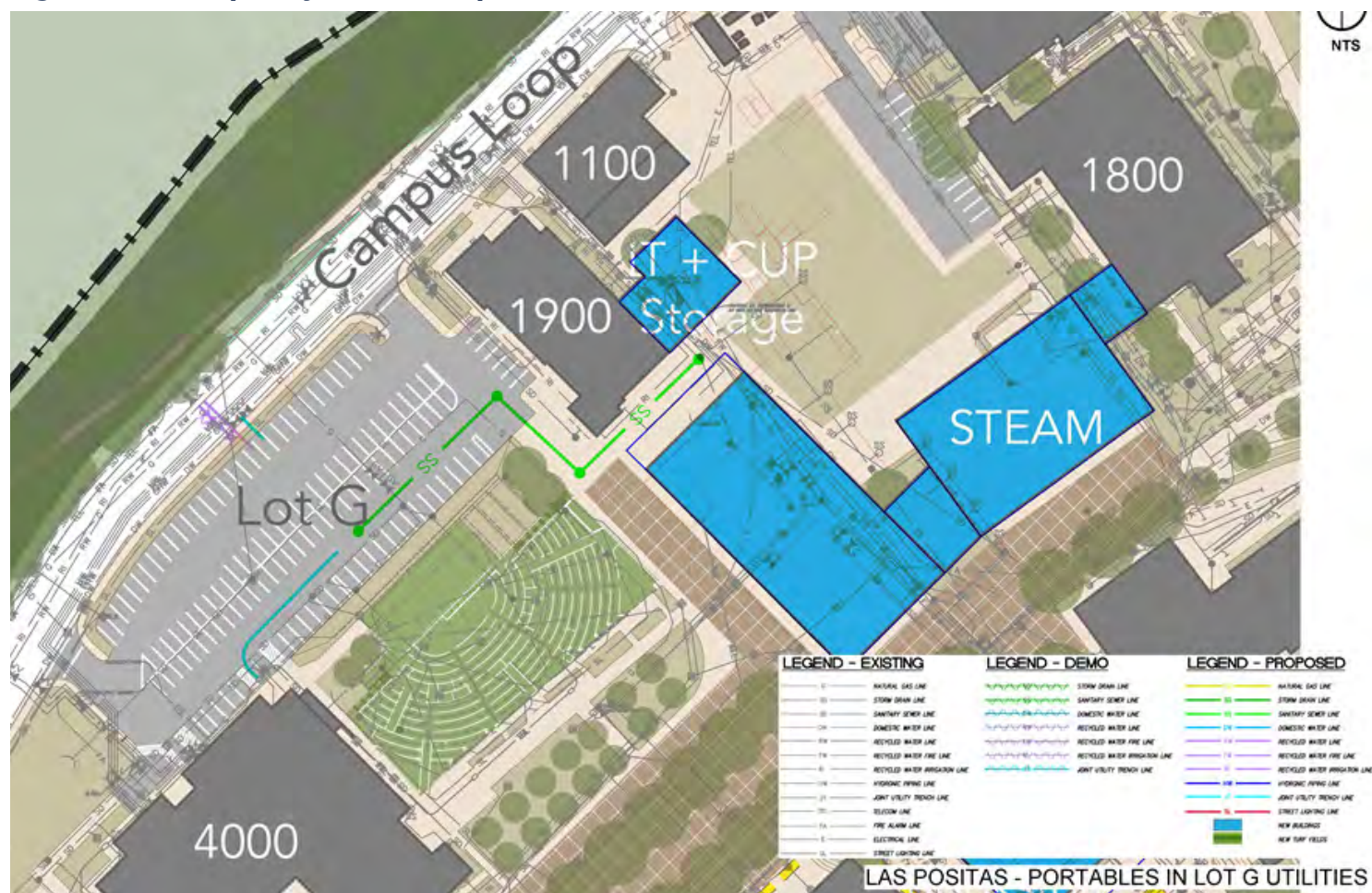
Natural Gas System

- It is assumed that the existing natural gas system has sufficient capacity to provide service to the proposed Portable buildings in Parking Lot G. A review of the existing natural gas system in its entirety with CLPCCD and the utility provider is required.
- The pipe material used for the existing active natural gas lines on the campus is a mix of steel and plastic.
- Install a proposed natural gas service line from the existing natural gas line crossing Parking Lot G to the proposed portable buildings.

Street Lighting (roadway-scale lighting, pedestrian lighting or both)

- It is assumed that adequate lighting exists in this area and no additional lighting is required.

Figure 4.17: Temporary Office Complex Utilities





APPENDIX B: STRUCTURAL ENGINEERING

This Appendix contains a summary of the structural assessment conducted on campus buildings as part of the FMP development process.

TO	Christina Paul	FROM	Steve Ratchye, S.E.
COMPANY	Cygnus Planning	DATE	November 30, 2018
RE	Structural Narrative	PROJECT NO	U17209.00
CC	PROJECT NAME CLPCCD Facilities Master Plan		

This structural survey of buildings at the Chabot Las Positas Community College District was performed as part of the Facilities Master Plan work. Thornton Tomasetti (TT) gathered and reviewed the relevant documentation available, including original and renovation structural and architectural drawings, previous building condition assessment reports and previous Facilities Master Plans for the District. TT was not asked to perform either walk-through assessments of buildings or Tier 1 assessments according to ASCE 41-13 as part of this work. The District provided drawings, assessment reports and previous FMP’s, and the Division of the State Architect (DSA) provided some drawings as well.

The spreadsheets included with this narrative record the buildings on both the Chabot College and Las Positas College campuses. They list the following information:

- Building number and name.
- Year of original construction.
- Year of renovation or retrofit.
- Comments on the renovation, clarifying whether the work included seismic retrofit. If the work did not improve the lateral structure, the box is left blank.
- Type of gravity structure.
- Type of lateral structure.
- Remarks, including plans for demolition, previous assessments, and whether a seismic assessment or a seismic retrofit is recommended.

Re: Structural Narrative
Page 2

On the Chabot College campus, most of the original buildings from the 1960's are tilt-up construction with wood frames roofs. The newer buildings are typically steel or wood-framed, or some combination of the two. Similarly at Las Positas College, the original buildings from the 1970's have concrete walls with wood roofs and the more recent buildings are steel or wood or a combination of both.

Buildings to be demolished have not been recommended for seismic assessment or retrofit under the assumption that they will be taken down soon.

Buildings to remain where a seismic retrofit is not listed as a priority fall into one of the following categories:

1. The year of original construction was recent enough to meet the Benchmark requirements according to ASCE 41-13 Section 4.3 for the type of construction.
2. A seismic retrofit has been done and the DSA-approved drawings appear to address key deficiencies.

It is assumed that buildings to be renovated will receive work on the lateral structure as required by the California Building Code (CBC) and as enforced by DSA review.

Recommendations for specific buildings follow:

1. We recommend a seismic retrofit for Building 1900 Planetarium & Lecture Halls at Chabot. It was originally built in 1965. The slab on grade in the lecture was replaced in the lecture hall in 2010, but no seismic retrofit work at that time according to the drawings. For the record, the Forell/Elsesser assessment report from 2008 did a Tier 1 assessment according to ASCE 31-03 on this building, and the report also recommended a seismic upgrade for this building.
2. We recommend a seismic Tier 1 assessment according to ASCE 41-13 for Building 1800 Science Technology Center I on the Las Positas Campus. It was built in 1997 and some renovation work was done on it in 2012. We have not received any structural drawings for this building, and the District has stated that there was no seismic work in the 2012 renovation.

Re: Structural Narrative

Page 3

3. We recommend a seismic Tier 1 assessment according to ASCE 41-13 for Building 3200 Field House on the Las Positas Campus. We have not received any drawings for this building, nor do we have information when it was constructed.

In conclusion, documentation was reviewed for 42 buildings at the Chabot College campus and 32 buildings at Las Positas College. Given the planned demolitions in the Facilities Master Plan, one building was recommended for seismic retrofit and two were recommended for seismic assessments. It is understood that many factors determine the timing of retrofits and assessments including programming, availability of funds and the condition of other aspects of buildings.

It is important to note that for buildings where a retrofit is not listed as a priority, there may be non-structural and structural damage during a major earthquake because the CBC focuses on life-safety rather than preserving buildings in perfect condition during significant seismic events. Both campuses are in seismically active areas: Chabot near the Hayward Fault, and Las Positas in proximity to the Greenville Fault.

Steve Ratchye, P.E., S.E., RA, LEED AP

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Bldg No.	Las Positas College Bldg Admin Name	Const./Retrofit	Remarks
100	Classrooms; Learning Resource Center, Secondary Effects Administration	2017	
400	English Classrooms & Lab; Language Center; English & Language Arts	1975	Current plan is to demolish.
500	Fine Arts; Math/Design	1975/1998	Current plan is to demolish.
600	Classrooms, ILC (Integrated Learning Center), Open Math Lab.	1977	Current plan is to demolish.
700	VCOM, Photography Studio, Computer Lab; Student Services	1977	Current plan is to demolish.
800	Lecture Hall, Computer Labs, Auto & Welding Labs, Smog Referee Center, Horticulture Viticulture, Garden Classroom Greenhouse; Technical Vocational Center	1978	Current plan is to demolish.
815	Auto Tech Annex	2004	Current plan is to demolish.
900	Classroom - ESL	1975/2016	Current plan is to demolish.
1100	Central Utility Plant	2010	"Drawings incomplete. Seismic assessment or retrofit is not a priority. "
1300	Bookstore; Veterans	1992/2013	Current plan is to demolish.
1310	Veterans Resource Center	1992/2013	Current plan is to demolish.
1600	Student Services & Administration Building	2013	Seismic assessment or retrofit is not a priority.
1700	Campus Safety, Student Health Center, Copy Center, Mail Room	2001	Seismic assessment or retrofit is not a priority.
1800	Science Technology Center 1	1994/2013	"Current plan is to renovate. Seismic assessment recommended."
1850	Science Technology Center 2	2013	Seismic assessment or retrofit is not a priority.
1900	Information Technology Services	2010	Seismic assessment or retrofit is not a priority.
2000	Learning Resource Center (Library)	1993/2013	"Current plan is to renovate. Seismic assessment or retrofit is not a priority because of review of the existing drawings. "
2100	Faculty Offices	1993/2016	Current plan is to demolish.
2200	Classrooms/ Modular	1005	Current plan is to demolish.
2300	Child Development Center	2010	Seismic assessment or retrofit is not a priority.
2400	Multi-Disciplinary Education Building	2007	Seismic assessment or retrofit is not a priority.
2500	Physical Education Complex (PE Complex)	2005	Seismic assessment or retrofit is not a priority.
2600	Aquatic Center	2009	Seismic assessment or retrofit is not a priority.
2700	Campus Hill Vineyard	2008	Seismic assessment or retrofit is not a priority.
2720	CARPORT A	2008	Seismic assessment or retrofit is not a priority.
2730	CARPORT B	2008	Seismic assessment or retrofit is not a priority.
2740	FUEL DEPOT	2008	Seismic assessment or retrofit is not a priority.
3000	Maintenance & Operations Building, M&O/ Shops	2009	Seismic assessment or retrofit is not a priority.
3100	Maintenance & Operations Building; Maint. Offices	2009	Seismic assessment or retrofit is not a priority.
3200	Field House	Not Specified	Seismic assessment recommended.
4000	Mertes Center for the Arts	2010	Seismic assessment or retrofit is not a priority.



APPENDIX C: LANDSCAPE PLANTING PALETTE

This Appendix includes plant selection recommendations for each open space type on the Las Positas College Campus as described in the Landscape Master Plan. These species were selected from the 2018 District Landscape Guidelines.

VEHICULAR GATEWAY

Trees

Blue Oak, *Quercus douglasii**
Chinese Pistache, *Pistacia chinensis*
Cork Oak, *Quercus suber*
Eastern Redbud, *Cercis canadensis*
Red Sunset Maple, *Acer rubrum*

Shrubs

Bird of Paradise, *Strelitza reginae*
Pacific Wax Myrtle, *Myrica californica**
Toyon, *Heteromeles arbutifolia**
Woolly Blue Curly, *Trichostema lanatum**

Perennials

Agastache, *Agastache* sp.
Coastal Bush Lupine, *Lupinus* sp.*
Red Hot Poker, *Kniphofia uvaria*
Sage, *Salvia* sp.

Groundcovers and Grasses

Artemisia, *Artemisia californica* 'Canyon Grey'*
'Canyon Prince' Wild Rye, *Leymus condensatus* 'Canyon Prince'*
Carpet Rose, *Rosa* sp.
Creeping Red Fescue/No Mow Fescue, *Festuca rubra**
Dwarf Rosemary, *Rosmarinus officinalis* 'Prostratus'
Feather Reed Grass, *Calamagrostis x acutiflora* 'Karl Foerster'
Lavender Cotton, *Santolina chamaecyparissus*

**denotes a California native species*

Note: The Vehicular Gateway landscape type can be supplemented with other plants listed in the *2018 Las Positas College Design Guidelines*.



Cork Oak



Red Maple



Blue Oak



Chinese Pistache



Crape Myrtle



Cercis canadensis



Pacific Wax Myrtle



Toyon



Woolly Blue Curly



Lavender Cotton



Carpet Rose



Red Hot Poker

PEDESTRIAN GATEWAY

Trees

Blue Oak, *Quercus douglasii**
California Buckeye, *Aesculus californica**
Fruitless Olive, *Olea europaea* 'Swan Hill' or 'Majestic Beauty'
Marina Strawberry Tree, *Arbutus* 'Marina'
Red Maple, *Acer rubrum*

Shrubs and Perennials

Bush Germander, *Teucrium fruticans*
Coffeeberry, *Rhamnus californica**
Hibiscus species, *Hibiscus* sp.
Lavender, *Lavandula* sp.
Pacific Wax Myrtle, *Myrica californica**
Rosa species, *Rosa* sp.

Groundcovers, Grasses, and Succulents

Adam's Needle, *Agave filamentosa*
Fortnight Lily, *Dietes iridioides*
Deer Grass, *Muhlenbergia rigens**
Dwarf Rosemary, *Rosmarinus officinalis* 'Prostratus'
Tufted Hairgrass, *Deschampsia cespitosa* 'Northern Lights'*

**denotes a California native species*

Note: The Pedestrian Gateway landscape type can be supplemented with plants listed in the *2018 Las Positas College Design Guidelines*.



Blue Oak



Red Maple



Marina Strawberry Tree



Fruitless Olive



California Buckeye



Coffeeberry



Rose



Bush Germander



Adam's Needle



Dwarf Rosemary



Hibiscus



Tufted Hairgrass

PASSAGES

Trees and Palms

Akebono Cherry, *Prunus yedoensis* 'Akebono'
California Fan Palm, *Washingtonia filifera**
Chinese Pistache, *Pistacia chinensis*
Fruitless Olive, *Olea europaea* 'Swan Hill' or 'Majestic Beauty'
Marina Strawberry Tree, *Arbutus* 'Marina'

Shrubs

Bush anemone, *Carpenteria californica* 'Elizabeth'*
Fragrant Sweet Box, *Sarcococca rustifolia*
Japanese Aralia, *Fatsia japonica*
Pacific Wax Myrtle, *Myrica californica**
Western Redbud, *Cercis occidentalis**

Perennials

Agastache, *Agastache*
California Fuschia, *Epilobium septentrionale**
Day Lily, *Hemerocallis* sp.
Fleabane, *Erigeron glaucus**
Lantana, *Lantana camara*

Groundcovers, Vines, and Grasses

Bougainvillea, *Bougainvillea* sp.
Creeping Red Fescue/No Mow Fescue, *Festuca rubra**
Deer Grass, *Muhlenbergia rigens**
Feather Reed Grass, *Calamagrostis acutiflora* 'Karl Foerster'
Silver Carpet, *Dymondia margaretae*
Tufted Hairgrass, *Deschampsia cespitosa* 'Northern Lights'*

*denotes a California native species

Note: The Passages landscape type can be supplemented with plants listed in the *2018 Las Positas College Design Guidelines*.



Fruitless Olive



Akebono Cherry



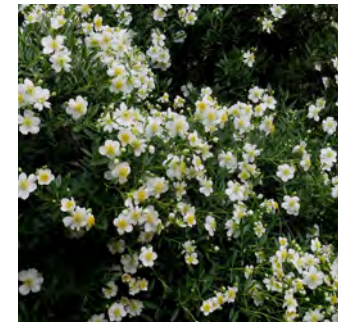
California Fan Palm



Marina Strawberry Tree



Japanese Aralia



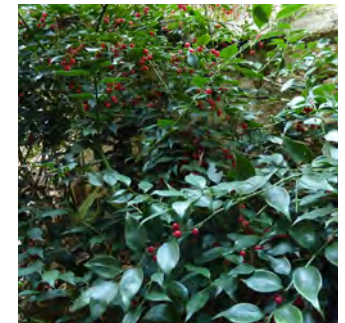
Bush Anemone



Western Redbud



Pacific Wax Myrtle



Fragrant Sweet Box



Agastache



Tufted Hairgrass



Bougainvillea

CAMPUS SPINE

Trees

Chitalpa Tree, *Chitalpa tashkentensis*
Cork Oak, *Quercus suber*
Date Palm, *Phoenix dactylifera*
Strawberry Tree, *Arbutus unedo*
Red Maple, *Acer rubrum*
Silk Tree, *Albizia julibrissin*



Cork Oak



Silk Tree



Chitalpa Tree

Shrubs

Bird of Paradise, *Strelizia reginae*
Coast Rosemary, *Westringia fruticosa*
Rose species, *Rosa* sp.
Sage, *Salvia* sp.
Shiny Xylosma, *Xylosma congestum*



Hybrid Tea Rose



Red Maple



Strawberry Tree

Perennials

California Fuschia, *Epilobium septentrionale**
Santa Barbara Daisy, *Erigeron karvinskianus**
Penstemon heterophyllus, Foothill Penstemon*



Shiny Xylosma



California Fuschia



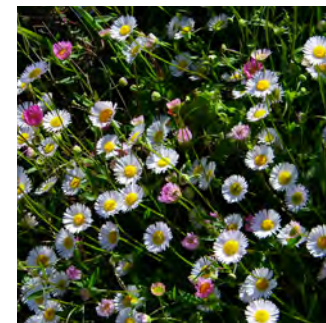
Salvia

Groundcovers, Grasses, and Vines

Creeping Red Fescue/No Mow Fescue, *Festuca rubra**
Feather Reed Grass, *Calamagrostis acutiflora* 'Karl Foerster'
'Irene' Rosemary, *Rosmarinus 'Irene'*
Lomandra/Dwarf Mat Rush, *Lomandra longifolia* 'Breeze'
Verde Vista Coprosma, *Coprosma pumilia* 'Verde Vista'
Turf



Red Yucca



Santa Barbara Daisy



Creeping Red Fescue/No Mow Fescue

**denotes a California native species*

Note: The Campus Spine landscape type can be supplemented with plants listed in the *2018 Las Positas College Design Guidelines*.

BUILDING ENTRIES

Trees and Palms

Akebono Cherry, *Prunus yedoensis* 'Akebono'
Arizona Cypress, *Cupressus glabra*
Eastern Redbud, *Cercis canadensis*
Fruitless Olive, *Olea europaea* 'Swan Hill' or 'Majestic Beauty'
Mediterranean Fan Palm, *Chamaerops humilis*
Natchez Crape Myrtle, *Laegerstroemia* 'Natchez'
Sago Palm, *Cycas revoluta*

Shrubs and Perennials

Bird of Paradise, *Strelitza reginae*
Bush Germander, *Teucrium fruticans*
Hibiscus, *Hibiscus* sp.
Natal Lily, *Clivia miniata*
Red Hot Poker, *Kniphofia uvaria*
Sage, *Salvia* sp.
Shiny xylosma, *Xylosma congestum*
Sierra Apricot Esperanza, *Tecoma hybrid* 'Sierra Apricot'
Tree Philodendron, *Philodendron selloum*

Groundcovers

Creeping Red Fescue/No Mow Fescue, *Festuca rubra**
Dwarf Rosemary, *Rosmarinus officinalis* 'Prostratus'
Peruvian verbena, *Verbena peruviana*
Purple Leaf Winter Creeper, *Euonymus fortunei* 'Colorata'
Variegated Coprosma, *Coprosma kirkii* 'Variegata'

**denotes a California native species*

Note: The Building Entries landscape type can be supplemented with plants listed in the *2018 Las Positas College Design Guidelines*.



Arizona Cypress



Eastern Redbud



Mediterranean Fan Palm



Fruitless Olive



Akebono Cherry



Crape Myrtle



Bird of Paradise



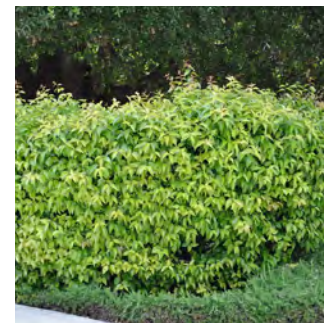
Sago Palm



Natal Lily



Sierra Apricot Esperanza



Shiny Xylosma



Variegated Coprosma

PARKING

Trees

Chinese Pistache, *Pistacia chinensis*
Fern Pine, *Podocarpus gracilior*
Fruitless Olive, *Olea europaea* 'Swan Hill' or 'Majestic Beauty'
Red Maple, *Acer rubrum*
Valley Oak, *Quercus lobata**

Shrubs

Bush Germander, *Teucrium fruticans*
Coast Rosemary, *Westringia fruticosa*
Coffeeberry, *Rhamnus californica**
Red Japanese Barberry, *Berberis 'Atropurpurea'*
Toyon, *Heteromeles arbutifolia**

Perennials

Day Lily, *Hemerocallis* sp.
Salvia, *Salvia* sp.

Groundcovers, Grasses, and Succulents

Adam's Needle, *Yucca filamentosa*
Carpet Rose, *Rosa* sp.
Desert Spoon, *Dasyliirion wheeleri*
Dwarf Rosemary, *Rosmarinus officinalis 'Prostratus'*
Star Jasmine, *Trachelospermum jasminoides*
Tufted Hairgrass, *Deschampsia cespitosa 'Northern Lights'**
Verde Vista Coprosma, *Coprosma petriei 'Verde Vista'*

Bioswale Plants

California Gray Rush, *Juncus patens**
Feather Reed Grass, *Calamagrostis acutiflora 'Karl Foerster'*
Golden Sedge, *Carex elata*
Mendocino Reed Grass, *Calamagrostis foliosa**
Santa Barbara Sedge, *Carex barbarae**
Sticky Monkey Flower, *Mimulus aurantiacus**
Yarrow, *Achillea millefolium**

**denotes a California native species*

Note: The Parking landscape type can be supplemented with plants listed in the *2018 Las Positas College Design Guidelines*.



Fruitless Olive



Valley Oak



Red Maple



Blonde Ambition Blue Grama



Desert Spoon



Coast Rosemary



Yarrow



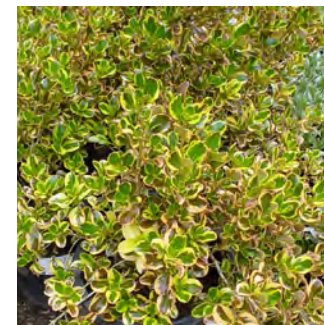
Feather Reed Grass



Salvia



Sticky Monkey Flower



Rain Baffle



California Gray Rush

NATIVE CALIFORNIA LANDSCAPE

Trees

Blue Oak, *Quercus douglasii**
California Buckeye, *Aesculus californica**
Catalina Cherry, *Prunus ilicifolia lyonii**
Interior Live Oak, *Quercus wislizenii*
Valley Oak, *Quercus lobata**

Shrubs

Artemisia, *Artemisia californica* 'Montara'*
Coffeeberry, *Rhamnus californica**
Fremont Silk Tassel, *Garrya fremontii**
Lemonade Berry, *Rhus integrifolia**
Pacific Wax Myrtle, *Myrica californica**
Sugar Bush, *Rhus ovata**
Western Redbud, *Cercis occidentalis**
Wild Mock Orange, *Philadelphus lewisii**

Perennials

Coastal Bush Lupine, *Lupinus sp.**
Fleabane, *Erigeron Glaucus**
Foothill Penstemon, *Penstemon heterophyllus**
Sea Lavendar, *Limonium perezii**

Groundcovers, Grasses, and Vines

Artemisia, *Artemisia californica* 'Canyon Grey'*
Deer Grass, *Muhlenbergia rigens**
Lavender Cotton, *Santolina chamaecyparissus**
No-Mow Fescue, *Festuca Rubra**
Outback Sunrise, *Eremophila Glabra**
Tufted Hairgrass, *Deschampsia cespitosa* 'Northern Lights'*

**denotes a California native species*

Note: The Native California Landscape type can be supplemented with drought-adapted ornamental (non-invasive) plants listed in the *2018 Las Positas College Design Guidelines*.



California Buckeye



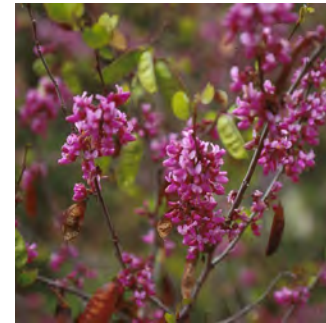
Catalina Cherry



Valley Oak



Interior Live Oak



Western Redbud



Fremont Silk Tassel



Sugar Bush



Pacific Wax Myrtle



Wild Mock Orange



Deer Grass



Artemisia



Fleabane



APPENDIX D: PARKING STUDY

This Appendix includes the parking utilization and demand study completed by Fehr + Peers in November, 2018.



MEMORANDUM

Date: December 18, 2018

To: Christina Paul, Cygnus Consulting

From: Bill Burton, Fehr & Peers

Subject: Chabot and Las Positas Colleges – Future Parking Demand

OK18-0244

This memorandum has been prepared to document our estimates of future parking demand at Chabot and Las Positas Community Colleges. This study was conducted in response to community concern that there is insufficient parking at Chabot and Las Positas Colleges. Many community members have reported difficulty in finding parking, particularly during the first three weeks of each semester. The following counts and estimates were developed using current best practices for parking management and do not show a deficit in overall parking supply, however the Colleges may elect to conduct further detailed study in response to community concern.

The following estimates consider anticipated changes in student enrollment, potential shifts in student schedules and on-going changes in the way people travel.

Existing Parking Demand

Peak parking demand at the two campuses were established through counts of parking occupancy during the spring of 2018. Observations of peak weekday parking occupancies were conducted by both Fehr & Peers and College staff during midweek periods during the first several weeks of school when parking demand normally peaks. Those observations identified the following peak parking demands during the spring 2018 semester:

- Chabot College = 2,044
- Las Positas College = 2,016

As would be expected, the occupancies of individual parking lots on the campuses varied, with lots close to main activity centers being more occupied than further outlying lots. At Chabot, Lots G and A were found to have extremely high occupancies, with Lot J being very lightly used. At Las Positas, Lots C, D, E and G

not have been able to find a parking space as proximate to their destination as desired, a sufficient amount of parking is provided to meet the overall peak parking demand at both facilities.

Factors Influencing Parking Demand

As previously mentioned, the calculations of future parking demand at both campuses' accounts for the following three factors:

- Changes in student enrollment – the District has indicated that enrollment at Chabot will increase by 0.5% per year and enrollment at Las Positas will increase by 1.0% per year (both estimates non-compounded).
- Student schedule shifts – the District has indicated that future increases in enrollment will be accompanied by a greater number of students taking classes in the evening rather than during the day. As parking demand at the campuses peaks during the midday period, shifts such as this will result in future students having a lower impact on peak parking demands than existing students. Precise statistics relative to the magnitude of this shift were not available, thus, a low estimate has been incorporated in this work.
- Future travel and parking trends – local and national trends in automobile ownership and usage have been materially shifting in recent years. These trends are forecast to continue, and potentially accelerate, in the future. This analysis incorporates recent data and research on the industry trends in this area.

Future Travel and Parking Trends

There are a number of methods the District could employ to decrease parking demands at the campuses, including increases in transit service, implementation of a rigorous Transportation Demand Management Program or changes in parking pricing policies. This analysis does not review the potential changes in demand that could be brought about by such methods, but focuses on on-going externalities in mobility that will influence the need for parking at the sites. Specifically, the influences of Autonomous Vehicles (AVs) and Transportation Network Companies (TNCs – i.e. Uber and Lyft).

Autonomous Vehicles

AVs are poised to disrupt the transportation landscape in coming years. While not yet prevalent in the transportation market, the technology is quickly becoming more advanced as automobile manufacturers and technology companies push technology innovation forward, and test AVs on public roads across the US.

AV adoption and the introduction of an AV fleet has garnered much discussion and controversy among transportation professionals. The expected timelines for AV technology development, market adoption,

and the legal and policy landscapes remain uncertain. For example, General Motors recently announced that their AVs will “hit the roads” by 2019, while those who are skeptical estimate that it could take decades until we see significant AV use. Further speculation relates to expected AV ownership models - that is, whether people are likely to own AVs or whether they will instead make demand-based decisions and use AVs owned by Transportation Network Companies (TNC's) like Lyft and Uber, or by mobility providers such as Zipcar. This decision will have a direct impact on future travel behavior and infrastructure requirements.

Lawmakers have recently been charged with ensuring appropriate rules and regulations are developed to ensure safety and equity in the transportation system as AVs begin to proliferate.

Federal Level AV Regulations

The US Department of Transportation (US DOT) first issued a policy for AVs in September 2016.¹ The policy included a voluntary 15-point Safety Assessment for manufacturers to self-certify their vehicles and provided guidance on Federal and State roles for regulation. It provided a model state policy and identified new regulatory tools for policymakers to consider. US DOT recently updated those guidelines to be more streamlined in September 2017, but they are still voluntary.² US DOT plans to release another update in the near future.

In July 2017, the US House of Representatives introduced a bill (H.R. 3388) entitled the SELF DRIVE Act.³ The purpose of the bill is to make the current Federal guidelines more binding, and place the responsibility to regulate the design, testing, and operation of AVs with the Federal government. This bill passed the House in September 2017 and the Senate is currently considering a similar bill, the AV START Act. If passed, a consolidated Act would go to the President for signature.

¹ USDOT (2017). “USDOT Automated Vehicles Activities.” Accessed at <https://www.transportation.gov/AV>
² USDOT NHTSA (2017). [Automated Driving Systems 2.0: A Vision For Safety](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf). Accessed at https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf

³ H.R. 3388: SELF DRIVE Act (2017).. Accessed at <https://www.govtrack.us/congress/bills/115/hr3388/text>

State Level AV Regulations

California (CA) first enacted regulations for AV testing through the Department of Motor Vehicles (DMV) in September 2014, and recently released revised regulations for both AV testing and deployment in October 2017.⁴ The 2017 regulations require companies to meet strict requirements, including the federal safety standards, and to report any collisions or disengagements (i.e. an unexpected event that requires a licensed operator to take control of an AV). As a notable change from the 2014 regulations, it is no longer a requirement to have driver behind the wheel during testing. Currently, more than 40 companies hold permits to test AVs in CA.

The State of California released draft AV deployment regulations in 2015, which were updated in October 2017. The current regulations allow vehicles to operate without a driver on-board, provided the manufacturer submits several certifications and the vehicle meets all Federal Motor Vehicle Safety Standards (FMVSS). The 2017 regulations identify requirements for manufacturers to sell vehicles outside of a testing program and address other key topics such as driver licensing and responsibility, vehicle registration, and advertising. It is unclear whether the introduction of a Federal AV law (based on the SELF DRIVE and AV START acts) will alter the direction of the state's DMV regulations.

Shared Auto Travel/Transportation Network Companies

To the extent that AVs might reduce the cost and increase the availability of shared autos, AVs will increase the extent to which cars or rides are shared. A recent study from University of California, Davis (UC Davis) recommends encouraging shared fleets of autonomous vehicles over private AV ownership, which would result in greater societal benefits, to the degree that shared vehicle usage helps mitigate increased vehicle travel and VMT associated with AVs. Electrification of these vehicles would also reduce environmental impacts of AV use.

Current TNC services such as Lyft and Uber can provide insights on future shared AV use. These services, also known as ridesourcing or ridehailing, provide prearranged, on-demand transportation services using smartphone applications and electronic payment, and have expanded rapidly across the US and the globe over the past 5 years. More recently, TNC services have included ride-splitting services (i.e. uberPOOL, Lyft Line), which enable riders to share a ride and split the costs of a fare by carpooling with other passengers traveling along similar routes. Ride-splitting services can facilitate more carpooling, higher vehicle occupancies, and reduced travel costs, and are well suited to provide first-mile and last-mile connectivity to public transit.

⁴ California DMV (2017). "Testing of Autonomous Vehicles." Accessed at <https://www.dmv.ca.gov/portal/dmv/detail/vr/autonomous/testing>

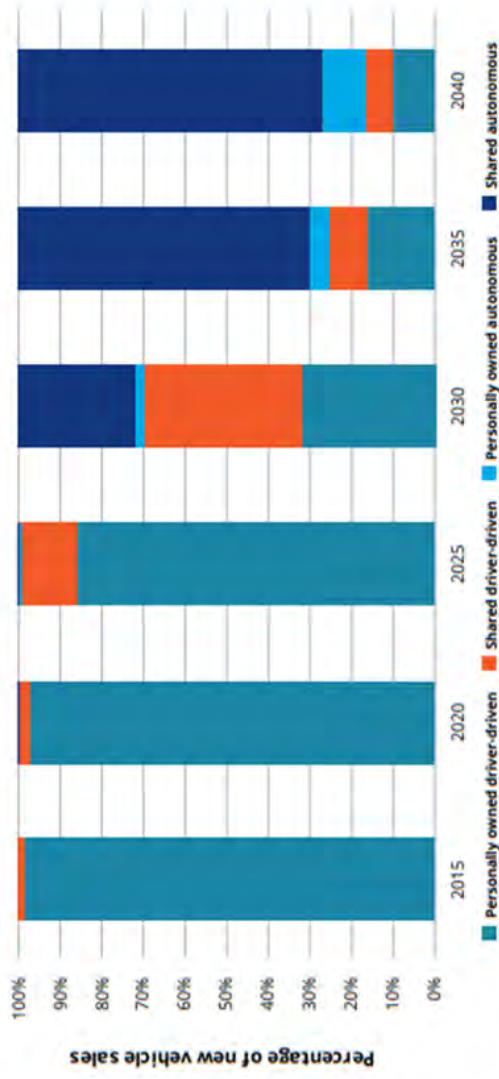
TNCs are currently investing significantly in AV technology, and plan to transition their fleets to AVs over the long term. Existing TNC services provide a model for how autonomous shared, taxi fleets may operate in the future, and how they may affect travel behavior. For example, a small number of studies have explored TNC effects on travel behavior. Studies in San Francisco and Denver have shown that about one third to one half of TNC ridership comes from trips that would have otherwise been made using public transit, walking, and biking. Furthermore, about 10 percent of TNC trips represent induced vehicle trips (i.e. trips that would not have occurred otherwise). Therefore, the potential for TNCs – and for AVs, in the future – to encourage more vehicle trips and increased VMT, while reducing transit, walking, and biking trips is high. These early studies have also indicated a shift, between 7 and 31 percent in San Francisco and Denver, respectively, from private vehicle to TNC use.

Effects of AVs and TNCs on Travel and Parking Behaviors

Privately owned AVs are anticipated to increase auto demand by removing the need for a driver to operate the vehicle. This allows the driver to do other limited activities and for the vehicle to be used for trips where the passenger is not able to drive a traditional vehicle (i.e., children, disabled, etc.). It is also anticipated that parking demand for short duration activities (i.e., short office visits, dining, etc.) and overnight parking will remain the same while longer activities (i.e., typical work day or school) may be reduced by allowing the vehicle to drop off the passenger in the morning, pick up the passenger at night, and make other household-related trips during the day. When parking, the area used by AVs is anticipated to be lower than traditional vehicles when used in a valet style parking process.

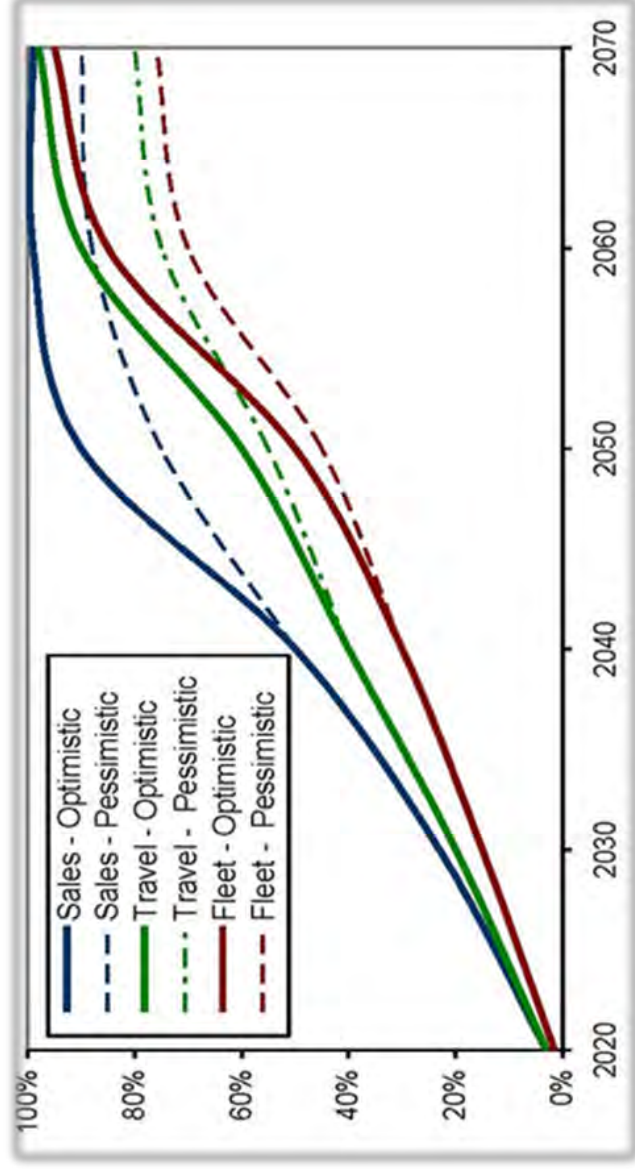
TNCs (in traditional vehicles) and shared AVs are anticipated to increase auto demand by removing the need for a driver operating the vehicle, similar to privately owned AVs. Unlike privately owned AVs, TNCs and shared AVs are anticipated to reduce parking demand since a passenger will be picked up/dropped off without a need to park off-street, but this will increase the curb space demand associated with loading and unloading passengers. When parking, the area used by TNCs will be similar to traditional vehicles and AVs are anticipated to be lower than traditional vehicles when used in a valet style parking process. Based on data collected in San Francisco there is an average 15% TNC mode share in the city, which has risen in recent years. **Figure 1** presents the range of predicted autonomous vehicle adoption rates and the percentage of shared and owned vehicles (*Future of Mobility*, Deloitte, 2016).

Figure 1: Forecasted Private and Shared AV Percentages



Source: Deloitte analysis based on publicly available information. See appendix for data sources.

Graphic: Deloitte University Press | DUPress.com



As illustrated in Figure 1, the exact extent and timing of society's shift towards AVs and increased use of TNCs is currently unknown. However, there is general industry consensus that the shift towards increased usage of TNCs will continue and that AVs will soon begin to penetrate and change the mobility marketplace. Jurisdictions, companies, and transportation agencies are beginning to embrace this reality and incorporate these factors into their future planning.

Table 1 provides a summary of the potential changes in market penetration of private AV and shared TNC/AVs based on currently available research. Given the level of uncertainty, “low,” “medium” and “high” ranges are provided. Estimates for horizon years of 2023, 2028 and 2032 (5-year increments) are summarized.

TABLE 1: AVERAGE MARKET PENETRATION PREDICTIONS		
Scenario	Private AV	TNC/Shared AV
2023 Horizon Year		
Low	+1%	+2%
Medium	+2%	+4%
High	+3%	+5%
2028 Horizon Year		
Low	+2%	+4%
Medium	+4%	+7%
High	+5%	+10%
2032 Horizon Year		
Low	+3%	+6%
Medium	+6%	+10%
High	+7%	+15%

Notes: Values represent an average from multiple sources including *Future of Mobility*, 2016 as shown in Figure 1.

Source: Fehr & Peers, 2018

Future Parking Demand Calculations

Using the forecast increases in enrollment, shift to night classes and information on on-going changes in mobility, parking and travel patterns, the future parking demand at both campuses was assessed. The results of these calculations are presented in **Table 2**. As detailed information on the precise shift in enrollment to night classes from day classes was not available, we assumed that 5% of the new student population would be impacted by this shift. This calculation can be updated if more detailed information is provided by the District.

While private autonomous vehicles have the potential to reduce parking demand (AV could be sent off site), we have continued to assume they would park on-site to be conservative. Our calculations of the impact of shifts to TNCs and Shared AVs incorporate the “low” range of the estimates presented in Table 1. This was done in order to be conservative and to reflect the level of uncertainty on the impact of these changes, particularly on how students travel in these particular markets.

TABLE 2: PARKING DEMAND FORECASTS

Scenario	Parking Demand		
	2023	2028	2032
Chabot College			
Existing ¹	2,044	2,044	2,044
Enrollment Increase ²	+51	+102	+153
Shift to Night Classes ³	-3	-5	-8
Changes in Travel Behavior ⁴	-42	-86	-132
Total Parking Demand	2,050	2,055	2,057
Parking Supply	2,514	2,514	2,514
Surplus or (Deficit)	+464	+459	+457
Las Positas College			
Existing ¹	2,016	2,016	2,016
Enrollment Increase ²	+101	+202	+302
Shift to Night Classes ³	-5	-10	-15
Changes in Travel Behavior ⁴	-42	-89	-139
Total Parking Demand	2,070	2,119	2,164
Parking Supply	2,432	2,432	2,432
Surplus or (Deficit)	+362	+313	+268

¹ Existing peak parking demand based on counts in Spring 2018.

² Forecast change in peak parking demand based on enrollment increases – 0.5%/Year Chabot, 1.0%/Year Las Positas.

³ Assumed shift to additional students taking night classes – 5% of enrollment increase.

⁴ Low end of TNC/Shared AV shift forecasts from Table 1.

Source: Fehr & Peers, 2018

As illustrated in Table 2, under the assumptions described above, parking demand is forecast to increase modestly at Chabot College and by approximately 150 vehicles at Las Positas. Peak parking demands at both campuses would remain within the available parking supply. As is currently the case, some users might have to walk further than they would desire from their parking space to campus destination.

Conclusions/Recommendations

The parking demand calculations find that demand at both the Chabot and Las Positas College campuses will continue to remain within the existing supply during regular periods of activity. While increases in enrollment will drive a higher level of parking demand, a minor shift to night classes combined with forecast changes in mobility and travel patterns will somewhat off-set these increases under the assumptions described herein. We understand that anecdotally that there are certain short periods of time during the

early school year when severe levels of parking peaking may occur, leading to demands over that presented in this memorandum.

Given the dynamic nature of current trends and travel patterns, we recommend that the District periodically monitor peak parking demands at the two campuses. At this time, the best available information shows that parking demands will continue to be within available supply within the horizons analyzed. The District should work to provide locations on site for TNCs to safely and efficiently pick-up and drop-off passengers. This activity will continue to occur regardless of the provision of such a space, and as students/faculty shift to TNCs, the District's need to construct additional parking is reduced.

