GROSSMONT CUYAMACA

2013 COMMUNITY COLLEGE DISTRICT FACILITIES MASTER PLAN

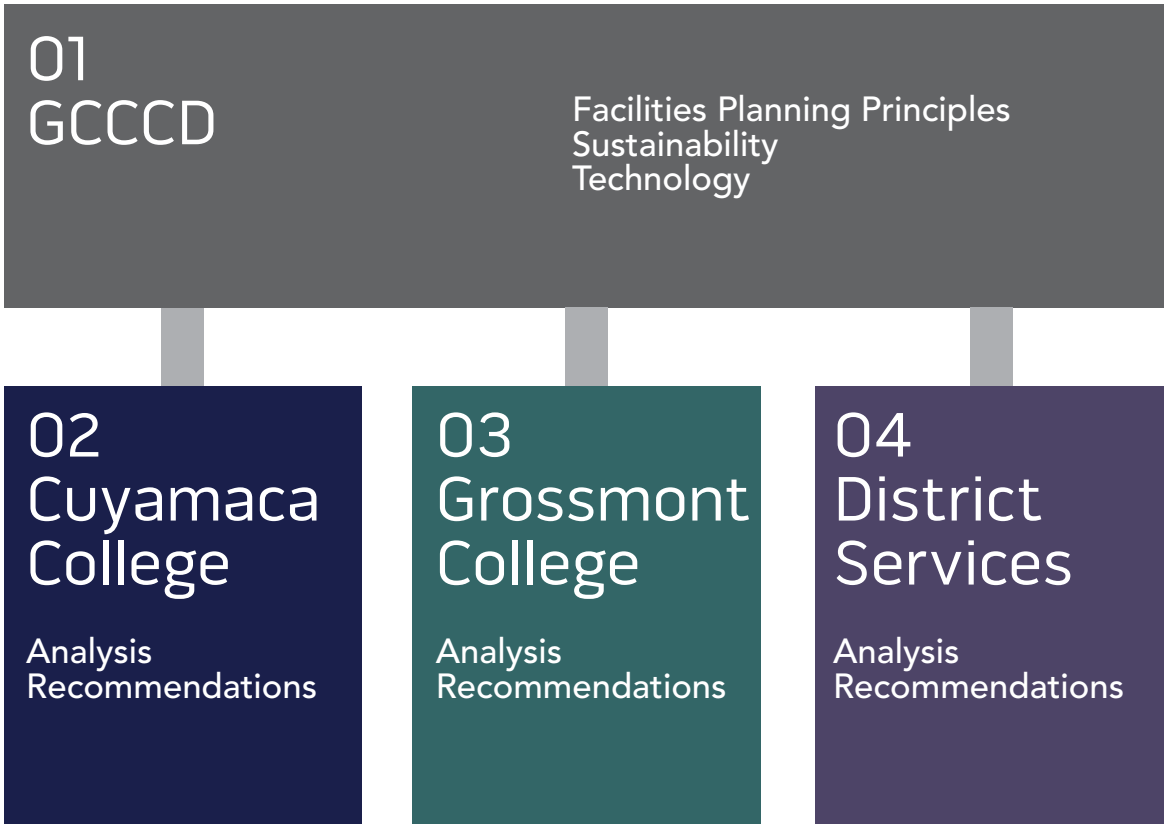
GROSSMONT-CUYAMACA COMMUNITY COLLEGE DISTRICT

2013 FACILITIES MASTER PLAN

Document Organization

The *Grossmont-Cuyamaca Facilities Master Plan* is organized into four chapters: an initial chapter on GCCCD facilities planning considerations that includes tabbed sections on sustainability and technology followed by three organization-specific chapters, one for each of the two colleges and one for District Services. Each organization-specific chapter is further broken down into two tabbed sections. These chapter sections include *Analysis* and *Recommendations*.

The *Analysis* sections document the discussions about existing conditions that took place in the district and college-level master plan task force meetings. The *Recommendations* sections document the planning solutions and the development concepts that were developed through discussions in the college-level master plan task force meetings. The *Recommendations* sections include a summary of projects for the campus categorized under new facilities, renovation and repurposing of facilities, and site improvements.



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LETTER FROM THE CHANCELLOR

In November 1960, East County voters showed they valued higher education in their community by approving the formation of the Grossmont Junior College District. With money from a bond measure, Grossmont College opened its doors in 1964 on a 135-acre site near El Cajon after three years of sharing space at a Spring Valley high school. As enrollment grew and space became tight, the district's Governing Board decided to open Cuyamaca College in 1978 on a 165-acre site in Rancho San Diego.

For more than 50 years, the Grossmont-Cuyamaca Community College District has kept focus on its vision of "Transforming Lives Through Learning" by its commitment to ensuring student success, promoting academic excellence and serving the training and workforce needs of East County. Today, Grossmont and Cuyamaca colleges serve almost 30,000 students each year.

A $207 million bond measure approved by East County voters in 2002 began the transformation of Grossmont and Cuyamaca colleges, enabling the construction or renovation of 13 major projects. In 2012, East County voters again showed their support for our colleges by approving Proposition V, a $398 million bond measure that will allow the district to make further improvements and upgrades to meet the academic needs of college students in our continually changing world.

This Facilities Master Plan is the culmination of a comprehensive two-year planning process that involved a wide range of people in the district and community. At the heart of that work is the district's Educational Master Plan, which identifies key educational needs and trends in our community and serves as our blueprint for institutional development and resource allocation for the next decade.

The Facilities Master Plan highlights the district's physical needs to best serve our students, providing direction for improvements to our two campuses so we can offer the environment that best supports the colleges' excellent education programs.

I'm excited about the potential that this document represents and what it means for our colleges. I want to thank the members of our Governing Board, our district facilities team, HMC Architects, and the many, many people in the district and in the community who participated in our planning process. We look forward to many more years of providing outstanding learning opportunities in East County.

CINDY L. MILES, PH.D.
CHANCELLOR

VISION

Transforming Lives Through Learning

MISSION

Provide outstanding learning opportunities that prepare students to meet community needs and future challenges of a complex, global society. Grossmont-Cuyamaca Community College District fulfills its mission by providing:

- Outstanding undergraduate education leading to certificates, associate degrees, and transfer
- Excellent career and technical education programs that prepare students for workforce entry and advancement
- Comprehensive student development and support services that help students succeed in meeting their educational goals
- Engaging educational services that meet learners needs in basic skills, English language proficiency, and lifelong learning
- Responsive social and economic development programs and community partnerships

VALUE STATEMENT

Cultivate a student-centered culture of excellence, trust, stewardship, and service.

PURPOSE

The overall purpose of the *2013 GCCCD Facilities Master Plan* is to translate the district's priorities for student learning and success into recommendations for the development of facilities at each campus.

The five strategic areas of focus for planning established by the Board of Trustees are the basis for long-range educational planning and therefore are central in the GCCCD integrated planning model. The integrated planning model is a map of how the components in the district planning processes link to one another in a cycle of evaluation, development of goals and objectives, resource allocations, plan implementation, and re-evaluation. It is through the regular sequence of these planning practices that the district assesses institutional effectiveness and uses those assessments to continually improve its services to students.

Strategic Areas of Focus

All planning in the district begins with the five strategic areas of focus established by the GCCCD Governing Board. These five strategic areas of focus are:

- Student Access: Ensure that all prospective students have an opportunity to benefit from programs and services.
- Student Learning and Success: Provide programs and services that enable students to progress in a timely fashion toward achievement of their identified educational goals. Promote a culture that values students, fosters academic excellence, and cultivates an environment that is conducive to sustained continuous improvement of learning.
- Value and Support of Employees: Value and commit to fostering an inclusive, diverse, and professional environment where employees are encouraged to pursue and reach their potential.
- Economic and Community Development: Pursue opportunities and partnerships that enhance college programs, promote a vibrant economy, and benefit the local community.
- Fiscal and Physical Resources: Enhance district fiscal and physical resources with strategic and transparent stewardship.

In 2011-2012, a district educational master plan was developed based on the foundation of the district's mission and the Board's five strategic areas of focus for planning. *The Grossmont-Cuyamaca Community College District Educational Master Plan March 2012* is a long-range, comprehensive document intended to guide the district's decision-making for the next decade. The development of this plan called for the colleges and the district to adopt a long-term, big picture perspective in order to set general directions that will guide all subsequent plans.
The first step in developing the educational master plan was a collaborative study of the internal and external factors. This study included:

External Trends

An analysis of 175 articles and information sources to identify trends and issues to consider in setting district and college priorities;

External Scans

Data about the GCCCD district boundary area including projections for growth, characteristics of the students attending GCCCD colleges, and student academic outcomes; and

Student + Community Forums

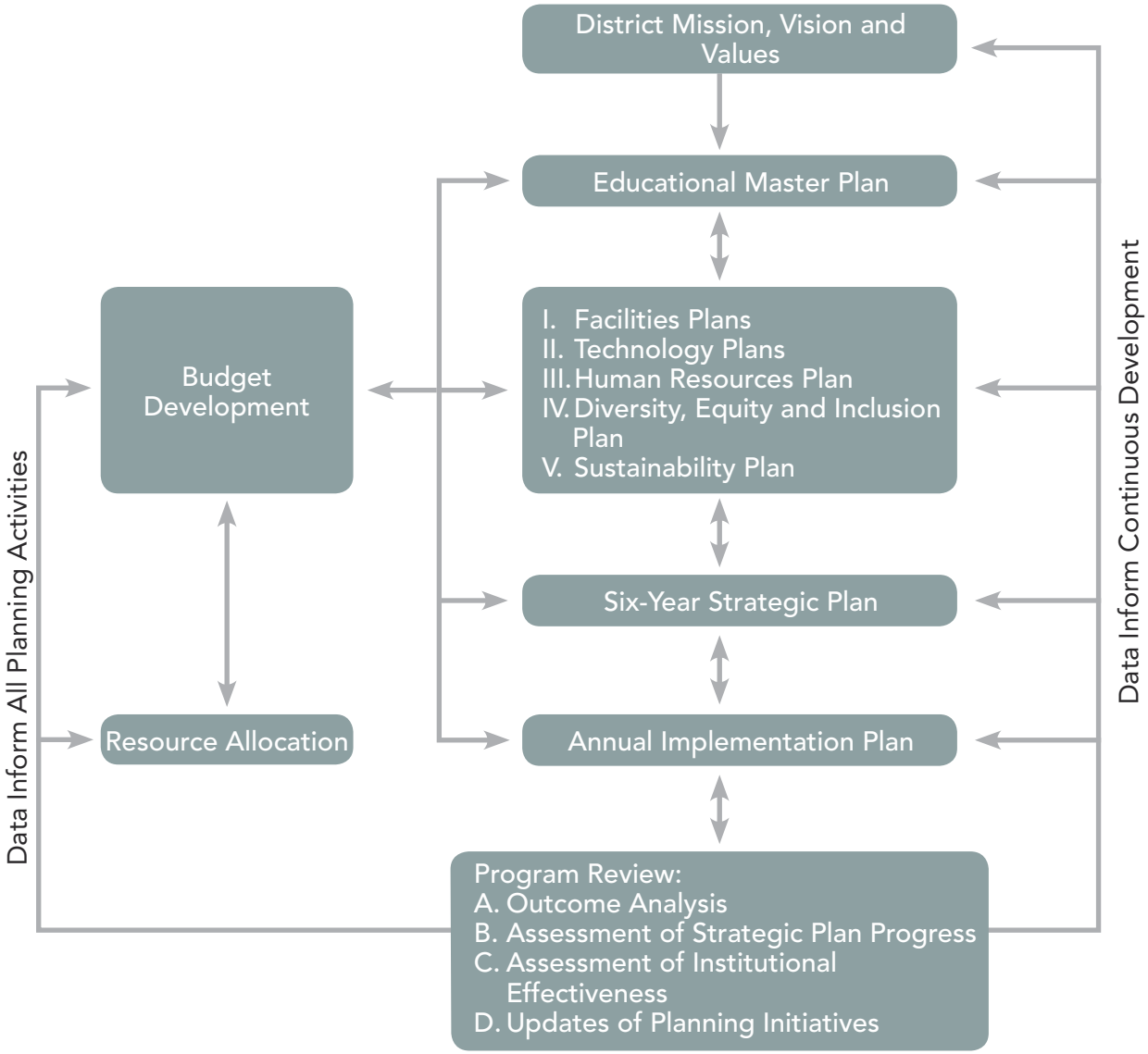
Discussions that focused on questions such as, "What is going well that we should keep?," "What could we do better?," and "What should we focus on for improvement?" The resulting data described the current issues faced by the district and identified issues that are projected to impact the district in the next decade. Based on these analyses, the district and colleges' planning councils identified five long-term priorities based on the Board's more general five strategic areas for planning.

These priorities are now serving as the basis for the development of four shorter-term plans: the facilities master plan, technology plan, human resources plan, and a diversity, equity, and inclusion plan. The purpose of these shorter-term plans is to drive both site-specific strategic and implementation plans and resource allocations.

INTEGRATED PLANNING MODEL

Within the GCCCD integrated planning model, the specific purposes of the *Facilities Master Plan* are to:

- Provide long-range guidance for the development of new facilities that will be needed to support the projected academic program of instruction and support services;
- Identify the needs for the refurbishment, repair, or replacement of existing facilities that will be needed to support current academic program of instruction and support services;
- Include and integrate current construction and maintenance plans; and
- Describe the district's plans for environmental sustainability.



PROCESS

Using the Board's five strategic areas of focus and the long-term priorities established in the *Grossmont-Cuyamaca Community College District Educational Master Plan March 2012* as the starting point, the process for developing this *GCCCD Facilities Master Plan* was launched. At the start of the process, it was decided to use a two-phased approach for the development of the *Facilities Master Plan* (FMP).

Phase 1:

- Educational Plan Analysis
- Existing Conditions Analysis
- Option Development
- Solution Development
- Documentation + Approvals

Phase 2:

- Develop Framework
- Define Complex Areas
- Develop Recommendations

Phase 1 was designed to include an analysis of existing site and facilities conditions on both of the college campuses, an exploration of options to address the long-term priorities, and a high-level set of recommendations for site and facilities improvements. It began with the detailed review and analysis of the district *Educational Master Plan* by the Master Planning Team to gain a thorough understanding of the district's strategic areas of focus that needed to translate into facilities planning recommendations. On a parallel timeline, the Master Planning Team gathered site and facilities information, toured both campuses, and listened to the insights of multiple stakeholders regarding the condition and functionality of the existing campuses. The resulting analyses were presented to the Master Plan Task Forces and key issues to be addressed were identified. During this time period, a workshop was held to inaugurate the district-level Sustainability Task Force and begin establishing a shared vision for districtwide collaboration on environmental stewardship.

The analyses guided the discussion of development concepts and preliminary options, which took place in the college-level Master Plan Task Force Meetings. These discussions culminated in decisions that led to the facilities recommendations for both of the college campuses and the District Services offices. The Phase 1 FMP was documented and approved by the Board on September 11, 2012.

Phase 2 commenced following the approval of Phase 1 and included a more detailed exploration of the facilities needs of both of the colleges and of District Services with a larger group of representatives from each. This information was translated into more detailed recommendations for site and facilities improvements, including recommendations for sustainability and for the physical facilities and infrastructure needed to support the deployment of essential technology systems.

This planning process for the development of the *Facilities Master Plan* has been a highly participatory one involving the district's many constituencies. During Phase 1, district- and college-level Master Plan Task Forces were established to participate in a series of interactive meetings, review and evaluate information, and make decisions that led to the development of high-level recommendations. During Phase 2, college-level Extended Master Plan Task Forces were convened to establish campuswide and project-level design goals and the grouping of disciplines and programs in each project. In addition to the meetings, presentations and discussions were held with a wider audience to broaden the planning perspective and provide the opportunity for dialogue and discussion.

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GCCCD

GCCCD

2013 FACILITIES MASTER PLAN

GCCCD

GCCCD
EDUCATIONAL MASTER PLAN LINKAGES

The long-term, comprehensive plan and the priorities and general directions presented in the *Grossmont-Cuyamaca Community College District Educational Master Plan March 2012* are the basis for subsequent planning, including this *GCCCD Facilities Master Plan*.

Given that Fiscal and Physical Resources is one of the Board's five strategic areas of focus for all planning, the planning councils established districtwide priorities related to fiscal and physical resources which follow. The site-specific sections of the *Educational Master Plan* related to fiscal and physical resources reflect the same priorities.

In general, this *Facilities Master Plan* builds on the District's record of responsible use of public resources to provide excellent learning and workforce development opportunities for the communities of eastern San Diego County. More specifically, this *Facilities Master Plan* was guided by these districtwide priorities for fiscal and physical resources. These priorities were the starting point for discussions related to facilities, were central to the Facilities Planning Guiding Principles described in the next section, and ultimately were used to drive decisions related to the recommendations for each site.

Fiscal and Physical Resources

Ensure that resource decisions are transparent, collegial, driven by strategic priorities for learning and student success, and address total cost of ownership.

Update and implement a comprehensive Facilities Master Plan that is driven by student learning and success needs:

- Build facilities needed to support the District's mission of serving current and future education and workforce training needs of the community.
- Refurbish, repair, or replace buildings to address student needs and safety and access standards.

Evaluate facility use and administrative operations to increase efficiency and cost-effectiveness.

Develop sustainability initiatives that make GCCCD a regional leader in responsible and accountable stewardship of all resources:

- Integrate cost-effective, green practices for facility, landscape, and infrastructure into all facilities planning and operations.
- Minimize the use of water, energy, gasoline, and other natural resources.
- Use technology to promote resource conservation.

Update and implement a comprehensive Technology Plan that supports innovative and successful teaching, learning, student support, and administrative operations.

Identify and secure new sources of revenue to augment traditional funding to advance strategic priorities:

- Enhance and coordinate grant development and management.
- Continue to build and support the Foundation for Grossmont and Cuyamaca Colleges to develop a larger contributor base, to increase annual funding for program support and scholarships, and to build an endowment.

Leverage partnerships with business, industry, education, government, and community-based organizations.

- Develop a robust revenue stream derived from contract education, facility rentals, and other innovative practices.

GCCCD

FACILITIES PLANNING PRINCIPLES

Following the analysis of existing conditions, a set of planning principles was developed to guide the discussion and evaluation of facilities planning options.

Focus on Students

- Develop campuses, sites and facilities to support student success.
- Align facilities with institutional priorities for instructional and support services.

Maximize Functional Space

- Improve functional zoning and operational efficiencies.
- Improve instructional space to support effective learning environments.
- Improve facilities for accessibility, health, and safety.
- Provide robust technology and utility infrastructure systems.

Eliminate Non-Functional Space

- Replace temporary facilities with permanent space.
- Replace aged and poorly functioning facilities.

Improve efficiency and utilization of facilities and available land

- Develop flexible, multi-purpose facilities to adapt over time.
- Align land use with the institutional focus on student access and success.

Right-size the campus to address program needs

- Align the projected space inventory with state guidelines.
- Position the District to maximize federal, state, and local funding.

Enhance the campus environment

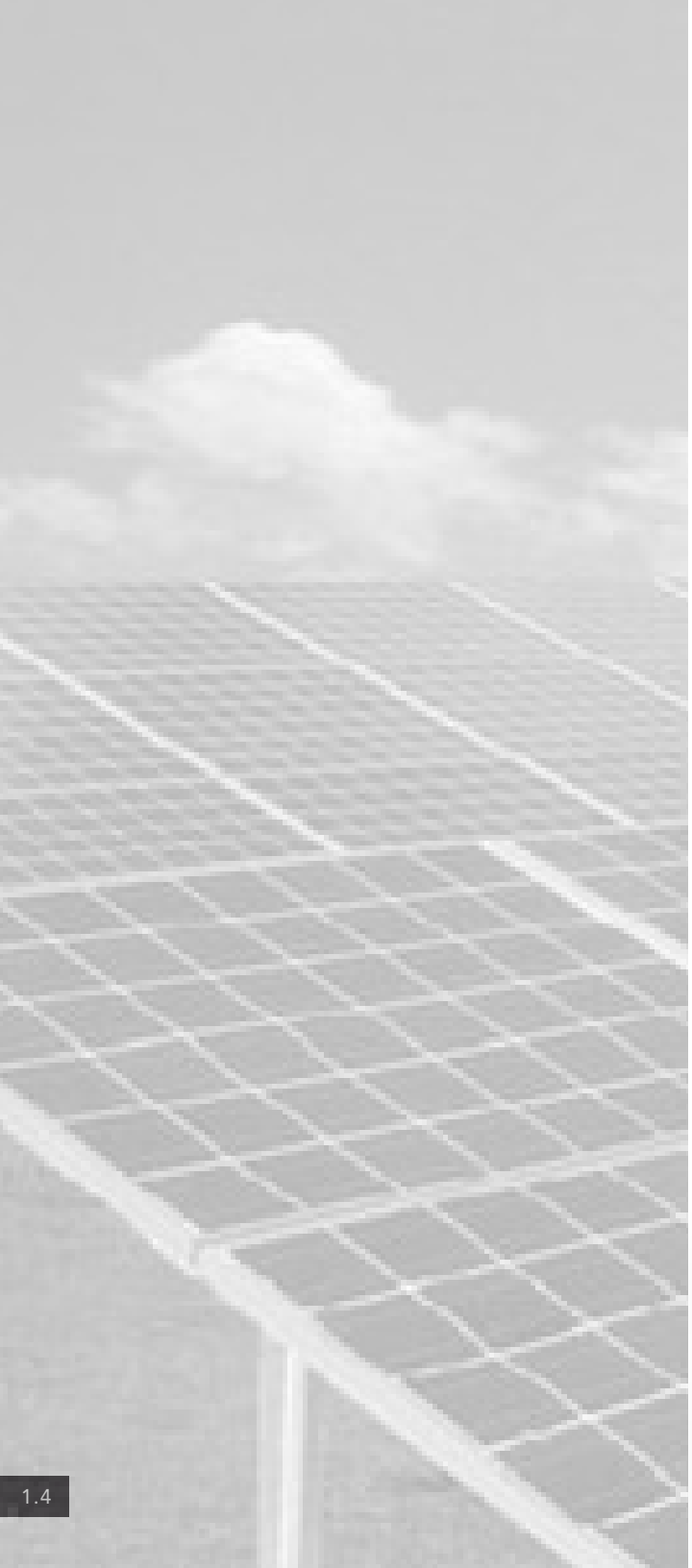
- Strengthen the connection to the community.
- Facilitate wayfinding and efficient vehicular and pedestrian circulation.
- Consider campus climate conditions and plan for comfort.

Plan for sustainability

- Facilitate the use of alternative transportation to the campuses.
- Provide healthy and comfortable learning and working environments.
- Support sustainable campus operations.
- Minimize use of resources and negative impacts to the environment.

Simplify implementation

- Plan logistically to minimize cost and disruption.



Sustainability

Sustainability

PLANNING FOR SUSTAINABLE FACILITIES

In 2012, GCCCD announced their districtwide priorities, one of which is to "Develop sustainability initiatives that make GCCCD a regional leader in responsible and accountable stewardship of all resources." This priority is influencing the future development of facilities at both colleges through the integration of sustainability as a key component of the *2013 GCCCD Facilities Master Plan*.

Although the planning of sustainable facilities is infused throughout all chapters of the *Facilities Master Plan*, it is the focus of this section, which provides background information and more detailed descriptions in the following sub-sections:

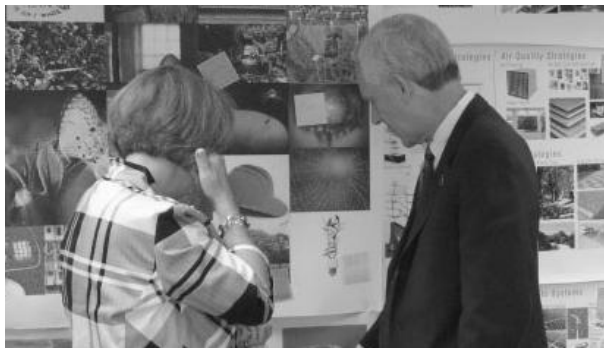
- Establishing a Sustainability Plan
- Sustainability Goals
- Analysis
- Recommendations

GCCCD - Sustainability

ESTABLISHING A SUSTAINABILITY PLAN

The *2012 GCCCD Educational Master Plan* calls for the creation of a Sustainability Plan. As one of the district's integrated long-term plans, it will set the stage for allocation of resources toward the districtwide priority to "Develop sustainability initiatives that make GCCCD a regional leader in responsible and accountable stewardship of all resources." The facilities master planning process afforded the District with the opportunity to establish districtwide sustainability goals and brainstorm ideas.

On May 11, 2012, Sustainability Workshop 1 was held, bringing together representatives from both of the colleges and District Services to share their experiences, brainstorm ideas for future initiatives, and establish draft sustainability goals that will be developed into the GCCCD Sustainability Plan. As workshop participants engaged in the discussion, their visions and ideas were graphically recorded in real time. Proposed actions were recorded on colorful sticky-notes and priorities were identified with colored dots. Participants shared and learned that the GCCCD community has a strong, if not widely known, record of sustainability accomplishments. This revelation highlighted a benefit of districtwide integrated planning for sustainability – that it will magnify the impact of future efforts and "promote a culture of sustainability" throughout the district community.



On December 17, 2012, Sustainability Workshop 2 was held. The district stakeholders gathered again to review the completed analysis of existing conditions and provide feedback on the recommendations for sustainable facilities and site improvements. These recommendations have been incorporated throughout the *Facilities Master Plan*.

Workshop 1

- Share Vision Statements + Successes
- Provide Feedback on Analysis
- Brainstorm Ideas
- Develop Draft Goals + Set Priorities

Workshop 2

- Revisit + Add to Vision Statements from Workshop 1
- Map Solar Energy on the Campuses
- Provide Feedback on Analysis + Recommendations

The next sub-section, Sustainability Goals, is a record of the discussion from Workshop 1 and includes ideas for initiatives that will guide many aspects of district life, including some that go beyond facilities planning into culture, education and training, and operations. These goals are intended to be developed further into the districtwide Sustainability Plan, which will guide the integration of green practices into all endeavors and:

"Promote a culture of sustainability through leadership; practices; policies; and districtwide engagement of employees, students, and the community."

This statement, which was drafted by the participants of Workshop 1, expresses the overarching sustainability goal for the district.

SUSTAINABILITY GOALS

01 Be local and regional leaders in training the green workforce

Through high performance-driven curriculum and culture, strive to prepare students for careers and lifestyles in our collective sustainable future.

Host Community Sustainability Education Events

- Host sustainable urban landscape conference.
- Host sustainability awareness training.
- Build more facilities like the water and community demonstration gardens.
- Provide interpretive signage and educational kiosks with green touchscreens.

Prepare and Educate the Workforce

- Teach sustainability in the classroom.
- Provide stackable credentials, Economic and Workforce Development (EWD)
- Develop the green work force, Sustainability Education and Economic Development (SEED) Center – Partner and leverage relationships with the clean technology industry and with the Center for Sustainable Energy.
- Demonstrate and exhibit GCCCD's accomplishments around and within the campus.

Campuses as Living Laboratories

- Use the buildings and grounds as learning tools to promote sustainability and awareness.
- Promote GCCCD's accomplishments, to the community and among ourselves, to develop awareness and action.

02 Reduce, reuse and recycle

Promote a culture which reduces waste by actively using less, and then supplementing this effort by reusing and recycling.

Reuse of Materials

- Go paperless: support paper reduction via digital distribution.
- Seek and promote a partnership with Waste Management.
- Provide E-books and rentals in the campus bookstore.

Composting + Green Waste

- Expand green waste practices off-site.
- Make landscaping choices that reduce green waste: "Put the right plant in the right place."
- Coordinate with the County of San Diego Earth Machine and Sodexo to explore food waste reduction options.

Hazmat Storage + Disposal

- E-Waste - Provide on-campus collection of batteries, styrofoam, and other "non-recyclable" items.

Education and Training

- Expand and promote Environmental Health and Safety (EHS) and Environmental Health and Safety Management (EHSM) training for students.

Renovation vs. Building New

- Consider reuse, renovation, and remodeling of existing buildings as an alternative to building new.

03 Improve environments for working and learning

Provide a safe, welcoming, inviting, healthy, and comfortable working and learning environment that supports student success.

Improve Air Quality

- Provide access to natural ventilation via operable windows.
- Specify low-emitting furniture + finishes (Green Seal).
- Use environmentally-safe cleaning products.

Improve Occupant Comfort

- Provide connections to outdoor views.
- Provide access to natural light.
- Specify acoustically-treated materials to prevent sound penetration through spaces.
- Design facilities with tight building envelopes using durable and high quality materials and insulation to provide thermal comfort.

Foster environmental stewardship and economic prosperity 04

Promote a culture of sustainability through leadership, practices, policies, and districtwide engagement.

Achieve Triple Bottom Line - People/Planet/Prosperity

- Reduce our carbon footprint.
- Be self-sustaining in terms of energy.
- Strive for zero waste and zero energy.

Promote GCCCD as a Sustainable Leader

- Publicize sustainable actions by GCCCD through websites and on-campus interactive educational signage.

Be Champions of Sustainability

- Establish a Sustainability Committee.
- Educate the students, staff, and community by using the campuses as learning tools.
- Demonstrate how sustainability can be simultaneously inviting, beautiful, and good for the environment.
- Promote further regional mini-grants for LEED Green Associate training.

Strive for energy independence with collective consciousness 05

Be good stewards of the environment by using less energy while providing the same types and levels of services districtwide.

Change Behavior

- "Reduce before we produce energy."
- Consume water and energy wisely.

Design High Performance Facilities

- Incorporate passive solar design strategies.
- Retrofit existing buildings.
- Consider implementation of a micro-grid that allows the campuses to be self-reliant.

Use Efficient Appliances, Equipment and Computers

- Use smart outlets, CFLs, and T-8 light fixtures.
- Convert campus fleets to electric vehicles.
- Use occupancy and photosensors to manage electrical consumption.

Incorporate Renewables

- Building Integrated Photovoltaics (BIPV)
- Wind Technology
- Fuel Cell Technology

Track Progress to Improve Performance

- Employ retro-commissioning.
- Connect to building EMS to monitor use.
- Measure and report progress annually.

Be responsible and accountable for water use and management 06

Acknowledge that "water is the new gold" and through campus water-wise conservation practices, manage water as a sustainable resource to protect the environment and to meet current and future demand.

Optimize Building Water Efficiency

- Install low-flow/no-flow fixtures with motion sensors and waterless urinals.
- Cover the swimming pool to prevent evaporation and save energy.
- Provide signage asking users to inform facilities staff of plumbing fixture leaks.

Implement Site Storm Water Quantity and Quality Control Measures

- Pervious paving
- Cisterns
- Stormcepters
- Bioswales
- Permeable landscaping
- Green paving systems at fire access roads

Incorporate Native/Adapted Drought Tolerant Vegetation

- Increase the use of xeriscape/drought-tolerant plants.
- Install rain gardens and bioswales.
- Reduce turf and water-loving plant typologies.
- Use recycled water (purple pipe) for irrigation.

SUSTAINABILITY ANALYSIS

The analysis focused on existing conditions that relate to campus sustainability and for which information was available. The focus on conditions related to priorities such as water conservation, water quality, and habitat preservation reflects the districtwide goals that were established in the sustainability workshops.

The results of the analysis are documented in three chapters. This section of Chapter 01 GCCCD contains the analysis of the regional environment, in which both college campuses reside, and how this environment influences and is influenced by the campuses. The Analysis sections of Chapter 02 Cuyamaca College and Chapter 03 Grossmont College contain the results of the campus-specific analyses.

The analysis of districtwide conditions is documented in the following sections:

- Existing Environmental Conditions
- Carbon Analysis Methodology

Sustainability - Analysis

EXISTING ENVIRONMENTAL CONDITIONS

Process + Methodology

The campuses of Grossmont and Cuyamaca colleges are located within nine miles of each other; however, each campus experiences unique climatic conditions. In order to obtain an accurate picture of the environmental conditions at each campus, weather data specific to each location was used. By studying the existing climate, a solid set of sustainable strategies that respond to the unique climatic conditions of each campus could be recommended. Climate Zone 10 weather data was utilized for Cuyamaca College, while San Diego Montgomery weather station data was utilized for Grossmont College. Weather data was imported into Climate Consultant v5.4, Ecotect, WeatherTool, and Vasari weather analytics software and was then graphed in a series of charts.

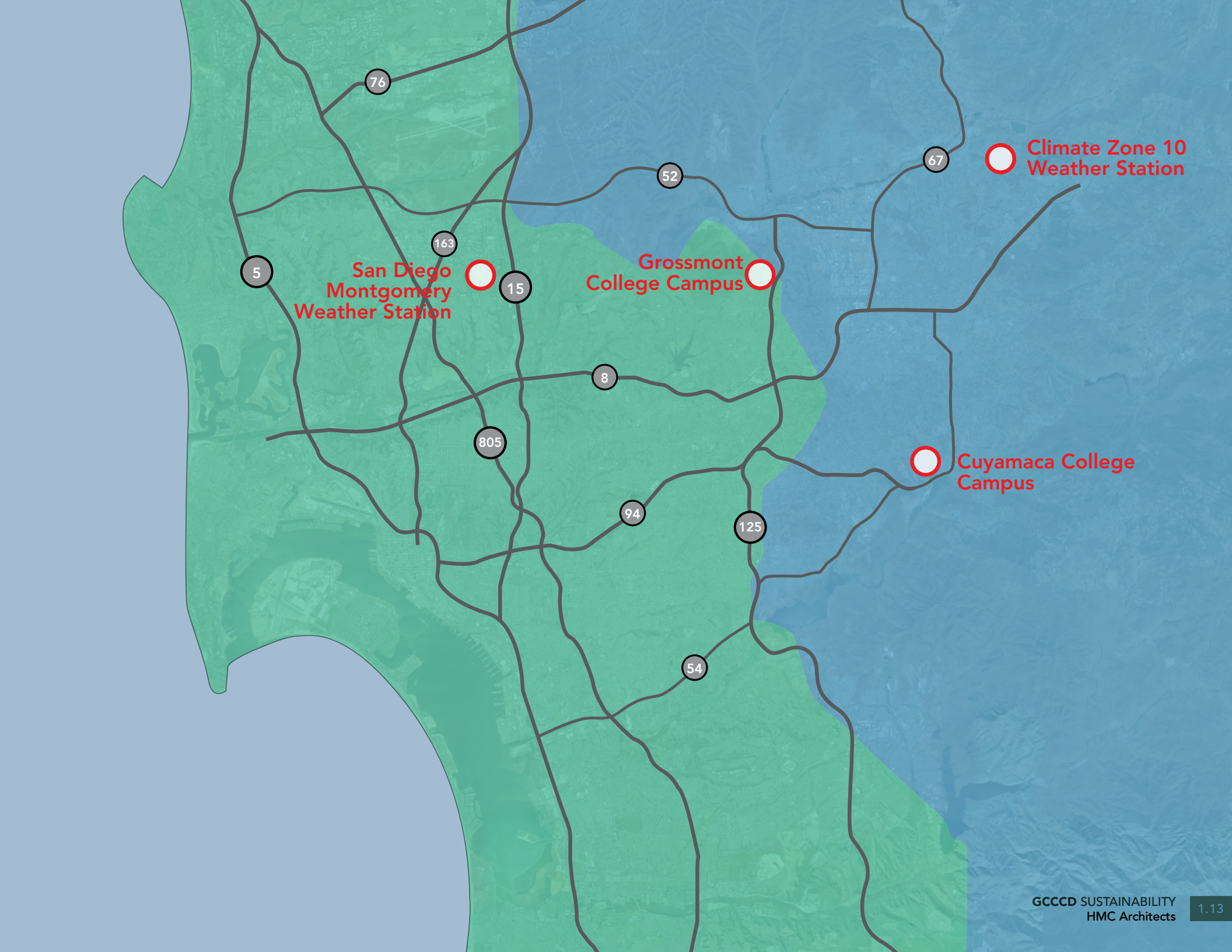
In addition to climate data, information regarding historical and current water and energy use, waste production, and transportation utilization for both college campuses was also collected, analyzed, and compared to industry benchmarks. This information was used to calculate a carbon footprint for each campus, which will empower the district with an understanding of their existing natural resource use and subsequent environmental impact. Most importantly, this knowledge will also provide the district with an opportunity to chart a path toward carbon neutrality and an environmentally-positive impact on the region as a whole. This is further detailed in the Carbon Analysis Methodology section of the document.

Finally, information on storm water systems and landscaping management was gathered during site visits and meetings with district and college staff. Site infrastructure surveys, environmental impact reports, biological assessments, and geotechnical reports for recent construction projects were reviewed. The analysis of this information contributed to the identification of existing issues and opportunities regarding habitat preservation, storm water management, and campus landscaping.

Climate

The climate on the Grossmont College campus is characterized by mild temperatures. The temperature of the ocean water affects the air temperature above it, and this in turn moderates temperatures over the coastal zone. Although the ocean is the primary influence over the weather most of the time, on the occasions when the wind direction changes, hot and extremely drying Santa Ana winds sweep across the site. The weather in the summer is warm and comfortable, but hot enough that cooling is necessary on some days. Frequently, high fog and cloud layers extend inland from the ocean at night, naturally cooling the area. The winters are cool and heating is necessary sometimes.

The Cuyamaca College campus' surroundings are characterized by interior valleys and hills which are affected by thermal belts. Hilltops and valleys become cold in the winter with the possibility of frost and warmer in the summer than the slopes and hillsides from which cold air drains. This climate is nominally influenced by the ocean. The days are quite sunny with most of the rain falling in the winter. The temperature swings over the year is more extreme, with hotter summers and colder winters than the coastal climates to its west.


76
52
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Climate Zone 10
Weather Station
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San Diego
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Campus
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54

EXISTING ENVIRONMENTAL CONDITIONS (CONTINUED)

Natural Habitat

San Diego County contains many biologically sensitive and socially valuable areas that are protected by government and community-backed regional natural conservation programs. These programs were established to maintain and enhance existing natural systems and native habitats in an effort to create a higher quality of life for all inhabitants. The Grossmont-Cuyamaca Community College District (GCCCD) campus locations are adjacent to some the most biologically diverse natural habitats in San Diego County. GCCCD is committed to the ongoing preservation of these habitats and strengthening partnerships with the greater San Diego community.

Regional Preservation

The Multiple Species Conservation Program (MSCP) is a long-term habitat conservation plan, addressing approximately 900 square miles of San Diego County that is part of the State of California's Natural Community Conservation Planning (NCCR) Act of 1991. The Subregional MSCP plan illustrates existing natural habitats, their relationship to urban growth, as well as the potential for harmful effects of development on natural habitats and loss of "covered species" habitat.

The goals of the Area Specific Management Directives (ASMD) Plan include developing measures to maintain biological resources as well as prioritizing the needs of resources to ensure the adequate protection of covered species as defined by the MSCP and continuing enhancement of the quality and function of the preserved areas. For example: direct impacts to nesting coastal California gnatcatchers and raptors would be avoided during their respective breeding seasons through pre-construction surveys and avoidance of clearing or grading if nests are found.

GCCCD is in a unique semi-arid Mediterranean climate zone, which has resulted in a naturally drought-tolerant native landscape. The summers are warm and dry, while mild winters yield little rainfall (9-13 inches annually); creating a variety of distinguishable habitats, such as tidal marshes, grasslands, and canyon environments. This variety of climates accommodates a significant amount of plant and animal species that appear on the endangered species list. San Diego's coastal sage scrub and chaparral plant communities are generally drought-resistant and can be subject to widespread wildfires, especially near urban development, if not properly maintained and managed.


REGIONAL MAP
GCCCD CAMPUS
HIGHWAY
ECOLOGICAL RESERVE/PARK
BODY OF WATER
PACIFIC FLYWAY
CREEKS
Mira Mesa
Poway Creek
76
Marine Corps
Air Station Miramar
Rose Canyon
Creek
San Diego River
67
52
Mission Trails
Regional Park
Santee
La Jolla
San Diego River
Gillespie
Field
Grossmont
College Campus
163
5
15
Clairemont
Pacific
Beach
Tecolote
Creek
Mission
Bay
Mission
Valley
8
El Cajon
Sweetwater
River
Taylor Creek
Mid-City
La Mesa
Rancho San Diego
805
Cuyamaca College
Campus
Lawson Creek
Spring
Valley
San Diego
International
Airport
Chollas Creek
94
Sweetwater River
125
Lemon
Grove
Downtown
San Diego
La Presa
Jamul Creek
Coronado
Sweetwater Reservoir
54
San
Diego
Bay
Sweetwater
River
Dulzura Creek
National
City
Bonita
Salt Creek
Lower Otay Resevoir
Chula
Vista
Otay River
Imperial
Beach
Imperial
Beach Airport
GCCCD SUSTAINABILITY
HMC Architects
1.15

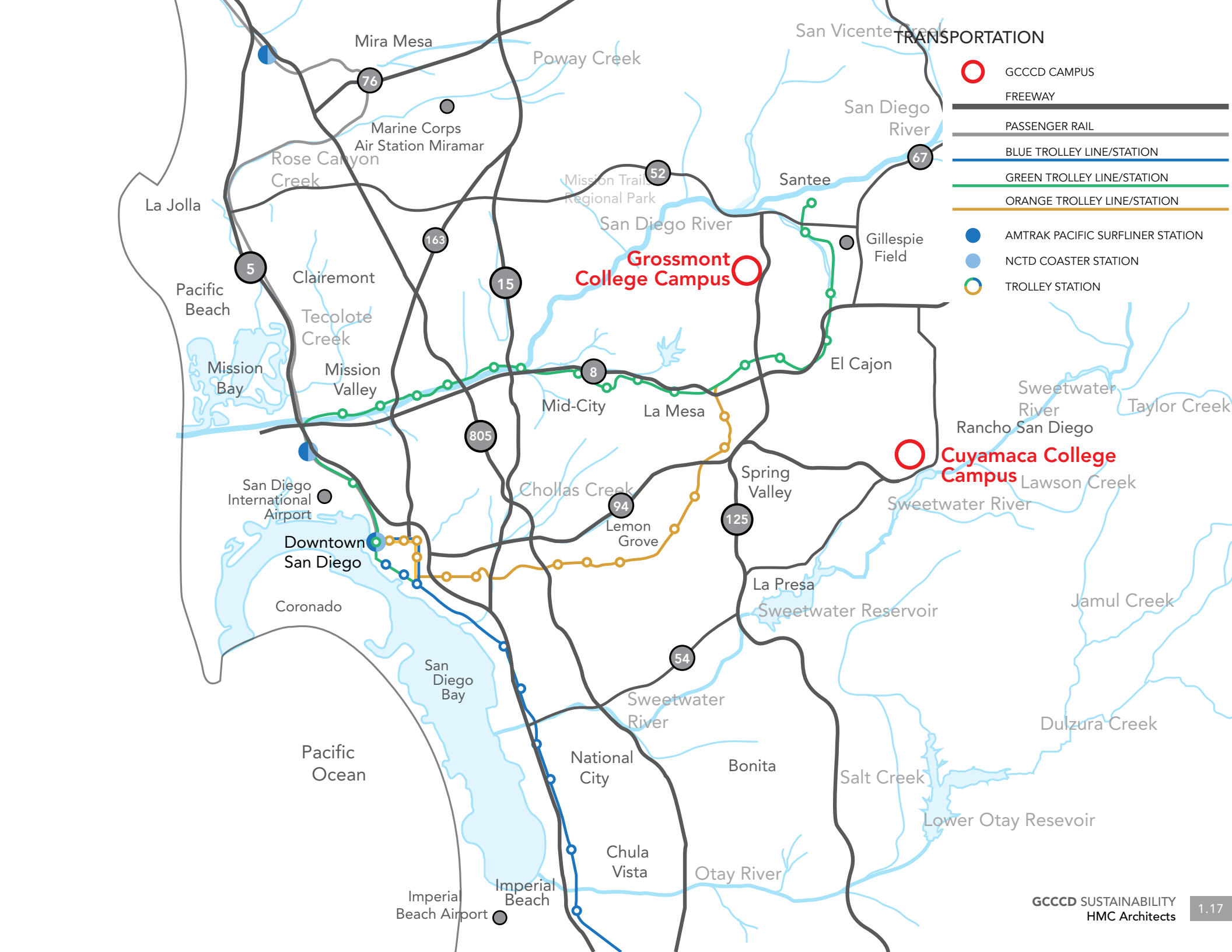
Sustainability - Analysis

EXISTING ENVIRONMENTAL CONDITIONS (CONTINUED)

Transportation

The Grossmont College campus sits in the Fletcher Hills community of El Cajon and is bordered by the cities of San Diego and Santee. It is conveniently located near Interstate 8 and Highway 52 and adjacent to Highway 125. The Cuyamaca College campus is located in the community of Rancho San Diego, near the city of El Cajon. It primarily serves the eastern suburbs in the San Diego area and is also conveniently located near major highways, namely State Routes 54, 94, and 125, as well as Interstate 8.

Rideshare programs and the San Diego regional transit provider, the Metropolitan Transit System, provide access to the campuses as well. However, the majority of students, staff, and faculty at both Grossmont College and Cuyamaca College rely on single-occupant vehicles to get to and from campus. This is due in part to the fact that many students work, and thus require a fast and convenient mode of getting from their residence, to campus and then to their jobs. This results in a high number of miles traveled over the course of a year, as detailed further in the Analysis sections of the college chapters.


TRANSPORTATION
GCCCD CAMPUS
FREEWAY
PASSENGER RAIL
BLUE TROLLEY LINE/STATION
GREEN TROLLEY LINE/STATION
ORANGE TROLLEY LINE/STATION
AMTRAK PACIFIC SURFLINER STATION
NCTD COASTER STATION
TROLLEY STATION
Grossmont College Campus
Cuyamaca College Campus
Mira Mesa
Poway Creek
San Vicente Creek
Marine Corps Air Station Miramar
Rose Canyon Creek
San Diego River
Santee
Gillespie Field
La Jolla
Mission Trail Regional Park
Pacific Beach
Clairemont
Tecolote Creek
Mission Bay
Mission Valley
Mid-City
La Mesa
El Cajon
Sweetwater River
Taylor Creek
Rancho San Diego
Spring Valley
Lawson Creek
Chollas Creek
San Diego International Airport
Lemon Grove
Downtown San Diego
Coronado
La Presa
Sweetwater Reservoir
Jamul Creek
San Diego Bay
Pacific Ocean
National City
Bonita
Dulzura Creek
Salt Creek
Lower Otay Resevoir
Chula Vista
Otay River
Imperial Beach
Imperial Beach Airport
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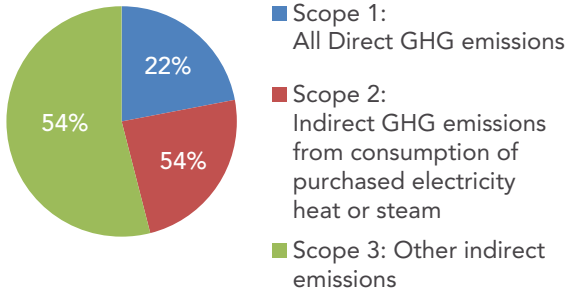
Sustainability - Analysis

CARBON ANALYSIS METHODOLOGY

In order to best assess GCCCD's sustainable future, it was necessary to first assess its existing state. An analysis of the district's energy use, water use, waste management, and transportation data was conducted. These four criteria were converted into a common unit of measure known as CO2e. CO2e stands for "carbon dioxide equivalent," and is the standard unit used to measure the global warming potential (GWP) of greenhouse gases emitted into the earth's atmosphere. By using this unit of measurement, a carbon footprint consisting of various sources can be expressed as a single number. For the purposes of this analysis, the annual number of kilowatt-hours of electricity consumed, therms of fuel consumed, gallons of water consumed, pounds of waste sent to landfills, and miles travelled have been converted into pounds of CO2e per square foot of campus building area.

Calculating GHG Emissions and Scopes 1, 2, + 3

The Greenhouse Gas (GHG) Protocol categorizes direct and indirect emissions into three broad scopes:
Scope 1: All direct GHG emissions.
Scope 2: Indirect GHG emissions from consumption of purchased electricity, heat or steam.
Scope 3: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities not covered in Scope 2, and outsourced activities, waste disposal, etc.



Energy

Emissions were calculated for all operations that require energy (electricity or fuel) to keep the campus and the buildings operating. Energy emissions can originate from energy used onsite (such as natural gas) or at an offsite power plant (electricity) to run heating and cooling equipment, lighting and appliances. These emissions are calculated by determining the energy consumption and then multiplying by a carbon dioxide conversion factor. For the Grossmont-Cuyamaca CCD, conversion factors of 0.72 for electricity (eGRID2006 Version 2.1 Summary Tables) and 0.42 lb of CO2 per kilowatt-hour (11.93 lb CO2e per therm) for natural gas were utilized.

Sustainability - Analysis

CARBON ANALYSIS METHODOLOGY (CONTINUED)

Water

Water consumption in the building also generates GHG emissions. Water used in a building must be pumped from the source and treated. Wastewater from a building must be treated to remove physical, chemical and biological contaminants. This energy use is different from that used for domestic water heating, which is considered an energy-related item. The conversion factor used for water operations was 13,021 kWh per million gallons, or 0.013021 kilowatts per gallon (California Energy Commission study of embedded energy in water for Southern and Northern California).

Waste

Solid waste (not transported in water) must also be removed from the campus and treated, thereby generating emissions. Waste requires treatment and usually generates GHGs in the form of methane from landfills. The waste conversion factor is derived from the Environmental Protection Agency waste calculator. (http://tinyurl.com/2lnsex).

Transportation

Transportation has perhaps the biggest impact on the carbon footprint of an educational institution. This is especially the case with community colleges, where the proportion of commuters is much greater than for the average higher educational institution. To estimate the emissions from transportation, assumptions were made regarding the average number of miles traveled per student, which was then multiplied by a CO_2e factor per mile. For the purposes of this study, only automobiles were considered with a factor of 2.32 kg of CO_2e per gallons of gas and 22 miles per gallon.

Campus Carbon Footprints – Without Transportation

GCCCD campuses each provide unique examples of levels of CO_2e/sf. Two scenarios are provided: one in which transportation is not considered and a second in which transportation is considered. The results provide insight regarding the most significant contributors of GHG relative to each campus. Grossmont College currently stands at 7.6 lbs CO_2e/sf; Cuyamaca College's carbon footprint is currently 8.3 lbs of CO_2e/sf. In both cases, energy use is the main contributor to carbon emissions. This is further illustrated in the carbon study for each campus.

Carbon Footprint – With Transportation

To best understand the impact and relevance of transportation with regards to carbon footprinting, a calculation which includes transportation was also conducted. With this inclusion, Grossmont College's carbon footprint increases to 45.5 pounds per square foot per year, while Cuyamaca College's carbon footprint increases to 37.4 pounds per square foot per year. In addition, both Grossmont and Cuyamaca College campuses are operating with much greater carbon footprints when compared to a number of other institutions.

Comparative Analysis

[1]In order to give meaning to the college carbon footprint figures, a comparative analysis of similar institutions was conducted. The carbon footprints of several higher education institutions were calculated, based on each institution's published carbon footprint data, which is provided in the American College and University Climate Action Plan's 2010-2011 Annual report. The campuses of many of these institutions are located in similar climates and are similar in many respects to the GCCCD college campuses.

[1]La Roche, Pablo. Carbon-Neutral Architecture. CRC Press:Taylor & Francis Group, 2012.


Counseling
Transfer Center
Assessment
International Students
FINANCIAL AID
LINE STARTS
HERE
Have
Photo I.D.
Ready

SUSTAINABILITY RECOMMENDATIONS

The recommendations for sustainable campus facilities and site improvements are integrated into the overall recommendations for the future development of both college campuses. The focus of these recommendations was guided by the goals established by district stakeholders in the sustainabiity workshops and the opportunities that were brought to light through the Analysis.

This section of Chapter 01 GCCCD describes recommended strategies that may be applied throughout the district for the development of sustainable campuses. Campus-specific sustainability recommendations are integrated into the Recommendations sections of Chapter 02 Cuyamaca College, Chapter 03 Grossmont College, and Chapter 04 District Services.

These districtwide recommendations for sustainable facilities are organized into the following sections:

- Habitat Preservation + Restoration
- Storm Water
- Water Use + Reuse
- Energy Use + Renewables
- Waste Reduction + Management
- Transportation

Sustainability - Recommendations

HABITAT PRESERVATION + RESTORATION

The adjacency of the Grossmont and Cuyamaca college campuses to the San Diego community's most abundant natural resources creates a prime opportunity to play a substantial role in enhancing the biological diversity and overall health of the Southern California regional ecosystem. These natural resources include the Mission Trails Regional Park system and the Sweetwater Reservoir Park system, and biological preserves. In addition, both college campuses manage substantial areas within their boundaries, which are maintained as natural habitat and learning resources.

Environmental stewardship is one of the primary goals of GCCCD; specifically to preserve and restore natural ecosystems by adopting districtwide low-impact and sustainable development guidelines. GCCCD is also able to increase community awareness through educational opportunities such as interpretive gardens, restoration work, educational signage and community awareness campaigns related specifically to the natural environments that encompass each campus location. The modification and improvement of existing systems, development standards, and land use patterns will further contribute to the development of healthier natural habitats.

Wildlife Habitat Preservation

New buildings, parking, and roads shall minimize encroachment into existing native habitats. Maintain ongoing monitoring and removal of non-native or invasive plant species from the habitat areas. Habitats shall be linked or connected to provide migratory or natural pathways for fauna and flora.

Wildlife Habitat Restoration

Habitat shall be increased and incorporated into the campus core. Provide increased habitat for existing or sensitive animal species. Reintroduce native plant material, natural or constructed shelters, and water and food sources. Educational signage shall designate restoration areas for both public awareness and protection of newly established plants. Involve students by incorporating restoration projects into college curriculum.

Campuswide Sustainable Landscaping

Plant species selection is paramount in a sustainable landscape. Use of appropriate species for varying microclimates and exposures will result in reduced maintenance, reduced waste, and less water use. Thoughtful planting design is key in increasing campus safety (visibility at doors, pedestrian crossings, parking lots, etc.), reducing maintenance needs (setbacks from hardscape), and keeping replacement planting costs low. An overall reduction in un-programmed turf areas is recommended, combined with the conversion of sports fields and recreational lawn areas to alternative, low-water turf varieties.

Additional landscaping recommendations include: the development of and adherence to campuswide planting and irrigation design standards; mulching of all planting areas, including regular maintenance and replacement of mulches; using 'hydrozone' guidelines to group planting types; and using mass plantings of varieties to reduce maintenance needs.

DIEGAN COASTAL SAGE SCRUB

San Diego Sunflower
Viguiera laciniata

Flat Topped Buckwheat
Eriogonum fasciculatum

White Sage
Salvia apiana

Laurel Sumac
Malosma laurina

RIPARIAN & FRESHWATER MARSH

Willow
Salix spp.

California Sycamore
Platanus racemosa

Broom Baccharis
Baccharis sarothroides

Alnus spp.
Alder

CHAPARRAL

Prickly Pear
Opuntia spp.

Toyon
Heteromeles arbutifolia

Chamise
Adenostoma fasciculatum

Black Sage
Salvia mellifera

Sustainability - Recommendations

STORM WATER

Although rainfall on the GCCCD campuses is not plentiful, it is still necessary to account for storm water which falls on the sites. This is especially true for the GCCCD college campuses, as they are surrounded by natural reserves which are highly sensitive to water composition changes. In order to mitigate any potential runoff while upholding water quality for the surrounding environment, natural systems are recommended in the existing parking lots to provide treatment and reduce the water usage and cost during winter months. Pervious paving and bio-retention basins are recommended to manage storm water close to where it falls.

Implementing natural systems will reduce the impacts on the existing storm drain collection system. The need to replace aging parking lots provides the district with the opportunity to modify the paving to slope toward the bio-retention basins. Where possible, it is recommended to consider using a more pervious material in place of asphaltic paving. This will increase the perviousness of the site, thereby allowing storm water to naturally filter into surrounding soils, while reducing the heat island effect, as many alternative materials do not absorb and emit solar radiation with the same intensity that black asphalt would.

Although the seasonal nature of rainfall and current regulation and codes do not encourage a large-scale implementation of rainwater collection strategies, rain barrels can be installed on various locations throughout each campus to collect storm water from rooftops, and use it for localized landscape irrigation.

Natural Riparian Habitat at Cuyamaca College

Storm Water Rock Drainage 'Swale' at Grossmont College

Drainage Ditch at Cuyamaca College Lacks Storm Water Treatment

Vegetated Swale at Grossmont College

Sustainability - Recommendations

WATER USE + REUSE

Water is essential to California's quality of life, a liquid "gold." It is the essential backbone of our economy, and our culture. According to the Association of California Water Agencies (ACWA), "California's water system is facing a crisis. The water supply and delivery system is struggling to meet the state's growing needs. At the same time, critical environmental resources are in peril. From aging infrastructure to population growth to climate change, the region faces a complex set of problems that threaten the future of California's population, economy, and environment."

The district is facing a microcosm of this challenge. It is charged with supplying enough water to sustain the students, staff, and faculty on both campuses in a responsible way; and furthermore held accountable for informing and educating students and the community about conservation of this precious resource.

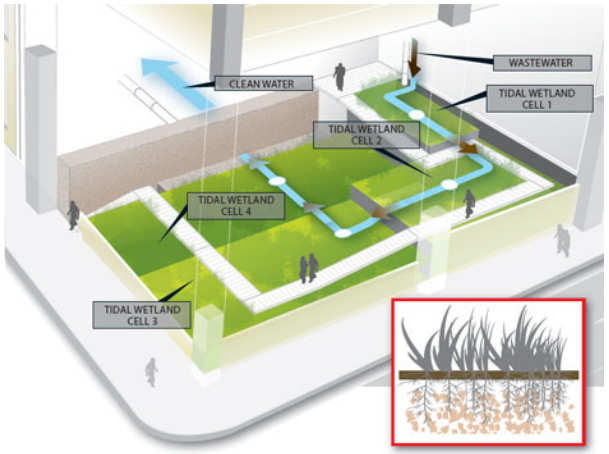
The district can continue to employ existing and effective water conservation strategies, while introducing new ones to safeguard limited water resources. Technologies such as waterless urinals and low-flow fixtures help reduce water consumption in campus buildings. Landscape management best practices, such as irrigation with reclaimed water, use of pervious paving materials, and drought-tolerant native plants also help the college save water and protect local watersheds.

Recommendations

- Further implementation of the CalSense program should occur in order to further optimize landscape water use. This measure has made a significant impact in terms of water use during the 2011-2012 year, and will continue to do so.
- Continue to upgrade building plumbing fixtures and aim for 40% below the Energy Policy Act water usage baseline.
- HVAC cooling coils inherently produce condensate. This gray water is discharged into the sanitary sewer system instead of being kept on campus for use. It is recommended that new buildings have condensate recovery vessels adjacent to the buildings in the local landscape area.
- When implemented on a modest scale, rainwater harvesting can be an effective, albeit seasonal, way to provide water to localized vegetated areas, while providing an interesting sustainable education component.
- Consideration of robust water reuse and conservation technologies such as "The Living Machine" which treats "blackwater," (water which would ordinarily go to the sewer line), and brings it to a level which is usable for irrigation.

Living Machine Concept

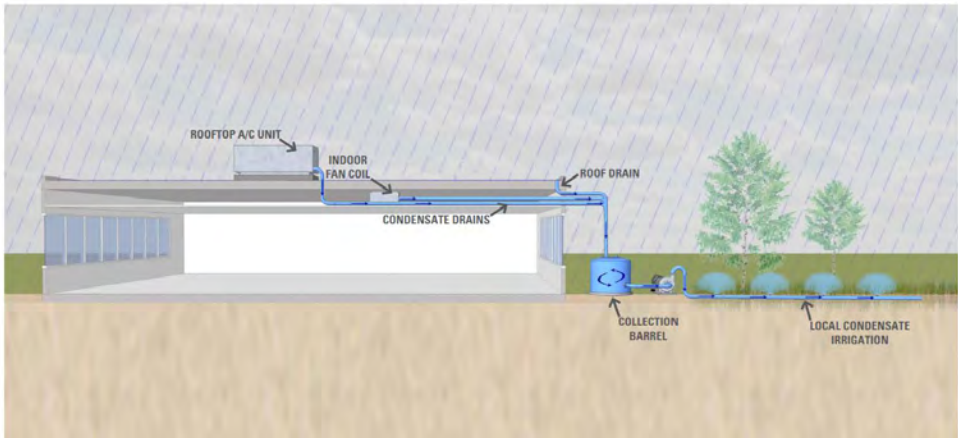
1. Influent Blackwater or Graywater is collected
2. Enters Primary Tank
3. Enters Recirculation Tank
4. Stage 1 - Tidal Flow + Wetlands
5. Stage 2 - Vertical Flow + Wetlands
6. Effluent Reuse for Toilets, Irrigation, Cooling Towers



Rainwater Harvesting

Purple Pipe (Municipally Supplied Water)

Low-flow Plumbing Fixtures



Condensate Recovery
source: Glumac

Sustainability - Recommendations

ENERGY USE + RENEWABLES

Energy conservation can be best achieved through the integration of solar passive design strategies, which are then supplemented by mechanical systems, and then enhanced with renewables systems. Employing such a methodology will result in greater energy performance, optimum energy savings, and better overall life-cycle costs.

Winter Passive Heating Strategies

During the cooler months, effective passive heating can be achieved through the use of strategies such as enhanced building insulation and a tight building envelope. This will prevent internal heat from escaping the building. In doing this, the heat generated by people and electronic devices and equipment can be retained and used to naturally warm the building. Adequate air changes would still be provided via the use of high clerestory windows or solar chimneys, which allow hot air to exhaust out of the building.

Passive heating could also be enhanced by using the thermal mass of the building materials themselves. Low mass materials such as lightweight concrete and wood have the ability to absorb solar exposure and then radiate the heat into interior spaces effectively. By allowing the sun to penetrate glazing and then warm the interior floor slab of spaces, for example, the thermal mass of the floor will be able to absorb the warmth of the sun and then radiate it back into the interior. To achieve this, glass areas should be oriented south to maximize winter sun exposure, while overhangs should be designed to allow the sun to penetrate in the winter and fully shade the glass in summer.

To supplement passive heating, mechanical heating should still be implemented. Strategies such as radiant heating offer an effective way of heating interior spaces via the floor slab. As hot water is piped into the floor slab, the space can be warmed efficiently.

Summer Passive Cooling Strategies

During warmer months, solar passive strategies such as natural ventilation can be highly effective. By using a combination of operable windows and access to outdoor courtyards, building occupants will be able to take advantage of cool summer breezes, and rely less on mechanical cooling systems. This can be combined with HVAC interlocks, which, through the use of sensors, ensure that when a window or door is propped open, mechanical heating and cooling is shut off. This will result in increased occupancy comfort and reduced energy consumption.

An efficient building envelope using high performance glass units and thermal insulation in walls and roofs will prevent solar heat from entering the building while achieving effective cooling. Summer cooling can also be facilitated by preventing unnecessary heat gains with sun shading devices such as vertical fins along east and west facades, and deep horizontal overhangs along the south facades of buildings. The use of high mass building materials such as concrete masonry units (CMU) or high density concrete can enhance the insulation properties of the building envelope, by delaying the rate of heat transfer from the exterior to the interior.

Renewable Systems

Solar Domestic Water Heating

The sun can be used to naturally and efficiently heat water for shower and kitchen facilities. This strategy is highly effective and does not require much equipment space.

Solar Thermal Swimming Pool Heating

Solar thermal systems could be used to heat water for pools. These roof-mounted devices have a longer payback period, but are a very efficient way to supplement conventional pool heating systems.

Photovoltaics

It is recommended that photovoltaic panels be installed above open parking lots and available roof top areas on campus to provide 40% of the campus power requirements. Panels made of crystalline silicon that generate 13 watts per square foot are common today. It is also recommended that PV panels be installed near maintenance facilities to power electrical maintenance carts. At the current installation cost of about $6 per watt, a payback of 25 years could be seen without any incentives.

Low-e high performace glass, combined with solar fins to bring in light and prevent solar gains.

Building spaces which have access to adjacent courtyards provide natural ventilation and daylighting.

Tubular skylights provide daylighting.

Fuel Cells - Strategy for the Future

Natural gas fuel cells rely on clean, inexpensive fuel to produce electricity with very limited environmental impact. A fuel cell will not be installed to handle the entire electrical needs of the campus, but instead will be large enough to provide a base load for most of the year. At times in the summer there will be a need to use energy from the electrical grid, but much of this will be offset by the photovoltaics installed as previously described. Having a 100 kW fuel cell will occupy approximately 590 square feet on campus and will offset approximately 100,000 kWh per year. It is recommended that the fuel cells be installed at some point in the future, as this technology continues to advance.

Recommendations

Solar passive strategies for heating:

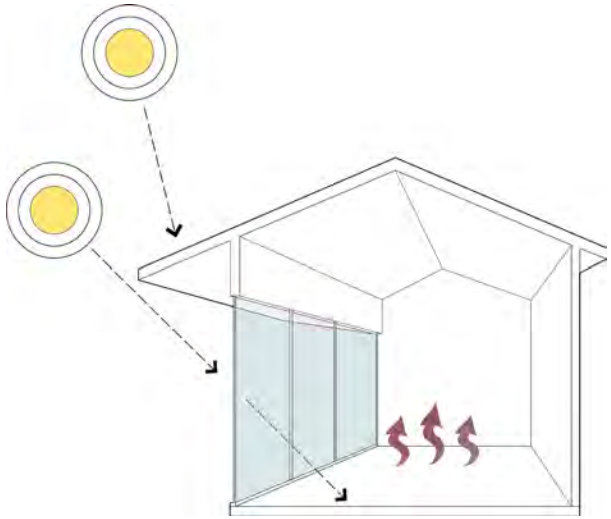
- Enhanced building insulation and tight building envelope via high performance glass units and building insulation in walls and roofs
- Using internal heat gains from people and operations
- Low thermal mass building materials
- Radiant heating

Solar passive strategies for cooling:

- Natural ventilation via operable windows and access to outdoor courtyards with HVAC interlocks
- Enhanced building insulation and tight building envelope via high performance glass units and building insulation in walls and roofs
- Sun shading devices such as vertical fins along the east and west facades, and deep horizontal overhangs along the south facades
- High mass building materials

Renewables

- Solar domestic water heating
- Solar thermal swimming pool heating
- Photovoltaics
- Fuel cells



Sustainability - Recommendations

WASTE REDUCTION + MANAGEMENT

GCCCD currently runs a robust recycling and landfill diversion program at both campuses. It is recommended that the following strategies be implemented to further the success of this operation:

- Support student participation in Recyclemania.
- Increase construction waste management requirement to 95% landfill diversion.
- Conduct recycling and landfill diversion study.
- Sort recyclables by product type (glass, paper, cardboard, etc.) to increase efficiency.
- Coordinate with campus food service vendors to collect used cooking oil on a regular basis. Contact a local oil recycler to schedule regular pickup of the oil. The oil recycling company will convert the oil into bio diesel for machinery and modified diesel vehicles. The pickup is usually free of charge.
- Coordinate with campus food service vendors and the Horticultural department to commence an on-site composting program.
- Phase out use of plastics by campus food services.
- Continue to provide recycling bins throughout the campus and consider providing composting bins.

Recycling and Landfill Disposal Bins

Compost Food Waste


Recycle used cooking oil into bio diesel

Phase Out of Plastics

Sustainability - Recommendations

TRANSPORTATION

The majority of GCCCD's student and faculty population is composed of single occupant vehicle (SOV) drivers. This volume and frequency of vehicular operations impacts the districtwide carbon footprint. Since automobiles are a major contributor to greenhouse gas emissions, and in order to support cost-effective access to quality education and aid in reducing the district's overall carbon footprint. It is recommended that a thorough, districtwide transportation analysis be conducted. The following justifications are provided:

Improve Access and Affordability

Facilitate student travel to GCCCD college campuses.

Reduce Reliance on Single Occupant Vehicle (SOV) Travel

By reducing student and employee dependence on (SOV) travel, GCCCD benefits in terms of:

- Conservation of land area and realization of cost savings from reducing the need to expand parking capacity
- Compliance with regional planning initiatives
- Compliance with regulations that seek to minimize vehicle miles traveled and/or parking requirements

Recommendations

The following strategies are recommended:

- Improve public transportation access by continuing to collaborate with the Transportation District.
- Provide preferred parking for alternative fuel vehicles.
- Provide electric vehicle charging stations, shaded and powered by photovoltaic shade structures.
- Provide incentives for carpooling.
- Coordinate class schedules with mass transit schedules in order to facilitate the use of mass transit options.
- Develop more opportunities for distance learning to reduce commutes to the campuses.
- Provide more amenities and resources to help retain students on campus between classes.
- Provide preferred parking for those who drive low emitting and/or zero emitting vehicles.
- Subsidize mass transit use with free or discounted passes.
- Provide shared transport services such as ZimRide.
- Expand and publicize RideShare programs.

Sustainability - Recommendations

CARBON PLANNING RECOMMENDATIONS

The *GCCCD Facilities Master Plan* provides a preliminary assessment of the district's carbon footprint. It is recommended that a more detailed analysis of each college's contributing greenhouse gas factors be conducted, for all four of the basic categories (energy, water, waste, and transportation). Furthermore, it is recommended that GCCCD consider adoption of the American College and University Presidents' Climate Commitment program. Signatories of the ACUPCC agree to the following actions:

- Complete a greenhouse gas emissions inventory for the campus.
- Within two years, set a target date and interim milestones for becoming climate-neutral.
- Take immediate steps to reduce greenhouse gas emissions by choosing from a list of short-term actions.
- Integrate sustainability into the curriculum and make it part of the educational experience.
- Make the action plan, inventory and progress reports publicly available.

To champion this effort, it is recommended that GCCCD enlist the service of its sustainability committee, composed of students, faculty, and staff representatives. This committee could work in conjunction with an environmental consultant to complete the inventory and report.

By conducting a carbon footprint analysis, and proposing solutions to reduce the effects of climate change, the district will be demonstrating their leadership in the area of climate action to students, staff, the community, and to higher educational institutions worldwide. In addition, conducting such an analysis will reveal tangible solutions for saving energy and water, for reducing waste, and for curbing the negative effects of SOV transportation. Furthermore, a commitment to climate action will attract new students and faculty, promote environmental awareness, and increase the district's access to resources and funding.

Technology

Technology

PLANNING FOR TECHNOLOGY

This section of the *2013 GCCCD Facilities Master Plan* (FMP) addresses the facilities and physical infrastructure supporting the ongoing deployment and operation of essential technology systems throughout the campuses of Grossmont College, Cuyamaca College, and the centralized District Services for Grossmont-Cuyamaca Community College District.

The plan for technology facilities and infrastructure is described in the following sections:

- Analysis
- Recommendations

Technology
ANALYSIS

The *Grossmont-Cuyamaca Community College District Educational Master Plan March 2012* serves as the basis for planning and resource allocation throughout the district. Accordingly, it is the basis for the analysis and recommendations presented here. Additional references include the current districtwide technology master plan as well as the individual campus technology planning documents currently in effect. These technology master planning documents specifically focus on the district's technology hardware and software planning priorities. The technology assessment and recommendations presented here as part of the *Facilities Master Plan* are directly correlated with those plans and support those plans by identifying the physical infrastructure and facilities needed to facilitate optimal technology deployment.

Technology is referred to throughout the *Educational Master Plan* as an essential tool in realizing the stated goals. The adjacent list paraphrases some of the key goals, observations, and references within the *Educational Master Plan* that will influence the development of new technology facilities and infrastructure.

Observations

Today's Students are Much More Tech-Savvy
Traditional teaching methods fail to engage them. They prefer to work in teams. They do not relate to a lecture mode.

Mobile Access to Resources
The demand for mobile access to learning resources will rise as people increase their wireless access to networks and the Internet.

Rapid Developing Technology
The ongoing development of new technology is increasing the demand for technology programs and curriculum options.

New Growth Opportunities
Technology will facilitate the development of new disciplines and career opportunities.

Goals

Conserve
Use technology to promote resource conservation.

Support Successful Learning
Use technology to support student learning and success.

Use Technology as a Teaching Source
Create an environment that embraces new teaching technologies and uses professional development and mentoring to assist in the implementation of these technologies.

Technology
ANALYSIS

To support this master planning effort, a general assessment was made of the existing facilities and infrastructure to evaluate the current conditions and identify opportunities to guide the integration of technology within the long-term campus development. For the purpose of this plan, the term "technology" is established to include the following primary categories and components:

Campus/Site Technology Infrastructure
- Backbone Cable Distribution Pathways
- Outside Cabling Plant (Copper & Fiber)
- District/Campus Data Centers
- Outdoor Area WiFi Access

Base Building Technology (Group 1: Built-in systems + Equipment)
- Communication Equipment Rooms
- Building Structured Cabling
- ADA Support Systems (e.g. Assistive Listening Systems)

FF+E Technology
(Group 2: Movable Systems + Equipment)
- Communications & Networking
- Computing
- Audiovisual
- Miscellaneous Campus Systems (e.g. Central Clock, Digital Signage, etc.)

The following observations were noted:

Existing Building Conditions

Both college campuses were originally planned and constructed in the 1960s and 70s, predating the technologies that are so essential to every aspect of learning, institutional administration, and district operations. As a result, much of the basic physical infrastructure that supports technology on the campuses has been retrofitted within an existing context. In addition, recent capital development programs have introduced a number of new and renovated facilities that integrate current technology tools and the building infrastructure to support them.

Most of the older buildings on both campuses have been upgraded to integrate data networking, telecommunications, and audiovisual technology. All teaching spaces provide basic audiovisual presentation capability and data network access. Some facilities supporting academic programs with a specialized technology focus (e.g. electronic media production, performing arts) struggle to maintain current technology tools due to limited funding resources and may be working within facilities that fail to adequately support current technology tools.

The integration of technology within much of the existing building inventory has been carried out over a period of many years, resulting in a wide range of current and older technologies and wide variations in the integration approach. This appears to be a result of many projects being driven by individual faculty or staff without a common set of facility-oriented technology standards or development guidelines.

Also, technology integration within many of the renovation projects is compromised by existing building conditions such as limited equipment room and storage space, HVAC system capacities, cable distribution pathways, lighting, ceiling heights, structural clearances, etc.

Although the newer buildings on both campuses provide a full complement of current or recent technologies, there are wide variances in the approach and effectiveness of the technology integration. Again, this appears to be the result of individual projects being driven by different individuals, varying academic needs, different design teams, and a lack of common facility-oriented technology standards or design guidelines.

Technology
ANALYSIS

Existing District + College Infrastructure

At the college campus level, new facilities as well as older buildings are tied into the larger college and district context through a network of infrastructure that has developed to accommodate shifting needs over many years. For example, campus data center facilities have been built and expanded within existing buildings that were not originally constructed to provide the level of services expected in modern data center facilities. And with the connection of each new building onto the campus backbone, new pathways and new layers of infrastructure have been added, creating a complex web of service pathways and network connectivity. Given the long time period over which campus communications backbone infrastructure has been developed at both campuses, we anticipate that the physical condition and capacities of the cabling and pathways vary widely.

Incoming data and communications services from local service provider networks have proven in past performance to be very reliable and network failures have been rare. Each campus has a single physical connection pathway for incoming services which theoretically puts the campus at risk of service disruptions due to broken connections or service provider outages.

WiFi data network access has been identified as a critical technology resource to enable mobile information access. WiFi service is available throughout most buildings on campus. However, availability of access in outdoor areas is inconsistent and appears to be a function in many locations of signal bleed from adjacent buildings.

A number of campuswide technology systems are currently deployed within buildings on both campuses. The extent to which these systems are coordinated and standardized within individual campuses and across the district is unclear. These systems include the following:

- Digital Signage
- Public Address
- Master Clock
- Intelligent Building Controls (for energy-efficiency + occupant comfort)

"Smart" Building Technologies

Sustainable campus operations, as well as "green" building design and construction, are high priorities for the district. Computers, office equipment, AV systems, and other technology hardware account for a substantial proportion of a commercial or institutional building's total energy consumption. While LEED and other "green building" design and construction guidelines address efficiency of major building systems such as lighting and HVAC, they do not address power consumed by devices plugged into building power receptacles (i.e. plug loads). In large buildings and across campuses, the plug loads associated with unmanaged technology hardware can represent an enormous waste of energy and money.

The district has deployed electronic control systems at both campuses to manage landscape irrigation and water utilization. Some newer buildings may also be equipped with building management systems (BMS) to enhance the operational efficiency of HVAC systems within those buildings. No integrated campuswide or districtwide smart building controls were identified.


EXIT
Participate in SOCIAL and CULTURAL activities.

Technology

RECOMMENDATIONS

To achieve the district's stated goals, future facility and infrastructure planning must place a strong and consistent emphasis on building a reliable and adaptable framework of technology infrastructure and facilities that can accommodate the varied and constantly evolving needs of students, faculty and staff.

Effective deployment and utilization of technology plays a critical role in the success of every organization. GCCCD invests heavily in technology systems and support resources across all areas of its academic, administrative, and operational activities. In order to optimize the return on that investment, efforts must be made at every level to optimize the performance and effectiveness of the technologies deployed. This means more than simply installing the right hardware and software and providing the necessary technical support. It also means providing an operating environment that optimizes system lifespan, operating efficiency, and the utility of the technology for its intended purpose. In the context of facility planning and development, the organization must emphasize the following:

Principles of Good Technology Design:

01 **Provide the Physical Space**
Examples include equipment rooms, cable pathways, accessibility and building services such as power, HVAC and security to accommodate technology systems and maintain efficient operating conditions.

02 **Design Building Environments to Optimize the Human-Technology Interface**
Examples include electronic image quality, viewing sight lines, acoustics and audio intelligibility, lighting, user control interface.

03 **Design Buildings + Building Systems with Flexibility**
Accommodate changing technology, evolving user needs, and capacity for future growth.

04 **Be Consistent**
Maintain consistency throughout all facilities with regard to how technology is deployed and how people interact with the technology.

05 **Utilize "Smart Building" Technology and Integrated Communications**
This principle helps reduce energy consumption and increase building operational efficiency.

Technology

RECOMMENDATIONS (CONTINUED)

This section describes the primary issues identified in the assessment and summarizes the recommendations aimed at optimizing future facility and infrastructure development to support technology.

Facility-based Technology Standards

Establish facility standards and design guidelines to support technology integration into future planning, design and construction of campus infrastructure improvements, new building development, and existing building renovations. Standards should consider the broad range of technology types impacting building design and system performance, including audiovisual, data and communications, intelligent building controls, etc. Emphasis should be placed on standards and guidelines that will lead to the development of economical facilities and infrastructure that can support the ongoing evolution of technology systems and evolving user requirements over the functional life of the physical plant.

Communications Backbone Infrastructure

Perform a comprehensive assessment of existing inter-building data and communications cabling and distribution pathways (i.e. outside plant, OSP) to determine suitability to provide appropriate levels of reliability, system performance, and future campus and technology development, including the capacity to provide reliable high-speed signaling to support all networked communications (e.g. telephone, data networking, mobile devices, audiovisual, building management systems and controls, security and alarm, emergency notification, etc.).

Incoming Communications Services Connections

Perform a thorough assessment of the level of risk that single communication service provider connections pose at each campus. Identify opportunities and costs to mitigate those risks by providing new redundant connection paths and secondary/back-up provider connections.

Data Centers

Develop new data center facilities to support both college campuses and District Services. District data center requirements may be integrated into one of the college campus data centers for greater efficiency. New data center facilities should anticipate long-term growth requirements, appropriate criticality/tier levels of performance, and alignment with college and district technology long-term and strategic plans and operating resources.

Campus WiFi Data Access

Develop campuswide infrastructure to support WiFi data network deployment throughout 100% of campus indoor and outdoor areas.

“Smart” Building Technology

Identify opportunities and assess feasibility to expand, integrate, and centralize energy management and building systems controls to improve operational efficiency and reduce costs. Develop corresponding districtwide facility planning and design standards to guide future building and infrastructure improvement projects.


BUSINESS & TECHNOL
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CUYAMACA COLLEGE

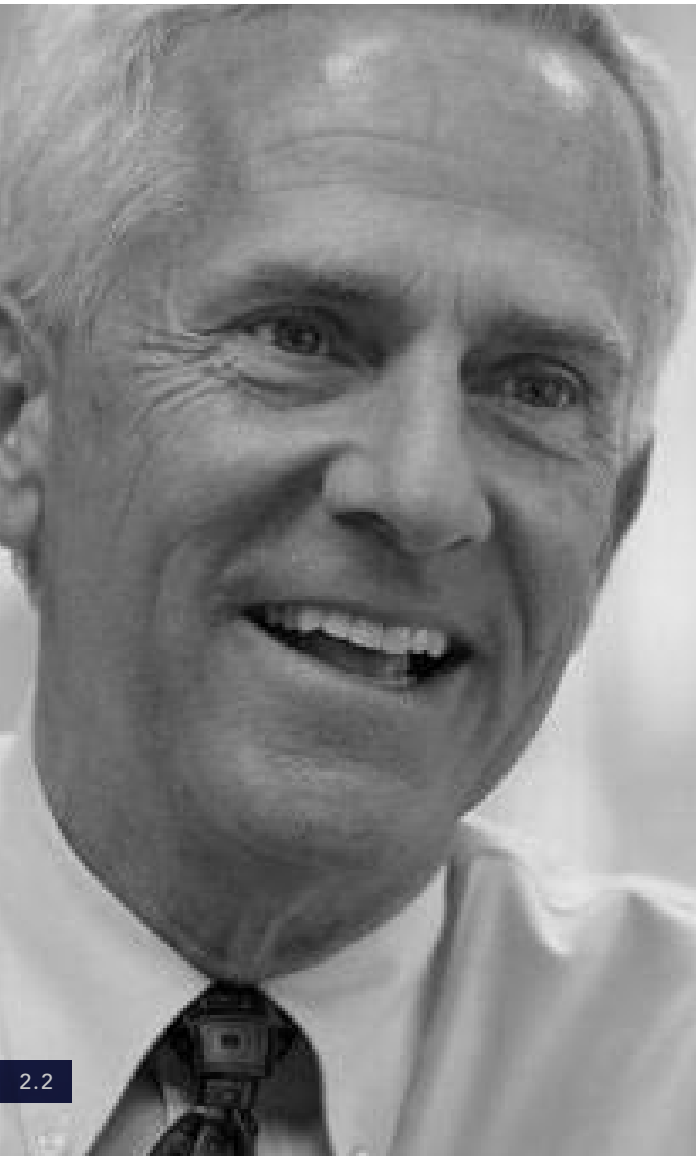
CUYAMACA COLLEGE

2013

FACILITIES MASTER PLAN

CUYAMACA COLLEGE

LETTER FROM THE PRESIDENT



Since Cuyamaca College opened in 1978, it always has been widely recognized as a campus where innovation is encouraged and environmental sustainability is a way of life. Its culture is special and unique. We serve a diverse student body that comes to us for many reasons – education, job training, or enrichment. We are also recognized as a college with a strong planning culture. The connections among our planning, our budgeting, our service to students, and our focus on the future are renowned.

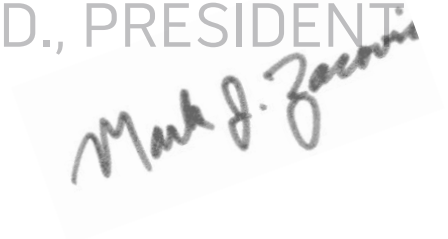
Job training remains a paramount priority for our region and for the State. Cuyamaca College positions itself as the community's partner in vocational programs such as ornamental horticulture, auto technology, solar energy, water/wastewater, and child development. Teaching facilities to retain our prominence in vocational education must remain current and up-to-date. This plan reflects the need.

Our contributions to higher education in East County are highly valued. Because of the affirmation the district received from East County voters through the passage of Proposition R in 2002, new facilities were added at Cuyamaca College to better support our students and improve their academic experience. At the heart of the Cuyamaca campus is the Student Center, a vibrant and comprehensive location that supports student life. Services, offices, and meeting spaces serve both the college and the community. The handsome and state-of-the-art Business and Technology Building offers the latest computer technology to serve a wide variety of students, while the Communication Arts Center houses classrooms, labs, and independent learning facilities, in addition to two first class theaters with superb acoustics.

The Science and Mathematics Center, named for Wendell Cutting, who was a strong voice for higher education in East San Diego County, brought much needed modernized classrooms and laboratories to the campus. The demand for science and mathematics education continues to skyrocket in the community colleges as it supports and readies our transfer and baccalaureate degree seeking students.
Our work continues with the Facilities Master Plan for Cuyamaca College, the result of an extensive planning process that looked at the College's immediate needs and future use. We strongly believe that students will achieve more in quality programs that are supported by first-class facilities and equipment. The plan prepares us for the next phase of needed renovations and construction, and emphasizes renovation of some College facilities while preserving the natural beauty of the campus.

This plan will allow us to actualize our vision of Learning for the Future, and allow us to continue to serve the communities of East County with quality, relevance, commitment, and passion.

MARK J. ZACOVIC,
PH.D., PRESIDENT



VISION

Learning for the Future

MISSION

The mission of Cuyamaca College is to serve a diverse community of students who seek to benefit from the College's wide range of education programs and services.

In order to fulfill its commitment to student learning, the College provides:Instructional programs that meet student needs for transfer education, career technical education, general education and basic skills courses.

- Community education programs and services.
- Programs that promote economic, civic and cultural development.

To facilitate this mission, Cuyamaca College provides a comprehensive range of support services including: outreach and access initiatives, academic and learning resources, student development programs, and mulitcultural and co-curricular activities.

In support of its mission, Cuyamaca College structures its planning processes and engages the college community by pursuing the following areas of focus, which form the foundation of the 2010–2016 Strategic Plan:

- Student Access
- Learning and Student Success
- Value and Support of Employees
- Economic and Community Development
- Fiscal and Physical Resources

VALUES

Equitable Access
We value equitable access that facilitates participation in academic programs and support services needed to meet students' educational goals.

Individual Student Success
We offer courses and programs leading to degrees, certificates, transfer, employment, personal enhancement, and lifelong learning.

Academic Excellence
We employ a variety of methodologies and technologies responsive to students' needs and conducive to students' varied educational and experiential backgrounds and learning styles.

Innovation and Creativity
We value innovation and creativity in order to encourage our students to question and to expand their thinking.

Diversity and Social Harmony
We value and embrace diversity and create opportunities for our college community to work together to meet the challenges of a complex global society.

Environmental Stewardship and Sustainability
We take pride in our campus and its resources, and we strive to be on the forefront of sustainability and green technology.

Strong Community Relations
We recognize our role in the cultural, educational, technological, and economic/workforce development of the communities we serve.

Analysis

Analysis

ANALYSIS

This section documents the analyses of the existing conditions that shape the use of the Cuyamaca College campus. The analyses are based on observations and information gathered during campus tours, interviews with faculty and staff, and discussions with the Cuyamaca College Master Plan Task Force.

The graphic and narrative descriptions focus on the following:

- Existing Campus
- Campus Zoning
- Campus Development History
- Vehicular Circulation + Parking
- Pedestrian Circulation
- Climate
- Habitat
- Storm Water
- Water Use
- Energy Use
- Waste
- Transportation
- Carbon
- Summary of Findings

Analysis

EXISTING CAMPUS

The Cuyamaca College campus lies at the margin of the Sweetwater River Valley in Rancho San Diego, an unincorporated area of eastern San Diego County near the city of El Cajon. The campus is embraced by the foothills and the northern and western edges of the campus extend up onto the hillsides.

The upper slopes have been preserved as natural habitat. Most of the campus buildings and exercise science outdoor instructional facilities sit on terraces near the base of the slopes. The southern and eastern areas lie on the more level valley floor. The campus entries, most of the parking lots, and several exercise science outdoor facilities occupy this zone. Several unique facilities have been developed within this level area.

The top of a small hill near the southern property line is the site of the Heritage of the Americas Museum. Next to the museum, the Water Conservation Garden has been developed through a Joint Powers Authority with local water districts. Both the museum and garden are located on GCCCD property and operate independently under long-term leases.

A heavily vegetated riparian habitat runs along the eastern border of the campus. A strip of land, housing commercial and residential uses, lies beyond the southeast property line and fronts upon Jamacha Road, which is a busy section of State Route 54. The northeast property line is defined by Fury Lane.

Two water utility easements run through the campus. A fifty-foot-wide easement passes through the center of campus, strongly influencing the placement of buildings and site improvements along its path.

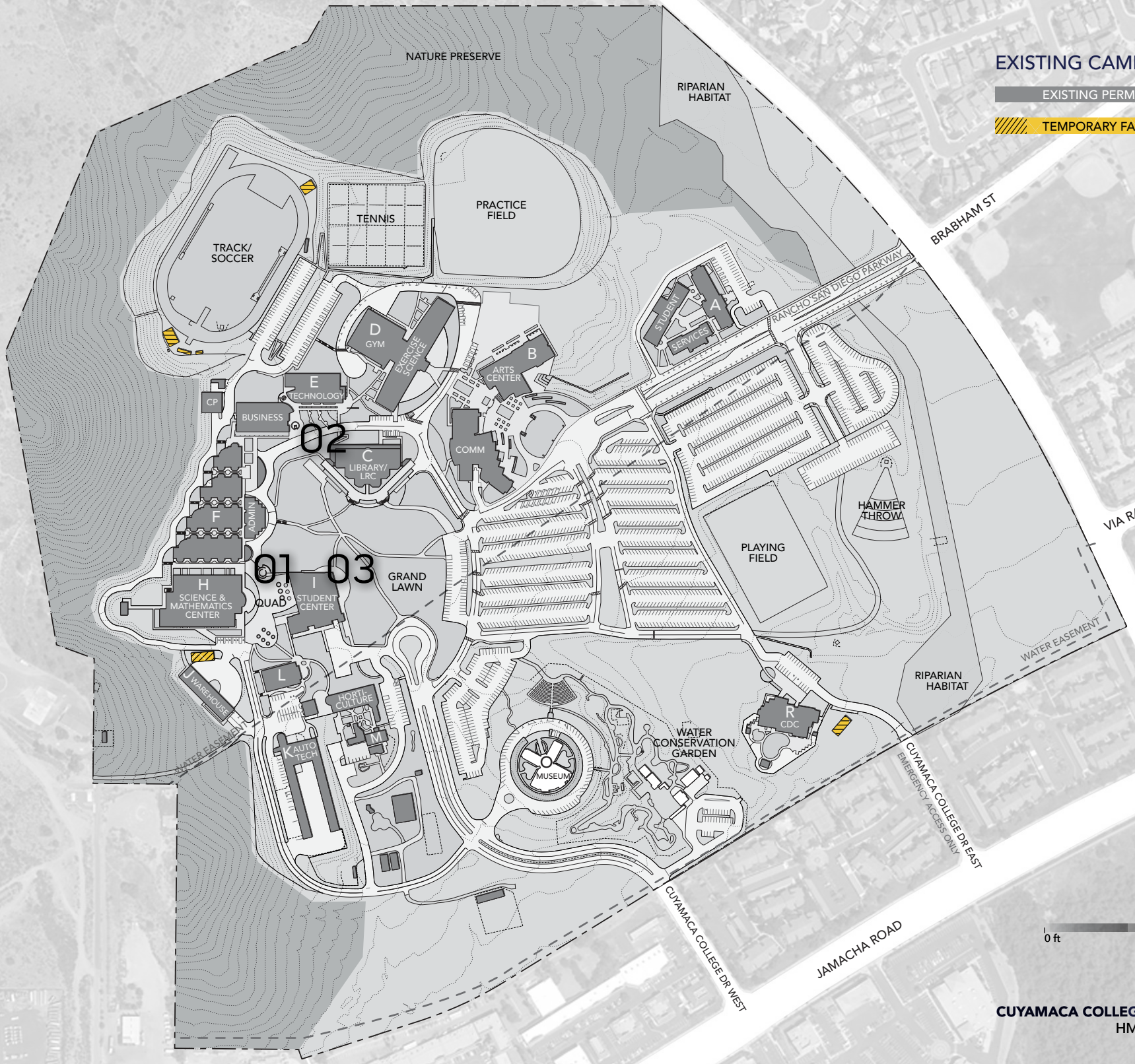
Observations

- The campus is not clearly visible to the community from the surrounding streets.
- The campus is separated from Jamacha Road by neighboring properties and Fury Lane by the riparian habitat.
- Several existing features must be considered when planning future development, including utility easements and facilities that are operated by non-district entities.
- Portions of the campus have been set aside as nature preserves.
- The campus has relatively few temporary facilities.

EXISTING CAMPUS PLAN

EXISTING PERMANENT FACILITIES

TEMPORARY FACILITIES



Analysis

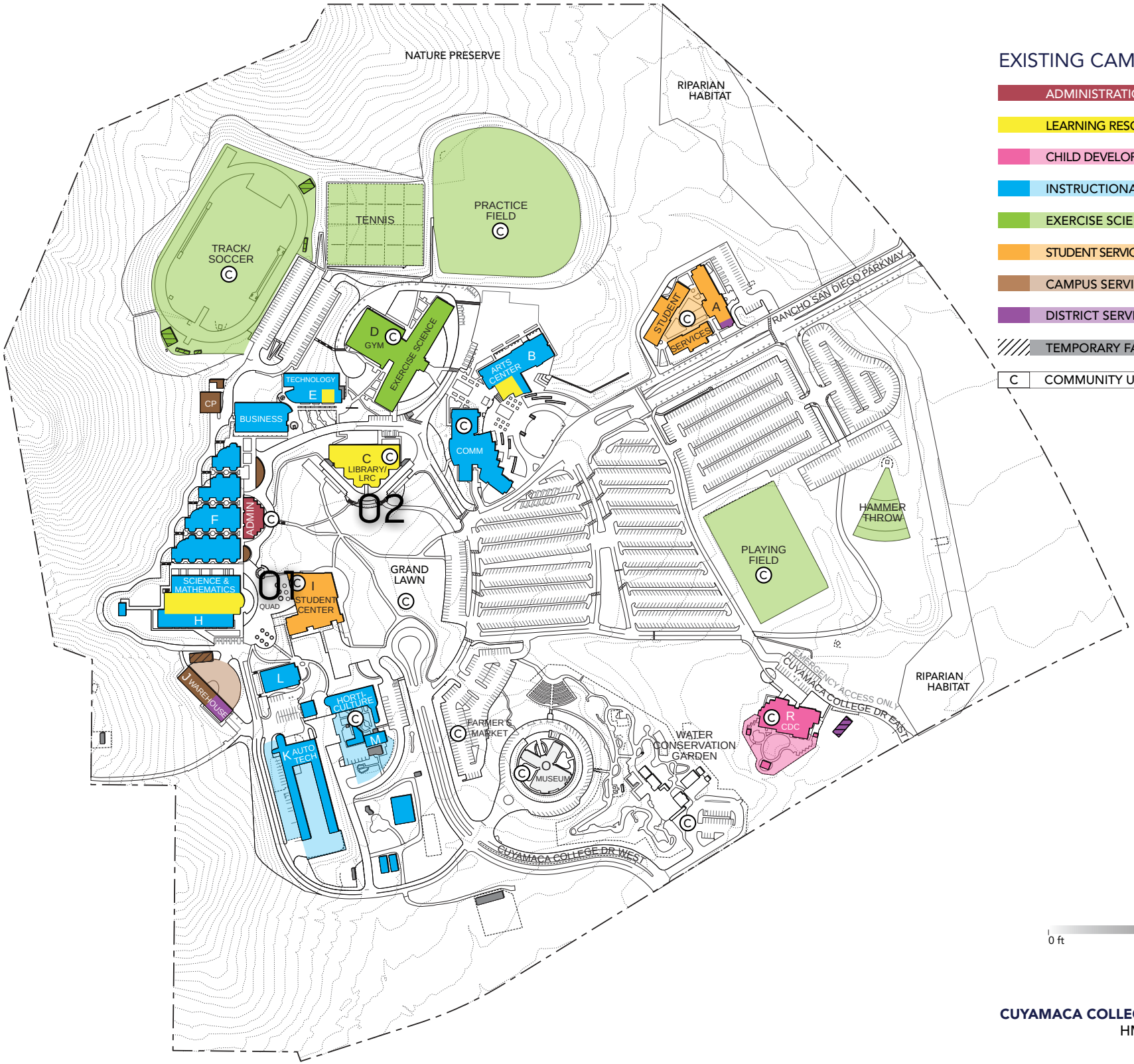
CAMPUS ZONING

The campus core building zone is arranged on a series of terraces in an arc around the Grand Lawn and main parking lots. The roughly radial layout is informal and driven by the topography. The Grand Lawn functions as the "front door" space that welcomes visitors when they follow the main driveway into campus.

The plan shows the zoning of buildings and open space for the following functions: Administration, Student Services and Activities, Learning Resources, Instructional, Exercise Science Instructional, Child Development Center (CDC), District Services, and College Services. The plan notes the facilities that the community frequently visits.

Observations

- The Student Services functions are located in space that is too small to accommodate the college's needs and is remote from the campus core.
- The Administration Offices are not easily accessed by visitors.
- The Exercise Science outdoor labs are separated into two areas. Most of the facilities are in the upper campus and are not easily accessed from the main parking lots.
- The lower playing field is not used much by the college, but it is heavily used by the community.
- The Child Development Center (CDC) location was chosen to be away from the campus entries.
- The letter-based system for building identification is neither user-friendly nor does it indicate the primary building use for students and visitors.
- The college lacks a truly sufficient space in which to hold graduation ceremonies.
- At the Cuyamaca College campus, the district Services are mainly campus police and warehouse functions that occupy a portion of Building A and Warehouse J. The college is in need of more space for maintenance facilities.



EXISTING CAMPUS ZONING

- ADMINISTRATION
- LEARNING RESOURCE CENTER
- CHILD DEVELOPMENT CENTER
- INSTRUCTIONAL
- EXERCISE SCIENCE INSTRUCTIONAL
- STUDENT SERVICES + ACTIVITIES
- CAMPUS SERVICES
- DISTRICT SERVICES
- TEMPORARY FACILITIES
- C COMMUNITY USE

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Analysis

CAMPUS DEVELOPMENT HISTORY

Development of the 165-acre campus began in the 1970s on what was formerly ranch land. It opened in 1978 with facilities designed to accommodate 3,500 students. During the first decade of this millennium, a master plan was developed. Enrollment reached 7,073 students by fall 2000 and Proposition R, a local bond issue, was approved by the voters of eastern San Diego County in 2002. Prop R and state matching funds paid for the construction of new buildings and the reconstruction of existing buildings.

Observations

- There is a need to focus on the 1970s and 1980s-era buildings that have not been replaced or renovated in the last decade.
- Needed facilities improvements have also been identified for the Gymnasium, Exercise Science Building D, and Exercise Science outdoor instructional facilities.

1960 - Formation of the district

1964 - Grossmont College campus opens

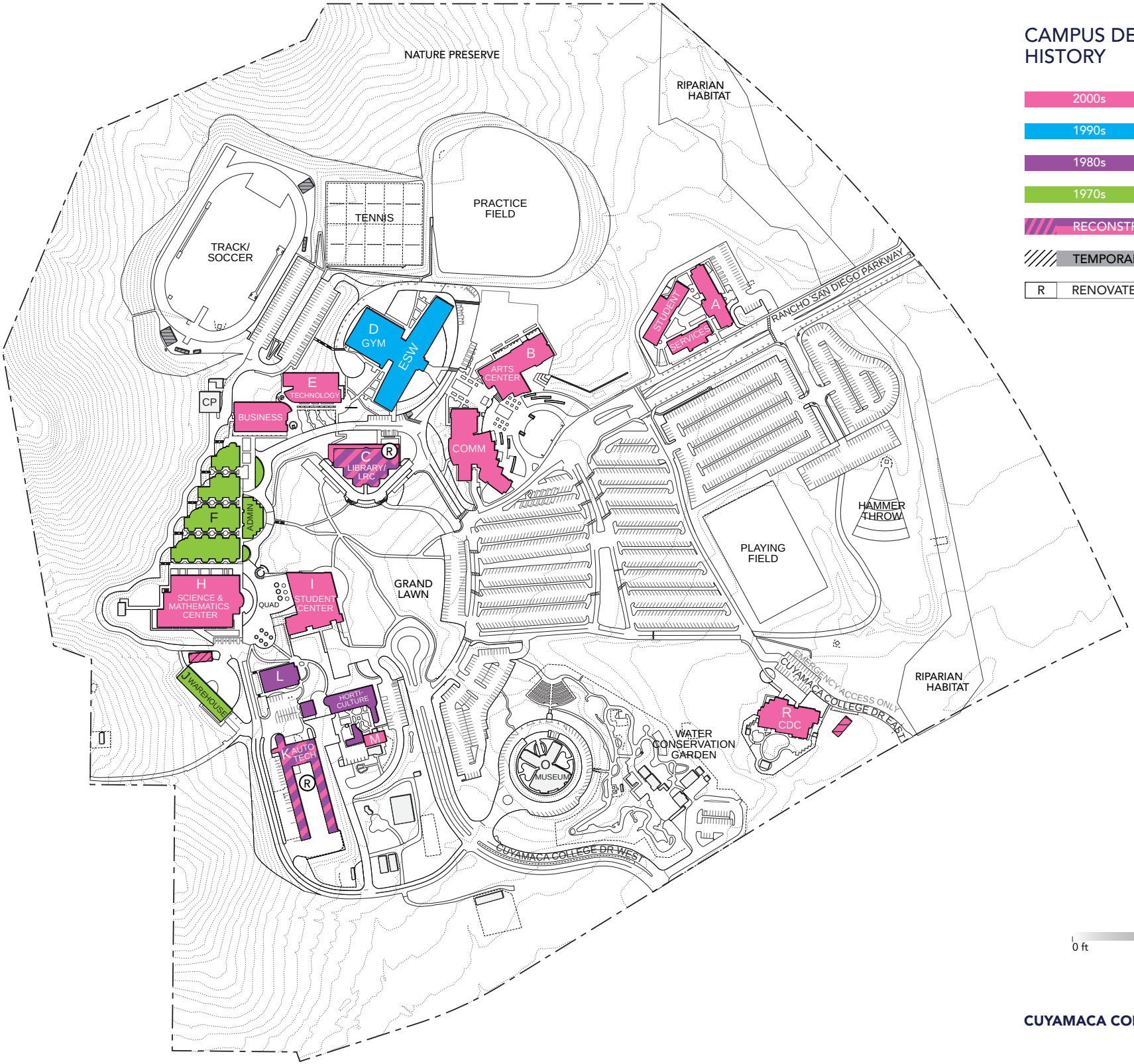
1978 - Cuyamaca College campus opens

2002 - Voters approved Proposition R

2012 - Voters approved Proposition V

1960 70 80 90 2000

CAMPUS DEVELOPMENT HISTORY



2000s

1990s

1980s

1970s

RECONSTRUCTED FACILITIES

TEMPORARY FACILITIES

R RENOVATED FACILITIES

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Analysis

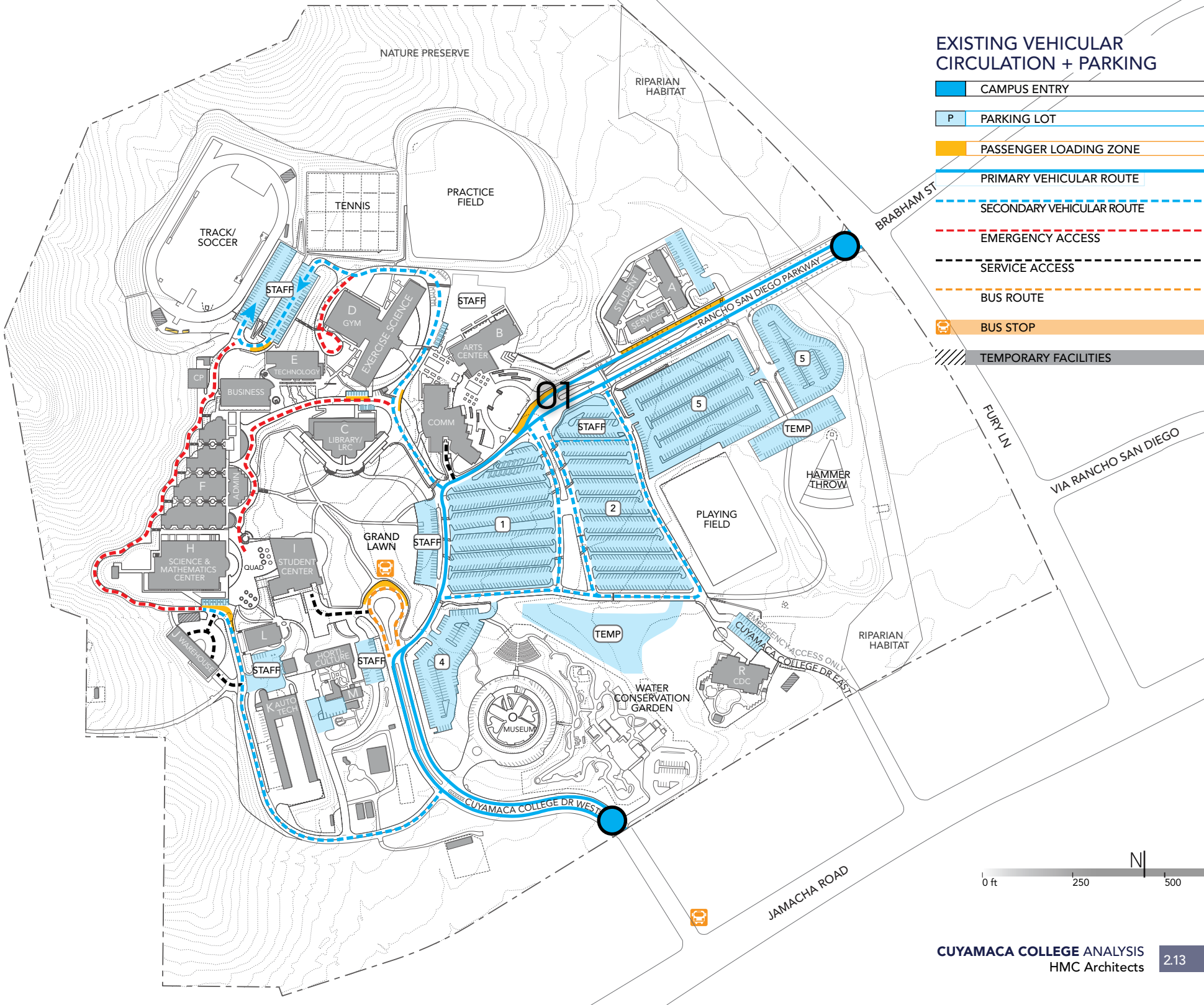
VEHICULAR CIRCULATION + PARKING

The two campus entries provide connections to Jamacha Road, via Cuyamaca College Drive West, and Fury Lane, via Rancho San Diego Parkway. Jamacha Road is the primary regional transportation connection. Metropolitan Transit System (MTS) buses bring riders into the campus and to the bus stop east of the Student Center and to bus stops on Jamacha Road. Cuyamaca College Drive East provides a connection to the campus from Jamacha Road, but contrary to the expectations of many visitors, access is restricted to all but emergency vehicles.

The primary campus vehicular route connects the two campus entries and provides access to most of the parking lots that have been built on the level, southeastern portion of the campus. A secondary vehicular route, which serves as fire access and access to accessible parking and staff parking, passes through the campus core where it also accommodates pedestrian circulation.

Observations

- Most of the parking is located at the lower level of the campus and pedestrians must walk a significant distance uphill to the campus core.
- The existing parking lots could be reconfigured to accommodate more stalls and facilitate the flow of traffic.
- Traffic backs up at the four-way signalized intersection of Fury Lane and Rancho San Diego Parkway.
- The emergency vehicle access roads are difficult to navigate behind Building F.
- The Child Development Center (CDC) was constructed inside the gate on Cuyamaca College Drive East. Presently, the separation of this location from primary circulation is seen as an advantage, protecting the children from exposure to through-traffic.
- The driveway from the main parking area to the upper staff parking lot is quite steep between the Library/LRC and Communication Arts Building B and is heavily used by pedestrians.
- Roadways and parking lots are aging and there are many temporary gravel parking lots on campus.


NATURE PRESERVE
RIPARIAN HABITAT
TRACK/ SOCCER
TENNIS
PRACTICE FIELD
BRABHAM ST
RANCHO SAN DIEGO PARKWAY
FURY LN
VIA RANCHO SAN DIEGO
STAFF
D GYM
EXERCISE SCIENCE
B ARTS CENTER
A STUDENT SERVICES
E TECHNOLOGY
CP
BUSINESS
C LIBRARY/ LRC
COMM
01
5
TEMP
HAMMER THROW
F ADMIN
2
1
PLAYING FIELD
GRAND LAWN
H SCIENCE & MATHEMATICS CENTER
QUAD
I STUDENT CENTER
L
J WAREHOUSE
HORTI CULTURE
M
K AUTO TECH
4
TEMP
EMERGENCY ACCESS ONLY
CUYAMACA COLLEGE DR EAST
R CDC
WATER CONSERVATION GARDEN
MUSEUM
CUYAMACA COLLEGE DR WEST
JAMACHA ROAD
EXISTING VEHICULAR CIRCULATION + PARKING
CAMPUS ENTRY
P PARKING LOT
PASSENGER LOADING ZONE
PRIMARY VEHICULAR ROUTE
SECONDARY VEHICULAR ROUTE
EMERGENCY ACCESS
SERVICE ACCESS
BUS ROUTE
BUS STOP
TEMPORARY FACILITIES
N
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Analysis

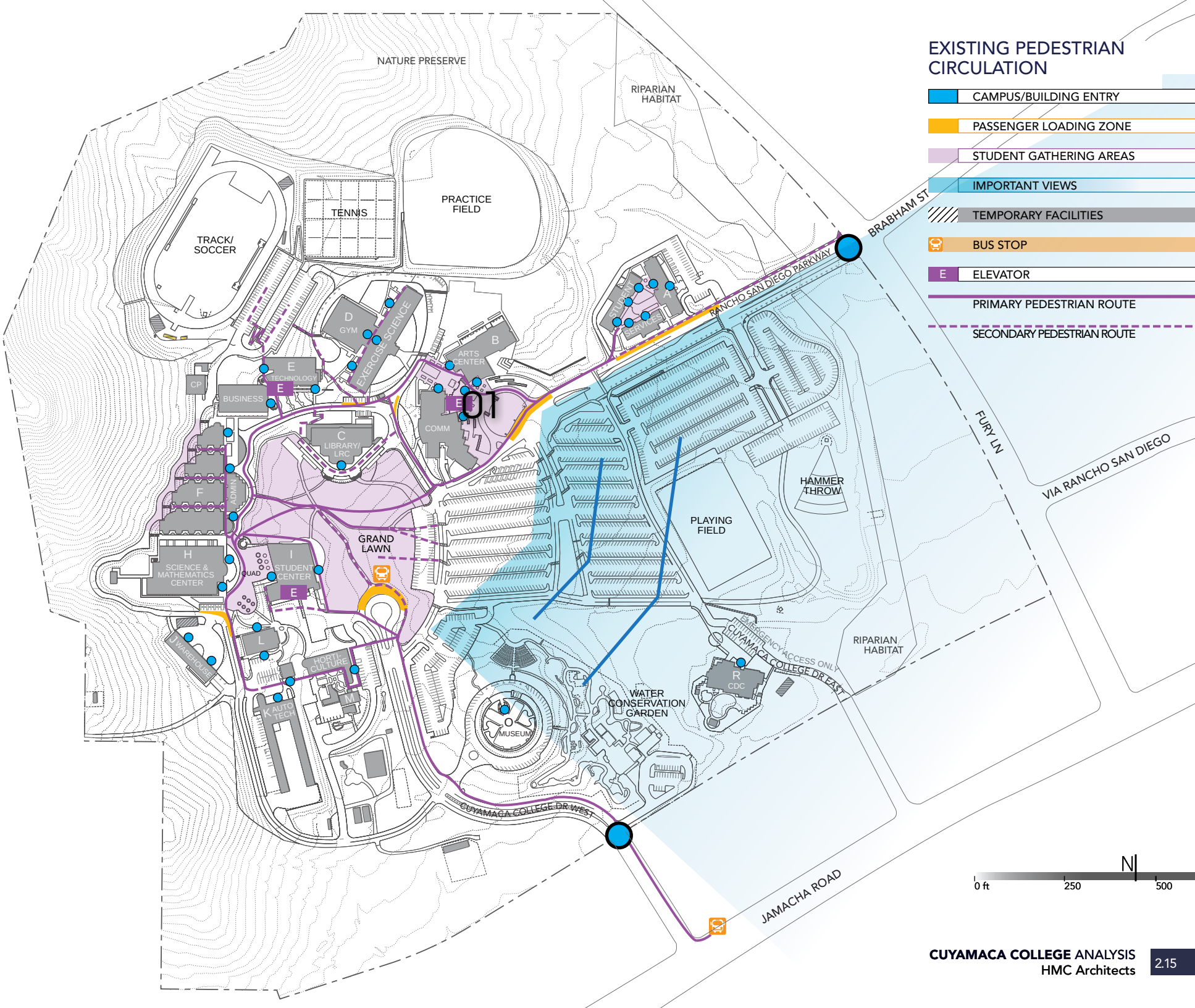
PEDESTRIAN CIRCULATION

The Cuyamaca College campus is favored with a well-landscaped and varied site. The size and topography of the campus are both advantages and challenges to pedestrians. The buildings and Exercise Science outdoor instructional facilities are built onto a series of terraces at the base of the foothills and paths, ramps, and driveways are used as pedestrian connectors between them. Multi-level buildings with elevators, such as Communication Arts Building B, Business and Technology Building E and the Student Center Building I, are used by pedestrians to access the upper levels of campus.

The Grand Lawn is a much loved and used park-like green space of informal character. Its expanse of sloped and tree-shaded lawn separates many of the campus buildings from the main parking lots. The campus plan takes advantage of the expansive views from the terraced building zone towards the rest of the campus and the community beyond. The view into the campus is limited to the view from the intersection of Rancho San Diego Parkway and Fury Lane. Most of the campus facilities are located away from the campus entries and are not readily visible to the community passing by.

Observations

- After parking, pedestrians must find their way across parking lots and driveways to reach the campus core.
- The Grand Lawn has a storied place in the culture of Cuyamaca College and its preservation is strongly supported.
- The paths that traverse the Grand Lawn are not designed to accommodate the numbers of pedestrians and bring them to where they want to go. For instance, a better path is needed from the Grand Lawn to the Quad.
- Pedestrians and vehicles share the driveways in the campus core.
- The Student Services Building A is close to the Fury Lane/Rancho San Diego Parkway entry and parking, but is a long walk from the campus core.
- Better signage is needed to guide pedestrians to the elevators in Buildings B, E, and I.
- Many people walk the campus perimeter drives, fire lanes, and stadium track for recreation and exercise.
- Better nighttime lighting of the campus is needed.



EXISTING PEDESTRIAN CIRCULATION

- CAMPUS/BUILDING ENTRY
- PASSENGER LOADING ZONE
- STUDENT GATHERING AREAS
- IMPORTANT VIEWS
- TEMPORARY FACILITIES
- BUS STOP
- E ELEVATOR
- PRIMARY PEDESTRIAN ROUTE
- SECONDARY PEDESTRIAN ROUTE

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Analysis

CLIMATE

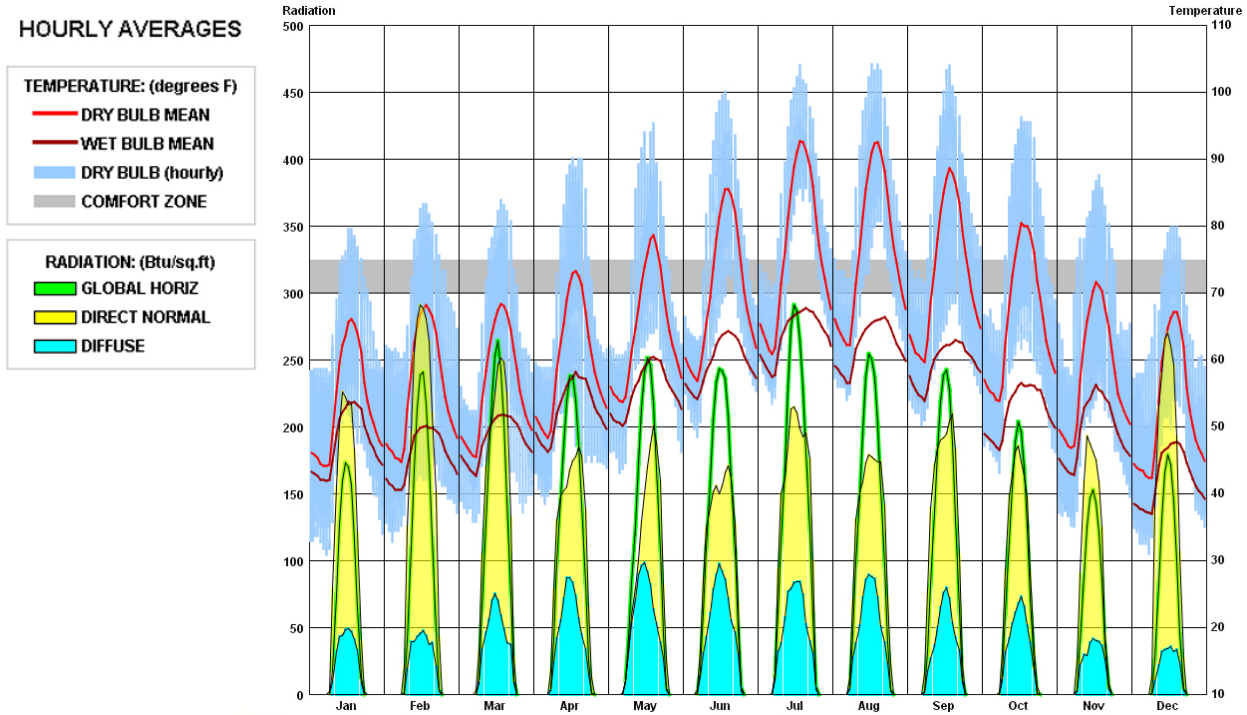
Comfort Zone, Average Temperature, and Relative Humidity

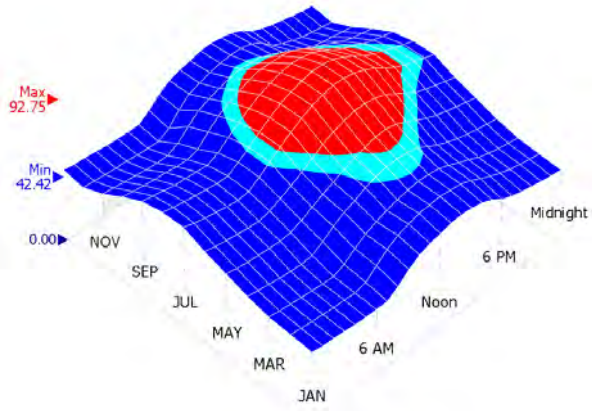
Cuyamaca College's dry bulb temperature, (indicated by the red line undulating up and down on the chart), varies significantly from summer to winter. During the summer, (June-October), the temperature can rise above the comfort zone (indicated by the grey bar going across the chart) and peak at about 93 degrees Fahrenheit. During the winter, the temperature can drop as low as 42 degrees Fahrenheit.

Observation

- For the majority of the year, the temperature is fairly mild.

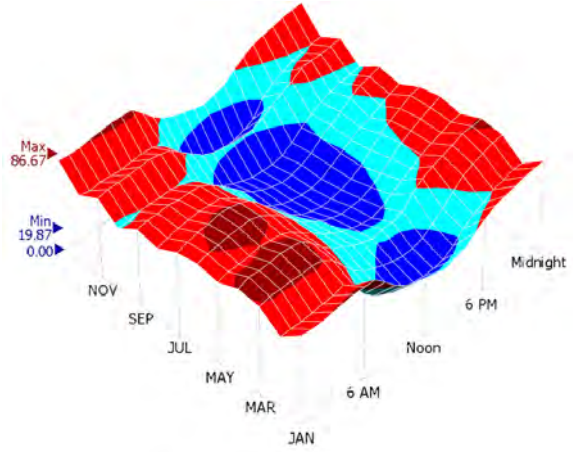
Cuyamaca College Comfort Zone Diagram





Dry Bulb Temperature Chart

72% of the year, between 32-70 degrees; Warmest time of year: July-Sept. (peaks at 93 degrees)



Relative Humidity Chart

46% of the year, 60% or greater relative humidity; Drop in humidity between 7-5 pm

Analysis

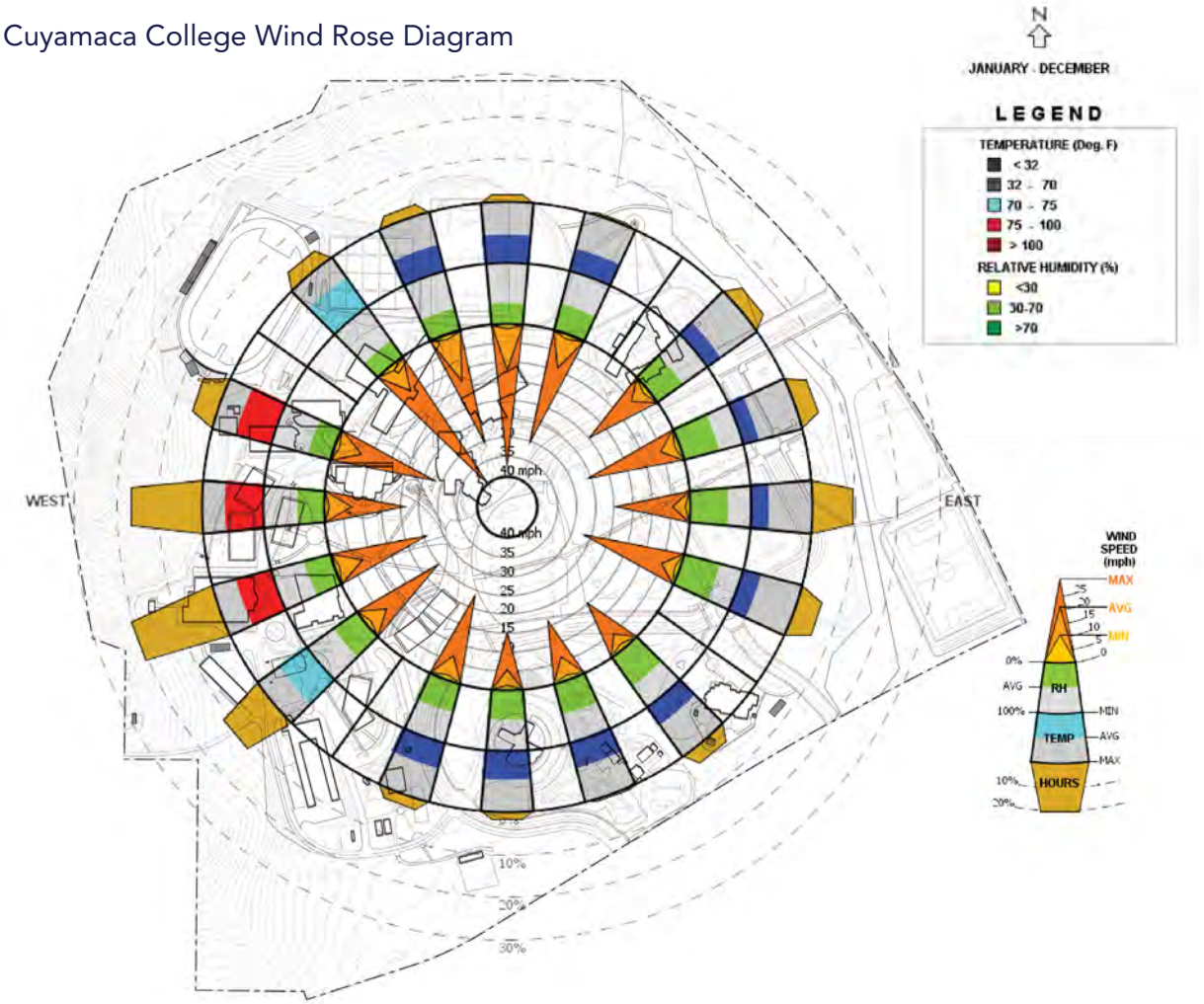
CLIMATE

Wind

For the majority of the year, winds primarily come from the west direction, as indicated by the dark yellow bars of the wind rose. The winds in this region are within a range of 3-5 miles per hour, as indicated by the yellow and orange cones located in the center of the diagram. These winds are fairly low velocity, and would not warrant the use of wind turbine technology for the purposes of energy production. However, anomalous wind gusts can reach as high as 40 miles per hour during the months of February and November. These winds tend to be warmer and can get as high as 75 degrees (as indicated in teal and dark blue). For the majority of the year, relative humidity level ranges between 30-70% (as indicated in green). This data also supports the use of natural ventilation, as these winds are not too cold, too warm, or too damp, but rather ideal for providing building occupants with a reliable source of cooling, comfortable breezes.

The wind rose diagram to the right indicates wind direction, velocity, frequency, temperature and humidity.

Cuyamaca College Wind Rose Diagram



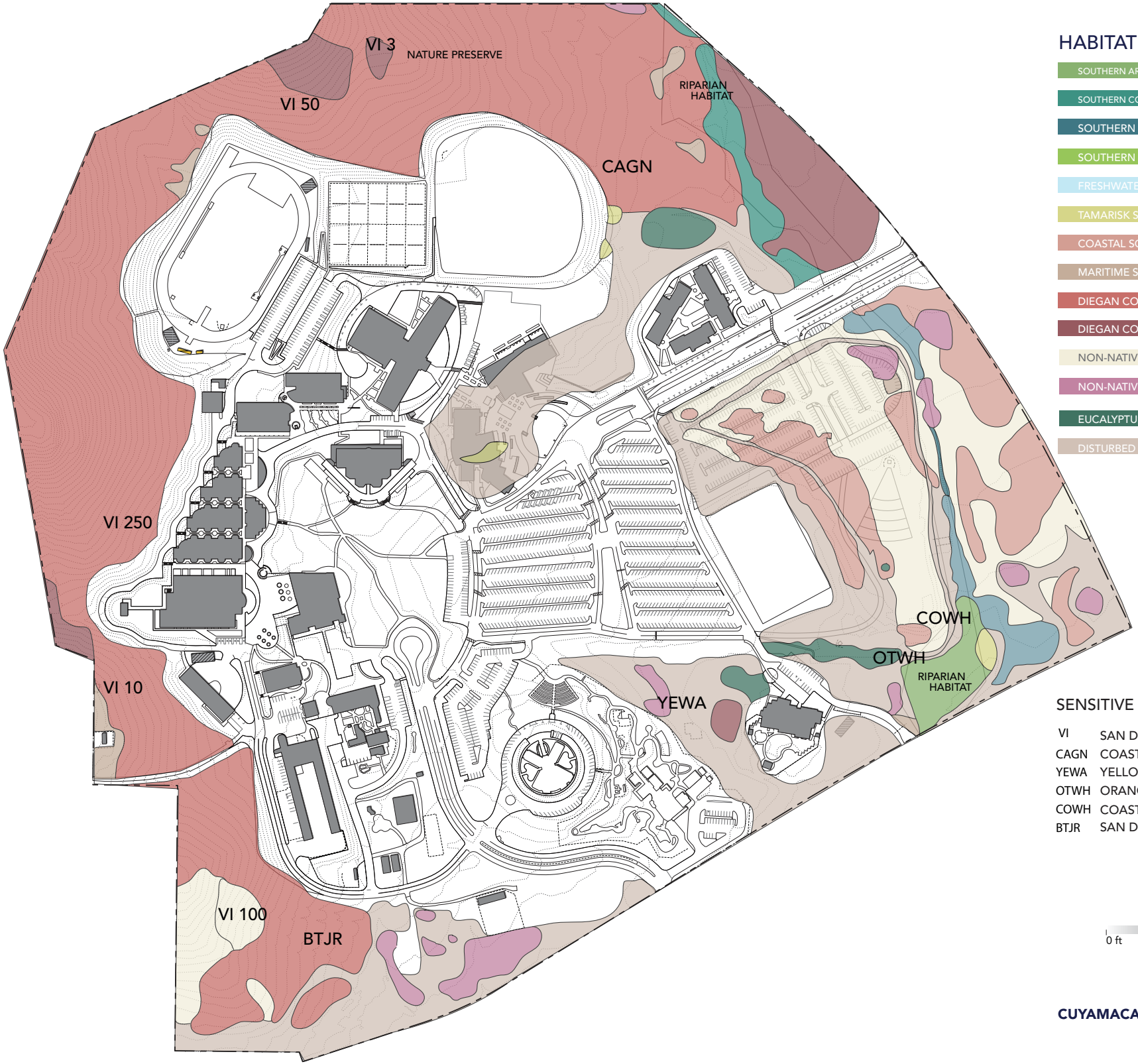
Analysis

HABITAT

Nine California native plant communities exist within the Cuyamaca College site along with six recognized sensitive plant and animals species. The campus is encompassed by designated preserve areas. This preserve provides habitat for a multitude of wildlife species including habitat for the coastal California gnatcatcher. The site is located in the South County segment of the County's Multiple Species Conservation Program and is subject to all MSCP guidelines, policies, and requirements.

Observations

- Campus storm water runoff directly impacts the Sweetwater River and the Sweetwater Reservoir.
- Sensitive wildlife species: the coastal California gnatcatcher, yellow warbler, orange-throated whiptail, coastal whiptail and the San Diego black-tailed jackrabbit.
- Sensitive wildflower species: the San Diego sunflower.
- Owl boxes are installed on campus, however, no evidence exists that owls use the boxes.
- The boundary between the campus core and the western portion of the nature preserve is delineated by a fire road.
- Non-native and invasive plant species have infiltrated sensitive habitat preserve areas.
- Dominant plant species include Malosma, Eriogonum, Baccharis, Opuntia, Artemesia, Salix and Salvia.
- Jamacha Road and the Cuyamaca College entry drives cut off potential wildlife corridors.



HABITAT

- SOUTHERN ARROYO WILLOW RIPARIAN FOREST
- SOUTHERN COTTONWOOD-WILLOW RIPARIAN FOREST
- SOUTHERN RIPARIAN SCRUB
- SOUTHERN WILLOW SCRUB
- FRESHWATER MARSH
- TAMARISK SCRUB
- COASTAL SCRUB
- MARITIME SUCCULENT SCRUB
- DIEGAN COASTAL SAGE SCRUB
- DIEGAN COASTAL SAGE SCRUB-DISTURBED
- NON-NATIVE GRASSLAND
- NON-NATIVE VEGETATION
- EUCALYPTUS WOODLAND
- DISTURBED HABITAT

SENSITIVE PLANTS AND ANIMALS

VI	SAN DIEGO SUNFLOWER
CAGN	COASTAL CALIFORNIA GNATCATCHER
YEWA	YELLOW WARBLER
OTWH	ORANGE-THROATED WHIPTAIL
COWH	COASTAL WHIPTAIL
BTJR	SAN DIEGO BLACK-TAILED JACKRABBIT

N

0 ft 250 500

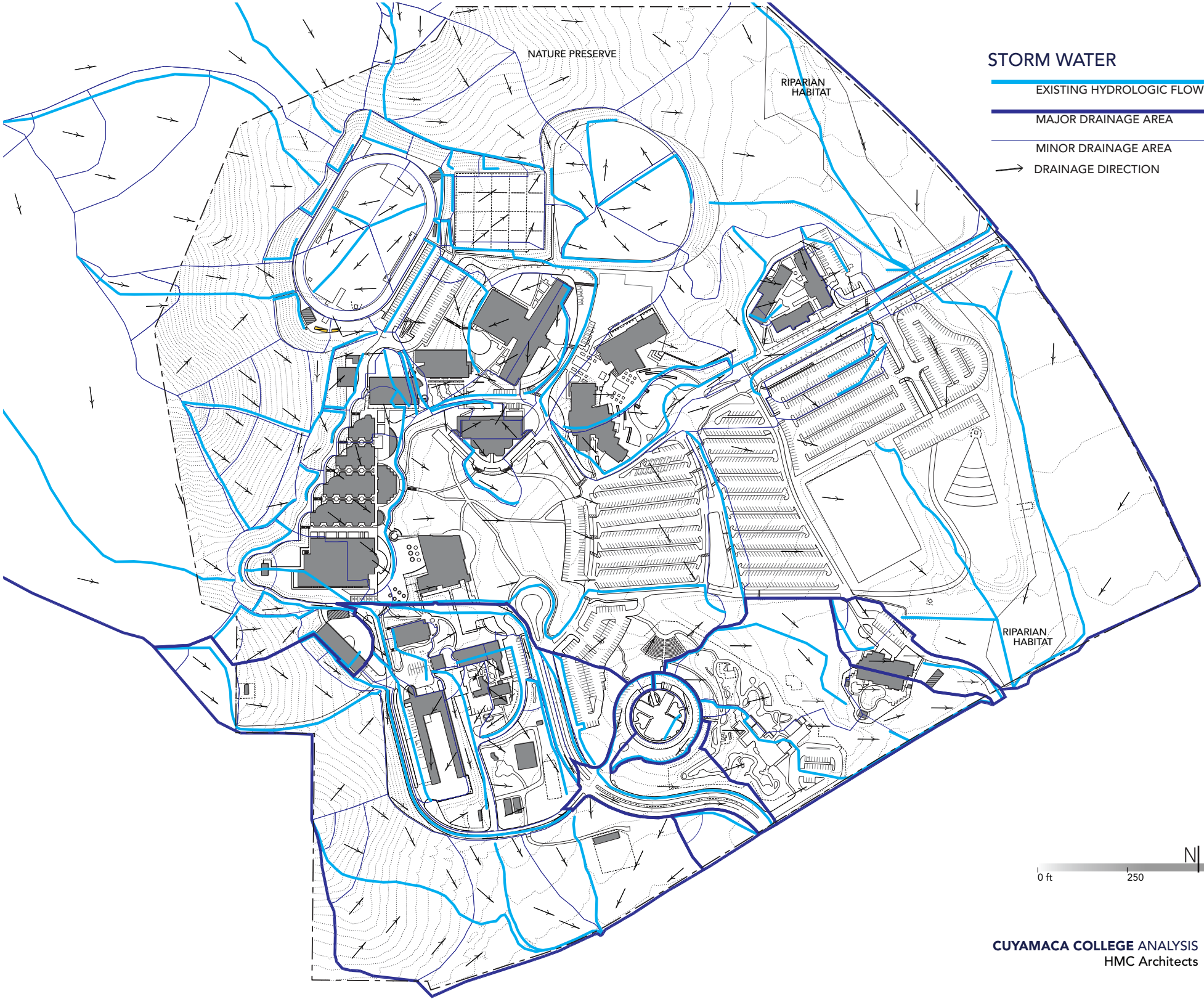
Analysis

STORM WATER

Storm water on the Cuyamaca College campus is currently managed by a system of drains that empty into vegetated swales and drainage ditches at the lower south and southeast portions of the site. Although much of this water is slowed and partially infiltrated before leaving the site, additional efforts to cleanse and retain storm water can be taken to increase the benefit from periodic storm water collection. The size of the campus allows for more deliberate use of bioswales and detention basins.

Observations

- Runoff from the community to the northeast enters the site bringing contaminants, sediment, debris.
- Runoff from nursery retail and growing operations, turf, and sports fields may contain additional amounts of fertlizer (nitrates) and should be retained or naturally infiltrated or treated before leaving the site.
- Surface parking lot storm water is piped into natural drainage swale areas before entering Sweetwater River.
- Existing natural drainage swales are clogged with many non-native invasive species.
- The sloping site does not allow for much natural water infiltration into planting areas.
- Existing riparian area is part of the adjacent nature preserve and must be carefully managed.


NATURE PRESERVE
RIPARIAN HABITAT
RIPARIAN HABITAT
STORM WATER
EXISTING HYDROLOGIC FLOW
MAJOR DRAINAGE AREA
MINOR DRAINAGE AREA
DRAINAGE DIRECTION
N
0 ft
250
500

Analysis

WATER USE

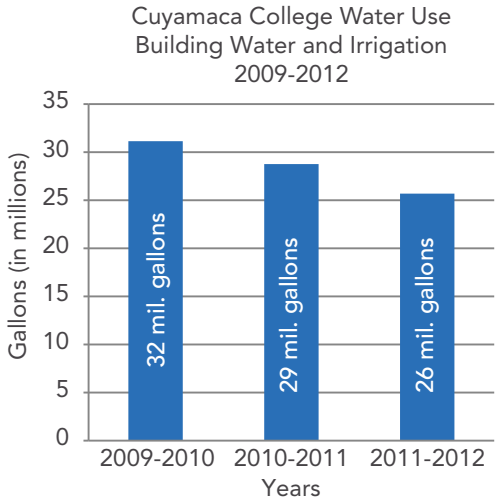
The Cuyamaca College campus currently uses potable water for its landscape irrigation. There are no plans by Otay Water District to make recycled water available to the campus or areas near the campus in the near future. The campus has converted its irrigation system to use a CalSense controller and weather station which has helped to reduce irrigation water consumption campuswide. New campus planting is typically done in collaboration with the Ornamental Horticulture program and grounds staff to ensure low water needs. California native, Mediterranean, and succulent type plant species must be appropriate for the Cuyamaca College campus microclimate to be successful and long lived.

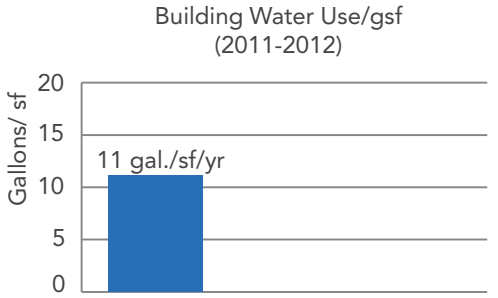
Observations

- There are large interstitial/unoccupied turf areas.
- Medium and high water use plant species, and mixed planting areas may result in higher overall water needs.
- Almost all planting areas have bark mulch cover to reduce water loss.
- Sports fields are 'Ball Field Mix' Bermuda and Rye grass blend.
- Low water turf grass (Paspalum) is being experimented with on campus.
- Majority of storm water is not retained on site; most is channeled into vegetated swales before exiting site.

The Cuyamaca College campus has instituted water conservation strategies over the course of the past three years, which has resulted in a consistent decline in water use from 2009 to 2012. In addition to low flow plumbing fixtures throughout the campus, the decrease in water use can be largely attributed to implementation of the CalSense irrigation program, which utilizes daily weather data to determine irrigation needs.

Cuyamaca College has a considerable amount of landscape area on campus which requires irrigation. The majority of the water is used for irrigation purposes, rather than by building occupants. In 2011-2012, approximately 21 million gallons of water out of the 26 million total gallons of water were used for irrigation, while 5.6 million gallons of water were used for building purposes. When considering Cuyamaca College's total campus square footage, this equates to 11 gallons of water per square foot of building area.





Building water used per square foot of building area on campus was calculated for 2011-2012. The was done by subtracting the irrigation water from the total water consumed in 2011-2012. Irrigation data was retrieved from the CalSense irrgation system, which was installed in 2011.

Analysis

ENERGY USE

The energy use of the Cuyamaca College campus from 2009-2012 was analyzed in order to determine intensity of electricity and gas use. Electricity (kwh) and gas (therms) were combined into a common unit, known as kBTU. This figure was then divided by the gross square footage of the campus buildings. Parking garages were excluded from this square footage, as they consume a nominal amount of electricity and gas.

In order to gauge the district's energy performance, each campus was compared to existing metrics supplied by two main resources:

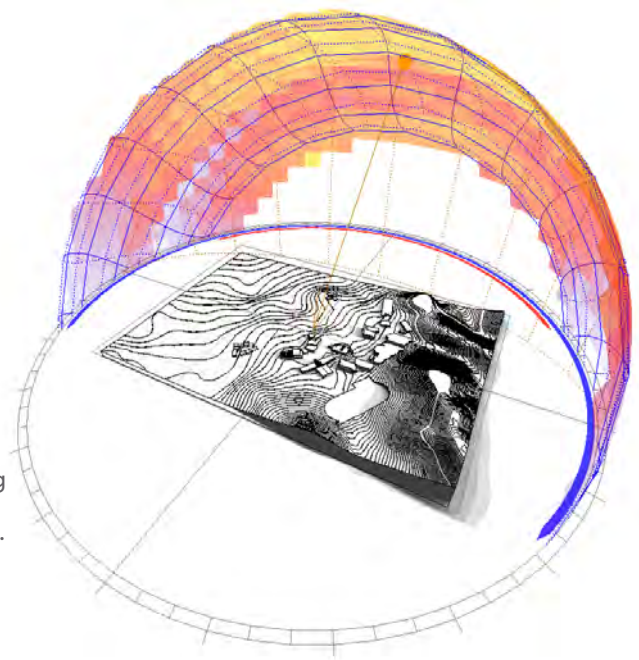
The California Energy Commission Survey of California Higher Education Facilities

This index summarizes the electrical and natural gas usage for various types of buildings throughout the state. For the purposes of this study, the "higher education" category was used. This category lists an annual electrical and natural gas usage of 76.1 kBTU/sf/year.

Energy Star

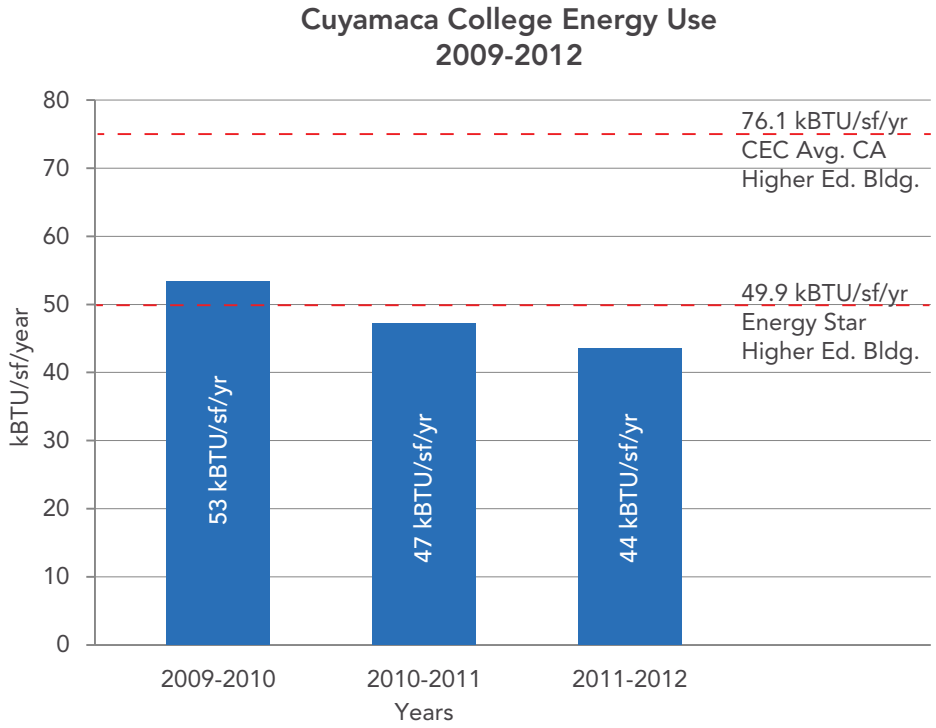
Energy Star utilizes the Energy Information Administration's Commercial Buildings Energy Consumption Survey (CBECS) to determine the type and scale of energy usage a building should meet in order to qualify as an Energy Star building. A building should perform 35% better than an average building of a similar type in a similar climate zone to be considered an Energy Star building. A 35% more efficient higher education building would operate at 49.9 kBTU/sf/year and would be minimally compliant with Energy Star requirements.

The Cuyamaca College campus energy analysis indicates a consistent decrease in energy use over the last three years. Cuyamaca College operates closer to the Energy Star rating for "green" higher education facilities, at 44 kBTU/sf/yr. This can be attributed to close monitoring of energy via the central plant monitoring system.



Sun Path Diagram

This diagram shows the the arc of the sun across Cuyamaca College's campus as well as the resulting radiation levels throughout the course of the day, and across the course of the year. The intensity of radiation is indicated by the color variation shown in the diagram. Yellow indicates high levels of solar radiation, and purple indicates lower levels of solar radiation. This diagram aids in determining what times of the year the sun has the most impact on overall heating/cooling loads and energy consumption of campus buildings.



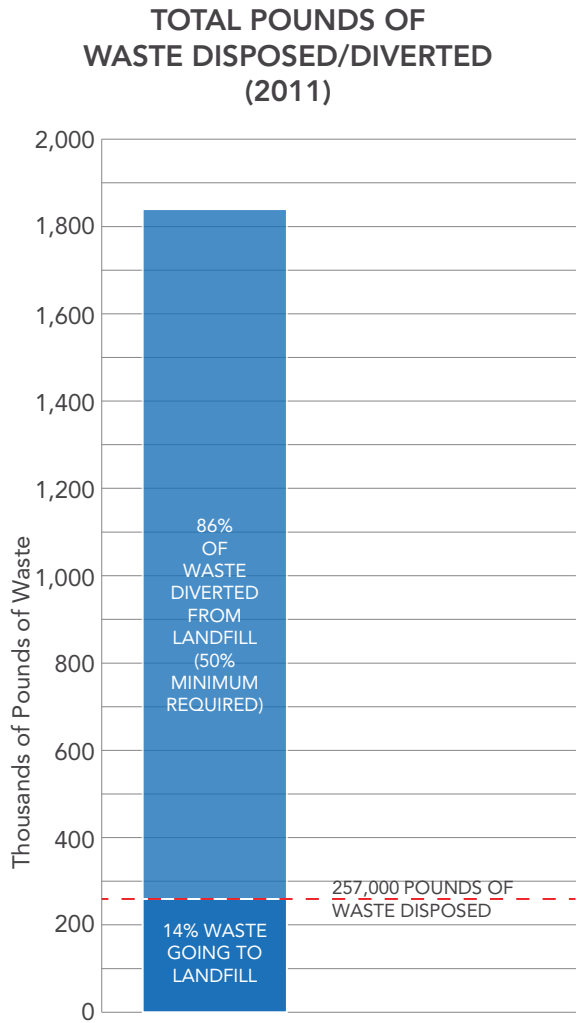
Analysis

WASTE

Cuyamaca College networks with a wide range of local agencies, community organizations, and other educational institutions to optimize landfill diversion practices. The major types of landfill waste on campus include food and beverage packaging that is non-recyclable, construction debris, and palm tree and other organic fibrous plant materials.

Currently the campus recycles beverage containers, glass, plastics, cardboard, mixed paper, scrap metal, wood waste, tires, and green waste. The campus also actively reuses several types of materials including paper, bulletin boards, dining ware, and furniture.

The Cuyamaca College Grounds Department is collaborating with the Ornamental Horticulture program and the campus food service vendor to explore feasible means of diverting plant material and food waste from the landfill stream. Currently the Cuyamaca College campus is achieving a landfill diversion rate of 86%, which far exceeds the California State regulatory requirement of 50%.



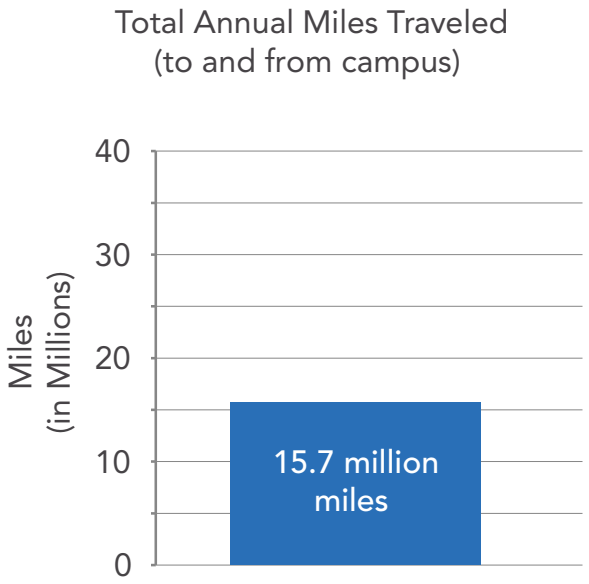
Analysis

TRANSPORTATION

The majority of Cuyamaca College's student and faculty population is composed of single occupant vehicle (SOV) drivers. This volume and frequency of vehicular operations impacts the district overall carbon footprint, as automobiles are a major contributor to greenhouse gas emissions.

To attain a better sense of this impact, the total number of annual miles traveled by students was determined for the campus, using data collected by the GCCCD Office for Research, Planning, and Institutional Effectiveness. Five major zip codes were used to determine the radius of area served for each campus. A proportionate number of students was allocated for each zip code and for each day of each session (fall, spring, and summer). These student population numbers were then multiplied by the average number of miles traveled roundtrip from the campus to each zip code area center. This resulted in a total of 15.7 million miles traveled annually by Cuyamaca College students.

Alternative transportation via the Metropolitan Transit System (San Diego's Regional Transit Provider) and through programs such as RideShare are available to users; however, these are not frequently used, as many students require easily accessible means of transporation via their residences, campus, and in many cases their places of employment.



Analysis

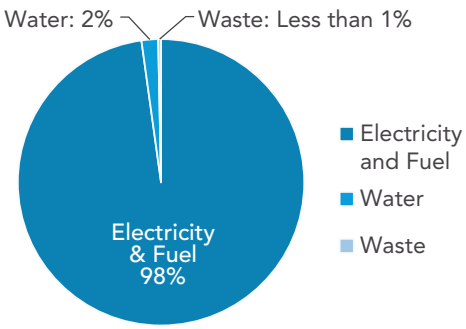
CARBON

Carbon Footprint Without Transportation

Cuyamaca College's carbon footprint serves as a measurement of the total set of greenhouse gas (GHG) emitted into the atmosphere as a result of the activities and operations that occur on campus. Energy, waste, and water are considered in the carbon calculation. In addition, two scenarios are provided: one in which transportation is not considered and a second in which transportation is considered. This will provide insight regarding the impact of one the largest contributors of GHGs.

When transportation is not taken into consideration, Cuyamaca College currently stands at 8.3 lbs CO2e/sf. In this scenario, there is a prevalence of energy use as a main contributor to carbon emissions, while water and waste result in far less, albeit relevant, GHG emissions. In order to best ascertain the relevance of this carbon footprinting figure, a comparative analysis of like institutions was conducted. The carbon footprints of several higher education institutions were calculated, based on each institution's published carbon footprint data provided from the American College and University Climate Action Plan's 2010-2011 Annual Report. Many of these institutions are located in similar climates as Cuyamaca College and also have a similar campus makeup. ransportation was excluded from the comparative institution data as well in order to provide an accurate analysis. With this exclusion, Cuyamaca College is operating with a much lower carbon footprint than other institutions in the study.

Cuyamaca College 2011 Carbon Footprint (without Transportation Data)



8.3 lbs/sf/yr

Higher Education Institutional Comparison (without Transportation Data)

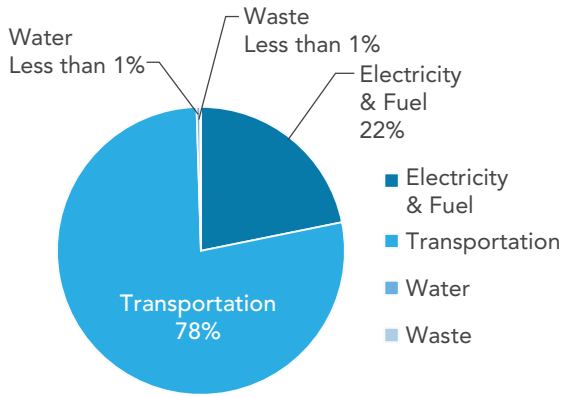
Analysis

CARBON

Carbon Footprint With Transportation

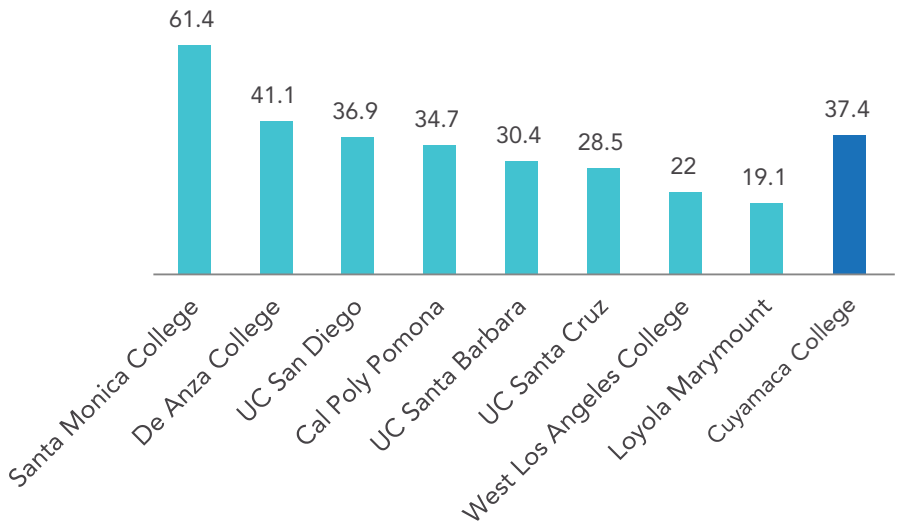
To best understand the impact and relevance of transportation with regards to carbon footprinting, a calculation which includes transportation was also conducted. With this inclusion, Cuyamaca College's carbon footprint increases to 37.4 pounds per square foot per year. In addition, with the inclusion of transportation, the college is shown as operating with a greater carbon footprint than some other like institutions in the study.

Cuyamaca College 2011 Carbon Footprint (with Transportation Data)



37.4 lbs/sf/yr

Higher Education Institutional Comparison (with Transportation Data)



Analysis

SUMMARY OF FINDINGS

The Cuyamaca College campus is a hidden gem tucked into a valley and screened from public view by its neighbors and the riparian habitat. The original campus plan, which placed the campus core on the terraced hillside and parking on the valley floor, continues to challenge the circulation connections between buildings and open spaces ***(figure 1)***. The sizable campus includes undeveloped areas and gaps that separate the campus facilities. The unique land uses, including the nature preserves, are assets that could be better linked to create a cohesive campus. Finally, the campus needs easily accessed points of arrival to welcome students, employees, and visitors to the college.

To plan for the future, the Cuyamaca College facilities plan must address the challenge to maximize its functional space and eliminate its non-functional space – focusing on the renovation and replacement of aged facilities that have outgrown their useful lives, are not supporting effective learning environments, and are costly to maintain and operate. The minimal acoustic separation between classrooms in Instructional Building F, for example, challenges the occupants' ability to teach and learn.

The *Facilities Master Plan* must address the projected student population by providing effective space for instruction, support services, parking, and public transportation access. Integrated with these challenges is the opportunity to enhance and complete the campus environment and knit its unique parts into a cohesive whole.

Key Campus Planning Challenges at Cuyamaca College (*figure 1*)

01 Defined, safe pedestrian access from parking to the Grand Lawn; from the Grand Lawn to higher elevational levels on campus

02 Disconnectivity and length of travel from Student Services buildings on campus

03 Length and complexity of path including topographical barriers from the Grand Lawn to Exercise Science for all pedestrians

04 Shared vehicle and pedestrian routes between prominent campus plazas

05 Integrate sustainability into the planning for all facilities and site improvements

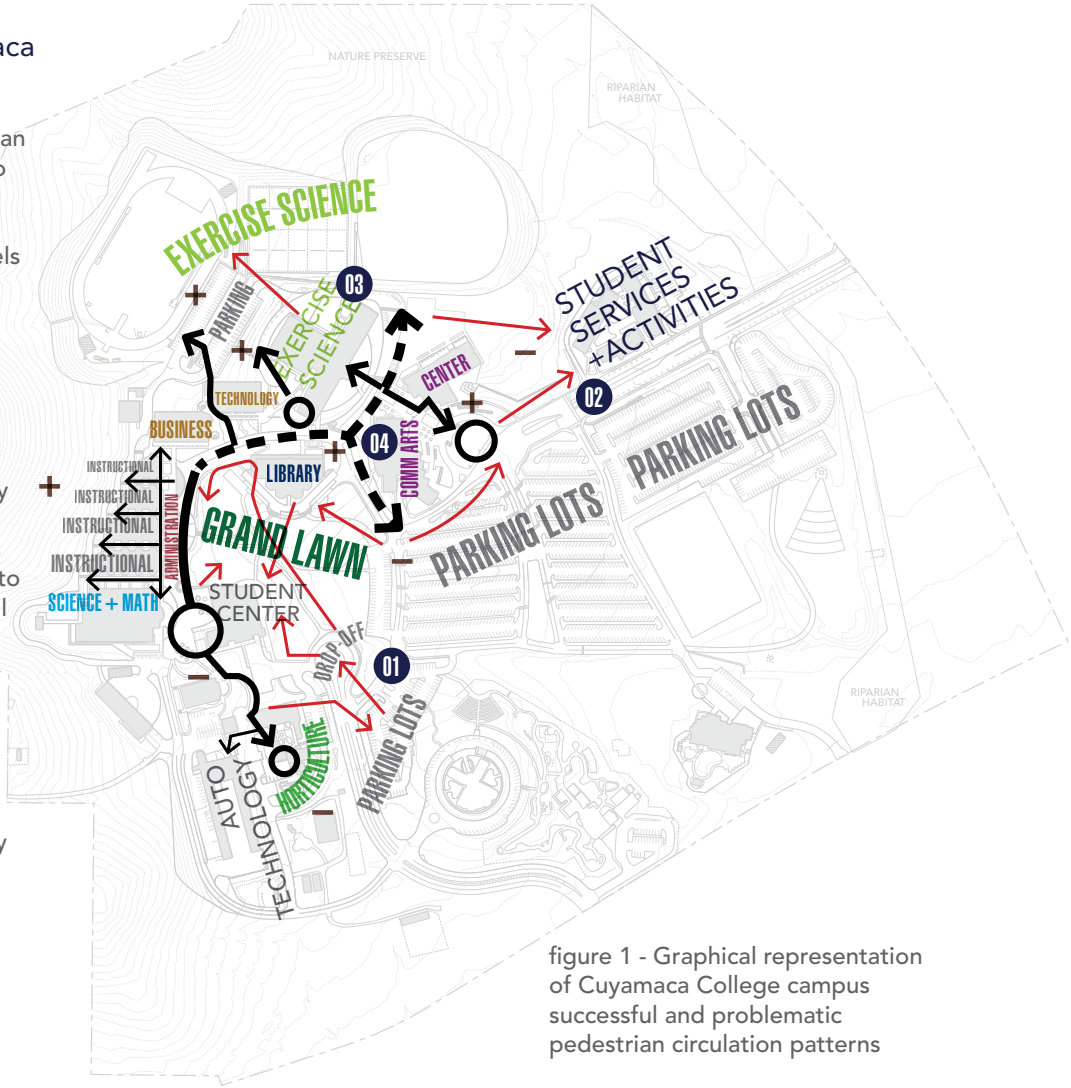
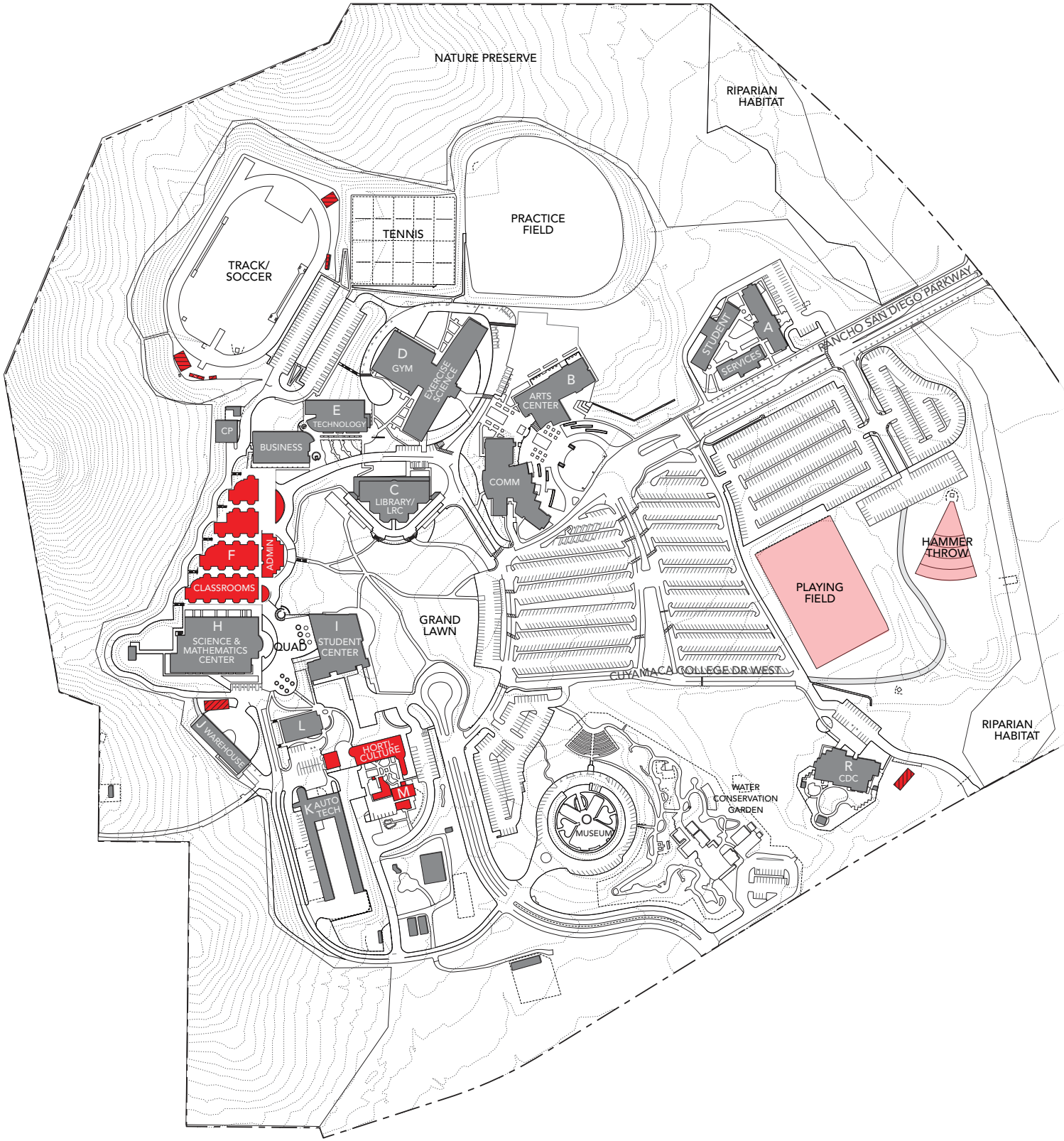


figure 1 - Graphical representation of Cuyamaca College campus successful and problematic pedestrian circulation patterns



DEMOLITION + REMOVALS

EXISTING FACILITIES

RECOMMENDED FACILITY DEMOLITION

RECOMMENDED SITE DEMOLITION

TEMPORARY FACILITIES TO BE REMOVED

The removal of the few temporary facilities will take place as functions move to new or repurposed permanent space. Aged permanent facilities – those which are not feasible to renovate – are recommended for replacement. Demolition of facilities clears the way to improve the zoning and make more efficient use of the campus land area.

- Instructional Building F
- Instructional Building L (Needs further study)
- Ornamental Horticulture Building M
- Temporary Buildings
- Playing Field
- Hammer Throw

N

0 ft 250 500

Recommendations

Recommendations

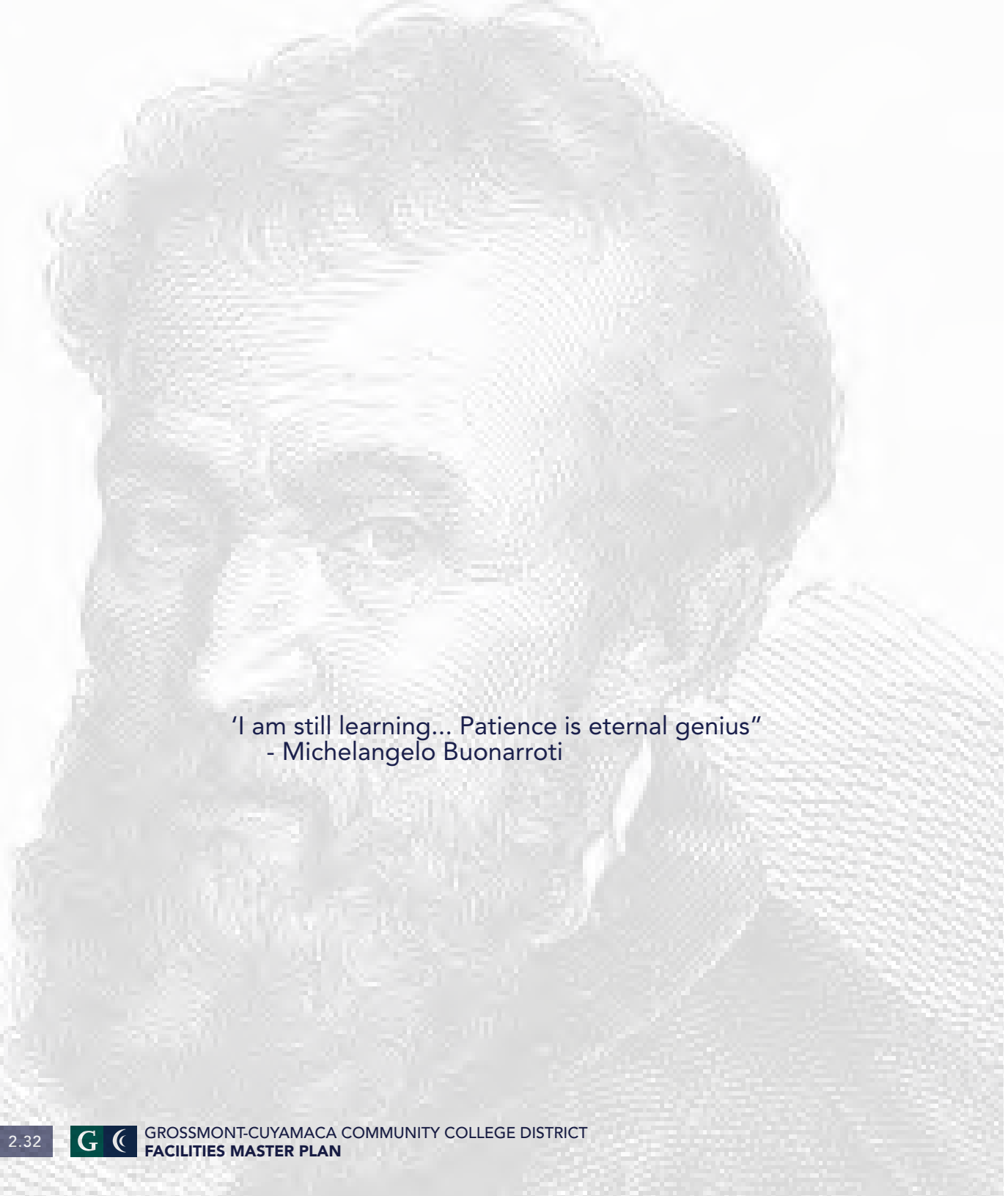
RECOMMENDATIONS

The Cuyamaca College campus is imbued with a strong sense of place. It displays an aesthetic that has been developed over the last four decades and reflects the creativity, diversity, strong community ties, and commitment to sustainability that its constituents value.

The recommendations build upon the campus' many advantages to enhance and complete it and strengthen its identity within the community.

The recommendations for the future development of the campus are described in the following sections:

- Summary of Recommendations
- Campus Design Objectives
- New Facilities
- Renovation + Repurposing
- Site Improvements
- Sustainability



‘I am still learning... Patience is eternal genius”
- Michelangelo Buonarroti

FACILITIES PLANNING PRINCIPLES

Focus on students

Maximize functional space

Eliminate non-functional space

Improve efficiency and utilization of facilities and available land

Right-size the campus to address program needs

Enhance the campus environment

Plan for sustainability

Simplify implementation

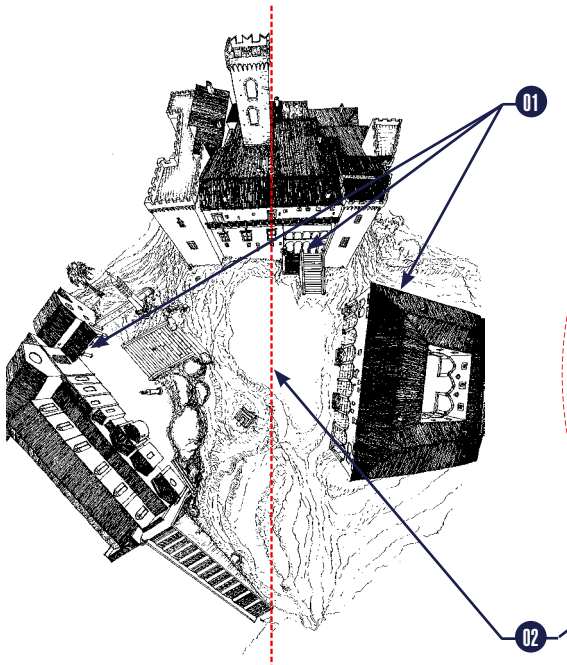


figure 2 - Existing Capitoline Hill before transformation to Piazza Del Campidoglio, Rome

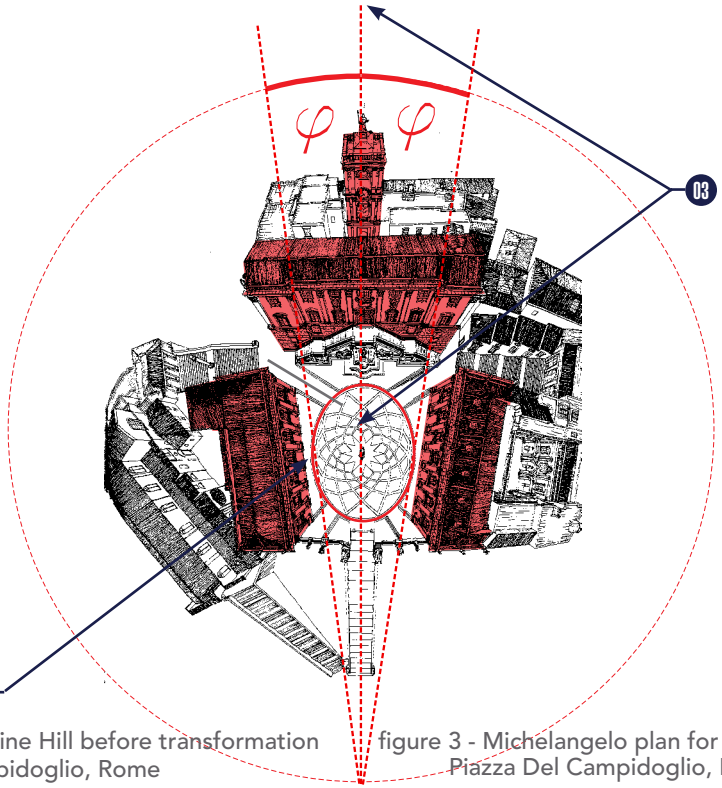


figure 3 - Michelangelo plan for Piazza Del Campidoglio, Rome

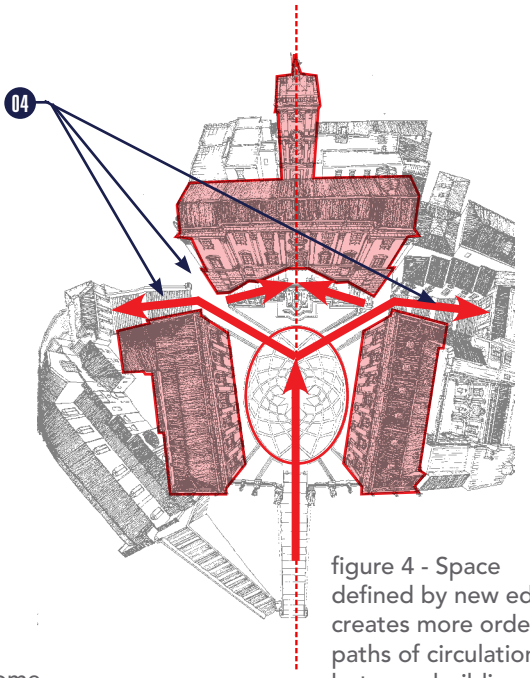


figure 4 - Space defined by new edges creates more orderly paths of circulation between buildings

DEVELOPMENT CONCEPTS

"One of the greatest attributes of the Campidoglio composition is the modulation of the land. Without the shape of the oval, and its two-dimensional star shaped paving pattern, as well as its three-dimensional projection in the subtle designed steps that surround it, the unity and coherence of the design would not have been achieved." - William Grosby

Michaelangelo's transformation of the Capitoline Hill demonstrates the shift from medieval town open space (***figure 2***) into a great Baroque civic plaza (***figure 3***) that focuses and organizes the approach to each building that surrounds it. Piazza Del Campidoglio can be referenced as a development concept for the Cuyamaca College campus primarily because "it established, more powerfully than any previous example, the fact that space itself could be the subject of design" and that order can be fluid (***figure 4***).

The Cuyamaca College campus began with a clustering of buildings along the eastern slopes of its topographical hillside. It has relatively new buildings that form more clusters and traverse the topography with entries at varying elevation levels. It can be recognized as reminicent of that of an Italian hill town.

The development concept for Cuyamaca College takes advantage of the work done to date on campus, yet affords another layer of planning and organization that focuses on quad formation and connectivity, creating fluidity between elevational and programmatic changes to enhance the student and faculty experience.

CASE STUDY: Piazza del Campidoglio, Rome

source: drawings by J.H. Aronson - Design of Cities - Edmund N. Bacon

Key Elements of the Michaelangelo Campidoglio Plan:

01 The Topography – Multiple buildings with entries at varying elevations; the Michaelangelo Plan provides clarity to entry and wayfinding by simplifying circulation.

02 Reordering exterior SPACE to create a civic PLACE by adding new facades to existing buildings — buildings are defined edges to the exterior plaza.

03 Central plaza aligned with architectural elements.

04 Paths of the medieval city link to the central civic plaza - the "streets are bent" so that one sees first a narrow shaft of space focused on the central plaza.

Recommendations

CAMPUS URBAN HILL TOWN

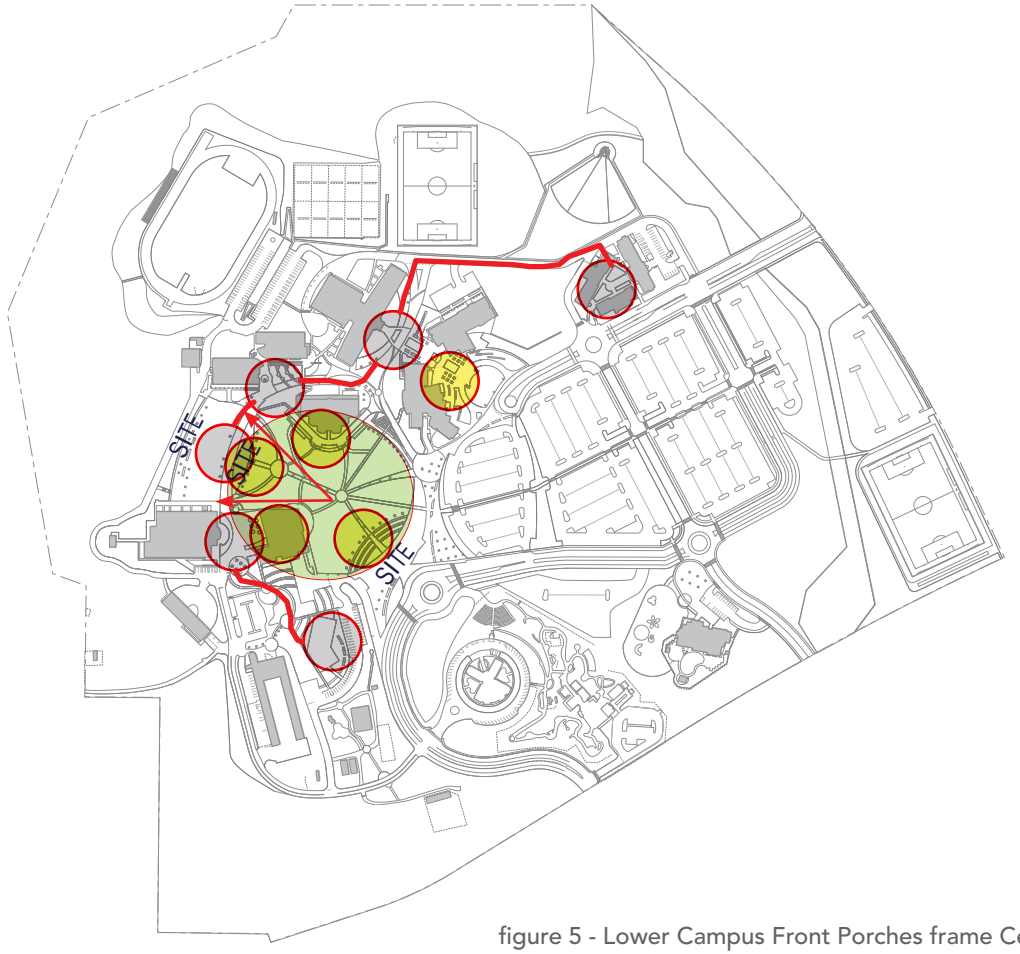


figure 5 - Lower Campus Front Porches frame Central Park

Taking cues from the existing building clusters, and by diagramming the spaces between them, the development concept for the Cuyamaca College campus is analogous to an urban hill town. "Front porches" append the building clusters at the lower level to frame the existing newly renamed "Central Park "(***figure 5***). The "back porch" of each building is a level higher and it is this upper campus plaza zone that will be enhanced by providing clear connections and paths that link to plazas. Building sites within these outlined plaza nodes are also defined in ***figure 5***.

Central Park is a unique amenity to Cuyamaca College. In the development concept it is a "green plaza" and the edges are defined by the "front porches" of the buildings that surround it. At a campus scale, this "green plaza" is a central organizing device for the College. Like the Piazza Del Campidoglio, Central Park will create more orderly wayfinding to the upper campus plazas and pedestrian pathway system (***figure 5***).

Recommendations

CAMPUS CONNECTIVITY

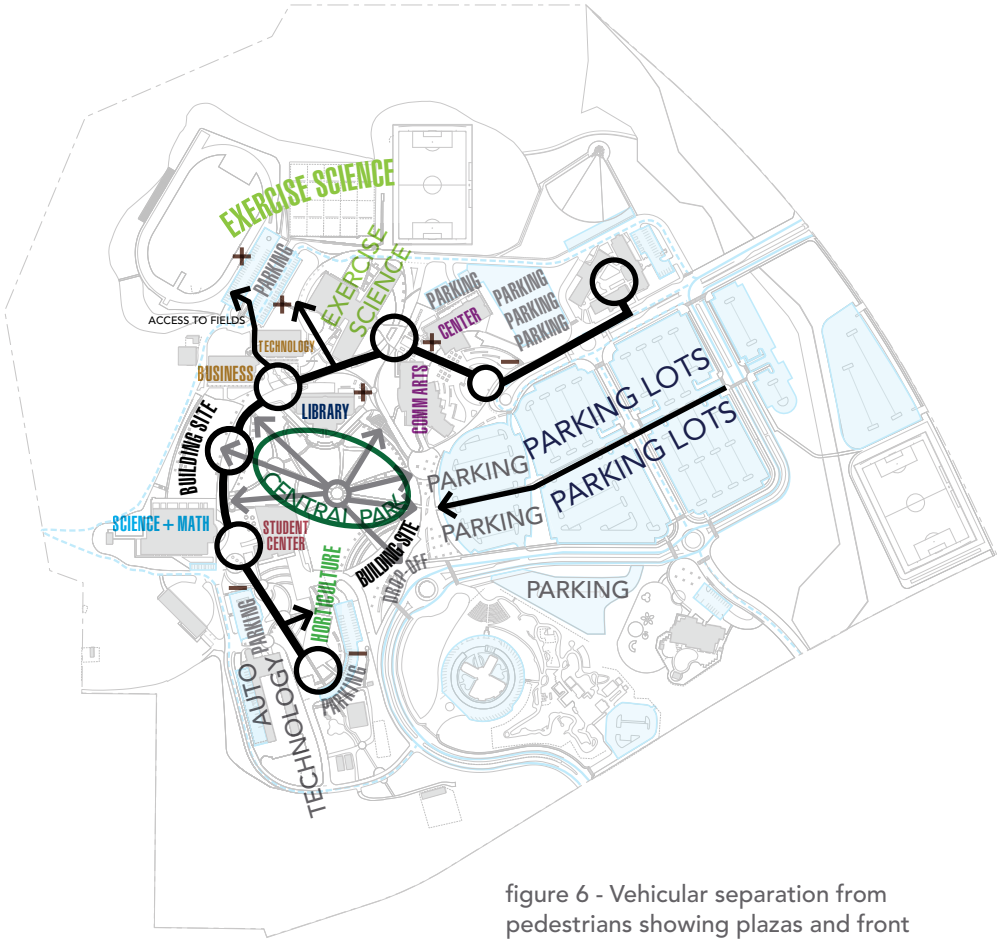


figure 6 - Vehicular separation from pedestrians showing plazas and front porches with potential building sites.

The pedestrian pathways that link the urban hill town plazas create an upper campus that transitions from cars and pedestrians to a purely pedestrian zone, giving the campus back to the students and faculty (***figure 6)***.

Vehicular traffic is rerouted from the core of campus to the north edge of the existing One-Stop Center, Building A, to create a more direct and safe route to the upper campus parking. This upper campus plaza and pathway system creates a well-defined thread that ties all of the collegiate buildings together while linking them back to the newly redeveloped Central Park (***figure 7***). ***Figure 6*** clearly shows defines the concept applied to the Central Park at the heart of campus.

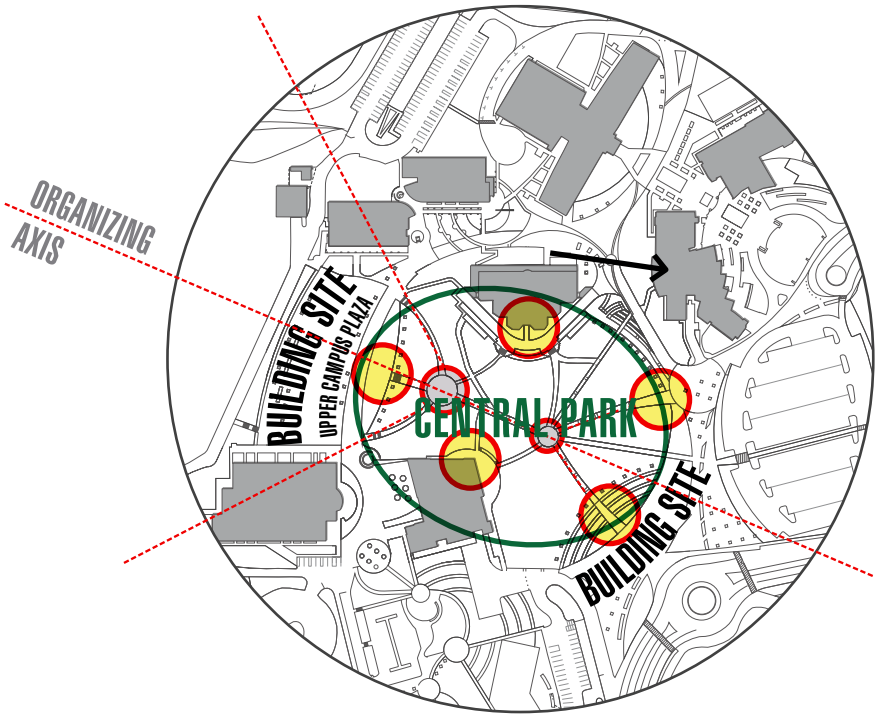


figure 7 - Development concept applied to the existing newly renamed "Central Park" provides a means to traverse the topography to the Upper Campus Plaza along axes, which organize gathering nodes.

Recommendations

SUMMARY OF RECOMMENDATIONS

The facilities recommendations for the Cuyamaca College campus were crafted to support the initiatives and align with the vision, mission, and values that were established in the *2012 GCCCD Educational Master Plan*. The recommendations include new construction, renovation, vehicular circulation, and site improvement projects. These projects also address issues that were identified and validated through discussions held during the planning process. The recommendations address facility needs going forward into the next decade and the graphic plan shown on the facing page presents an overall picture of the future developed campus.

New Facilities

Instructional Building Complex F Replacement
Student Services + Administration Building
Ornamental Horticulture Complex M Replacement

Renovation + Repurposing

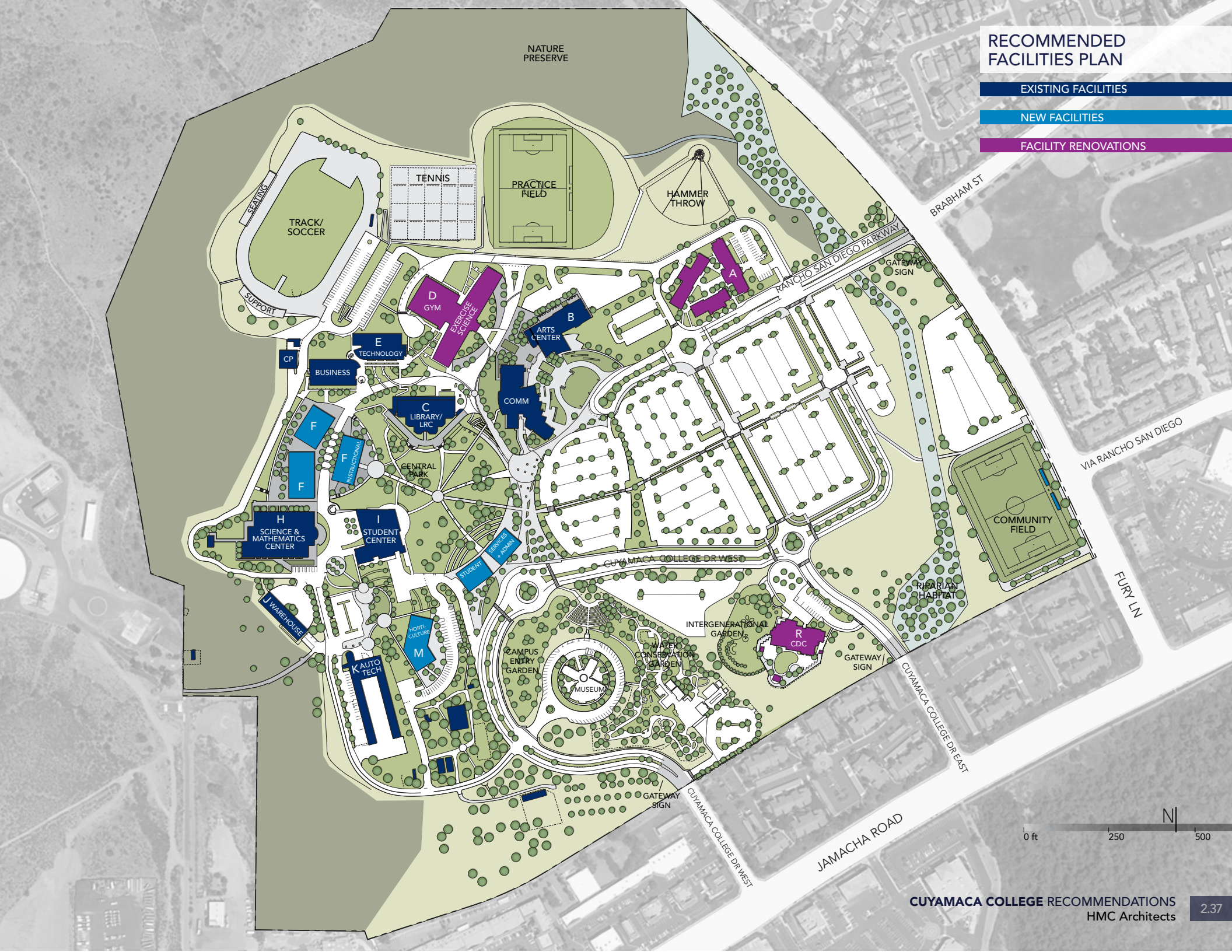
Exercise Science D
Child Development Center R
One-Stop Center A

Site Improvements

Road + Existing Parking Improvements
Additional Parking
Gateway Entry Signs
Pedestrian Hardscape Alignment + Replacement
Campus-Wide Landscape Improvements
Track + Field Improvements
Stadium Completion
Exercise Science Field Improvements
Community Field Relocation + Improvements
Nature Preserve Improvements

Sustainability

Energy Use + Renewables
Water Use + Reuse
Storm Water Management
Waste Management + Reduction
Transportation
Education


RECOMMENDED FACILITIES PLAN
EXISTING FACILITIES
NEW FACILITIES
FACILITY RENOVATIONS
NATURE PRESERVE
TENNIS
PRACTICE FIELD
HAMMER THROW
SEATING
TRACK/ SOCCER
SUPPORT
BRABHAM ST
RANCHO SAN DIEGO PARKWAY
GATEWAY SIGN
A
D GYM
EXERCISE SCIENCE
B ARTS CENTER
E TECHNOLOGY
CP
BUSINESS
COMM
C LIBRARY/ LRC
F
F
F INSTRUCTIONAL
CENTRAL PARK
VIA RANCHO SAN DIEGO
COMMUNITY FIELD
H SCIENCE & MATHEMATICS CENTER
I STUDENT CENTER
SERVICES + ADMIN
STUDENT
CUYAMACA COLLEGE DR WEST
RIPARIAN HABITAT
FURY LN
J WAREHOUSE
HORTI-CULTURE
M
INTERGENERATIONAL GARDEN
R CDC
K AUTO TECH
CAMPUS ENTRY GARDEN
MUSEUM
WATER CONSERVATION GARDEN
GATEWAY SIGN
CUYAMACA COLLEGE DR EAST
GATEWAY SIGN
CUYAMACA COLLEGE DR WEST
JAMACHA ROAD
N
0 ft
250
500

Recommendations

CAMPUS DESIGN OBJECTIVES

The Campus Design Objectives translate the districtwide planning principles into objectives that address the specific needs of Cuyamaca College. These design objectives were established with the Cuyamaca College Extended Master Plan Task Force and are part of the framework that will guide project-level planning and provide a campuswide perspective.

Focus on Students

Design with Community College Survey of Student Engagement (CCSSE) Principles.

- Design to give students a strong start.
- Provide clear, coherent pathways through college systems.
- Set high expectations and provide a high level of support.
- Promote intensive student engagement.

Create Welcoming Gathering Spaces.

- Design at human scale.
- Capture the warmth of morning sunlight.
- Provide shade for hot days.
- Provide furniture.
- Provide communication connectivity.

Increase Access to Service.

Design to Support Collaboration.

Create a Collegial Campus Environment.

- Create welcoming facilities.
- Design for universal accessibility.

Maximize Functional Space

Support learning anywhere, anytime, anyplace.

- Create outdoor teaching spaces.
- Create an amphitheater next to the Library.

Develop appropriate functional groupings.

- Distribute and share interdisciplinary classrooms, campuswide.
- Provide for the appropriate number of large classrooms.
- Increase utilization of facilities.
    - Hold Saturday classes in one building near parking.

Create flexible and adaptable space.

- Design for collaborative and active learning.
- Provide faculty/employee support spaces.
- Provide support facilities for adjunct faculty.
- Display student art.
- Feature public art throughout the campus.
- Improve facilities for accessibility, health, and safety.

Provide robust technology and utility infrastructure systems.

- Plan for future technologies.

Plan for Sustainability

Create a campus that is a living laboratory.

Provide healthy and comfortable learning and working environments.

Support sustainable campus operations.

- Design for durability and ease of maintenance.

Minimize the use of resources and negative impacts to the environment.

- Alternative transportation
- Storm water management
- Habitat preservation
- Light pollution
- Alternative power

Enhance the Campus Environment

Strengthen the connection to the community.

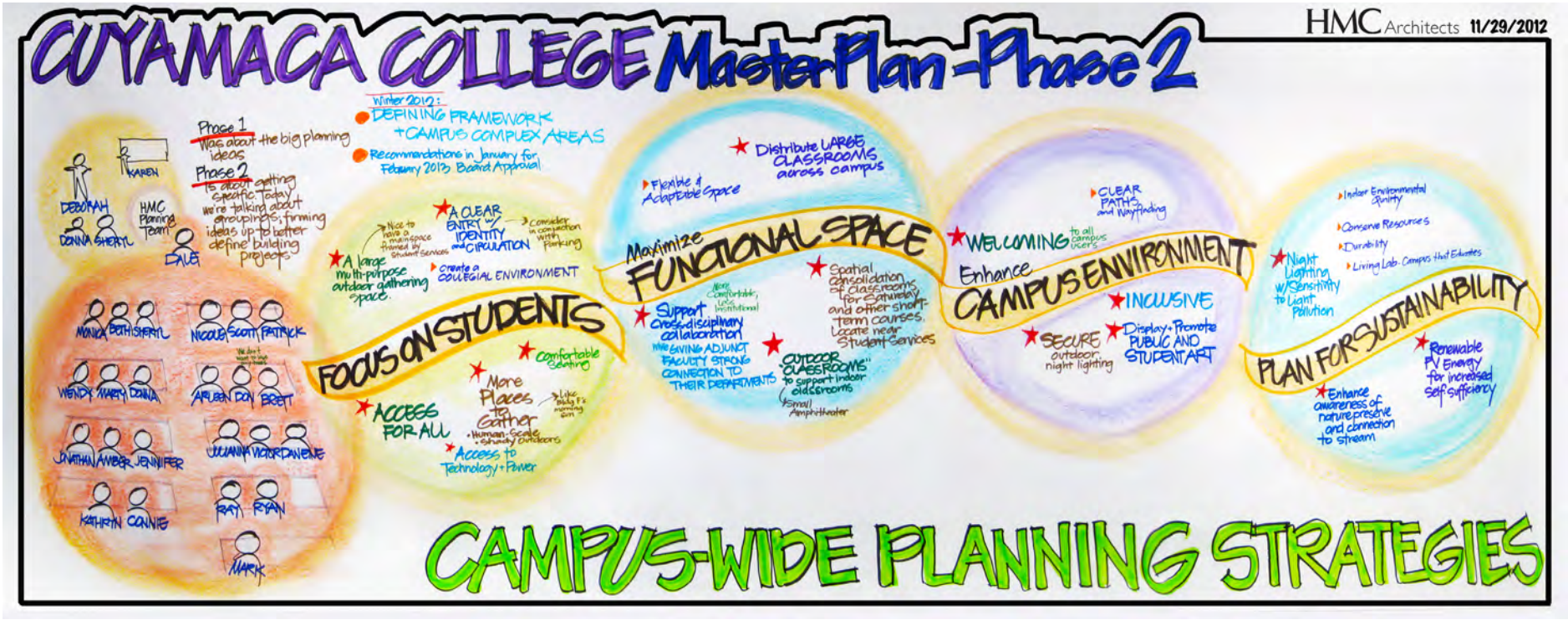
- Complete the stadium to be a venue for music performances, graduations, and sanctioned athletic events.

Facilitate wayfinding and efficient vehicular and pedestrian circulation.

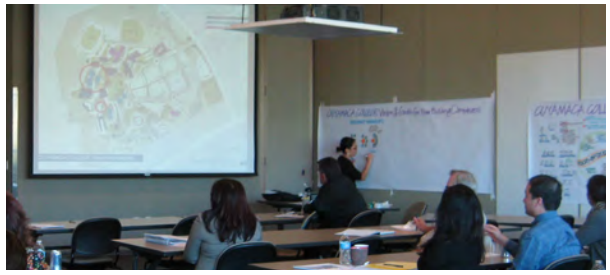
- Develop clear, intuitive pathways.
- Develop paths from parking area to direct pedestrians to a gateway to the campus core.
- Design site improvements to keep the existing trees.
- Create an outdoor event space at the gateway to the campus core.

Consider campus climate conditions and plan for comfort.

- Design for security.
    - Provide better night time lighting of the campus.
- Design facilities that provide quality indoor environments.
    - Aesthetics
    - Indoor air quality
    - Daylight and views
    - Acoustics
    - Ergonomics
    - Flexibility
- Design for fire safety.



Graphic recording of the discussion that took place at the November 29, 2012 Extended Master Plan Task Force Meeting.



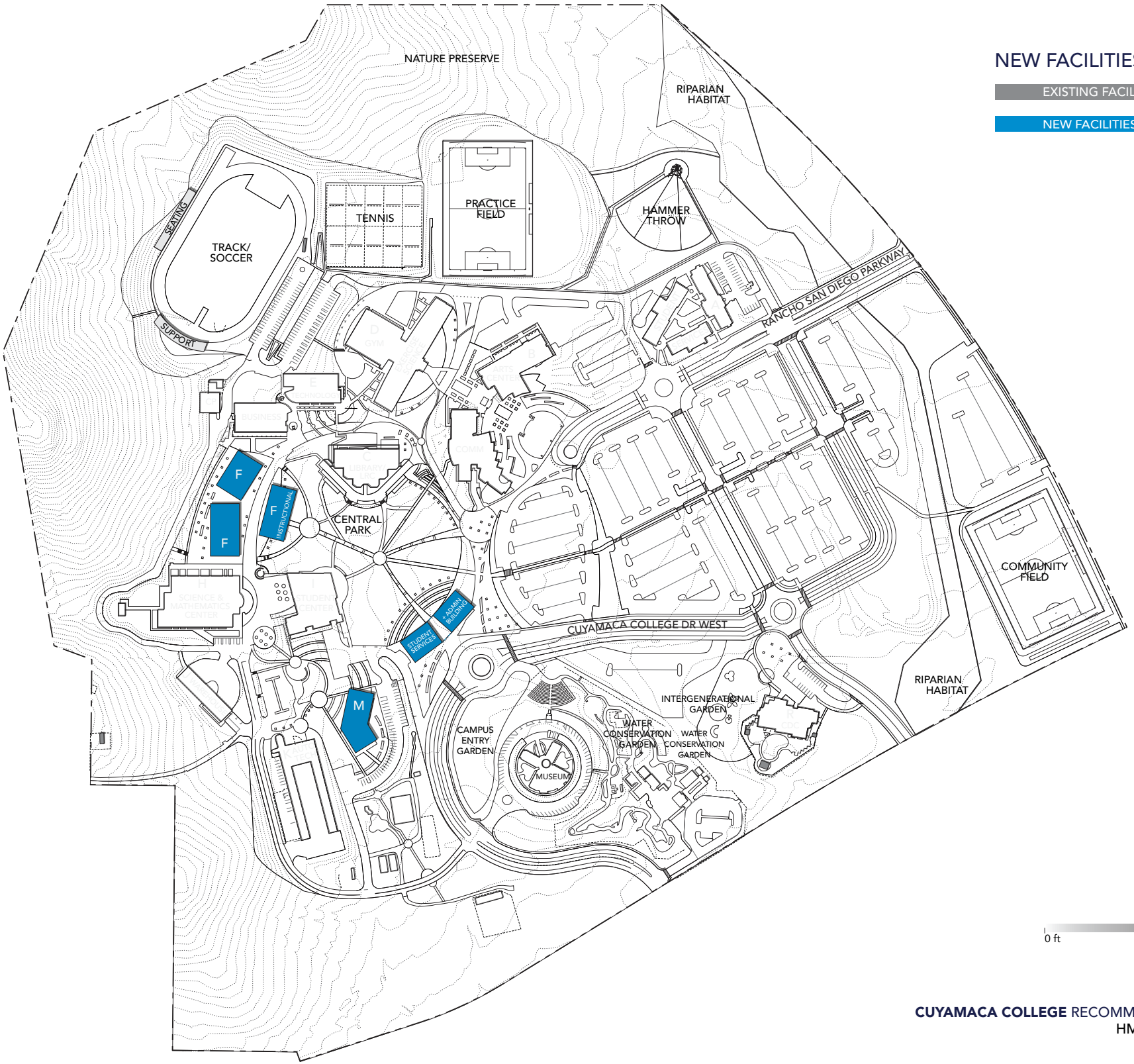
Recommendations

NEW FACILITIES

Three new facilities are recommended for the Cuyamaca College campus. These facilities will provide needed space to improve student access to instructional and support services, to create a collaborative and collegial learning and work environment, and to replace aged facilities that are increasingly costly to maintain and operate with new space that is efficient and environmentally sustainable. The new facilities are located to create a welcoming point of arrival, improve functional zoning, and strengthen open space connections across the campus.

New Facilities Projects

- Instructional Complex F Replacement
- Student Services + Administration Building
- Ornamental Horticulture Complex M Replacement



NEW FACILITIES

EXISTING FACILITIES

NEW FACILITIES

N

0 ft 250 500

Recommendations - New Facilities

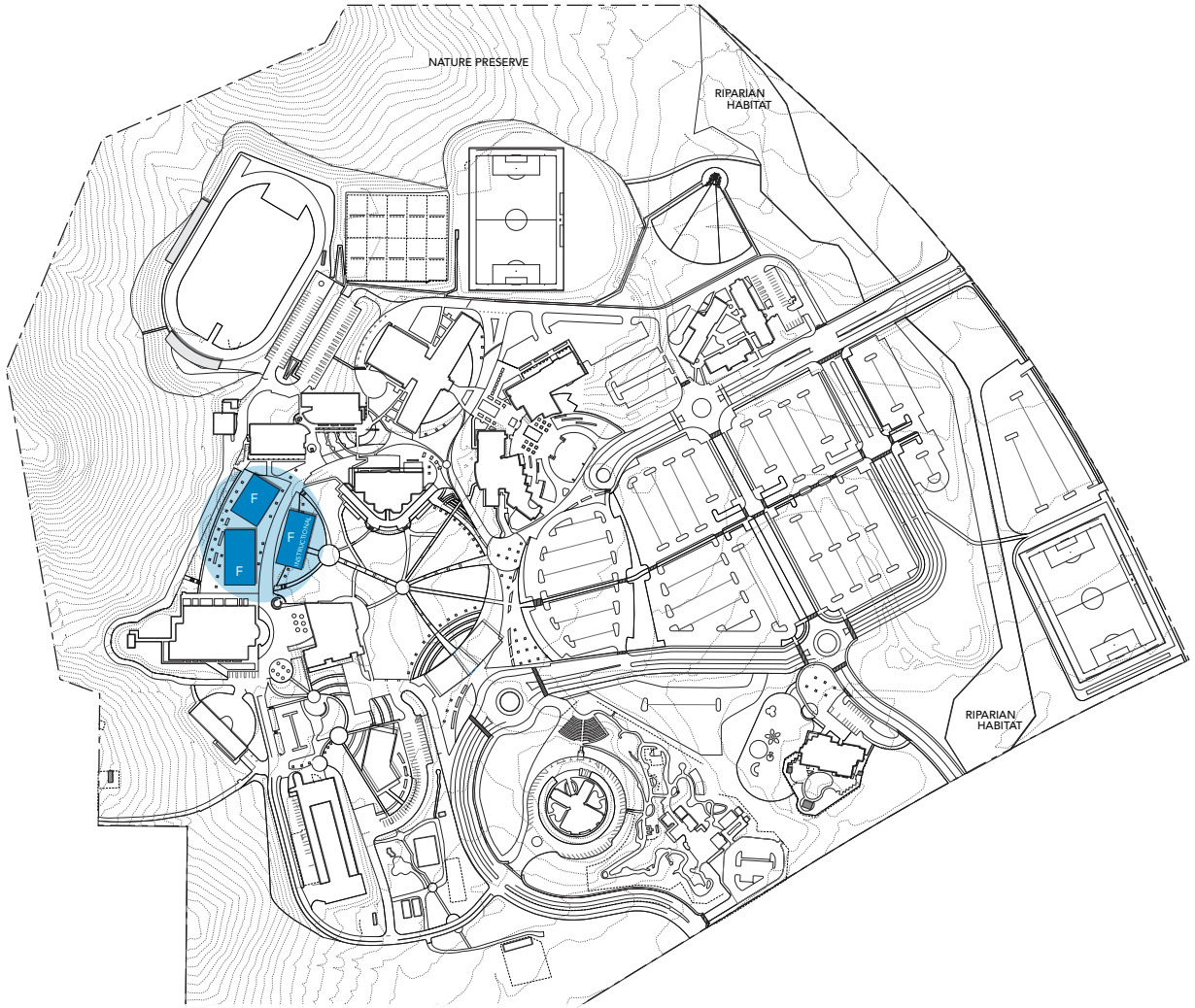
INSTRUCTIONAL COMPLEX F REPLACEMENT

A new instructional building complex is recommended to replace aged and outdated classrooms and labs. It will house a number of core transfer courses, specialty career development programs, and new instructional programs to address emerging needs.

Instructional spaces will be flexible and adaptable, located indoors and outdoors and fully outfitted with technology and support utilities. Faculty offices, conference rooms, and the staff lounge will be clustered to facilitate collaboration within and across disciplines and provide places for students to interact with faculty.

The complex will be designed to step vertically with the hillside site. It will include a "front porch" space on the Central Park and provide accessible vertical circulation with elevators and stairs, including a "grand staircase" leading connecting to the Main Quad. The design of the building will define a new courtyard – a place for gathering and casual interaction, which will be a central element in the campus network of linked outdoor spaces.

Instructional Building Complex F will be designed and built to standards for sustainability developed to meet the goals of Cuyamaca College. Sustainable strategies, such as the harvesting of daylight, will optimize comfort and aesthetics while lessening the use of energy. Opportunities to integrate photovoltaic modules into the building complex will be pursued.



Programs to include:

- Astronomy
- Computer-aided Drawing and Design (CADD)
- Duplicating
- Engineering
- English
- Environmental Health and Safety Management (EHSM)
- Environmental Science
- English as a Second Language (ESL)
- Flexible Program Space
- Green Technologies
- Humanities
- Mail Room
- Mathematics
- Physical Sciences
- Planetarium and Observatory
- Science Classrooms
- Social and Behavioral Sciences
- Surveying
- Water/Waste Water Management
- World Languages

Instructional Complex F Worksession

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Flexible + Adaptable

02 Indoor/Outdoor Connections

03 Vertical Connector

04 Natural Light + Views

05 Collaboration

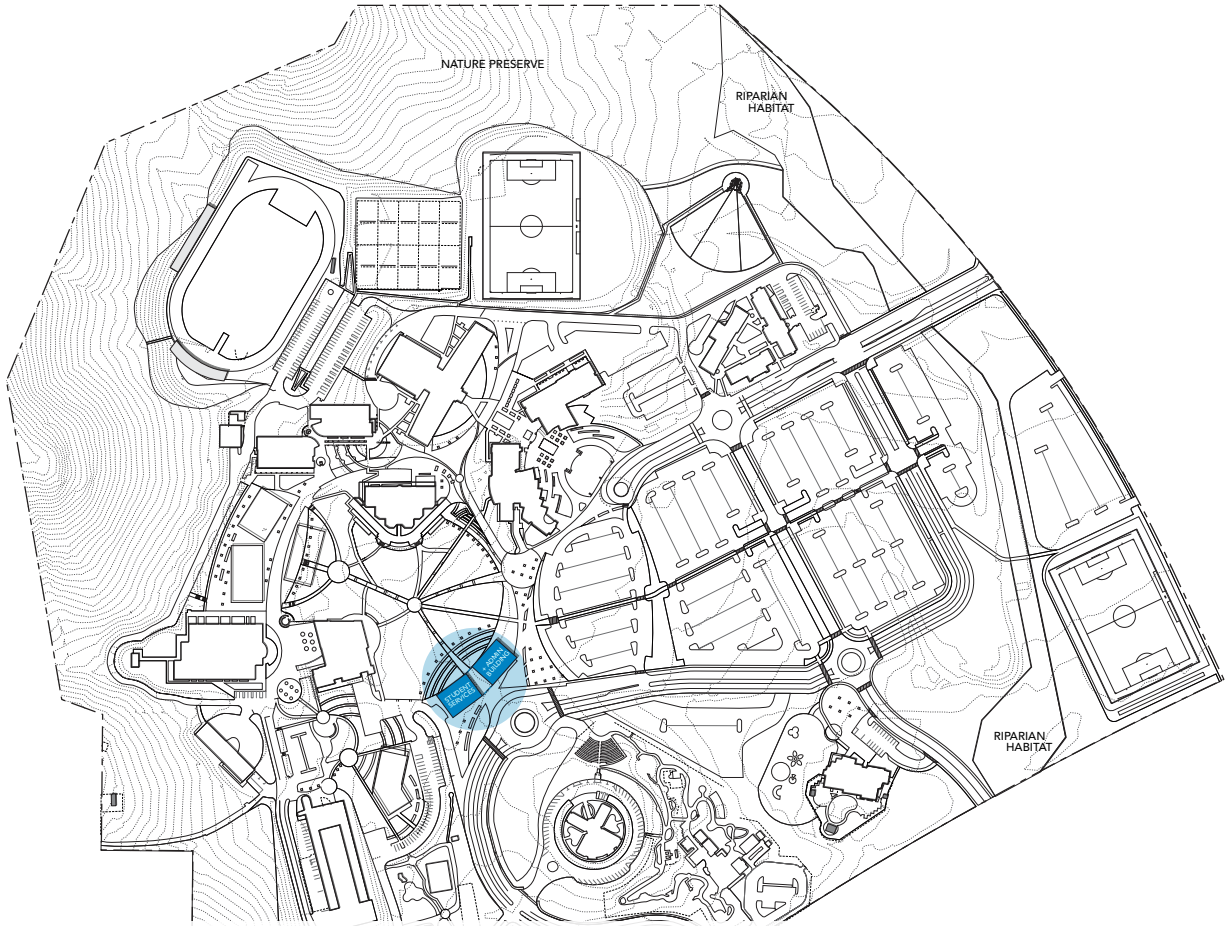
Recommendations - New Facilities

STUDENT SERVICES + ADMINISTRATION BUILDING

A new Student Services and Administration Building is recommended to increase students' access to information and support the delivery of comprehensive student support services. The new building will provide improved, functional space to address needs of current and growing student populations, including active duty military and veterans. The new facilities will be designed with innovative service delivery models that are student-centered, seamless and efficient.

This new facility is located to welcome students and visitors at the point of arrival at the campus core, adjacent to parking and public transportation stops. At this central location near the Student Center, Library, and Central Park, it will bring vital student support services within the hub of campus activity. The zoning of the functions within the multi-story building will be based on the student service delivery model developed during the early programming discussions.

The Student Services and Administration Building will be designed and built to standards for sustainability developed to meet the goals of Cuyamaca College. Sustainable strategies, such as the harvesting of daylight, capturing views, and maintaining healthy indoor air quality will optimize comfort while lessening the use of energy. Opportunities to integrate photovoltaic modules into the building complex will be pursued.



Programs to include:

Student Services

- Admission + Records
- Assessment
- CalWORKs
- Career Center
- Cashier
- Counseling
- Disabled Students' Program and Services (DSP&S)
- Extended Opportunity Programs & Services (EOPS)
- Financial Aid
- Health + Wellness
- Job Placement
- Meditation Area
- Public Safety
- Service Learning
- Student Success/Outreach
- Transfer Center
- Veterans Affairs and Resource Center

Administrative Functions

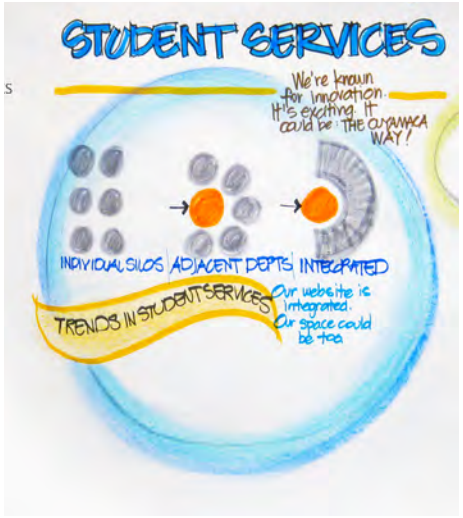
- Academic Senate
- Business Office
- Conference Rooms
- Data Center
- Duplicating
- Foundation
- Grants Office
- Instructional Operations
- Mail Room
- Reception
- Research Office
- Staff Support Space
- President's Office
- Switchboard
- Vice Presidents' Offices

Student Services + Administration Worksession

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Welcoming

02 Student-Centered



03 Integrated Delivery

04 Collaborative

05 Seamless Services

Recommendations - New Facilities

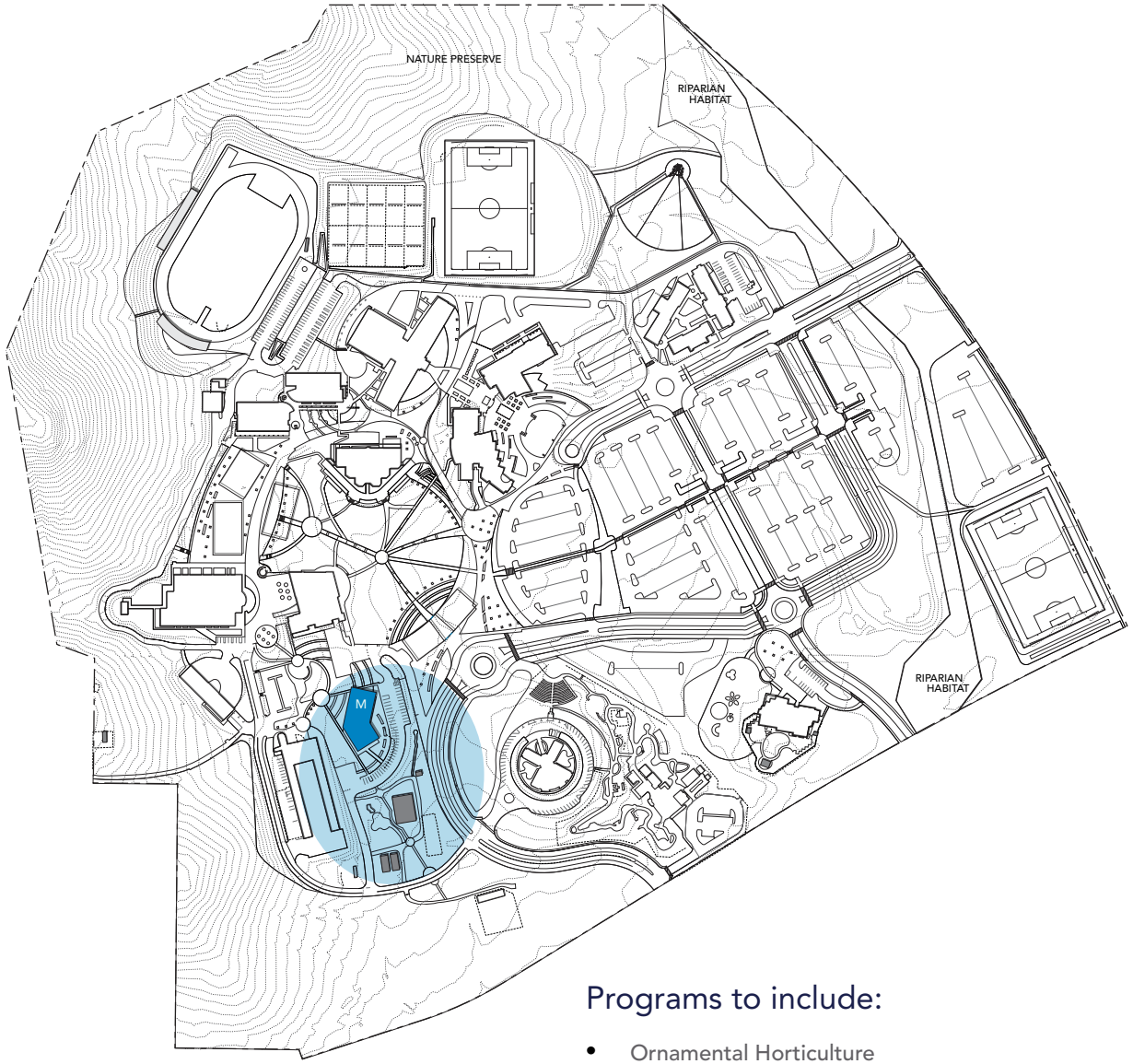
ORNAMENTAL HORTICULTURE COMPLEX M REPLACEMENT

A new complex is recommended to support the renowned Ornamental Horticulture program and the rapidly-growing Water/Waste Water Management program. Replacement of the aged facilities and temporary storage containers that house these programs with modern, permanent facilities is recommended. A new complex with an integrated site design that supports the program's connections to the campus and to the community will be developed to maximize the use of outdoor space and develop the underutilized land along the southern edge of the program area.

This complex will include both indoor and outdoor instructional space, including greenhouses featuring innovative energy and water technology; retail nursery; parking; and site improvements. Gardens designed around cultural and academic themes will be part of a holistic plan for a facility that supports hands-on learning that is unique in this region. The Ornamental Horticulture Complex will showcase sustainable building and site design strategies and serve as a living lab for green technologies.

The recommendations include improved pedestrian links to the campus core to welcome students who use the gardens as a learning lab for the sciences, the arts, the humanities, and for their own health and wellness. Stronger connections to nearby outdoor spaces, such as the Central Park, will streamline the staging of events such as the Spring Garden Festival and the weekly farmer's market. Improved visibility and community access from Cuyamaca College Drive West will be provided.

Consideration for the potential reuse of Building L will be studied in the early programming and design discussions for this complex.



Programs to include:

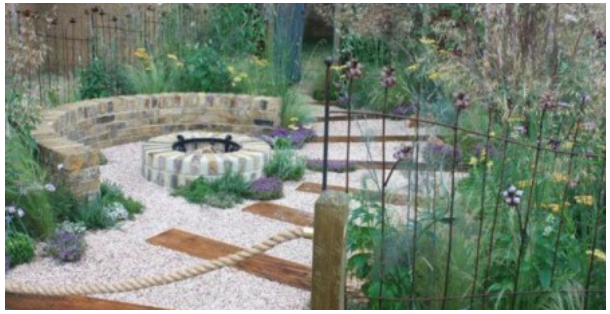
- Ornamental Horticulture
  - Greenhouses
  - Nursery (retail and growing)
  - Event/Gathering Space
  - Classrooms
  - Offices
  - Conference Room
  - Cashier/Store
  - Heavy Equipment Garage Space
- Water/Waste Water Management

Ornamental Horticulture Complex M Replacement Worksession

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Campus as a Living Lab

02 Themed Gardens



03 Innovative Technologies

04 Interdisciplinary Collaboration

05 Community Resource

Recommendations - New Facilities

RENOVATION + REPURPOSING

Renovation and repurposing projects renew and lengthen the lifespan of existing facilities by replacing aging components and creating modern, welcoming spaces that will accommodate new and existing functions. Changes in programming will be made to improve campus zoning and address the secondary effects of new construction. Instructional technology will be updated to support successful student learning through innovative modes of instruction. Energy and water efficiency will be improved. Facilities will be brought into compliance with current safety and accessibility standards for the benefit of students and the employees of the district.

Exercise Science D

Building D will be modernized, renewed, and repurposed to prepare it for many more years of service. The building will receive a new efficient HVAC system that will use hot and chilled water from the central plant and extend the air conditioning system to the gymnasium wing. The Exercise Science wing will be modernized to refresh and update instructional spaces to include a new fitness center for the campus. The addition of a weight training facility will provide permanent space for this function. Renewable energy systems, including photovoltaic power and a solar domestic hot water system will be considered.

One-Stop Center A

As student services functions are moved to the new Student Services and Administration Building, the One-Stop Center will be renovated and repurposed for uses that do not require a central campus location, such as an East County Workforce Solutions Training Center, or the District Services offices. Further discussions are needed to determine the best uses for this facility.

Child Development Center K

The building and site will be modernized to refresh worn components and finishes and update indoor and outdoor instructional spaces to keep current with program needs. The driveway and parking area will be removed from the path of Cuyamaca College Drive East to improve vehicular circulation and remove the center from passing traffic.

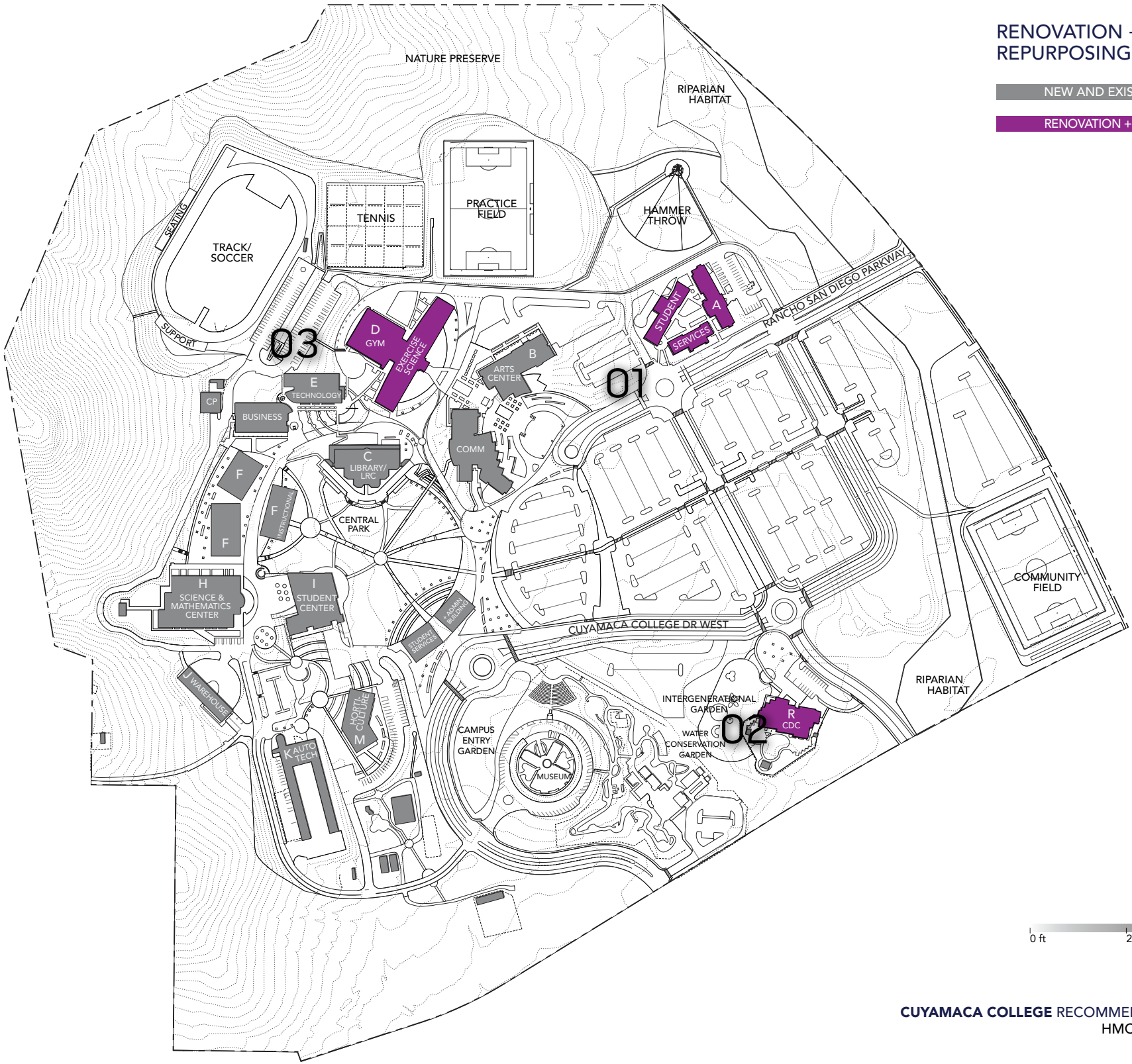
Renovation + Repurposing Projects

- Exercise Science D
- Child Development Center K
- One-Stop Center A

RENOVATION + REPURPOSING

NEW AND EXISTING FACILITIES

RENOVATION + REPURPOSING



Recommendations

SITE IMPROVEMENTS

The varied and extensive Cuyamaca College campus represents many unique opportunities, challenges, and needs that are addressed in the recommendations for site improvements. These include the need to improve the campus' visibility and presence; enhance circulation and connections across the campus; and provide facilities that promote a culture of health and wellness among students, employees, and community members. Sustainability is a college priority and is integrated throughout the site recommendations through strategies to minimize the use of natural resources and foster respect for the natural environment. Improvements to the site infrastructure for technology and utilities, including alternative energy systems, are also integrated into each project to support all existing and new facilities and to maximize their efficient and sustainable operation.

Hardscape Alignment + Replacement

This project will provide well-designed, sized and located pedestrian gathering spaces and circulation elements across the campus. It will apply the organizing principles of the campus development concept to clarify wayfinding and strengthen connections between all campus facilities. All areas of the campus will be designed to address the need for good lighting, safety, shade, and seating. Microclimates, wind, and solar exposure will be considered in order to maximize comfort.

Campus-Wide Landscape Improvements

Landscaping improvements are recommended across the campus to build on its existing strengths and character. Much-loved spaces such as the Central Park will be preserved and enhanced. The landscape improvements focus on the following:

- Improve entries and edges and strengthen the College's identity by developing a consistent design vocabulary for planting, signage and gateway elements.
- Support the use of the campus environment as an educational resource.
- Integrate sustainability strategies to reduce energy and water use, reduce heat islands, preserve water quality, and restore natural habitats.

Gateway Entry Signs

New entry monument signs and gateway features are recommended to strengthen the college's presence within the community and enhance wayfinding to the campus. The exploration of opportunities to provide signage at locations that are visible from Jamacha Road are recommended.

Site Improvement Projects

- Hardscape Alignment + Replacement
- Campus-Wide Landscape Improvements
- Gateway Entry Signs
- Road + Existing Parking Improvements
- Additional Parking
- Track + Field Improvements
- Exercise Science + Field Improvements
- Community Field
- Nature Preserve Improvements

RECOMMENDED SITE IMPROVEMENTS

SITE IMPROVEMENTS

Vehicular Circulation + Parking

The vehicular circulation recommendations focus on improving the flow of traffic, especially during the peak hours at the beginning of semesters that are the most challenging for the college community. The flow of traffic will be improved by adding a campus entry, separating vehicular and pedestrian circulation, separating passenger loading zones from main vehicular routes, providing appropriately sized stacking and loading zones for buses, providing multiple clear routes to and from parking areas, and planning for future parking needs.

Cuyamaca College Drive East is widened and re-routed away from the Child Development Center parking lot to provide a third option for entering and leaving the campus. The main vehicular route, which currently passes between the main parking area and the campus core, is moved to the southern and eastern perimeter of the parking area. This driveway connects the three campus entries and the flow of traffic at intersections is facilitated through roundabouts. The experience of entering the campus on Cuyamaca Drive West is preserved and enhanced by arriving at the new plaza and passenger loading zone in front of the Student Services and Administration Building. Entering the campus on Rancho San Diego Parkway leads to another generously-sized passenger loading zone in front of the Communication Arts Building and Plaza.

Vehicular traffic to the upper campus is rerouted to the north of the One-Stop Center on a new driveway. The open spaces between the Library, Gym, and Communication Arts are closed to all but emergency vehicles. This area will be redesigned as a link in the series of pedestrian plazas connecting across the campus core.

The existing main parking area will be reconfigured and enlarged for greater efficiency and capacity. The design will incorporate existing trees where possible, and provide new shade trees, which will also serve to emphasize the paths leading pedestrians to the campus core. Bioswales will retain and clean stormwater to lessen the impacts on regional water quality, including the campus riparian habitat.

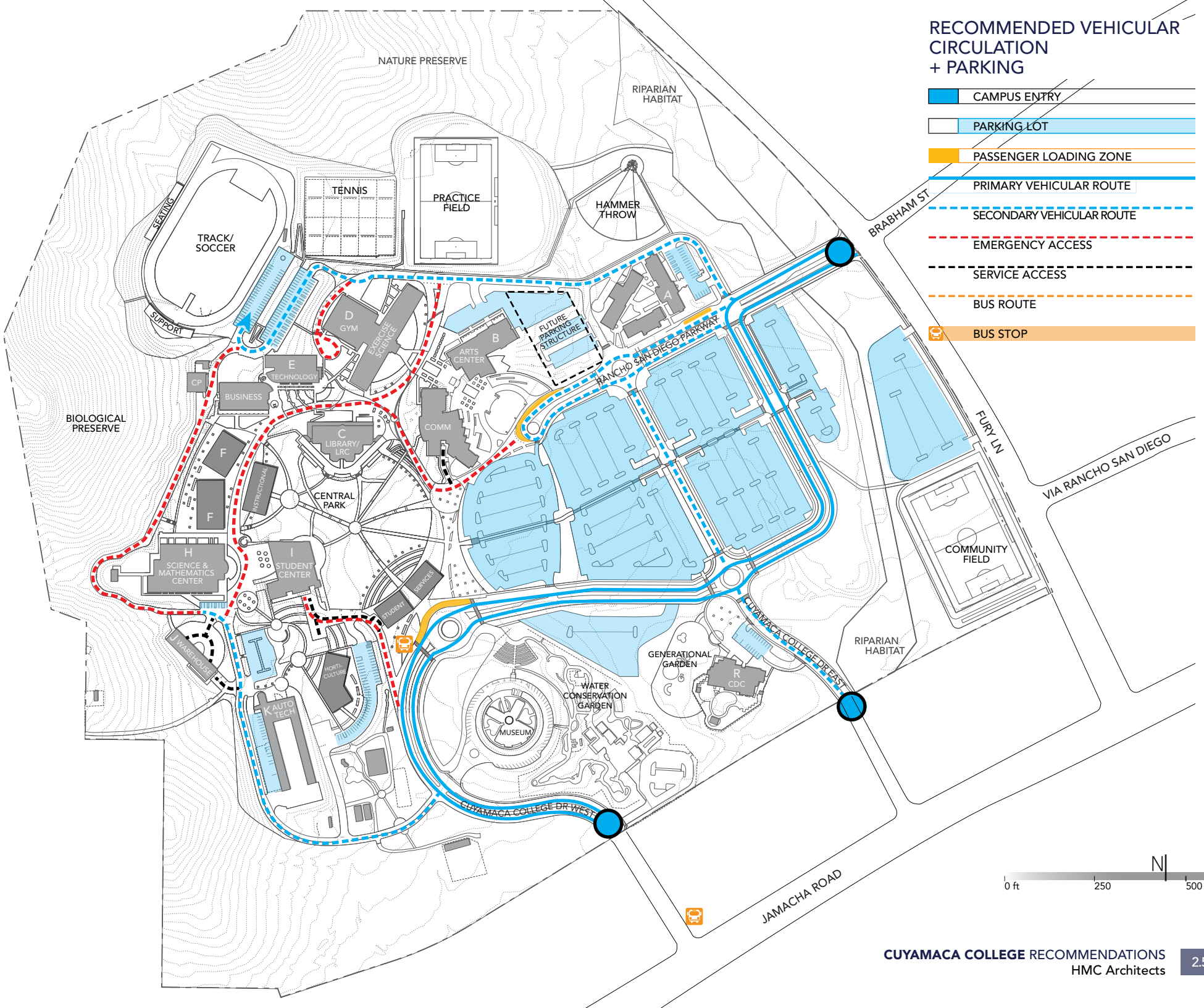
Road + Existing Parking Improvements

Vehicular circulation improvements are recommended to promote safe and efficient circulation and clear wayfinding. The improvements focus on the following:

- Re-route primary vehicular circulation to the outer edges of the main parking area and away from pedestrians.
- Re-route vehicular traffic away from the campus core.
- Enlarge the main parking area and reconfigure it for greater efficiency. Incorporate the area occupied by the existing lower playing field and hammer throw cage.
- Integrate sustainability strategies to support alternative transportation, reduce energy and water use, reduce heat islands, and preserve water quality.

Additional Parking

Existing temporary gravel parking areas will become permanent parking lots. New parking will be developed on the site between the One-Stop Center and the Communication Arts Building. A tiered surface parking lot with, potentially, a structure above would be built into the sloped site with vehicular access at two levels – from Rancho San Diego Parkway and from the new road that will pass to the north of the parking structure. This location will provide parking where it is needed – closer in distance and in elevation to the campus core.


RECOMMENDED VEHICULAR CIRCULATION + PARKING
CAMPUS ENTRY
PARKING LOT
PASSENGER LOADING ZONE
PRIMARY VEHICULAR ROUTE
SECONDARY VEHICULAR ROUTE
EMERGENCY ACCESS
SERVICE ACCESS
BUS ROUTE
BUS STOP
NATURE PRESERVE
RIPARIAN HABITAT
TENNIS
PRACTICE FIELD
HAMMER THROW
TRACK/ SOCCER
SEATING
SUPPORT
BRABHAM ST
FUTURE PARKING STRUCTURE
RANCHO SAN DIEGO PARKWAY
FURY LN
VIA RANCHO SAN DIEGO
BIOLOGICAL PRESERVE
CENTRAL PARK
COMMUNITY FIELD
GENERATIONAL GARDEN
CUYAMACA COLLEGE DR EAST
WATER CONSERVATION GARDEN
MUSEUM
CUYAMACA COLLEGE DR WEST
JAMACHA ROAD
0 ft
250
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Recommendations - Site Improvements

EXERCISE SCIENCE FIELD IMPROVEMENTS

- Athletics
- Athletic Training
- Dance
- Exercise Science
- Health Education

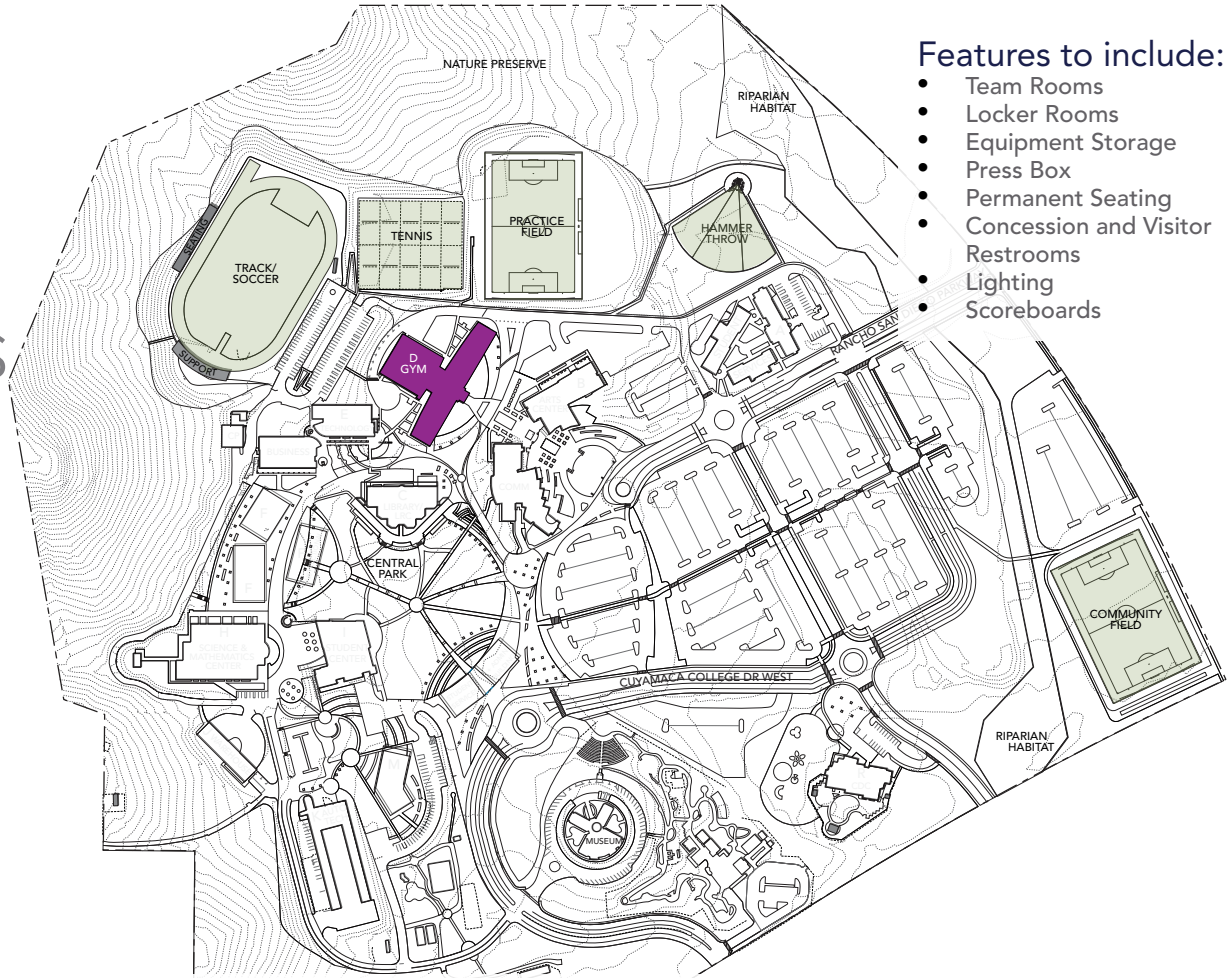
Track and Field Improvements + Stadium Completition

Permanent seating, support facilities, lighting, scoreboards, visitor facilities, and accessible paths are recommended to replace temporary facilities and increase the use of the track and field for Exercise Science instruction, athletics, and college and community events. The upgrade of the track and field is recommended to preserve the functionality of these instructional resources. These new and upgraded facilities will be built to standards for sustainability developed to meet the goals of Cuyamaca College. The option to use water-saving, low maintenance artificial turf for the field will be studied further.

Exercise Science Field Improvements

The upgrade of the Upper Practice Field and Tennis Courts is recommended in order to preserve and enhance the functionality of these instructional resources. Included is the relocation of the hammer throw cage to allow for the expansion of the main parking area. These new and upgraded facilities will be built to standards for sustainability developed to meet the goals of Cuyamaca College. The option to use water-saving, low maintenance artificial turf for the field will be studied further. New lighting and paving upgrades for the tennis courts will lengthen the functional life of this facility and increase its use.

- Equipment Storage
- Tennis Court Lighting
- Restrooms



Features to include:

- Team Rooms
- Locker Rooms
- Equipment Storage
- Press Box
- Permanent Seating
- Concession and Visitor Restrooms
- Lighting
- Scoreboards

Community Field Relocation + Improvements

A new community field and parking lot is recommended for the undeveloped area adjacent to Fury Lane. It will be sized to accommodate soccer games and will replace the existing Lower Playing Field. The community field is a much-appreciated amenity that introduces future students to Cuyamaca College and the recommended location will advertise the College's presence along Fury Lane.

- Restrooms
- Dedicated Parking
- Lighting

Exercise Science D

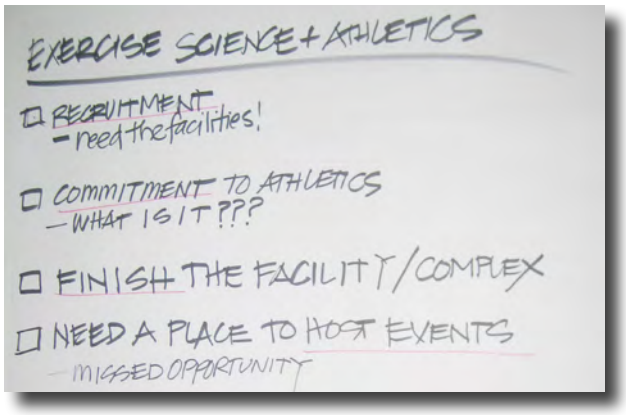
Exercise Science D (renovation)

See *Renovation + Repurposing* on page (2.48) for more information.

Exercise Science Field Improvements Worksession

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Provide Collegiate Quality Facilities



02 Enrich Campus Life

03 Vision, Venue, Vistas

04 Of and Through the Physical

HABITAT PRESERVATION + RESTORATION

Nature Preserve Improvements

Habitat preservation is an important component of site sustainability. Nine California native habitats exist within the Cuyamaca College campus, along with six recognized sensitive plants and animals. Future campus development projects shall maintain biological diversity, preserve continuous/connected habitat areas, and mitigate habitat fragmentation from development, pollution, invasive species, erosion, and encroachment. All designated open space and habitat areas shall be maintained, preserved, and restored according to County of San Diego or CEQA guidelines. Collaboration between Cuyamaca College's Ornamental Horticulture program, Biological Sciences, Kumeyaay Studies and the Water Conservation Garden along with the college's facilities design and grounds department is encouraged as part of a functioning site and cohesive educational program.

The recommendations for wildlife habitat preservation and restoration encourage the planning of future campus projects to avoid encroachment and fragmentation of existing natural areas and habitats. Designers of facilities and site improvements should also be mindful of seizing opportunities to restore the natural site ecology and wildlife habitat throughout the campus by using sustainable landscape strategies. Additional information is provided in the *GCCCD Chapter, Sustainability Recommendations* for *Habitat Preservation + Restoration* on page 1.22.

Nature Preserve

The design of buildings and exercise science fields near the nature preserve should minimize changes to the existing topography. The nature preserve should be shielded from site lighting. The development of trails and interpretive signage near and/or within the preserve will be considered. Projects located in adjacent open space may be subject to brush management requirements as dictated by the County of San Diego. Periodic and selective removal of non-native and/or invasive species, non-native grasses, and other high fuel load plant species is essential to reduce the fire potential. Limit clearing and grading of native vegetation to the minimum amount.

Riparian Habitat

A system of decomposed granite trails, raised boardwalks, and observation decks with interpretive signage will link this educational asset to the central campus and the Community Field and Fury Lane, with minimal disturbance to the habitat. Low impact design strategies, such as bioswales or retention ponds, will be integrated into building sites and parking lots to reduce and treat storm water before it enters the sensitive riparian habitat or leaves the campus.

NATURE PRESERVE IMPROVEMENT

PEDESTRIAN CONNECTIONS

Nature Preserve

Riparian Habitat

Sustainable Landscaping

Recommendations

SUSTAINABILITY

Energy Use + Renewables

To achieve a recommended goal of 35% energy efficiency for new buildings, and to optimize energy performance in existing buildings, the following recommended strategies are provided for consideration.

Natural Ventilation

Natural ventilation combined with operable windows is an effective way of making use of the abundant and cooling breezes to allow building occupants to rely less on mechanical cooling systems. This strategy can be combined with HVAC interlocks, which, through the use of a sensor, ensure that when a window or door is propped open, mechanical heating or cooling is shut off. This will result in increased occupancy comfort and reduced energy consumption.

Building Insulation

Building insulation is recommended for all new construction via the use of high performance insulated glass units (SHGC of 0.27 and visible transmittance of 63%) and superior building envelope insulation (R30 roof, R21 walls). These strategies could also be effective if incorporated in the scope of building renovations.

Thermal Mass and Solar Shading

Using thermal mass building materials such as concrete masonry units (CMU) or high density concrete can block out the sun, absorb solar radiation progressively over the course of the day, and then emit the heat back into spaces when the warmth is needed. By allowing the sun to penetrate glazing and then warm the interior floor slab of spaces, for example, the thermal mass of the floor will be able to absorb the warmth of the sun and then radiate it back into the interior.

Daylight Harvesting

Daylight Harvesting via the use of skylights and solar tubes are an efficient and effective way of providing natural light, which reduces reliance on electrical lighting.

Occupancy Sensors and Photosensors

Occupancy sensors and photosensors for lighting ensure that electrical lighting systems are consistently turned off. These are already incorporated in existing buildings, and are further recommended for all new construction.

LED Site Lighting

It is recommended that all street, parking, and walkway lighting be replaced with wind and solar powered LED.

Shade Trees

Shade trees provide relief from the sun, and also prevent overheating of the campus hardscape, thereby reducing heat island effect.

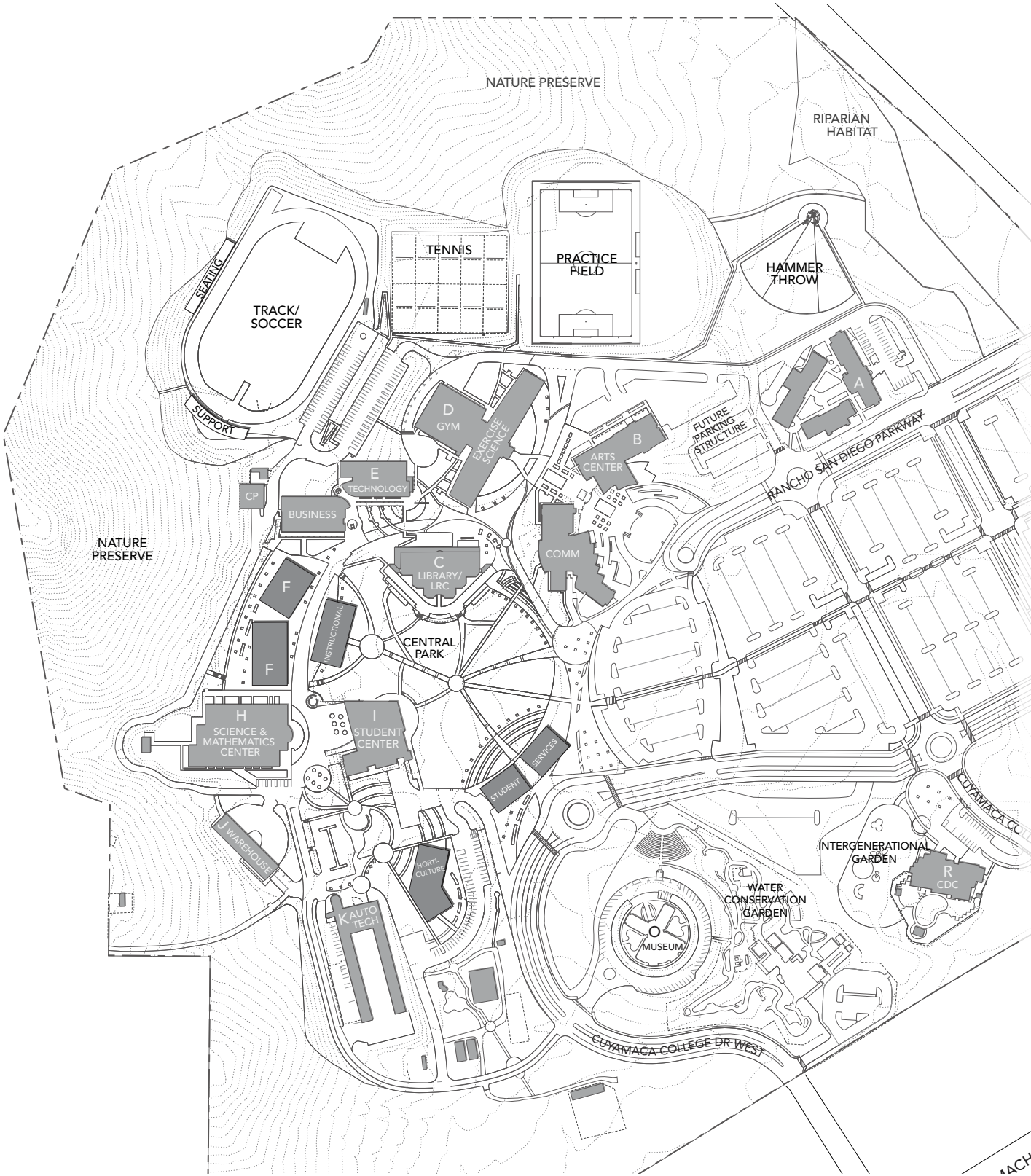
Photovoltaic Panels

Photovoltaic panels located on the top of the new instructional buildings (F), the new Horticulture Building (M), the Student Services building, the Administration building, as well as the east parking lot will provide the campus with reliable sources of renewable energy, and will be able to greatly offset the energy use of the campus. This strategy is recommended as an enhancement to energy conservation methods described above.

Solar Hot Water

Provide solar domestic hot water at the Gym, Building I, for energy-efficient heating of water for food service and showers.

Representatives from Cuyamaca College participated in a group exercise at Sustainability Workshop 2. They placed blue sticky-notes, which represent 84,686 square feet at the map's scale, on the locations where they preferred to place photovoltaic modules. The orange sticky-notes are placed on secondary locations. Together the blue and orange sticky-notes represent 129,852 square feet of photovoltaic modules. For the significance of these areas, see page 2.59.



RECOMMENDED PV AREA

AREA OF PHOTOVOLTAICS REQUIRED: 129,852 SQUARE FEET

40% OFFSET WITH PVs AT CURRENT USE (44 kBTU/ SQUARE FT./ YEAR)

AREA OF PHOTOVOLTAICS REQUIRED: 84,686 SQUARE FEET

40% OFFSET WITH PVs AT REDUCED ENERGY USE (36 kBTU/ SQUARE FT./ YEAR)

How Many PV Modules?

The California Community Colleges Board of Governors Energy and Sustainability Policy has set forth a challenge for all California Community Colleges to procure 40% of their electricity needs from renewable sources by 2014. Cuyamaca College's energy use is currently at 44 kBTU/sf/year. If the campus were to remain at this level of energy use, in order to achieve a 40% offset, a total of 129,852 square feet of photovoltaics would be required. If the campus were to first decrease their energy use to 36 kBTU/sf/yr (recommended energy use for higher education facilities) through a combination of energy-efficiency measures, the number of photovoltaics required would decrease to 84,686 square feet of photovoltaics. The decreased number of photovoltaics will give the campus latitude to utilize any available funds in alternative ways. Fewer photovoltaics would also result in space savings, as more square footage of campus area would become available for other purposes.

SUSTAINABILITY (CONTINUED)

Water Use and Reuse (Site and Buildings)

Efficient use of water resources in the buildings and on the site will result in dramatic water savings for the campus. Multiple strategies can be used to reduce potable water use for all new landscaping, new facilities, and renovation projects. Where possible, water efficiency efforts should be demonstrated to educate staff, students, and the community. Since utility-supplied recycled water may not be available for some time, a combination of reduced water use and onsite water recycling is recommended. All new projects shall be designed in accordance with the college's standard for irrigation equipment and details, which have been proven to both lower maintenance needs and reduce site water use. Additional involvement should be sought from the students and faculty of the college's Water/ Waste Water Management program to integrate water recycling projects into the curriculum.

Planting Design

Planting design, when possible, shall adhere to the college's standard plant list, as recommended plant varieties have been previously tested and proven in the landscape by the Ornamental Horticulture program and the grounds staff. California native plant varieties, low-water use Mediterranean or succulent plants are preferred. All plants shall be grouped appropriately by hydrozones, by plant community, or according to Water Use Classifications of Landscape Species (WUCOLS) water use. Only climate-appropriate, low-water use turf varieties shall be used. Limit turf to places where it is needed and used. All planting areas shall be mulched with bark or rock mulch to reduce water loss through evaporation.

Irrigation

Connect all new irrigation systems to the main CalSense system for continued campuswide monitoring. Continue the use of weather station data to adjust irrigation levels. Use campus-approved irrigation equipment and standard details. Spray irrigation is preferred for equipment visibility and lower maintenance needs. When necessary, utilize a subsurface drip system, which is less susceptible to damage by animals or prone to typical maintenance issues. Plants shall be grouped according to hydrozones for more efficient irrigation system design.

Recycled Water

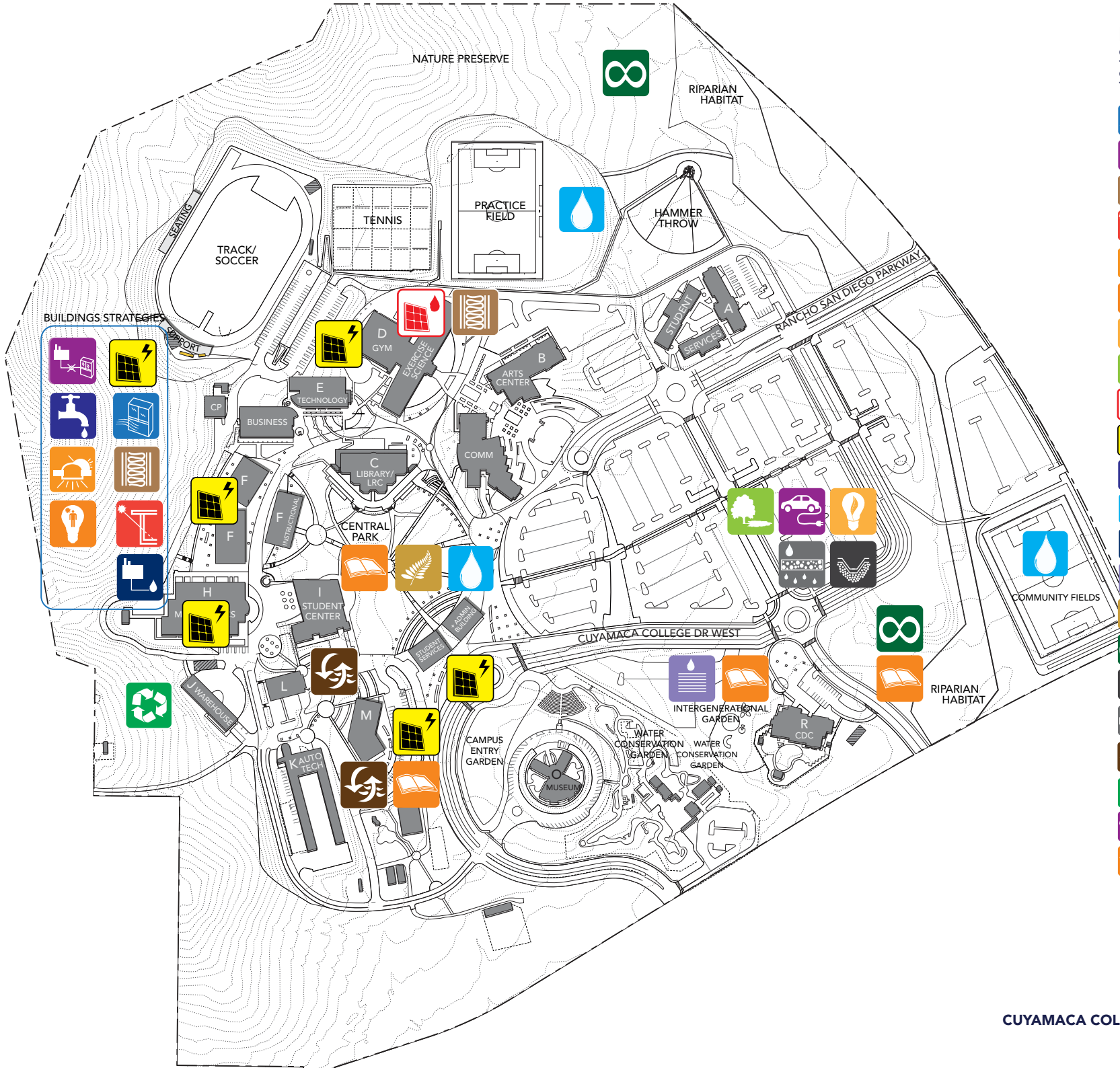
In combination with the CalSense irrigation system, recycled water shall be considered for all new landscape areas. In San Diego, rainwater is not a reliable source for large-scale water harvesting. Rainwater should be directed to planting areas and bioswales to infiltrate naturally. A more viable option for the campus is gray water recycling from building processes (air-handler condensate, cooling tower water blow down), which can be used for landscape irrigation. Ensure planting varieties can tolerate the higher salt content typical of recycled water.

Rainwater Harvesting

Modestly-scaled rainwater harvesting can be an effective, albeit seasonal, way to provide water to localized vegetated areas, while providing a valuable sustainable education component, such as near the Child Development Center and the Intergenerational Garden. The water capturing devices can be retrofitted onto existing buildings, near the downspouts of roof drains, and can either blend into the surroundings or be designed as purposeful icons of sustainability.

Efficient Building Plumbing Fixtures

New buildings should include water fixtures to provide, at a minimum, 40% below the Energy Policy Act water usage baseline at the time of construction. A 40% water savings can be maintained and exceeded through the use of 1.28 gallon per flush (gpf) water closets, 0.125 gpf urinals, 0.5 gallon per minute (gpm) lavatories that operate on a 10 second metered cycle, 1.0 gpm sinks, and 1.5 gpm shower heads. Both campuses have phased out most older plumbing fixtures. Any remaining older plumbing fixtures should be replaced with new, low-flow fixtures as well.



RECOMMENDED SUSTAINABILITY STRATEGIES

- NATURAL VENTILATION
- HVAC INTERLOCKS
- BUILDING INSULATION
- THERMAL MASS + SOLAR SHADING
- DAYLIGHT HARVESTING
- LIGHTING PHOTOSENSORS + OCCUPANCY SENSORS
- LED SITE LIGHTING
- SHADE TREES
- SOLAR HOT WATER
- PHOTOVOLTAICS
- EFFICIENT BUILDING WATER FIXTURES
- DRIP IRRIGATION
- CONDENSATE RECOVERY
- RAINWATER HARVESTING
- NATIVE/ADAPTIVE VEGETATION
- PRESERVATION
- BIOSWALE
- PERVIOUS PAVING
- COMPOSTING
- RECYCLING CENTER
- HYBRID VEHICLE PARKING OR CHARGING STATIONS
- SUSTAINABLE EDCUATION

N

0 ft 250 500

Recommendations

SUSTAINABILITY (CONTINUED)

Stormwater Management

Storm water management is regulated by the California State Water Board and the Environmental Protection Agency (EPA), and must be responsibly managed for each new project. All storm water must be managed onsite and filtered properly before leaving the campus. The Cuyamaca College campus currently takes in storm water from adjacent properties to the northeast, which flows through the riparian drainage channel before continuing downstream to the Sweetwater River and Reservoir. Slowing and infiltrating this storm water naturally through vegetated channels is an ideal solution. Currently, runoff from the campus parking lots and the Ornamental Horticulture program nursery do not have adequate infiltration areas to retain storm water. It is recommended to increase onsite retention and detention basins, increase vegetated bioswales, and restore natural drainage channels. Where pollutants from sports fields, nursery operations, loading docks, parking areas are an issue, additional physical filtration devices may be used to remove heavy metals, fertilizers and/or chemicals.

Bioswales

Vegetated swales are already incorporated into areas of the campus, but additional swales are needed at parking areas, around new buildings and for nursery operations. Swales should be planted with appropriate plant material, non-invasive California native riparian-type species only. Deliberate use of boulders and rocks are encouraged to slow water and prevent bank and channel bed erosion. Overflow drains/catch basins located in bioswales and retention basins should be raised above finished grade to allow small amounts of water to infiltrate naturally before overflow is discharged to the storm drain system.

Greenroofs

Green roofs should be considered for new buildings to increase functionality. The soil and vegetation layers help absorb rainfall and therefore reduce storm water runoff, along with other inherent environmental benefits such as additional thermal insulation. All green roofs will incorporate an irrigation system, utilizing a non-potable source such as recycled water or harvested rain water.

Porous Pavement

Permeable hardscape alternatives should be used whenever possible: permeable pavers, porous concrete, porous asphalt, grasscrete/turf block are recommended for parking stalls, fire lanes, and pedestrian walkways and plazas. High albedo permeable or open-grid hardscape surfaces are preferred to reduce the heat island effect. Permeable surfaces can be used in conjunction with underground storage such as cisterns, pipes, tanks or cells, for groundwater recharge or reuse in the irrigation system.

Detention Basin + Dry Ponds

A detention basin shall be used at the southwest end of campus and utilized to treat and infiltrate stormwater runoff from the Ornamental Horticulture nursery. Water in these basins can be easily monitored and tested. The use of various plant species may also be demonstrated in these basins and tested for their ability to survive periodic inundation and remove various pollutants from the runoff. More detailed studies are recommended to engineer a campuswide system of detention basins to work in conjunction with bioswales and natural drainage courses.

Waste

Composting

Composting areas located near food services within the Student Center and at the Ornamental Horticulture building will provide a means of diverting food waste from landfills, as well as a means of reusing refuse on-site as amendments for campus vegetation.

Recycling Center

A recycling center at Maintenance and Operations building J will provide the campus with a dedicated area for the collection and sorting of recyclable materials. The recycling center activities can be coordinated with local hauling agencies to maximize construction waste management and daily waste collection.

Transportation

Hybrid vehicle charging stations and parking spaces located closest to campus buildings will encourage students, staff and faculty to consider more ecologically aware modes of transportation.

Education

Sustainable education can be provided throughout the campus by highlighting the green building and site strategies used. Sustainable signage at the Child Development Center, the Intergenerational Garden, and Horticulture building will serve as an educational component for students; Sustainable signage near the high traffic zone of the Student Center and the Library will encourage students to stop and learn more about incorporating sustainability in their routines.

GROSSMONT COLLEGE

GROSSMONT COLLEGE

2013

FACILITIES MASTER PLAN

GROSSMONT COLLEGE

LETTER FROM THE PRESIDENT

For more than 50 years, Grossmont College has proudly served hundreds of thousands of students seeking higher education in East County. The college sits on a 135-acre campus located on a beautiful mesa with picturesque views in every direction. Our campus, located in the Fletcher Hills area of El Cajon just off state Route 125, has become an iconic landmark for those seeking learning, job training, cultural and athletic events, and much more.

Grossmont College, with more than 19,000 students, is committed to providing an exceptional learning environment that enables a diverse group of individuals to pursue their hopes, dreams and full potential, and to developing enlightened leaders and thoughtful citizens for local and global communities. The college offers more than 150 degrees and certificate programs, including notable workforce programs such as Administration of Justice, Health Professions, Culinary Arts, and Child Development.

A visit to our campus shows the changes that have taken place as a result of the district's 2002 Proposition R bond measure, including the bright and airy Griffin Center, the college's student center; a highly functional Student Services and Administration building; a Health and Sciences building complex with state-of-the-art technology; and the Digital Arts and Sculpture Complex to better serve students in fine arts, music, video and communications.

Although the projects highlighted above have transformed the educational environment in areas of the campus, the Facilities Master Plan highlights the continued need for improvements to additional portions of Grossmont College's campus to modernize and replace aging facilities.

Many of them were constructed when Grossmont College opened more than 50 years ago and are not well-suited to the needs of modern learning environments. As we plan for the future, the college places a high priority on sustainabiity to make the best use possible of our natural resources and foster respect for the environment.

Grossmont College's facilities plan is the result of a thorough review of our programs and departments, an assessment of our needs and trends, and projections of what we will require to achieve our goal of changing lives through education. With this plan, we are assured that we can be well prepared to serve the East County community for years to come.

SUNITA V. COOKE,
Ph.D., PRESIDENT

VISION

Changing Lives Through Education

MISSION

Grossmont College is committed to providing an exceptional learning environment that enables diverse individuals to pursue their hopes, dreams, and full potential, and to developing enlightened leaders and thoughtful citizens for local and global communities.

Our mission is fulfilled by providing the people of East San Diego County with:

- Transfer degrees and certificate programs
- Career technical education and workforce development
- Basic skills
- Student support services that promote student access and achievement
- Community education

VALUES

Learning and Student Success
We dedicate our resources and ourselves in support of our students and their pursuits to achieve their academic, professional, and personal goals.

Creativity and Innovation
We value the capacity for ingenuity and originality on our campus and within our community.

Pursuit of Excellence and Continuous Improvement
We strive for excellence in our programs and services. We believe in the capacity for continuous improvement in the pursuit of excellence. We accept the challenges of being accountable for our efforts.

Integrity
We commit to acting and speaking truthfully and responsibly and hold ourselves and others accountable to this standard.

Power of Diversity and Inclusion
We are committed to a climate for learning that considers diverse perspectives to be a powerful component in the education of every individual, valuing and accommodating both differences and commonalities.

Civility
We value fair, respectful, thoughtful interactions, based on a positive approach, that promote reflection, foster deeper understanding of phenomena, and permit achievement of common goals.

Balance
We value a nurturing and positive approach in all we do, embracing laughter and enthusiasm, as we nurture the development of the whole individual, including the intellectual, spiritual, emotional, and physical well-being of each individual.


CEANOGRAPHY
EARTH SCIENCES
Building
37


THE
HYDE
ART
GALLERY

Analysis

Analysis

ANALYSIS

This section documents the analyses of the existing conditions that shape the use of the Grossmont College campus. The analyses are based on observations and information gathered during campus tours, interviews with faculty and staff, and discussions with the Grossmont College Master Plan Task Force.

The graphic and narrative descriptions focus on the following:

- Existing Campus
- Campus Zoning
- Campus Development History
- Vehicular Circulation + Parking
- Pedestrian Circulation
- Climate
- Habitat
- Storm Water
- Water Use
- Energy Use
- Waste
- Transportation
- Carbon
- Summary of Findings

Analysis

EXISTING CAMPUS

The Grossmont College campus is built on a series of plateaus surrounded by steep and scenic arroyos to the east, north, and west. A residential neighborhood lies beyond the southwest boundary. The natural habitat on campus in the arroyo to the west is valued as an educational resource. To control erosion and preserve water quality, bioswales have been constructed along portions of the Perimeter Road.

The campus core is encompassed by the Perimeter Road and sits on a roughly level plateau. The Exercise Science and Wellness (ESW) outdoor instructional facilities that are located outside of the Perimeter Road sit above and below the level of the campus core. The existing campus plan shows the permanent and temporary buildings on the campus.

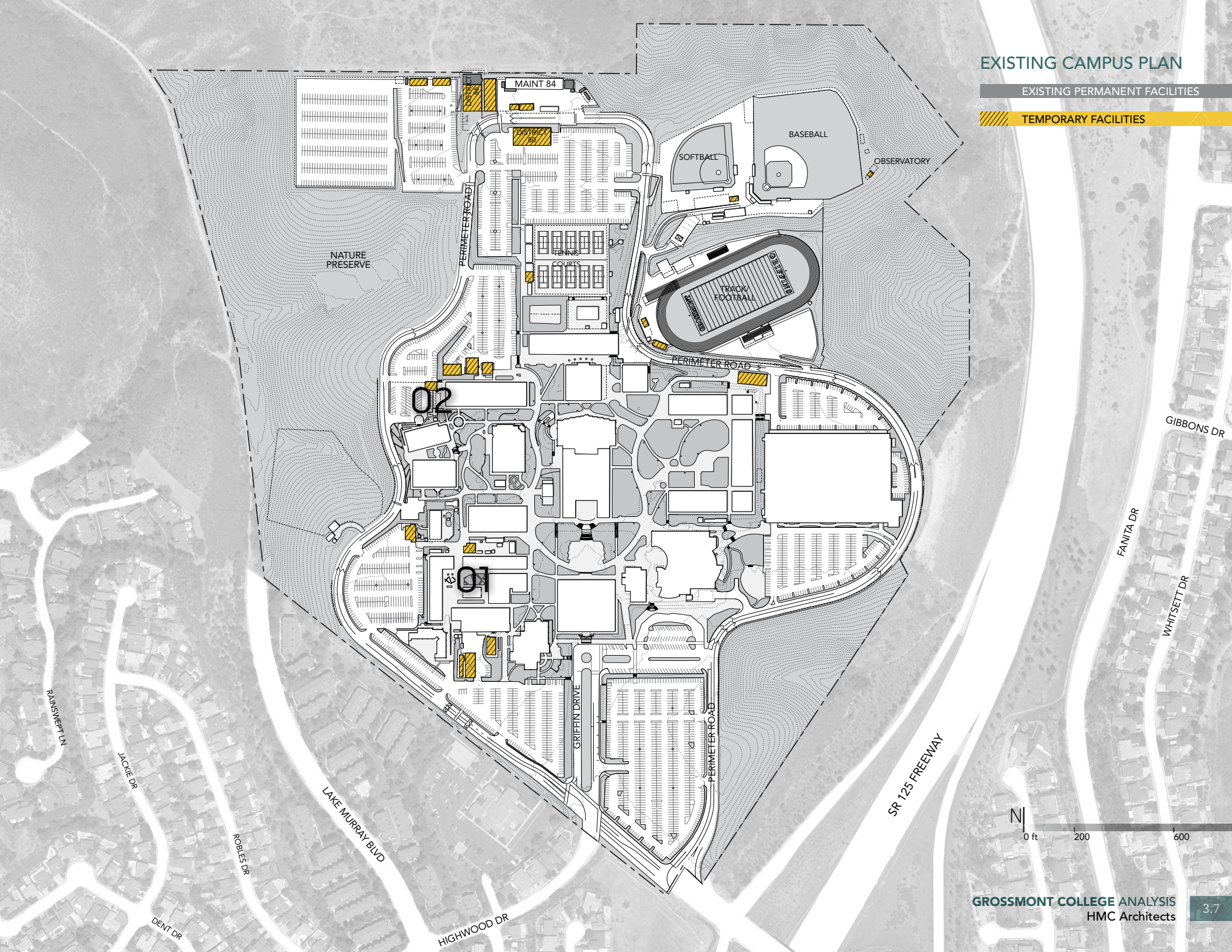
Observations

- There are a significant number of temporary facilities on campus.
- It is a college and district priority to replace the temporary facilities with permanent facilities.

EXISTING CAMPUS PLAN

EXISTING PERMANENT FACILITIES

TEMPORARY FACILITIES



Analysis

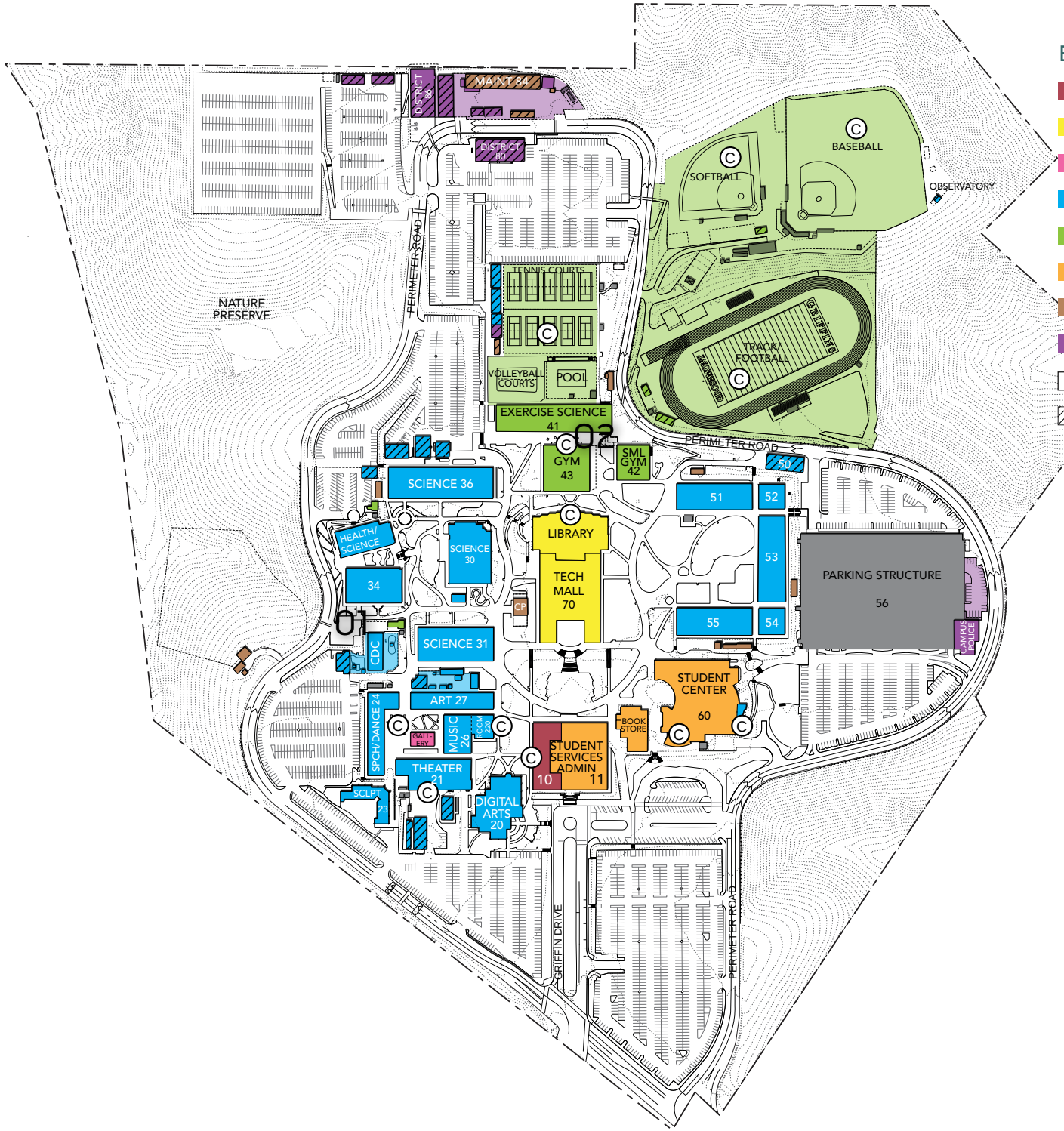
CAMPUS ZONING

"Front door" functions, including administration offices, student services, and student activities, are placed close to the campus entries. The Library and Tech Mall learning resources functions are placed in the center of campus and close to the instructional buildings. Exercise Science and Wellness (ESW) instructional buildings are located in the northern part of the campus core and nearest to the ESW outdoor instructional facilities. The plan indicates facilities that are frequently used by the community.

The Grossmont College campus hosts the Grossmont-Cuyamaca District Offices, most of which are housed in buildings clustered at the northern edge of the campus. This area is shared with the Grossmont College campus maintenance offices, workshops and yards. The community visits the District Offices. The district also runs the Campus Police facility in Parking Structure 56.

Observations

- The Grossmont College campus is well zoned.
- The GCCCD District Offices are housed in aging temporary facilities in parking lots far from the campus entries.
- The college maintenance complex consists of aging temporary facilities.
- The soccer field to the west of Lot 4A is remote from the other outdoor instructional fields and support space.



EXISTING CAMPUS ZONING

- ADMINISTRATION
- LIBRARY
- ART GALLERY
- INSTRUCTIONAL
- EXERCISE SCI + WELLNESS/ATHLETICS
- STUDENT SERVICES + ACTIVITIES
- CAMPUS SERVICES
- DISTRICT SERVICES
- C COMMUNITY USE
- TEMPORARY FACILITIES

Analysis

CAMPUS DEVELOPMENT HISTORY

The 135-acre site for the Grossmont College campus was acquired in the early 1960s in the Fletcher Hills area near the cities of El Cajon and La Mesa. The campus was initially developed to accommodate 4,800 students. Many of the existing buildings date back to this first development period and are durable one- and two-story concrete-frame structures of a standardized, modular design.

During the first decade of this millennium, a master plan was developed. Proposition R was approved by the voters and, together with state matching funds, paid for the construction of new buildings and the reconstruction of many existing 1960s-era buildings, which included seismic rehabilitation and the replacement of building systems.

Observation

- There is a need to focus on the aging instructional buildings, site utility infrastructure systems, and Exercise Science + Wellness (ESW) outdoor instructional facilities that have not been replaced or reconstructed in at least the last decade.

1960 - Formation of the district

1964 - Grossmont College campus opens

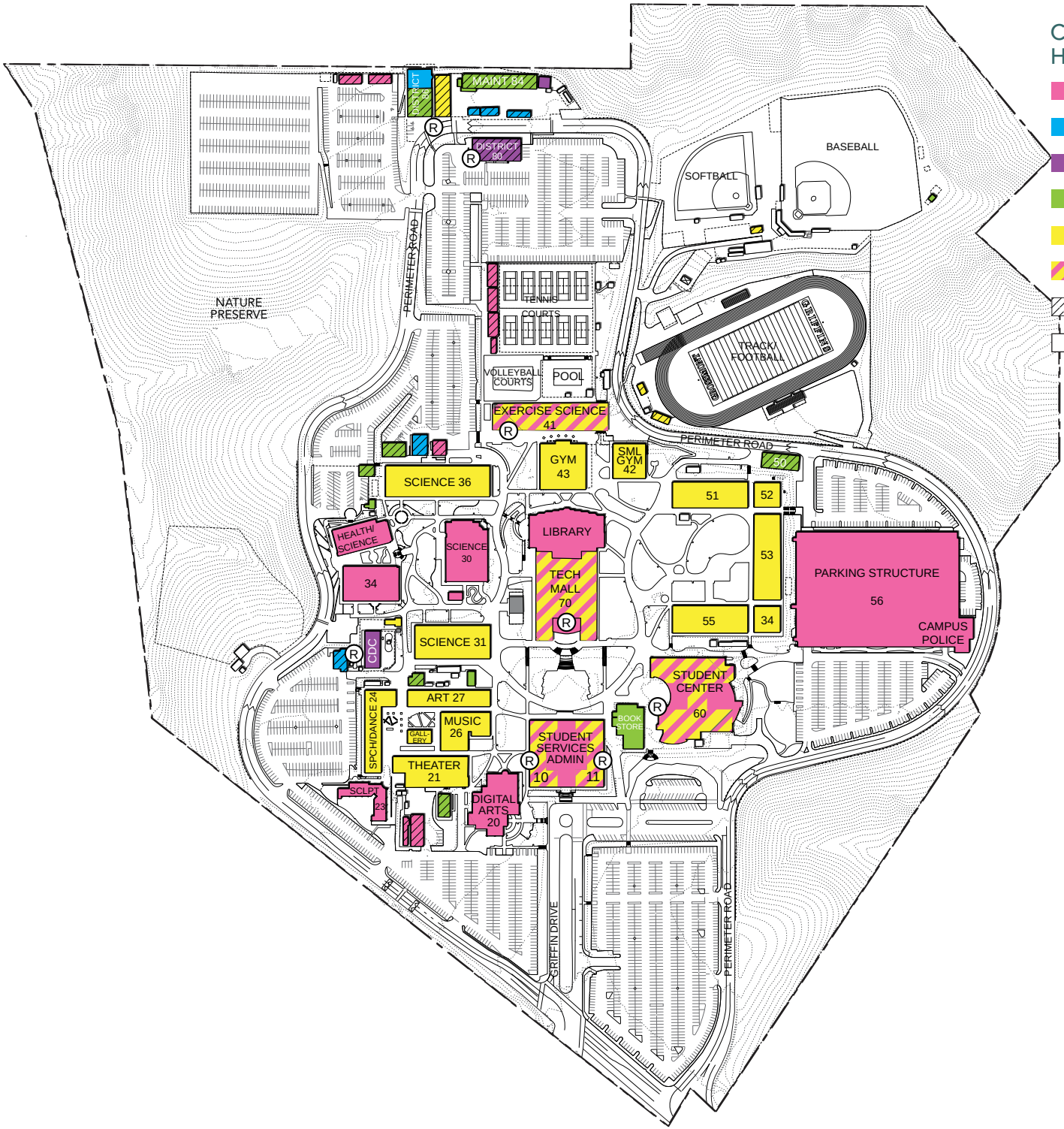
1978 - Cuyamaca College campus opens

2002 - Voters approved Proposition R

2012 - Voters approved Proposition V

1960 70 80 90 2000

CAMPUS DEVELOPMENT HISTORY



Analysis

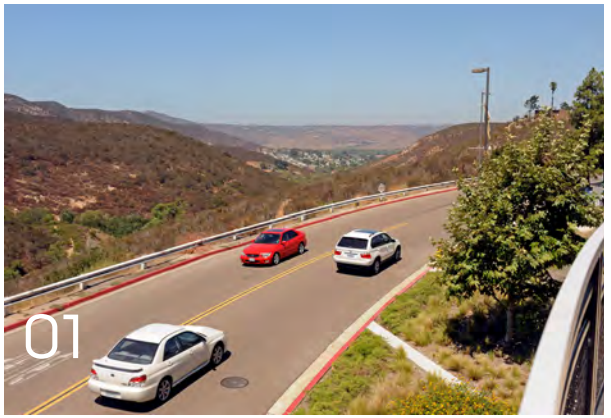
VEHICULAR CIRCULATION + PARKING

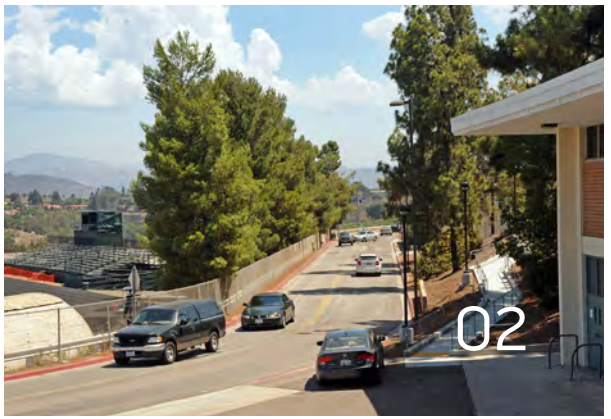
The arroyos that surround the campus restrict vehicular entry from all sides except from the south. The primary regional transportation connection is the State Route 125 freeway, via the interchange at Grossmont College Drive. Metropolitan Transit System (MTS) buses provide connections to the regional light rail Trolley stations in El Cajon and La Mesa. MTS buses bring riders into the campus and to the bus stop south of the Student Center.

Vehicles must enter the campus on either Grossmont College Drive or Highwood Drive. The Perimeter Road provides circulation in both directions and is the main vehicular route. Its route lies mainly between the campus core and the edge of the surrounding arroyos. Most of the parking and service driveways, including the parking structure, are located within and adjacent to the Perimeter Road and are accessed directly from it. Except for emergency and light-service vehicles, traffic does not enter the central campus core.

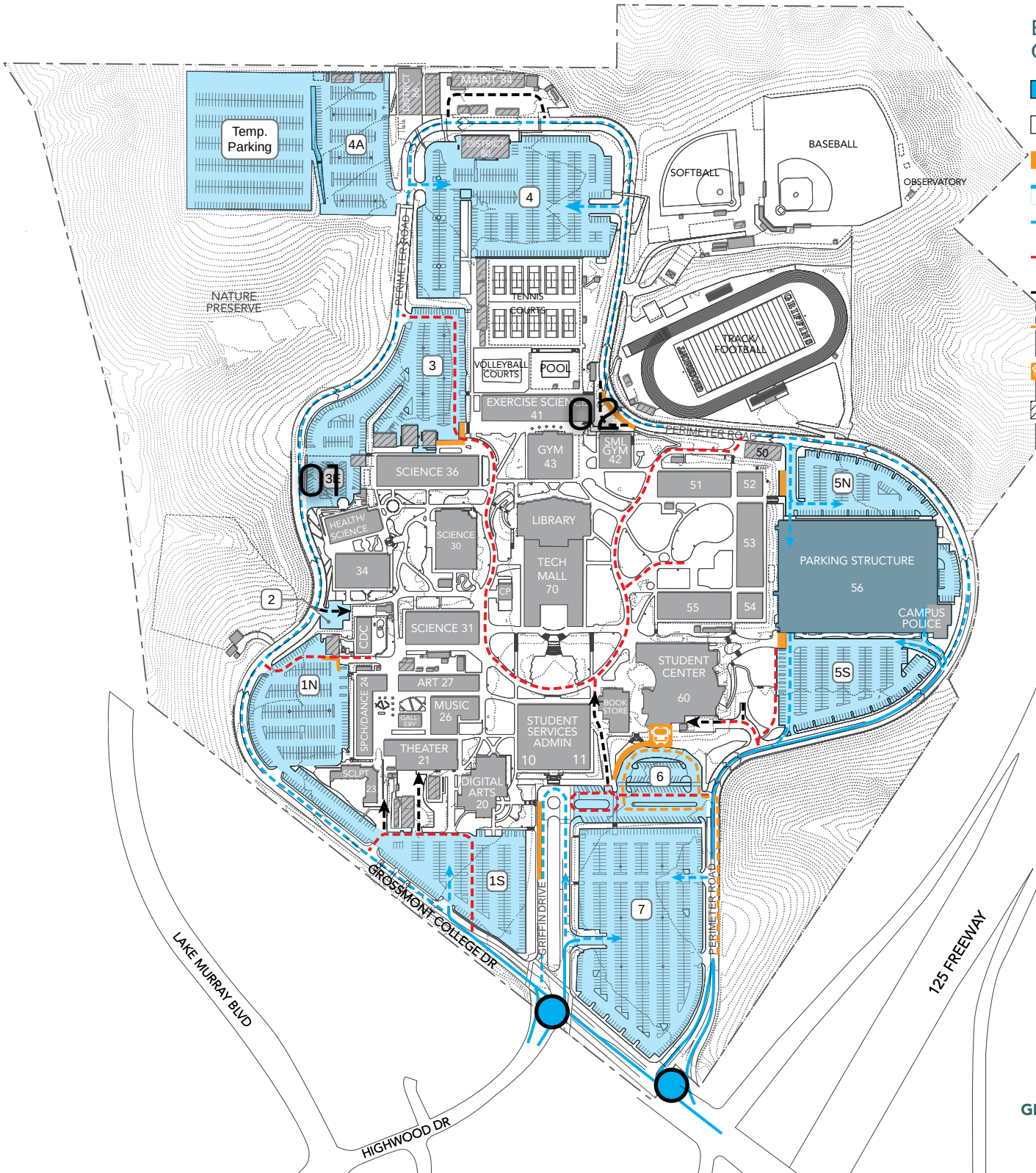
Observations

- The campus roadways and parking lots are aging.
- The two campus entries are located close to each other, resulting in traffic congestion.
- The curves in the Perimeter Road limit the visibility of drivers and pedestrians, particularly at intersections and parking lot entrances.
- Many people walk and jog around the Perimeter Road making it a priority to separate pedestrian and vehicles.
- The intersection between the Perimeter Road and the driveway to the bus stop is difficult for some bus drivers to manage within the correct lane.
- Accessible parking is needed at the level of the football field.
- Passenger drop-offs and pick-ups occur in parking lots and slow the circulation of traffic.
- The temporary facilities located in parking lots, and the associated pedestrian and vehicular traffic, impact the use of these parking lots.
- When emergencies occur, an additional campus vehicular entry/exit would speed the evacuation of campus.





EXISTING VEHICULAR CIRCULATION + PARKING



CAMPUS ENTRY

4 PARKING LOT

PASSENGER LOADING ZONE

PRIMARY VEHICULAR ROUTE

SECONDARY VEHICULAR ROUTE

EMERGENCY ACCESS

SERVICE ACCESS

BUS ROUTE

BUS STOP

TEMPORARY FACILITIES

N

0 ft 200 600

Analysis

PEDESTRIAN CIRCULATION

The siting of the campus on its plateau provides extensive views of the surrounding communities and prominent views of the campus from the SR-125 freeway. The center of the campus is the main building zone and has been developed for people to circulate on foot, hang out, and gather. Most travel to the campus by car or bus and filter into the campus core from parking lots, passenger loading zones, and bus stops. The Exercise Science and Wellness (ESW) outdoor instructional facilities for track, football, softball, and baseball are located outside of the Perimeter Road and sit above and below the level of the central campus. Games and events at these facilities are well attended by the community.

Observations

- Accessible paths are needed to and between the Exercise Science and Wellness (ESW) outdoor instructional facilities, especially from Exercise Science Building 41, the gymnasiums, and parking.
- Pedestrians cross parking lots and driveways to walk from the campus core to the District Services Buildings 80 and 86 and Parking Lot 4A.
- A safe crossing of the Perimeter Road to the nature preserve is needed, as well as an observation site that is safely separated from traffic.
- Open spaces have been provided in the campus core and some are more successful than others. The quad encompassed by Buildings 51 through 55 and the arts courtyard are not as well used as they could be.
- When emergencies occur, an accessible campus exit route is needed for the evacuation of pedestrians and wheelchair users.
- The great views into and out of the campus continue to be an opportunity to enhance the college's connections to the community.

EXISTING PEDESTRIAN CIRCULATION

- BUILDING ENTRY
- PASSENGER LOADING ZONE
- STUDENT GATHERING AREAS
- IMPORTANT VIEWS
- TEMPORARY FACILITIES
- BUS STOP
- PRIMARY PEDESTRIAN ROUTE
- SECONDARY PEDESTRIAN ROUTE
- TEMPORARY FACILITIES

N

0 ft 200 600

Analysis

CLIMATE

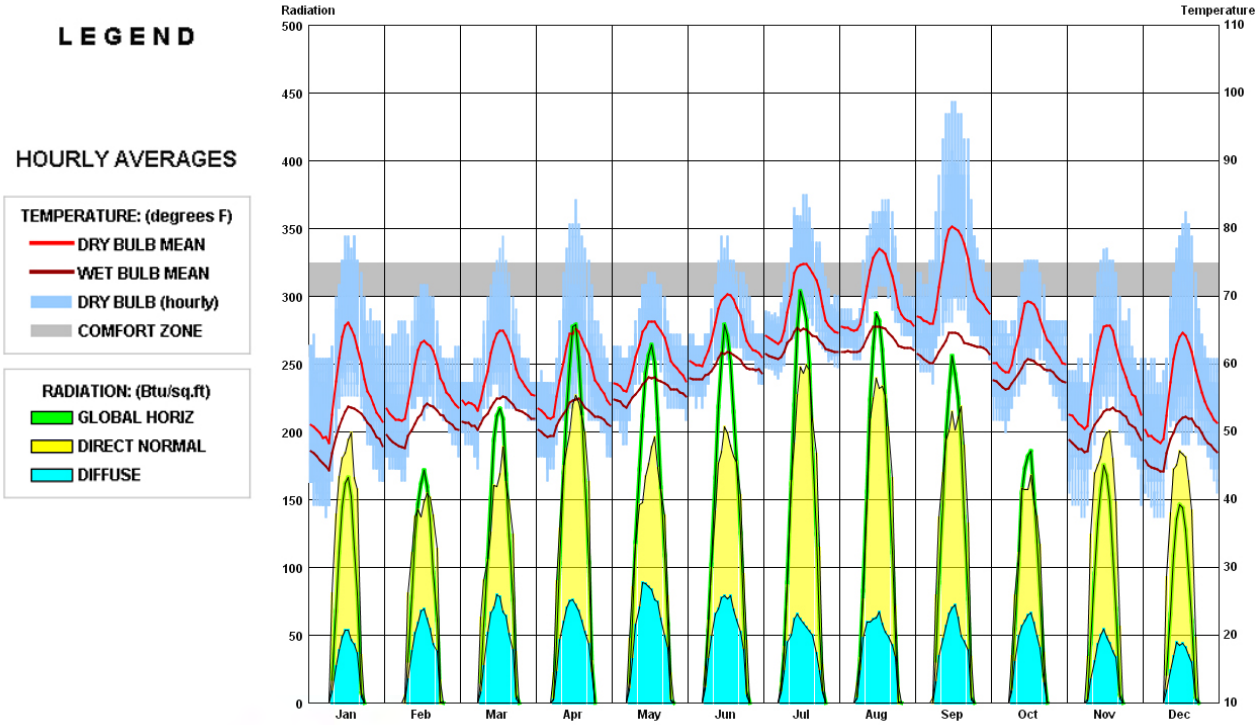
Comfort Zone, Average Temperature, and Relative Humidity

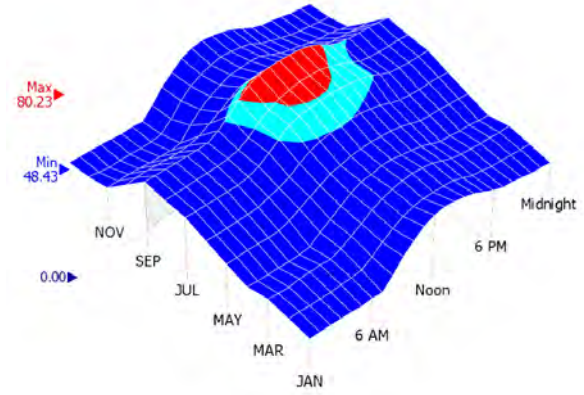
Grossmont College's dry bulb temperature, indicated by the red line undulating up and down on the chart, stays well below or within the comfort range of 70-75 degrees Fahrenheit, indicated by the gray bar extending across the chart. During the summer (July-September) the temperature can rise above the comfort zone to about 80 degrees Fahrenheit. During the winter, the temperature can get as low as 48 degrees Fahrenheit.

Observation

- For the majority of the year, the temperature is fairly mild.

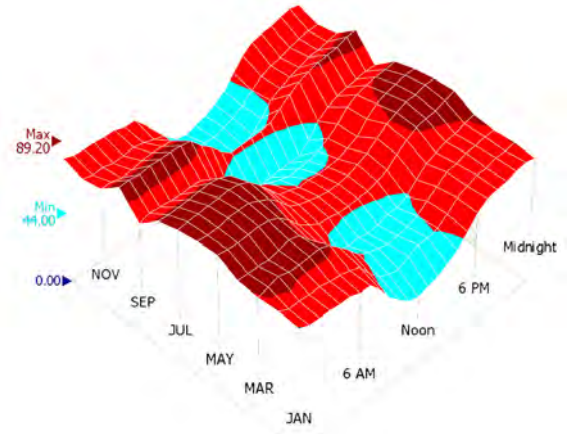
Grossmont College Comfort Zone Diagram





Dry Bulb Temperature Chart

88% of the year, between 32-70 degrees; Warmest time of year: July-Sept. (70-75 degrees)



Relative Humidity Chart

75% of the year, 60% or greater relative humidity; Drop in humidity between 10 am to 4 pm

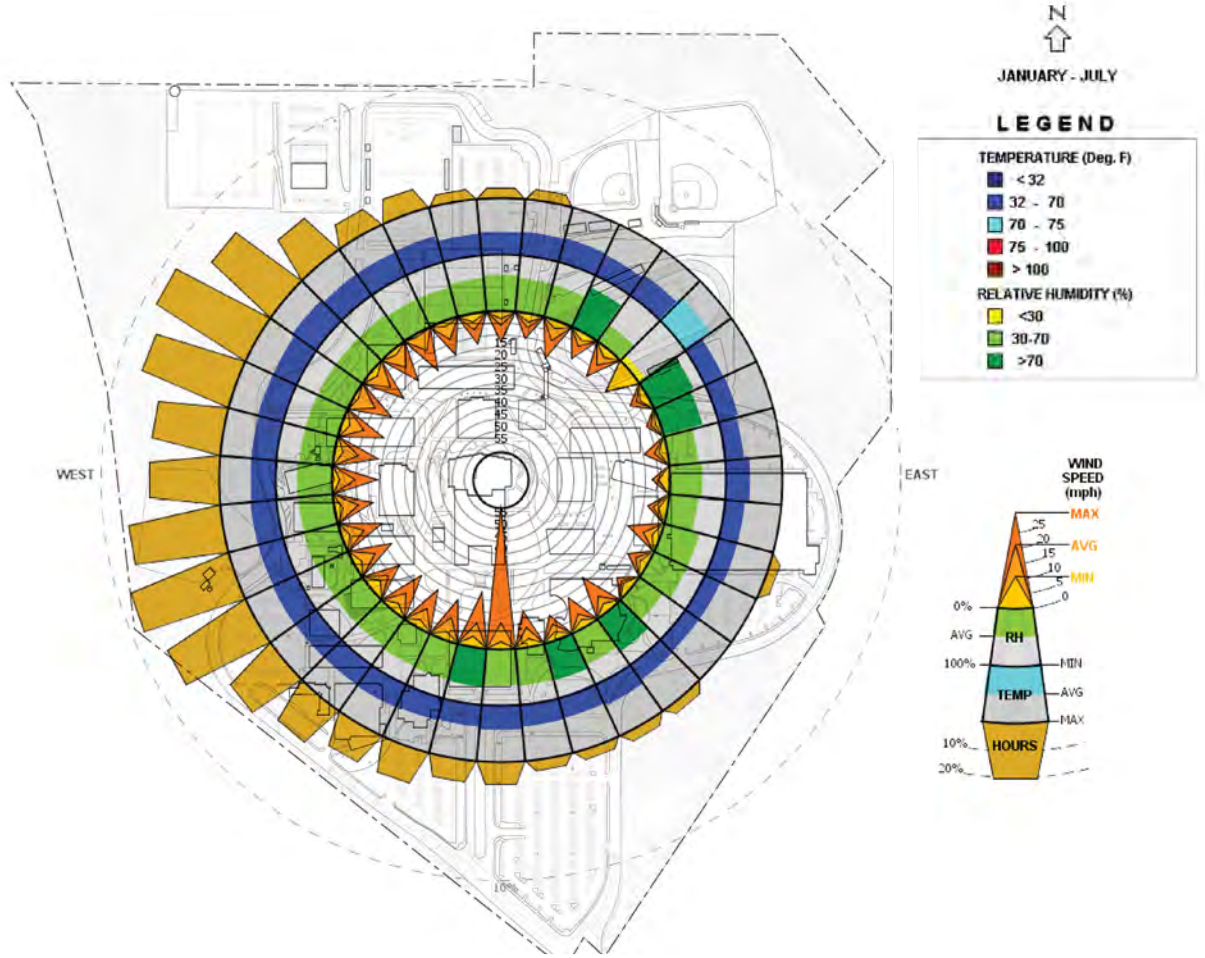
Analysis
CLIMATE

Wind

The wind rose diagram, to the right, indicates wind direction, velocity, frequency, temperature and humidity.

For the majority of the year, winds primarily come from the northwest direction, as indicated by the dark yellow bars of the wind rose. The winds in this region are within a range of 3-5 miles per hour, as indicated by the yellow and orange cones located in the center of the diagram. These winds are fairly low in velocity and would not warrant the use of wind turbine technology for the purposes of electrical energy production. However, anomalous wind gusts can reach as high as 50-55 miles per hour during the month of July. For most of the year, the winds are characterized by an average temperature of 51 degrees as indicated in dark blue, and a relative humidity level which ranges between 30-70%
as indicated in green. This data supports the use of natural ventilation, as these winds are not too cold, too warm, or too damp, but rather ideal for providing building occupants with a reliable and well-tempered source of ventilation.

Grossmont College Wind Rose Diagram



Analysis

HABITAT

The Grossmont College site abuts the eastern edge of the Mission Trails Regional Park and Preserve. At the terminus of Lake Murray Boulevard, there is access via the Mesa Road Trailhead to Cowles Mountain and Pyles Peak. Along the Mission Trails Park at the western edge of campus, multiple plant communities can be found, including Chaparral, Sage Scrub, Baccharis Scrub and Willow Scrub. A nature trail descends from the campus into the park, allowing students to view and study the plant and soil ecology.

Observations

- Observed and dominant site plant species include: Baccharis, Malosma, Salvia apiana, Salvia mellifera, Adenostoma fasciculatum, Rhus integrifolia, Platanus racemosa, Salix, Eriogonum fasciculatum, Artemesia californica.
- Sensitive wildlife species: Coastal California Gnatcatcher
- Sensitive wildflower species: San Diego Sunflower
- New native plant gardens are currently being installed on campus, replacing older lawn and traditional planting areas.
- There is a small native plant demonstration garden with plant identification labels for Biology and Natural Science students.

HABITAT

- FRESHWATER MARSH
- SOUTHERN ARROYO WILLOW RIPARIAN FOREST
- RIPARIAN SCRUB
- SOUTHERN WILLOW SCRUB
- DIEGAN COASTAL SAGE SCRUB
- DIEGAN COASTAL SAGE SCRUB - DISTURBED
- COASTAL SAGE-CHAPARRAL SCRUB
- SOUTHERN MIXED CHAPARRAL
- SOUTHERN MIXED CHAPARRAL - DISTURBED
- CHAMISE CHAPARRAL
- SCRUB OAK CHAPARRAL
- BACCHARIS SCRUB
- NON-NATIVE GRASSLAND
- EUCALYPTUS WOODLAND
- DISTURBED HABITAT

SENSITIVE PLANTS AND ANIMALS

VI	SAN DIEGO SUNFLOWER
CAGN	COASTAL CALIFORNIA GNATCATCHER

N

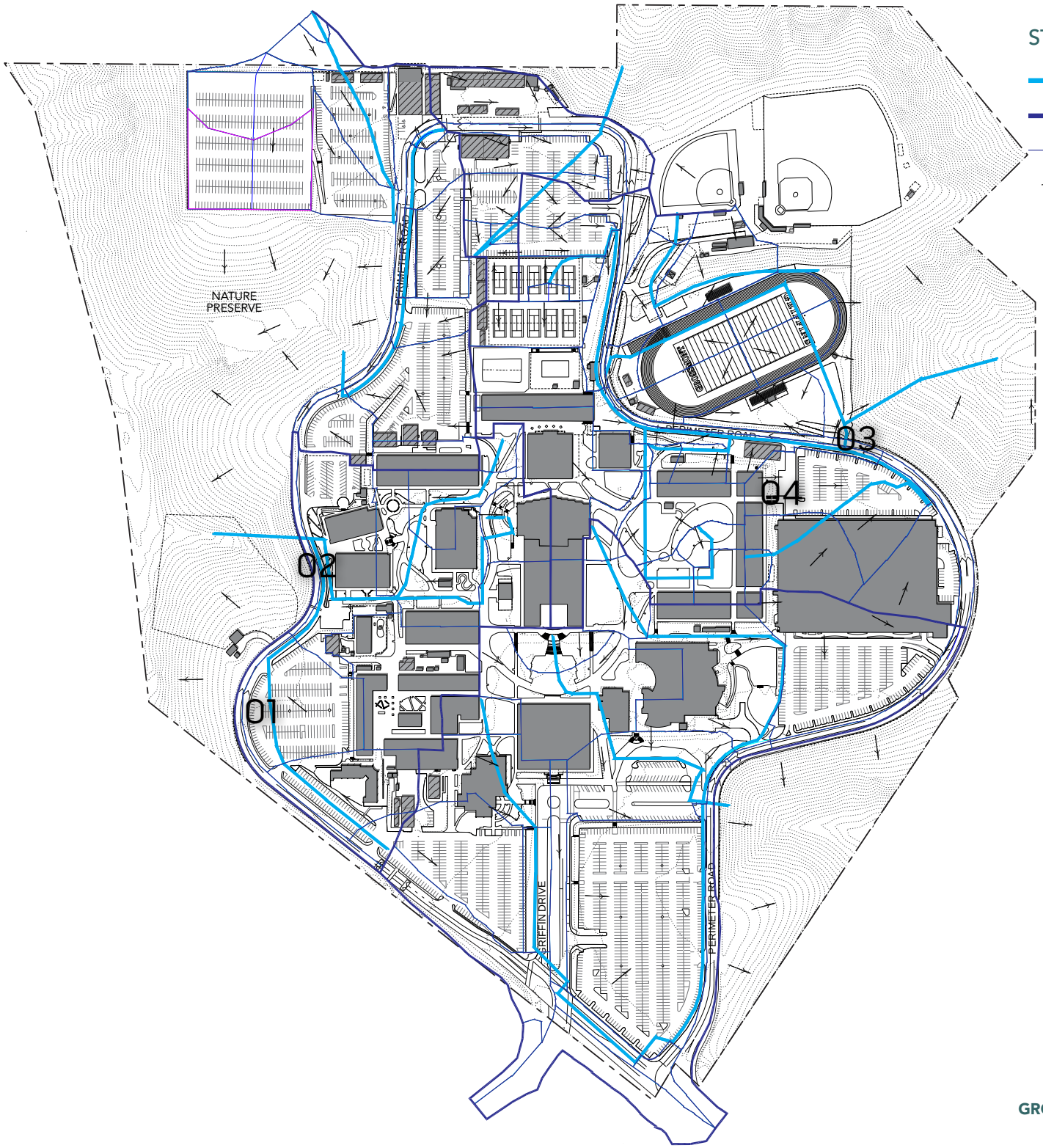
0 ft 200 600

Analysis
STORM WATER

Current storm water runoff is managed by a combination of traditional drainage structures at the edges of the campus and a new system of bioswales near the parking garage at the eastern edge of campus and around the Student Center. Additional vegetated bioswale planting areas are planned for the interior of campus. Currently in the north, south and west end parking lots, storm water runoff is treated only by continuous deflection separation (CDS) devices before exiting the site.

Observations

- The site drains to the east and west into the arroyos that surround the campus core.
- Compacted soils make infiltration/percolation less viable as a storm water reduction strategy.
- Surface runoff from parking and roads carrying oil, grease, sediment, and heavy metals contribute to water pollution.
- The site has limited areas for large scale detention or retention of storm water.
- Most storm runoff is not retained on site.



STORM WATER

EXISTING HYDRLOGIC FLOW

MAJOR DRAINAGE AREA

MINOR DRAINAGE AREA

DRAINAGE DIRECTION

N

0 ft 200 600

Analysis

WATER USE

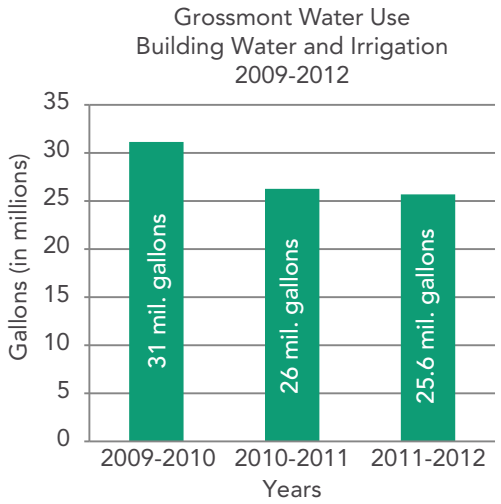
The Grossmont College campus currently uses potable water for landscape irrigation. Portions of the campus irrigation system are 'reclaimed ready' with purple pipe and recycled water equipment installed for potential future connections to Padre Dam Municipal Water District's recycled water supply. The campus has converted its irrigation system to a CalSense controller and weather station, which has helped to reduce irrigation water consumption campuswide. The conversion to synthetic turf sports fields has also added to water savings. Efforts to convert higher water use planting and turf areas to native or Mediterranean type plant species has begun, but many water loving species and interstitial or unoccupied turf areas remain.

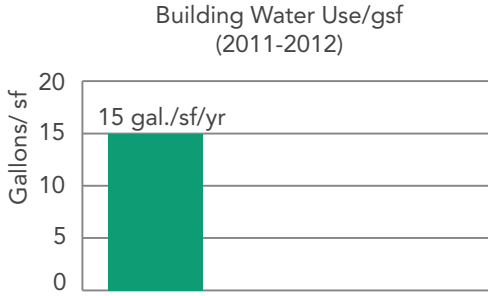
Observations

- Large interstitial and unoccupied turf areas remain.
- Medium and high water use plant species occupy a significant portion of the campus.
- Planting does not use 'hydrozones' mixed low, medium and high water use species.
- Not all plantings have adequate mulch coverage and mulch is not replaced as often as needed.
- Synthetic football field reduces overall water use, but the field becomes too hot and difficult to use during summer and fall months.
- Most storm water is not retained on site for use in planting areas.

The Grossmont campus has instituted water conservation strategies over the course of the past three years that have resulted in a consistent decline in water use from 2009 to 2012. Although the college has incorporated low-flow plumbing fixtures throughout the campus, the decrease in water use can be largely attributed to implementation of the CalSense irrigation program, which utilizes daily weather data to determine irrigation needs.

Approximately half of the water used on campus is used for irrigation. In 2011-2012, approximately 12.4 million gallons of water out of the 25.6 million total gallons of water used were used for irrigation, while 13.2 million gallons of water were used for building purposes. When considering Grossmont College's total campus square footage, this equates to 15 gallons of water per square foot of building area.





Building water used per square foot of building area on campus was calculated for 2011-2012. The was done by subtracting the irrigation water from the total water consumed in 2011-2012. Irrigation data was retrieved from the CalSense irrgation system, which was installed in 2011.

Analysis

ENERGY USE

In order to gauge the district's energy performance, each campus was compared to existing metrics supplied by two main resources:

The California Energy Commission Survey of California Higher Education Facilities

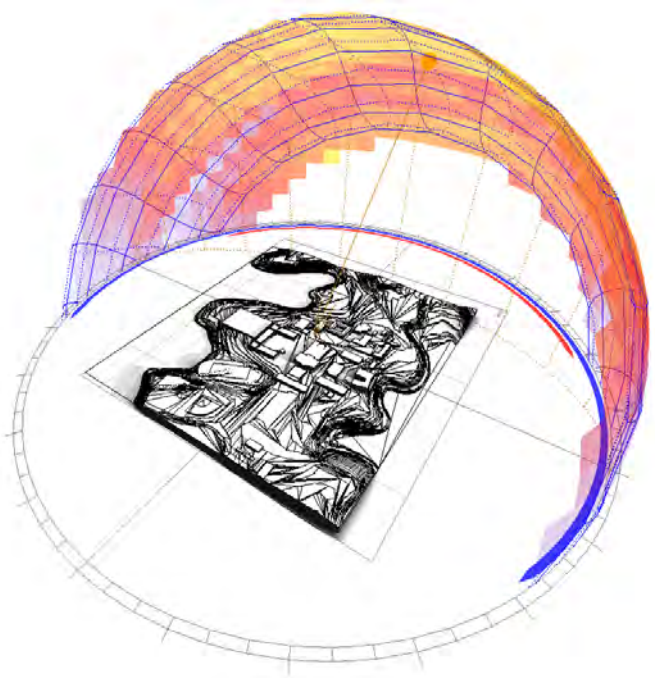
This index summarizes the electrical and natural gas usage for various types of building throughout the state. For the purposes of this study, the "Higher Education" category was used. This category lists an annual electrical and natural gas usage of 76.1 kBTU/sf/year.

Energy Star

Energy Star utilizes the Energy Information Administration's Commercial Buildings Energy Consumption Survey (CBECS) to determine the type and scale of energy usage a building should meet in order to qualify as an Energy Star building. A building should perform 35% better than an average building of a similar building type in a similar climate zone to be considered an Energy Star building. A 35% more efficient higher education building would operate at 49.9 kBTU/sf/year and would be minimally compliant with EnergyStar requirements.

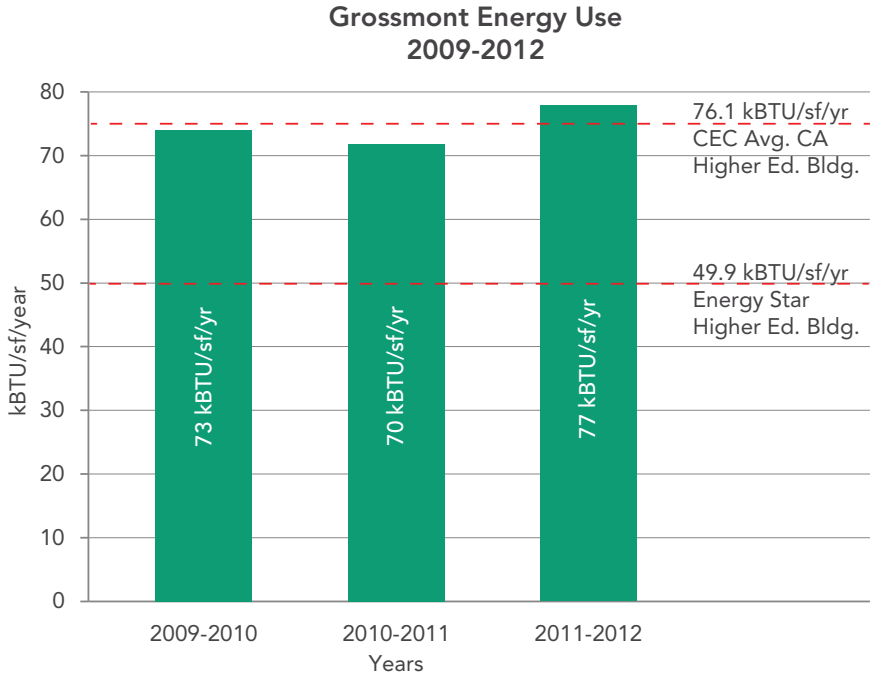
The energy use of each campus from 2009-2012 was analyzed in order to determine intensity of electricity and gas use. Electricity (kwh) and gas (therms) were combined into a common unit, known as kBTU. This figureure was then divided by the gross square footage of the campus buildings. Parking garages were excluded from this square footage, as they consume a nominal amount of electricity and gas.

The Grossmont campus operates at an average, to slightly higher than average energy use, at 77 kBTU/sf/yr. The Grossmont campus experienced an increase in energy use from 2011-2012 due to the addition of two renovated buildings with additional square footage while still utilizing temporary facilities during this time. This included the Student Services and Administrative Building and the Griffin Center, the college's new student center.



Sun Path Diagram

This diagram shows the the arc of the sun across Grossmont College's campus as well as the resulting radiation levels throughout the course of the day, and across the course of the year. The intensity of radiation is indicated by the color variation shown in the diagram. Yellow indicates high levels of solar radiation, and purple indicates lower levels of solar radiation. This diagram aids in determining what times of the year the sun has the most impact on overall heating/cooling loads and energy consumption of campus buildings.

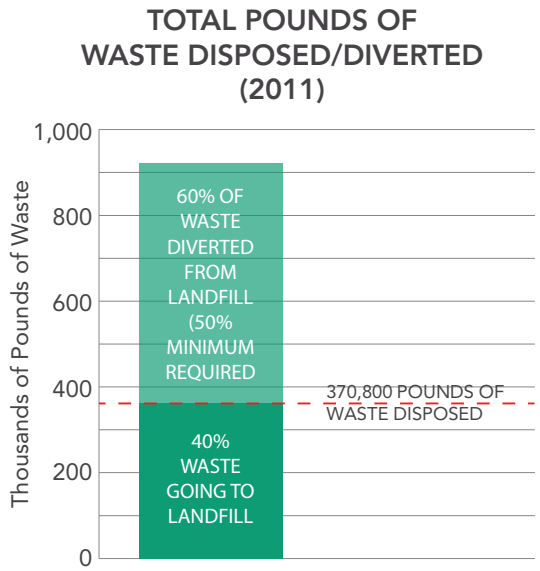


Analysis

WASTE

The waste management practices at the Grossmont College campus are well established. The existing recycling and trash diversion programs are very effective, especially when considering the resources available with the current economic situation. The programs continue to flourish despite lower staffing levels within the facilities, maintenance, and operations department.

The major types of landfill waste on campus are food and beverage packaging that is non-recyclable, discarded materials left in restroom trash cans. While the Ceramics Department reuses clay whenever possible, used clay and other sculpture materials also contribute to waste on campus.



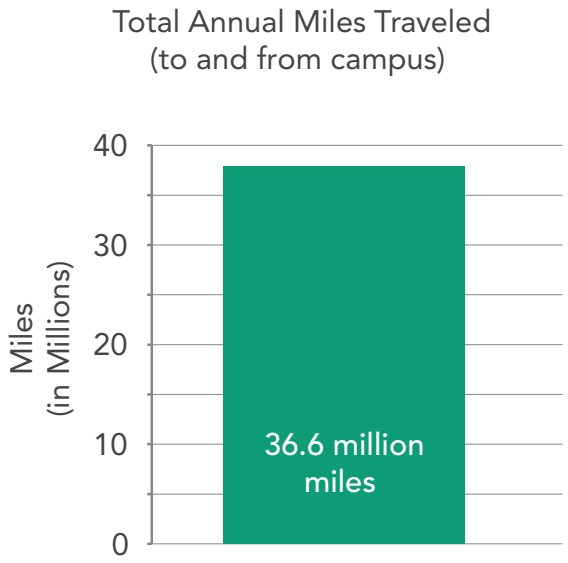
Analysis

TRANSPORTATION

The majority of Grossmont College's student and faculty population is composed of single occupant vehicle (SOV) drivers. This volume and frequency of vehicular operations impacts the district's overall carbon footprint, as automobiles are a major contributor to greenhouse gas emissions. To attain a better sense of this impact, the total number of annual miles traveled by students was determined for Grossmont College, using data collected by the GCCCD Office of Research, Planning and Institutional Effectiveness.

Five major zip codes were used to determine the radius of the area served by each campus. A proportionate number of students was allocated for each zip code and for each day of each session (fall, spring, and summer). These student population numbers were then multiplied by the average number of miles traveled (roundtrip) from the campus to each zip code area's center. This resulted in a total of 36.6 million miles traveled by Grossmont students.

Alternative transportation via the Metropolitan Transit System (San Diego's regional transit provider), and programs such as RideShare are available to users. However, these are not frequently used as many students require easily accessible and timely means of transportation between their residence, campus, and, in many cases, their place of employment.



Analysis

CARBON

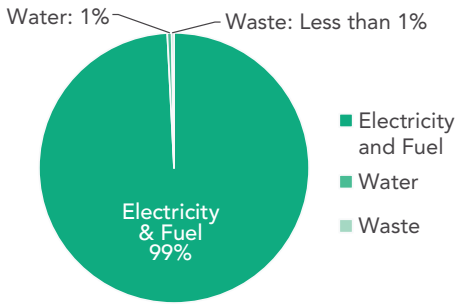
Carbon Footprint Without Transportation

Grossmont College's carbon footprint serves as a measurement of the total set of greenhouse gas (GHG) emitted into the atmosphere as a result of the activities and operations that occur on campus. Energy, waste, and water are considered in the carbon calculation. In addition, two scenarios are provided: one in which transportation is not considered and a second in which transportation is considered. This will provide insight regarding the impact of one the largest contributors of GHGs.

When transportation is not taken into consideration, Grossmont currently stands at 7.6 lbs CO2e/sf. This figure is also based upon the assumption that the campus' parking structure is included in the gross square footage. As parking structures typically use minimal amounts of energy and water, a second calculation has also been provided in which the parking structure is not included in the gross square footage of the campus. In this second calculation, Grossmont College's carbon footprint increases to 10.3 lbs/sf/yr. The larger carbon footprint figure results because the amount of carbon emissions is being divided by a smaller overall area. In both cases, (with and without the parking structure), there is a prevalence of energy use as a main contributor to carbon emissions while water and waste result in far less, albeit relevant, GHG emissions.

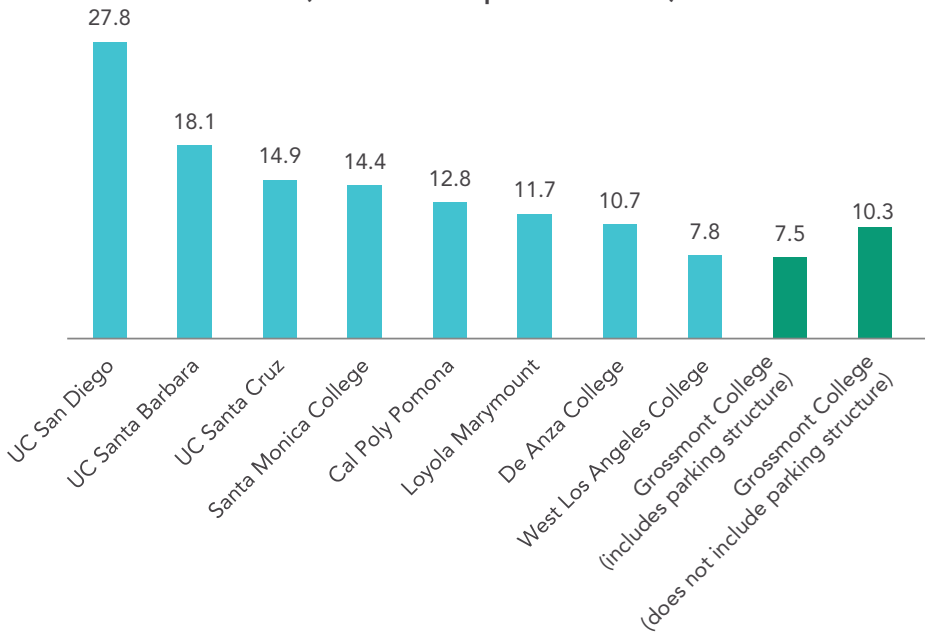
In order to best ascertain the relevance of this carbon footprinting figure, a comparative analysis of like institutions was conducted. The carbon footprints of several higher education institutions was calculated, based on each institution's published carbon footprint data provided from the American College and University President's Climate Commitment Action Plan's 2010-2011 Annual Report. Many of these institutions are located in similar climates as Grossmont College and also have a similar campus make-up. Transportation was excluded from the comparative institution data as well in order to provide an accurate analysis. With this exclusion, Grossmont College is operating with a much lower carbon footprint than other institutions in the study.

Grossmont College 2011 Carbon Footprint (without Transportation Data with Parking Structure)



7.5 lbs/sf/yr (includes parking structure area)
10.3 lbs/sf/yr (does not include parking structure area)

Higher Education Institutional Comparison (without Transportation Data)



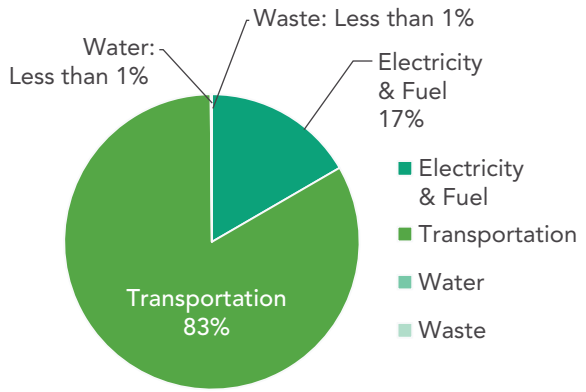
Analysis

CARBON

Carbon Footprint With Transportation

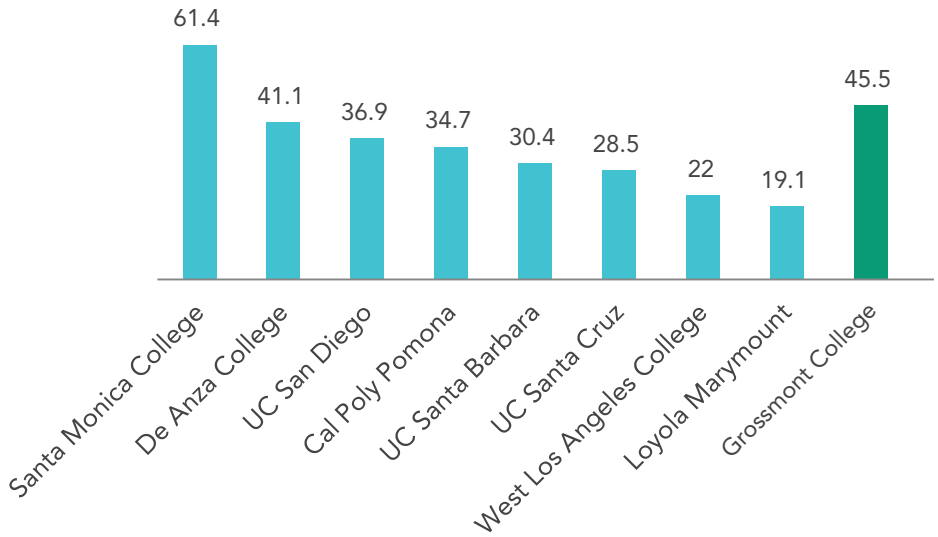
To best understand the impact and relevance of transportation with regards to carbon footprinting, a calculation which includes transportation was also conducted. With this inclusion, Grossmont College's carbon footprint increases to 45.5 pounds per square foot per year. In addition, with the inclusion of transportation, the college is shown as operating with a greater carbon footprint than other like institutions in the study.

Grossmont College 2011 Carbon Footprint (with Transportation Data)



45.5 lbs/sf/yr

Higher Education Institutional Comparison (with Transportation Data)



Grossmont College

SUMMARY OF FINDINGS

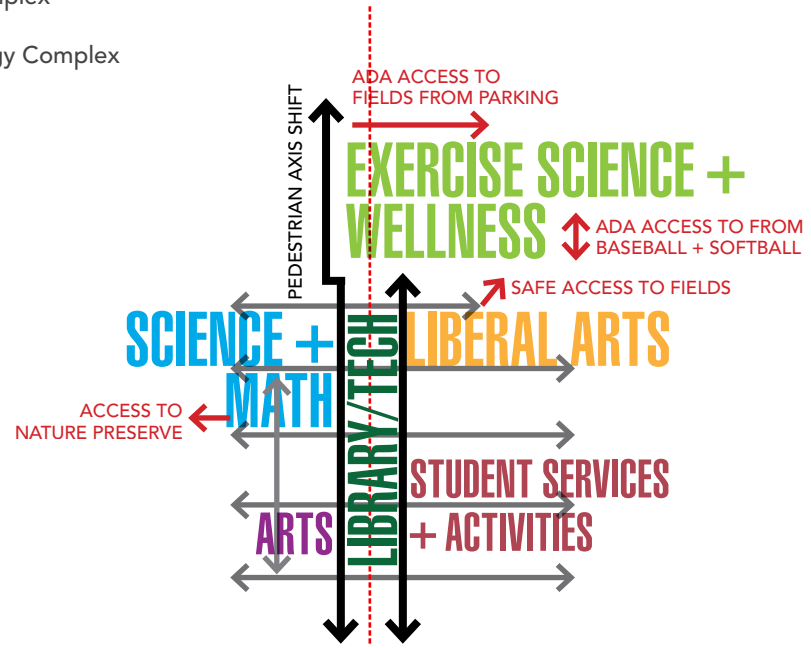
The Grossmont College campus presents advantages, opportunities, and challenges as noted on the previous pages. Among its advantages, the campus is very visible and presents an attractive face to the community; the campus is well zoned and circulation is clearly organized; and the college is concluding a successful building program, which provided new and reconstructed facilities.

To plan for the future and align with the priorities of the *GCCCD Educational Master Plan*, Grossmont College must address the challenge to maximize its functional space and eliminate its non-functional space, focusing on the removal of temporary facilities and the demolition of aged permanent facilities that did not undergo major upgrades in the last decade. The following is a list of the aged permanent facilities that are recommended for demolition and removal by the district's architects, engineers, and construction management team. These include the remaining 1960s-era concrete frame buildings, which are limited in flexibility, having been built with a structural grid that is not well-suited to the spatial needs of modern learning environments. The massing, structure, and mechanical systems of these buildings place limits on the sustainability and operating efficiencies that can be achieved. These one- and two-story structures limit the ability to accommodate future growth on the available campus land area by increasing the density of campus development.

Demolition and Removals

The demolition and removal of facilities clears the way to improve the use of the campus land area. The graphic plate highlights the opportunity to build innovative and sustainable indoor and outdoor learning environments in the following potential building zones.

- Arts + Communication Complex
- Science, Math + Career Tech Complex
- Auxiliary Gymnasium 42
- Liberal Arts/Business + Technology Complex
- Temporary Buildings

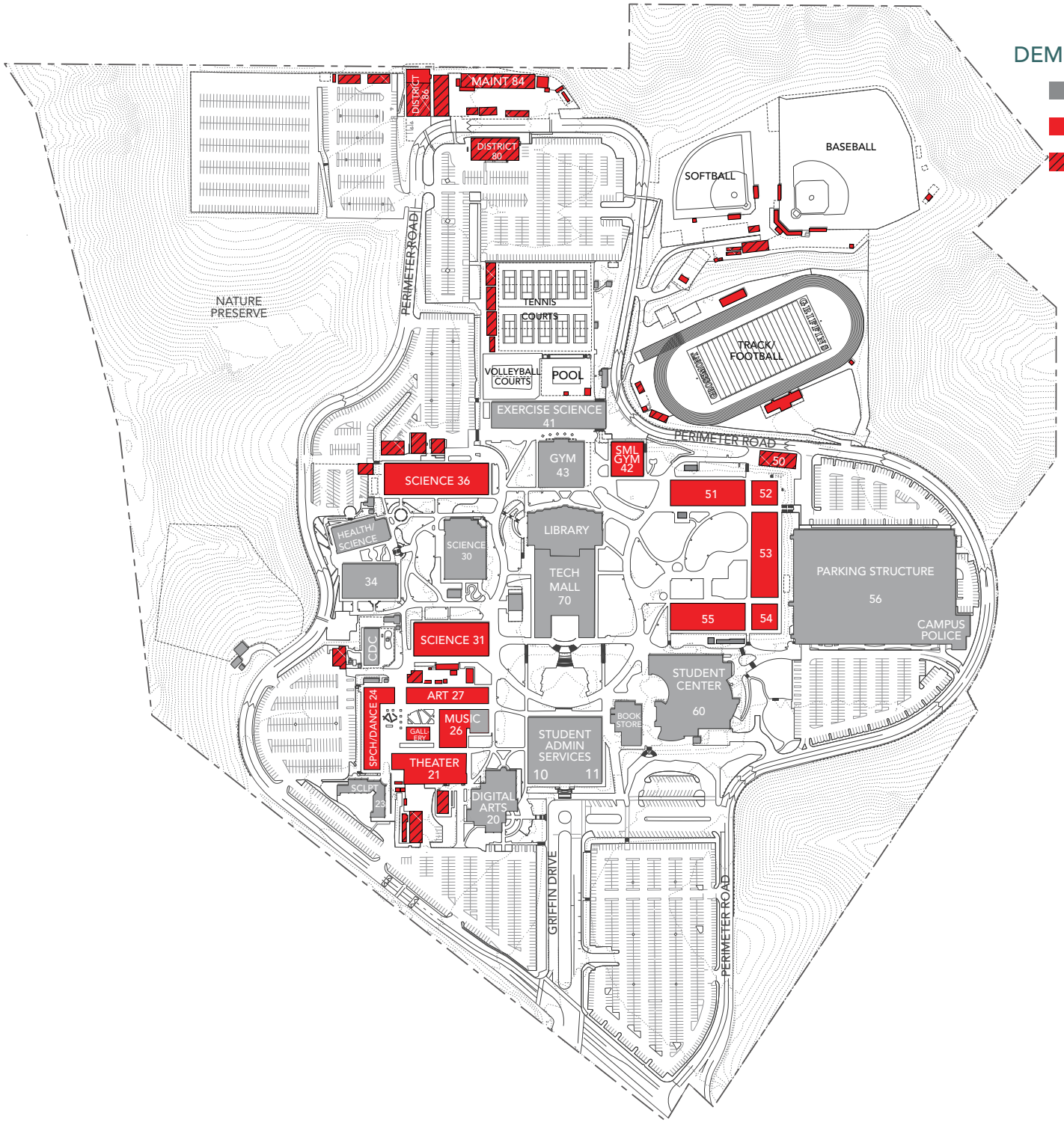


DEMOLITION + REMOVALS

EXISTING FACILITIES

RECOMMENDED FACILITY DEMOLITION

TEMPORARY FACILITIES TO BE REMOVED



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ONT COLLEGE

Recommendations

Recommendations

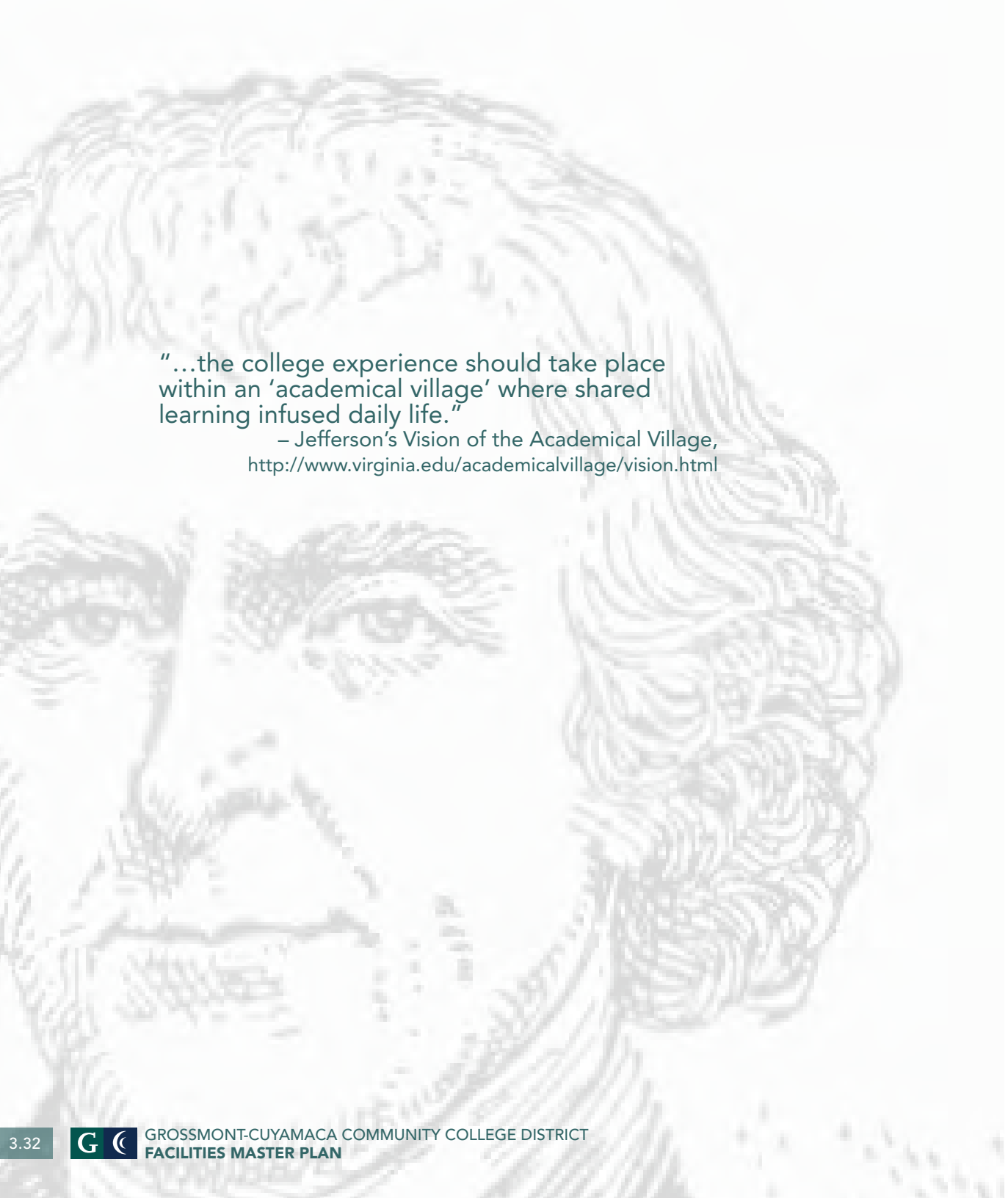
RECOMMENDATIONS

Grossmont College's presence on its hilltop location is a visible symbol of academic achievement in the community. Its clear, learning-focused framework has been developed over time. The facilities recommendations build upon these strengths and reinforce the innovative concepts that underlie the design of existing campus buildings and outdoor learning environments.

The recommendations will complete the work to renew the campus facilities and provide exceptional learning environments for the future.

The recommendations for the future development of the campus are described in the following sections:

- Summary of Recommendations
- Campus Design Objectives
- New Facilities
- Renovation
- Site Improvements
- Sustainability



"…the college experience should take place within an 'academical village' where shared learning infused daily life."

– Jefferson's Vision of the Academical Village, http://www.virginia.edu/academicalvillage/vision.html

FACILITIES PLANNING PRINCIPLES

Focus on students

Maximize functional space

Eliminate non-functional space

Improve efficiency and utilization of facilities and available land

Right-size the campus to address program needs

Enhance the campus environment

Plan for sustainability

Simplify implementation

Recommendations

DEVELOPMENT CONCEPTS

Grossmont College has developed over time into a well-organized campus, built around a primary north-south axis and secondary east-west pedestrian axis. The recent major renovations and additions to the Library/Tech Mall, Administration and Student Services Building, and Exercise Science + Wellness Building have transformed these buildings into virtually new facilities that occupy the central zone of the campus core. The new Health Sciences Complex creates an intimate quad off the more formal public green area of the central zone. This is reminiscent of the Jeffersonian Academic Village Plan at the University of Virginia (UVA).

The Jeffersonian Plan at UVA is centered around a primary axis that terminates at the Library (figure 3). Major circulation is parallel to this axis while cross-circulation is perpendicular to this axis and links the formal lawn with more intimate quads that serve the classrooms. A third outdoor space creates a separation and more causual transitions between the academic quads and residential zones. It is the circulation and academic quads that apply to the development concepts for Grossmont College (figure 1 and figure 2).

CASE STUDY: University of Virginia, Jeffersonian Academic Village plan

figure 3 - Library centered on primary campus organizing axis

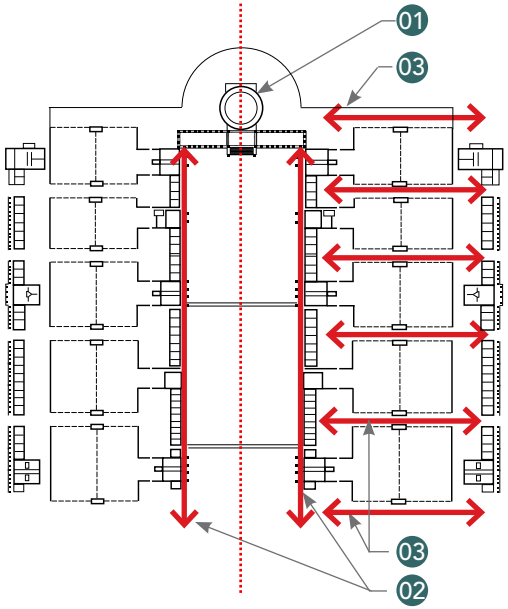


figure 1 - Jeffersonian Academic Village formal and cross disciplinary circulation

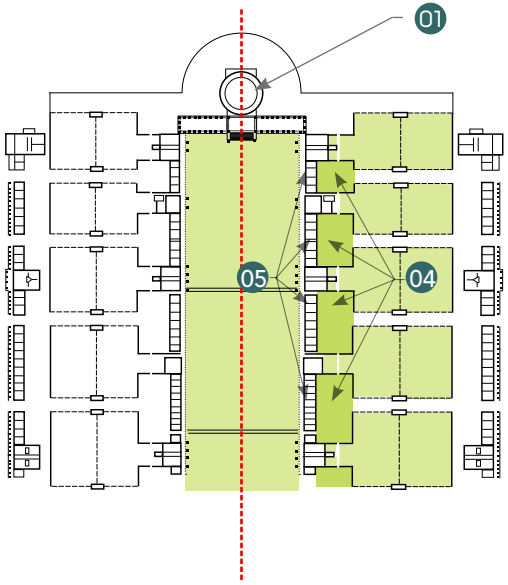


figure 2 - Jeffersonian Academic Village formal lawn and interdisciplinary quads

Key Elements of the Jeffersonian Academic Village Plan

01 The Library — represents the "authority of nature and the power of reason." It is centrally located and surrounded by interdisciplinary informal and formal grounds.

02 Major circulation is parallel to the central library axis and traversed through formal colonnades.

03 Cross-disciplinary circulation is perpendicular to the major axis and connects residential recreational areas to more intimate academic zones.

04 Academic exterior zones are adjacent to classrooms.

05 Classrooms front the formal Campus Lawn and colonnades.

Recommendations

ACADEMIC CLUSTERS + QUADS

The key elements of the Jeffersonian Academic Village Plan are overlaid onto the Grossmont College campus plan (***figure 3***). Building clusters form the edges of a Liberal Arts/Business and Technology Complex just west of the existing parking structure and a new Arts and Communication Complex to the south of the existing Science, Math and Career Tech Complex. This new academic village at Grossmont College creates a solid vision for students to learn in multiple environments — in the classroom and in outside learning spaces. These newly conceived academic clusters will become an amenity to each program and the college community as a whole.

Key Elements of the Jeffersonian Academic Village Plan — Overlay with Grossmont College

01 The Library is the heart of the campus. It is centrally located and surrounded by interdisciplinary building clusters.

02 Major circulation is parallel to the formal campus axis through meandering pathways along the edges of the Library.

03 Cross-disciplinary circulation is perpendicular to the major axis and connects the major academic quads.

04 Academic exterior zones are adjacent to classrooms and are program specific to each building cluster.

05 Building clusters are accessed from the academic quads and are connected to the formal north-south paths creating a logical campus circulatory fabric.

06 Formal campus library side yards

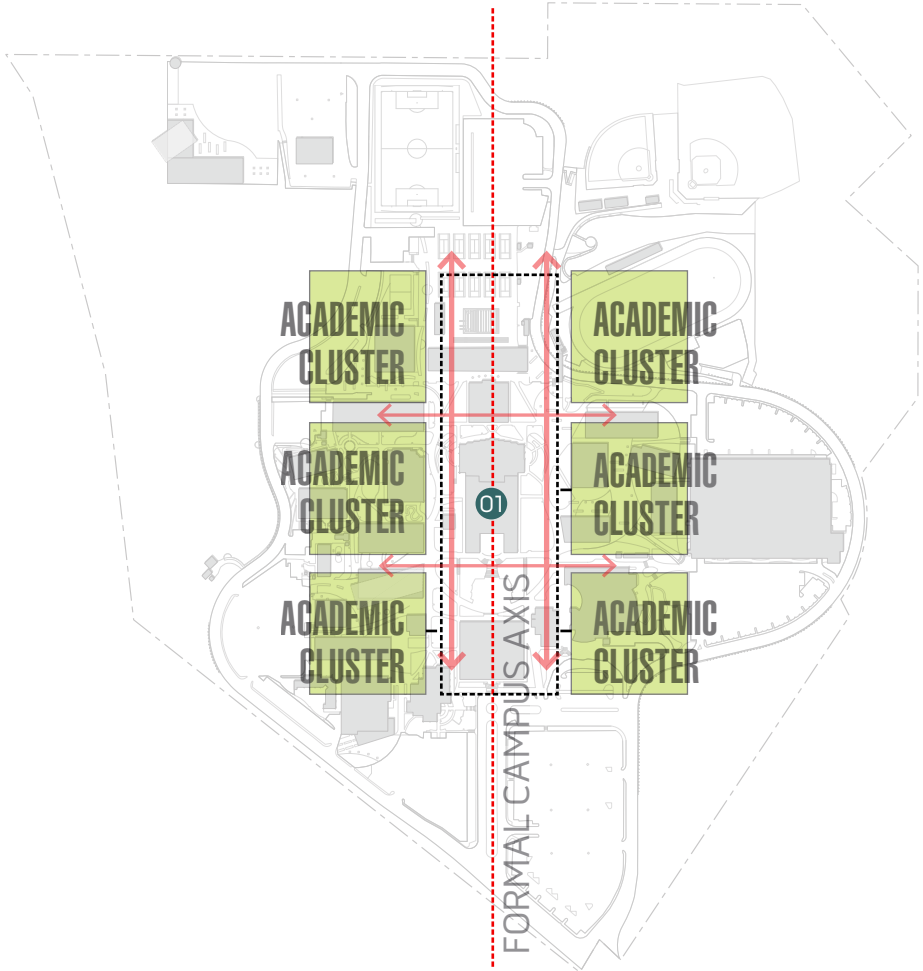


figure 3 - Jefferson Academical Village Overlay on Grossmont College

Design criteria for each of the new quads will enhance the programs of the buildings that engage them. Paving patterns could include quotes from Plato or sundials that create a geographical context in time for the new Liberal Arts/Business and Technology Complex. A sculpture garden or exterior performance zone could drive the design of the edges of the Arts and Communication Complex. A circuit training stadium or water features and spaces for Tai Chi could be incorporated in the Exercise Science and Wellness Complex (***figure 5***).

figure 5 - Potential thematic design criteria for new Academic Quads

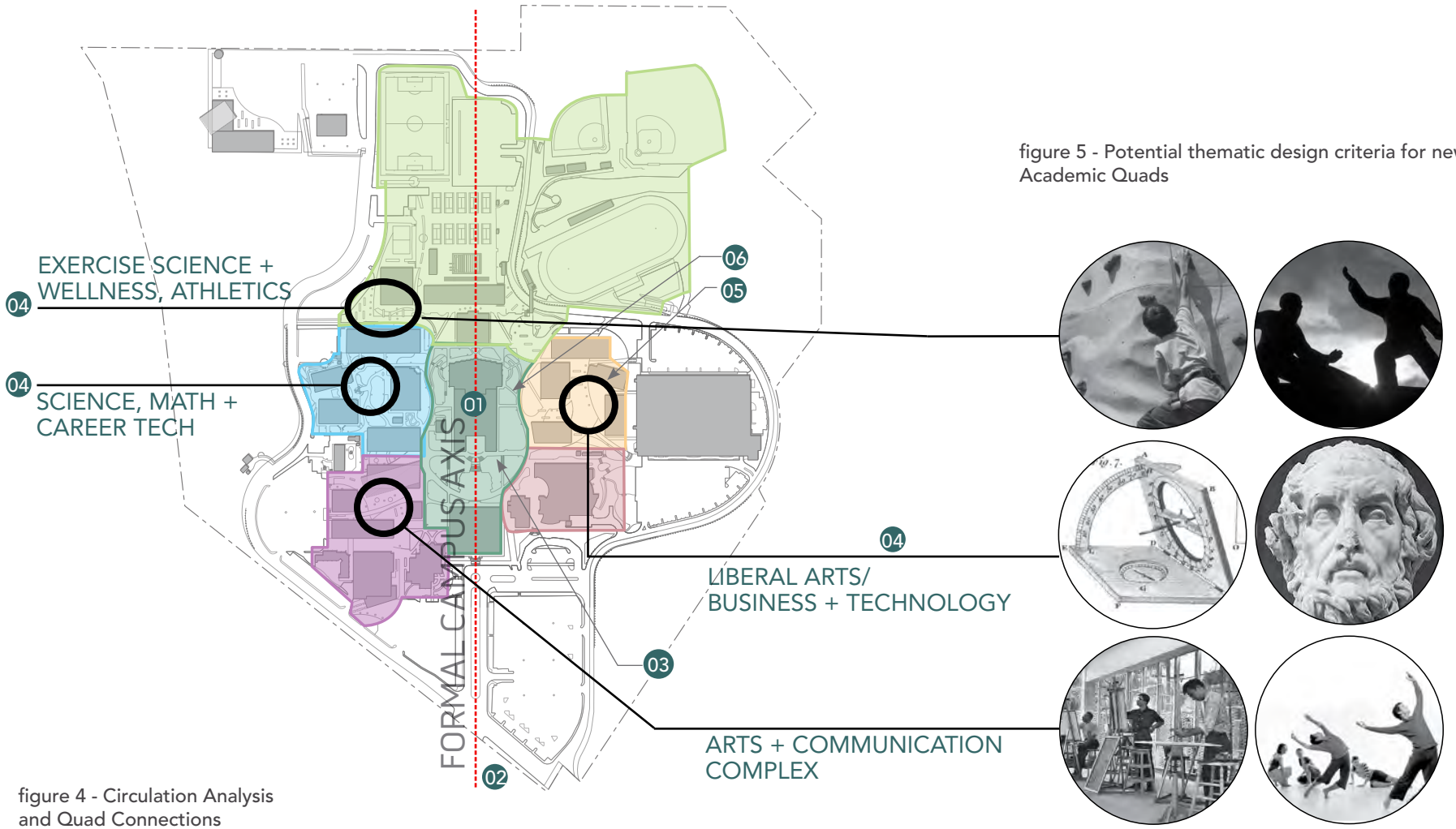


figure 4 - Circulation Analysis and Quad Connections

CAMPUS CONNECTIVITY

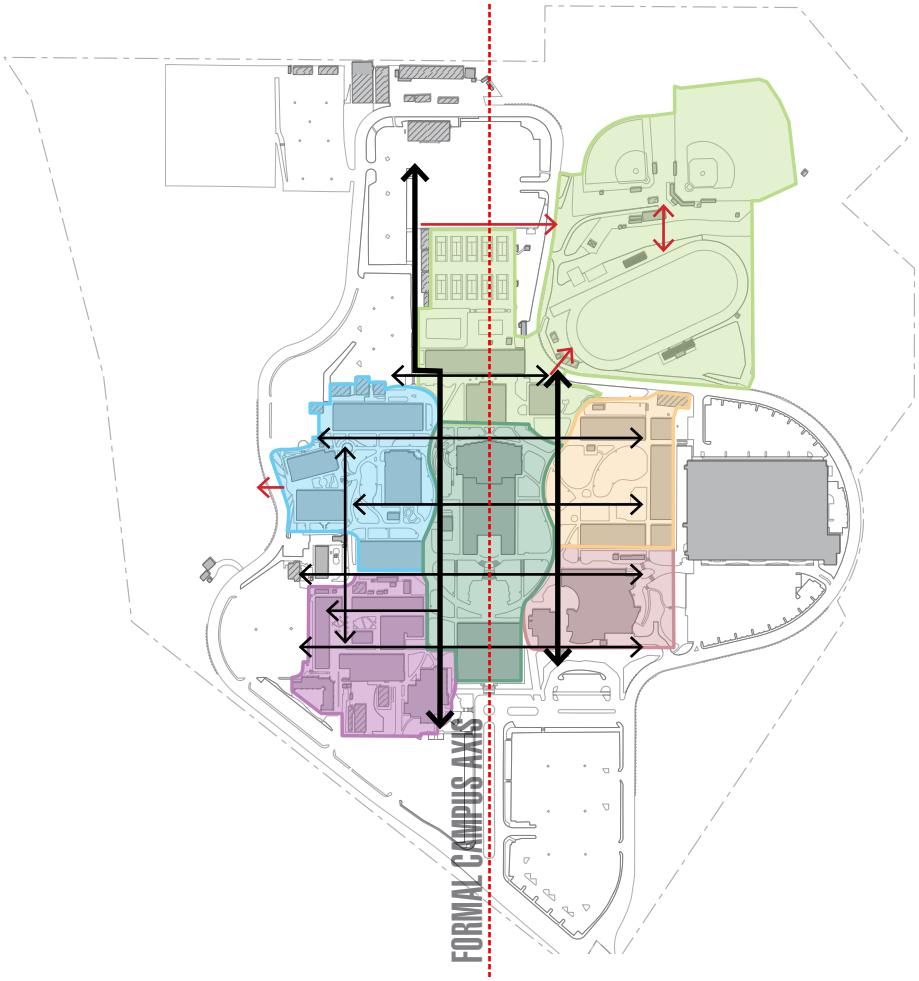


figure 6 - Highlighted pedestrian circulation routes at Grossmont College

figure 7 - Grossmont College diagrammatic campus zoning and circulation

Grossmont College is developed along two main north-south pedestrian circulation routes, which follow those referenced in the Jeffersonian Plan development concept. ***Figure 6*** further highlights this circulation concept with pedestrian circulation routes, which branch off into the academic quads. Exterior circulation routes within most quads becomes problematic when spaces are not scaled for student enagement and interation. ***Figure 6 and figure 7*** defines the problematic routes of circulation at Grossmont College.

At Grossmont College, exterior academic quads adjacent to building clusters will follow the precedent already set at the college within the Health Sciences Complex. Thematic influences, such as those represented in ***figure 4 and figure 5***, follow the Health Sciences Complex as a model. Medicinal plants and herbs fill this existing intimate courtyard. The scale and multi-level access successfully attract student engagement and interaction.

This theme will be augmented throughout each redeveloped academic cluster and quad per the GCCCD Facilities Master Plan. ***Figure 8*** highlights the well-organized quad at Health Sciences and the problematic quad at Liberal Arts/Business + Technology. ***Figure 9 and figure 10*** further depict the Jeffersonian Plan development concept applied to the Liberal Arts/Business + Technology Complex.

The current building placements form around a large, unorganized quad space that is uninviting for effective student engagement in its current state (***figure 9***). ***Figure 10*** provides a reorganized quad that allows for both intimate gathering and effective circulation routes that enable varying scales of interaction among students. The buildings serve to frame the quad, yet open up viewing to the main pedestrian axis on the Grossmont campus.

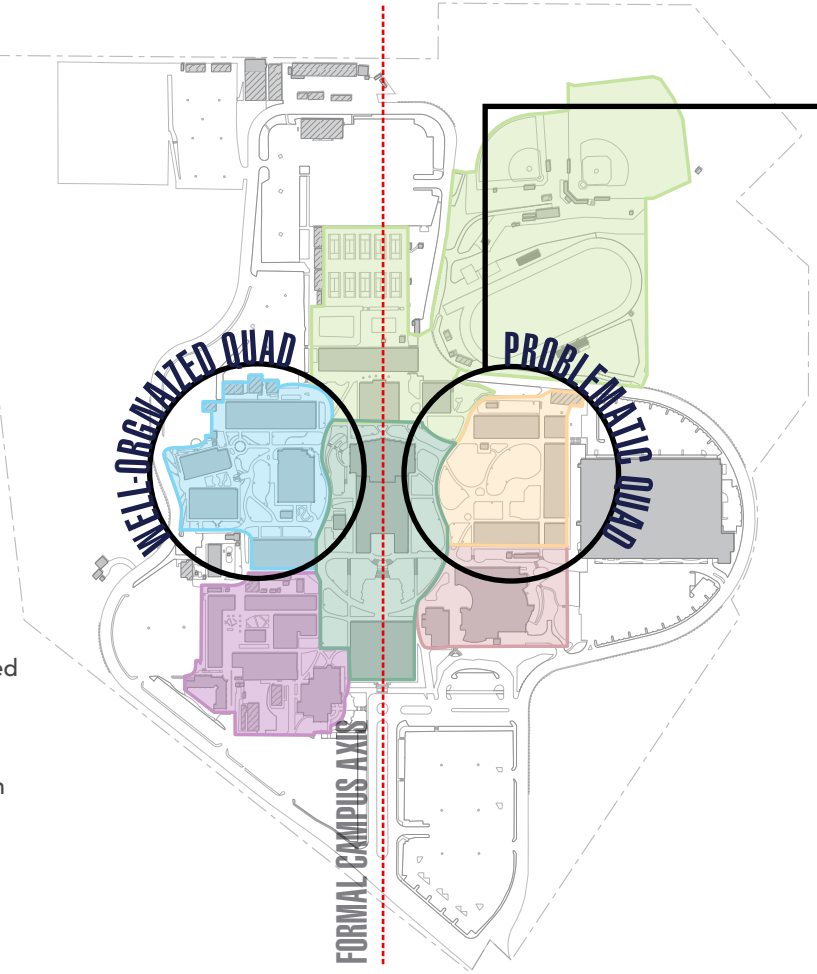


figure 8 - Academic Quads to be redeveloped with Jeffersonian Plan concepts

figure 9 - Problematic quad organization at Liberal Arts

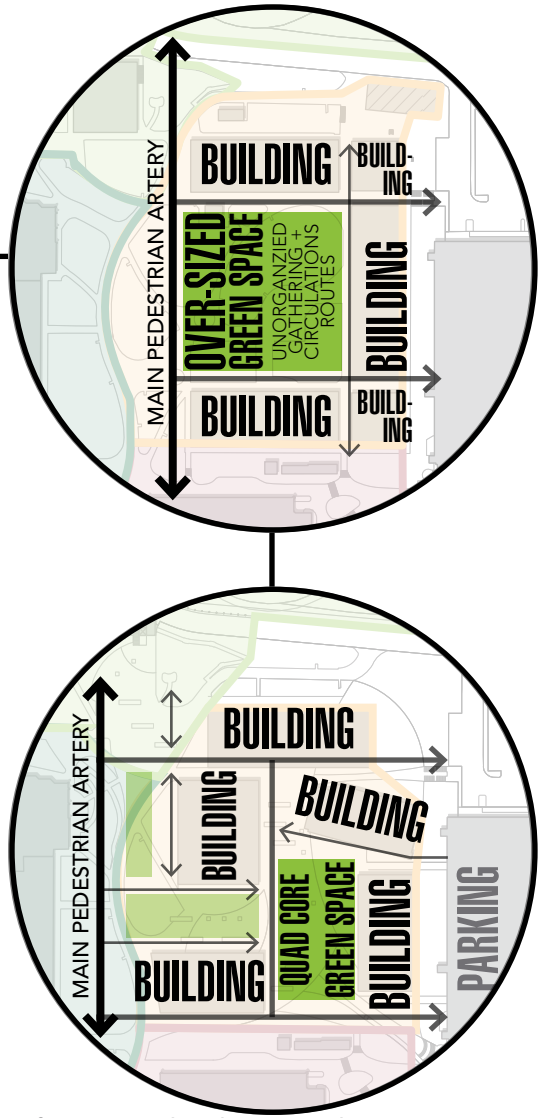


figure 10 - Liberal Arts Quad reorganization with applied Jeffersonian plan concepts

SUMMARY OF RECOMMENDATIONS

The facilities recommendations for the Grossmont College campus were crafted to support the initiatives and align with the vision, mission, and values that were established in the *GCCCD Educational Master Plan*. The recommendations include new construction, renovation, and site improvement projects. These projects also address issues that were identified and validated through discussions held during the planning process. The recommendations address faculty, staff, and student needs going forward into the next decade and the graphic plan shown on the facing page presents an overall picture of the future developed campus.

New Facilities

The 200s - Arts + Communication Complex Replacement
The 300s - Science, Math + Career Tech Complex Replacement
The 500s - Liberal Arts/Business + Technology Complex Replacement
Exercise Science + Wellness

Renovation

ESW + Athletics Teaching Facility
Child Development Center

Site Improvements

Road + Parking Improvements
Additional Parking
Gateway Entry Signs
Pool Improvements
Modernize Permanent Seating + Site Improvements for ESW/Athletics
Water Conservation, Hardscape + Landscape Improvements
Safety + Stabilization of the Nature Preserve

Sustainability

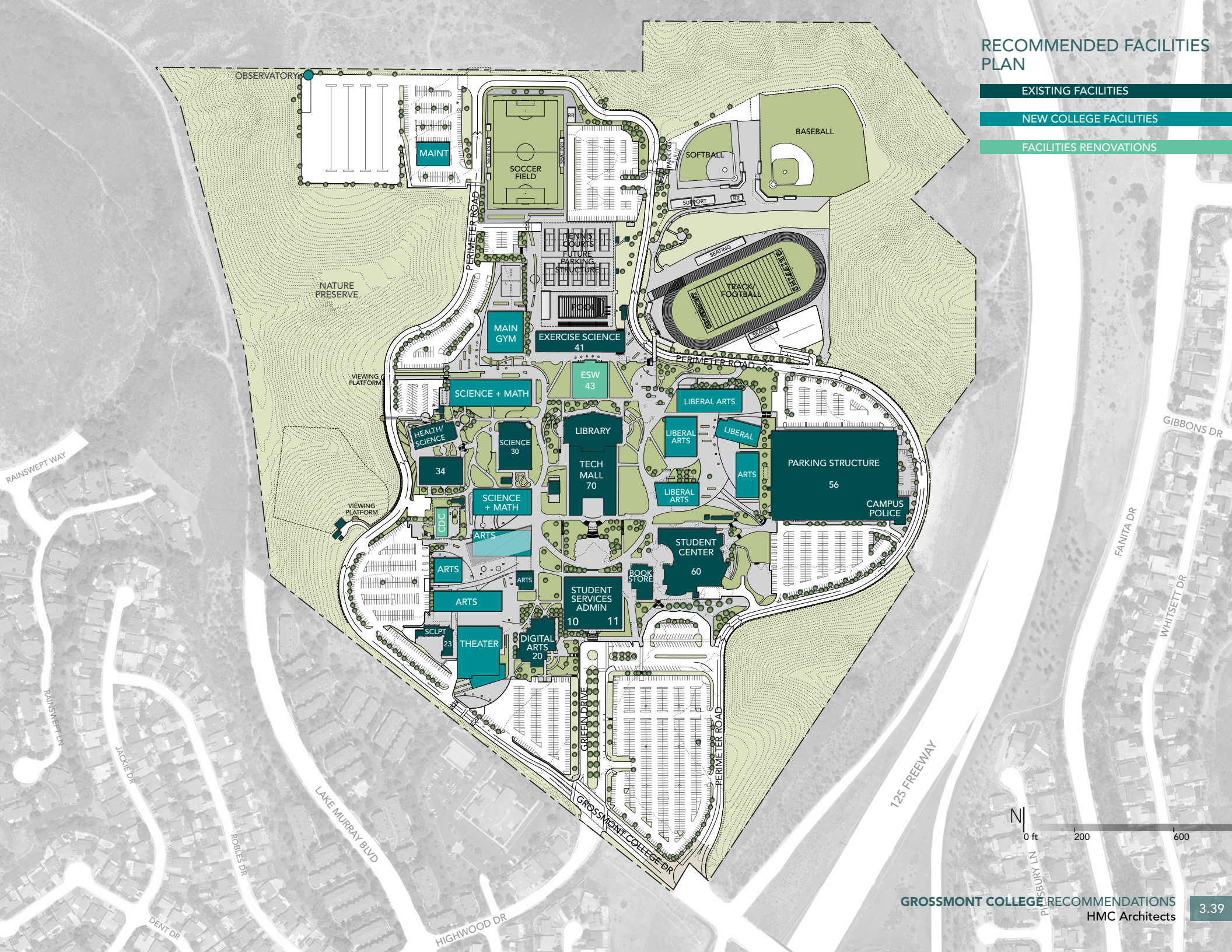
Energy Use + Renewables
Water Use + Reuse
Storm Water Management
Waste Management + Reduction
Transportation
Education

RECOMMENDED FACILITIES PLAN

EXISTING FACILITIES

NEW COLLEGE FACILITIES

FACILITIES RENOVATIONS



Recommendations

CAMPUS DESIGN OBJECTIVES

The Campus Design Objectives translate the districtwide planning principles into objectives that address the specific needs of Grossmont College. These design objectives were established with the Grossmont College Extended Master Plan Task Force and are part of the framework that will guide project-level planning and provide a campuswide perspective.

Focus on Students

- Provide formal spaces for students to meet with faculty.
- Design with CCSSE principles.
  - A strong start
  - Clear, coherent pathways
  - High expectations and high support
  - Intensive student engagement
- Create a collegial campus environment.
  - Create welcoming gathering spaces within instructional facilities.
- Increase access to services.
- Design to support collaboration.
- Design for universal accessibility.

Maximize Functional Space

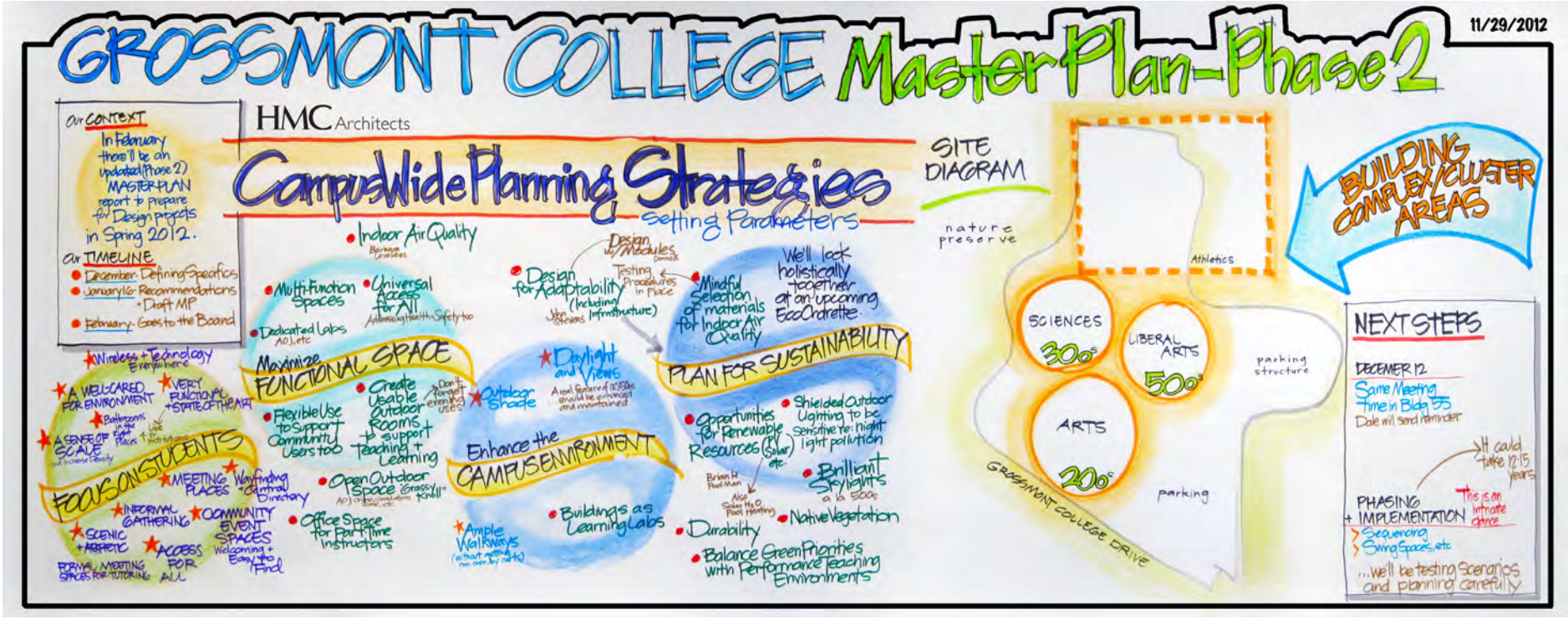
- Create effective learning environments.
- Create flexible and adaptable space.
- Design spaces for collaborative and active learning.
- Support learning anywhere, anytime, anyplace.
  - Functional spaces and furniture
  - Better site lighting for night-time campus use
  - More usable lawn space
- Develop athletic fields to be multi-use labs.
- Create outdoor teaching spaces.
- Develop appropriate functional groupings.
- Distribute and share interdisciplinary classrooms, campuswide.
- Increase utilization of facilities.
- Improve facilities for accessibility, health, and safety.
- Provide robust technology and utility infrastructure systems.
  - Provide state-of-the-art technology and plan for future technologies.
  - Complete and strengthen the WiFi coverage of the campus.

Enhance the campus environment

- Strengthen the connection to the community.
- Create spaces for large college and community events.
- Facilitate wayfinding and efficient vehicular and pedestrian circulation.
- Develop clear, intuitive pathways.
- Provide shaded paths, wide enough for all uses.
- Design for security.
- Design aesthetically beautiful facilities that are easy to care for and clean.
- Provide good indoor air quality with low VOC finishes and careful choice of flooring.
- Harvest and control daylight to prevent glare.
- Capture views of the mountains.
- Design good acoustical environments.
- Provide good ergonomic design.

Plan for Sustainability

- Create a campus that is a living laboratory.
- Design interactive landscapes.
- Increase the development density of the campus.
- Use the campus land area efficiently.
- Design for a collegiate-scaled campus.
- Support sustainable campus operations.
- Design for durability and ease of maintenance.
- Minimize negative impacts to the environment.
  - Solar swimming pool heating
  - Alternative transportation
  - Storm water management
  - Light pollution
  - Alternative power



Graphic recording of the discussion that took place at the November 29, 2012 Extended Master Plan Task Force Meeting.

Recommendations

NEW FACILITIES

A number of new facilities are recommended for the Grossmont College campus. These facilities will provide additional instructional space to address the projected growth in enrollment, create spaces and accommodate programs that promote health and wellness, support a collaborative and collegial learning and work environment, and replace aged facilities that are increasingly costly to maintain and operate. The new facilities are located to reinforce the campus' strong and established functional zoning concept.

New Facilities Projects

- The 200s - Arts + Communication Complex Replacement
- The 300s - Science, Math + Career Tech Complex Replacement
- The 500s - Liberal Arts/Business + Technology Complex Replacement
- Teaching + Performance Theater
- Main Gymnasium Replacement
- Maintenance Operations + Warehouse Replacement

NEW FACILITIES

EXISTING FACILITIES

NEW FACILITIES

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Recommendations - New Facilities

THE 200s

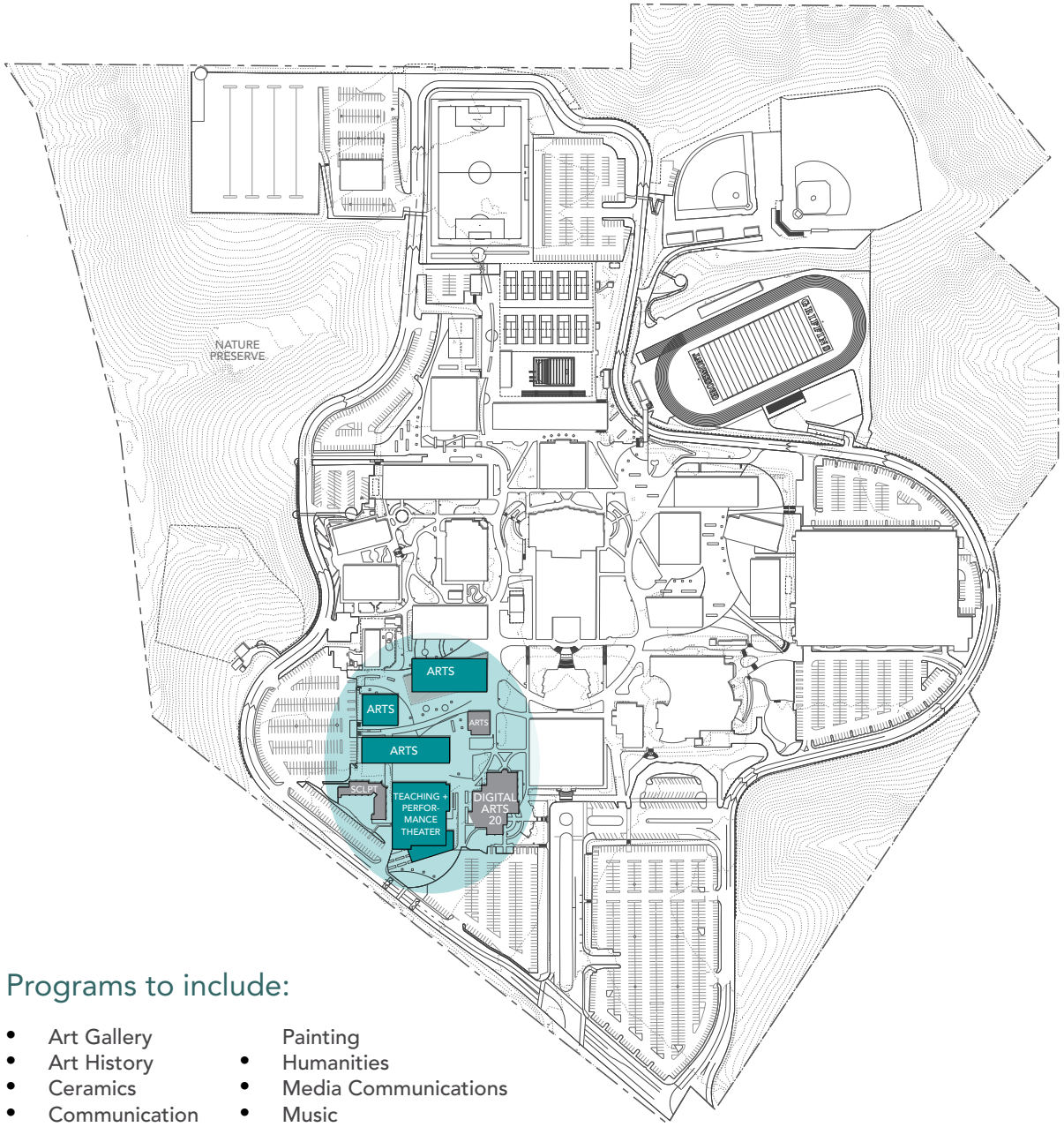
ARTS + COMMUNICATION COMPLEX REPLACEMENT

New facilities for workforce and transfer courses in the arts and communication disciplines will replace the existing aged and outdated facilities.

Located at the southwest gateway into the campus, the complex will welcome students and visitors to indoor and outdoor spaces, where the creativity and academic rigor of the disciplines will be clearly displayed and celebrated. Buildings will be integrated with outdoor learning quads that support gathering, learning, and performing. The complex will incorporate the existing Room 220 music performance space, the Digital Arts Building, and the Sculpture Building, as well as a new art gallery and new Teaching + Performance Theater, into a vibrant and cohesive precinct for the arts and communication.

Instructional spaces will be designed and fully outfitted to suit the diverse functional needs of these disciplines, including support, library, and storage space for student work, equipment, collections, and instruments. The Arts and Communication Complex will be built to standards for sustainability developed to meet the goals of Grossmont College, employing strategies such as controlled natural daylight and ventilation designed for healthy indoor air quality.

A new 600-seat theater and instructional facility for the performing arts is recommended as part of this complex. Located to be an integral part of the Arts and Communication Complex and highly visible to the community, it will be adjacent to parking and include an arrival plaza facing the entrance to the campus. This facility will be used for teaching, learning, and performing, and will be a gathering place for the community.



Programs to include:

- Art Gallery
- Art History
- Ceramics
- Communication
- Dance
- Drawing and Painting
- Humanities
- Media Communications
- Music
- Theater

200s Work Session

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Showcase the Arts

02 Foster Collaboration

03 Create Outdoor Learning Environments

04 Be a Community Resource

05 Create a Common Identity for the Arts

Recommendations - New Facilities

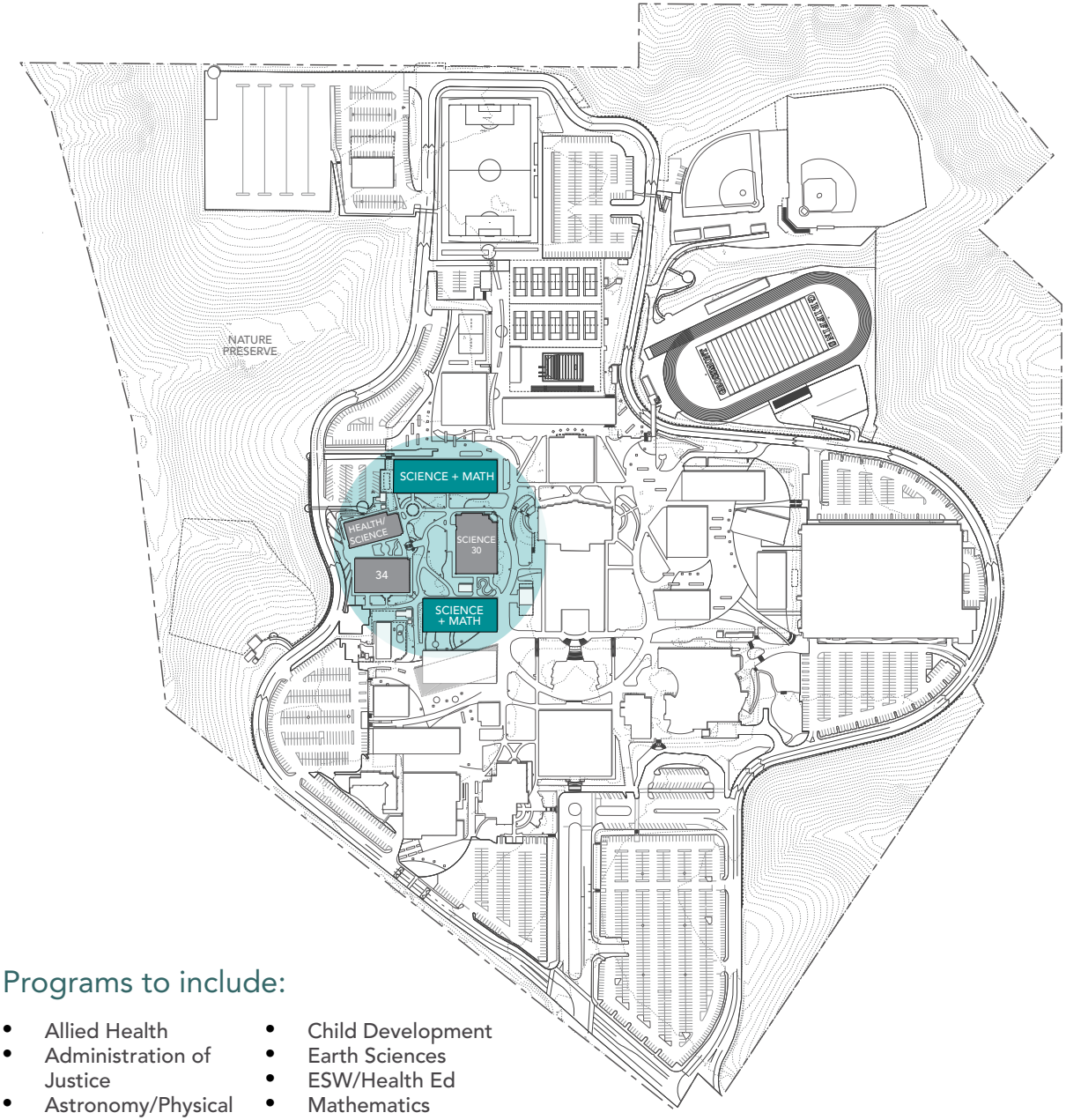
THE 300s

SCIENCE, MATH + CAREER TECH COMPLEX REPLACEMENT

New instructional facilities for general education, science, and math and career tech instruction are recommended to replace the existing aged buildings.

The complex will welcome students and visitors into the campus through accessible gateways from the western parking lots and to indoor and outdoor spaces that showcase the disciplines housed within this complex. The outdoor spaces, including a central quad, will be integrally designed to support informal gathering, college and community events, and outdoor learning activities that range from mock crime scene investigations to model rocket launches.

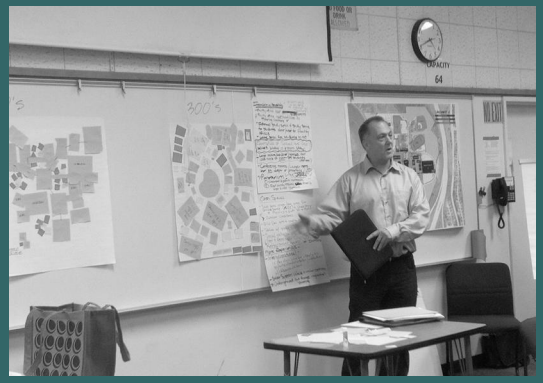
Faculty offices will be clustered near study, tutorial, and meeting spaces designed for interaction and collaboration between and among both students and faculty and across disciplines. The Professional Development Center will be included in this centrally located complex to bring resources to faculty, staff, and student workers who are learning to become proficient with new instructional technologies and methods. The design of the new buildings and outdoor spaces will incorporate the existing Health and Science Building and the Science Laboratory Building and expand on these successful facilities to complete the Science, Math + Career Tech Complex. The complex will be built to achieve sustainability standards developed by the college and district.



Programs to include:

- Allied Health
- Administration of Justice
- Astronomy/Physical Sciences/Physics
- Biological Sciences
- Chemistry
- Child Development
- Earth Sciences
- ESW/Health Ed
- Mathematics
- Professional Development
- Planetarium/ Observatory

300s Work Session



Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

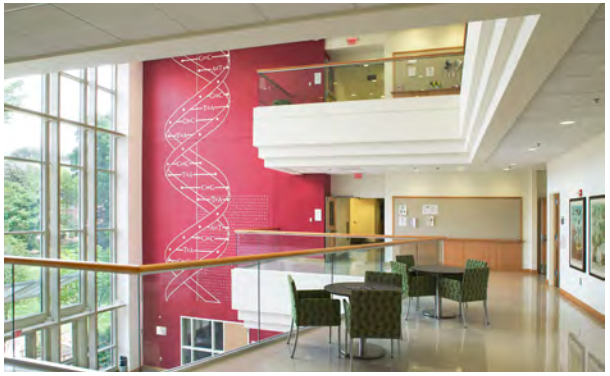
01 Encourage Interdisciplinary Learning

02 Foster Collaboration

03 Support Formal + Informal Learning

04 Create Specialized Outdoor Spaces

05 Showcase the Disciplines



Recommendations - New Facilities

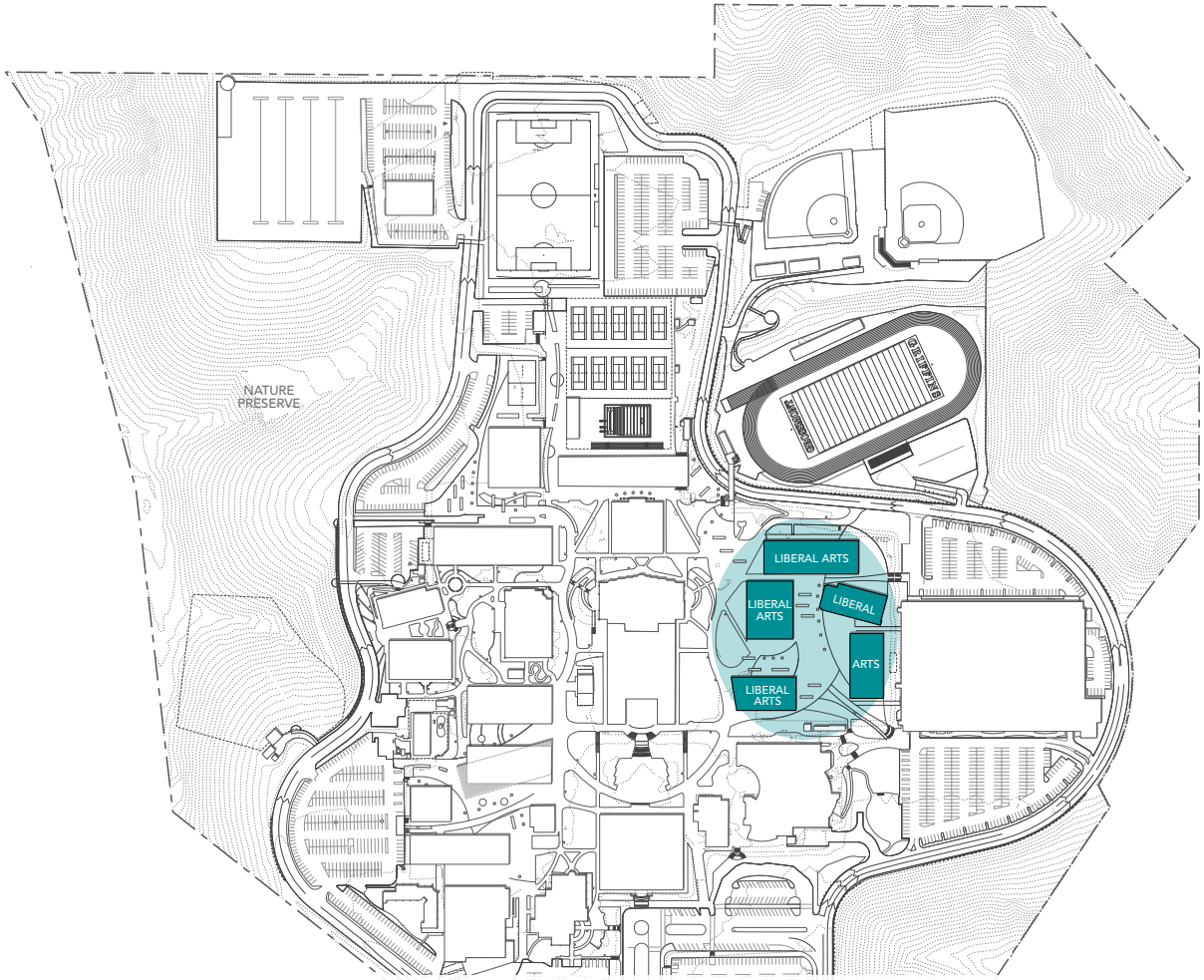
THE 500s

LIBERAL ARTS/BUSINESS + TECHNOLOGY COMPLEX REPLACEMENT

New facilities to support core transfer courses in the liberal arts, business, and technology instruction are recommended to replace the aged 500 buildings. The complex will also provide permanent homes for a number of other important programs on campus.

Instructional spaces, including a large lecture space, flexible and adaptable classrooms and labs, and outdoor learning environments, will be fully outfitted with the technology and utilities to support innovative learning. Interdisciplinary instructional spaces will be located on ground floor levels to support easy access and maximize utilization. Specialized instructional areas will be located on upper floors and include collaborative study areas. Indoor and outdoor areas will be developed to encourage students to stay, study, and gather. Faculty offices and support spaces will be clustered to facilitate collaboration within and across disciplines. A new Veterans Center with enough space to serve the growing needs of East County's active duty military and veterans will be located to create ties to the adjacent Student Center.

The complex will be built to standards for sustainability developed to meet the goals of Grossmont College. It will provide healthy indoor environments that are designed for thermal comfort, acoustical performance, and the capture of natural daylight and views.



Programs to include:

- American Collegiate English (ACE)
- Anthropology
- American Sign Language (ASL)
- Auxiliary
- Business
- Computer Science Information Systems
- Cross Cultural Studies
- Economics
- English
- English as a Second Language (ESL)
- Humanities
- History
- Middle College High School
- Office of Professional Training (OPT)
- Philosophy
- Political Science
- Psychology
- Religious Studies
- Sociology
- Veterans Center
- World Languages

500s Work Session

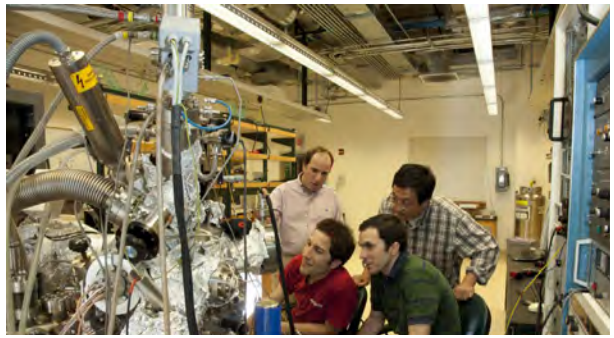
Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Encourage Collaboration

02 Showcase Global Learning

03 Support Formal + Informal Learning

04 Foster Innovation



Recommendations

EXERCISE SCIENCE + WELLNESS

Main Gymnasium Replacement

A new gymnasium will provide sustainable facilities to support indoor ESW instruction. The facility will comply with NCAA design standards, including space and vertical clearance requirements for all instructional programs. The Main Gymnasium site will include a new entry plaza and passenger loading zone and accessible connections to parking and all other facilities. It will accommodate the relocation of the existing sand volleyball courts.

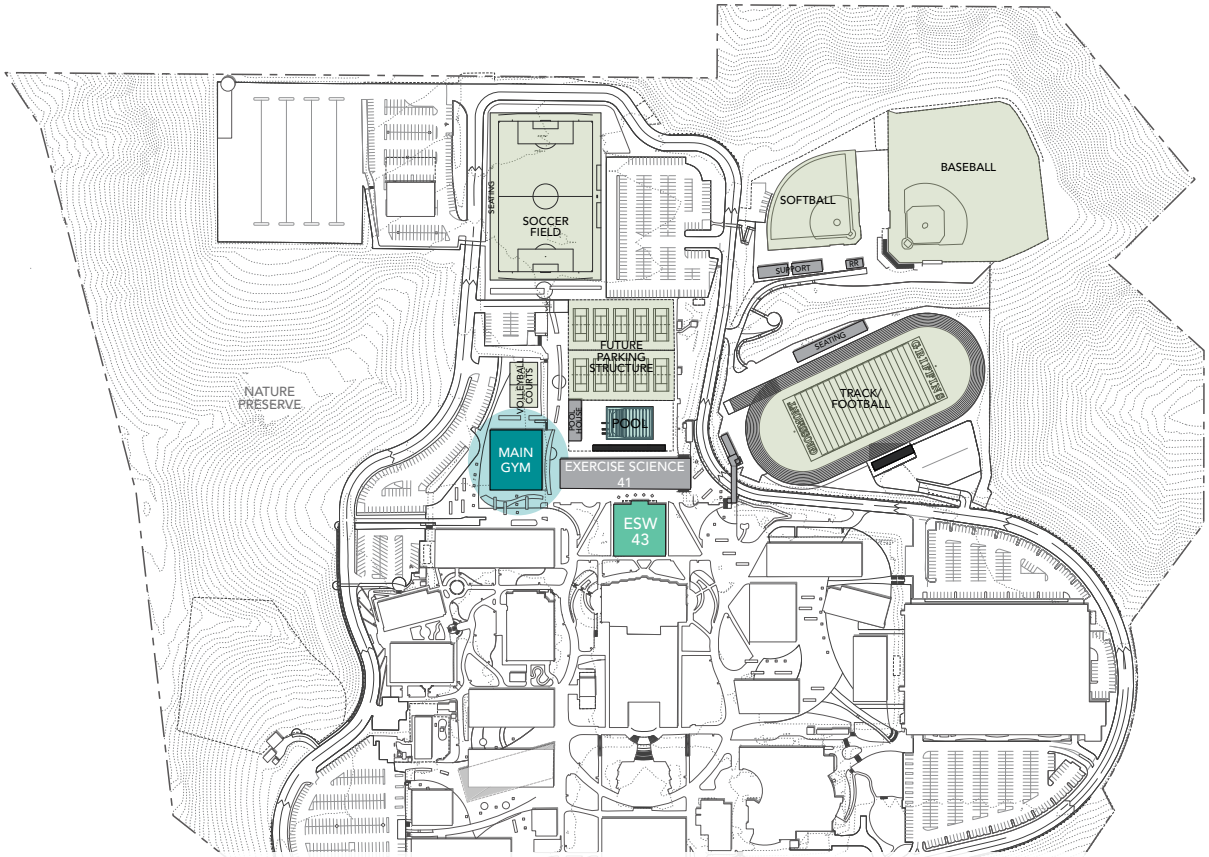
ESW + Athletic Teaching Facility

Renovation of Building 43: see *Renovation on page 3.52* for more information.

Modernize Permanent Seating + Site Improvements for ESW/Athletics

Permanent seating, support facilities, visitor facilities, and accessible paths are recommended to replace temporary facilities and increase the use of the stadium for Exercise Science and Wellness instruction, athletics, and college and community events. The upgrade of the track and field is recommended to preserve the functionality of these instructional resources and meet accessibility requirements.

Replacement of aged bleachers, team facilities, and temporary storage with permanent seating and support facilities is recommended for the softball and baseball fields. The soccer field is recommended to be replaced in a new location at the expanded northern campus core, within the relocated Perimeter Road and closer to the related Exercise Science and Wellness (ESW) areas. These new and upgraded facilities will be built to standards for sustainability developed to meet the goals of Grossmont College. The option to use water-saving, low-maintenance artificial turf for all athletic fields will be studied further.



Pool Improvements

A new aquatic facility is recommended to replace the aging facilities and support all ESW aquatic programs, including diving and adaptive use, as well as college and community events. The facility will be designed to minimize energy and water use. The use of sustainable strategies such as solar pool heating and recycling of filter back-wash water will be studied. Permanent seating, lighting, scoreboards, storage and visitor facilities will be provided.

Programs

A number of improvements are recommended to enhance the existing ESW/Athletics areas of the campus and to support the following programs:

- Athletics
- ESW/Health Ed

Features to be included in the improvements include the following:

- Team Rooms
- Athletic Training Rooms
- Auxiliary Training Areas
- Faculty Offices
- Locker Rooms; Students, Faculty, and Staff
- Equipment Storage
- Press Box
- Permanent Seating
- Concession and Visitor Restrooms
- Lighting

ESW Work Session

Stakeholders participated in brainstorming workshops to define the vision, goals, and big ideas shown on this page.

01 Develop a Comprehensive Complex

02 Strengthen Connections to the Campus + Community

03 Promote Wellness

04 Save Water + Energy

05 Create Multi-Function Outdoor Learning Spaces

Recommendations

RENOVATION

Renovation will renew and lengthen the lifespan of facilities by replacing aging components and creating welcoming spaces to accommodate new and existing functions. Changes in programming will be made to improve campus zoning and address the secondary effects of new construction. Instructional technology will be updated to support successful student learning through innovative modes of instruction. Energy and water efficiency will be improved. Facilities will be brought into compliance with current safety and accessibility standards for the benefit of students, the employees of the district, and the community.

ESW + Athletics Teaching Facility

As the main gymnasium functions move to new facilities, Building 43 will be repurposed to house the auxiliary gymnasium and Exercise Science + Wellness (ESW) instructional space. New window walls will bring in natural light and strengthen the connection between instructional spaces and the adjacent courtyards.

Child Development Center

The existing Child Development Center (CDC) has outgrown its aging permanent facility, which has been supplemented with an adjacent temporary building. The recommendations include replacement of the temporary facility and renovation and expansion of the existing permanent building and outdoor instructional spaces. Further study and discussion of options for the location of the CDC are required to develop the final solution.

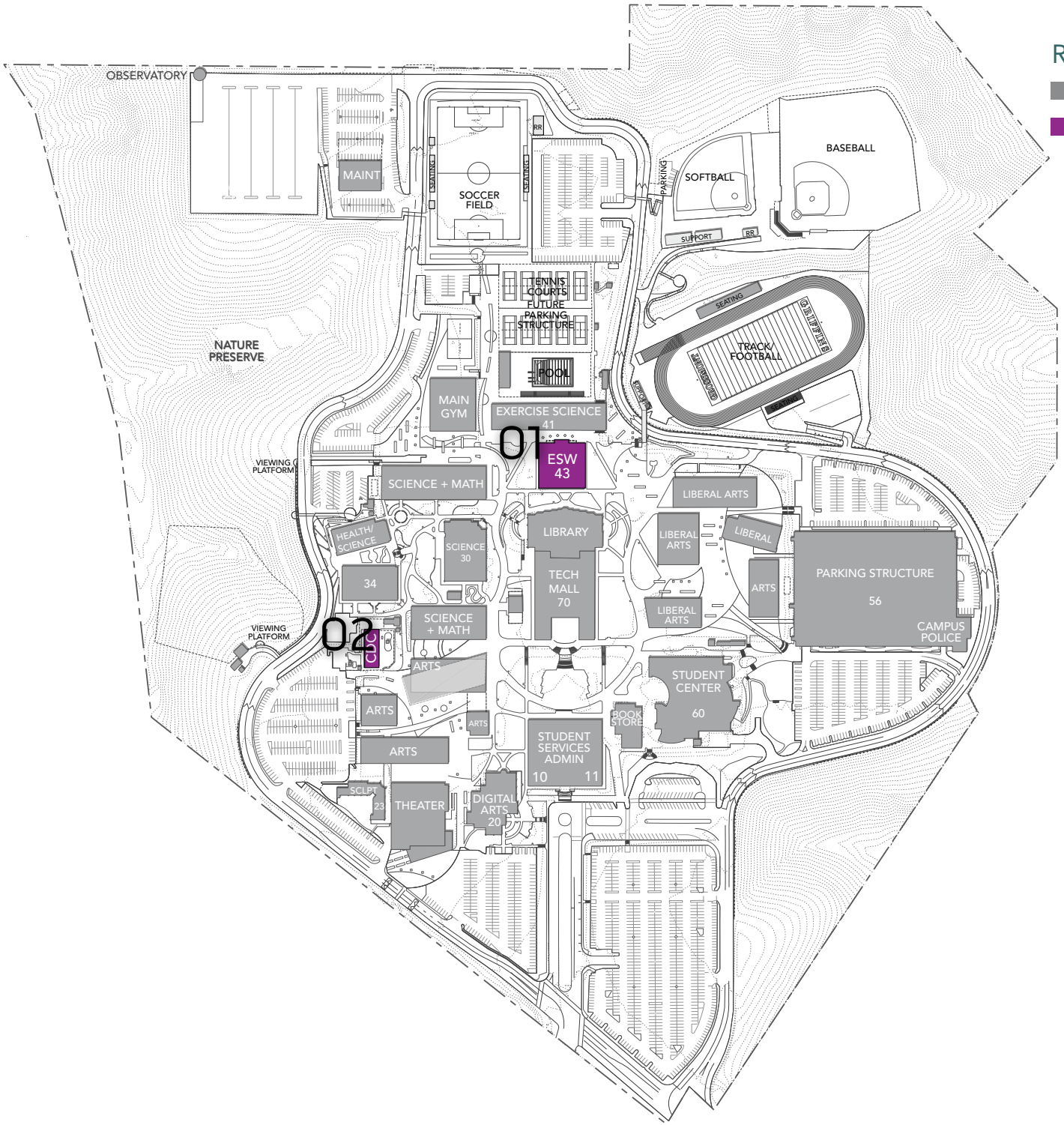
Renovation Projects

- ESW + Athletics Teaching Facility
- Child Development Center

RENOVATION

EXISTING + NEW FACILITIES

RENOVATION



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Recommendations

SITE IMPROVEMENTS

Planning will build upon the ongoing initiative to create outdoor learning environments throughout the campus open space, including formal and informal gathering spaces, gardens, and exercise science and wellness facilities. The strong physical connections within the campus core are extended to connect facilities at peripheral locations. Sustainability is a college priority and is integrated throughout the site recommendations utilizing strategies to minimize the use of natural resources and foster respect for the natural environment. Improvements to the site infrastructure for technology and utilities such as water, power, gas, sewer, and storm drainage are also integrated into each project to support all existing and new facilities and to maximize their efficient and sustainable operation.

Gateway Entry Signs

Entry monument signs are recommended to strengthen the college's presence within the community and enhance wayfinding to the campus, including the exploration of locations that are visible from the SR-125 freeway.

Water Conservation, Hardscape + Landscape Improvements

Hardscape and landscape improvements are recommended across the campus to build on existing strengths and character. The project will focus on the following:

- Extend the framework of pedestrian walkways to provide clear and accessible paths between all campus facilities. Accessible connections between the campus core and the ESW/Athletic fields are a priority.
- Build on the Academic Quad concept to create outdoor spaces that support programs and provide spaces for a variety of student activities.
- Reduce energy and water use and support regional water quality.

Modernize Permanent Seating + Site Improvements for ESW/Athletics

See *Recommendations - Exercise Science + Wellness* for more information.

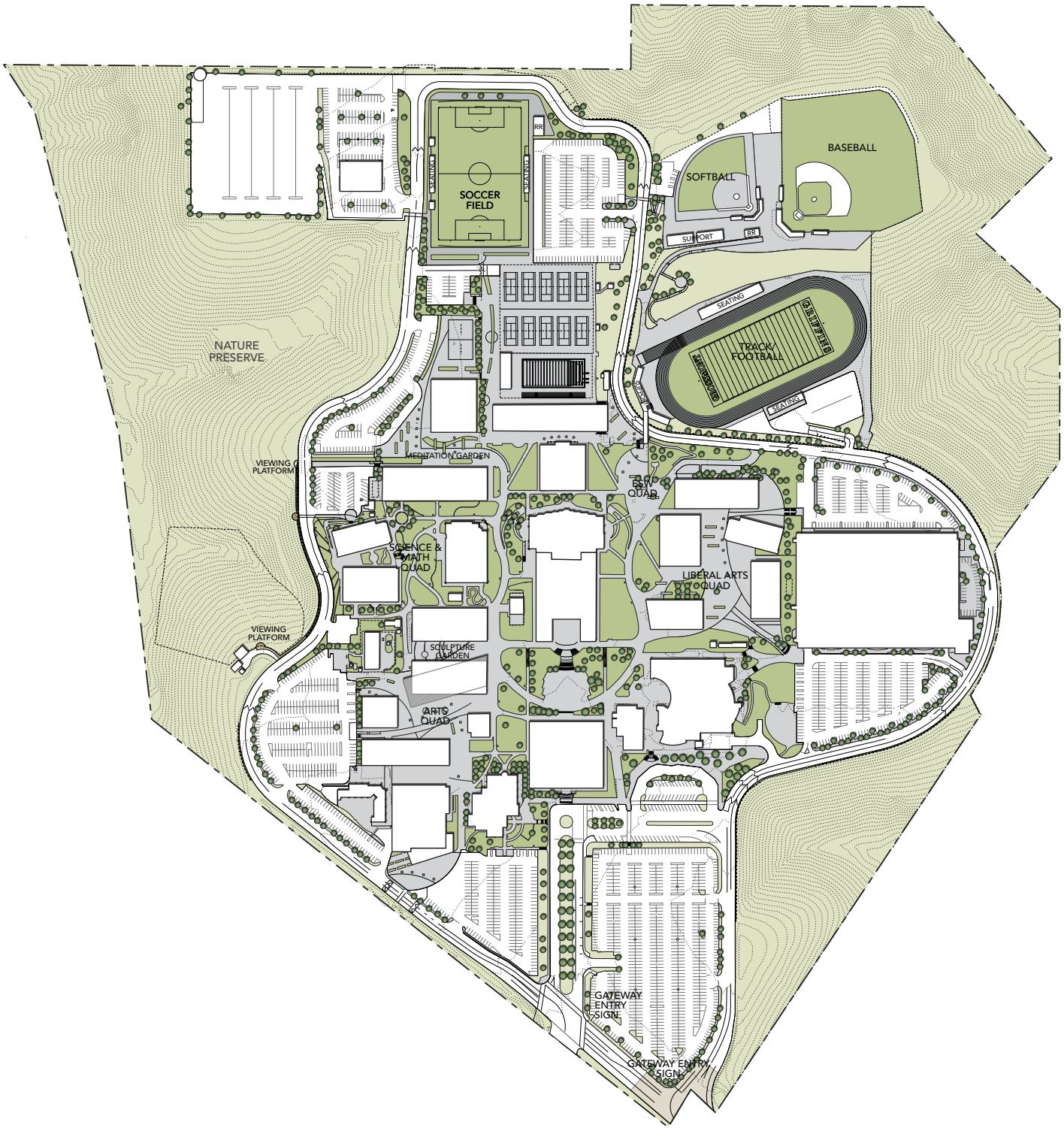
Pool Improvements

See *Recommendations - Exercise Science + Wellness* for more information.

Site Improvement Projects:

- Road + Parking Improvements
- Additional Parking
- Gateway Entry Signs
- Water Conservation, Hardscape + Landscape Improvements
- Modernize Permanent Seating + Site Improvements for ESW/Athletics
- Pool Improvements
- Safety + Stabilization of the Nature Preserve

RECOMMENDED SITE IMPROVEMENTS



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Recommendations - Site Improvements

VEHICULAR CIRCULATION + PARKING

The vehicular circulation recommendations focus on enlarging the area of the campus core, improving safety, strengthening the gateways into the campus from parking areas and passenger loading zones, providing accessible parking to serve all campus facilities, and planning for future parking needs. Further study is recommended to identify options to address the limitations on the vehicular flow into and out of campus, due to the lack of separation between the campus entry points.

The existing main vehicular circulation route is the Perimeter Road, which defines the core campus area. The re-routing of the northern part of the road to encompass the area currently occupied by the District Offices and the college maintenance facilities will provide space for a soccer field near the campus core. A driveway will provide access to the new college maintenance facilities, moving the traffic associated with these facilities away from the Perimeter Road and opening up the view of the arroyo to the north. Bioswales will be constructed along the new and existing sections of the Perimeter Road to prevent erosion along the sides of the arroyos. A permeable walking path that is separated from vehicular traffic will be provided where space is available. The intersections at driveways to parking lots will be improved for better visibility. The turnout from the bus stop will be widened to accommodate the turning radius of buses.

Parking lots will be reconfigured for improved efficiency and parking capacity. The removal of temporary facilities will clear space for new pedestrian gateways from parking lots. New passenger loading zones will be provided in all quadrants of the campus, including the new Theater Plaza and the new Main Gymnasium Plaza. Accessible parking will be provided next to the stadium and the softball fields.

Additional parking is recommended to replace the parking that will be repurposed for other uses and to configure it for more efficient use of land in the campus core. The tennis court site provides the college with the option to build a parking structure in this area when needed. New tennis courts would be rebuilt on the top deck and the structure would be ideally located to support the adjacent instructional buildings, the Main Gym, Pool, and the Exercise Science and Wellness (ESW) outdoor fields.

Road + Parking Improvements

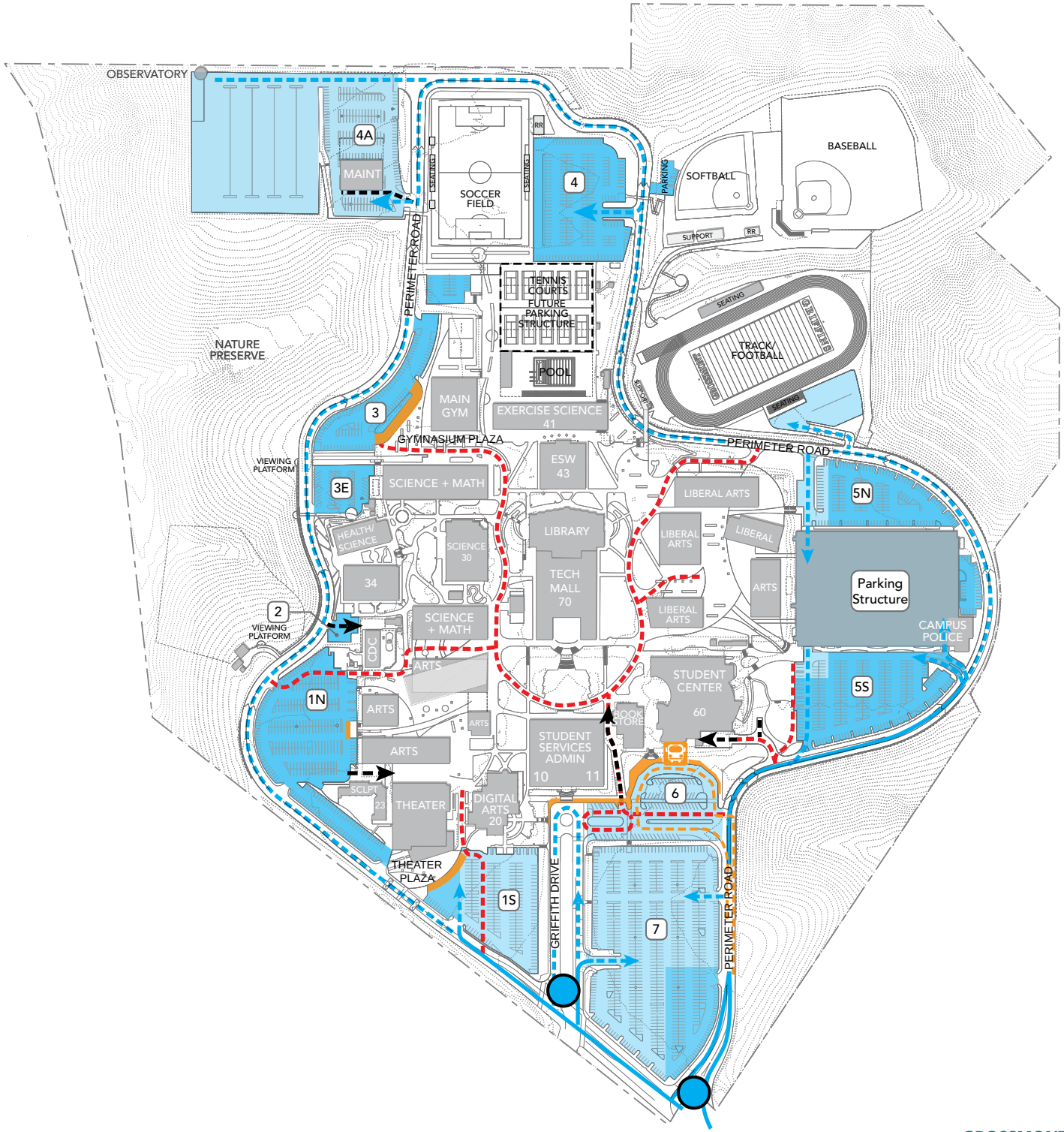
These projects will improve circulation flow and safety along the Perimeter Road, focusing on entrances to parking lots and the bus stop and pedestrian crossings. In addition, it will:

- Expand the campus core by relocating the Perimeter Road to the northern edge of the campus to provide a site for the new soccer field.
- Provide vehicular access and accessible parking at field level to serve the stadium, baseball, and softball fields.
- Integrate sustainability strategies to support alternative transportation, reduce energy and water use, reduce heat islands, and preserve water quality.
- Add to the existing system of bioswales alongside the Perimeter Road and parking lots edges near the arroyos.
- Provide pedestrian walks alongside the Perimeter Road.

Additional Parking

A parking structure is recommended at the location of the existing tennis facility, which will be replaced with courts on the upper deck of the structure. The structure will be built with vehicular access at two levels — from both the east side and the west side of the Perimeter Road.

RECOMMENDED VEHICULAR CIRCULATION + PARKING



- CAMPUS ENTRY
- 4 PARKING LOT
- PASSENGER LOADING ZONE
- PRIMARY VEHICULAR ROUTE
- SECONDARY VEHICULAR ROUTE
- EMERGENCY ACCESS
- SERVICE ACCESS
- BUS ROUTE
- BUS STOP

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Recommendations - Site Improvements

HABITAT PRESERVATION + RESTORATION

Habitat preservation is an important component of site sustainability. The proximity of Grossmont College to a regionally significant habitat preserve magnifies the benefit of implementing sustainable management practices. Future campus development projects shall maintain biological diversity, preserve continuous/connected habitat areas, and mitigate habitat fragmentation from development, pollution, invasive species, erosion, and encroachment. Since the boundaries of the Grossmont College campus directly influence the Mission Trails Regional Park areas, extra care should be taken to eliminate the use of invasive or potentially aggressive non-native species in any campus landscaped area. Extending native planting, for example, onto green roofs may be one way of continuing habitat throughout the campus core, providing additional habitat for birds and beneficial insects.

The recommendations for wildlife habitat preservation and restoration encourage the planning of future campus projects to avoid encroachment and fragmentation of existing natural areas and habitats. Designers of facilities and site improvements should also be mindful of seizing opportunities to restore the natural site ecology and wildlife habitat throughout the campus by using sustainable landscape strategies. Additional information is provided in the *GCCCD Chapter, Sustainability Recommendations for Habitat Restoration.*

Safety + Stabilization of the Nature Preserve

The arroyo area within the western boundary of the campus has been preserved by the college and managed as natural habitat. The development of this area to support its use as an educational resource has been a long-standing desire within the college. The recommendations focus on providing safe access to the preserve. A safe crossing at the Perimeter Road, with pedestrian-controlled signaling, will minimize conflicts with vehicular traffic. The crossing point will be at a well-used pedestrian route from the campus core and the Child Development Center and where it will be clearly visible to drivers. A stabilized and accessible path that is separated from the Perimeter Road will connect a series of observation areas along the rim of the arroyo where small classes and groups can gather. Interpretive signage will be provided and connections to existing trails will be considered.


NATURE PRESERVE
VIEWING PLATFORM
VIEWING PLATFORM
SOCCER FIELD
BASEBALL
SOFTBALL
TRACK/ FOOTBALL
SCIENCE & MATH QUAD
LIBERAL ARTS QUAD
ARTS QUAD
GATEWAY ENTRY SIGN
Nature Preserve
Sustainable Landscaping

Recommendations

SUSTAINABILITY

Energy Use + Renewables

To achieve a recommended goal of 35% energy efficiency for new buildings, and to optimize energy performance in existing buildings, the following recommended strategies are provided for consideration.

Natural Ventilation

Natural ventilation combined with operable windows is an effective way of making use of the abundant cooling breezes to allow building occupants to rely less on mechanical cooling systems. This strategy can be combined with HVAC interlocks, which, through the use of a sensor, ensure that when a window or door is propped open, the mechanical heating and cooling is shut off. This will result in increased occupancy comfort and reduced energy consumption.

Building Insulation

Building insulation is recommended for all new construction via the use of high performance insulated glass units (SHGC of 0.27 and visible transmittance of 63%) and superior building envelope insulation (R30 roof, R21 walls). These strategies could also be effective if incorporated in the scope of building renovations.

Thermal Mass and Solar Shading

Using thermal mass building materials such as concrete masonry units (CMU) or high density concrete, can block out the sun, absorb solar radiation progressively over the course of the day, and then emit the heat back into spaces when the warmth is needed. By allowing the sun to penetrate glazing and then warm the interior floor slab of spaces for example, the thermal mass of the floor will be able to absorb the warmth of the sun and then radiate it back into the interior.

Daylight Harvesting

Daylight harvesting via the use of skylights and Solatubes is an efficient and effective way of providing natural light, which reduces reliance on electrical lighting.

Occupancy Sensors and Photosensors

Occupancy sensors and photosensors for lighting ensure that electrical lighting systems are consistently turned off. These are already incorporated in existing buildings, and are recommended for all new construction.

LED Site Lighting

It is recommended that all street, parking, and walkway lighting be replaced with wind and/or solar-powered LED fixtures.

Shade Trees

Shade Trees provide relief from the sun, and also prevent overheating of the campus hardscape, thereby reducing heat island effect.

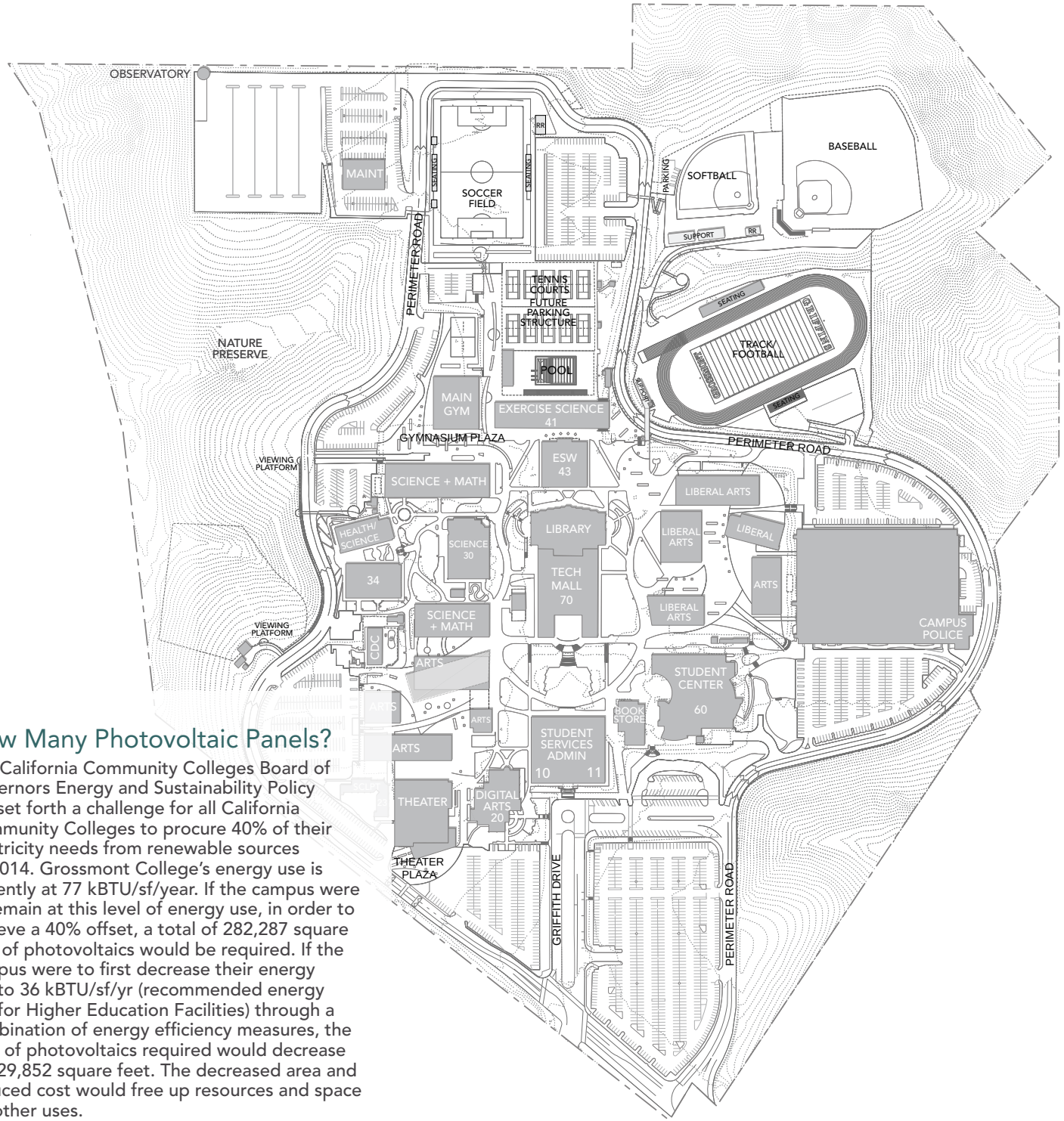
Photovoltaic Panels

Photovoltaic panels located on the top of the Parking Structure and in the south parking lot will provide the campus with reliable sources of renewable energy, and will be able to greatly offset the energy use of the campus. This strategy is recommended as an enhancement to energy conservation methods described above.

Solar Hot Water

Provide solar domestic hot water at the Gym, Exercise Science and the Student Services Buildings is highly recommended for efficient heating of water for food services and showers.

Representatives from Grossmont College participated in a group exercise at Sustainability Workshop 2. They placed blue sticky-notes, which represent 129,852 square feet at the map's scale, on the locations where they preferred to place photovoltaic modules. The orange sticky-notes are placed on secondary locations. Together the blue and orange sticky-notes represent 282,287 square feet of photovoltaic modules. For the significance of these areas, see page 3.61.



How Many Photovoltaic Panels?

The California Community Colleges Board of Governors Energy and Sustainability Policy has set forth a challenge for all California Community Colleges to procure 40% of their electricity needs from renewable sources by 2014. Grossmont College's energy use is currently at 77 kBTU/sf/year. If the campus were to remain at this level of energy use, in order to achieve a 40% offset, a total of 282,287 square feet of photovoltaics would be required. If the campus were to first decrease their energy use to 36 kBTU/sf/yr (recommended energy use for Higher Education Facilities) through a combination of energy efficiency measures, the area of photovoltaics required would decrease to 129,852 square feet. The decreased area and reduced cost would free up resources and space for other uses.

RECOMMENDED PV AREA

AREA OF PHOTOVOLTAICS REQUIRED: 282,287 SQUARE FEET

40% OFFSET WITH PVs AT CURRENT USE
(77 kBTU/ SQUARE FT./ YEAR)

AREA OF PHOTOVOLTAICS REQUIRED: 129,852 SQUARE FEET

40% OFFSET WITH PVs AT ENERGY STAR USE
(36 kBTU/ SQUARE FT./ YEAR)

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Recommendations

SUSTAINABILITY (CONTINUED)

Water Use + Reuse (Site + Buildings)

Efficient use of water resources both in the buildings and within the site will result in dramatic water savings for the campus. Multiple strategies can be used to reduce potable water use for all new landscaping, new facilities, and renovation projects. Where possible, demonstrate water efficiency efforts to educate staff, students, and the community. Since utility supplied recycled water is currently not available, a combination of reduced water use and onsite water recycling is recommended. All new projects shall be designed in accordance with the college's standard for irrigation equipment and details, which have been proven to both lower maintenance needs and reduce site water use.

Planting Design

Planting design, when possible, shall adhere to the college's standard plant list, as recommended plant varieties have been previously tested and proven in the landscape by the grounds staff. California native plant varieties, low-water use Mediterranean or succulent plants are preferred. All plants shall be grouped appropriately into hydrozones, by plant community, or according to Water Use Classifications of Landscape Species (WUCOLS) water use. Only climate-appropriate, low-water use turf varieties shall be used. Limit turf to places where it is needed and used. All planting areas shall be mulched with bark or rock mulch to reduce water loss through evaporation. Massing plants, providing the appropriate setbacks from hardscape, and limiting "fussy" planting eases maintenance needs and reduces waste.

Irrigation

Connect all new irrigation systems to the main CalSense system for continued campuswide monitoring. Continue the use of weather station data to adjust irrigation levels. Use campus-approved irrigation equipment and standard details. Spray irrigation is preferred for equipment visibility and lower maintenance needs. When necessary, utilize a subsurface drip system, which is less susceptible to damage by animals or prone to typical maintenance issues. Plants shall be grouped according to hydrozones for more efficient irrigation system design. All new irrigation equipment, heads, and piping shall be reclaimed-ready for future connection to recycled water when available.

Recycled Water

In combination with the CalSense irrigation system, recycled water shall be considered for all new landscape areas. In San Diego, rainwater is not a reliable source for large-scale water harvesting. Rainwater should be directed to planting areas and bioswales to infiltrate naturally. A potential future option for the Grossmont College campus is the use of municipally-treated recycled water. Until that time, campus gray water recycling from building processes (air-handler condensate, cooling tower water blow down, swimming pool filter backwash) may be used for landscape irrigation. Ensure planting varieties can tolerate the higher salt content typical of recycled water.

Rainwater Harvesting

Modestly-scaled rainwater harvesting can be an effective, albeit seasonal, way to provide water to localized vegetated areas, while providing a valuable sustainable education component, such as near the Child Development Center. The water capturing devices can be retrofitted onto existing buildings, near the downspout of roof drains, and can either blend into the surroundings or be designed as purposeful icons of sustainability.

Efficient Building Plumbing Fixtures

New buildings should include water fixtures to provide, at a minimum, 40% below the Energy Policy Act water usage baseline at the time of construction. A 40% water savings can be maintained and exceeded through the use of 1.28 gallon per flush (gpf) water closets, 0.125 gpf urinals, 0.5 gallon per minute (gpm) lavatories that operate on a 10 second metered cycle, 1.0 gpm sinks, and 1.5 gpm shower heads. Both campuses have phased out most older plumbing fixtures. Any remaining older plumbing fixtures should be replaced with new, low-flow fixtures as well.

RECOMMENDED SUSTAINABILITY STRATEGIES

- NATURAL VENTILATION
- HVAC INTERLOCKS
- BUILDING INSULATION
- THERMAL MASS
- DAYLIGHT HARVESTING
- LIGHTING PHOTOSENSORS AND OCCUPANCY SENSORS
- LED SITE LIGHTING
- SHADE TREES
- SOLAR HOT WATER
- PHOTOVOLTAICS
- EFFICIENT BUILDING WATER FIXTURES
- DRIP IRRIGATION
- CONDENSATE RECOVERY
- RAINWATER HARVESTING
- NATIVE/ADAPTIVE VEGETATION
- PRESERVATION
- BIOSWALE
- PERVIOUS PAVING
- COMPOSTING
- RECYCLING CENTER
- HYBRID VEHICLE PARKING OR CHARGING STATIONS
- SUSTAINABLE EDCUATION

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Recommendations

SUSTAINABILITY (CONTINUED)

Storm Water Management

Storm water management is regulated by the California State Water Board and the EPA, and must be responsibly managed for each new project. All storm water must be managed onsite and filtered properly before leaving the campus. The Grossmont College campus storm water infrastructure currently channels water to the exterior edges of campus where the water is released. Slowing and infiltrating this storm water naturally through vegetated channels is an ideal way to reduce erosion and downstream pollution and utilize a precious resource. To increase onsite storm water detention, it is recommended to increase the number and capacity of vegetated bioswales, and restore natural drainage patterns. Where pollutants from sports fields, loading docks, and parking areas are an issue, additional physical filtration devices may be used to remove heavy metals, fertilizers and/or chemicals.

Bioswales

Vegetated swales are already incorporated into a few areas of the campus, but additional swales are needed at parking areas and around new buildings. Swales should be planted with appropriate plant material, non-invasive California native riparian type species only. Deliberate use of boulders and rocks are encouraged to slow water and prevent bank and channel bed erosion. Overflow drains/catch basins located in bioswales and retention basins should be raised above finished grade to allow small amount of water to infiltrate naturally before overflow is discharged to the storm drainage system.

Greenroofs

Green roofs should be considered for new buildings to increase functionality. The soil and vegetation layers help absorb rainfall and therefore reduce storm water runoff, along with other inherent environmental benefits such as additional thermal insulation. All green roofs will incorporate an irrigation system, utilizing a non-potable source such as recycled water or harvested rain water.

Porous Pavement

Permeable hardscape alternatives should be used where underground storage and reuse for landscape irrigation is feasible and soil conditions allow. Permeable pavers, porous concrete, porous asphalt, grasscrete/turf block are recommended for parking stalls, fire lanes, pedestrian walkways and plazas. High albedo permeable or open-grid hardscape surfaces are preferred to reduce the heat island effect, but with Grossmont's compacted soils, adequate infiltration may be an issue. Geotechnical reports for new construction projects shall include detailed information regarding the potential for storm water infiltration.

Flush Curbs

Although the infiltration capacity of the soils on the Grossmont College campus is limited, the appropriate use of flush or zero-face curbs in planting areas will help to reduce the peak flow of runoff. Allowing storm water to enter planting areas, parking islands, tree cutouts, or lawn areas can help to reduce flow velocities. The planting areas can also reduce sediments and attached pollutants before they enter the storm water conveyance system or overflow into the surrounding natural areas.

Waste

Composting

Composting areas located near food services within the Student Center will provide a means of diverting food waste from landfills, as well as a means of reusing refuse on-site as amendments for campus vegetation.

Recycling

Relocation and expansion of the recycling center near the proposed Maintenance and Operations buildings will provide the campus with a dedicated area for the collection and sorting of recyclable materials. The recycling center activities can be coordinated with local hauling agencies to maximize construction waste management and daily waste collection.

Transportation

Hybrid vehicle charging stations and parking spaces located closest to campus buildings encourage students, staff and faculty to consider more ecologically aware modes of transportation.

Education

Sustainable education can be provided throughout the campus by highlighting the green building and site strategies used. Sustainable signage at the Child Development Center will serve as an educational component for early education students. Sustainable signage near the high traffic zone of the Student Center and the Library will encourage students to stop and learn more about incorporating sustainability in their routines.

DISTRICT SERVICES

DISTRICT SERVICES

2013

FACILITIES MASTER PLAN

DISTRICT SERVICES

LETTER FROM THE VICE CHANCELLOR

District Services is made up of more than 100 dedicated employees who serve our students with an array of essential activities, such as disbursing financial aid, providing tuition payment plans, and managing purchasing and payroll processing for all District and college functions. In addition, District Services provides the administrative technology, facilities planning, human resources, police, and research functions that support the entire district.

All of these employees are part of the critical district infrastructure that enables our colleges to be equipped, safe and compliant, and ready to provide great educational services to our students. Day by day, District Services employees live our vision of providing leadership that enables and supports educational excellence.

Many of the District Services employees work out of two temporary office buildings more than 30 years old that are located on the north end of the Grossmont College campus. In addition, a World War II-era Quonset hut houses the district warehouse. The temporary facilities have aged well beyond their useful lives, are costly to maintain, and have cramped and inadequate working areas.

The District Public Safety Department was pleased to relocate its headquarters in the new Grossmont College parking structure as part of the improvements funded by the District's 2002 Proposition R bond. The rest of the District Services team looks forward to improved facilities as envisioned in this plan.
The Facilities Master Plan recommends a new District office building to house District Services employees that will also offer improved technology and a space for large meetings that would accommodate district and community events. The new building would provide space to support the initiatives of the district's Educational Master Plan, including facilities and technologies needed for the environmentally sustainable operation of all District sites.

Members of the District Services team are proud to be part of the planning process for the Facilities Master Plan. We hope that this entire plan will enable the District to offer students the opportunity to build a bright and rewarding future as a result of the education they obtained at Grossmont and Cuyamaca colleges.

SUE REARIC
VICE
CHANCELLOR
BUSINESS
SERVICES

VISION

Leadership That Enables and Supports Educational Excellence

MISSION

To provide leadership, facilitation, and support of districtwide educational, fiscal, facilities, and human resource services that meet student, college, and community needs.

LEADERSHIP + SERVICES

GCCCD District Services consists of:

Advancement and Communications Office

- Communications and Governing Board Office
- Foundation for Grossmont and Cuyamaca Colleges
- GCCCD Auxilliary

Business and Administrative Services Division:

- Accounting
- Budget and Administrative Services
- Payroll
- Purchasing and Contracts
- Warehouse

Facilities and Public Safety Division:

- Districtwide Maintenance
- District Police and Parking Services
- Facilities Planning and Development

Human Resources Division:

- Employee and Labor Relations
- Employment and Benefit Services
- Safety and Insurance Services

Technology, Research, and Planning Division:

- Information Systems
- Research, Planning and Institutional Effectiveness

District Services

EXISTING CONDITIONS

GCCCD District Services provide districtwide leadership and support through its operational divisions. In addition, the District Offices house the Chancellor and the Governing Board offices. Its indoor facilities include office, warehouse, and data center space; supported by outdoor facilities include receiving and loading yards, equipment yards, and maintenance yards.

District Services has a presence on both the Grossmont and Cuyamaca College campuses. Public Safety offices are housed in Parking Structure Building 56 at Grossmont College and the One-Stop Center A at Cuyamaca College. Part of Warehouse J at Cuyamaca College is also used by District Services. Currently the main District Services office facilities, including the data center and warehouse that serve both colleges, are located in temporary buildings on the Grossmont College campus, which have served this purpose for more than 30 years. These facilities are located at the northern edge of the campus, primarily in temporary buildings clustered with the college maintenance facilities and occupying portions of parking lots 4 and 4A.

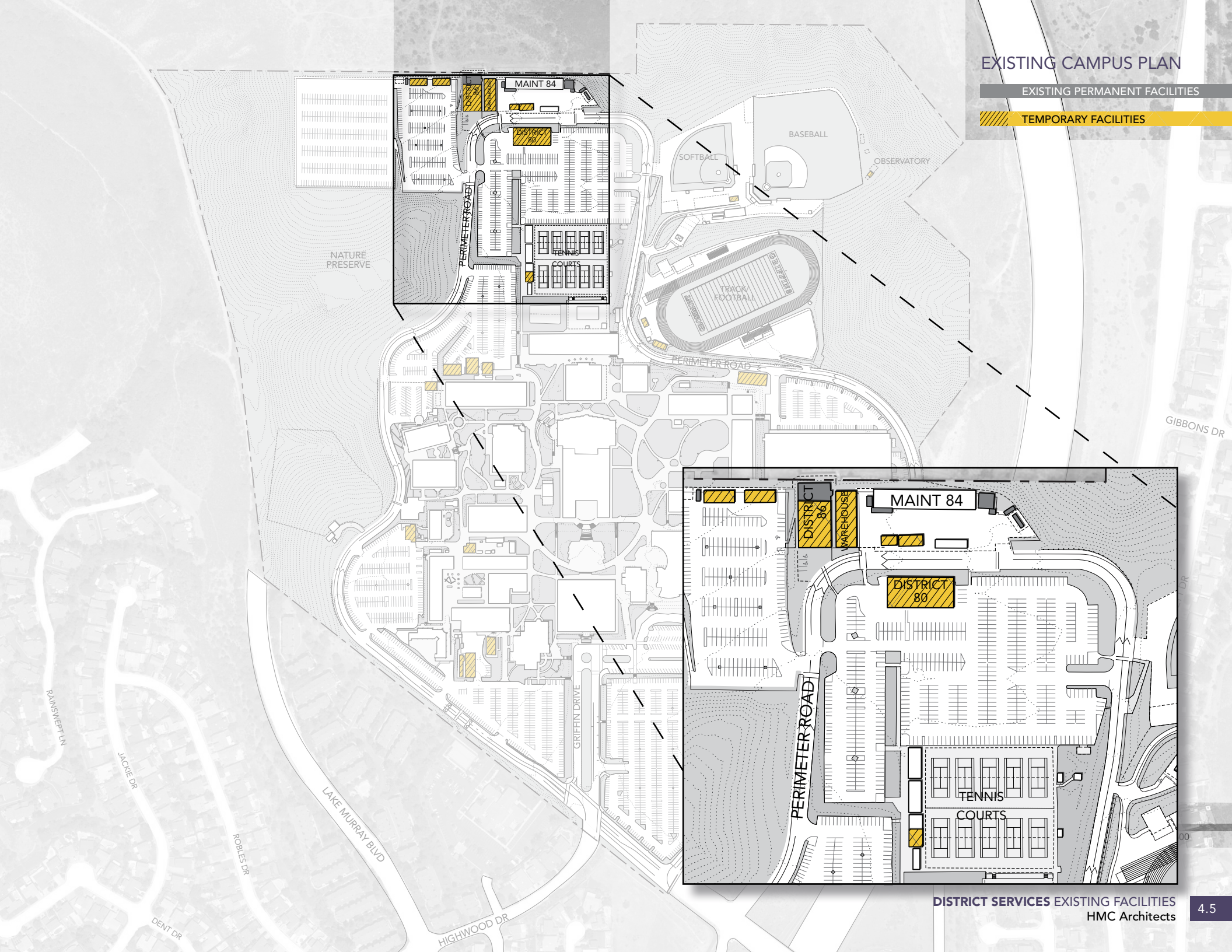
Observations

- The District Offices are difficult to locate and not clearly identified from the entrance to the Grossmont College campus. The site entry signs (freeway signs and road signs) highlight Grossmont College and do not reference that this is the location of the GCCCD District Offices, which serve Grossmont College, Cuyamaca College, and the community..
- The District Chancellor, Governing Board office and all of District Services are currently located at the back of the Grossmont College campus and in several other small locations within the college sites. These functions are difficult to find and there is no clear signage to assist in wayfinding.
- There is currently no marquee or other signage that distinguishes this site as the system office for GCCCD and both colleges.
- The District Services offices consist of mostly temporary buildings that are more than 30 years old that are in poor condition and require considerable expense and effort to maintain.
- Most of the District Services divisions that routinely work together are housed among several buildings separated by roads and parking lots.
- The presence of these facilities in Parking Lots 4 and 4A increases vehicular and pedestrian traffic and takes parking stalls out of service for Grossmont College.
- Trucks delivering to the warehouse often maneuver and block traffic on the Perimeter Road at Grossmont College.

EXISTING CAMPUS PLAN

EXISTING PERMANENT FACILITIES

TEMPORARY FACILITIES



DISTRICT SERVICES EXISTING FACILITIES
HMC Architects

District Services

SUMMARY OF FINDINGS + RECOMMENDATIONS

Summary of Findings

Demolition + Removals

The majority of existing District Services offices are housed in temporary facilities on the Grossmont College campus. These temporary facilities have aged well beyond their useful lives, are costly to maintain, and exhibit many problems. The removal of these facilities is recommended and the area that they occupy will provide space to be repurposed in accordance with the priorities of Grossmont College.

New Location for District Services Functions

A new location for the District Services offices is recommended to provide meeting space for district and community use and permanent workspace for District Services employees. These facilities will include office space for operational divisions, the main data center that serves Grossmont and Cuyamaca Colleges, multipurpose and meeting space, warehouse and receiving, workshops, and work yards.

Recommendations

Relocation of district offices and functions currently located in aged temporary facilities on the Grossmont College campus is recommended. One permanent location that co-locates these functions is desirable in order to support collaboration and improve operational efficiencies. A permanent facility will provide the infrastructure and technologies needed to support the initiatives that are identified in the GCCCD Educational Master Plan, including the environmentally sustainable operation of all district sites.

Options for locating these functions are under consideration and will be explored further following the adoption of this 2013 Facilities Master Plan. The three options include the following:

- Develop replacement facilities in the current location of the soccer field/temporary parking on the Grossmont College campus
- Repurpose the Building A Complex on the Cuyamaca College campus
- Purchase or lease of off-site property

The move to a new or renovated facility provides the opportunity to reconsider ways that services are provided, to re-engineer processes and to explore innovative thinking. Key to the shift includes the development of a welcoming, professional environment that focuses on customer service. The environment should be logical and intuitive and support collaboration between functions. Also important is the development of a space that supports the balance between customer service and confidentiality. This can be done by providing a variety of appropriate work environments with appropriate acoustical and visual separations.

The functions to be included in the project are listed in groups, according to a preliminary discussion of potential adjacencies:

Accounting
Purchasing + Contracts
Budget + Administrative Services
Facilities Planning + Development

Payroll
Employee + Labor Relations
Employment + Benefit Services
Safety + Insurance Services

Information Systems
Research, Planning + Institutional Effectiveness

Business Center

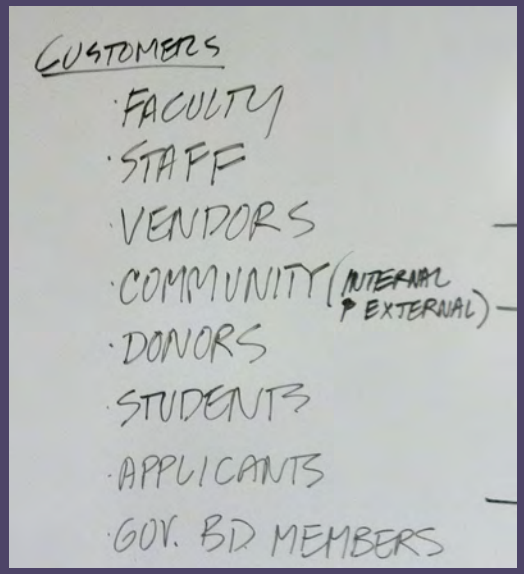
Staff Support

Meeting/Conference Rooms
- Large
- Small

Advancement + Communications
Foundation
Chancellor + Governing Board
Auxillary

Multipurpose Room
- Board Meetings
- Community Meetings

Districtwide Maintenance
Warehouse



The District Services Leadership Council met to brainstorm ideas related to vision, goals and big ideas shown on this page.

01 Open + Inviting

02 Customer Focused

03 Collaborative + Efficient

04 Positive First Impression

05 Flexible

06 Innovative

HMC Architects