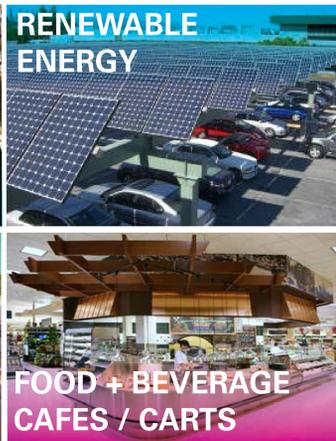
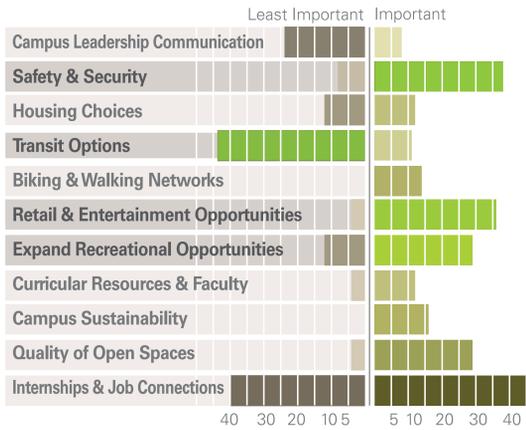




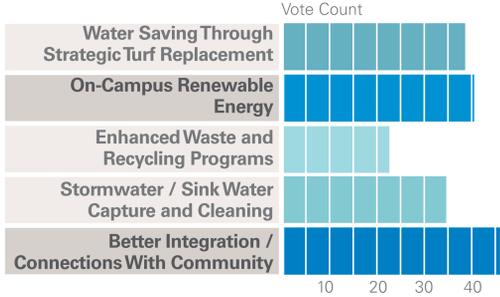
WHAT WE'VE LEARNED

Every successful plan begins with collaboration and listening. In addition to accommodating the growth of academic programs, the results below show that the plan must prescribe a healthy and enriching campus life.

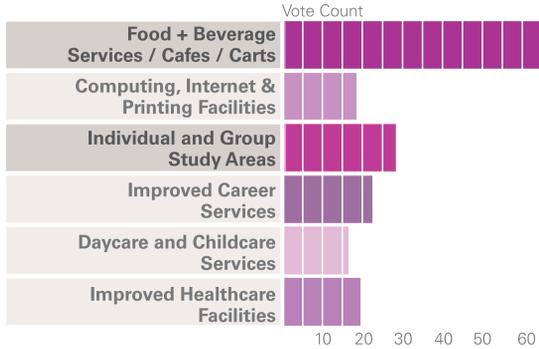
WHAT ARE THE MAJOR ISSUES AFFECTING YOU ON CAMPUS?



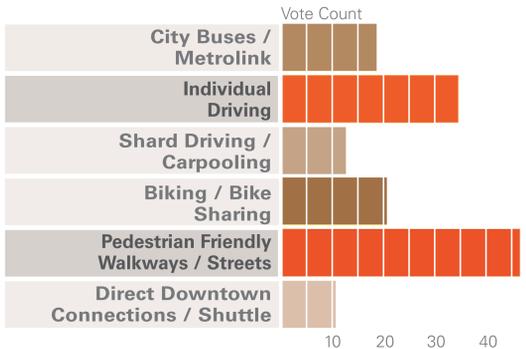
HOW SUSTAINABLE DO YOU WANT YOUR CAMPUS TO BE?



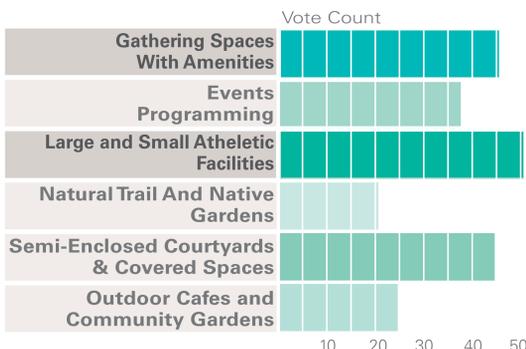
WHAT ON-CAMPUS SERVICES AND FACILITIES NEED TO BE UPGRADED?



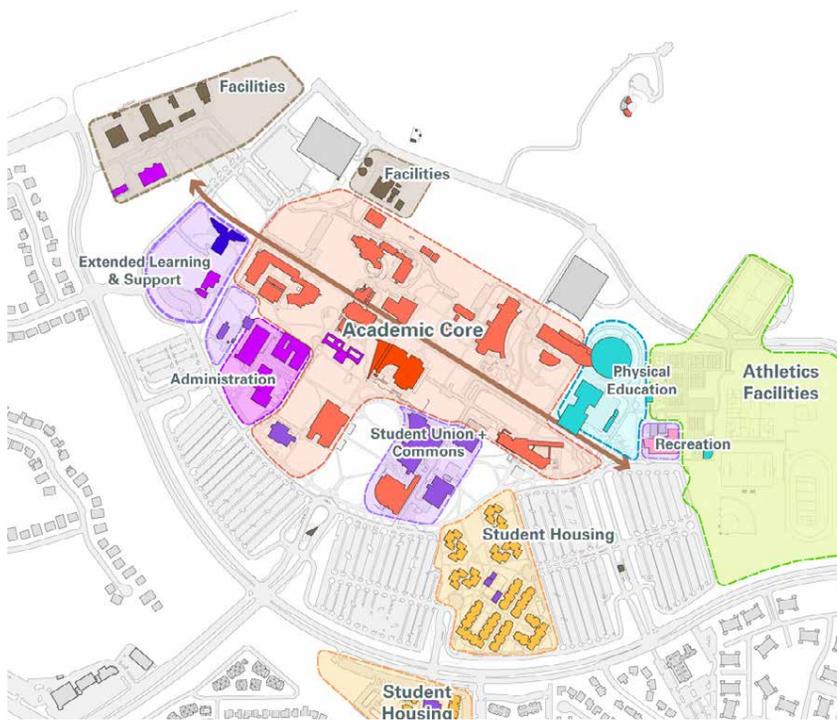
WHAT MODES OF TRANSPORTATION TO AND FROM CAMPUS WOULD YOU PREFER?



HOW WOULD YOU UPGRADE THE OPEN SPACES ON CAMPUS?



LET'S START WITH WHAT WE HAVE:



FUNCTIONAL AREAS + FACILITIES:

Existing campus facilities and land uses are effectively organized into functional precincts – general areas of similar use. In crafting this Master Plan we must decide how we might build upon, or modify, this current configuration to meet future needs.



BUILDING CONDITION + YEAR:

The oldest buildings such as the campus administration and physical education buildings are likely to be replaced first. Other buildings have performed so well that they will only need upgrades, to ensure that they are meeting our needs.

KEEP THE CONVERSATION GOING

MASTER PLAN WEBSITE



PROJECT TWITTER



PROJECT DOCUMENTS





FUTURE GROWTH

The most important step in planning this University's future development is measuring the impact of increasing demand on existing spaces, and quantifying additional growth based on planned enrollment. Research evidences tremendous demand that will require us to pioneer innovative strategies to efficiently fund and organize continued growth to accommodate this need.

ENROLLMENT GROWTH SCENARIOS

Before estimating the long term space need of 25,000 full-time equivalent students, it is essential to ascertain how soon that full demand will impact planned facilities to strategize how those buildings should be funded, located, configured and utilized.

HOW SOON WILL WE GET THERE?

This chart depicts a range of enrollment rate scenarios based on a range of observed factors. Our research shows that there are fundamental factors driving potential future enrollment increases for CSUSB.

These regional factors include:

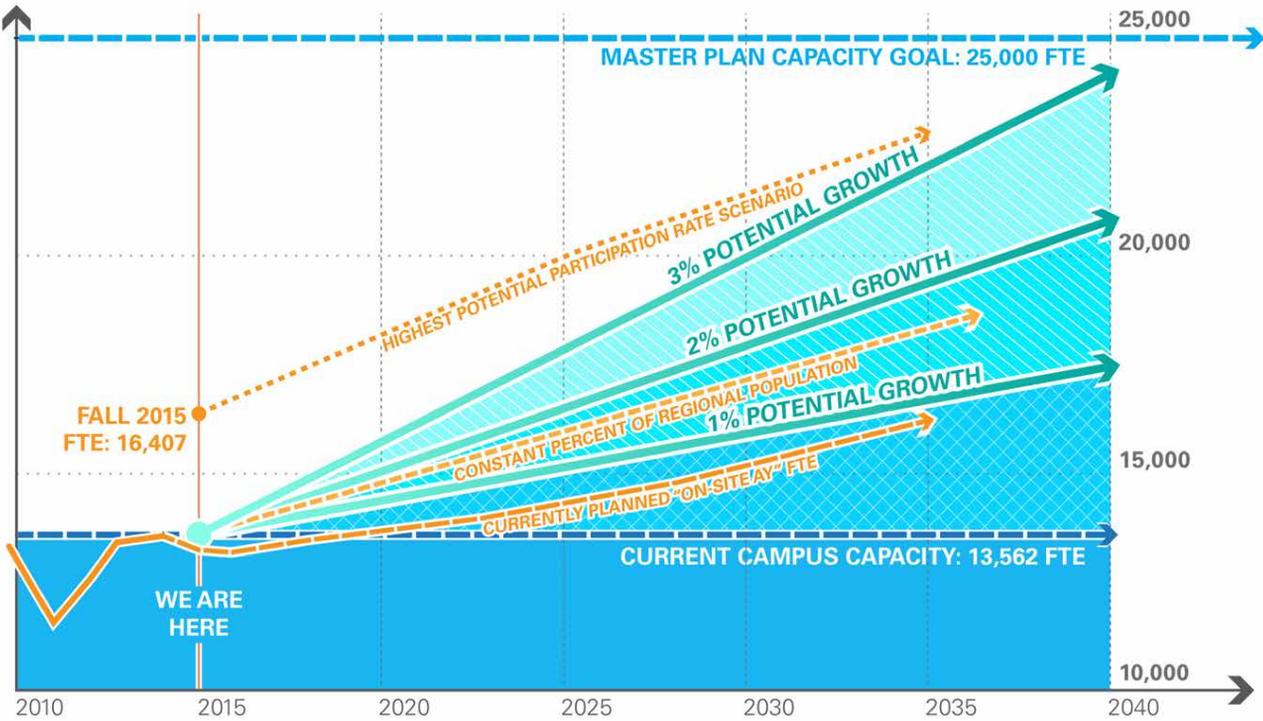
- Continued trends regional population growth
- Consistent college-going rates among high school graduates
- Increasing enrollments of international students

The lower end of projected student growth is estimated by the CSU Chancellor's Office based the growth in overall year round attendance. The higher estimate is based upon California Department of Finance population projections for surrounding counties coupled with increasing college attendance rates.

LONG TERM SPACE NEED

The estimated future space needs below, for a campus of 25,000 full-time equivalent students, are based upon formulas developed by the CSU Chancellor's Office. However, to plan for instructional space needs more characteristic of the averages for CSU campuses, an additional space-planning factor has been added to the estimate for additional space anticipated in the CSUSB Master Plan. The results are clear; for any planned rate of growth in enrollment, this CSU campus master plan will need to offer creative means to developing new building formats that still constitute a leading institution.

THREE ENROLLMENT GROWTH SCENARIOS:



LONG TERM SPACE NEED ESTIMATE:

Major Campus Space Categories	Gross Square Feet
Instructional Spaces (Classrooms, Labs, Instructional Spaces, Faculty Offices)	600,000
Library & Collaborative	227,000
Physical Education	60,000
Student Support (Recreation and Union Centers)	217,000
Physical Plant	32,000
Other Spaces (Administration, Assembly, Exhibit space)	94,950
TOTAL:	1,230,950 GSF

*The figures above are subject to refinement pending continued detailed analysis and campus input; the final allocation of gross square footage among various use categories and departments will depend upon the refined final master plan. The estimate above does not include additional need for dining, on-campus housing, an important potential discovery park, and additional on-campus parking which are measured by different means.

HOW MUCH WOULD WE NEED TO ADD TO CAMPUS IN ORDER TO ACCOMMODATE A TOTAL 25,000 FTE STUDENTS?



ACADEMIC FACILITIES 600,000 SF =7.5 Visual Arts Centers Includes: • Classrooms, Labs, Instructional Activity Space, Faculty Offices	LIBRARY + COLLABORATION 227,000 SF =1.5 Original Pfau Libraries Includes: • Library Expansion • Meeting + Study Hall Spaces	STUDENT SUPPORT 217,000 SF =1.5 Student Centers, X2.0 Recreation Centers Includes: • Student Union Center • Recreation Center	PHYSICAL EDUCATION 60,000 SF =2.5 Physical Ed. Gymnasias Includes: • Replacement and Expansion of P.E. Gymnasium Facilities	ADMINISTRATION + ASSEMBLY 95,000 SF =1.0 University Hall, X3.0 CE105 Lecture Halls Includes: • Administration • Assembly + Exhibit Spaces	HOUSING + DINING 3,300 BEDS =5.0 Arrowhead Villages + 2 Dining Halls Includes: • Serrano Replacement • Housing Phases 1, 2, 3 • Two Dining Halls	ADDITIONAL DEVELOPMENT 174,000 SF =2.0 Tech Office Buildings Includes: • Discovery Park • Boutique Hotel • Childcare + Security	PARKING STRUCTURES 5,300 SPACES =4.0 Parking Structures (at 5 levels) Includes: • Stand-Alone Structures • Embedded Parking in or Adjacent to Buildings
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*Images and proposals are for illustrative purposes only. The description of campus growth in terms of existing buildings is for illustration of the scale of overall volume only, and would be distributed into a varying number of facilities based upon the final master plan.



ON-GOING PLANNING

There are currently a number of specific projects that are in various stages of planning and design for the CSUSB campus that are being incorporated into the overall campus master plan. The master plan consultants have been working with each of the project teams planning these projects to insure that they conform appropriately to the long range vision for the campus and that their proposed locations reinforce these goals.



PHASE 1 HOUSING

SCB Architects have been preparing a master plan for the ultimate addition of a net 3,300 new beds for student housing on campus. That master plan is being coordinated with the overall master plan currently in process, however a site has been selected for Phase 1 (400 beds) on parking lot E and is now in the architectural design phases with a projected date for the start of construction next year.



NEW DINING COMMONS

As part of the Phase 1 housing project, a new dining commons is also planned and a site location has been selected on parking lot E adjacent to the new student housing. This project, designed by SCB Architects, is also in the architectural design phases with a projected date for the start of construction next year in conjunction with the Phase 1 housing.



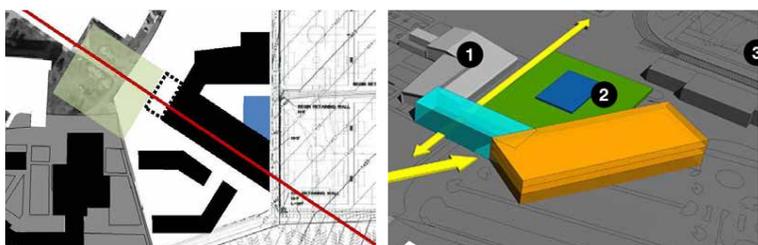
COLLEGE OF EXTENDED LEARNING EXPANSION

LPA Architects has recently completed a feasibility study for a new 19,200 gross square foot expansion for the College of Extended Learning which will allow the college to locate all of its administrative functions in one building and will include instructional space that will accommodate a significant portion of the courses offered by the college. The master plan team is evaluating the best location for this expansion and whether or not it could be expanded to include additional instructional space that could be leased back to the University to meet current campus-wide academic space shortages.



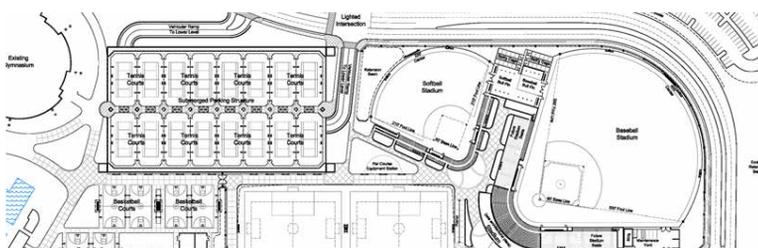
STUDENT UNION EXPANSION

The existing Student Union has been experiencing space shortages for some time, particularly in light of increasing enrollments, and has engaged LPA Architects to prepare a program and preliminary plan for expansion. The project will be subject to a successful student referendum to fund this expansion and will include additional student meeting rooms, food service, lounge areas and other related functions being determined by students and Student Union management.



STUDENT RECREATION AND WELLNESS CENTER EXPANSION

The existing Student Recreation Center has also been experiencing space shortages for some time, particularly in light of increasing enrollments, and interest in personal wellness. In light of this, the campus has engaged LPA Architects to prepare a program and preliminary plan for its expansion. The project will be subject to a successful student referendum to fund the expansion and will include additional exercise rooms, multi-purpose gymnasium type facilities a jogging track and other related functions being determined by students and Recreation Center management.



PLAYFIELDS MASTER PLAN

Currently the University's athletic playfields and outdoor recreation areas are woefully inadequate to the needs of a growing 4 year public University. The Athletics and Recreation Department has engaged Parsons/Brinkerhoff and ICG, Inc. (Landscape architects) to create a long term master plan for enhancement of these campus facilities. The plan will be accomplished in phases, but at full build out, it will include college level baseball and softball fields (with approximately 3250 and 840 seats respectively), soccer fields, expanded tennis courts, basketball courts and a football stadium (with approximately 6000 seats). This new plan has been incorporated into the preliminary master plans being presented at this forum.



NEW CAMPUS ENTRY

The University has recently installed new signage at the front entry and will be upgrading the landscape in the immediate area around this new signage as the 1st phase of an enhanced gateway plan. Additional phases will palm trees and landscaping to create an attractive entrance to the campus.



CSUSB PALM DESERT CAMPUS

As part of the overall master consultant team's responsibilities, a master plan will also be prepared for the Palm Desert campus. This process will be initiated in the next few weeks with the completion date scheduled for June, 2016.



TRANSPORTATION + PARKING

Supporting the master plan, related projects within stages of planning and design for the CSUSB campus address the importance of applying transportation alternatives towards campus growth and parking demands. Consultants collaborate with teams involved in related projects in order to ensure the long-range vision for the campus and its goals are implemented.

CHALLENGES IN IMPROVING CAMPUS MOBILITY



AVAILABLE PARKING
Direct access to parking areas is a vital component that would contribute to campus growth and a sense of campus community. As demand and supply for parking is a challenge, parking alternatives are heavily addressed in the Master Plan.

VEHICLE INTRUSION & CONFLICT
Vehicles on internal pathways endanger the safety of pedestrians and bicyclists. Improving internal circulation will minimize conflicts between vehicular traffic, bicyclists, and pedestrians. Providing engaging, safe, and shaded pathways will ensure continuous use.

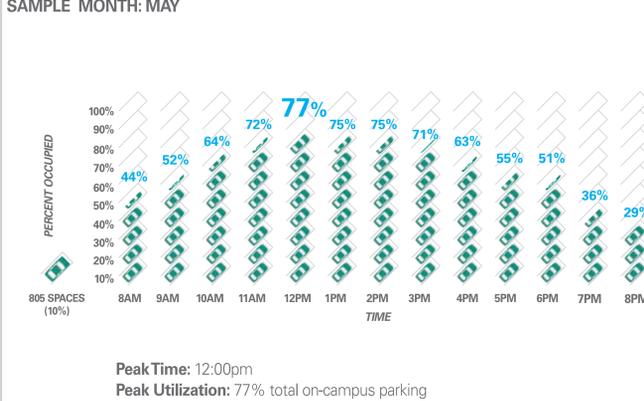
BICYCLE+ PEDESTRIAN EXPERIENCE
Addressing path of travel for bicyclists and pedestrians influence its usage, safety, and maintenance. Providing pathways that provide direct accessibility, shade, and protection from vehicular traffic will encourage walking and cycling to be the dominant mode across the campus.

USER INFORMATION
Strengthening transit connections will allow the campus to respond towards future development and increased ridership. Concise signage and demarcations will contribute to campus accessibility and mobility, and increase campus alternatives awareness among pedestrians.

CURRENT UTILIZATION



DAILY UTILIZATION



FUTURE DEMAND



8 INNOVATIVE IDEAS FOR CAMPUS MOBILITY

1 LIVE INFORMATION

- Campus center signage with transit and traffic updates and schedules.
- Search-able campus maps and indexes
- Safety and news alerts

2 CLEARER PATHS OF TRAVEL

- More established routes at campus edge
- Layered bike routes for pedestrian bypass
- Seating and study gardens along paths

3 CAR SHARING FOR RESIDENTS

- Partnerships with car sharing contractors
- On campus locations near residential halls to reduce number of residents bringing cars to housing villages

4 BIKE RACKS AND BIKE SHARES

- Bike racks at or near every building entrance
- Explore viability of a bike share program
- Bike lockers for students, faculty, and staff campus commuters

5 INTEGRATED PARKING SYSTEMS

- Live parking availability information and open parking stall indicators
- Online and app supported information
- Assigned and automated parking systems

6 CAMPUS/DOWNTOWN SHUTTLE

- Direct shuttle connection to the downtown csusb center and metrolink station
- Campus loop circulator to reduce auto use for cross campus movement on hot days

7 BUILDING-INTEGRATED PARKING

- Parking structures hidden behind wrap-around classroom and faculty facilities
- Parking behind adjacent single loaded corridor buildings

8 FASTER + DIRECT TRANSIT ROUTES

- Partner with city to explore feasibility and viability of a express sbx to the transit center
- Transit access improvements to student neighborhoods

*Images and proposals are for illustrative purposes only.



VISION + MISSION

The Master Plan vision and mission statements boldly declare a direction for this campus and are embodied by five essential principles aligned with the strategic goals of the University's Strategic Plan. These five Master Plan principles will be fulfilled by meeting twelve clear objectives which will establish this campus as a leader among the rest.

CAMPUS MASTER PLAN VISION + MISSION STATEMENTS

CAL STATE UNIVERSITY SAN BERNARDINO

Will become a global learning center of

OPPORTUNITY AND ENTERPRISE

For the Inland Empire and the Southern California Region.

As a healthy environment enabling diverse lives to grow and prosper the campus will provide a setting in which the intellectual and creative pursuits of the University and general community are *activated, sustainable, and interconnected.*

HOW WILL THIS PHYSICAL PLAN FULFILL THE 'STRATEGIC GOALS' OF THE UNIVERSITY STRATEGIC PLAN?

LEARNING	LEADERSHIP	LEVERAGE	LINKAGES	LIFE
<p>STUDENT SUCCESS The Master Plan will support the University to be an outstanding and inspirational academic institution that emphasizes community engagement and collaboration, shared discovery, and balances student life, arts, academics, and athletics. Through a focus on preparing students for resilient and prosperous lives, the University will take its place as a leader in ensuring a brighter future for the region.</p>	<p>FACULTY + STAFF SUCCESS The Master Plan will reinforce faculty and staff success, diversity, academic rigor, and applied research programs. Its implementation will be an exercise in effective and innovative governance and administration. Doing this with an eye toward regional purpose and global reach will further establish this University as a preeminent and recognized institution. University resources will further enable faculty and staff to deliver a high-caliber learning environment that will be the pride of the state.</p>	<p>RESOURCE SUSTAINABILITY + EXPANSION This campus will accommodate expected growth while becoming an inspiring exemplar and community hub for sustainable growth and resilient living. Achieving this through resource optimization means leveraging existing campus assets, strategic partnerships, and community relationships in addition to adding new facilities, technologies, and programs. The university will demonstrate how to optimistically meet future challenges with knowledge, efficiency, and collaboration.</p>	<p>COMMUNITY ENGAGEMENT+PARTNERSHIPS The Master Plan will support the growth of the University as an innovative regional economic engine, center for community interaction, and a source of diverse social engagement. Strengthening ties to alumni and groups will bolster long term University health while partnering with industries will open doors for more entrepreneurial and connected graduates.</p>	<p>IDENTITY The Master Plan will support the growth of the University as a recognized destination for intellectual and cultural activities, for an active campus life and for environmental stewardship. Increased housing opportunities and amenities that provide a desirable, healthy, and safe 24/7 campus lifestyle will create a community that belongs to students and can call the university a home away from home. Doing this will vastly enhance the University's identity and celebrate coyote spirit.</p>

TOWARD WHAT OBJECTIVES WILL THIS MASTER PLAN LEAD US?

<p>OBJECTIVE 1: Create learning communities to build fully supportive learning environments</p>	<p>OBJECTIVE 3: Support innovation and scholarship</p>	<p>OBJECTIVE 6: Instigate greater environmental resilience in the region</p>	<p>Form alliances that enhance university living and learning</p>	<p>Build a vital urban campus environment</p>
<p>OBJECTIVE 2: Embody a regional learning hub</p>	<p>OBJECTIVE 4: Attain a regionally and globally recognized institution</p>	<p>OBJECTIVE 5: Grow fundamentally sustainable and resilient</p>	<p>Accommodate productive entrepreneurial partnerships</p>	<p>Provide a safe haven</p>
		<p>Perform as an active community resource</p>		<p>Promote coyote spirit</p>



ACTIVE BUILDINGS

How do we configure land use + facilities to create a place to spend time, collaborate, study, and for diverse lives to grow? Thinking of the activated campus as a busy well-rounded community prepares a setting where all dimensions of dynamic and driven lives can grow in a convenient urban precinct. Each use can feature in its own facility, but is also often included in mixed-use building formats that optimize convenience and synergy in contemporary campus layouts.

OBJECTIVES MOST IMPACTED BY LAND USE + FACILITIES: 

CURRENT TRENDS IN THE PROGRAMMING OF A MORE ACTIVATED CAMPUS:

MIXED USE + SHARED ACADEMIC FACILITIES



NC&RT CLASSROOM BUILDING



CSUN SURGE BUILDING



CAFE USC ENGINEERING SCHOOL

We are recommending that near and long term instructional facilities flexibly support multiple departments and serve student needs with:

- Interdepartmental academic buildings
- Ground level serving students needs
- Integrated amenities and casual dining
- Student support and services near classrooms
- Gathering spaces/atria for studying and collaboration

GROUP + DIGITAL USES LIBRARY + COLLABORATION SPACES



DIGITAL STUDY + COLLABORATION AREA COLUMBIA U LIBRARY



CENTENNIAL LIBRARY STUDY AREA



U OF CHICAGO INNOVATION EXCHANGE



CENTENNIAL LIBRARY STUDY AND MEETING AREA

We are recommending that the library and future collaboration spaces focus on group learning and emphasize digital resources and include:

- Variety of digital media terminals and wifi settings
- More casual gathering and study spaces
- Dedicated stations for digital resources access
- Promote food/beverage offerings in conjunction with study spaces and the adjacent public realm
- Configure library around knowledge center model

MORE INVOLVED STUDENT SUPPORT



AUBURN UNIV WELLNESS CENTER



UCSB STUDENT SUPPORT CENTER



TEACHING + LEARNING COMMONS U OF IOWA



THE HUB COVENTRY UNIVERSITY

We are recommending that the student union and recreation centers support a broader range of student academic, social, and health needs with:

- Break out spaces for student group gathering
- Casual "study pod" approach inside and outside
- Clustered and architecturally expressed student services
- Integrated food and entertainment options
- Recreation and union facilitate overall student wellness

GREATER AVAILABILITY ADMINISTRATION + ASSEMBLY SPACES



UCR ADMINISTRATION ONE-STOP SHOP



U OF CHICAGO INNOVATION EXCHANGE



QUEENS COLLEGE LECTURE THEATRE OXFORD

We are recommending that administration and assembly spaces yield more convenience and accessibility with features such as:

- Expanded an administrative one-stop-shop
- Assembly spaces that double as public venues
- Assembly space for instruction and performances
- Shared or common lecture halls for all departments
- Customer service oriented administration offices

WELL-ROUNDED HOUSING VILLAGES



CAL POLY SAN LUIS OBISPO POLY CANYON VILLAGE HOUSING



OHIO STATE U SOUTH CAMPUS GATEWAY



CSU SAN DIEGO POLY CANYON VILLAGE HOUSING

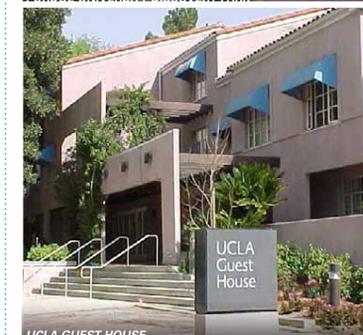
We are recommending that on-campus housing provide a more well-rounded environment that functions like an urban community by including:

- Higher-density mixed-use housing formats
- Retail, food & beverage, and market options
- Extensive student and family services/conveniences
- Interdisciplinary or knowledge community programs
- Better integration of urban setting with community

ENTREPRENEURIAL DISCOVERY PARK + OTHER DEVELOPMENT



PURDUE UNIVERSITY DISCOVERY PARK



UCLA GUEST HOUSE



We are recommending an entrepreneurial approach to campus growth that supports essential functions and builds opportunity with:

- Space for student-start ups and major employers
- Development partnerships that sponsor growth
- Business incubator programming and features
- Hotel & conference center for visitors and functions
- Build connections that lead to careers for students



LANDSCAPES + OPEN SPACE

How do we format landscape + open space to provide a livable and lush campus with more shade and environmental soundness? The future CSUSB can be much more than cactus gardens and dry paths - strategic use of the most important turf, with more purposeful programming of other spaces will position campus as a regional leader in environmental resilience. Smart design that employ shade trees, solar panels, and better seating can make CSUSB the best place to be.

OBJECTIVES MOST IMPACTED BY LANDSCAPE + OPEN SPACE:



CURRENT TRENDS IN THE ELEMENTS OF A GREEN CAMPUS:

PLACEMAKING:



Promote and develop invitingly engaging centers of student/faculty activity in welcoming pedestrian and bicycle friendly outdoor spaces at strategic locations within campus including:

- Communal outdoor gathering spaces
- Sun and wind protection
- Intimate study and meeting venues
- Promote food and beverage offerings in conjunction with comfortable outdoor settings
- Leverage opportunities for outdoor learning and teaching
- Celebrate native flora/garden elements
- Demonstrate stormwater and recharge methodologies

MULTI-FUNCTION:



Encourage and promote multi-dimensional spaces and places throughout the campus including:

- Solar and wind power explorations coordinated with landscape interventions
- Native California landscapes integrated in strategic locations
- Trellis elements incorporating solar photo voltaic capabilities
- Integrate food and beverage opportunities together with communal campus settings
- Create opportunities for student /community gardens
- Encourage links to natural trails and bicycle routes

SUSTAINABILITY:



Encourage and create holistic landscape interventions that represent state of the art knowledge and technologies for leadership in sustainability such as:

- Stormwater capture, filtration and aquifer recharge
- Rainwater harvesting/rain gardens.
- Passive solar/shading strategies
- Turf irrigation reductions
- Drought tolerant California native flora utilizations
- Composting and vegetation clippings recycling as mulching
- Farm to table / student and community gardens
- Outdoor botany and biology learning settings
- Permeable paving solutions
- Safe bicycle path accommodations together with storage and parking facilities

DROUGHT TOLERANT LANDSCAPES + WATER WISE LANDSCAPE INTERVENTIONS:



- Maintenance practices that minimize pruning
- Appropriate use of California native water-wise trees and shrubs



- Water efficient landscapes and plazas that emphasize social interaction, provide study space, and comfortable alternatives to open turf.



- Strategic turf replacement programs
- Mulching strategies for existing landscape shrub zones



- Rain collection cisterns and grey water recycling systems
- Integrated campus-wide irrigation technologies including smart controllers, moisture sensors, flow meters

*Images and proposals are for illustrative purposes only.



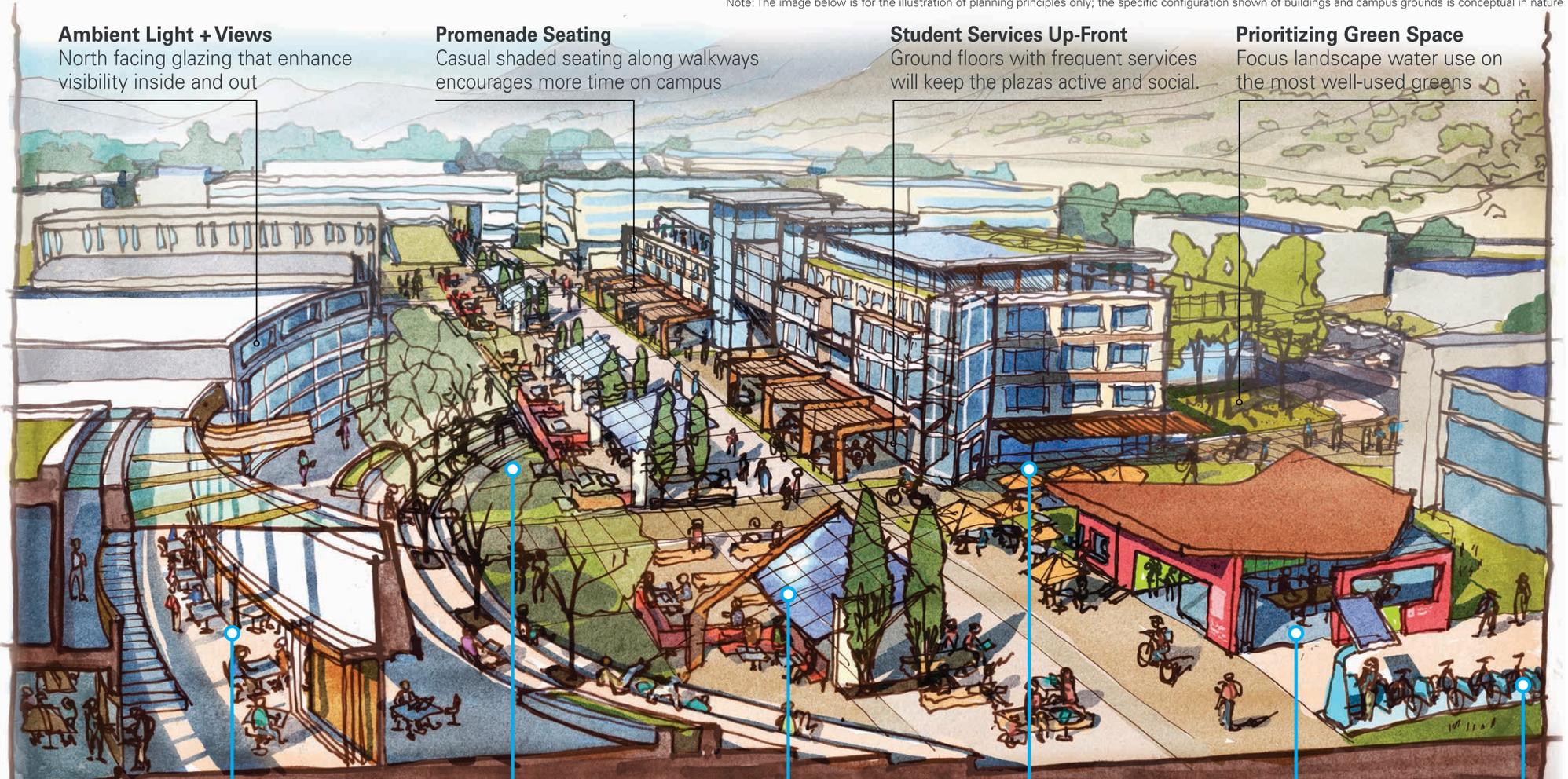
CONNECTING PEOPLE

How do we ensure the public realm better connects students, faculty, and staff to each other and the resources they need to succeed? In every sense of the word, connectedness spells out greater accessibility to services, more interaction with classmates and faculty, increased pedestrian comfort that engenders a sense of home on campus, and better integration with the city through transit linkages and community utilization - in all, connectedness to real lives and a larger world.

OBJECTIVES MOST ADDRESSED BY DESIGN OF THE PUBLIC REALM: 

A GREAT CAMPUS WITH A REMARKABLE PUBLIC REALM WILL MAKE HEADLINES AND CONNECT US:

Note: The image below is for the illustration of planning principles only; the specific configuration shown of buildings and campus grounds is conceptual in nature



Ambient Light + Views
North facing glazing that enhance visibility inside and out

Promenade Seating
Casual shaded seating along walkways encourages more time on campus

Student Services Up-Front
Ground floors with frequent services will keep the plazas active and social.

Prioritizing Green Space
Focus landscape water use on the most well-used greens

COMFORTABLE
Indoor Spaces That Make Room

- Additional Conditioned Spaces for Indoor Studying and Socializing
- Orient New Atria/Lobbies to Be Visible from Coyote Walk

SMART
Infrastructure That Does More

- Solar Panels as Shade Structures
- Gardens as Stormwater Control
- Casual Seating with Wifi, Power Access, Outdoor Monitors

ICONIC
Eye Catching Facilities

- Iconic, Indicative Colors, and Infographic Branding
- Small and Mid-Sized Plug-and-Play Pavilions/Meeting Rooms

GREEN
A Tree Canopy For People

- Landscape Emphasis On Shade
- Transition to a Water-Efficient Green
- Windbreaks and Screening
- Subdivision of Public Space

ACCESSIBLE
Multi-Use Engaging Ground Floor

- Services, Retail, Food + Beverage
- Storefront and Visible Displays
- Visibility into Ground Floor Spaces
- Shaded Usable Adjacent Spaces

INFORMATIVE
Tools For Personal Efficiency

- Wayfinding Maps and Signage
- Live Traffic and Transit Information
- Updated Events and Calendar Info

CONNECTING TO OUR REGION, AND OUR CITY, WITH THE CSUSB DOWNTOWN CENTER:



WHY GO FOR THIS? SCHOOLS AROUND THE U.S. ARE ALREADY DOING SO:

The City of San Bernardino is eager to partner with the University in providing space for a new institutional hub near the civic center. The benefits to departments, groups, and institutes that utilize this space include:

Regional Transit Across the Street that provides a 10-minute link to Metrolink and direct connections across the Inland Empire.

Stand-Out Identity for Each Organization that will raise the profile and prestige of those currently vying for space on campus.

More Housing and Food Options within a 10 minute walk that makes daily life more convenient and supports our community.

Space in a Professional Setting: the prospective property will be dedicated to CSUSB use with upgrades to meet our needs.

Proximity to Additional Resources: Nearby business services and other facilities shared by the City will be within minutes driving distance, placing the downtown facility at the center of convenience.

*Images and proposals are for illustrative purposes only.



SUSTAINABILITY

The campus will experience tremendous growth over the life of the Master Plan. In order to achieve state code requirements and CSU mandates, the campus will need to execute energy reduction strategies in both new and existing buildings. Aside from the numerous benefits of reduced energy consumption there are also substantial operational cost savings.

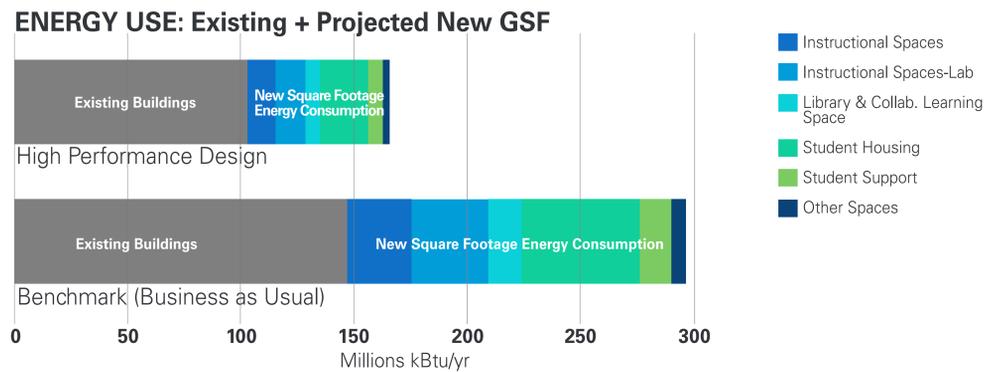
ENERGY ANALYSIS

THE PROCESS...

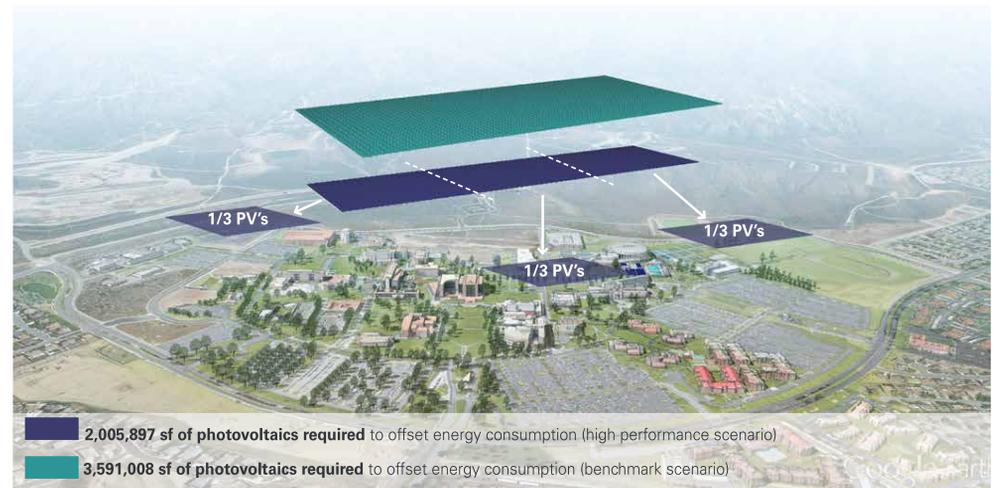
Gathered Existing Energy Data → Established Energy Use Intensities → Calculated energy consumption for benchmark case (business-as-usual)
 Compared benchmark case against a scenario with high performance targets based upon each building type

THE RESULTS...

Analysis resulted in a 58% energy reduction in new buildings, and a 26% energy costs savings across the campus.
 Significant opportunity to reduce consumption in existing buildings.



PHOTOVOLTAICS REQUIRED TO OFFSET ENERGY CONSUMPTION

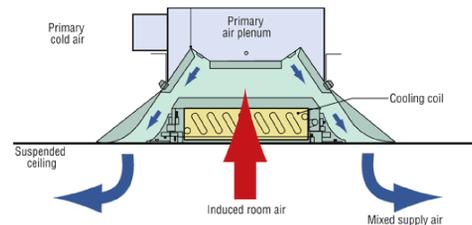


ENERGY REDUCTION TOOLKIT TO ACHIEVE HIGH PERFORMANCE DESIGN



PASSIVE STRATEGIES

- Orient all new buildings on a long axis running east/west. Orientation alone can impact peak energy loads by 2%.
- Design facades to provide daylight while minimizing glare and solar heat gain.
- Maximize thermal mass (concrete structures or phase change insulation materials).
- Design landscaping to provide shade for buildings, and to shield buildings from glare and heat gain.



SYSTEM DESIGNS & OPERATIONS

- Centralize high energy use equipment (e.g. walk in freezers) at labs.
- Utilize waste heat for winter pool and domestic hot water heating.
- Design all new buildings for night flush cooling.
- Design all new buildings around radiant heating/cooling or active beams.



RESIDENTIAL

- Use Passivhaus standards for insulation and infiltration reduction.
- Utilize DOAS for ventilation and radiant heating/cooling with geothermal source.
- Use solar hot water for all domestic hot water.
- Collect gray water (sinks, showers, washing machines).
- Photovoltaics on unit roofs to provide enough to achieve net zero energy at residential units (still grid tied).

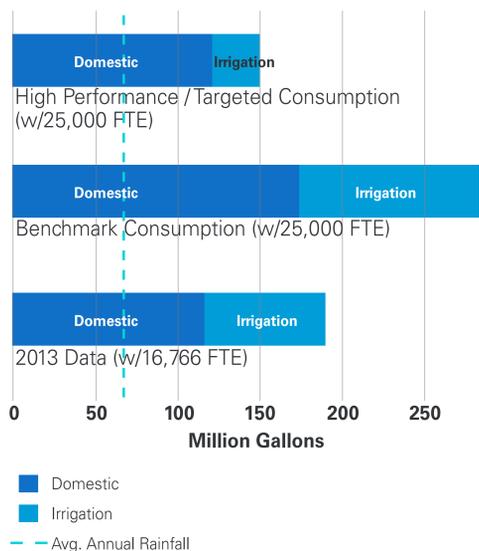


CAMPUS-WIDE STRATEGIES

- Increase temperature of cold water from central plant to 60.
- Decrease temperature of hot water from central plant to 120.
- Retrofit existing buildings with appropriate equipment to boost water temperature as needed.
- Zone buildings to separate high energy from low energy uses. E.g. separate offices from labs.

WATER ANALYSIS

WATER CONSUMPTION: Existing vs. Projected



WATER CONSERVATION TOOLKIT / NET ZERO WATER

STRATEGIES

- Commit to zero potable water for non-potable uses.
- Install and retrofit low flow fixtures. Install timers at showers.
- Capture greywater and stormwater on site. Treat for reuse at flush fixtures, cooling towers and irrigation.
- Plan for future onsite blackwater treatment, including sewer mining.
- Install Smart irrigation systems, zero water landscape. Use reclaimed water where irrigation is needed.
- Eliminate cooling towers, or minimize water use at cooling towers (minimize blowdown, run only at night in combination with thermal energy storage).
- Use geothermal systems for heating and cooling at residential buildings.
- Provide DG/gravel at parking lots to allow stormwater infiltration to recharge groundwater.

WATER SAVED
134,994,450 gallons
 WITH HIGH PERFORMANCE DESIGN

EQUIVALENT TO
204 OLYMPIC POOLS
 = 20 Olympic Pools

CAMPUS WATER SOURCES:

- RAINWATER:**
 - 79,813,752 gallons of rainfall/year
 - Theoretically could provide 42% of non-potable water needs
- ON-SITE WELL:**
 - On-site well irrigates 51.2AC of landscape
 - Well has potential to dry up
- WASTEWATER:**
 - Greywater from sinks, showers and process equipment can be reused for toilet flushing & irrigation

*Images and proposals are for illustrative purposes only.



SCHEME A: ECO DISTRICTS STRATEGY

EMPHASIZES NET-ZERO ENERGY USE: CREATE DEMONSTRATION DISTRICTS WITH AN ABSOLUTE COMMITMENT TO ECOLOGICAL SUSTAINABILITY

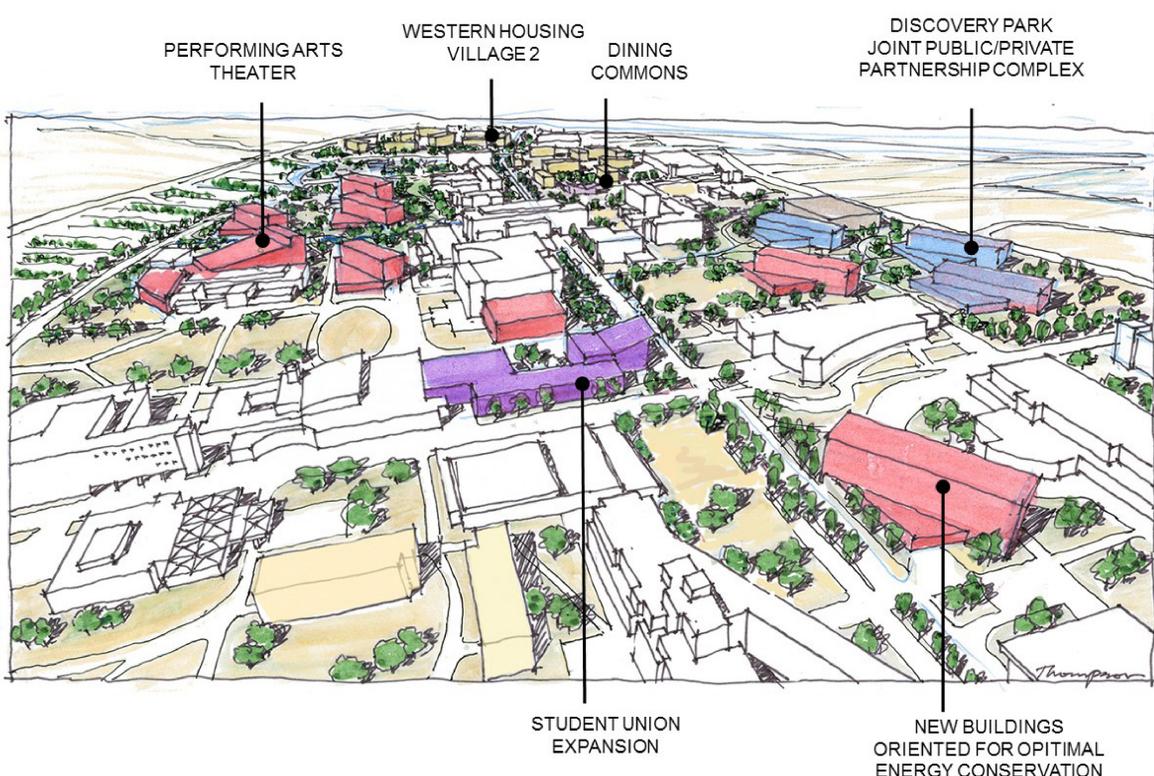
This scheme emphasizes shared interdisciplinary buildings in-filled in new precincts to allow flexibility for teaching pedagogies while still reinforcing existing college and departmental clusters. Establishes a net zero goal for the use of resources with the initial efforts focused on building orientation which yields the most potential energy savings at the lowest cost. Campus open spaces are less formal and more organic in character.



VIEW 1: ILLUSTRATIVE CAMPUS OVERVIEW OF SCHEME A - FROM THE SOUTH



VIEW 2: ILLUSTRATIVE SKETCH OF SCHEME A FEATURES - FROM THE SOUTHEAST



KEY FEATURES

- SITE DESIGN DRIVEN BY OPTIMIZED SOLAR ORIENTATION MOVING TOWARDS A NET ZERO CAMPUS
- ENERGY & WATER CONSERVATION
- EMPHASIZES GREEN TECHNOLOGY & INFRASTRUCTURE

ADVANTAGES

- Housing Village #2 at the western most end of the campus offers good separation of dining and living areas with good access to the academic core at the heart of the campus.
- Optimizes building orientation (reduces energy use for an average 100,000SF building by 2,000,000 BTUs/yr.)
- Site plan is less formal more organic, sustainable. (Sustainable principles would be applied to all schemes)
- Integrating the "Discovery Park" in the heart of campus offers an opportunity to integrate these public/private ventures into campus academic and student life. Occupants and tenants could be explored as potential partners in the joint development of future campus support space.

DISADVANTAGES

- "Discovery Park" is buried in the campus and may not offer enough visibility for private entities.

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SCHEME B:

CREATIVE CORRIDOR STRATEGY

A CENTRAL SPACE FOR COLLABORATION: FOCUS GROWTH IN ACTIVE MULTI-USE CENTERS ALONG THE MAIN COYOTE WALK AND NORTH-SOUTH OPEN SPACE

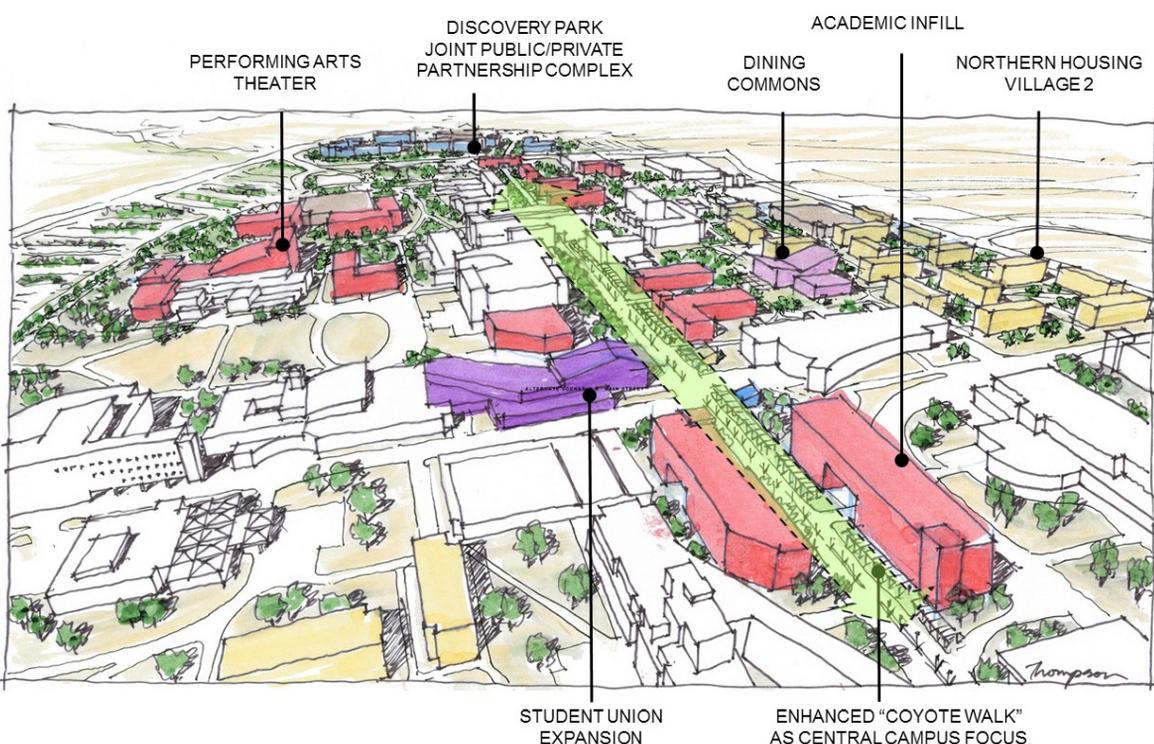
This scheme acknowledges emerging trends in higher education and emphasizes shared interdisciplinary buildings in-filled along the main campus walk as a means to reinforce existing college and departmental clusters. Enhancing the campus walk with solar shade structures, shaded seating areas, sheltered study pavilions together with the entry plazas and lobbies of new buildings will create a vibrant, active link for the campus core – its focus.



VIEW 1: ILLUSTRATIVE CAMPUS OVERVIEW OF SCHEME B - FROM THE SOUTH



VIEW 2: ILLUSTRATIVE SKETCH OF SCHEME B FEATURES - FROM THE SOUTHEAST



KEY FEATURES

- INCREASED DENSITY TO REDUCE PEDESTRIAN TRAVEL DISTANCES
- "COYOTE" WALK AS ACTIVATED PUBLIC PLAZA / PROMENADE
- INTEGRATES CAMPUS LIFE & ACTIVITIES
- ENCOURAGES MULTI-DISCIPLINARY SHARED SPACE ACADEMIC BUILDINGS

ADVANTAGES

- Housing Village #2 central to academic core north of Library encourages 24/7 campus life
- Academic buildings in-filled along main pedestrian walkway create more dense, urban campus
- Campus walkway becomes the active link to all precincts
- The "Discovery Park" creates a more urban gateway into campus.

DISADVANTAGES

- Public/private development at the campus entry may detract from University image
- Housing to the north may create safety concerns (increased exposure to fire and/or wildlife)

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SCHEME C: KNOWLEDGE HUBS STRATEGY

OPTIMIZE UNIVERSITY COLLEGES/ DEPARTMENTS: CLUSTER NEW ACADEMIC GROWTH BE IN "LIKE-MINDED" COURTYARDS AND QUADS WITH RESOURCES APPORTIONED IN EACH

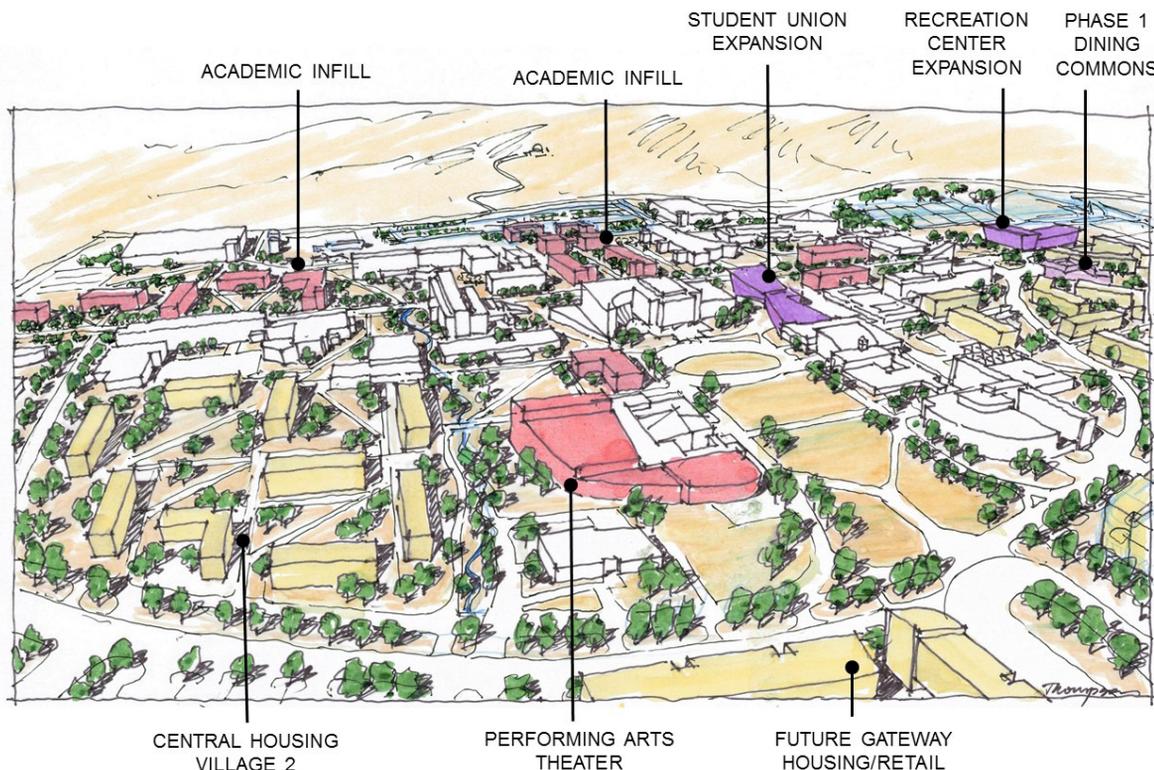
This scheme emphasizes reinforcing and building upon existing college and departmental clustering or precincts with new buildings placed to offer future expansion space for each program. This scheme also incorporates a new housing village and dining commons in the heart of the campus to encourage more 24/7 campus life.



VIEW 1: ILLUSTRATIVE CAMPUS OVERVIEW OF SCHEME C - FROM THE SOUTH



VIEW 2: ILLUSTRATIVE SKETCH OF SCHEME C FEATURES - FROM THE WEST



KEY FEATURES

- INCREASED DENSITY TO REDUCE PEDESTRIAN TRAVEL DISTANCES
- REINFORCES INSTITUTIONAL CLUSTERS
- SHARES RESOURCES BY DEPARTMENT
- EMPHASIZES 4 OR 5 "KNOWLEDGE HUBS"
- REFLECTIVE OF CAMPUS CURRENT TRENDS

ADVANTAGES

- Housing Village #2: central to academic core, replaces existing Administration Quad bring 24/7 campus life to the heart of the campus
- Proposes future student housing and some retail at the entry of the campus to create a more urban campus with a broader sense of community.
- "HUBS" offer opportunities to cluster similar academic programs and share specialized teaching spaces.

DISADVANTAGES

- De-emphasizes trends in higher education towards more collaborative, inter-disciplinary buildings.
- Student housing at the entry of the campus may not present the correct "University" image to the community.

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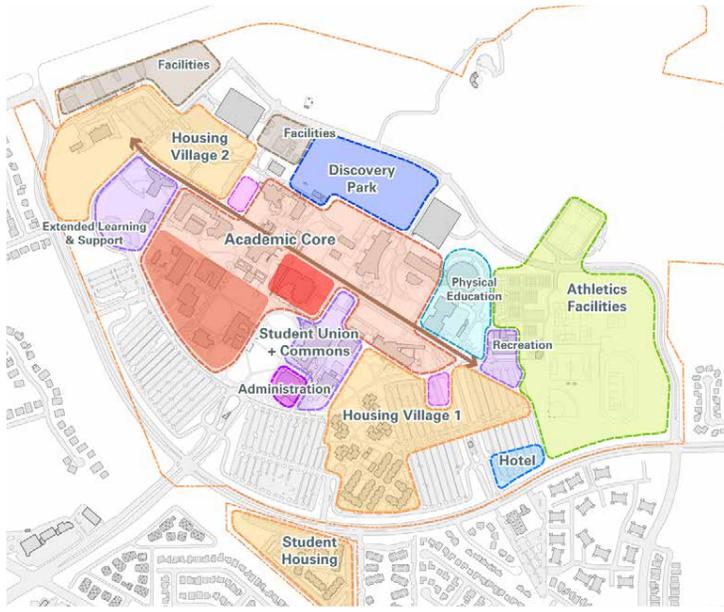


WHAT ARE YOUR THOUGHTS ON OUR CAMPUS SCHEMES?

SCHEME A: ECO DISTRICTS



PLEASE GIVE US COMMENTS ON THIS SCHEME:



CREATE DEMONSTRATION DISTRICTS WITH AN ABSOLUTE COMMITMENT TO ECOLOGICAL SUSTAINABILITY

- Site Design Driven By Optimized Solar Orientation Moving Towards A Net Zero Campus
- Energy & Water Conservation
- Emphasizes Green Technology & Infrastructure



SCHEME B: CREATIVE CORRIDOR



PLEASE GIVE US COMMENTS ON THIS SCHEME:



FOCUS GROWTH IN ACTIVE MULTI-USE CENTERS ALONG THE MAIN COYOTE WALK AND NORTH-SOUTH OPEN SPACE

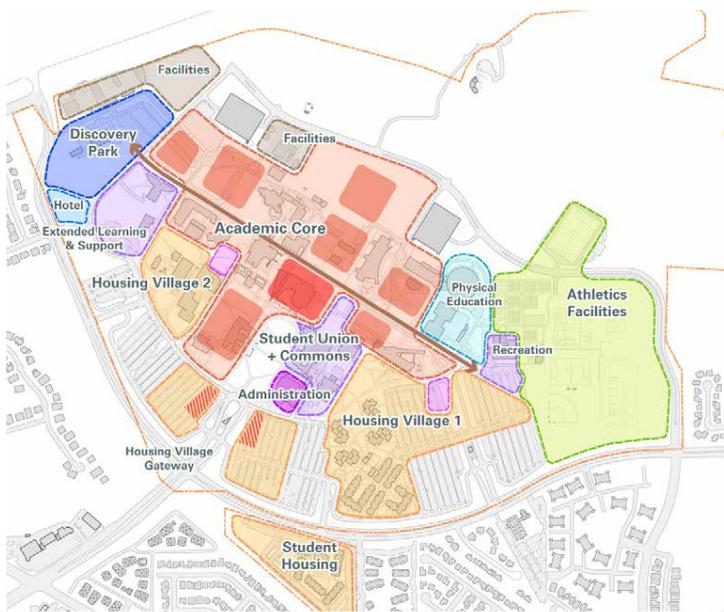
- Increased Density To Reduce Pedestrian Travel Distances
- Coyote Walk As Activated Public Plaza
- Integrates Campus Life & Activities
- Encourages Multi-Disciplinary Shared Space Academic Buildings



SCHEME C: KNOWLEDGE HUBS



PLEASE GIVE US COMMENTS ON THIS SCHEME:



Emphasizes the Ecological Matrix, or Surrounding Natural Environment

- Increased Density To Reduce Pedestrian Travel Distances
- Reinforces Institutional Clusters
- Shares Resources By Department
- Emphasizes 4 Or 5 "Knowledge Hubs"
- Reflective Of Campus Current Trends



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WHAT ARE YOUR THOUGHTS ON OUR LANDSCAPE CONCEPTS?

CONCEPT A: ECO MATRICES



Emphasizes the Ecological Matrix, or Surrounding Natural Environment

- Relying more on Natural Elements, Bosques/Windbreaks to provide shade
- Informal Gardens / Re-Naturalization where Feasible
- Native Ecosystems/Topography
- Connecting Natural Learning Trails/Walking/Bicycling
- Research/Education Gardens
- Bio diversity/Sustainability
- Water Harvesting/Filtration/Recharge Gardens
- Solar Collection/Trellis/Parking Covers
- Student/Community Urban Farming

PLEASE GIVE US COMMENTS ON THIS CONCEPT:



CONCEPT B: PROMENADE CONNECTIONS



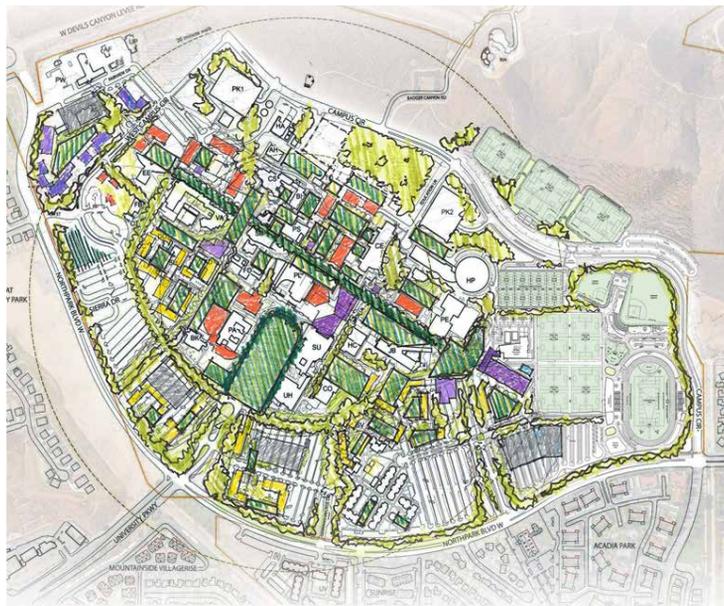
Emphasizes Supporting Pedestrian and Social Interaction

- Re-imagined and Energized Multi-Dimensional Coyote Walk/Axis
- Developing a CSUSB Unifying/Iconic Central Campus Promenade
- Fostering Linear Programmed Events and Gathering Spaces at Strategic Locations
- Reinforcing and Distinguishing Pathway Hierarchies
- Creating Shade Shattered Walkable, Pedestrian Friendly and Engaging Connections
- Facilitating Vibrant Sustainable Corridors for Student/Faculty Interaction and Recreation

PLEASE GIVE US COMMENTS ON THIS CONCEPT:



CONCEPT C: COLLEGE COMMONS



Emphasizes Hierarchical Focus on College or District Quads

- Strong Hierarchy of Campus Spaces/Places
- Variety of Scales Defined by Building and Vegetative Edges
- Green Enclosures/Sanctuaries
- Shade/Wind Relief Havens
- Communal Oases in Re-imagined Naturalized Settings
- Balance of Active/Passive Courtyards Inviting Student Interaction

PLEASE GIVE US COMMENTS ON THIS CONCEPT:



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WHICH DO YOU PREFER?



Please vote to tell us how you think this Master Plan should direct the growth of different campus elements. While each Scheme shows combined ideas, we want your opinion on the individual elements to help us formulate the final combination.



SCHEME A: ECO DISTRICTS



SCHEME B: CREATIVE CORRIDOR



SCHEME C: KNOWLEDGE HUBS

HOUSING & DINING VILLAGE #2 LOCATION

- North/western edge of campus across campus walk from the Fine Arts Building

VOTE

- Center of campus northeast of Library just south of the loop road

VOTE

- Center of campus and gateway housing village at main campus entry together with new parking structures

VOTE

ACADEMIC INFILL APPROACH

- Distributed in clusters

VOTE

- Infill concentrated along campus walk

VOTE

- In-filled near existing academic colleges around courtyards

VOTE

DISCOVERY PARK LOCATION

- Integrated into Center of campus northeast of Library

VOTE

- At main campus entry together with new parking structures

VOTE

- North/western edge near existing facilities

VOTE

OPEN SPACE APPROACH

- Emphasize the Ecological Matrix, or Surrounding Natural Environment

VOTE

- Emphasize Supporting Pedestrian and Social Interaction

VOTE

- Emphasize Hierarchical Focus on College or District Quads

VOTE