

UC Merced: Green from the Ground Up

Association of University Architects - 2010 Conference
Tuesday - June 22nd
Case Study

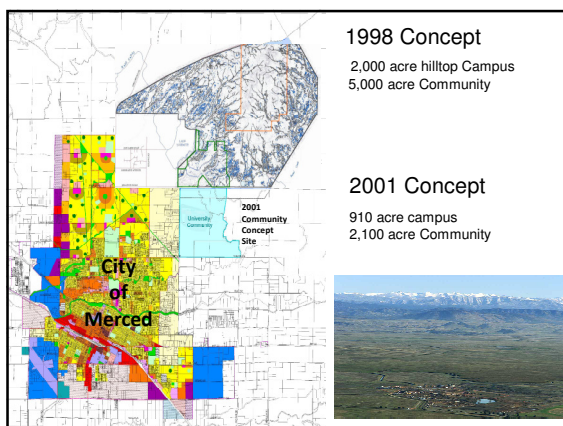


Tom Lollini, FAIA, LEED AP
Associate Vice Chancellor Physical Planning Design and Construction

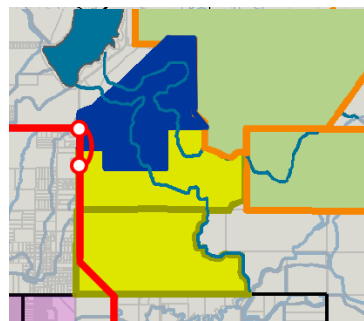


San Joaquin Valley becomes focus for new UC campus site in 1988

- Eight county region from Stockton to Bakersfield
- 3.97 million people today
- Fastest growing region in the state
- Growth driven by birth rates and migration
- Population projected to grow 131% between 2000 and 2050
- Chronically high-unemployment
- Historically low rates of higher education attainment



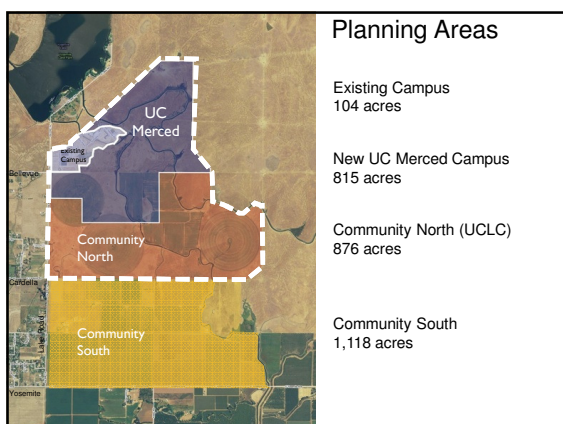
UC Merced's Regional Context



2009 Concept

815 acre campus
1,994 acre Community

- Bordered by 30,000 acres of grasslands
- 5 miles from Downtown Merced
- 6 miles from Highway 99
- Campus Parkway planned

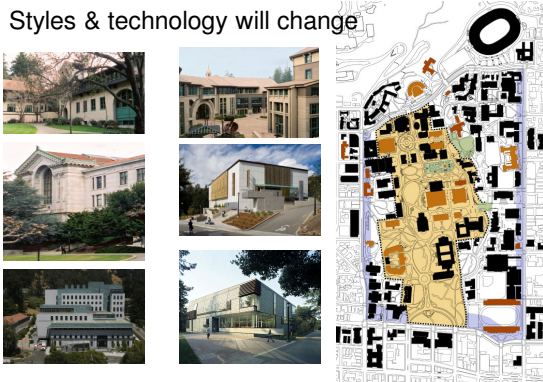


Process: Engaging the campus community



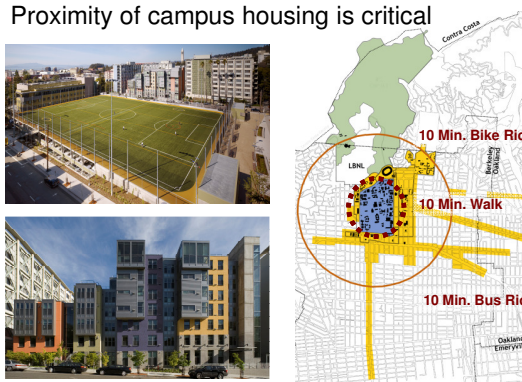
Student and Faculty Workshop

Styles & technology will change



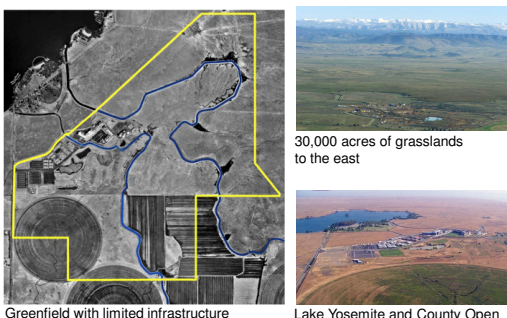
UC BERKELEY 2020 LRDP

Proximity of campus housing is critical



UC BERKELEY 2020 LRDP

The Campus Site



Greenfield with limited infrastructure

30,000 acres of grasslands to the east

Lake Yosemite and County Open Space to the north

Design Challenges and Opportunities



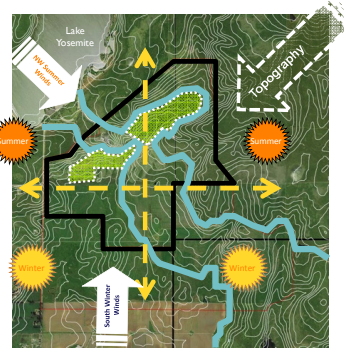
Irrigation canals create internal character but require costly bridges

Lack of pre-existing infrastructure allows for innovative, sustainable measures

Topographic depressions provide compelling programmatic open space

Blank canvas enables innovation in sustainable design and operations

Campus Physical Design Determinants



Natural topography running NE to SW

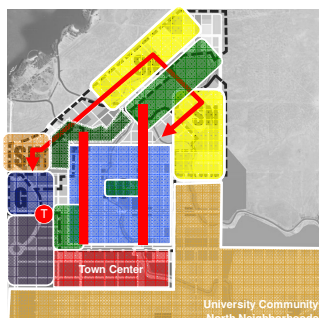
Summer breezes off Lake Yosemite

Two canals define development zones

Two topographic "Bowls" capture storm water flow

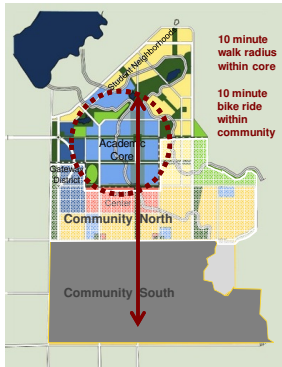
320 days of sun

2009 LRDP Campus Organization



- Compact, car-free Academic Core served by transit
- Student Neighborhoods wrap campus perimeter
- Two mixed use "Main Streets" feature housing within academic core & connect to Town Center
- Open space and recreation embedded throughout & shared
- "Gateway District" provides venue for research and development

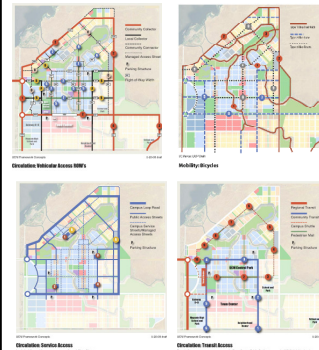
Campus Physical Design Principles



To create a unique academic community in the San Joaquin Valley

- Sustainable
- Walkable
- Innovative
- Synergistic

Campus Circulation



Integrated systems for:

- Bicycles
- Pedestrians
- Transit
- Vehicles
- Services

Cars limited to perimeter

Planning Principles



Academic Districts	Student Neighborhoods	Open Spaces	Student Services	The Grid
Design for Interdisciplinary Interactions	Activate High Density Student Neighborhoods	Organize around shared open spaces	Convenient Student Services	Deploy visible, compact infrastructure

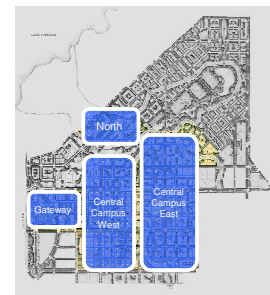
Academic Districts: Interdisciplinary academic core



Buildings will include Interactive Spaces, Lanterns and Arcades



Buildings will shape the campus' Urban Blocks



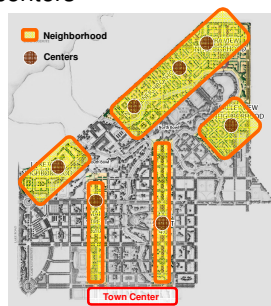
Student Neighborhoods: High-density active centers



Programmed to support social interaction



Featuring recreation or activity generating facilities



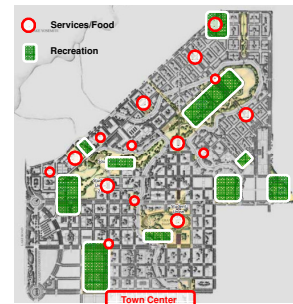
Student Services: Convenient and distributed



Recreation located in Neighborhoods and Districts



Distributed services create connections



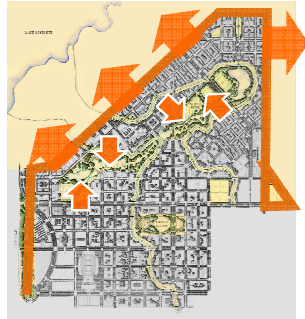
Open Space Projects: Designed to take advantage of views



Terraces overlooking open space



Casual lawn areas for informal use



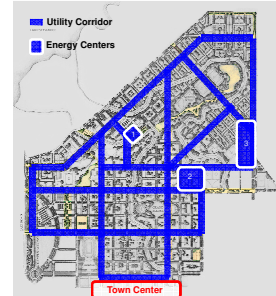
The Grid: Sustainable, visible infrastructure



Distinctive design



Visible, sustainable infrastructure



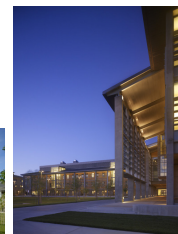
Campus architecture serves as a teaching tool



Arcades and Lanterns shelter public pathways

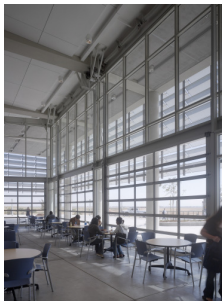
Arcades mediate between exterior and interior environments, and provide unconditioned circulation space for high activity and occupancy uses

Lanterns mark key entries and create night time identity



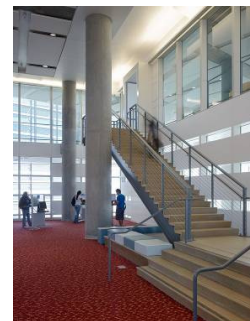
Permeable building envelopes engage users

Framed views, modulated natural light, and natural ventilation diminish separation between interior and exterior campus environmental experience



Illuminated pathways encourage walking

Daylighting systems illuminate public pathways day and night



Roofs form the “Fifth Façade”

Mechanical and day lighting systems integrate with building form to generate a skyline for the campus

For future buildings flat clear roofs will support solar collection



Color palette draws from the Central Valley's landscape



Landscape design typologies are derived from the region



Urban Streetscape along corridors



Orchard-like in formal spaces



Riparian along irrigation canals



Native plants along campus perimeter

Sustainability: 2009 LRDP Triple Zero Commitment



Zero Net Energy Zero Waste Zero Net Emissions

Strategies:

- Land Use Planning & Policies
- Building Design Policies & Standards
- Systems Design Policies & Standards
- On-site Renewable Energy
- LEED Gold Standard
- Site Design & Landscaping Guidelines
- High Density Land Use
- Waste Diversion
- Open Space Conservation
- Climate Action Plan (GHG reduction)
- Water Neutrality Goal

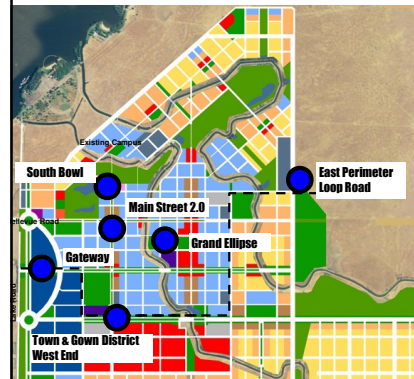
Sustainability Accomplishments to Date

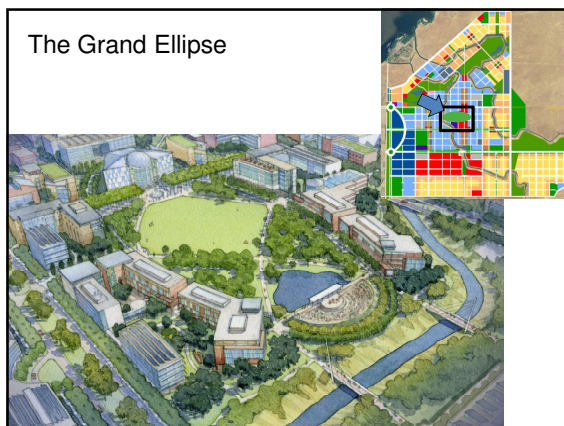
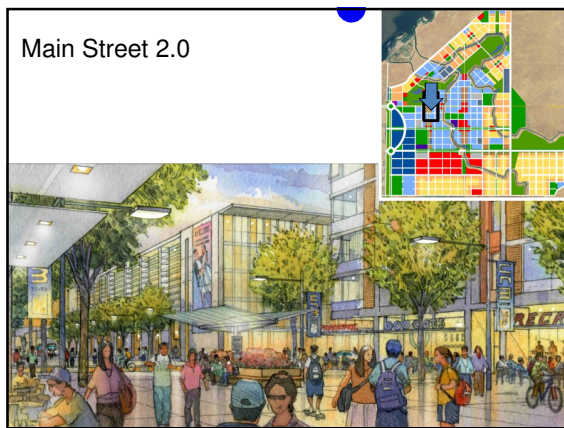
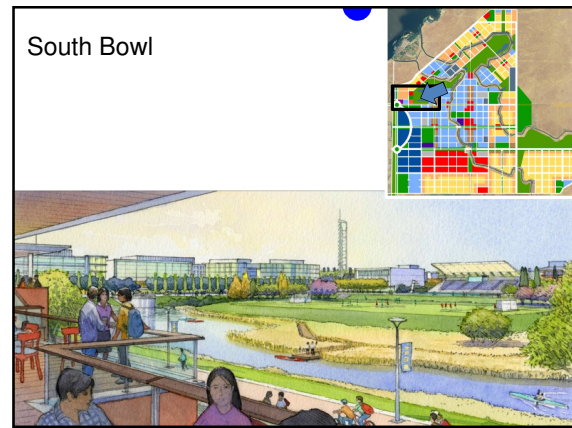
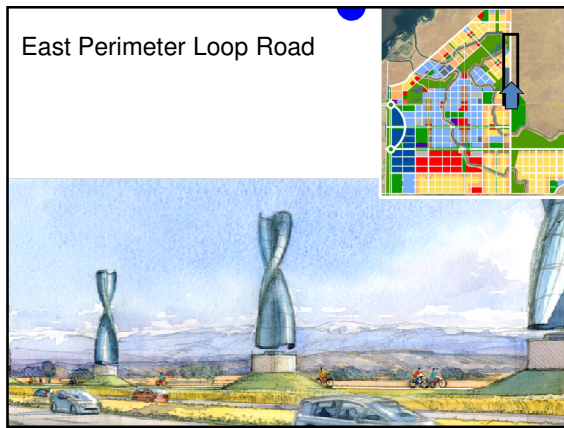


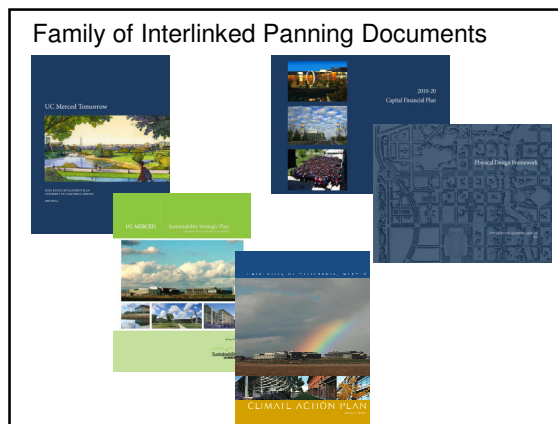
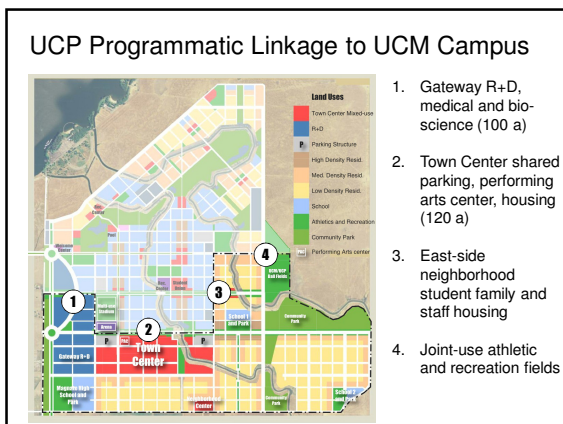
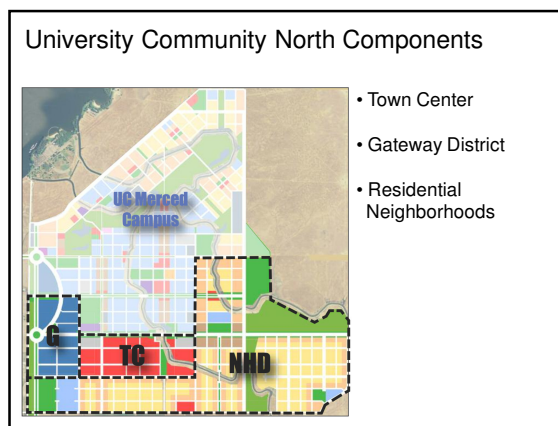
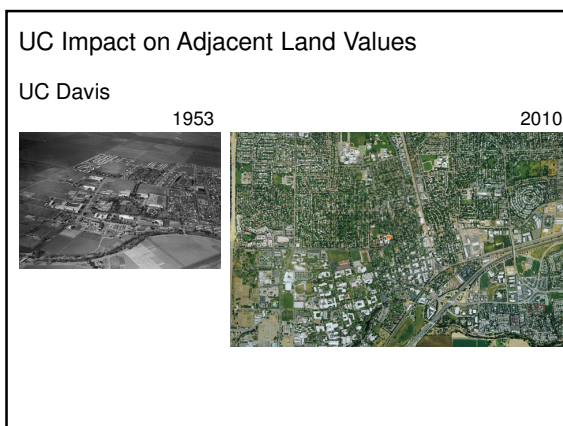
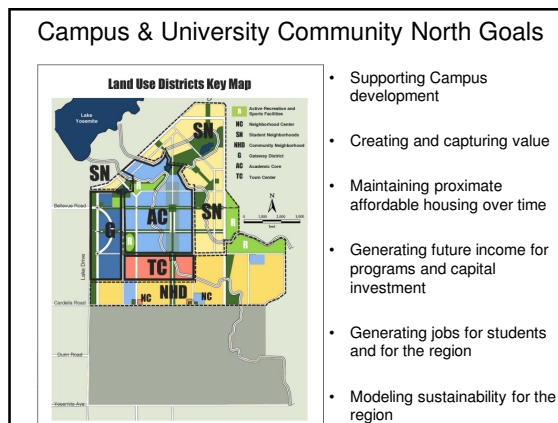
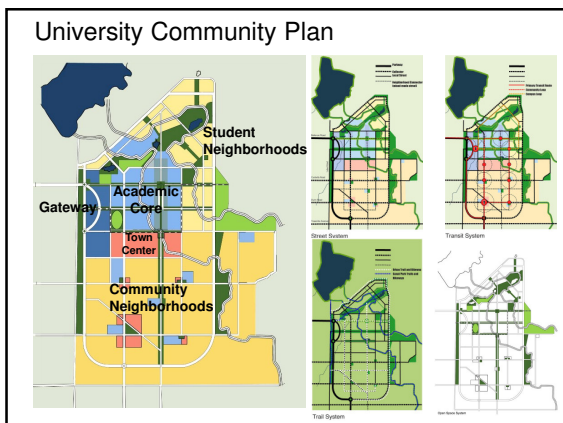
- **2009 GEELA for LRDP**
Governor's Environmental and Economic Leadership Award for Comprehensive Land Use Planning
- **NREL "Best Practice" Case Study**
National Renewable Energy Lab citation
- **6 CSU/UC/CCC Sustainability Awards**
- **50% annual energy savings**
- **40% water savings**
- **USGBC LEED GOLD Standard**
1 Silver - 9 Gold - 2 Platinum Pending
- **20% on-site renewable energy**
thru 3rd party purchase (\$2.3 million grant)
- **\$500,000 in PG&E rebates**
thru Savings by Design program



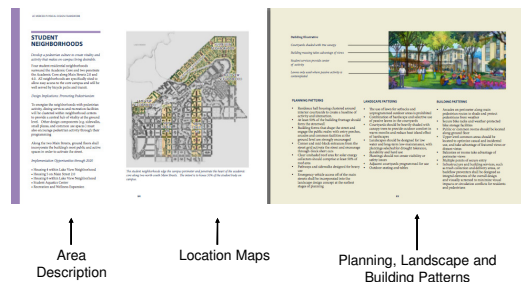
Campus Character



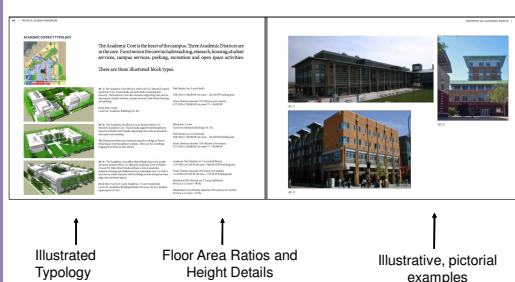




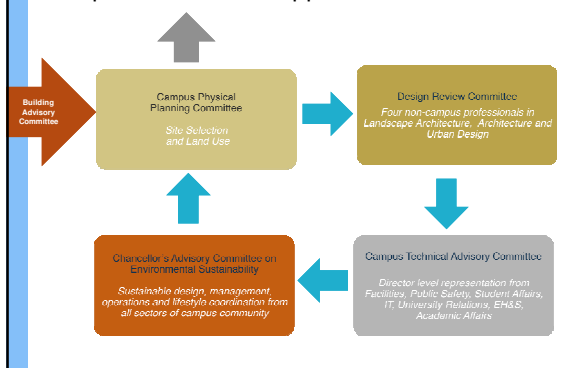
Planning Principles include patterns for landscape and buildings



Planning Principles include typologies, pictorial examples and patterns



Campus Review and Approval Process



Underway: Social Sciences and Management



Underway: Housing 3



On the Boards: Science and Engineering 2



