SUSTAINABLE
PLANNING
& DESIGN

SUSTAINABLE PLANNING AND DESIGN

City College of San Francisco has a unique opportunity to be a model of environmental stewardship and sustainability. This plan has been developed to embody sustainable planning concepts. As it is implemented, continuing attention will be needed to ensure that new construction and ongoing operations continue to adhere to sustainable principles.

Sustainability is typically defined as providing for the economic, social, and environmental needs of the present generation without compromising the ability of future generations to fulfill their needs. Broadly defined, sustainable design and development is an integrated process to create buildings, facilities, and supporting infrastructure in ways that minimize the use of resources, reduce harmful effects on the environment, protect biodiversity and ecosystem health, and create healthier environments for people.

The California Community College System, like the other state schools of higher education (the University of California and the California State University Systems), is developing standards for use by the many colleges throughout the state. The campus has been operating under the guidelines of the Energy and Water Conservation Policy since 1977. A systemwide energy management plan is in preparation, which will focus on alternative technologies, renewable energy, and sustainable construction. In addition, the Statewide Energy Management Program (SEMP) has developed the *Energy Policy Handbook: Policy Recommendations for California and the Community College System*, which includes draft guidelines.

It is expected that these guidelines will also provide an opportunity to influence the current formulas for computing per square foot cost estimates, so that the funds necessary to achieve sustainable planning and design can be accommodated within the capital outlay cost estimates. The funds can be provided to local districts when identifying fiscal resources for new construction/renovation without deferred maintenance.

Benefits of Green Planning & Building

The incorporation and integration of the green development concepts can result in countless environmental, economic, and social benefits, including the following:

Community/Social Benefits

- Enhance campus community's health, wellness, comfort, and quality of life
- Contribute to community livability, vitality, and aesthetics
- Promote economic and social diversity and integration
- Create a sense of place
- Connect community to their natural surroundings
- Provide educational opportunities
- Improve indoor environmental health and comfort

Environmental Benefits

- Preserve and restore natural habitats and biodiversity
- Create native habitats and habitat linkages
- Preserve and enhance watersheds and ecosystems
- Improve air and water quality
- Reduce greenhouse gas emissions
- Reduce solid waste
- Conserve energy and natural resources

Economic Benefits

- Reduce operating costs (lower utility bills)
- Reduce maintenance costs (through the use of durable materials)
- Enhance asset/resale value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

Incorporating sustainable features in facilities will not necessarily lead to higher initial cost (e.g., better insulation and low-transmission windows may allow for smaller, less expensive chillers to be used or elimination of the need for chillers—substantially offsetting the higher insulation and window cost). In addition, buildings throughout the country have successfully incorporated the principles of sustainable design in the construction of buildings that consume between 30 and 50 percent less energy than traditionally designed buildings, at minimal additional cost and leading to significant future savings. Building green can offer a very good return on investment.

Sustainable Master Planning Principles

The following principles have been incorporated into this Master Plan or will be followed in the design and maintenance of facilities and grounds.

Preserving and Creating Open Space

- Minimize parking footprint
- Site new buildings on already developed parcels
- Create comfortable outdoor environments by providing shelter from harsh weather elements (fog, wind etc.) and capitalize on sunlit spaces
- Create compact development and pedestrian friendly places

Minimizing Site Disturbance/Protecting Natural Resources

- Preserve existing trees
- Reduce grading and control erosion
- Minimize stormwater runoff
- Use surface drainage techniques
- Maintain existing trees

Providing Alternative Transportation Options
- Implement a Transportation Demand Management Program
- Create a pedestrian-first campus
- Develop bike paths and provide convenient bike racks
- Provide pedestrian friendly links to BART and buses
- Provide preferred parking for alternative fuel vehicles, hybrid vehicles and carpools
- Provide Shuttle

Reducing Waste
- Reuse/renovate existing buildings
- Recycle construction and demolition debris
- Specify recycled-content materials
- Develop campus recycling program, receptacles and facilities

Reducing Energy Use
- Develop efficient infrastructure and building systems
- Optimize building envelope for energy use reduction and daylighting
- Design buildings to work with natural ventilation, then add mechanical ventilation and only use air-conditioning where really necessary
- Orient buildings to take advantage of passive solar design
- Install renewable energy technologies
- Specify light-colored parking and roof surfaces to reduce heat island
- Develop building operations commissioning and monitoring

Reducing Water Use
- Reduce use of potable water for irrigation
- Specify efficient landscaping and irrigation systems
- Specify water-conserving fixtures

Protecting Health and Well-being of Campus/Surrounding Community
- Reduce construction related air and noise pollution
- Minimize traffic congestion
- Reduce light pollution

Protecting Health and Well-being of Building Occupants
- Protect indoor air quality (construction IAQ management, low-VOC materials, and proper ventilation)
- Provide daylighting and natural ventilation
- Provide thermal comfort and control

Educating Staff and Students
- Develop operations and maintenance manuals for facilities, landscaping, and cleaning staff
- Create building displays and signage on green strategies
- Create pamphlets and brochures on green campus issues
- Plan events, workshops and courses on green issues