

MT. SAN ANTONIO COLLEGE

WATER CONSERVATION

BACKGROUND

Mt. San Antonio College has provided quality educational services to the greater San Gabriel Valley and surrounding communities since 1946. In that time, enrollment at the 421-acre campus has grown from just 635 to more than 50,000 students, making Mt. SAC one of the largest community colleges in the nation. As the demand for educational services in the region continues to grow, so does the demand for water. As responsible stewards of this scarce resource, Mt. SAC has implemented a number of successful strategies to optimize water use including technology-based conservation, effective landscaping design standards, and an aggressive transition away from the use of potable water for irrigation.

Mt. SAC purchases all of its potable water on a wholesale basis from Three Valleys Municipal Water District. As a local water agency, Mt. SAC has the legal right to produce groundwater from its own wells located on campus and has a long history of producing groundwater for its own use. Reactivating three on-campus wells, developing additional groundwater wells, and implementing aggressive strategies to conserve water are the key elements of the College's water use optimization strategy.

OPTIMIZING WATER USE

Mt. San Antonio College water use includes on-campus domestic uses, landscape irrigation, athletic field irrigation, pasture and range land irrigation, and wildlife sanctuary uses.

Our Programs

- Water Reclamation
- Technology-Based Conservation
- Effective Landscaping Design Standards
- Ongoing Maintenance Programs

Water Reclamation

Mt. SAC has made use of a number of water-saving strategies over the past seven years with outstanding results. In 2007, work began to repair three existing water wells. Once operational, these wells produced an average of 90 acre feet of water per year. The non-potable water is used for irrigation at the soccer and baseball fields and for irrigation and pond recharge in the wildlife sanctuary. Future water reclamation projects include the conversion of pasture irrigation systems to groundwater and/or reclaimed water.

Technology-Based Conservation

On campus, an aggressive program to replace old restroom fixtures with waterless and water-saving units contributed to the estimated 13% reduction in domestic uses. In the main campus area, a computerized irrigation control system has been implemented in over 75% of irrigated spaces. The system reduces water waste by adjusting irrigation times and frequency by monitoring temperature, wind, and humidity data. A similar system is planned for the farm area pastures to further reduce water use by irrigating only when necessary.

Effective Landscaping Design Standards

The College's policy of replacing turf areas on campus with California native landscapes further improves water efficiency in open space around new and remodeled facilities. An excellent example of these policies can be seen just to the south of the new agricultural sciences facility. The area was designed in consultation with faculty and grounds staff and serves as a demonstration area for horticulture, turf management, and architecture students studying the benefits of California-native landscapes.

As the College continues to grow, many of the original 1940s educational buildings are being replaced with new energy- and water-efficient facilities. In 2008, local voters approved a \$353-million building program. Added to the \$221 million approved by voters in 2001, the College has the available funds to upgrade facilities, utility, and infrastructure systems that had been left untouched since the 1970s. Water efficiency is among the highest priorities of the aggressive building program. All major facilities improvements will implement the United States Green Building Council's Leadership in Energy and Environmental Design (LEED®) program. With a goal of a LEED® silver rating, each new facility will feature highly efficient irrigation systems and plant materials.

Ongoing Maintenance Programs

Mt. San Antonio College is committed to properly maintaining the landscape improvements, irrigation, and control systems that have been implemented on campus. It is essential that we protect the capital investments that have already been made to achieve a more sustainable campus. The College staff is committed to an ongoing maintenance program to ensure that the equipment is operating as intended. Staff regularly isolates irrigation areas and checks for broken or damaged lines and sprinkler heads. Regular adjustments are made on all irrigation equipment to make sure that the water we do use is not wasted by overspray on to sidewalks and other paved areas. A regular schedule for spreading mulch reduces evaporation and improves absorption into the soil to minimize the amount of water required to irrigate landscaped areas.

On the College farm, large rotor-type sprinklers are used to efficiently irrigate pasture areas. Much of the irrigation equipment has been upgraded to optimize water application only where it is needed, and gypsum is applied to pastures in the fall to maximize water-holding capacity.

Our Achievements

Prior to the implementation of various water use optimization strategies in 2006, Mt. SAC used an average of 598 acre feet of water per year. Since that time, water use on campus has been reduced by approximately 30%, to an average of 412 acre feet per year. The following chart shows water use estimates for 2002-2013.

CAMPUS WATER USE ZONE	% of Total	2002–2006 Average 598 AF Per Year	% of Total	2007–2013 Average 412 AF Per Year	Water Savings 187 AF Per Year
<i>Athletic Fields</i>	22%	132 AF per year	23%	94 AF per year	38 AF per year
<i>Wildlife Sanctuary</i>	10%	59 AF per year	3%	14 AF per year	45 AF per year
<i>Range and Pasture</i>	18%	108 AF per year	18%	73 AF per year	35 AF per year
<i>Campus Irrigation and Domestic Use</i>	50%	299 AF per year	56%	231 AF per year	68 AF per year

With the potential to save another 100 acre feet per year, the College is poised to realize a 50% reduction in domestic water use in less than ten years. Partnerships with other local agencies to deliver reclaimed water to the campus, the construction of a one million-gallon domestic water storage reservoir, and much needed upgrades to the underground water distribution system on campus, are also planned.

Mt. SAC led the way in water sustainability long before the practice was trendy or the threat of drought initiated State-mandated changes. With 50,000 students and more than 2,000 employees, the College can easily be considered its own little city. Our programs are driven by cost savings, which are considerable, but also by the knowledge that as a large institution in the San Gabriel Valley, we must be smart and responsible in how we manage all of the earth's valuable resources. We are proud of our accomplishments and take great pride in serving as a role model to our students, staff, and community. As Mt. San Antonio College continues to grow, so will our commitment to the environment. Already well known across the region for its outstanding educational programs, championship sports teams, and regional events, Mt. SAC should also be recognized for its successful contribution to water conservation in Southern California.

Future Plans

Over the next few years, Mt. SAC plans to add two new groundwater wells, construct an additional one million-gallon potable water tank, expand the use of the LEED® program to ensure that all facilities are as efficient as possible and implement computerized irrigation control at the farm pasture and rangeland sites. The new wells will result in up to 60 acre feet of water savings per year and will serve farm pastures and rangeland. The added water storage will better protect the College during times of water shortage, especially during maintenance periods when potable water supplies may not be available. Ideally, the College will also move to reclaimed water use for landscaped areas at several sites south of Temple Avenue including a planned two-megawatt solar power generation plant. Funding for several of these upcoming projects is budgeted as part of the Measure RR local bond-funded building program. The College will save an additional 100 acre feet of water per year through these future efforts. Our main water supplier, Three Valleys Municipal Water District, has informed us that our water use goal for this year should be 345 acre feet per year, which represents an additional 16% reduction above our already aggressive reduction of over 30%.