

WATER USE EFFICIENCY GUIDELINES
- WATER FEATURES -

The goal of the City Water Resource Plan is to achieve a sustainable water supply. A sustainable supply means more than just balancing supply and demand, it means having sufficient water supply to maintain a viable economy and quality of life during times of normal and reduced water supply. The use of water features is often perceived and criticized as a wasteful use of water, especially during periods of water supply shortages or drought. However, even in desert environments water features have historically played a major role in the perception of quality of life of places and the community. Water features such as fountains, ponds, waterfalls, streams and 'mistlers' are found in a variety of outdoor and indoor environments, such as, public parks, gardens, government buildings, office complexes, restaurants, hotels and motels, amusement and water parks, shopping malls, and homes. These water features serve as focal points for community gathering, creating cool places of shelter from a hostile environment, and creating a calming relaxed atmosphere. Fortunately technological and operational efficiency measures can be implemented to minimize waste while allowing for the continued enjoyment of water features. Regardless of the water supply situation, water features can be designed and managed to serve an appropriate and specific purpose while minimizing water waste.

The following guidelines address water use efficiency measures that can be used in the design and operation of water features to improve their operational efficiency and public perception while still meeting their role in enhancing the quality of place.. Adherence to these guidelines may extend the allowable operation of water features during potential restrictions resulting from periods of water supply shortages.

RECOMMENDED WATER EFFICIENCY MEASURES

Proper design and management of a water feature requires blending technological and operational efficiency measures with the intend purpose of the water feature within the context of its place. Determination of proper design and management can be based on a comprehensive set of *best available technology* and *best management practices*. The following water efficiency measures are recommended for proper design and management of all water features including decorative fountains, ponds, waterfalls and streams, as well as cooling systems such as 'mistlers'. What design and operation efficiency measures are appropriate for each feature will depend on the purpose and location of the feature. For example cooling features will be dependent on seasonal

weather conditions. Social focal points will be dependent on types and times people utilize the place where the water feature is located.

Design Measures - Best Available Technology:

Point of use Meters: Point of use meters for water features can assist with the efficient operation of a water feature. Installing a separate point of use meter allows an operator to assess water consumption and more easily detect water leaks.

Alternative Water Sources: Alternative water sources reduce the impact of water features on the potable water system. Where practical the use of alternative water sources is recommended, however the use of an alternative water source is not reason to relax the standards for proper operation of a water feature. Certain alternative water sources may be restricted from use by a water feature. This determination shall be made by the appropriate government agencies with jurisdiction over water quality standards.

Recirculating Water Systems: Recirculating water systems are recommended for all water features with moving water such as fountains, water falls, and constructed streams. Recirculating water systems will reduce water consumption and may result in significant financial savings. Recirculating water systems are strongly encouraged for all water features with moving water, and may be required for continued operation of water features during certain levels of water supply shortages.

Automatic Control Timers: Automatic control timers are recommended for all water features with moving water such as fountains, water falls, and constructed streams. Automatic control timers reduce water loss to evaporation, splashing and overspray by limiting the operation of a water feature with moving water to only those times when the benefit of the facility can be realized. For example, water features used as a social focal point can be turned off during hours a facility is not occupied. During times of water supply shortage continued operation of water features may be restricted to certain hours and having an automatic control will facilitate management of the feature during such restrictions..

On Demand Timed Controls: User accessible on-off controls are recommended in situations where benefit of the facility is sporadic and based on user need. For examples misters on patios or bus shelters are only needed while someone is in the area. The use of controls that the user can activate for a set period of time would help reduce use of water when there is no benefit.

Wind Detectors: Wind detectors are recommended for all water features with moving water such as fountains, water falls, and constructed streams. Wind detectors allow for automatic shut off of water features with moving water during periods of high wind. Wind detectors reduce water loss to evaporation, splashing and overspray during heavy wind events. Wind detectors are strongly encouraged for all water features with moving water, and may be required for continued operation of water features during certain levels of water supply shortages.

Rain Detectors: Rain detectors are recommended for all water features with moving water such as fountains, water falls, and constructed streams. Rain detectors allow for automatic shut off of water features with moving water during rain events. Rain detectors reduce water loss to splashing and spilling during heavy rain events. Rain detectors are encouraged for all water features with moving water, and may be required for continued operation of water features during certain levels of water supply shortages.

Operational Measures – Best Management Practices:

Pump Rate: Set pump rate at a level that minimizes water loss from overspray.

Water Level: Set water level at a height that minimizes water loss from splashing or spilling.

Time of Use: Operate water features with moving water only when the benefit of the facility can be realized. For example water features such as misters should only be operated during the times of the year when they can be effective at reduce local temperatures. This practice will reduce water loss to evaporation, splashing and overspray.

Weather Adjustments: Avoid operating water features with moving water during wind or rain events. Wind can have the effect of increasing water loss to evaporation and overspray. Rain can increase the water level of water features, adding to water loss from splashing and possibly spilling. In addition, some water features lose their purpose for design during rain events i.e. water features designed for noise abatement may be ineffective during a rain event. Operating a water feature during wind and rain events may have the effect of augmenting the perception that water features are a negligent waste of water.

Inspection: Regularly inspect water features for leaks. Installing a 'point of use' meter may assist with identifying leaks.

Water Quality: Maintain water quality at an appropriate level.

DESIGN AND MANAGEMENT PLAN

It is recommended that when new water features or renovation of existing water features is being considered that a design and management plan be prepared in advance. This plan can identify:

- 1) what is the purpose of the water feature in the context of where it is located,
- 2) what are the temporal or environmental aspects of the use of water that are needed to meet the purpose or the water feature,
- 3) what operational measures can be incorporated to make the water consumption as low as possible and still accomplish the purpose of the water feature, and

4) given the water features purpose and design, what is the operations and maintenance plan for the feature, including management during times of restricted water use, including possible shut off for and extended period of time.

If desired the Water Services Department can assistance in the preparation and/or review of such plans.

IMPACT OF POTENTIAL RESTRICTIONS

During periods of water supply shortages, either as a result of drought or a short term system failure, the City will likely restrict the use of water features. Restrictions on the use of water features are anticipated to get more severe as the severity of a water supply shortage increases. Water feature restrictions could vary from; restricted use during certain times of day or seasons, to restricted use for certain design elements, to prohibiting all use of water features. Proper design and management of water features can reduce the impact of potential restrictions and, where employed, may allow for continued operation during certain levels of water supply shortages. Therefore adherence to the measures contained in these *Water Use Efficiency Guidelines for Water Features* is strongly encouraged.