9.2 Conservation Ordinance Planning and Development

Applicability

This Best Management Practice is intended for use by municipalities as part of a comprehensive approach to water conservation.

Description

This Best Management Practice is designed to provide guidance in developing and implementing a successful conservation ordinance that addresses permanent year-round water savings. Short-term cut backs based on temporary drought conditions is not the focus of the practice but should be considered to address short term conditions.

Developing a Comprehensive Conservation Ordinance

The most successful conservation ordinances have support from a community with a knowledgeable and engaged customer base, whether through education and awareness or a voluntary conservation program. A community that is considering this Best Management Practice should first determine what goals they wish addressed, such as long-term resources, peak or seasonal demand, capacity issues, or reduced waste water flows and then analyze end uses to help identify what may have the greatest potential for water savings. Stakeholders associated with those end uses should be brought into the process as early as possible. A good source for additional information and approaches to identifying opportunities for water conservation is Texas Water Developments Board's "Guidance and Methodology for Reporting on Water Conservation and Water Use."

1. End Use Analysis
   An end use analysis is the first step in identifying conservation provisions that will have the greatest impact on water use reductions in a given community. Basic questions include:
   - How old is the predominant housing stock?
   - Is the community "built-out" or still growing?
   - Are there industrial or manufacturing operations that are served?
   - Is there only light commercial and office?
   - Is there extensive use of irrigation systems?
   - Are there a significant number of multi-family housing, schools, golf courses?

Use basic billing information and utility employee knowledge of your customer base to gather the information. For smaller communities enough information can be gathered this way. Other sources of information include economic development offices, chambers of commerce, builders associations, school districts, metropolitan transit authorities, city planning, and permitting offices.

2. Provision Mix
   Communities with a very homogeneous customer base may need only a few provisions to address in a conservation ordinance; however, communities with more varied customer bases should consider provisions that address more than one sector. As the stakeholder process moves forward it is beneficial for all sectors that use water to be included in the community effort to save water as everyone who uses water has a part to play.

3. Stakeholder Process
   To assist in identifying that best provisions for the community are determined, a stakeholder process should be developed. Besides the ongoing implementation and enforcement, this is the most time consuming step and should be as inclusive and extensive as possible. This is the time to organize the stakeholder process for general public input and end user sector input. Reasons the community has determined the need for this ordinance should be included in any presentations or communication. These stakeholders should become advocates for the provisions to their colleagues. Communication and defense of the provisions can be shared between staff and stakeholders when the package is presented to the public and entities such as city councils.
   a. General public input process
      Broad or homeowner related provisions need input from the general public, accomplished in several forms. Distribute a general survey asking for public comment for or against the provisions proposed collected through online survey tools, hard copy in utility bill materials, or distributed at public events. Presentations can be developed and offered to community service groups such as Rotary or Lions clubs, church groups, garden clubs, homeowners associations, or any number of groups unique to your community. If this is the first effort by the community to develop an ordinance addressing conservation, a citizens advisory group should be considered appointed for the duration of the process and continued through the implementation process.

   b. End use sector stakeholder: Business Community
      Parallel to the general public input effort, input should be sought from specific end use sector stakeholders dependent on the provision proposed. For example, if you are proposing that certain standards need to be implemented when installing new landscapes you will want to meet with landscape and irrigation professionals and homebuilders at a minimum. If proposing provisions that address cooling towers you will want to meet with building owners and managers as well as cooling tower management companies. If you include provisions on pool construction standards you will want to meet with pool companies. Local chambers of commerce, landscape and irrigation groups, apartment associations, the local school district, city parks, homeowner associations, and other business groups that have a

general interest should also be included. Do not overlook the Texas county extension service as well. All meetings and comments received should be documented as you move through this process.

Implementation

Each community will have a different process to adopt ordinances. Most cities adopt final provisions through their home rule authority to pass ordinances and include them in their city codes. There are a variety of enforcement mechanisms which often depend on the specific mix of provisions adopted. Many conservation ordinance provisions have elements that come up in the building process and may be best addressed and enforced through the permitting process used for new construction requirements. Other provisions may be associated with facility management that may affect billing and can be enforced through billing requirements. Other items may fit better into a fine or citation system. The implementation phase will be challenging and buy-in from those directly responsible for enforcement is essential. Those responsible for the enforcement mechanism should be considered a stakeholder as the effectiveness of the ordinance depends on it.

Scope and Schedule

The water provider should allow for approximately 12 to 24 months realizing the full scope of this Best Management Practice. A schedule for creating, implementing, and evaluating this Best Management Practice should look similar to this:

1. Creation and support of permanent or special citizen/stakeholder advisory groups to provide programming and enforcement input.
2. End use analysis conducted by staff and special stakeholder work groups to determine proposed provisions.
3. Incorporate input and finalize provisions for staff to present to governing body such as a city council.
4. Establish enforcement mechanism.
5. Establish buy-in from the enforcement sector.
6. Develop materials and processes to inform those directly affected of the new requirements.
7. Evaluate the effectiveness of provisions implemented as well as the enforcement mechanisms.
8. Make adjustments to the provisions or enforcement mechanisms as needed.

Measuring Implementation and Determining Water Savings

To accomplish this Best Management Practice, the water provider should do the following after the first year of implementation:

1. A general survey should be sent to those sectors specifically and directly affected by the provisions to assess the general level of awareness of the provision, how compliance is occurring, and what could improve the process in the actual provision to continue to conserve water. Include both the end use sector as well as the “enforcement” sector.

2. A second round of stakeholder outreach should be considered depending on the initial survey results.
3. Identify aspects of the program which may or may not have succeeded. Look for opportunities to expand on what worked well and change or remove aspects that did not work as well.
4. A general accounting of the number of warnings, citations, corrective actions, or other statistics should be collected and compared to the number of total associated activities to get a sense of compliance rates.

The ease of determining water savings will greatly depend on the mix of provisions selected. Provisions addressing water saving equipment will have specific savings that can be calculated by determining the number of pieces of equipment installed compared to the higher use alternative. High efficiency plumbing fixtures or air cooled equipment compared to their higher water using equipment is an example of a straightforward comparison.

Less straightforward are provisions associated with outdoor water use. In these cases, comparing use before and after the provision is implemented along with overall water use, incorporating weather and other variables may be necessary to get a true determination of water savings.

Though water savings from reduced outdoor end use is the most difficult to determine in many ways, it is often critical to the provision mix because many communities are trying to address peak demand.

Cost-Effectiveness Considerations

The cost-effective water conservation ordinance provisions will be determined by the provision mix and choice of enforcement mechanism. Elements include:

1. Choice and number of provisions included in the ordinance.
2. Enforcement mechanism chosen.
3. Current and projected water resource portfolio specific to the community.
4. Marginal cost and need of the next available water source.
5. Availability of voluntary conservation programs in the community.

References

1. San Antonio Water System. http://www.saws.org/conservation/
2. City of Austin, Austin Water Utility. http://www.ci.austin.tx.us/water/water_portal2.htm
3. Alliance For Water Efficiency. http://www.allianceforwaterefficiency.org
4. American Water Works Association. http://www.awwa.org
5. Texas Water Development Board. http://www.twdb.texas.gov/conservation

Determination of the Impact on Other Resources

Effective implementation of a comprehensive conservation ordinance can have significant positive impact on both economic and environmental resources.

1. Economic Resources
   A reduction in water use by either voluntary or mandatory methods including the adoption of a conservation ordinance can reduce the cost for both water and wastewater treatment capacity, energy use, and the need to secure additional sources of raw water. While some provisions may initially cost the implementing stakeholder more, in the current water resource environment as well as the significant and ever-increasing costs in treatment and energy costs, those upfront costs can be recouped with low rate increases or in some cases the ability to have enough water for the stakeholder will outweigh the initial costs of the provision.

2. Environmental Resources
   A reduction in water use by either voluntary or mandatory methods including the adoption of a conservation ordinance will allow more water resources for environmental flows that can also lead directly or indirectly to economic benefits for the fishing and shrimping industry. In the urban environment, provisions can lead to land use that is more beneficial to urban wildlife including birds that are protected under migratory bird act and indirectly to increase in environmental tourism such as bird watching that can account for a significant portion of tourism dollars in many Texas communities.