

## 7.5 Water Wise Landscape Design and Conversion Programs

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### *Applicability*

This BMP is intended for a Municipal Water User Group (“utility”) that has 20 percent or more residential customers that have landscapes consisting of high water use landscape materials that consume more than 20,000 gallon per month or use more than twice as much water in the summer as in the winter. Under this BMP, the utility would offer financial assistance as an incentive to customers to convert to a water wise landscape. Utilities impacted by repeated drought may also consider this BMP as a means of reducing outdoor water demand overall in their service area as a step toward long-term change of water use patterns. Once a utility decides to adopt this BMP, the utility should follow the BMP closely in order to achieve the maximum water efficiency benefit from this BMP.

### *Description*

The utility offers financial incentives for landscape conversion to a water wise landscape or requires by ordinance that all new landscapes incorporate water wise principles. Water wise landscaping involves not only plant selection but also follows optimum landscaping principles listed below. Financial incentive programs that promote water wise landscaping contain an educational component involving the seven principles of water wise landscaping. Water wise landscaping material often consumes whatever quantity of water the customer supplies, so careful follow up is necessary to ensure that excess irrigation does not take place. Incentives should be designed to be rescinded if water use returns to previous levels or exceeds the projected water budget for the new landscape.

For new customers and change-of-service customer accounts, the utility should provide information on water wise landscape design and efficient irrigation equipment and management (See the Landscape Irrigation Systems Conservation and Incentives BMP for more detail on efficient irrigation equipment and management). The utility should install water wise landscaping at water agency facilities. Encouraging the use of rainwater capture and limiting irrigation to the quantity of water captured are also included.

Some cities with ordinance-making powers have adopted ordinances to define water-conserving landscapes to be installed in buffer areas, new commercial buildings, new homes, and apartment complexes. Any ordinance for new homes should incorporate requirements for water wise principles, specifically requiring only water efficient landscaping materials to be used. Irrigated turf areas can be reduced or eliminated in this BMP. Limiting turf areas can be accomplished by any number of means including reducing turf as a percent of total landscaped area, restricting irrigation systems to a portion of the landscaped area, encouraging shade tolerant species under trees, or encouraging the use of turfgrasses which have low water use rates.

In the typical landscape, turfgrass occupies the largest area and, when managed incorrectly, receives the largest amount of irrigation. Installing practical turf areas and irrigating only the turf in high impact, highly visible areas of the landscape, achieve water savings. Practical turf areas mean locating turfgrass in areas of the landscape where it provides the most functional benefit, such as recreational areas or on slopes to prevent erosion. In the case of irrigation of sloped turf grass areas adjacent to a sidewalk and needed for erosion control, the use of drip or subsurface irrigation and not sprinklers is recommended.

Grasses available for use in Texas lawns vary significantly in water requirements. This BMP may require limiting irrigated turf area within the landscape and/or requiring the lowest water use turfgrass adapted to the region and use in the landscape. Shrub beds, low water use groundcover, or hardscape in the landscape design should replace irrigated turfgrass in areas that are long and narrow or small and odd-shaped. Turfgrass requirements for new construction should include specifications for soil depth.

Soil improvement is an effective method for reducing irrigation water usage while maintaining healthy soils. Soil improvement programs on high visibility areas can demonstrate to the public the effectiveness of this method. For most landscapes, compost applications of 1/4 to 1/2 inch annually on turf areas, and one inch annually on flower beds are recommended. Compost is most beneficial when applied in the fall.

Water Wise Landscape programs follow the seven principles of Xeriscape™, from the Texas A&M Horticulture Website (See, Section I, References for Additional Information, 2), listed below and explained in greater detail in resources listed in the reference section:

- Planning and design
- Soil analysis and improvement
- Appropriate plant selection
- Practical turf areas
- Efficient irrigation
- Use of mulches
- Appropriate maintenance.

### *Implementation*

Initially, the utility should consider offering the Water Wise Landscape Design and Conversion Program to customers with educational missions such as schools, universities, botanical gardens, and museums with large public landscapes. A focus on buffer areas and small landscaped areas that are inefficient to irrigate has also proven effective in some communities. The utility should consider also approaching local weather announcers, radio gardening show hosts and newspaper columnists for assistance in notifying the public about the program. Public-private partnerships should be pursued with gardening clubs, Cooperative Extension offices, landscape designers, maintenance companies and nurseries.

Calculation of rebates for landscape conversion or as incentives for new landscape installation should be based on careful consideration of the net present value of the water saved versus the size of rebate that helps motivate customers to install such a landscape. For new construction, another type of incentive would be a discount on the water capital recovery fee.

Careful design of the program is necessary to prevent overwatering after the water wise landscape is installed. Signed agreements with customers receiving rebates can assist the utility in recovering funds if water use does not decline after installation of the water wise landscape. Incentives including rebates should be rescinded if water use returns to previous levels within two years.

Awards programs can both reward the customer who has converted the landscape and help motivate others in the community to convert to low water use landscaping materials.

### *Schedule*

- 1) The scope of this BMP, should be realized within ten years of the date implementation commences.
- 2) Develop and implement a plan to target and market landscape conversions to Industrial/Commercial/Institutional (“ICI”) & Residential accounts with dedicated meters by the end of the first year from the date implementation commences.
- 3) Develop and implement a plan to target and market landscape conversions to all accounts by the end of the second year from the date implementation commences.
- 4) Develop and implement a customer incentive program by the end of the first year from the date implementation commences.

### *Scope*

- 1) Rebate and Incentive Approach
  - a. Within one year of implementation date, develop and implement a plan to market low-water requiring landscape design and conversion program;
  - b. Within one year of implementation date, develop and implement a customer incentive program.
  - c. Rescind incentives, including rebates, if water use returns to previous levels within two years.
- 2) Ordinance Approach  
 In the first twelve (12) months: Plan a program including stakeholder meetings as needed. Consider offering rebates for all or a portion of the time this program is in place. For example, offer rebates for five years and publicize this so customers will take advantage of rebates and retrofit early in the program. Develop a plan for educating realtors and landscape companies about this requirement. Plan a follow up inspection program after retrofit. Develop and

pass ordinance. Implement ordinance and tracking plan for number of units retrofitted.

In the second year and after: Continue implementation and outreach program for realtors and landscape companies. Continue verification inspections.

### *Documentation*

To track this BMP, the utility should gather the following documentation:

- 1) Number of dedicated irrigation meter accounts;
- 2) Number, type, and dollar value of incentives, rebates, and loans offered to and awarded to customers;
- 3) Estimated water savings based on customer surveys; and
- 4) Estimated landscape area converted and water savings achieved through low water landscape design and conversion program.
- 5) Customer water use records prior to and after conversion of the landscape. This data is best compared in years of similar rainfall and after sufficient time has passed for the landscape to establish itself.

### *Determination of Water Savings*

Provide estimates of water savings from landscape conversions based upon actual metered data.

### *Cost-Effectiveness Considerations*

The primary costs to implement this BMP are the incentives or rebates to customers for conversion to water wise landscape. Current incentives for landscape conversion range from \$0.05 to \$1.00 per square foot in Texas. Depending on program design and whether pre and postconversion inspections are required, staff labor cost should range from \$50 to \$100 per conversion.

Marketing and outreach costs range from \$20 to \$50 per conversion. Administrative and overhead costs range from 10 to 20 percent of labor costs.

### *References for Additional Information*

- 1) *EARTHKIND™ Environmental Landscape Management*, <http://aggie-horticulture.tamu.edu/earthknd/earthknd.html> 2004.
- 2) *Handbook of Water Use and Conservation*, Amy Vickers, Waterplow Press, May 2001.
- 3) *Water Savings from a Turf Rebate Program in the Chihuahuan Desert*, El Paso Water Utilities, City of El Paso Water Utility, 2003.
- 4) *Waste Not, Want Not: The Potential for Urban Water Conservation in California*, Pacific Institute, November 2003.

- [http://www.pacinst.org/reports/urban\\_usage/waste not want not full report.pdf](http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf)
- 5) *Xeriscape Handbook*, American Waterworks Association, Denver, 1999.
  - 6) *Xeriscape Plant Guide*, American Waterworks Association, Denver, 1996.
  - 7) *Xeriscape Color Guide - 100 Water-wise Plants for Gardens and Landscapes*, American Waterworks Association, Denver, 1998.
  - 8) *City of Austin Landscape Regulations*.  
[http://www.amlegal.com/austin\\_nxt/gateway.dll/Texas/Austin/code00000.htm/volume00157.htm/title00158.htm/chapter00160.htm?f=templates\\$fn=altmain-nf.htm\\$3.0#JD\\_25-2-981](http://www.amlegal.com/austin_nxt/gateway.dll/Texas/Austin/code00000.htm/volume00157.htm/title00158.htm/chapter00160.htm?f=templates$fn=altmain-nf.htm$3.0#JD_25-2-981)
  - 9) *City of Austin Environmental Criteria Manual: Section 2 Landscape*.  
[http://www.amlegal.com/austin\\_nxt2/gateway.dll?f=templates&fn=default.htm&vid=alp:austin\\_environment](http://www.amlegal.com/austin_nxt2/gateway.dll?f=templates&fn=default.htm&vid=alp:austin_environment)
  - 10) *California Model Landscape Ordinance 1993*.<http://www.owue.water.ca.gov/docs/WaterOrdIndex.cfm>
  - 11) *Austin Green Gardening Program* (<http://www.ci.austin.tx.us/greengarden/>)
  - 12) *City of Corpus Christi Xeriscape Landscaping*.  
<http://www.cctexas.com/?fuseaction=main.view&page=1047>
  - 13) *San Antonio Water System Conservation Program*.  
<http://www.saws.org/conservation/h2ome/landscape/>
  - 14) *Texas Cooperative Extension for El Paso County*.  
<http://elpasotaex.tamu.edu/horticulture/xeriscape.html>
  - 15) *WaterWise Council of Texas*. <http://www.waterwisetexas.org/>