



**2012 - WATER CONSERVATION PLAN**

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## **INTRODUCTION:**

The 2012 Water Conservation Plan outlines specific water conservation goals for the next five years by a public water supplier, as set in the Water Conservation Program. The original plan was completed in 2002 and is reviewed and updated every five years. The Water Conservation Plan contains strategies for reducing consumption of water, improving the efficiency of the use of water, increasing the recycling and reuse of water, preventing the pollution of water and contains Best Management Practices to meet identified targets and goals. The following sections will explain how goals are developed, the specific measure of merit for each goal, and minimum requirements contained in TCEQ rule Title 30, Texas Administrative Code (TAC), Chapter 288.

## GOAL DEVELOPMENT AND MEASURES OF MERIT:

### I. GOAL DEVELOPMENT

Water Conservation Goals are categorized by area of control: supply side and demand driven. Supply side measures are those that are within the control of the City of Amarillo and the Sources that supply the water to the City. Demand driven measures are those controlled by the consumers. As each goal is developed, it will list what customer(s) it will be targeted toward, how it will be implemented, and how it will be measured for effectiveness.

- A. Supply Side measures include those that are under control of the City of Amarillo and the sources that supply water to the City. Factors that affect supply side measures include, but are not limited to, the following:
- Capacity of the City water supply sources and characteristics of the distribution system
  - Capacity of the wastewater system
  - Water allocations from Canadian River Municipal Water Authority (CRMWA)
  - Setting operating rates charged to consumers for usage of the water
  - Resolutions, ordinances and codes controlling usage of the water
  - Continuous updating of conservation programs
  - Rates of source water recharge
  - Alternate water sources
  - Implementation of Drought Contingency Plan stages as indicated in the Drought Contingency Plan
- B. Demand Driven measures are those driven by consumers. These include, but are not limited to:
- Various demographic information, such as personal interests, age, level of education, income and housing value
  - Type and purpose of consumption (indoor vs. outdoor)
  - Category of usage (residential, commercial, industrial and institutional)
  - Participation in Water Conservation rebate and incentive programs
  - Turf and landscape changes

*\*\*See additions to Supply Side and Demand Side Measures on Page 4\*\**

- C. In addition to the above factors that affect goal development, the degree of conservation sought also aids in determining the specific goals for the next five years. There are two basic types of conservation: voluntary and mandatory.
- Voluntary - All or most water conservation measures that are noncompulsory. Many of the goals developed are of this type.
  - Mandatory - The water conservation measures that are compulsory. They will be complied with whether they are passive and already in place, or mandated by local government. In addition to the mandatory conservation goals selected in this plan, the City may also implement its Drought Contingency Plan when necessary.

## II. MEASURES OF MERIT

The primary device for measuring attainment of goals will be through conducting a water utility audit. Audits will be conducted annually based on the previous calendar year's water consumption. The audit will be conducted using reports from the Director of Utilities office and by completing the Utility Profile & Water Conservation Plan Requirements for Municipal Water Use by Public Water Suppliers (TCEQ-10218).

In general, water conservation goals are set so that the amount of water used per year decreases or remains the same as population increases and total demand decreases relative to total consumption. A measurement of merit will be included along with each conservation goal for the current year. Indicators of conservation goals met are:

- Reduction in usage of water as measured in gallons per capita per day (GPCD) for residential, commercial and industrial users
- Unaccounted for water as a percentage of gallons produced per year (%) for the overall water supply, distribution and treatment system
- Annual peak-to-average daily use ratio
- Quantity of wastewater treated
- Quantity of reused or recycled water; and/or
- Total usage

## CONSERVATION GOALS FOR THE 2012 PLAN:

This section outlines conservation goals for the 2012 Plan. Those measures listed in the above section will be continued 'as is' in the 2012 Plan. Some of the measures will be modified slightly to reach their target audience and add a quantifiable means of tracking their progress towards conservation. Those measures are:

### *Supply Side Measures*

- Water Supply Contracts (Conservation Plan provisions)
- Added 21 wells from the Potter County Well Field
- Plumbing Code/Retrofit Program (requirements for conservation oriented appliances)
- Reclaimed Water (sold to SPS)
- Metering (meter repair and replacement, universal metering, state law)
- Water Waster Reporting Program
- Leaky Water Main Replacement Program
- Annual Top 20 Roundtable Discussion
- Water Conservation Website
- Landscape Ordinance Revisions
- Texas Water Development Board Water Audit (for determining unaccounted-for losses)
- Work with Utility Billing to track misplaced meters/unauthorized connections
- Work with Amarillo Fire Department to track water used for hydrant testing
- Pollution Prevention (Plumbing Code, Wellhead Protection, Industrial Pretreatment Program, Backflow/Cross-connection Control Program)
- Alternative Water Sources

### *Demand Side Measures*

- Drought Tolerant or Xeriscape® Demonstration Project
- Continuing Public Education, Information and Outreach Efforts
- Form partnerships with Texas Agri-Life Extension Agency, Nurseries, Texas Apartment Association, Amarillo Area Realtors, etc.
- Work with community organizations and agencies concerning conservation (speaking engagements, videos, etc.)
- Gallons Per Capita Per Day (GPCD)
- Increase Outreach Efforts

I. SUPPLY SIDE MEASURES

A. Water Supply Contracts (Conservation Plan Provisions)

1. Description of Measure:  
Wholesale Water Contract Provisions - Each wholesale water contract entered into, renewed or extended must contain provisions for curtailing water supplies. Wholesale water sold includes City of Canyon, Palo Duro Canyon, Fritch Highway Water Association and Amarillo MHC. The wholesale contracts will be contractual prior to the sale of any water.
2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
3. Implementation Plan:
  - Record Management (water production, consumption, sales)..... Ongoing
4. Measure of Merit:  
Amount of water sold to the Wholesale consumers is a good way to measure effectiveness.

B. Potter County Well Field

1. Description of Measure:  
Largest infrastructure project ever constructed by the City and was funded through the Texas Water Development Board Water Infrastructure Fund. The project consisted of 21 production wells with total production of water at approximately 24 MGD, two ground storage tanks at 3 million gallons each, pump station, 21 miles of 12-inch to 54-inch of collection pipelines and 18.5 miles of 42-inch and 48-inch transmission pipelines.
2. Costs Involved:  
The original construction cost was approximately \$72,000,000.
3. Implementation Plan:
  - Construction began in 2009..... Completed
4. Measure of Merit:  
Determine by the amount of water produced and distributed to the City.

C. Plumbing Code/Retrofit Program (requirements for conservation oriented appliances)

1. Description of Measure:
    - a. The City has adopted the International Plumbing Code which requires the use of water saving (Ultra Low Flow) features to be installed in new construction and in the replacement of plumbing in existing structures.
    - b. Manufacturers of plumbing fixtures sold in Texas must comply with the Environmental Performance Standards for Plumbing Fixtures, which requires all plumbing fixtures such as showerheads, toilets, and faucets sold in Texas to conform to specific water use efficiency standards.
    - c. In order to accelerate the replacements of older fixtures, Utilities can offer rebates and other incentives.
  2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
  3. Implementation Plan:
  4. Rebates and incentives ..... To Be Determined
- Measure of Merit:  
Increase in the amount of water saving plumbing fixtures and number of rebates given is a good way to measure effectiveness.

D. Reclaimed Water (sold to SPS)

1. Description of Measure:  
This measure includes the recycling and reuse of wastewater effluent.
2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
3. Implementation Plan:
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
4. Measure of Merit:  
Amount of water sold to SPS is a good measure of effectiveness.

E. Metering (meter repair, testing and replacement, universal metering, state law)

1. Description of Measure:
  - a. This measure includes a program for universal metering for customers water usage, for meter testing and repair, and for periodic meter change out program.
  - b. Meter accuracy-Water meters can be damaged and deteriorate with age, thus producing inaccurate readings. Inaccurate readings will give misleading information regarding water usage, make leak detection difficult, and result in lost revenue for the system.
2. Costs Involved:  
Replacement of meters, testing and repairs.
3. Implementation Plan:
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
  - Replacements, testing, etc..... Ongoing
4. Measure of Merit:  
Decrease in the amount of water loss is a good measure of effectiveness. Meter repair and replacement will be documented (meter number, size, make, model, etc.)

F. Water Waster Reporting Program

1. Description of Measure:  
This measure provides citizens an option for reporting water wasters by calling a direct number or sending an email (waterwasters@amarillo.gov)
2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
3. Implementation Plan:
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
4. Measure of Merit  
Determine by the number of calls and email received by the City. A decrease in the amount of water loss through unaccounted uses is an indicator of this measures effectiveness.

G. Leaky Water Main Replacement Program

1. Description of Measure:
  - a. This measure includes a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water.
  - b. This measure includes regular on-site testing a sonic leak-detection survey, or another acceptable method for detecting leaks along water distribution mains, valves, services, and meters.



2. **Costs Involved:**  
The cost of water leakage can be measured in terms of the City operating costs associated with water supply, treatment and delivery. Necessary repairs of larger leaks can be costly, but it also can produce substantial savings in water and expenditures over life of the water main.
3. **Implementation Plan:**
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
  - Replacement of old and deteriorated mains..... Ongoing
  - Testing..... Ongoing
4. **Measure of Merit**  
A decrease in the amount of water loss through unaccounted uses is an indicator of this measure's effectiveness.

**H. Annual Top 20 Roundtable Discussion**

1. **Description of Measure:**  
This measure involves working with the Top 20 Roundtable water consumers to reduce their overall consumption. This measure will target high volume commercial, industrial and institutional users. Letters will be sent to the aforementioned groups explaining the various benefits of conservation and ways they can help. Another element of this plan is to check into the possibility of adding categories used for billing purposes. For example, in addition to Residential, Commercial and Industrial, adding groups for multi-family and institutional (schools, local/fed./state government properties).
2. **Costs Involved:**  
The only additional direct cost to the City of Amarillo for this measure will be for postage, which is at 45¢ per item mailed.
3. **Implementation Plan:**
  - Designate large users to target..... Ongoing
  - Write correspondence..... Ongoing
  - Mail correspondence..... Ongoing
  - Follow up with large users..... Ongoing
  - Begin discussions with Data Processing..... To Be Determined
  - Advertise new categories in water bill insert..... As Required
  - Implement category additions..... To Be Determined
4. **Measure of Merit:**  
Informational campaigns such as this are difficult to quantify. AWWA suggests using 3.25% as the standard savings for this type of measure.

**I. Water Conservation Website**

1. **Description of Measure:**  
The Director of Utilities Office will work with Information Technology to update the Water Conservation web page with water conservation tips and information. The page will be divided into sections that will target all water consumers (i.e., residential, commercial, industrial and institutional). It will also include links to various water conservation websites and environmental agencies. The page would also include a copy of this plan, the Drought Contingency Plan, Consumer Confidence Report, and any other documents that would demonstrate to the public the City of Amarillo's commitment to water conservation. The Water Conservation web page will be updated as necessary.
2. **Costs Involved:**  
No direct costs will be incurred by this measure, other than indirect cost that will incur by the employees' time to update the page.

3. Implementation Plan:
  - Coordinate with Information Technology ..... Ongoing
4. Measure of Merit:
 

A reduction in the amount of residential, commercial, industrial or institutional consumption is usually an indicator of the measures effectiveness.

J. Landscape Ordinance Revisions

1. Description of Measure:
 

Work with Department of Building Safety to revise the City ordinances regarding landscaping requirements. This measure would target all new commercial and industrial development in the City. One suggested change would be to add provisions and/or a requirement to use native vegetation for landscaping. This provision would lessen the need for irrigation by using plants that naturally thrive in this climate. The other suggested change would be to require any area covered with vegetation that requires irrigation to be greater than 3 ft. width. This change would prevent developers from using a 2 ft. wide or smaller stretch of curb, which is not easily irrigated, to fulfill their landscaping requirements. Often times, when irrigation systems are used on those small stretches of landscaped areas, they waste water by watering the curb and street more than they water the grass, as intended.
2. Costs Involved:
 

There should be no additional costs to the City by implementing this measure.
3. Implementation Plan:
  - Multi Department team discussion ..... Ongoing
4. Measure of Merit:
 

This conservation measure is difficult to quantify. A reasonable estimate for measuring its effectiveness is an overall reduction in commercial usage by 3.25%.

K. Texas Water Development Board Water Audit (for determining unaccounted-for losses)

1. Description of Measure:
 

This measure would be conducted on a yearly basis just as it has been, but with slight modifications. One modification would be the Director of Utilities Office Coordinator working with Utility Billing to track the number of misplaced meters recovered and unauthorized connections discovered on a monthly basis. The other modification would be to work with the Amarillo Fire Department to track the number of fire hydrants tested monthly, how long they were drained, etc. These measures would be targeted toward public users and those that are illegally obtaining water usage from the City.
2. Costs Involved:
 

There should be no additional costs to the City for implementing this measure.
3. Implementation Plan:
  - Coordinate with Amarillo Fire Department ..... Ongoing
  - Coordinate with Utilities Billing ..... Ongoing
  - Begin tracking theft/fire hydrant usage ..... Ongoing
4. Measure of Merit:
 

A decrease in the amount of water loss through unaccounted uses is an indicator of this measures effectiveness.

L. Work with Utility Billing to track misplaced meters/unauthorized connections

1. Description of Measure:
 

This measure coordinates with Utility Billing to locate and find misplaced meters and illegal water connections.

2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
3. Implementation Plan:
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
4. Measure of Merit  
A decrease in the amount of water loss through unaccounted uses is an indicator of this measure's effectiveness.

M. Work with Amarillo Fire Department to track water used for hydrant testing

1. Description of Measure:  
This measure will work with the City Fire Department to track water usage and fire hydrant testing on a regular basis.
2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect cost that will incur by the employees' time.
3. Implementation Plan:
  - Record Management (water production, consumption, sales, etc.)..... Ongoing
  - Begin tracking theft/fire hydrant usage..... Ongoing
  - Coordinate with Amarillo Fire Department..... Ongoing
4. Measure of Merit  
A decrease in the amount of water loss through unaccounted uses is an indicator of this measure's effectiveness.

N. Pollution Prevention (Plumbing Code, Wellhead Protection Program, Industrial Pretreatment Program, Backflow/Cross-connection Control Program)

1. Description of Measure:
  - a. To reduce the amount of household hazardous waste, which is a major source of groundwater contamination, host a "Household Hazardous Waste" disposal day. For this measure, the Director of Utilities Office Coordinator would work with the TCEQ, the City's Stormwater inspector, Wastewater Supervisor, Public Works, Potter County Local Emergency Planning Committee, and the Panhandle Regional Planning Committee (PRPC) to set up the event. This measure would target residential water consumers, and would only be available to residents of the City of Amarillo.
  - b. TCEQ defines a Wellhead Protection Program (WHPP) as a program that is designed to protect the quality of a water system's ground water source by monitoring and minimizing the impact of the activities in the source recharge area as well as the portion of the aquifer that supplies the system.
2. Costs Involved:  
To offset this high cost, funds would be solicited from the TCEQ and PRPC (our regional Council of Government), who offer grants for these functions. Additional costs may be incurred for advertising.
3. Implementation Plan:
  - Reports done by the City Environmental Lab..... Ongoing
  - Coordinate with Water Treatment Plant on Wellhead Protection Program... Ongoing
4. Measure of Merit:  
This program's effectiveness would be measured by the quantity of household hazardous wastes collected and disposed of or recycled.

O. Alternative Water Sources

1. Description of Measure:

- a. The City of Amarillo obtains water from several sources including CRMWA and City owned well fields. The City also provides reclaimed water for industry. Each of these alternative water sources operates independently of each other.
- b. Replacements for Carson County Well Field which would extend life of investment in the Well Field, ensures continued firm delivery rates and can be used to balance against Potter County Well Field.
- c. Continued redevelopment of SW/Palo Duro Field which would extend life of investment in Well Field, increase delivery rates and serves against peak day demands.

2. Costs Involved:

Cost for new wells and appurtenances.

3. Implementation Plan:

- Bid process..... Ongoing
- Engineering and design..... Ongoing
- Construction process and timeline..... Ongoing

4. Measure of Merit:

Increase in the amount of water produced from the wells is a good indicator of effectiveness.

II. DEMAND SIDE MEASURES

A. Drought Tolerant or Xeriscape® Demonstration Project

1. Description of Measure:

This measure conserves water through the use of “Water Wise” plant materials in landscape settings.

Martin Road



City Hall



2. Costs Involved:

No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees’ time and minimal administrative costs.

3. Implementation Plan:

- Water Wise Handouts distributed by Parks Department..... Ongoing

4. Measure of Merit:

An increase in the amount of residential, commercial, industrial or institutional drought tolerant landscaping is usually an indicator of the measures of effectiveness.

B. Continuing Public Education, Information and Outreach Efforts

1. Description of Measure:

- a. Insert water conservation information and tips with water bills at least once per year. Inserts will include material developed by City staff using material obtained from the TWDB, TCEQ, ground water districts and other sources that pertain to water conservation in general, and specific to landscape irrigation conservation, and including protection of pipes from freezing.
- b. Recruit local media in providing coverage of water conservation issues and the importance of water conservation.
- c. Develop water conservation guide and other water conservation materials available to the public at utility offices or other public places.
- d. Develop youth outreach program and establish an advisory committee.

2. Costs Involved:

Varies and dependent upon what method.

3. Implementation Plan:

- Contact stake holder regarding water conservation..... Ongoing
- Printing and distribution of conservation materials..... Ongoing
- Press releases..... Ongoing
- TV and radio public service announcements..... Ongoing
- Plant tours..... Ongoing
- Displays and presentations..... Ongoing
- Provide conservation tips with bill once per year..... Ongoing

4. Measure of Merit:

Number of events attended, number of guides distributed will be documented.

C. Update water conservation guide

1. Description of Measure:

This measure would update the water conservation guide for appearance and information.

2. Costs Involved:

Costs would be dependent on what source was used to update the guide and the amount of guides printed.

3. Implementation Plan:

- Update guide..... Ongoing
- Printing and distribution..... Ongoing

4. Measure of Merit:

Determine by the number of guides distributed.

D. Form partnerships with Texas Agri-Life Extension Agency, Nurseries, Texas Apartment Association, Amarillo Area Realtors, etc.

1. Description of Measure:

Increase water conservation efforts by teaming up and partnering with different agencies and associations for public awareness.

2. Costs Involved:

No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.

3. Implementation Plan:

- Contact stakeholders regarding water conservation..... Ongoing
- Coordinate with agencies regarding events..... Ongoing

4. Measure of Merit:  
Determine by the number of partnerships obtained.
- E. Presentations to community organizations and agencies concerning conservation (speaking engagements, and videos)
1. Description of Measure:  
The City can use a variety of methods to distribute information and educate the public on water conservation. Some outreach methods include operating booths at public events, attending workshops, printed and video materials, and coordination with civic organizations.
  2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
  3. Implementation Plan:
    - Contact stakeholders regarding water conservation..... Ongoing
    - Coordinate with agencies regarding events..... Ongoing
  4. Measure of Merit:  
Determine by the number of events attended.
- F. Gallons Per Capita Per Day (GPCD)
1. Description of Measure:
    - a. This measure is an expression of the average rate of residential, commercial and industrial water user demands depending on the size of the system.
    - b. Water Loss Target is 15 GPCD by 2013 and 12 GPCD by 2018.
  2. Costs Involved:  
No direct costs will be incurred by this measure, other than indirect costs that will be incurred by employees' time and minimal administrative costs.
  3. Implementation Plan:
    - Track water utility's progress..... Ongoing
    - Set performance targets and benchmark..... Ongoing
    - Collect data by connection type..... To Be Determined
    - Account for all water supplies..... Ongoing
  4. Measure of Merit:  
A reduction in the amount of residential, commercial, industrial or institutional consumption is usually an indicator of the measures effectiveness.
- G. Increase Outreach Efforts
1. Description of Measure:  
This measure consists of forming partnerships with local conservation oriented agencies, such as Master Gardeners, Texas Agri-Life Extension Service, Panhandle Groundwater Conservation District, Amarillo Apartment Association, and Amarillo Realtors Association. Specific goals would be to increase amount of speaking engagements, write 'guest' columns for the newspaper, solicit public service announcements on local radio stations and begin residential water audit program to help residential consumers reduce water usage.
  2. Costs Involved:  
The only costs involved in this plan involve purchasing water measuring equipment for use in residential auditing.
  3. Implementation Plan:
    - Begin group outreach..... Ongoing
    - Order auditing equipment..... To Be Determined

- Advertise residential audit program..... To Be Determined
  - Begin residential audits..... To Be Determined
4. Measure of Merit:  
 A reduction in the amount of residential, commercial, industrial or institutional consumption is usually an indicator of the measures effectiveness.

III. TIMELINE SUMMARY

