Comments Welcome! Italics *areas mean these are things to be added by next month.*

Workgroup 2: Metrics & Trends

Legislative Tasks

Part of the legislative mandate to Water Conservation Advisory Council focused on how conservation progress is measured over time. Specifically the group is tasked with developing the means to monitor trends in water conservation in Texas. The group will develop methods to monitor targets and goal guidelines for water conservation for consideration by the TWDB and TCEQ.

Tracking conservation progress in Texas should be a high priority. Statewide plans call for 20% of our future water supply to come from water efficiencies. While many conservation plans are being turned in to reach this goal, there are not indications that much tracking is being done yet on implementation or program outcomes. Communities need help to make that step. This report outlines the first steps that the Metrics and Trends workgroup believes must be taken to obtain data on how we are using our water, to determine what is working in water conservation, and what resources water providers need to achieve long-term water savings that will stretch water supplies.

Priorities for Trends & Metrics Year One:
Gallons per capita per day (GPCD) is a metric that has been used for tracking conservation trends in Texas. The Texas Water Development Board calculates a Municipal GPCD number each year that reflects usage for urban areas. Other utilities also calculate a GPCD number that might reflect Total GPCD or a subset of GPCD such as residential or commercial customers.

There has not been a standard methodology used by water suppliers to measure GPCD within their service boundaries. The different GPCD figures reported annually by water suppliers and by TWDB create confusion regarding progress in urban conservation. The tendency of the media or individuals to use GPCD as a way to compare communities on their conservation efforts is also problematic when the metric is not defined. Therefore, the Council determined that the Metrics & Trends workgroup should make it a priority to complete a standard methodology for calculating GPCD for Texas conservation reporting.

The Council also agreed that GPCD should not be the only metric used for monitoring water conservation progress. Additional metrics will be needed to track efforts in water usage categories that are less influenced by regional population. Therefore, a standard GPCD method will be one metric from this workgroup, but not the only measurement tool.

A series of tasks were outlined by the workgroup for this year:

1. Define water usage categories that can guide consumption records for water providers. Develop a flow chart to illustrate how usage records should be reported each year by each type of water provider.
2. Determine which water usage categories are appropriate for GPCD tracking.
3. Set aside other water usage categories for tracking by different metrics in the future.
4. Establish a plan for the development of a standard method that could be used in the future for the TWDB to estimate current population within water provider service areas. This is necessary for the GPCD calculation.
5. Outline steps involved in calculating GPCD metrics.
6. Propose an initial reporting format for GPCD and other basic data from water suppliers.

Summary of Progress

1. Defined Water Usage Categories and Flow Chart

The workgroup analyzed end-usage of water to divide all water sold into unique categories. The objective is that these categories are similar in the way the water is used. Their similarities will drive common metrics and conservation programs. The proposed categories are described with examples in appendix Table 1. *A flow chart that illustrates the relationships between these categories will be included in the next draft of this report as appendix Figure 1.*

2. Which Categories Used for GPCD

For the initial look at metrics, the workgroup first focused on the end use categories that are found in the flow chart under Municipal/Retail water providers. The group concluded that there were two groupings of end-use of water for which the GPCD metric might be used.

Residential categories of single family and multi-family are population related. The most detailed will include a residential GPCD figure and a break-down of this between single-family and multi-family.

There are also other water uses for which a GPCD metric may provide some of the trend information desired for measurement of conservation progress, but not the entire picture. Examples of categories like this include:

Commercial Water Usage
Institutional Water Usage
Recreational/Public Water

The amount of water used in the above categories is influenced by the population that resides in the water service area. However, there are often other factors that can also

influence the per capita report. Therefore, it will be expected that the water uses listed above will be analyzed in the future by metrics in addition to GPCD.

3. Setting Aside Other Categories

There are some categories that the workgroup felt should be set aside for development of other metrics because they are not influenced by population. These include:

Institutional
Industrial
Outside Sales
Agriculture
Non-Revenue - Unaccounted for Water
Reuse Direct or Indirect/ Recycled Effluent

4. Population Estimate Efforts

Background:
Estimation of population is complex and imperfect even when completed by demographers and census experts. However, having a reasonable method for estimating current population that is shared by water suppliers is a critical component of accurate and fair GPCD reporting. If different methodologies are used, it is entirely possible to have results that vary by as much as 5-10%. Such a difference can result in different GPCD reports for each year by different regions.

Although it is a special challenge to estimate population following unique water supply boundaries, there are many advantages to doing this well:

- This allows better mechanisms for tracking progress of programs as they are implemented by water suppliers.
- The ability to follow a variety of defined areas will also allow water suppliers to refine their goals based on what may be very different demographics within their service area.
- The ability to check current population figures against those that were formerly estimated in long-term supply plans will provide an important determination regarding whether or not the supply plan will actually meet the goals in a few years.

Accept Population Estimates from Water Providers in 2008-2009
Because a common methodology will require a year to develop, the workgroup recommends that water providers be asked to turn in what they have been using as population estimates in upcoming reports. They will also be asked to provide a basic description of the reasoning behind their estimate. This background information will be valuable to the workgroup as a statewide methodology is sought. The interim data will also allow progress to begin on tracking end usage of water and GPCD figures for the proposed categories.

Pilot Project Proposed for 2008-2009:
There are many options for data and methods for estimating current and future populations within communities. However, in order for the TWDB to use one methodology to estimate population within water provider service boundaries, common state data must be used. The State Demographer, Karl Eschbach, has agreed to work with volunteer water providers to develop a methodology that could be replicated statewide in the future. An Appendix document entitled "Population Pilot Project" outlines the scope of this effort for 2008-2009, the types of volunteer water providers sought, and the benefits of participation. It is expected that this pilot project will begin in September, 2008 and conclude in June, 2009. If accepted, the methodology would be available for TWDB implementation in 2010.

5. Outlining Steps for GPCD Metrics

A basic guide for providing data by water usage category *will be developed for the August review date.* This will reference the defined water usage categories and their definitions. A proposal for a transition to providing more subsets of data will be made based on community size. It is expected that larger water suppliers may have more sophisticated data available to report on more categories of GPCD than smaller communities.

6. Propose Initial Conservation Summary Report Format for Municipal/Retail and for end use by any water provider

Several report formats have been suggested for a first conservation summary report and end use summary. These will be reviewed in the next workgroup meeting in Austin before the WCAC meeting in August.

Key Findings/Recommendations

1. **Additional Resources to Improve Quality of Reports and Number of Reports on water conservation are needed.**

   The TWDB strives to gather data that can help track conservation success in Texas. The Water Conservation Advisory Council has proposed an upgrade in the data being collected so that new metrics to measure progress can be applied. These proposals will be meaningless without the staff, computer programming and strong policies that will help get good data to the TWDB and to the Advisory Council.

2. **Provide resources available through TWDB to complete a state level population estimate for each water provider.**

GPCD calculations cannot be completed without fair and accurate population estimates. Until now evaluations by GPCD have followed municipal lines rather than water provider lines because population data has not been available. This is problematic because conservation programs are offered by water providers. A methodology will be proposed by the WCAC for implementation by 2010, but resources of staff and computer programs will be needed to make this tool something than can bee successfully implemented statewide.

3. **The Advisory Council and TWDB should consider an outreach effort through professional organizations to reach water providers reporting.**

   As many water providers consider upgrades to their customer service software or look at how to sort their data for reports, they will have new options to consider based on the proposed flow charts from the work of the Advisory Council. Getting many water providers to follow a common language in describing end use of water to their customers will be an important part of ultimately helping them get those customers to be efficient. Both the TWDB and the Advisory Council members and workgroup members can assist in this transition by making presentations at workshops and conferences or to their local water providers.

4. **Total GPCD should not be included in a Conservation Summary Report.**

   Total GPCD is a metric that takes all water sent through a delivery system and divides it by the total population in the water provider service area. It is a metric that provides good internal information for water providers. It can be used for water supply planning or for watching progress over time for a holistic conservation effort. However, it is not included in the Conservation Summary Report proposed by the Advisory Council because it is not an appropriate metric to compare one water provider or one community to another.

   In communities where there could be a very large industrial water usage and a relatively small population, the Total GPCD figure could appear inflated. And, an increase in industrial production could make it go up in one year despite strong efforts in residential conservation or even in per unit industrial conservation. A similar problem could be evident in a community with a strong agricultural water usage component. In these situations, the Total GPCD does not tell the entire story of the water usage of the community and therefore should be used to compare one community to another.

Activities Report

There have been ____ meetings of the Metrics and Trends workgroup by telephone conference call. There have also been ___ meetings of sub workgroups in Austin. All materials developed and minutes are available at www._____.

Appendix Documents:

- To Come: Water Use Categories Flow Chart
- Water Use Categories Definitions Table (included)

- Population Pilot Project Description (included)
- To come: Conservation Summary Report Format Options

Future Objectives

1. Obtain high quality data from water suppliers that will establish accurate baselines for water consumption in different categories of users.
2. Standardize ways that consumption data and population data are reported by water suppliers.
3. Have a standard "Conservation Summary Report" for each water supplier that becomes increasingly sophisticated as programs, data and metrics evolve.
4. Develop ways to help water suppliers use their "Conservation Summary Report" to target their conservation program plans.
5. Develop guidelines for GPCD targets that can be used by water suppliers to guide goals. Questions these guidelines might address include:
    a. How to normalize by weather. What is the dry year goal for residential vs. the wet year goal?
    b. What is a reasonable rate of drop to expect in GPCD categories given a substantial annual investment in conservation?
    c. How to report on trends that are impacting GPCD trends in different sectors such as a growth in high income housing, additional commercial growth, or a new industry that brings in either tourists or commuters each day.
6. Add non-GPCD metrics to conservation reports so that industrial water, agricultural water conservation programs can be tracked for progress.