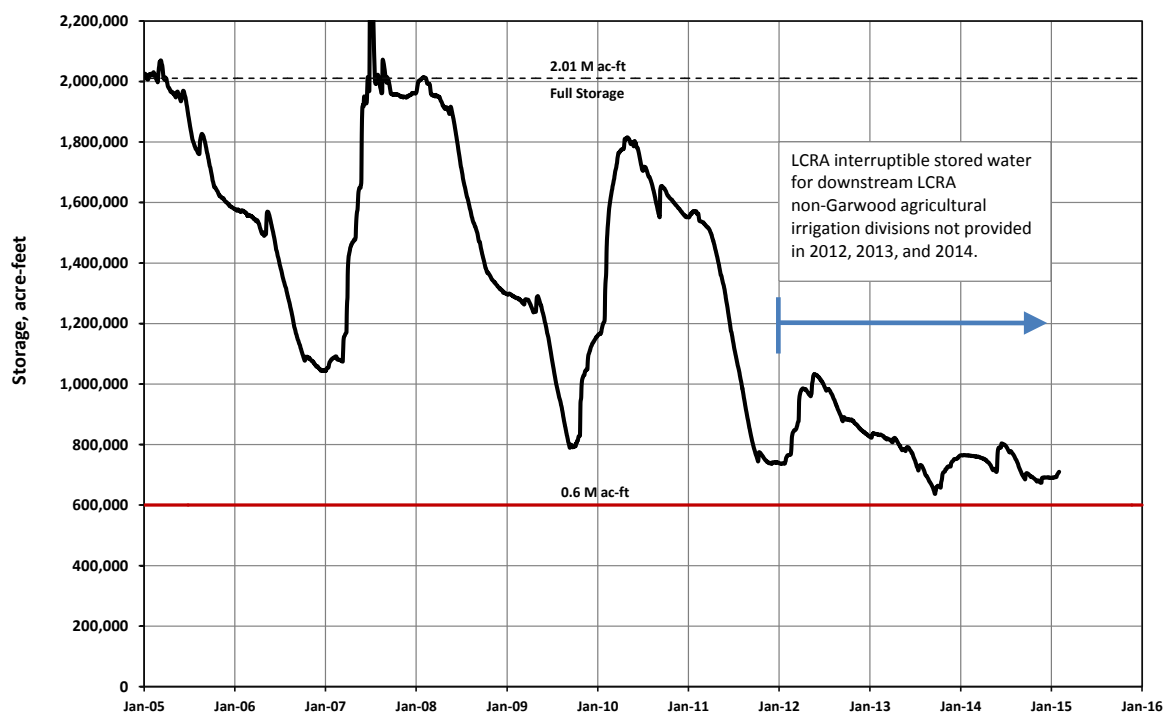




Drought Status & Water Supply

Monthly Report February 2015

Combined Storage of Lakes Travis and Buchanan
January 1, 2005 through February 1, 2015



Monthly Drought Status and Water Supply Report:

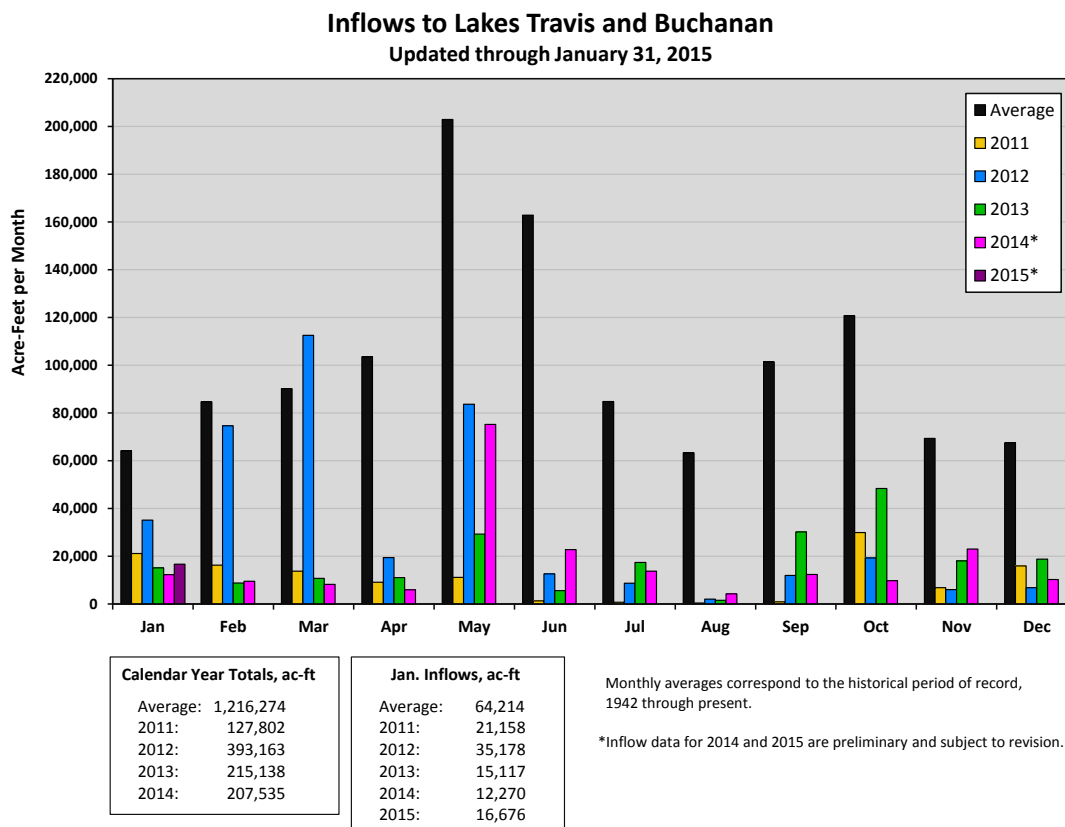
The Colorado River Basin is experiencing an epic drought that could continue to strain water resources for years to come. The following "Drought Status and Water Supply Report" is updated on a monthly basis to provide information on the Basin's ongoing drought conditions as well as Austin Water's drought management efforts.

Inflows to Lakes Travis and Buchanan:

Inflow of total water volume to lakes Travis and Buchanan is a key measure of the drought's intensity, and recently, these inflows have been dramatically low.

The top-five lowest annual inflows on the period of record have occurred since 2006. These annual inflows are each considerably less than the lowest annual inflow during the 1950's drought of record (501,926 acre-feet in 1950). Additionally, annual inflow in 2011 was only 10% of the average annual inflow since lakes Travis and Buchanan were first built in the early 1940's.

Inflow for January 2015 was 16,676 acre feet (AF) (one acre foot equals 325,851 gallons) making January 2015 is the 11th lowest January inflow in the period of record. The monthly inflows from January 2011 through February 2015 are shown on the graph below.



Lakes Travis and Buchanan have experienced particularly low inflows since the start of the current drought in 2008. The table below displays the lowest annual inflows on record, with years representing the current drought starting in 2008 highlighted in blue. These current drought inflows make up six of the top ten lowest annual values.

Top 10 Lowest Years of Inflows

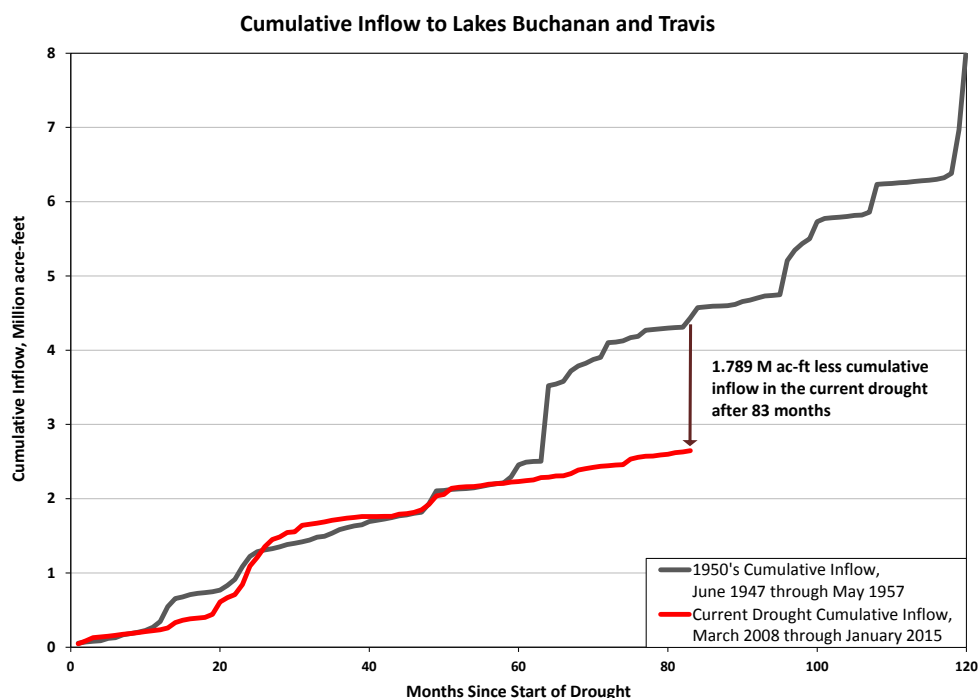
Rank	Year	Annual Total in Acre-Feet
1	2011	127,801
2	2014	207,535*
3	2013	215,138
4	2008	284,462
5	2006	285,229
6	1963	392,589
7	2012	393,163
8	1983	433,312
9	1999	448,162
10	2009	499,732
Average Annual Total	1942 to 2014	1,216,274

*Note: The 2014 inflow data is provisional and is subject to change.

The above "Inflows to the Lakes Travis and Buchanan" bar graph and the above "Top 10 Lowest Years of Inflows" table show "historical inflows" based on flows measured at four stream gages upstream of Lakes Travis and Buchanan, which are adjusted to account for ungagged runoff area into the lakes.

New reservoirs have been built upstream of Lake Buchanan since the 1950's, including the O.H. Ivie reservoir, which began impounding water in 1990. In addition to the above table that ranks the lowest "historical inflows", another useful comparison of understanding the magnitude of the current drought is to compare the cumulative "historical inflows" of the current drought to the cumulative inflow of the 1950's drought. For this cumulative inflow comparison, models are used to adjust historical inflows to approximate inflows as if the new upstream reservoirs had existed in the 1950's drought. These model adjusted inflows are sometimes referred to as "reference inflows".

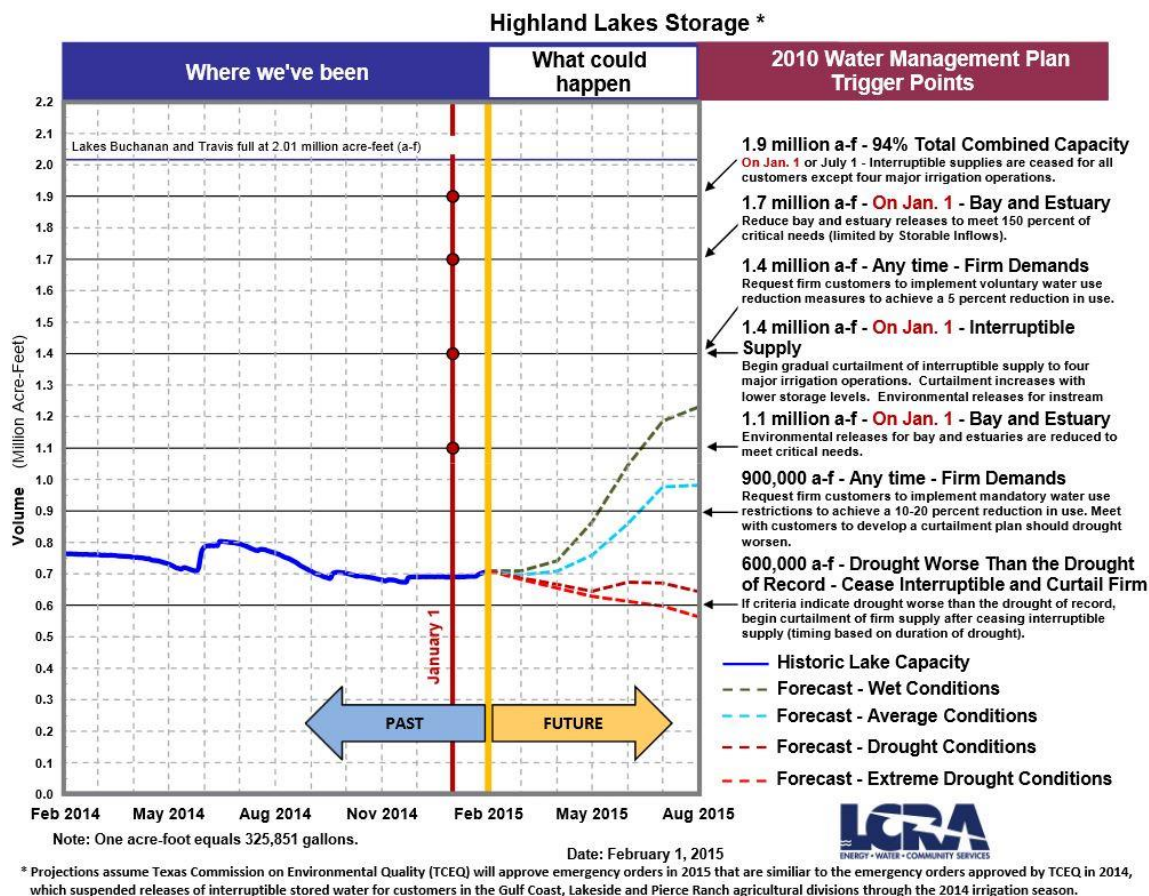
The graph below compares the cumulative historical inflow into lakes Travis and Buchanan since the beginning of the current drought in March 2008 to the cumulative “reference inflows” during the 1950’s drought of record. In this comparison, the current cumulative volume is approximately 1.8 million AF below the cumulative inflow through the same number of months during the drought of record. Total inflow to the lakes is a key hydrological measure of the drought's intensity and these recent statistics indicate the current drought is uncharted territory for drought inflows in the basin.



Combined Storage Volume and Forecast:

Another key measure of the drought's intensity and duration is the combined storage volume in lakes Travis and Buchanan. As of February 9, 2015, the combined storage was 714,832 AF (35% of full). For reference, the lowest all-time combined storage volume was 621,221 AF, recorded during the drought of record. Last summer, the combined storage reached as low as 637,046 AF, dropping alarmingly close to the all-time minimum. LCRA's 6-month storage projection for February is shown on the following page.

February 1, 2015 LCRA 6-Month Combined Storage Projection:



Dropping to 600,000 AF of combined storage or below would be the final criteria requiring the LCRA Board's declaration of a "Drought Worse than the Drought of Record" for the current drought. This declaration would trigger LCRA mandatory pro-rata curtailment of firm water customers at an initial 20% reduction off of a baseline demand as recorded from September 2010 through August 2011. Additionally, LCRA has indicated that 30% or more pro-rata curtailment requirements could be required at lower combined storage volumes. Specific LCRA combined storage volumes for deeper pro-rata curtailment levels have thus far not been established by LCRA's Board.

As an indicator of the rapid decline in reservoir storage since the current drought began, the graph on the cover page of this report shows the combined storage volumes in lakes Travis and Buchanan since January 2005. Officially, LCRA references early 2008 as the start of the current drought based on the last time the lakes were at their maximum allowable water conservation storage levels. However, the noticeable decline in storage since 2005 indicates that the pattern of extreme water scarcity extends back approximately ten years. Additionally, the figure suggests that a return to full lakes, as in 2007, does not necessarily signal the end of the multi-year drought due to the possibility of subsequent time periods of low inflow.

Drought Conditions and Weather Outlook:

The National Oceanic and Atmospheric Administration (NOAA) National Weather Service Climate Prediction Center's seasonal drought outlook, valid through April 30th 2015, designates the mid to western parts of the lower Colorado River basin with a classification of "drought persists or intensifies".

El Niño predictions are important in precipitation forecasts because these conditions typically generate wet weather patterns in Central Texas. Based on the February 5, 2015 prediction, NOAA projects that there is an approximately 50-60% chance that El Niño conditions will be present during the next two months in the Northern Hemisphere winter and will last into the early spring of 2015. However, while the forecast still calls for a chance of El Niño conditions developing, for the time being, the combined atmospheric and oceanic state remains El Niño/Southern Oscillation (ENSO)-neutral. Additionally, the forecaster consensus favors a weak El Niño event that ends in early spring with ENSO-neutral favored thereafter.

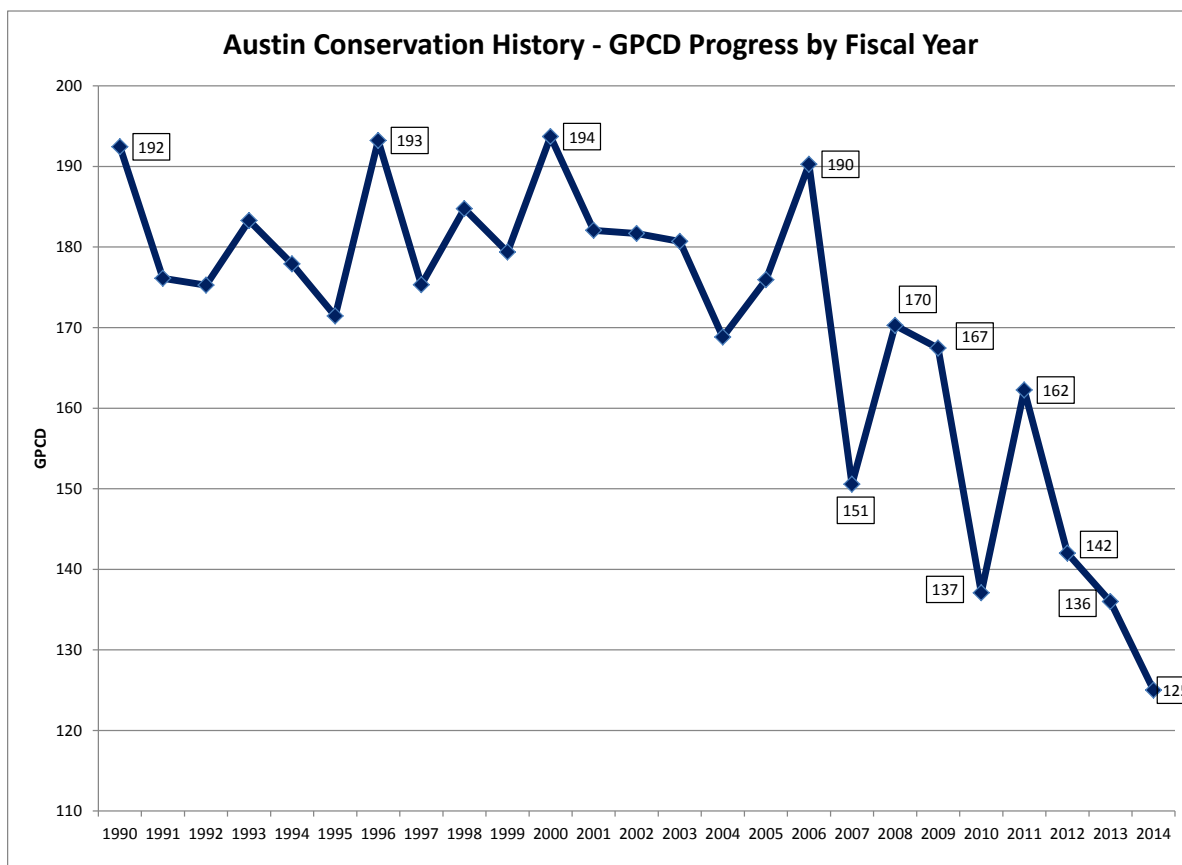
Demand-Side Management:

During this drought, and beyond, Austin's core water management strategies have included demand-side management through implementation of the City's Water Conservation Program and Drought Contingency Plans, as well as continued development of water reuse.

Austin has been in Drought Contingency Plan (DCP) Stage 2 restrictions, which include no more than 1-day per week watering, nearly continuously since September 2011. Due to these limitations and other water-saving measures, Austin has already been consistently meeting its initial 20% water use reduction goals. These targets are aligned with LCRA-approved pro-rata firm customer curtailment goals in both years 2012 and 2013. As part of its firm water customer pro-rata curtailment plan process, LCRA confirmed over 26,000 AF of documented annual water savings in the "reference year" (September 2010 through August 2011) from Austin's water conservation programs, including water reuse. These documented annual water conservation savings do not include additional savings Austin has achieved through Stage 2 implementation.

In accordance with Austin's Drought Contingency Plan (DCP), Austin is prepared to implement Stage 3 restrictions when the combined storage volume of lakes Travis and Buchanan falls below 600,000 AF. Stage 3 allows 1-day per week watering but further restricts watering hours in addition to implementing other water-saving provisions.

Community response in Austin to water conservation and the drought continues to be strong and positive. With the fiscal year (FY) wrapping up at the end of September, Austin's water use in terms of gallons per capita per day (GPCD) for FY 2014 was 125 GPCD. The FY 1990 through 2014 GPCD values are shown on the graph below.



LCRA Water Management Plan (WMP) Revisions and Emergency Orders:

With more than a century of reliance and investment, Austin's core supply and infrastructure systems are centered on the Colorado River supply. Therefore, protection of Colorado River system firm water interests is critical. Austin has senior water rights and firm water supply agreements with LCRA that provide Austin with firm water supplies of up to 325,000 AF per year. This amount is more than double Austin's current level of demand.

LCRA's operations and management of the water stored in lakes Travis and Buchanan is guided by the LCRA Water Management Plan (WMP), a Texas Commission on Environmental Quality (TCEQ)-approved document. LCRA's WMP is currently undergoing a critical revision process, being coordinated through TCEQ, which has been extended to incorporate recent drought year data through the end of 2013.

Concurrently, LCRA has been operating under TCEQ Emergency Orders (EOs) for 2012, 2013, and 2014. These EOs allow LCRA to depart from operating under their current WMP. EOs and the on-going drought conditions have resulted in cut-off of interruptible stored water supply from lakes Travis and Buchanan for three of the four agricultural irrigation divisions in the lower counties of the lower Colorado River basin. The 2014 EO terminated on November 20, 2014.

In December 2014, LCRA submitted a request to TCEQ for a fourth straight year of emergency relief in 2015 to cut-off large releases of interruptible water (primarily used for downstream agricultural irrigation operations) due to the on-going drought.

Additionally, TCEQ is continuing to process LCRA's October 31, 2014 submittal of an amended and restated application to revise LCRA's Water Management Plan (WMP) in significant ways. Revisions include incorporating procedures for curtailing interruptible water such that combined storage in Lakes Travis and Buchanan is maintained above 600,000 AF through a repeat of historic hydrology through 2013. The revised plan also incorporates a three-tier regime that considers both storage and inflow conditions for determining water availability given to interruptible agricultural customers. A TCEQ stakeholder meeting on the amended application was held on January 7, 2015. During this stakeholder meeting, the City provided oral comments and followed up with written comments during TCEQ's "informal" comment period.

City of Austin representatives continue to work diligently through the critical LCRA WMP revision and 2015 TCEQ Emergency Order processes to proactively ensure reservoir management of Lakes Travis and Buchanan is consistent with Austin's firm water interests and with LCRA's lake permit duties and firm customer agreements.

Drought Response Planning Update:

Austin Water Resource Planning Task Force (AWRPTF)

The Austin Water Resource Planning Task Force (Task Force) was created by City Council (Resolution No. 20140410-033) in April 2014 to evaluate the City's water needs, to examine and make recommendations regarding future water planning, and to evaluate potential water resource management scenarios for Council consideration. The Task Force was charged with making recommendations on any alternative water sources including conservation, reuse, regional transmission systems and partnerships, groundwater, aquifer storage, as well as other potential sources in the region. The Task Force was supported by Austin Water and Watershed Protection.

The Task Force convened its first meeting on May 5, 2014 and met intensively through June 25, 2014 to execute their charge. The Task Force's findings including their final report and recommendations to Council are available on-line at:

<http://www.cityofaustin.org/edims/document.cfm?id=214146>

August 7, 2014 Council Resolution (Resolution No. 20140807-090)

On August 7, 2014, City Council passed a resolution (Resolution No. 20140807-090) directing the City Manager to report back to Council by September 25, 2014 with a proposed schedule, plan, and budget for implementing certain key recommendations from the Task Force report and to include a plan for a stakeholder process. Council Resolution No. 20140807-090 is available on-line at:

<http://www.austintexas.gov/edims/document.cfm?id=214617>

The September 25, 2014 report to Council summarizes the key AWRPTF recommendations from the Task Force report with schedule information, available preliminary budget estimates, and plans for stakeholder input.

The September 25, 2014 report to Council is available on-line at:
<http://www.cityofaustin.org/edims/document.cfm?id=218197>

Attached to this Drought Status and Water Supply Report is a summary of supply-side and demand-side strategies recommended by the Austin Water Resource Planning Task Force (AWRPTF) with schedule, budget, and status updates.

Attachment

Summary Austin Water Resource Planning Task Force (AWRPTF) Strategy Updates February 2015

Austin Water has classified the Task Force Key Recommendations into the following categories for purposes of planning and budgeting:

- 1) Short-term demand-side management strategies (SD)
- 2) Short-term supply-side management strategies (SS)
- 3) Proposed code and rules changes (CR)
- 4) Feasibility and engineering analysis for supply-side strategy grouping (FEA)
- 5) Integrated Water Resources Plan (IWRP)

<u>1) Short-term Demand-side Management Strategies (SD) Summary</u>			
Strategy	Schedule	Budget	Status
SD1. Benchmarks	On-going.	In-house resources to be utilized.	For program selection, continuing to use cost benchmarks Austin Water developed with Resource Management Commission, plan to develop broader supply & demand benchmarks through the Integrated Water Resources Plan (IWRP) process.
SD2. Water report software/services	Pilot can be underway in 6 to 9 months.	Estimated \$45,000 for initial launch (includes one-time startup costs).	Working with Purchasing Office and IT Services on procurement options.
SD3. Reclaimed: Completing the Core	On-going construction program with staged project completion over the next 5 to 7 years.*	Capital Projects: \$41.4 million (in current CIP plan).	Completing the Core projects are integrated into Austin Water's Capital Improvement Plan and staggered over the next few years. Various projects are in the planning, design, and construction phases.
SD4. Leak/water loss reduction	On-going leak detection, pipe condition assessment, & remediation programs; develop and share cost relationship information by end of 2015.	Continue to fund efforts through annual O&M and CIP budget process; use in-house resources for developing cost relationship information.	Continuing on-going leak detection, pipe condition assessment, and remediation programs; exploring and developing cost relationship information in process. AW has formulated a Leak Detection Core Team to discuss current and future leak detection contract services and provide update on in-house crews' active leak detection program.

*Note: There are other reclaimed water projects, beyond completing the core, discussed below in the "Feasibility and Engineering Analyses for Supply-Side Strategy Grouping (FEA)" section, that could be accelerated due to the current drought. These potential drought response strategies, including Lake Long enhanced off-channel storage and indirect potable reuse, include construction of additional reclaimed water system infrastructure components contained in Austin Water's reclaimed master plan.

2) Short-term Supply-side Management Strategies (SS) Summary			
Strategy	Schedule	Budget	Status
SS1. Enhance Longhorn dam gate operations	Continue to monitor and coordinate with LCRA – make further gate adjustments and plan for further improvements, as necessary.	Bascule dam gate improvement project funded by AE through current CIP (~\$650,000). Cost estimates for possible future improvements are to be determined.	Completed: - Gate adjustments, using in-house resources. - AE's bascule dam gate improvement project. AE staff is continuing to coordinate and monitor conditions and, as needed, coordinate further gate adjustments with LCRA.
SS2. Lake Long operating level (existing capacity)	Coordination between AE and LCRA to assess feasibility, negotiate, and complete pro-rata curtailment plan amendment and subsequently begin modified operations.	In-house resources to be utilized.	Pro-rata curtailment plan amendment between AE and LCRA expected to be finalized soon (targeted completion February 2015).
SS3. Lake Austin operating level	Proposed to be implemented during non-peak recreational months (October through May) after combined storage in the Highland Lakes falls below 600,000 acre-feet (AF). On an ongoing basis, AWU will monitor LCRA combined storage projections to provide adequate opportunity to conduct a robust public outreach and education process in advance of possible implementation triggering. Will prepare for possible implementation in 2015. Austin Water will coordinate with LCRA.	Coordination to be implemented using in-house resources. Austin Water may need to budget for professional public outreach resources to implement this strategy. However, a scope and budget for these resources has not yet been developed.	Operational plan development and public outreach plan development are underway. Continuing to prepare for possible implementation in 2015.

3) Proposed code and rules changes (CR) Summary			
These include recommendations to amend existing codes and rules, for which development and stakeholder involvement processes can begin prior to the completion of an IWRP.			
Strategy	Schedule	Budget	Status
CR1. Drought response stages	Will prepare for possible implementation in 2015.	In-house resources to be utilized.	Public meeting held in January 2015 to seek public input on lake level triggers and potential additional restrictions to delay Stage 4. A second public input meeting will be held Thursday February 19, 2015, from 7:00 to 8:30 pm at the Waller Creek Center. Task Force recommended hand-watering at 500K AF, Stage 4 no later than 400K AF.
CR2. Toilet replacement	Code amendments before Council in late 2015.	In-house resources to be utilized.	Austin Water plans to work with stakeholders to develop code language and an implementation plan. Anticipate public meetings March-May 2015 with outreach to trade groups starting in February.
CR3. Cooling tower condensate	Work with stakeholders in 2015 to incorporate in City's regular plumbing code update.	Coordination to be implemented using in-house resources.	Austin Water will work with stakeholders in 2015 to develop requirements for new facilities in preparation for next scheduled plumbing code update, anticipated to occur in 2016. Note that schedule may shift based on plumbing code revision timeline.
CR4. Gray water amendments	Amendments sent to Council late 2014.	In-house resources to be utilized for remaining work.	Amendments approved by Council November 20, 2014.
CR5. Irrigation-related measures	Work with stakeholders and report back to Council in late 2015 with recommendations.	In-house resources to be utilized.	Austin Water continuing work in this arena including efforts to improve irrigation efficiency; will continue to prepare for additional stakeholder outreach and reporting back to Council by late 2015 with recommendations.

4) Feasibility and Engineering Analyses for Supply-Side Strategy Grouping (FEA) Summary			
Strategy	Schedule	Budget	Status
FEA1. Lake Long enhanced	Complete feasibility and engineering analyses, including water quality modeling and assessments in 2015. Note that permit requirement consultations with TCEQ will be on-going in 2015.	To be determined (TBD) based on developing scope of work.	Preliminary alignment of reclaimed water pipelines developed, design engineer being acquired off of rotation list. Rotation list contracting for additional feasibility and engineering analysis engineering services for this strategy, as part of the FEA1-4 group, is also underway.
FEA2. Indirect potable reuse	Preliminary engineering for the reclaimed water pipelines associated with this option currently underway, Preliminary Engineering Report (PER) expected to be completed by the end of 2015. Complete additional feasibility and engineering analyses, including water quality modeling and assessments, in 2015. Note that permit requirement consultations with TCEQ will be on-going in 2015.	Current PER budget is \$300,000. Additional feasibility and engineering analyses budget requirements are TBD based on scope of work, to be developed.	Reclaimed water pipelines routing study underway with results expected in June 2015. Rotation list contracting for additional feasibility and engineering analysis engineering services for this strategy, as part of the FEA1-4 group, is also underway.
FEA3. Reclaimed water infiltration	Complete feasibility and engineering analyses, including water quality modeling and assessments, in 2015. Note that permit requirement consultations with TCEQ will be on-going in 2015.	TBD based on scope of work, to be developed.	Rotation list contracting for feasibility and engineering analysis engineering services for this strategy, as part of the FEA1-4 group, is underway.
FEA4. Capture Lady Bird Lake inflows	Complete feasibility and engineering analyses, including conduct water quality modeling and assessments, in 2015. This analysis is to be done in coordination with feasibility and engineering work on other strategies that involve pumping water from Lady Bird Lake into the Ullrich Water Treatment Plant for treatment and distribution.	TBD based on scope of work, to be developed.	Rotation list contracting for feasibility and engineering analysis engineering services for this strategy, as part of the FEA1-4 group, is underway.

5) Integrated Water Resources Plan (IWRP) Summary			
Strategy	Schedule	Budget	Status
IWRP1. Integrated Water Resources Plan Project will include a Conservation Potential Assessment	Project planning and scoping: currently underway. Conduct project over approximately the next 2 years with substantial completion by the end of 2016.	\$500,000 plus in-house and other resources - additional funding may be needed - to be determined through project planning and scoping process.	Continuing project planning, scoping, and making preparations for professional services contracting. In process items include evaluating disaggregated demand models, researching scope of IWRP climate element, and working with Watershed Protection Department on elements including rainwater harvesting.