



# Drought Status & Water Supply Update

## Quarterly Report September 2015

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

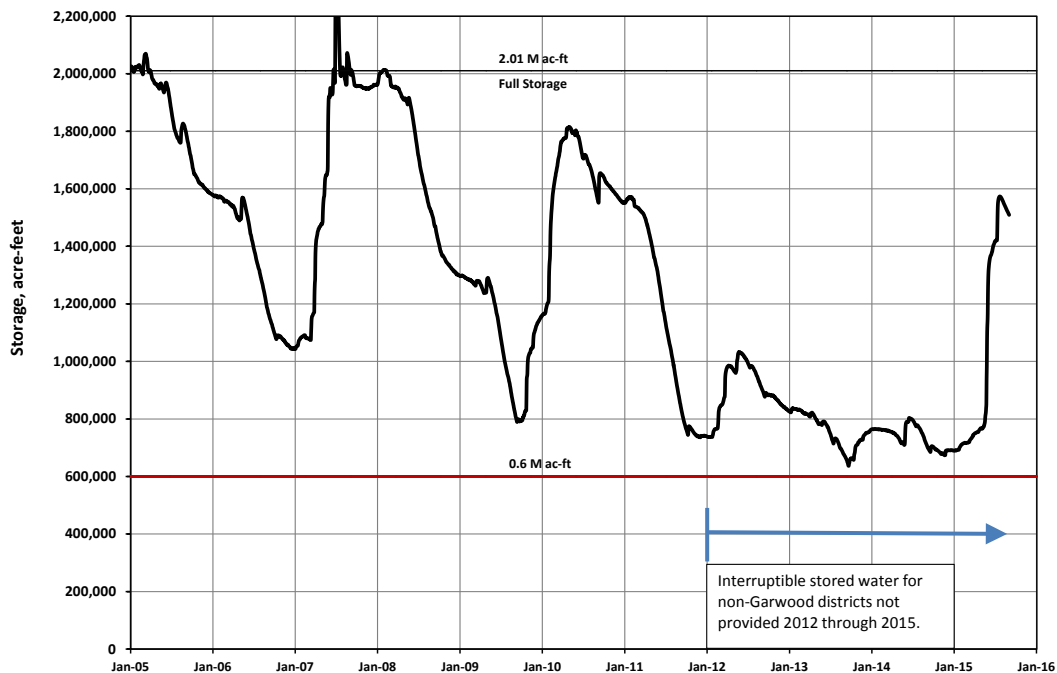


Figure 1

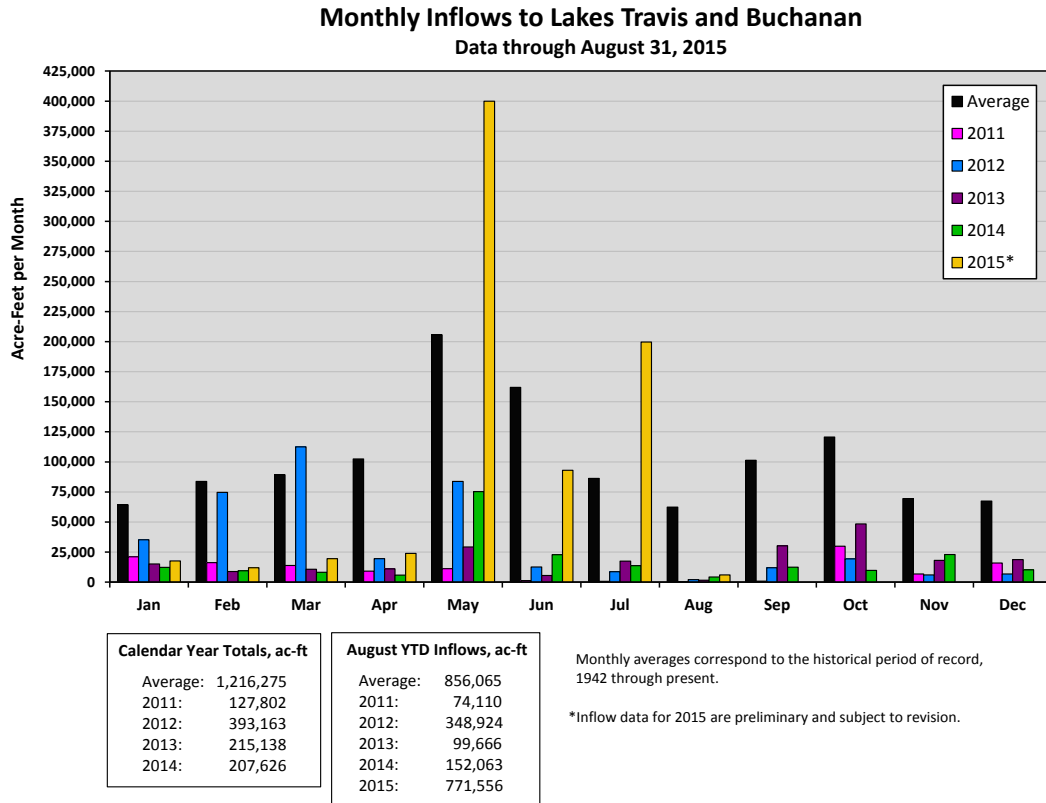
## **Drought Status and Water Supply Report:**

The Colorado River Basin remains in a historic drought that continues to strain water resources. Although the region's water supply reservoirs have received significant inflows during rains events in May 2015, reservoir storage has not fully recovered and still remains below the long-term averages for Lakes Travis and Buchanan. Drought conditions and related drought measures continue to be in effect. The following "Drought Status and Water Supply Report" is updated on a quarterly basis to provide information on the Basin's ongoing drought 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 during the current drought, these inflows have been dramatically low. Strong storm events in May brought significant inflow into the lakes; however, cumulative inflows since the drought began remain much lower than inflows during the region's 1950's drought, which had long stood as the drought intensity benchmark prior to the current drought. The inflow volumes for June, July, and August 2015 are 93,013, 199,613, and 6,075 acre feet (AF), respectively, according to provisional United States Geological Survey (USGS) data. For reference, one acre foot is approximately 325,851 gallons and is defined as a volume covering one acre in area and one foot in depth. As indicated in Figure 2, the year-to-date (YTD) inflow through August 2015 of 771,556 AF is still below the average YTD inflow of 856,065 AF over the period of record.

August 2015 was a particularly dry month. It was the 10th all-time driest August and 33rd driest of any month in the period of record from 1942 to 2015. The monthly inflows from January 2011 through August 2015 are shown in Figure 2.



**Figure 2**

Annual inflows since the start of the current drought in 2008 are exceptionally low. The top-five lowest annual inflows in 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 AF in 1950). Additionally, annual inflow in 2011 was only 10% of the average annual inflow since Lakes Travis and Buchanan were built in the early 1940's. Table 1 displays the lowest annual inflows on record, with years representing the current drought (which began 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	127,802
2	2014	207,579
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

**Table 1**

Figure 2 and Table 1 display “historical inflows” based on flows measured at four stream gages in drainage areas upstream of Lakes Travis and Buchanan. Inflow to these four gages is used estimate inflow into the lakes and this inflow is also adjusted to account for ungaged 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. Only inflows downstream of the Lake O.H. Ivie reservoir contribute to the combined storage for Lakes Travis and Buchanan. 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 from the 1950s drought to approximate inflows as if the new upstream reservoirs had existed in the 1950’s drought. These model adjusted inflows are referred to as “reference inflows”.

Figure 3, shown 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 1.3 million AF the cumulative inflow through the same number of months during the drought of record. While storm events in May reduced the cumulative inflow difference, it is clear that total inflow during the current drought remains well below that of the 1950s drought. Total inflow to the lakes is a key hydrological measure of the drought’s intensity and these recent statistics indicate the current drought is still in uncharted territory for drought inflows in the basin.

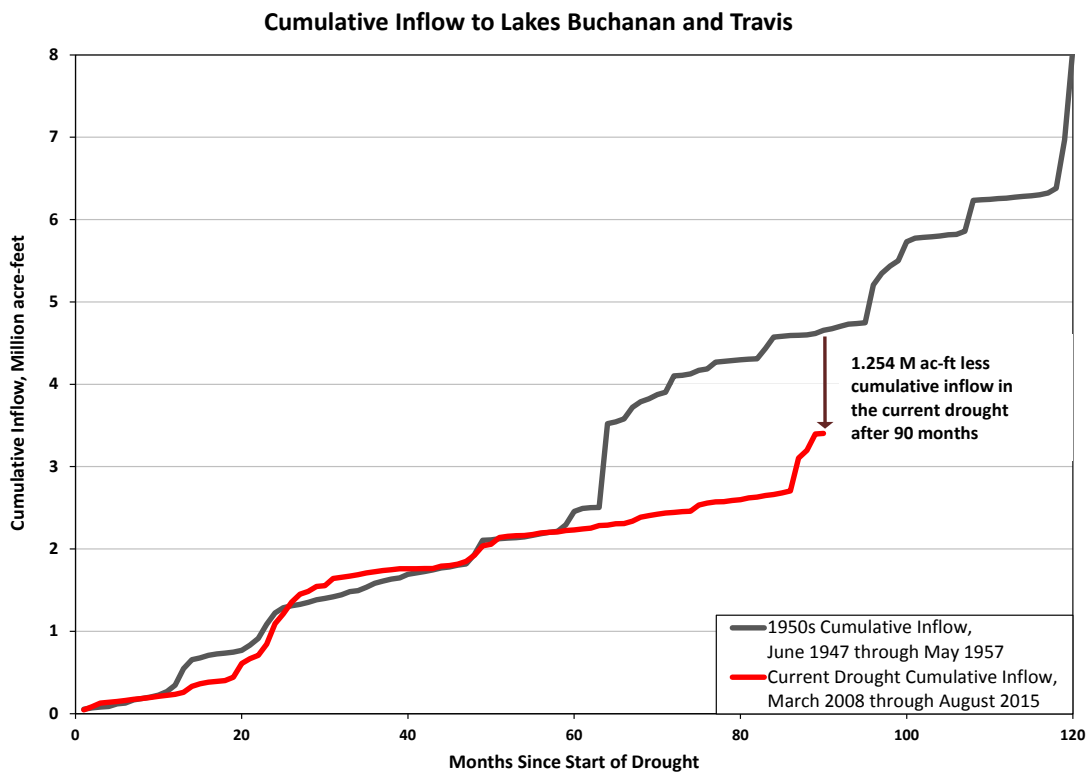


Figure 3

#### 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 September 3<sup>rd</sup>, combined storage is approximately 1,505,629 AF. Combined storage volume has increased by 204,879AF since the beginning of June 2015. Figure 1 on the cover page of this report shows the combined storage volumes in lakes Travis and Buchanan since January 2005.

Although there has been a significant increase in combined storage, these volumes still remain considerably lower than the full volume of 2.01 million AF, as indicated in Figure 4. Additionally, during the course of a drought, periods of high inflow into the lakes can be followed by continued drought conditions, as was case during both the 1950's drought and the current drought. For example, in the months between late 2009 and early 2010, the combined storage volume increased more than 1 million AF to just above 1.8 million AF in total combined storage. This period of increased inflows was followed by an extremely dry year in 2011, which is the lowest inflow year in the period of record dating back to 1942. Another example of a significant inflow event that was followed by multiple years of continued drought was in September 1952. In that month, more than 1 million AF flowed into the lakes, primarily into Lake Travis. However, the drought continued for approximately 5 years after this event.

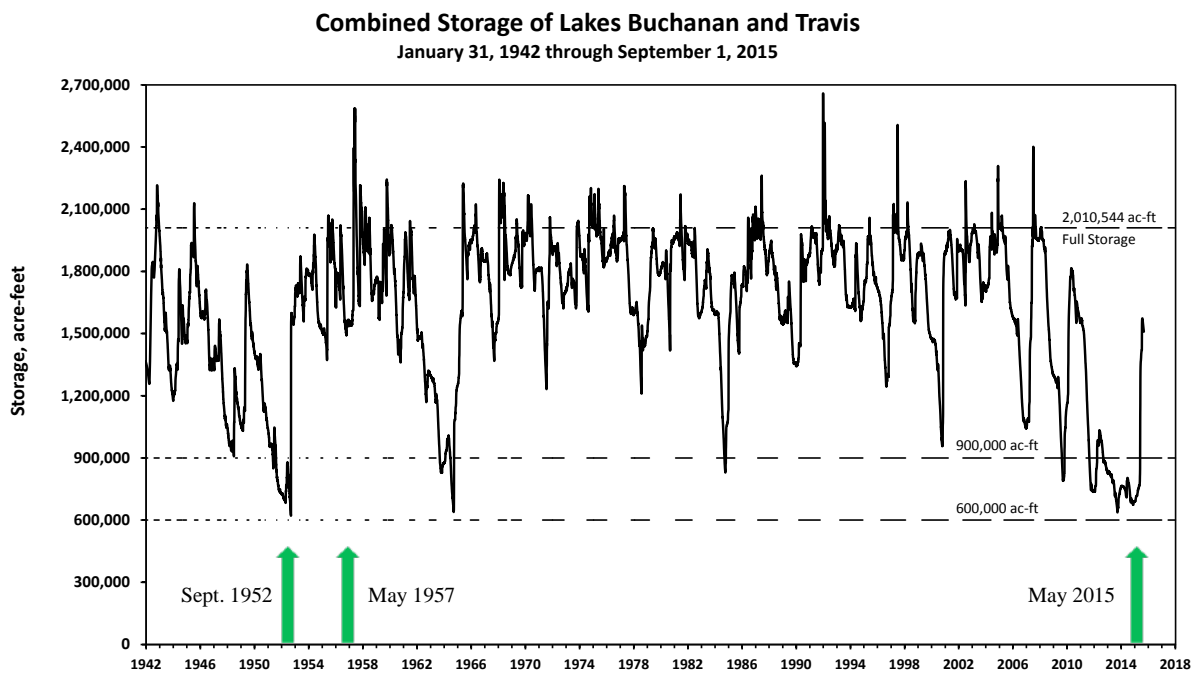


Figure 4

The time span for the 1950's drought of June 1947 to May 1957 is based on Water Availability Model (WAM) results that simulate the combined firm yield (CFY) using the hydrological period of record for the Highland Lakes. The CFY simulation assumes full water rights demand and full firm water contract utilization. The CFY simulation results show the expected response of the combined storage under these assumed conditions in a repeat of the historic hydrology. Note that the actual measured combined storage

span from when the lakes started full and refilled during the drought of the 1950's was August 1945 to June 1955.

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 shown in Figure 1 indicates that the recent pattern of drought extends back approximately ten years. LCRA provides 6-month projections based on stochastic models. This storage projection for September is was not available at the time of writing this report, but the projection for August is shown in Figure 5.

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

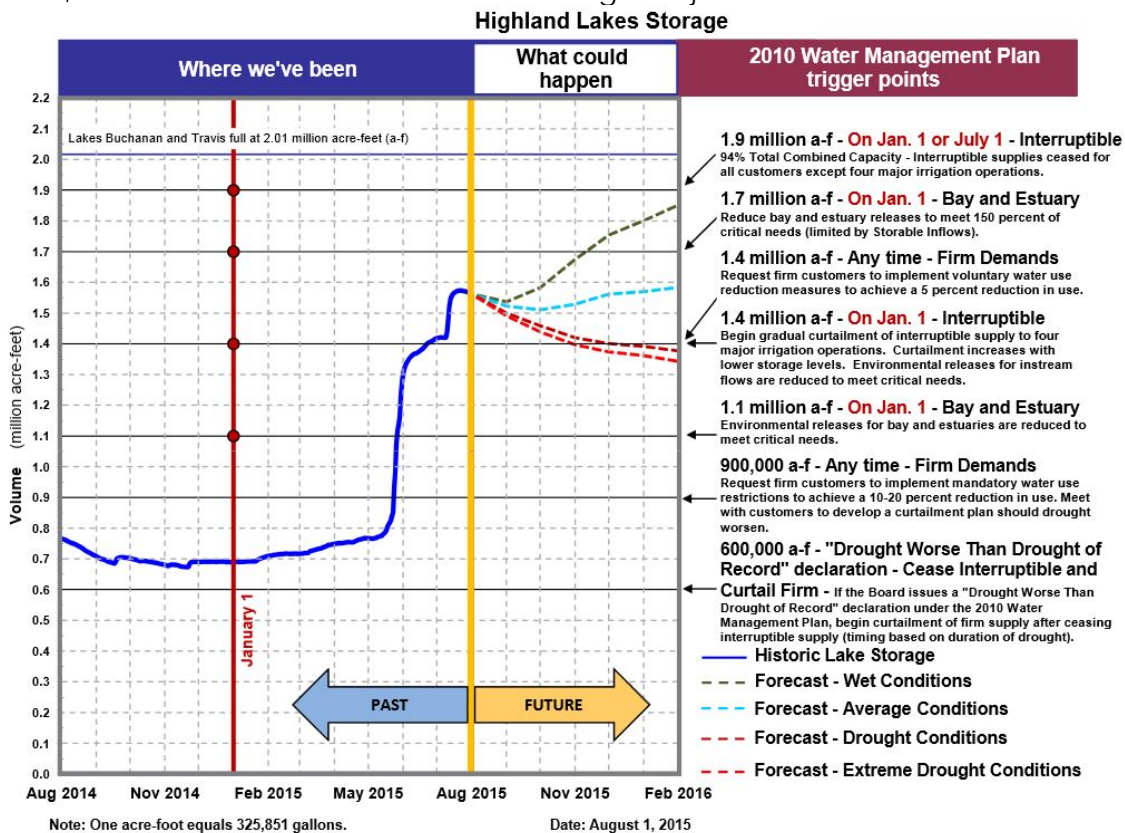


Figure 5

#### LCRA's Announcement of a new "Critical Period" and reduction of Firm Yield:

Based on the unprecedented conditions of the current drought, LCRA in February 2015 announced that the basin is in a new "critical period", which LCRA defines as the time period with the driest conditions and lowest inflows. With this announcement, LCRA has said that there has been a reduction of approximately 100,000 AF per year from the "firm yield" from the Highland Lakes system. Firm yield is defined as the amount of water that LCRA can reliably supply on annual basis through a repeat of the critical period.

Previously, the firm yield of LCRA's Highland Lakes system water supply "inventory" was calculated to be 600,000 AF per year based on a critical period defined during the

"Drought of Record" from 1947 to 1957. Now, the firm yield estimate of LCRA's Highland Lakes system, given the announcement of a new critical period, is 500,000 AF per year. As the drought continues, further firm yield reductions are possible.

In its February 18, 2015 press release, LCRA announced that:

"Preliminary 2014 data shows the drought gripping the Highland Lakes is now the most severe drought the region has experienced since construction of the lakes began in the 1930's."

..."the Highland Lakes are now in a new 'critical period' marking the driest conditions on record, eclipsing the 1947-57 drought that until now was the worst on record for this region."

The February 18, 2015 press release, further states that:

"The revised estimate of the firm yield changes the amount of water available for sale in the future, but does not impact existing contracts, such as those held by the City of Austin and other firm customers."

While LCRA has announced a new critical period and has recalculated the firm yield of the Highland Lakes system, it is important to clarify that this determination of a new critical period based on this drought's eclipsing the 1947-1957 drought is different than LCRA's Board declaring a "Drought Worse than the Drought of Record" (DWDR). LCRA's Water Management Plan (WMP) is a TCEQ-approved document that governs the ways in which LCRA operates and manages the water stored in Lakes Travis and Buchanan. This WMP includes three triggers that must be simultaneously met before LCRA's Board declares a DWDR, as follows:

1. Drought duration of at least 24 consecutive months; and
2. Drought intensity greater than that of the Drought of Record as measured by inflows in Lakes Buchanan and Travis; and
3. Combined Storage in Lakes Buchanan and Travis is less than 600,000 AF

Before recent storm events in May, the first two criteria were met. Due to high May inflows, drought intensity according to LCRA measurement methodology on the basis of inflow in the currently approved WMP is no longer greater than that of the Drought of Record. The first criterion measuring drought duration is still met because Lakes Buchanan and Travis have not been full since 2008. Hence, one of the three criteria is being met under LCRA's current WMP and therefore the DWDR declaration by the LCRA Board has not been triggered even though the current drought is hydrologically worse than the 1947-1957 drought. The pending LCRA WMP proposes a different drought intensity criterion and is based on cumulative inflows similar to Figure 3. In the current drought, the drought intensity criterion under the pending WMP would still be met even with the May 2015 inflows. For more on the status of LCRA's pending WMP see page 10.



#### Drought Conditions and Weather Outlook:

Based on an update released on September 1<sup>st</sup>, the U.S. Drought Monitor currently designates portions of the mid and western parts of the Lower Colorado River Basin with “Abnormally Dry”, “Moderate Drought”, and “Severe Drought” classifications, as shown in Figure 6.

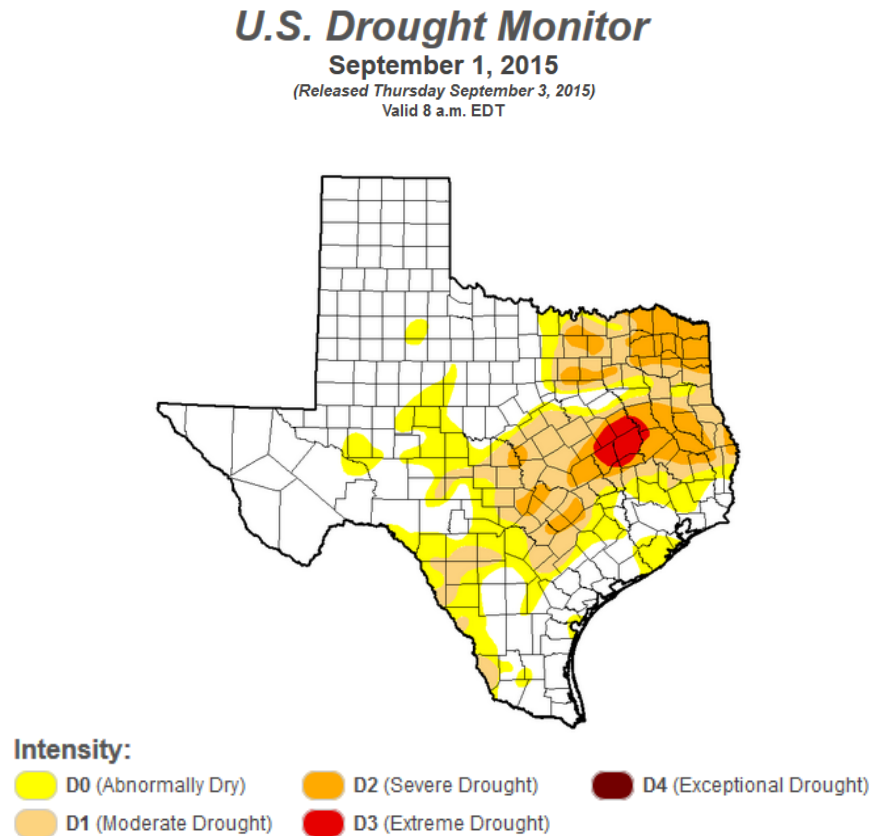


Figure 6

El Niño predictions are important in precipitation forecasts because these conditions typically generate wet weather patterns in Central Texas. According to the August 13th statement from the National Oceanic and Atmospheric Administration (NOAA), “atmospheric and oceanic features reflect a significant and strengthening El Niño”. NOAA projects that there is a greater than 90% chance that El Niño conditions will continue through the Northern Hemisphere winter 2015-16, and a greater than 85% chance these conditions will last into early spring 2016.

### 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 using less water than would be allowed under the initial 20% pro-rata LCRA firm water customer curtailment plan. 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. Figure 6 shows the estimated cumulative City of Austin water savings since just 2011 for both on-going water conservation programs and drought restrictions.

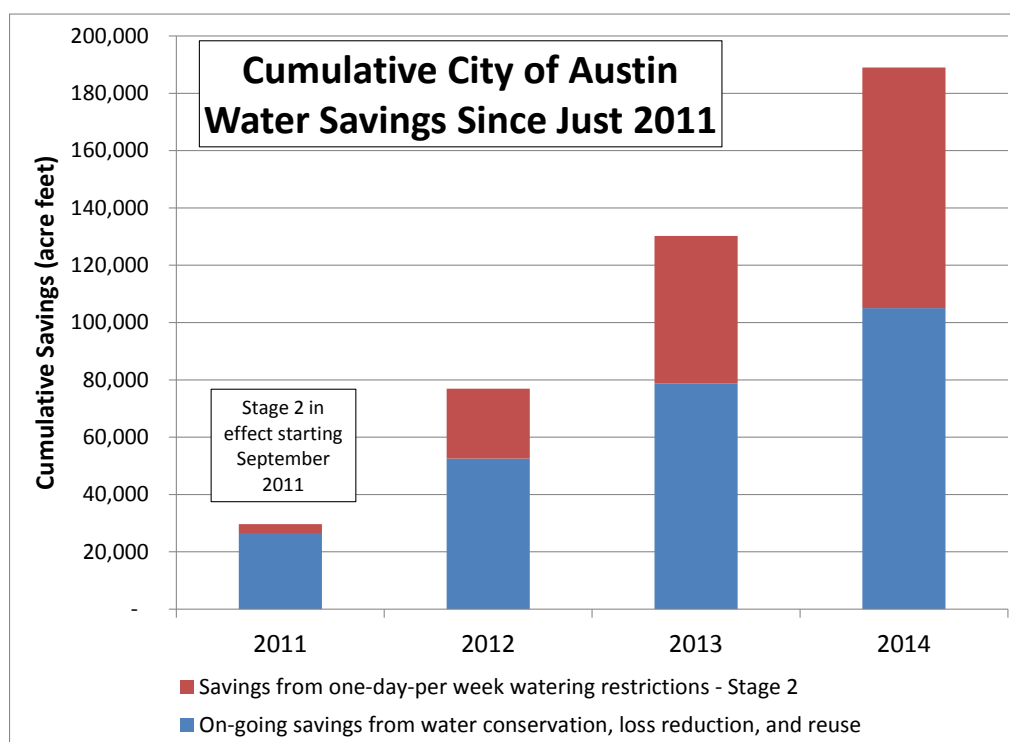


Figure 7

For the previous fiscal year (FY) wrapping up at the end of September 2014, Austin's total water use in terms of gallons per capita per day (GPCD) for FY 2014 was 125 GPCD. Based on billed consumption, water use in the residential sector was 70 GPCD of that total. Total and residential GPCD values for FY 1996 through 2014 are shown in Figure 7.

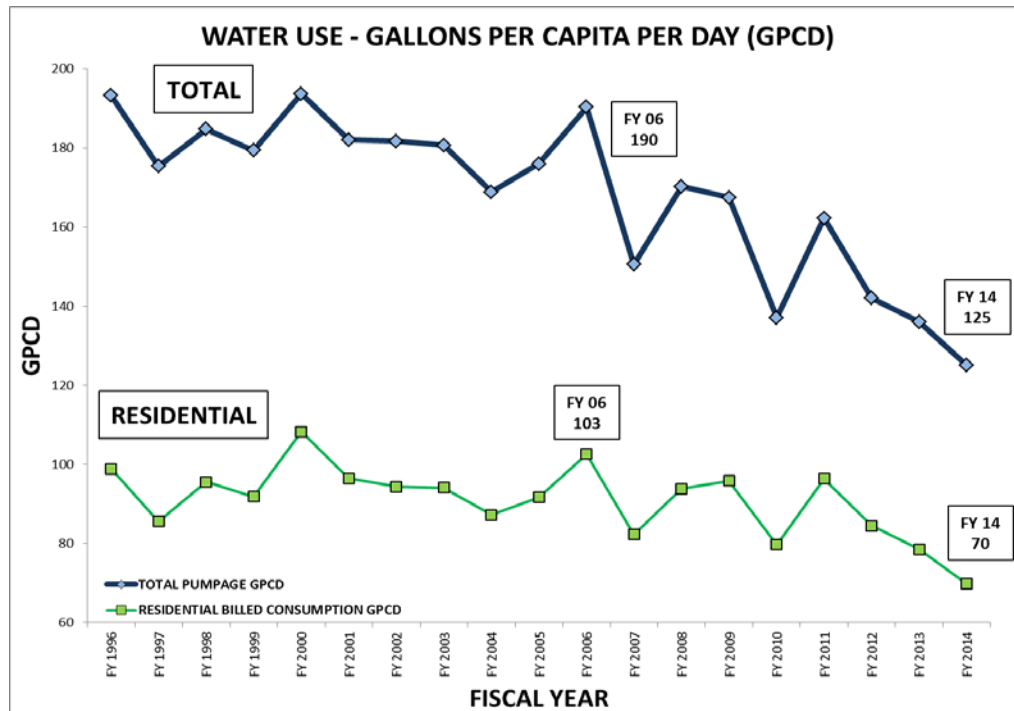


Figure 8

#### 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 document approved by the Texas Commission on Environmental Quality (TCEQ). LCRA's WMP is currently undergoing a critical revision process, being coordinated through TCEQ, which has been extended to incorporate drought year data through the end of 2013.

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. In May 2015, LCRA submitted an additional revision to their pending amendment application to include LCRA's firm water customer Drought Contingency Plan as part of the LCRA WMP.

While the WMP is in the revision process, LCRA has been operating under TCEQ Emergency Orders (EOs) for 2012, 2013, 2014, and 2015. These EOs allow LCRA to depart from operating under their current WMP. EOs and the on-going drought conditions have resulted in cutoff 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. LCRA's most recent submittal to TCEQ for an EO to depart from operating under their current WMP was approved to cover the remainder of the 2015 crop season.

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>

#### Integrated Water Resource Plan

One of the key recommendations of the AWRPTF was the development of an Integrated Water Resource Plan (IWRP) to evaluate the City's water needs, to examine and make recommendations on future water planning, and to evaluate potential water-resource management scenarios for Council consideration. On December 11<sup>th</sup> 2014, City council passed a resolution (Resolution No. 20141211-119) to create the Austin Integrated Water Resource Planning Community Task Force (AIWRPCTF) to support the development of the IWRP. More information about the IWRP is included in the following attached document. Council Resolution No. 20141211-119 is available on-line at:

<http://www.austintexas.gov/edims/document.cfm?id=223726>

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  
September 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)

<b><u>1) Short-term Demand-side Management Strategies (SD) Summary</u></b>					
<b>Strategy</b>	<b>Project Description</b>	<b>Schedule</b>	<b>Budget</b>	<b>Cost and Yield</b>	<b>Status</b>
SD1. Benchmarks	Continue to develop benchmarks for conservation and use benchmarks for water conservation program selection.	On-going.	In-house resources to be utilized.	Not applicable.	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 project targeting 10,000 customers to evaluate the benefits of water report services and customer interface software.	Pilot project is currently underway.	\$48,000 for initial launch of pilot project (includes one-time startup costs).	~\$48,000 for year-one of pilot project.  Initial estimate of 45 acre feet (AF) of water savings for pilot project.	Selected vendor, Dropcountr, is currently working with customers in a pilot study of changes prompted by use of water report services and customer interface software. Approximately 6,000 residential customers have begun receiving the Dropcountr mobile app home water use report since its introduction in early May. Another 1,500 written reports are being provided to three test groups and approximately 2,500 spots remain available to the general public.

<b>Strategy</b>	<b>Project Description</b>	<b>Schedule</b>	<b>Budget</b>	<b>Cost and Yield</b>	<b>Status</b>
SD3. Reclaimed: Completing the Core	Near-term implementation of the Reclaimed Water Master Plan to enable Austin Water to provide reclaimed water to additional customers.	On-going construction program with staged project completion over the next 5 to 7 years.*	Capital Projects: \$41.4 million (in current CIP).	Estimated \$41.4 capital cost.  1,800 AF per year	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.  Contract to construct main to Capital Complex approved by Council 08/20/2015.

\*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.



Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
SD4. Leak/water loss reduction	Continue and enhance efforts to reduce leaks and system losses from Austin Water infrastructure.	On-going leak detection, pipe condition assessment, & remediation programs; develop and share cost relationship information by end of 2015.	<p>Continue to fund efforts through annual O&amp;M and CIP budget process; use in-house resources for developing cost relationship information.</p> <p>Staff is exploring options to prioritize efforts and efficiently utilize resources within the given budget constraints.</p>	To be determined.	<p>Continuing on-going leak detection, pipe condition assessment, and remediation programs.</p> <p>AW has formulated a Leak Detection Core Team (LDCT) to discuss current and future leak detection contract services and provide update on in-house crews' active leak detection program. LDCT is using loggers to proactively identify and repair leaks.</p> <p>Additionally, a district meter has been installed for North Imperial Drive and data is currently being analyzed.</p> <p>LDCT reviewed <i>Water Research Foundation</i> real loss component analysis model data for 2014. This preliminary information is used to determine the Economic Percentage of System to be leak surveyed per year.</p>

## **2) Short-term Supply-side Management Strategies (SS) Summary**

<b>Strategy</b>	<b>Project Description</b>	<b>Schedule</b>	<b>Budget</b>	<b>Cost and Yield</b>	<b>Status</b>
SS1. Enhance Longhorn dam gate operations	Valve adjustments for improved hydraulic efficiency and bascule gate enhancements to improve hydraulic performance from the existing structure.	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 Austin Energy.	<p>Approx. 3,000 AF per year</p> <p>Bascule dam gate improvement project funded by AE through current CIP (~\$650,000).</p> <p>Cost estimates for possible future improvements are to be determined.</p>	<p>Completed:</p> <ul style="list-style-type: none"> <li>- Gate adjustments, using in-house resources.</li> <li>- AE's bascule dam gate improvement project.</li> </ul>
SS2. Lake Long operating level (existing capacity)	Operate Walter E. Long (Decker) Lake with a 3-foot variation in lake level to help preserve stored water in Lakes Travis and Buchanan through strategic lake refill operations in wetter conditions.	On-going coordination between AE and LCRA to implement modified operations.	<p>In-house resources to be utilized.</p> <p>Pro-rata curtailment plan amendment between AE and LCRA approved.</p>	<p>Preliminary estimate - approx. 2,500 AF per year</p> <p>No capital cost requirements.</p>	<p>Completed:</p> <p>Pro-rata curtailment plan amendment between AE and LCRA approved.</p>

Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
SS3. Lake Austin operating level	Operate Lake Austin within an approximate 3-foot operation range during non-peak recreational months.	<p>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).</p> <p>On an ongoing basis, AW 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.</p> <p>Will prepare for possible implementation in 2016. Austin Water will coordinate with LCRA.</p>	<p>Coordination to be implemented using in-house resources.</p> <p>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.</p>	<p>Preliminary estimate - approx. 2,500 AF per year</p> <p>No capital cost requirements.</p>	Development of operational plan development and public outreach plan underway.

### **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.

<b>Strategy</b>	<b>Project Description</b>	<b>Schedule</b>	<b>Budget</b>	<b>Cost and Yield</b>	<b>Status</b>
CR1. Drought response stages	Solicit public input to assess the potential for an additional restriction in Stage 3 that would allow hand water only to delay Stage 4 condition.	Will prepare for possible implementation in 2015.	In-house resources to be utilized.	To be determined.	Given current conditions, determination regarding drought response stages pending. Input from previous public meetings to be incorporated.
CR2. Toilet replacement	Work with stakeholders to develop code language and an implementation plan to require retrofits in the commercial and multifamily sectors.	Schedule pending results of Conservation Potential Assessment to be completed in 2016.	In-house resources to be utilized.	To be determined.	Strategy to be analyzed as part of current Conservation Potential Assessment.
CR3. Cooling tower condensate	Work with stakeholders to develop requirements for new facilities to capture air conditioning condensate and use in cooling towers.	Work with stakeholders in 2015 to incorporate in City's regular plumbing code update.	Coordination to be implemented using in-house resources.	Initial estimate 31 acre feet per year.	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.

Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
CR4. Gray water amendments	Review possible impediments to graywater systems while still protecting public health and safety.	Amendments sent to Council late 2014.	Not applicable.	To be determined based on analysis in Integrated Water Resource Plan	Amendments approved by Council November 20, 2014.
CR5. Irrigation-related measures	<p>Develop voluntary standards in conjunction with LCRA and homebuilders for drought resistant single-family landscapes.</p> <p>Work with Planning and Development Review Department and Department of Watershed Protection on revisions to Land Development Code and Plumbing Code to require drought tolerant landscapes in new commercial and multifamily developments.</p>	<p>Working with stakeholders to incorporate as part of CodeNext.</p> <p>Multifamily and commercial to be incorporated as part of CodeNext.</p> <p>Residential standards (voluntary?) for new homes complete</p>	In-house resources to be utilized.		<p>Working with the Homebuilders Association (HBA) to craft a set of landscaping guidelines that reflect a drought-tolerant, conservation approach.</p> <p>HBA membership recently approved these guidelines and all HBA members are expected to abide by these water-saving principles when building new homes.</p>

#### **4) Feasibility and Engineering Analyses for Supply-Side Strategy Grouping (FEA) Summary**

<b>Strategy</b>	<b>Project Description</b>	<b>Schedule</b>	<b>Budget</b>	<b>Cost and Yield</b>	<b>Status</b>
FEA1. Lake Long enhanced	Potential use of Walter E. Long Lake (Decker Lake) as enhanced off-channel storage for water supply augmentation.	<p>Complete feasibility and engineering analyses, including water quality modeling and assessments by early 2016.</p> <p>Note that permit requirement consultations with TCEQ will be on-going in 2015 and early 2016.</p>	<p>Contract for feasibility and engineering analyses (FEA) for FEA 1 – 4 group: ~\$730,000</p> <p>Contract for reclaimed water pipeline design engineering is ~\$922,000</p>	<p>Preliminary yield estimate 20,000 acre feet per year.</p> <p>Cost and yield to be determined as part of FEA Studies.</p>	<p>Preliminary alignment of reclaimed water pipeline has been developed and design engineer is under contract preparing base sheets.</p> <p>A contract to design reclaimed water pump station improvements, outfall, and dechlorination facilities is on hold pending the results of the FEA 1-4 Study.</p> <p>Completed model data acquisition and assessment for Walter E. Long Lake, including the field bathymetric data collection is complete. Working on water quality model development.</p>

Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
FEA2. Indirect potable reuse	<p>Convey a portion of South Austin Regional (SAR) Wastewater Treatment Plant (WWTP) treated effluent discharge to Lady Bird Lake (LBL) to then be withdrawn via an intake barge below Tom Miller Dam. Requires construction of pumping facilities and pipeline to pump water from LBL into Ullrich WTP intake system.</p> <p>Task Force recommendation is for the City to consider exercising this option in deep emergency drought conditions in the event of 400,000 acre feet or less of combined storage in Lakes Travis and Buchanan.</p>	<p>Preliminary engineering for the reclaimed water pipelines associated with this option currently underway, Preliminary Engineering Report (PER) expected to be completed in 2015.</p> <p>Complete additional feasibility and engineering analyses, including water quality modeling and assessments, by early 2016.</p> <p>Note that permit requirement consultations with TCEQ will be on-going in 2015 and early 2016.</p>	<p>Contract for feasibility and engineering analyses (FEA) for FEA 1 – 4 group: ~\$730,000</p> <p>Construction costs for the main is estimated by the Routing Study Engineer is \$37 million.</p>	<p>Preliminary yield estimate 20,000 acre feet per year.</p> <p>Cost and yield to be determined as part of FEA Studies.</p>	<p>The Routing Study is complete.</p> <p>Model data acquisition and assessment for Lady Bird Lake is complete. Working on water quality model development.</p>

Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
FEA3. Reclaimed water infiltration	Spread treated wastewater from South Austin Regional (SAR) Wastewater Treatment Plant (WWTP) in an infiltration basin. Water would then recharge into the Colorado Alluvium formation and be recaptured in alluvial wells along the river to be pumped to the water treatment plant.	<p>Complete feasibility and engineering analyses, including water quality modeling and assessments, by early 2016.</p> <p>Note that permit requirement consultations with TCEQ will be on-going in 2015 and early 2016.</p>	Contract for feasibility and engineering analyses (FEA) for FEA 1 – 4 group: ~\$730,000	<p>Preliminary yield estimate 30,000 acre feet per year.</p> <p>Cost and yield to be determined as part of FEA Studies.</p>	Preliminary FEA work by consultant has commenced.
FEA4. Capture Lady Bird Lake inflows	Install floating pump intake barge below Tom Miller Dam and a transmission main to pump water from Lady Bird Lake (LBL) into Ullrich water Treatment Plant intake line. This strategy would allow the capture of spring flows including flows from Barton springs into LBL and other storm flows when they are not needed downstream.	<p>Complete feasibility and engineering analyses, including conduct water quality modeling and assessments, by early 2016.</p> <p>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.</p>	Contract for feasibility and engineering analyses (FEA) for FEA 1 – 4 group: ~\$730,000	<p>Preliminary yield estimate 1,000 acre feet per year.</p> <p>Cost and yield to be determined as part of FEA Studies.</p>	Preliminary FEA work by consultant has commenced.



Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
FEA5. Aquifer Storage and Recovery	Evaluation of the potential feasibility of aquifer storage and recovery (ASR) project(s) in the lower Trinity and fresh Edwards Aquifers north of the Colorado River, within Travis County. The general concept of an ASR project is to store water in an aquifer for later recovery and use during dry periods, for example.	To be determined.	Approx. \$138,000 for consultant contract.	Preliminary estimated yield: up to 50,000 acre feet per year.  Cost and yield to be determined as part of FEA Study.	Working on procuring consultant services and finalizing draft scope.

### 5) Integrated Water Resources Plan (IWRP) Summary

Strategy	Project Description	Schedule	Budget	Cost and Yield	Status
IWRP1. Integrated Water Resources Plan Project (IWRP) including a Conservation Potential Assessment	<p>Integrated evaluation of and plan recommendations for demand and supply-side strategies.</p> <p>Council Resolution No. 20141211-119, passed by Mayor and Council on December 11, 2014, created the Austin Integrated Water Resource Planning Community Task Force (AIWRPCTF) to support development of the IWRP – see link to the resolution below:  <a href="http://www.austintexas.gov/edims/document.cfm?id=223726">http://www.austintexas.gov/edims/document.cfm?id=223726</a></p> <p>The IWRP will incorporate public participation and stakeholder input throughout the process as well as coordination with other City of Austin departments.</p>	<p>Project planning and scoping is currently underway.</p> <p>Conduct project over approximately 2 years with substantial completion by Spring 2017.</p>	<p>In addition to in-house resources: - ~\$1,000,000</p> <p>Additional water availability modeling and precipitation hydrology analysis and projection consulting services: ~\$150,000</p> <p>Note that additional budget requirements may be determined through the project process.</p>	Not applicable.	<p>Request for Qualifications (RFQ) has been released.</p> <p>The next AIWRPCTF meeting will be held on October 6<sup>th</sup> at 6pm on the first floor of Waller Creek Center.</p> <p>In process items include evaluating disaggregated demand models, developing a public outreach framework, and working with Watershed Protection Department on elements including rainwater harvesting and landscaping. Additionally, contracting is complete for the Water Availability Modeling (WAM)/Hydrology Consultant.</p> <p>The following is the link to the Task Force’s Boards and Commissions web-page:  <a href="http://www.austintexas.gov/aiwrpctf">http://www.austintexas.gov/aiwrpctf</a></p>