

# Region K WMS Committee Meeting

June 17, 2019



1

## Agenda

1. **Call to Order**
2. **Welcome and Introductions**
3. **Receive public comments**
4. **Approval of meeting minutes**
5. **Presentation and discussion of draft Municipal Drought Management strategy**
6. **Presentation and discussion of draft Austin-requested strategies**
7. **Presentation and discussion of draft Burnet County Regional Project strategies**
8. **Presentation and discussion of draft STPNOC strategies**
9. **Discussion of municipal conservation costing assumptions**
10. **New / Other Business**
11. **Schedule next meeting**
12. **Public Comments**
13. **Adjourn**

2

Agenda Item 5

## **DISCUSSION OF DRAFT MUNICIPAL DROUGHT MANAGEMENT WATER STRATEGY EVALUATION**

Region K

Page 3

**AECOM**

3

### **5. Municipal Drought Management**

#### **▼ Previous Discussions:**

- March 4, 2019 WMS Committee Meeting – Committee suggested to use a minimum 20% drought management reduction for GPCD > 100. Last cycle was 15%.
- April 10, 2019 WMS Committee Meeting – Committee presented with table showing reduction numbers applied to post-conservation demands.

#### **▼ Since Last Meeting:**

- Used WUG Drought Contingency Plans (DCPs) to update drought triggers and adjust reduction percentages where needed.

Region K

Page 4

**AECOM**

4

## 5. Municipal Drought Management

- ▼ Update to strategy recommended in 2016 Plan.
- ▼ Drought management is considered for all municipal WUGs.
  - Defer to a WUG's Drought Contingency Plan and reduce demands based on "severe" drought triggers, when possible. Temporary (short-term) measures to reduce GPCD.
  - 20% minimum reduction for GPCD > 100
  - 5% minimum reduction for GPCD <= 100
  - Consider whether mandatory water use restrictions were in place in 2011.
  - Consider levels of conservation that have been implemented since 2011.
  - Yields in 2020-2070

5

## 5. Municipal Drought Management

- ▼ Costs
  - Updated costs from 2016 Plan, based on example of public outreach costs to reduce water use. \$66/ac-ft
  - Will be including costs to the utilities based on reduced water sold, once the TWDB prepares and releases the Socioeconomic Impact Analysis of Unmet Needs.
  - No capital costs.
- ▼ Negligible impacts to the environment and agriculture.

6

Agenda Item 6

## **DISCUSSION OF DRAFT AUSTIN-REQUESTED WATER MANAGEMENT STRATEGY EVALUATIONS**

Region K

Page 7

**AECOM**

7

### **6a. Aquifer Storage and Recovery**

- ▼ Austin plans to store surplus treated Colorado River water in an aquifer during non-drought years, for use during times of drought when other supplies are less available.
  - Water right amendments are likely to be required.
  - Looking at storage in the Carrizo-Wilcox Aquifer
  - Expected online by 2070 with a yield of 60,000 ac-ft/yr
  - Capital costs provided by Austin Water Forward Plan. We used the TWDB Cost Estimating Tool to develop annual and unit costs in September 2018 \$.
    - Annual Cost = \$28,461,000
    - Unit Cost = \$474/ac-ft

Region K

Page 8

**AECOM**

8

## 6a. Aquifer Storage and Recovery

### ▼ Environmental Considerations

- Extensive permitting needed
- Water quality testing of native water
- Water is diverted under existing water rights and unused amounts of stored water under the 1999 contract with LCRA. 1999 contract water is only used when the combined storage of lakes Buchanan/Travis is above 1.4 million ac-ft to minimize lake level impacts.
- Increased pumpage of Colorado run-of-river water maintains SB3 and LCRA WMP environmental flow standards. ASR is given a junior priority to these required flows. As a result, minimal impacts to environmental flows.

### ▼ Impacts to Agriculture should be negligible based on removal during non-drought years

## 6b. Off-Channel Reservoir and Evaporation Suppressant

### ▼ Austin strategy for a new off-channel reservoir in the Austin area.

- Capture Colorado Run-of-River flows when available under water right authorization and stored for later use. Water right amendment will be required.
- Diversion point downstream of Longhorn Dam and upstream of Austin WWTPs discharge points.
- Yield is 25,000 ac-ft/yr. Online by 2070.
- Use of a biodegradable evaporation suppressant during summer months to reduce water loss. Water availability is dependent on the success of this suppressant.
- Strategy would act as a “water bank”. Accumulate water in wetter years and provide supplemental supply during times of drought.

## 6b. Off-Channel Reservoir and Evaporation Suppressant

### ▼ Costs

- Capital and O&M costs provided by Austin Water Forward Plan. Annual costs were developed using the TWDB Costing Tool. September 2018 \$.
- Annual Cost = \$32,903,000. Unit Cost = \$1,316 / ac-ft.

### ▼ Environmental Impacts

- Reservoir location, junior priority, and maintenance of environmental flow standards (SB3 and LCRA WMP) intended to conservatively estimate water availability and avoid impacts to streamflow.
- Up to 25,000 ac-ft/yr removed from Colorado River during non-drought years.
- Environmental studies and permits needed to address evaporation suppressant.

## 6b. Off-Channel Reservoir and Evaporation Suppressant

### ▼ Agriculture Impacts

- Limited due to diversion during non-drought years, although could cause less interruptible water to be available as firm demands increase.
- Additional studies needed to determine if evaporation suppressant would have any effect on agricultural users.

### ▼ Recreational Impacts

- Evaporation suppressant could disqualify the reservoir from recreational use. Monitoring necessary to ensure public safety.

## 6c. Onsite Rainwater and Stormwater Harvesting

- ▼ Lot / building scale rainwater and stormwater harvesting to supply onsite demands.
  - Capture and storage of roof water and other impervious surfaces.
  - Multi family residential or commercial developments
    - Existing developments would supply outdoor use only
    - New developments would supply outdoor use and indoor non-potable.
    - Commercial developments would also supply cooling water uses.
  - Online by 2040. Supplying 1,880 ac-ft/yr in 2040, increasing each decade, reaching 4,900 ac-ft/yr in 2070.
  - Costs based on \$5,000 rebate per site. Full system costs would be borne by developer.
  - Negligible environmental and agricultural impacts.

## 6d. Capture Local Inflows to Lady Bird Lake

- ▼ Limited update to Austin strategy from 2016 Plan
  - Associated with Indirect Potable Reuse through Lady Bird Lake strategy
  - Captures spring flows and storm flows in LBL when they are not needed downstream.
  - Capture would be intermittent and seasonal (November – February).
  - Online by 2040. Drought yield of 1,000 ac-ft/yr.
  - Infrastructure required is included under the Indirect Potable Reuse through Lady Bird Lake strategy, so no capital costs.
  - All annual and unit costs associated with both strategies are included for this strategy. Annual cost = \$6,383,250. Unit cost = \$6,383 / ac-ft.
  - Minimal reduction to instream flows and possibly bay and estuary inflows, but required flows would be passed. Negligible ag and water resource impacts.
  - Possible reduction in water quality due to stormwater suspended solid loads.

## 6e. Indirect Potable Reuse through Lady Bird Lake

- ▼ Austin strategy for water supply during extreme drought conditions.
  - When combined storage of Lakes Buchanan and Travis is less than 400,000 ac-ft.
  - Improvements at SAR WWTP for a portion of the effluent to have additional treatment before discharge into Lady Bird Lake.
  - Water intake and pump station to pull water from Lady Bird Lake to be treated at Ullrich WTP.
  - Infrastructure associated with pulling water from Lady Bird Lake can also be used with the Capture Local Inflows to Lady Bird Lake strategy.
  - Yield of 11,000 ac-ft/yr (2040), increase to 20,000 ac-ft/yr in 2070.
  - Permitting/engineering analyses, water quality modeling, TCEQ permitting, and public education needed.

## 6e. Indirect Potable Reuse through Lady Bird Lake

- ▼ Costs
  - Capital costs from Austin Water Forward Plan (2018). O&M costs included under the Austin Capture Local Inflows to Lady Bird Lake strategy – not included with this strategy.
  - Annual and unit costs developed using the TWDB Costing Tool.
    - Annual cost = \$6,361,000
    - Unit cost = \$318 / ac-ft
- ▼ Environmental Considerations
  - Additional nutrient removal may be required for water being discharged.
  - Environmental flows impact analysis compares impact of return flow minus reuse to the impact of no return flows. (Availability modeling assumes 100% reuse / no return flows.)



## 6e. Indirect Potable Reuse through Lady Bird Lake

- ▼ No impacts to agriculture expected.
- ▼ Public education and outreach will be needed to address perceptions of IPR.

17

## 6f. Lake Austin Operations

- ▼ Limited update to Austin strategy from 2016 Plan.
  - Per Austin Water Forward Plan, this strategy would allow Lake Austin to be operated with a varying level in the event that Lake Travis and Buchanan combined storage falls below 600,000 ac-ft.
  - Local flows could be captured during storm events and stored for use.
  - Level could vary by 3 feet outside of peak recreational months.
  - No capital costs. No new permits needed.
  - Available yield by 2020 of 2,500 ac-ft/yr.
  - Annual and unit costs from Austin Water Forward Plan (2018)
    - Annual = \$545,000
    - Unit = \$218/ac-ft
  - Negligible env / ag impacts. Possible reduced water quality from storm flows.

18

## 6g. Austin Conservation

### ▼ Conservation strategy specific to Austin

- Austin has a more aggressive conservation program than most WUGs, and has made significant advances in reducing per capita water use.
- Details taken from Austin Water Forward Plan. Some measures had to be pulled out and included under separate strategies, per TWDB.
- Yields are from the Austin Water Forward Plan, minus the measures that were pulled out. Yields may need to be modified to better reflect savings based on RWP GPCDs.
  - Online 2020 (4,910 ac-ft/yr), increasing each decade to reach 40,620 ac-ft/yr of water savings in 2070.
- Capital and O&M costs were provided by the Austin Water Forward Plan. Annual and unit costs were developed using the TWDB Costing Tool.
  - Costs were calculated to represent a variety of conservation measures.

## 6g. Austin Conservation

### ▼ Costs continued

- Annual Cost = \$54,569,000
- Unit Cost = \$1,343 / ac-ft
- Costs include capital and non-capital measures.

### ▼ Environmental and Agriculture Considerations

- Conservation can cause changes to wastewater concentrations over time.
- No adverse impacts to environmental flows.
- Conservation could leave the amount of water savings in the lakes and aquifers each year.
- Negligible impacts to agriculture.

Agenda Item 7

## **DISCUSSION OF DRAFT BURNET COUNTY REGIONAL PROJECT STRATEGY EVALUATIONS**

Region K

Page 21

**AECOM**

21

### **7a. Buena Vista**

- ▼ One of three projects from a Burnet-Llano County Study done in 2011. Update to 2016 Plan strategy based on survey responses.
  - The yields were reallocated based on survey responses.
  - Costs were updated
- ▼ Project would use Burnet's existing raw water intake, water treatment plant, and 18" transmission main. The RWI, WTP, and pump station would be expanded to serve Burnet and County-Other communities in Burnet County. LCRA contracts or contract amendments are needed.
- ▼ New/additional transmission mains would be extended to serve County-Other communities and Burnet. Additional infrastructure to carry the raw water to the WTP, and a new ground storage tank and booster pump will be needed.

Region K

Page 22

**AECOM**

22

## 7a. Buena Vista

### ▼ Project Yields in Burnet County:

- Burnet: Online 2030 (1,000 ac-ft/yr); 2,000 ac-ft/yr by 2040
- County-Other (Brazos): Online 2030 (500 ac-ft/yr); 1,000 ac-ft/yr by 2040
- County-Other (Colorado): Online 2030 (565 ac-ft/yr); 1,884 ac-ft/yr by 2040

### ▼ Costs

- From the Burnet-Llano County Study, and updated using the TWDB Costing Tool.
- Total costs allocated by WUG proportional to yield.
- Total annual cost = \$5,546,000
- Unit cost = \$1,136 / ac-ft

## 7a. Buena Vista

### ▼ Environmental and Agricultural Considerations

- Removal of up to 5,000 ac-ft/yr of water from Highland Lakes with no return flows.
- Several miles of construction. Impacts should be limited to construction period.
- Removal of water from Highland Lakes potentially decreases the amount of interruptible water available for agriculture.

## 7b. East Lake Buchanan

- ▼ Strategy to provide surface water to portions of County-Other in Burnet County whose current groundwater supplies are unreliable and contaminated with radionuclides. Update to strategy from 2016 Plan.
  - New raw water intake would pump to a regional water treatment plant near Bonanza Beach, along the northeast side of Lake Buchanan. Pump station and transmission mains would deliver water to Council Creek Village and other participants in the area.
  - Assumes new LCRA Contract needed.
  - Yield for County-Other in Burnet County, Colorado Basin:
    - Online 2030 (498 ac-ft/yr)
    - 2040 – 2070 (935 ac-ft/yr)

## 7b. East Lake Buchanan

- ▼ Costs
  - From the Burnet-Llano County Study, and updated using the TWDB Costing Tool.
  - Total annual cost = \$1,830,000
  - Unit cost = \$1,957 / ac-ft
- ▼ Environmental and Agricultural Considerations
  - Removal of up to 935 ac-ft/yr of water from Highland Lakes with no return flows.
  - Several miles of construction. Impacts should be limited to construction period.
  - Impacts to agriculture should be minimal.

## 7c. Marble Falls System

### ▼ Strategy to serve growth in Burnet County for Marble Falls and portions of County-Other (Colorado Basin). Update to 2016 Plan strategy.

- New raw water intake, pump stations, and water treatment plant upstream of Max Starcke Dam. New transmission mains and new storage tanks to serve future developments.
- LCRA contracts or contract amendments will be needed.
- Project Yields in Burnet County:
  - Marble Falls: Online 2030 (4,000 ac-ft/yr)
  - County-Other (Colorado): Online 2030 (1,578 ac-ft/yr)

## 7c. Marble Falls System

### ▼ Costs

- From the Burnet-Llano County Study, and updated using the TWDB Costing Tool.
- Total costs allocated by WUG proportional to yield.
- Total annual cost = \$8,010,000
- Unit cost = \$1,436 / ac-ft

### ▼ Environmental and Agricultural Considerations

- Removal of up to 5,600 ac-ft/yr of water from Highland Lakes with no return flows.
- Several miles of construction. Impacts should be limited to construction period.
- Removal of water from Highland Lakes potentially decreases the amount of interruptible water available for agriculture.

Agenda Item 8

## DISCUSSION OF DRAFT STPNOC STRATEGY EVALUATIONS

Region K

Page 29

AECOM

29

### 8a. Alternate Canal Delivery

#### ▼ Limited update to STPNOC strategy from 2016 Plan.

- Strategy that will allow higher quality water to be pulled from the Colorado River and transported to the STPNOC cooling tower reservoir.
- STPNOC's current contract with LCRA allows for diversion upstream of the Bay City dam, but currently no infrastructure in place.
- Use existing LCRA pump station and irrigation canals. Construct pipeline and pump station to get from irrigation canals to reservoir.
- Yield of 12,727 ac-ft/yr. Assumed online by 2030.
- Costs updated from 2016 Plan to 2018 \$ using TWDB Costing Tool.
  - Capital costs = \$18,127,000
  - Annual cost = \$3,384,000
  - Unit cost = \$266 / ac-ft
- Minimal environmental impacts by meeting required environmental flows first.
- Negligible impacts to agriculture

Region K

Page 30

AECOM

30

## 8b. Brackish Surface Water Blending

### ▼ Keep 2016 Plan STPNOC strategy.

- During an emergency, STPNOC and LCRA will pursue relief from TCEQ to be able to pump brackish surface water to blend in with the existing fresh water in the STPNOC reservoir.
- Yield of 3,000 ac-ft/yr. Online in 2020.
- No costs.
- No environmental impacts.
- No agricultural impacts.

Agenda Item 9

## **DISCUSSION OF MUNICIPAL CONSERVATION WATER MANAGEMENT STRATEGY COSTING ASSUMPTIONS**



## Municipal Conservation Strategy Development

### ▼ Previous Discussions:

- March 4, 2019 WMS Committee Meeting – Committee voted to use a methodology of 10% reduction per decade until 140 GPCD is reached.
- April 10, 2019 WMS Committee Meeting – Committee presented with table showing reduction numbers. Committee recommended sending methodology and numbers to RWPG.

33

## Municipal Conservation Strategy Development

### – Capital Cost Measure Assumptions


- Advanced Metering Infrastructure (Smart Meters)
  - 3 people per household
  - 100% of households will install smart meters in the next 50 years
  - Installation of smart meters reduces demand by 5%
  - Smart meter cost is \$270
- Assumptions for Leak Detection and Replacement
  - 10% of pipeline is replaced (pipe length from TWDB Water Loss Audit)
  - 80% of the replaced pipeline is 8", 20% is 12"
  - Anticipated demand reduction of 3%
- Capital Cost example for West Travis County PUA and Johnson City.

### – Non-Capital Cost Measure Assumptions

- Remaining per decade reduction is due to non-capital items
- Assume \$250 / AF saved

34

## Agenda

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10. New / Other Business
  11. Schedule next meeting
  12. Public Comments
  13. Adjourn