

**Lower Colorado Regional Water Planning Group
Water Management Strategies Meeting
AECOM, Treaty Oak Conference Room
August 8, 2019**

1. Lauri Gillam called meeting to order at 9:34 a.m.

2. Attendees (20)
Committee Members:
Lauri Gillam – Region K, Small Municipalities Rep, Water Management Strategies Committee Chair
Daniel Berglund – Region K, Small Business Rep
David Van Dresar – Region K, Water Districts Rep
David Wheelock – Region K, River Authority Rep
Doug Powell – Region K, Recreation Rep
Karen Haschke – Region K, Public Rep
Mike Reagor – Region K, Small Municipalities Rep
Teresa Lutes – Region K, Municipalities Rep

Additional Attendees:
David Lindsay – Region K, Recreation Rep (Alternative)
Christianne Castleberry – Region K, Water Utilities Rep (Alternate)
Helen Gerlach – Region K, Municipalities Rep (Alternate)
Lann Bookout – TWDB
Jaime Burke – AECOM
Alicia Smiley – AECOM
Kiera Brown – AECOM
Marisa Flores-Gonzalez – Austin Water
Joe Trungale – Trungale Engineering
Richard Hoffpauir – Hoffpauir Consulting
Heather Rose – LCRA
Cindy Smiley – Smiley Law Firm

3. Public Comments
 - a. None.

4. Status Update on Water Management Strategy Evaluations
 - a. 18 strategies under RWPG or committee review
 - b. 15 strategies in progress/pending data
 - c. 24 strategies not started
 - d. Consultant is working to complete strategy evaluation by October 10 Region K RWPG meeting.

- e. David Wheelock requests this detailed update either prior to meetings or attached to meeting minutes. Committee requests that consultant sends out strategies as they're completed.

5. Strategy Water Modeling Options

- a. Strategies that may require WAM modeling
 - i. LCRA ASR in Carrizo-Wilcox
 - ii. Austin Off-Channel Reservoir with Evaporation Suppressant
 - iii. Reservoir Capacity Expansion (for Llano and possibly others)
 - iv. Austin Return Flows
 - v. Austin ASR
 - vi. LCRA New Contracts and Contract Amendments
 - vii. Amendments to Existing Water Rights/Permits
 - viii. LCRA Mid-Basin Off-Channel Reservoir
 - ix. LCRA Prairie Site Off-Channel Reservoir
 - x. LCRA Excess Flows Off-Channel Reservoir
 - xi. Amendments to LCRA Water Management Plan (Interruptible Water)
 - xii. Import Return Flows from Williamson County
 - xiii. Enhanced Recharge and Conjunctive use
- b. David Lindsay asks if we are using the new LCRA WMP that is waiting on TCEQ approval and Joe Trungale explained we use the 2015 WMP because that's what we got approval for.
- c. WAM Modeling Discussion
 - i. Austin has completed extensive modeling for their strategies as part of the Austin Water Forward Plan development. Does RWPG need to do modeling as well with the Region K Cutoff Model for these?
 1. David Wheelock said that Austin modeling needs to comply Region K Cutoff Model specifications. Teresa Lutes agreed, saying RWPG needs to be consistent across strategies.
 2. Richard Hoffpauir, who performed the modeling for Austin's Water Forward Plan, noted that the Cutoff Model assumptions were included, but there are slight differences. For example, Water Forward included snapshots of 2020, 2040, and 2070, while regional water planning is decadal. Different criteria was included for boundary lines, the naturalized flow set, and return flows. Hoffpauir recommended that, for consistency, the RWPG will need to redo Austin modeling.
 3. Teresa Lutes suggested the Water Modeling Committee may need to reconvene to review some of the modeling results.
 4. Lann Bookout mentioned that modeling needs to happen within the next two months, and there may be little time to approach the TWDB with a hydrologic variance request. David Wheelock asked if Austin could provide a proposed modeling methodology to compare with the

approved hydrologic variances. Joe Trungale will coordinate with Austin to input Austin strategies.

- ii. Environmental Impacts
 - 1. TCEQ environmental flow standards are embedded in the modeling.
 - 2. Lann Bookout confirmed there are no new standards or criteria for regional planning process modeling.
 - 3. As the TWDB requires numerical quantitative impacts, committee decided to show impacts similar to the 2016 RWP cycle, as either:
 - a. Negligible; or
 - b. Water diversions to/from river.
- iii. Austin Strategies
 - 1. Committee will review Austin comments at next WMS meeting and approve at October RWPG meeting.
 - 2. It was noted that environmental impacts will need to remain quantifiable through the editing process.

6. Municipal Conservation

- a. Strategy methodology and costing assumptions were previously presented to both WMS committee and RWPG. WMS committee received first draft of strategy write-up to vote on at next meeting.
 - i. Write-up included discussion on potential yields of outdoor watering restrictions.
 - ii. Conservation measures included capital and non-capital costs. Capital costs were broken down into Leak Detection and Repair and Advanced Metering Infrastructure. Improvements such as public outreach and enforcement were included in non-capital costs.
 - iii. HB 807 goals may be included in Chapter 5 conservation section.

7. ASR Strategy Evaluations

- a. BS/EACD Edwards/Middle Trinity ASR
 - i. Strategy Definition and Cost
 - 1. Water from the Edwards-BFZ aquifer will be pumped, treated, and stored in the Middle Trinity Aquifer for later use.
 - 2. Project Yield:
 - a. Buda – Online: 2020; Yield (2020): 150 ac-ft/yr; Yield (2030): 600 ac-ft/yr
 - b. Sunset Valley – Online: 2030; Yield: 100 ac-ft/yr
 - 3. Project Costs:
 - a. Buda – Capital Costs: \$9,086,000; Annual Cost: \$781,000; Unit Cost: \$1,302/ac-ft/yr
 - b. Sunset Valley – Capital Costs: \$3,825,000; Annual Cost: \$449,000; Unit Cost: \$4,490/ac-ft/yr

- ii. Mike Reagor asked which Trinity aquifer the strategy is planned for, since the Glen Rose has a high sulfur concentration. Kiera Brown responded that per the 2017 City of Buda ASR Feasibility Study, testing will be completed to determine the appropriate location. The strategy is considered viable until testing proves otherwise.
 - iii. David Wheelock expressed concern whether the unit cost for Sunset Valley is prohibitively high. Sunset Valley’s needs could be met through other strategies, but as RWPG does not have all information from the WUG. Consultant will reach out to WUG for feedback.
 - iv. David Van Dresar requested that an ASR expert come talk to the group for the 2026 planning cycle. Lann Bookout recommended that RWPG reach out to San Antonio Water System (SAWS) for a tour of the H2Oaks ASR facility.
- b. BS/EACD Saline Edwards ASR
- i. Strategy Definition and Cost
 - 1. Water from the Edwards-BFZ aquifer will be pumped, treated, and stored in the Saline Edwards Aquifer for later use. Recovered water will be blended with water directly from the Saline Edwards to increase yield.
 - 2. Project Yield:
 - a. Buda – Online: 2040; Yield: 800 ac-ft/yr
 - b. Hays County-Other – Online: 2040; Yield: 500 ac-ft/yr
 - 3. Project Costs:
 - a. Buda – Capital Costs: \$17,166,500; Annual Cost: \$2,102,100; Unit Cost: \$2,629/ac-ft/yr
 - b. Hays County-Other – Capital Costs: \$10,746,500; Annual Cost: \$1,315,900; Unit Cost: \$2,629/ac-ft/yr
 - ii. Heather Rose asked if RWPG considered including a distillation plant in the strategy. No; information regarding infrastructure for the strategy was obtained from the WUGs.

8. Rainwater Harvesting

- a. Strategy Definition and Cost
 - i. Rebates will be provided to private homeowners who construct a rainwater harvesting system on their property to meet a portion of their water needs. Rebates are not assumed to cover the cost of the entire system.
 - ii. Project Yield:
 - 1. Dripping Springs WSC – Online: 2030; Yield (2030): 34 ac-ft/yr; Yield (2070): 81 ac-ft/yr
 - 2. Hays – Online: 2030; Yield (2030): 3 ac-ft/yr; Yield (2070): 7 ac-ft/yr
 - 3. Hays County-Other – Online: 2030; Yield (2030): 16 ac-ft/yr; Yield (2070): 50 ac-ft/yr

4. Sunset Valley – Online: 2030; Yield (2030): 2 ac-ft/yr; Yield (2070): 4 ac-ft/yr
- iii. Project Costs:
 1. Dripping Springs WSC – Capital Costs: \$733,000; Annual Cost: \$51,600; Unit Cost: \$634/ac-ft/yr
 2. Hays – Capital Costs: \$62,000; Annual Cost: \$4,400; Unit Cost: \$639/ac-ft/yr
 3. Hays County-Other – Capital Costs: \$447,000; Annual Cost: \$31,400; Unit Cost: \$634/ac-ft/yr
 4. Sunset Valley – Capital Costs: \$225,000; Annual Cost: \$15,800; Unit Cost: \$4,069/ac-ft/yr
- b. Heather Rose suggested write-up change from “some rainwater catchment systems are gravity driven, where pressurized systems are not required” to “some rainwater catchment systems are gravity driven, where pressurized systems may not be required.”
- c. Heather Rose expressed concern that forecasting implementation would be difficult. Consultant responded that strategy implementation is the responsibility of the individual WUGs. Drippings Springs WSC, Hays, and Sunset Valley all requested Rainwater Harvesting in their Feb. 2018 Strategy survey. Implementation surveys are released in the following planning cycle after strategy is recommended.
- d. WMS committee requests that Consultant revisit strategy write-up, including researching a minimum water storage requirement for rebates and potential TWDB funding.

9. Groundwater Strategies

- a. David Lindsay asked if water use within the region exceeds recharge rates. David Van Dresar responded that areas that fall under Groundwater Conservation Districts (GCDs) are not presently exceeding recharge rates. Each Groundwater Management Area (GMA) develops Desired Future Conditions (DFCs) that manages groundwater use (and subsequently manages subsidence).
- b. Expand Use of Local Groundwater
 - i. Daniel Berglund noted that regarding irrigation, wells have already been drilled for the 2020 decade due to the large number of wells drilled 2012-2014, so a capital cost in time for the 2020 decade can be justified. He also added that Matagorda County has limited fresh groundwater due to saltwater intrusion, so wells are shallower, and yields are smaller.
 - ii. Methodology states that if an expand use of groundwater is less than 100 ac-ft/yr of pumping, a new well would not be required. David Van Dresar said that GCDs would be able to tell RWPG if existing wells are at full capacity.
 - iii. Daniel Berglund added that as more supplies is used on irrigation, there are higher return flows due to saturated soils; this should be included under environmental impacts.

- iv. David Wheelock requested that Consultant develop alternative strategies for entities with groundwater strategies that exceed the Modeled Available Groundwater (MAG).
- c. Development of New Groundwater
 - i. Lann Bookout recommended to add a storage tanks to the costing of groundwater strategies, as it is a typical expense.

10. Irrigation Conservation

- a. Tail Water Recovery
 - i. Tail water recovery is the capture, storage, and conveyance of a portion of the irrigation field return flows back into the irrigation system.
 - ii. New 2021 Strategy. Status: preliminary strategy write-up (in review).
 - iii. Daniel Berglund requested a copy of the costing data, as unit costs appear high.
- b. Sprinkler Irrigation
 - i. The application of sprinkler irrigation is an alternative to field inundation in rice farming.
 - ii. Existing 2016 Strategy. Status: preliminary strategy write-up (in review).
 - iii. Strategy Assumed a water savings of 8 inches (0.67 ac-ft/ac) per acre applied, which is a decrease from the 2016 assumption of 12 inches.
 - iv. Daniel Berglund requested a copy of the costing data, as unit costs appear low.
- c. Irrigation Operations Conveyance Improvements
 - i. Irrigation operations conveyance improvements improve the efficiency of the water delivery canal system.
 - ii. Existing 2016 Strategy. Status: preliminary strategy write-up (in progress).
 - iii. Daniel Berglund requested that consultant examine NRCS language to determine whether privately-owned canal systems can be added to the strategy and obtain funding.
- d. Real-Time Monitoring
 - i. A smart metering program, using a volumetric probe and SCADA, can assess water use in real-time to improve irrigation efficiency.
 - ii. New 2021 Strategy. Status: data collection.
- e. Drip Irrigation for Non-Rice Crops
 - i. Drip irrigation is the application of micro irrigation to the root zone of non-rice crops through low pressure, low volume devices.
 - ii. New 2021 Strategy. Status: Preliminary strategy write-up (in progress).
- f. On-Farm Conservation
 - i. Existing 2016 Strategy. Status: data collection.
 - ii. Precision Land Leveling
 - 1. Precision land leveling grades a field to allow a more uniform shallow water depth across the field.

2. Daniel Berglund noted that once land leveling is completed, water savings stays same, though farmers may perform a cosmetic “dress up” maintenance.
- iii. Multiple Field Inlets
 1. Multiple field inlets at individual cuts or land sections between levees allows for shallow water application and a quick field drain time.
 2. Daniel Berglund added the strategy also allows for improved rainfall management.
- iv. Reduced Levee Intervals
 1. Reducing the contour interval between levees from 0.2 feet to 0.15 feet minimizes the water depth, and therefore water use.
 2. Daniel Berglund recognized that an LCRA savings verification study has shown that reducing contours can result in a similar or increased use of water, but he believes that the study showed such results because the land leveled was leveled completely flat rather than at a slight grade.

11. Reuse

- a. Discussion postponed for next WMS committee meeting.

12. Minutes Approval

- a. Draft of June 17, 2019
 - i. Cindy Smiley requested changes to 2., 6.e.i.1., 7.b.i.1., 9.b.ii.2.a., and 10.d.
 1. 2. Change Danny Bulovas’s affiliation from “BCL” to “Lake Travis.”
 2. 6.e.i.1. Spell out “SAR” to “South Austin Regional.”
 3. 7.b.i.1. Add abbreviations for “raw water intake (RWI)” and “water treatment plant (WTP).”
 4. 9.b.ii.2.a. Add abbreviation for “Water Loss Audit (WLA).”
 5. 10.d. Delete “strategies” so the sentence reads, “Jennifer Walker and David Wheelock asked when the quantitative analysis will be completed for environmental and socioeconomic impacts, and when Joe Trungale will perform modeling.”
 - ii. Teresa Lutes requested changes to 6.b.i.1., 6.b.ii.1., 6.c.ii.1., 6.c.ii.3., 6.d.i.1., and 6.e.ii.2.
 1. 6.b.i.1. Change “environmental suppressant” to “evaporation suppressant.”
 2. 6.b.ii.1. Add “report” so the sentence reads, “The final report suggested that, with an 87 percent statistical level of confidence, the suppressant reduced evaporation.”
 3. 6.c.ii.1. Change to read, “Barbara Johnson asked if developers would be required to implement rainwater and stormwater harvesting. Teresa Lutes indicated that a combination of ordinances and incentives are in

development to achieve the desired yields for this strategy. At this phase, ordinance is proposed for developments >250,000 SF."

4. 6.c.ii.3. Change to read, *"Daniel Berglund asked if rainwater was 100% reliable, given its nature to be inconsistent. Consultant will confirm that rainwater availability is calculated for DOR conditions for consistency with other strategy assumptions."*
 5. 6.d.i.1. Change *"surplus"* to *"available."*
 6. 6.e.ii.2. Add *"that would need to be address"* so the sentence reads, *"Teresa Lutes responded that pollutant levels for IPR are a concern that would need to be addressed, but that IPR is only to be used when the total combined storage of Lakes Buchanan and Travis are below 400,000 acre-ft, a condition worse than experienced in the drought of record."*
- iii. Lauri Gillam motioned to approve the minutes with the changes. Daniel Berglund seconded. Committee passed.

13. New / Other Business

- a. None.

14. Next Meeting

- a. At least two more WMS committee meetings will need to be scheduled to occur before the next RWPG meeting. A Doodle poll will be sent out to determine the best meeting time for the week of September 16, 2019.
- b. The next RWPG meeting will be October 9, 2019 at 10:00 a.m. at the LCRA Dalchau Service Center.

15. Public Comments

- a. None.

16. Lauri Gillam adjourned at 12:44 p.m.