TO: Region C RWPG
FROM: Simone Kiel
SUBJECT: Scope of Work for Water Management Strategies, Phase 2
DATE: January 15, 2019
PROJECT: Region C 2021 Water Plan, TR116409

The TWDB developed a scope of work for Task 5A, which includes the evaluation of water management strategies (WMSs) and development of Chapter 5 of the 2021 Region C Water Plan. This scope of work considers all regulatory requirements and TWDB guidance. The scope items that are necessary for regulatory compliance are outlined in the executed contracts. However, specific scopes of work for the evaluations of potentially feasible water management strategies are to be developed by the regions. All funds for this task are contingent upon written notice to proceed. The total budget in the executed contract for this effort is $1,095,005.

At the April 2018 Region C Planning Group meeting, the RWPG approved a partial scope of work to develop water management strategies. This request for $412,500 was submitted to the TWDB for review and approval. On July 12, 2018 the TWDB sent a letter to TRA authorizing this request along with a contract amendment that includes the partial scope of work. The strategies that have been approved and funded include 20 previously developed strategies and six newly identified strategies for the large wholesale water providers. The currently authorized scope does not include strategies for small wholesale water providers or water user groups.

This request outlines the remaining scope of work to identify and evaluate water management strategies, coordinate with respective sponsors of the strategies, prepare Chapter 5 of the Regional Water Plan, and perform database entry associated with remaining WMSs. The remaining available funding for this task is $682,505.

SCOPE OF WORK FOR THE REMAINDER OF TASK 5A FUNDS

To facilitate the development of the remaining scope of work, Region C has completed the needs assessment to identify entities that will require water management strategies. This assessment identified 400 water user groups with projected water needs. To meet these needs, many of the strategies in the 2016 plan will be retained for the 2021 regional water plan. A few strategies have been implemented or are no longer being considered by the sponsor. In addition, there will be several new strategies developed to meet the projected needs for new water user groups.

The types of strategies to be evaluated include:

- Infrastructure Improvements, including water treatment plant expansions
- Reuse
- New Groundwater Development
- Voluntary Redistribution, which includes increases in contracts
- New Surface Water
- Aquifer Storage and Recovery
Regional Projects
• Dredging existing surface water sources

Infrastructure Improvements and Water Treatment
There are 32 wholesale water providers in Region C. Most of these providers are shown to have projected water needs over the planning horizon. Many of the water management strategies developed for the wholesale water providers require infrastructure improvements to move and/or treat the water for the end user. Some of these strategies are considered projects under the umbrella source strategy. Others are a separate unique water management strategy that is sponsored by the end user. There are at least 82 transmission projects and 60 water treatment projects identified to utilize water from wholesale providers. Specific tasks associated with this effort include:

**Scope of Work**
- Evaluate the available supplies and appropriate sizing required for the infrastructure improvements.
- Evaluate each strategy in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region.
- Develop cost estimates for all infrastructure strategies.
- Develop GIS maps for selected strategies showing linear infrastructure improvements and supply sources. (Note: GIS maps are to be provided to the TWDB and any maps included in the Region C plan will be approved by the respective sponsor of the strategy.)
- Distribute supplies to customers of the sponsoring entity.

Reuse
Wastewater reuse is an important strategy in Region C. The TWDB has authorized funding for the larger reuse projects for wholesale water providers, but several of the smaller wholesale providers, cities, and non-municipal water groups are planning to develop reuse projects. There are 15 direct and indirect reuse projects identified for the 2021 Region C Water Plan. Other water user groups may also be considering reuse to reduce demands on fresh water supplies. Specific tasks associated with this effort include:

**Scope of Work**
- Evaluate the available supplies and appropriate infrastructure improvements to treat and/or deliver the reuse water to the end destination.
- Evaluate each strategy in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region.
- Develop cost estimates for all reuse strategies.
- Develop GIS maps for selected strategies showing linear infrastructure improvements and supply sources. (Note: GIS maps are to be provided to the TWDB and any maps included in the Region C plan will be approved by the respective sponsor of the strategy.)
- Distribute supplies to customers of the sponsoring entity, where appropriate.
New Groundwater Development
New groundwater development has been and will continue to be a water supply strategy for rural communities in Region C. New groundwater is also a considered strategy for non-municipal water users. There are at least 21 groundwater strategies that will need to be re-evaluated in light of the projected need and available groundwater supplies. Specific tasks associated with this effort include:

Scope of Work
- Evaluate the available supplies and appropriate sizing required for the infrastructure improvements for new groundwater development. Available supply will consider MAGs, other demands on the aquifer, desalination/treatment needs (if any), and needs of the entity. As appropriate, consider potential phasing of new groundwater projects to economically meet projected needs.
- Consider potential regionalization, as appropriate.
- Coordinate with other regions for strategies that propose to use water from outside of Region C.
- Evaluate the water quality of the potential source(s) for the end use purpose.
- Evaluate each strategy in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region.
- Develop cost estimates for all new and/or expanded groundwater strategies.
- Develop GIS maps for all strategies showing linear infrastructure improvements and supply sources. (Note: GIS maps are to be provided to the TWDB and any maps included in the Region C plan will be approved by the respective sponsor of the strategy.)
- Distribute supplies to customers of the sponsoring entity, if appropriate.

Voluntary Redistribution
The Voluntary Redistribution strategy is a general strategy that includes sales of water from one entity to another, new or extended contracts, or other types of transfers of water. This strategy does not apply to entities having sufficient existing contracts with sellers that are developing additional water supplies to meet the contractual demands. In Region C most of the voluntary redistribution strategies involve new sales or increased sales of water from a provider and may include new infrastructure as needed to transport the water. New strategies will be considered for entities with needs. Also, we will consider change of use type strategies, such as using surface water permitted for steam electric use for municipal, industrial and/or mining use. There are at least 22 entities that will need additional supply through increased contracts or new contracts. Specific tasks associated with this effort include:

Scope of Work
- Coordinate with entities with expiring contracts to confirm whether the contracts will be extended and at what level of supply.
- Evaluate whether an entity has supply available for redistribution. Confirm with the water provider that it is willing to provide water to the respective WUG(s). Confirm with the receiving WUG(s), as appropriate, that it is willing to purchase water.
- Develop or update the appropriate sizing required for the infrastructure improvements for transfers of water. As appropriate, consider potential phasing of new re-distribution projects to economically meet projected needs.
- Consider potential regionalization, as appropriate.
• Evaluate the water quality of the potential source(s) for the end use purpose.
• Evaluate each strategy in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region.
• Develop cost estimates for all new and/or expanded voluntary re-distribution strategies.
• Develop GIS maps for all strategies showing linear infrastructure improvements and supply sources. (Note: GIS maps are to be provided to the TWDB and any maps included in the Region F plan will be approved by the respective sponsor of the strategy.)
• Distribute supplies to customers of the sponsoring entity.

New Surface Water
Most of the new surface water strategies were included in the first phase of Task 5A funding. However, it did not include the Red River Basin Off-Channel Reservoir (OCR), which is considered for Dallas Water Utilities. Evaluation of this strategy, along with potential modification to other surface water strategies, is included with this funding request. Updates to the OCR strategy are expected to be limited and will include confirmation of supplies and updates to costs.

Aquifer Storage and Recovery
The TWDB requires aquifer storage and recovery (ASR) to be considered for all needs. To address this requirement, Region C will develop a generic regional ASR project for the major water providers. The generic strategy will be evaluated in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region. Region C will also address the reasons ASR is not selected for water user groups as appropriate.

Regional Water Projects
Several regional projects were identified and evaluated in previous special studies for Region C. These projects, referenced as County Water Supply Project, will be retained and refined for the 2021 Water Plan. There are four regional county projects: Ellis County, Fannin County, Grayson County, and Tarrant County. Each of these projects will be updated and evaluated in accordance with the Regional Water Planning Guidelines.

Dredging Existing Lakes
Dredging existing lakes has been a public suggestion during past planning cycles as a means to meet water needs in Region C. Dredging is a strategy for Lake Waxahachie. This task will reevaluate the Lake Waxahachie dredging project and develop a generic regional lake dredging strategy for the major water providers in Region C. The generic strategy will be evaluated in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the region.
Other Projects:

There are other projects that may be identified during the planning process. These projects will be developed and evaluated for the 2021 Region C Water Plan as more information becomes available.

Data Base Entry
As required by the TWDB rules, all water management strategies and projects that are recommended must be entered into the TWDB database for the 2021 State Water Plan. Also, specific reports must be included in the 2021 Region C Water Plan. For Phase 2, this task applies only to the strategies developed under this scope of work. Specific tasks associated with the database entry include:

Scope of Work
- Define each water management strategy (WMS) in accordance with the specific requirements of the database.
- Assign WUGs and WWPs to a specific WMSs. Enter the amount of supply received for each decade. Enter other data required for the WMS source, user and seller, as appropriate.
- Relate WMSs to projects with an associated capital cost and WUG/WWP as appropriate.
- Enter capital costs and annual costs for each WUG/WWP as appropriate.
- Coordinate with shared regions as appropriate.
- Perform appropriate QC checks on data entry.
- Coordinate with TWDB database staff.
- Prepare all necessary reporting for the 2021 Region C Water Plan.

Report Preparation and Coordination
Chapter 5 of the 2021 Region C Water Plan is one of the most important chapters in the plan. This chapter is the compilation of the future direction for water supply in the region. The 2016 Region C Water Plan has six subchapters dedicated to this section of the report along with several appendices that document the data evaluation. The basics of the strategy development and technical evaluations are included in the scopes of work for the specific strategy types. This task is for the effort to compile all the information into Chapter 5 of the 2021 Region C report. It also includes coordination with the RWPG on the draft chapter and the incorporation of comments for the final chapters in the Initially Prepared Plan and Final Plan.
Fee Summary

The total budget for developing the water management strategies for the 2021 Region C Water Plan (Task 5A) is $1,095,005. The Phase 1 Scope of Work effort was authorized for $412,500. Phase 2 effort represents the remaining budget of $682,505. Below is a breakdown of the fee by major strategy category.

<table>
<thead>
<tr>
<th>TASK 5A</th>
<th>BUDGET</th>
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<tbody>
<tr>
<td>Infrastructure Improvements</td>
<td>$83,000</td>
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<tr>
<td>Reuse</td>
<td>$65,500</td>
</tr>
<tr>
<td>New Groundwater</td>
<td>$50,000</td>
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<tr>
<td>Voluntary Redistribution</td>
<td>$25,500</td>
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<tr>
<td>New Surface Water</td>
<td>$25,500</td>
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<tr>
<td>Aquifer Storage and Recovery</td>
<td>$43,000</td>
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<tr>
<td>Regional Projects</td>
<td>$70,000</td>
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<tr>
<td>Dredging Existing Lakes</td>
<td>$41,500</td>
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<tr>
<td>Other Projects</td>
<td>$55,500</td>
</tr>
<tr>
<td>Database Entry</td>
<td>$61,500</td>
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<tr>
<td>Report Preparation and Coordination</td>
<td>$161,505</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$682,505</strong></td>
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TWDB SCOPE AND FEE SPREADSHEET
<table>
<thead>
<tr>
<th>Region</th>
<th>Overall TWDB Task Number</th>
<th>Subtask WMS evaluation number</th>
<th>Subtask WMS and/or WMSP Title</th>
<th>Subtask Scope of Work Write-up</th>
<th>Deliverable</th>
<th>Subtask Budget</th>
<th>WUG(s) &amp;/OR WWPP Title</th>
<th>Subtask WMS(s)/WMSP(s) Evaluation number</th>
<th>Addressing a changed condition from previous cycle?</th>
<th>If yes, describe the changed condition.</th>
<th>When was this WMS/WMSP identified by RWPG as potentially feasible?</th>
<th>Was the WMS/WMSP evaluated in any previous Regional Water Planning Cycles?</th>
<th>Is evaluation a limited update to previous technical evaluation information? If no, indicates specific update in subtask sow column E</th>
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</thead>
<tbody>
<tr>
<td>C</td>
<td>5A</td>
<td>Infrastructure Improvements and Water Treatment</td>
<td>See scope of work. Includes multiple supply and infrastructure configurations; coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements.</td>
<td>Technical memorandum</td>
<td>$83,000</td>
<td>Wholesale water providers and WUGs with need</td>
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<td>Yes, changes in supplies and demands</td>
<td>Previous plans</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Reuse</td>
<td>See scope of work. Includes coordination with project sponsors, costs and infrastructure requirements.</td>
<td>Technical memorandum</td>
<td>$65,000</td>
<td>Wholesale water providers, cities, and non-municipal WUGs with need</td>
<td></td>
<td>Yes, changes in supplies and demands</td>
<td>Previous plans</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td>C</td>
<td>5A</td>
<td>New Groundwater</td>
<td>See scope of work. Includes multiple supply and infrastructure configurations; coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements. New MAGs.</td>
<td>Technical memorandum</td>
<td>$50,000</td>
<td>WUGs not served by Major Water Provider</td>
<td>Yes, new MAGs and new needs</td>
<td>Previous plans</td>
<td>Yes</td>
<td>No</td>
<td></td>
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<td>C</td>
<td>5A</td>
<td>Voluntary Redistribution</td>
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<td>Wholesale water providers and WUGs with need</td>
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<td>Yes, new needs and new sellers</td>
<td>Previous plans</td>
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<td>C</td>
<td>5A</td>
<td>New Surface Water</td>
<td>See scope of work. Includes coordination with project sponsors, re-evaluation of costs and impacts review.</td>
<td>Technical memorandum</td>
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<td>DWU and customers</td>
<td>No</td>
<td>Previous plans</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Aquifer Storage and Recovery</td>
<td>See scope of work. Includes development of new strategies, coordination with project sponsors, assessment of supplies, costs, and infrastructure requirements, and evaluation of impacts. Also includes assessment for each WUG with a need.</td>
<td>Technical memorandum</td>
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<td>Major Water Providers, WUGs with need</td>
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<td>2021 Plan</td>
<td>No</td>
<td>No</td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Regional Projects</td>
<td>See scope of work. Includes coordination with project sponsors, NETMWD, re-assessment of available supplies, costs and infrastructure requirements.</td>
<td>Technical memorandum</td>
<td>$70,000</td>
<td>WUGs in Ellis, Fannin, Grayson and Tarrant Counties</td>
<td>Yes, Supplies and Participants</td>
<td>Previous plans</td>
<td>Yes</td>
<td>No</td>
<td></td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Dredging Existing Lakes</td>
<td>See scope of work. Includes coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements.</td>
<td>Technical memorandum</td>
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<td>Waxahachie, Major Water Providers</td>
<td>Yes, Updated WAM; New strategy</td>
<td>Previous plans</td>
<td>No</td>
<td>Only the Lake Waxahachie dredging project</td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Other Projects</td>
<td>See scope of work. Includes coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements.</td>
<td>Technical memorandum</td>
<td>$55,500</td>
<td>MWPs, WWPs and WUGs</td>
<td>Yes, New project</td>
<td>NA</td>
<td>No</td>
<td>No</td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Database Entry</td>
<td>See scope of work. Includes coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements.</td>
<td>Completed DB22 entry for specified WMSs</td>
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<td>MWPs, WWPs and WUGs</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
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<tr>
<td>C</td>
<td>5A</td>
<td>Report Preparation and Coordination</td>
<td>See scope of work. Includes coordination with project sponsors, re-evaluation of supplies, costs and infrastructure requirements.</td>
<td>Completed portions of draft Chapters 5B and SC of the Region C IPP</td>
<td>$161,505</td>
<td>MWPs, WWPs and WUGs</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
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