



Arapahoe County Water Supply Study

Water Supply Reserve Fund Program Grant

Progress Report #1

Submitted to:

Colorado Water Conservation Board

South Platte Basin Roundtable

Metro Basin Roundtable

September 6, 2023

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Water Supply Reserve Fund (WSRF) Program Grant Progress Report #1

GRANTEE: **APAPAHOE COUNTY**

PROJECT NAME: **ARAPAHOE COUNTY WATER SUPPLY STUDY**

FUNDING ROUNDTABLES: **SOUTH PLATTE, METRO**

General Project Status

- All Tasks described in the Status of Tasks and that are currently underway are on schedule and within budget. No major issues have occurred that impact the schedule or budget. To date, 33.2% (\$41,475) of the WSRF grant budget has been invoiced.
- There are two advisory committees for the study: one is comprised of representatives of the water providers in the county, and the other has land use planning representatives from all the cities and towns in the county. Four meetings have been held with the Advisory Committees.
- An interactive GIS map was developed by the consultant team that displays well permit data from the Colorado Division of Water Resources, areas of the county with decreed water rights, and information from the Petra model, among other data. The interactive map presents a wide range of data from various sources in one location and in a manner that the public can understand the physical attributes and extent of the Denver Basin aquifers. (Task 2)
- An analysis of groundwater was undertaken for the county, including Petra modeling to assess the Denver Basin groundwater resources in the middle part of the county. Data was collected to define water levels, well yields, aquifer properties, and aquifer saturated thickness within the Denver Basin aquifers, the tributary aquifers, and the designated basin aquifers. (Task 4)
- An analysis of water demand and supply is underway. (Task 7)
- As part of public outreach efforts, an overview of the study was presented to the I-70 Regional Economic Advancement Partnership (REAP) meeting on April 13, 2023.
- Arapahoe County’s Water Supply Study has had media coverage by the Denver Post, and channels 4 and 7.

Introduction

The Arapahoe County Water Supply Study will help implement the goals and measurable outcomes identified in the 2023 Colorado Water Plan and the South Platte Basin Implementation Plan. Land-use planning can contribute significantly to reducing the water “footprint” in the developing area of the county. While the county will have challenges because the urban and rural areas have different water issues, it is essential to ensure that future growth occurs as water-efficiently as possible. Policies and actions identified in the Colorado Water Plan and the South Platte Basin Implementation Plan emphasize the importance of integrating land-use planning and water resource planning.

The purpose of the Water Supply Study is to understand present and future conditions of water supply and demand, to identify efficiencies that can be achieved, and to take steps through the comprehensive planning and development review process to encourage best management practices for water demand

management, water efficiency, and water conservation to ensure that land use decisions are made based on balancing efficient use of limited water supplies with needs of new residents to have a reliable water supply while working in cooperation with the water supply entities in their respective water planning efforts. The recommendations of the Water Supply Study will provide the basis for the review of proposed water supplies for new developments at an earlier stage of the development process than is being done now.

The three primary objectives of the study are:

1. Integrate water and land-use planning. Information from the Water Supply Study will help ensure that land-use decisions are made based on knowledge of water supplies and the needs of future development. The study’s recommendations will inform the Board of County Commissioners, County officials and staff, developers, residents, and water providers in the county of water supply issues and potential solutions.
2. Identify the potential water supply gap in 2050 and recommend solutions. The study would update and expand on recommendations from the County’s 2001 water study and identify supplies and quantify long-term projected water demand through 2050 under varying growth scenarios.
3. Provide education and outreach on water issues in the county. Engaging with the general public and property owners is vital to learn about their ideas and concerns about water supply. The objective of education and outreach is to share information on the study’s progress through a digital engagement platform and maps as well as two public meetings. This will provide an opportunity for the public to provide feedback on the study.

The total amount of the WSRF grants is \$125,000 from the following sources:

South Platte Basin Roundtable	\$50,000
Metro Basin Roundtable	\$25,000
Statewide	\$50,000

Arapahoe County’s match for the grants is \$163,000.

Scope of Project

The initial approach to this study was to focus on the eastern part of the county, which was the geographic area identified in the County’s WSRF grant applications. However, following the CWCB Board’s approval of the grant funding in March 2022, the Board of County Commissioners decided to expand the study area to include the entire county and approved funding to supplement the WSRF grants in June 2022. The scope of work has stayed the same but the difference is that this is now a county-wide water supply study.

The Water Supply Study consists of 11 tasks which are identified in the next section. The notice to proceed was issued on December 7, 2022, and the study officially started in December 2022. The study is to be completed in May 2024.

Status of Tasks identified in the Scope of Services

Task 1A. Project Initiation. [\$22,689 allocated from WSRF grants – 66.2% invoiced]

Develop the ongoing project management framework.

- This task includes monthly project team meetings, reporting and billing tasks, and other tasks generally associated with project management.

Task 1B. Stakeholder and Public Participation. [\$14,144 allocated from WSRF grants—29.1% invoiced]

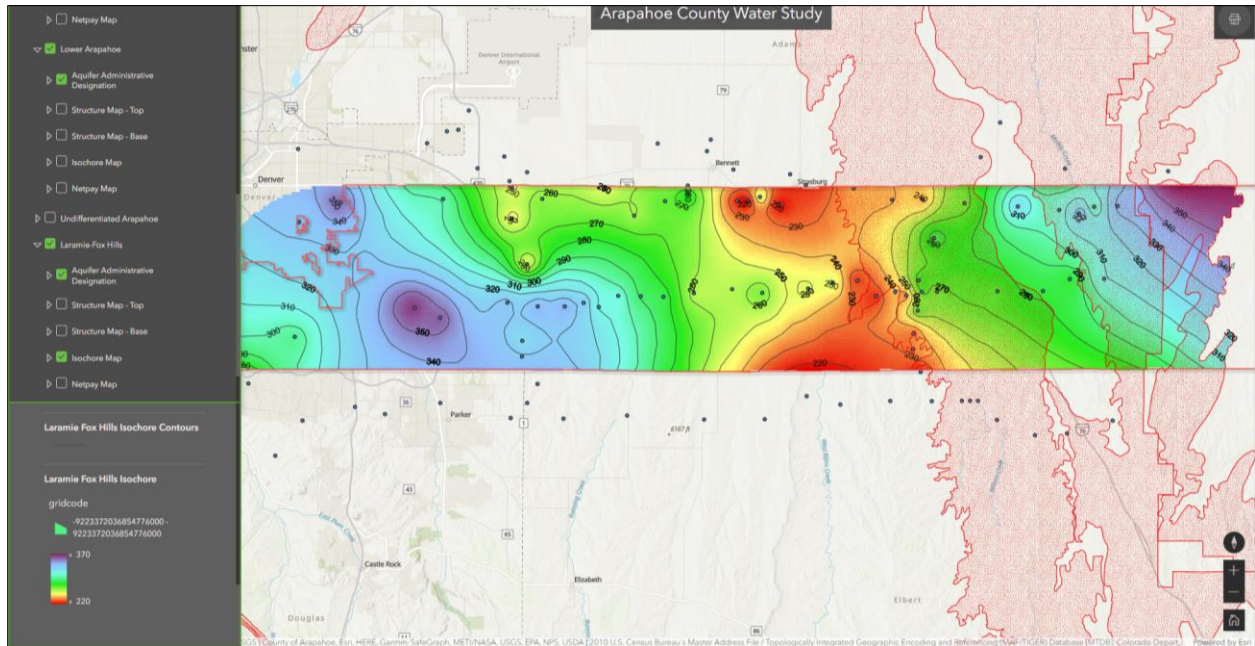
Establish the Advisory Committees and develop and carry out the communications and public participation plan.

- Four advisory committee meetings were held to discuss the study goals and present information and data and the results of the various tasks. Meetings were held on February 28, 2023, March 30, June 13, and August 29. The next advisory committee meeting is scheduled for December 2023.
- Preparation for public engagement and participation included:
 - Developing the content for a web-based public engagement platform called MetroQuest which will utilize surveys, maps, etc., to obtain public feedback.
 - Identifying the approach for two public meetings and outreach to start in early 2024.
 - Preparing the design of banners and posters for placement in community buildings (i.e., libraries, recreation centers, etc.)
- Planning for presentations to the Board of County Commissioners, Planning Commission, and community meetings.
- Continuing to monitor the online interest form sign-ups and answer community members' questions regarding the study.

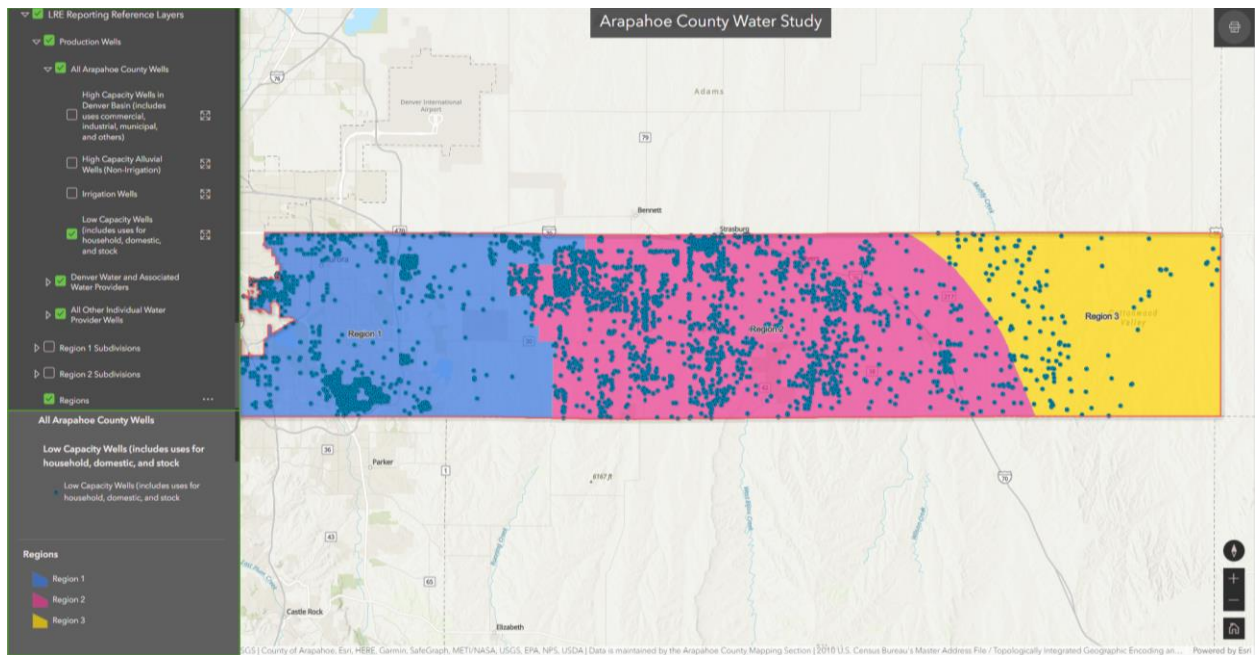
Task 2. Mapping and Data Development. [\$3,680 allocated from WSRF grants—94.2% invoiced]

Collect and map important background and technical data.

- The consultant team compiled GIS data from Arapahoe County, the Division of Water Resources, water providers, and other publicly available sources to create an interactive GIS map. Due to the county's size, three subareas were created for analysis in subsequent tasks. Region 1 is the urbanized area of the county, generally west of E-470, and where various water providers such as Denver Water and Aurora Water provide services to residential, commercial, and industrial properties. Region 2 is the area of the county generally between E-470 and Deer Trail, and Region 3 is the area east of Deer Trail.
- The consultant team provided a technical memo to Arapahoe County documenting the information utilized for the interactive map.
- This task is nearing completion pending verification of information from digitized maps and information from some water providers. The map is currently in draft form, but the screenshots below provide some examples of the information presented in the GIS map.



Laramie-Fox Hills Isochore Map



Low Capacity Wells in the three analysis regions in Arapahoe County

Task 3. Land Use and Socioeconomic/Scenario Development [\$10,064 allocated from WSRF grants—0% invoiced]

Identify future development scenarios for 2050 and match them to the water service provider areas.

- Medium and high growth scenarios of future land use and population forecasts through 2050 were developed based on the 2023 Colorado Water Plan and DRCOG’s small area forecasting models. The consultant team and Arapahoe County staff worked on developing the population and employment forecasts.

Task 4. Groundwater Analysis. [\$19,124 allocated from WSRF grants—84.2% invoiced]

Assess groundwater conditions in the county, including an assessment of available groundwater.

- The consultant team reviewed available groundwater data, well data, and water rights information. The groundwater analysis consisted of dividing the county into three regions with a focus on the central region (Region 2) which is the area between E-470 and Deer Trail. This is the area of projected growth and a substantial number of groundwater wells. The analysis also mapped water service areas and collected decrees and determinations across the county.
- A major part of this task involved PETRA modeling to estimate possible groundwater production, focusing on Region 2. Available groundwater level data and groundwater quality data were collected and plotted.
- The consultant team provided a technical memo to Arapahoe County describing the Petra modeling methodology and groundwater condition findings.
- This task is nearing completion.

Task 5. Review of Water-Conscious Landscaping Standards. [\$2,164 allocated from WSRF grants—8% invoiced]

Evaluate landscaping regulations for the urban and rural parts of the county with the goal of implementing water-conserving design, efficiency, and reuse regulations.

- The consultant team developed a methodology to estimate reduced water demand based on water-conscious landscaping standards for the eastern unincorporated portion of the county and the western incorporated areas.
- The consultant team reviewed and commented on Arapahoe County's draft revised landscape regulations which are currently being updated.
- The consultant team is continuing to work on demand reduction estimates for water-efficient landscaping.

Task 6. Assessment of Water Conservation Plans on Future Water Demand. [\$2,077 allocated from WSRF grants—75.3% invoiced]

Audit the water conservation plans of water providers in the study area.

- The consultant team reviewed water provider conservation and efficiency plans, self-assessments (Aurora, Byers, others), and other planning documents.
- The consultants are quantifying the estimate of reduced demands in 2050 through conservation.

Task 7. Demand and Supply Analysis. [\$6,625 allocated from WSRF grants—15.4% invoiced]

Analyze current and long-term (2050) projected water demands compared to current and projected water supply.

- Preliminary estimates of current and projected 2050 water demands have been calculated.
- The consultant team is working on the water supply analysis and incorporating the results of Tasks 5, 6, and 8.

Task 8. Water Reuse Analysis. [\$1,421 allocated from WSRF grants—0% invoiced]

Identify the current status of reuse and the constraints and potential opportunities for reuse in development projects.

- The consultant team has started to summarize existing reuse approaches and regulations and identify planned reuse projects to determine how the need for new water supplies can be reduced.

Task 9. Recommendations for Regulatory Modification. [\$12,711 allocated from WSRF grants—0% invoiced]

Identify an approach to groundwater supply requirements for new development and the regulatory approach.

- This task has not started.

Task 10. Plan Update and Implementation. [\$4,245 allocated from WSRF grants—0% invoiced]

Identify new goals, policies, and strategies to incorporate into the Arapahoe County Comprehensive Plan and other policy documents.

- This task has not started.

Task 11. Water Supply Study Report. [\$26,056 allocated from WSRF grants—0% invoiced]

Development of the final report and presentations for the approval process.

- This task has not started.