



ROXBOROUGH WATER AND SANITATION DISTRICT

November 10, 2021

Douglas County Board of County Commissioners
100 Third Street
Castle Rock, CO 80104

Re: American Rescue Plan Grant Application

Dear Commissioners:

Roxborough Water and Sanitation District (RWSD or District) thanks you for the opportunity to submit this grant application for various projects to address aging infrastructure, protect public health and the environment, improve system reliability and resiliency, address capacity constraints, and facilitate the District's ability to address regional wastewater conveyance needs. This grant application includes several projects that separately and collectively support the District's ability to meet these goals.

The coronavirus pandemic resulted in significant financial challenges for RWSD and our residents. RWSD lost an average of \$5,000/month in revenue during the Governor's prohibition on late fees. By January 2021, the District had 99 water and sewer accounts with a collective balance of \$140,306 past due 90 days or more. While things have improved since then, the District still has \$139,949 in water and sewer bills past due from 30 to 90 days. Six residents have entered into formal payment agreements, but the District has been forced to file Statements of Liens against 6 properties because the owners have made no attempt to pay their past due balances. To date, twelve families have been referred to the State's Low-Income Household Water Assistance Program. The impacts of the pandemic make funding critical infrastructure needs either through rate increases or mill levy increases challenging for our disadvantaged residents.

The projects included in this application will serve existing residents of a mature, 50-year-old District that is nearly 90% built out. None of the projects are intended to support growth in the District.

I. Aging Infrastructure:

Portions of the District's system are 50 years old and are reaching the end of their useful life, and the District is seeing excessive infiltration and inflow because of aging sewer lines. Water mains installed in the early 1970s are not in right-of-way and are often behind houses where a line break can severely damage nearby property. Failure of this aging, critical infrastructure can result in damage to private property and a release of raw wastewater to the environment. Other elements of the system, such as water pump stations, wastewater pumps, and backup generators, have simply reached the end of the useful life.

- i. **Replace or rehabilitate aging sewer pipes: \$10.2M** – Aging clay sewer pipes in portions of the District's service area allow infiltration and inflow of stormwater, which uses critical capacity in the wastewater conveyance system and can lead to



ROXBOROUGH WATER AND SANITATION DISTRICT

the release of raw wastewater to the environment. In 2021 the District replaced the water and sewer lines in one, 450-foot cul-de-sac at a cost of nearly \$1.4M. While we inspect the sewer system continuously, beginning in 2022 particular attention will be paid to the oldest infrastructure with the goal of using trenchless technologies to rehabilitate these pipelines wherever possible. Without grant funding, this project will either need to be completed in phases over 10+ years, or a rate increase or bond issue will be needed.

- ii. **Replace or rehabilitate aging water mains: \$4.6M** – Water mains that were installed in the early 1970s behind homes in portions of the District’s service area post a significant risk of damage to these homes if breaks occur in these 50-year-old pipelines. In most instances, it is cost prohibitive to relocate these water lines to right-of-way, but aging lines can be replaced in the current location and encased in concrete to protect nearby properties.
- iii. **Water pump station upgrades: \$3.1M** – Water pump stations that are critical to the operation of the distribution system have reached the end of their useful life, and it is no longer possible to find parts to repair and maintain them. Failure of a pump station would interrupt water service and fire protection in all or significant portions of the District’s service area. Maintaining operation of the distribution system is critical to protecting public health and providing fire protection to residential neighborhoods near fire-prone forests.
- iv. **Wastewater lift station pump replacement: \$600,000** – RWSD entered into a Wastewater Conveyance Agreement with Dominion Water and Sanitation District (DWSD) to provide both temporary and permanent wastewater conveyance to the northwest Douglas County region, but this will require upgrades to pumps that have reached the end of their useful life to ensure capacity. Regional wastewater conveyance allows time to thoughtfully plan for future wastewater treatment needs, fosters regional cooperation, and makes use of currently unused capacity in the District’s system. This project is in preliminary design and construction is possible in 2022 depending on pump availability.
- v. **Wastewater lift station backup generator replacement: \$500,000** – RWSD’s wastewater lift station conveys flow from the District and DWSD to South Platte Renew for treatment and sits within a few hundred yards of the South Platte River upstream of Chatfield Reservoir. The backup generator at the lift station is 20 years old and needs to be replaced to ensure the lift station remains operational in the event power is lost. A failure of the lift station could result in a catastrophic release of wastewater to the environment. Maintaining these facilities is an important aspect of regional wastewater service, protection of sensitive environmental features, and the safety of downstream water supplies.
- vi. **Replace O-Line Interceptor from Manhole O-2 to O-5: \$685,000** – Approximately 1,200 linear feet of the District’s O-Line wastewater interceptor is the oldest section of the interceptor sewer that is needed to serve both RWSD and



ROXBOROUGH WATER AND SANITATION DISTRICT

DWSD. In addition to being the oldest section of the pipeline, the existing 24” pipeline does not have adequate capacity to serve as a regional conveyance system. Replacing this section of pipe is needed to support regional wastewater service.

II. System Reliability and Resiliency:

System reliability and resiliency is critical to ensuring the water and wastewater system is available to serve the residents and ratepayers without interruption. System reliability can include emergency containment basins to prevent discharges to the environment, and security fencing to protect critical infrastructure from vandalism or malicious acts.

- i. **Water Treatment Plant Emergency Containment Basin Phase 2: \$865,000** – An upset at the Larry D. Moore Water Treatment Plant can result in a discharge of chlorinated drinking water to the environment that can harm aquatic life. To avoid a discharge, the District is constructing an emergency containment basin to capture any release and allow the District to return the water to the plant for treatment, protecting the environment and preserving precious water resources. Phase 1 of this project was completed in 2021, and Phase 2 is planned for construction in 2022.
- ii. **Rampart Pump Station Replacement: \$3M** – RWSD currently operates a raw water pump station at Aurora’s Rampart Reservoir to provide irrigation water for Arrowhead Country Club and the Roxborough Village Metro District’s parks and open space. Using raw water for irrigation saves on treatment costs and makes the water more affordable for these amenities. Under the District’s updated agreement for its water supply with the City of Aurora, the City is requiring that this pump station be relocated away from the reservoir, so the City has more operating flexibility. This project is ready to go to final design in 2022 with construction planned in 2023.
- iii. **Flow/Pressure Monitoring System: \$330,000** – Addition of a flow/pressure monitoring system on the District’s water distribution system would provide the capability to identify water main breaks in a timely manner and help avoid property damage and protect water quality. Over the last several years, RWSD has included additional areas in our service area (Chatfield East, Chatfield Estates/Acres, Titan Road Industrial Park, Plum Valley Heights, and Ravenna) that have greatly increased the complexity of our distribution system making flow/pressure monitoring more critical to operations.
- iv. **Transition Vault Drainage Improvements: \$375,000** – The District’s wastewater conveyance system serves the larger northwest Douglas County region. It is made up of two lift stations, a 7-mile force main, and a transition vault on the northeast corner of C470 and Platte Canyon. CDOT’s C470 improvements changed the grading around the transition vault, and these changes have resulted in multiple flooding events at the facility that have caused



ROXBOROUGH WATER AND SANITATION DISTRICT

interruptions in service and equipment damage. Multiple attempts to have the C470 contractor address the issue provided no resolution, so the District must do a project in 2022 to address the drainage and ensure continuity of service.

- v. **Flow Measuring Stations: \$375,000** – To ensure adequate capacity in the RWSD wastewater conveyance system to serve the region and comply with CDPHE requirements to control infiltration and inflow, RWSD must implement wastewater flow measuring stations to prioritize pipeline rehabilitation or replacement and monitor the results of system upgrades. The District is planning permanent flow measuring stations on each of its 3 trunk lines and temporary flow measuring devices that can be deployed in manholes in individual basins as projects are planned and implemented. This project is scheduled to be completed before spring runoff in 2022.
- vi. **Odor Control Upgrades to Roxborough Lift Station: \$450,000** – The Ravenna community is adjacent to the Roxborough wastewater lift station. While RWSD included odor control facilities when the lift station was constructed, and upgraded those facilities in 2020, there are still periodic odor issues that impact the quality of life for Ravenna residents and working conditions for RWSD team members. Different odor control technologies will be pilot tested and evaluated for life cycle costs to select the most efficient, cost-effective alternative.

III. **System Capacity:**

System capacity improvements are needed to ensure adequate capacity to meet the water demands and fire protection requirements of the District's existing service area. These are not capacity projects needed to meet the demands of growth in the District. These capacity constraints were identified in the District's 2020 Master Plan.

- i. **Rampart Range Transmission Main Replacement: \$3M** – The District's Rampart Range transmission main is currently 12" diameter pipe between the north and south entrances of Village Circle East. To meet existing water demands, fire flow requirements, and improve service to the Plum Valley Heights neighborhood and Douglas County's Emergency Vehicle Operations Center, this main must be replaced with a 24" pipeline. This project has been in design for over a year and is scheduled to go to bid in late November/early December 2021. The design of the project has been reviewed with County staff, and the construction schedule was developed to specifically avoid any impact to the Roxborough Primary or Intermediate Schools.
- ii. **Rampart Townhomes Pipeline Improvements: \$450,000** – The District's 2020 Master Plan included modeling of the entire distribution system. This modeling showed that the District's current water line serving the Rampart Townhomes does not have adequate capacity to meet fire flow requirements.
- iii. **Lambert Reservoir Dam Reconstruction: \$2M** – RWSD has a finite water supply under the Water Supply Agreement with the City of Aurora. Not only is



ROXBOROUGH WATER AND SANITATION DISTRICT

the quantity of water limited, but the District is dependent upon Aurora infrastructure to deliver that water to our water treatment plant. Years ago, the District purchased water rights on Meadow Ditch, which is on Indian Creek in Douglas County due west of Sedalia. To put these water rights to beneficial use it is necessary to rebuild the dam at Lambert Reservoir to comply with the water rights decree. The dam at Lambert Reservoir was breached in 2015 to avoid a catastrophic failure and must be reconstructed in its entirety. The Colorado Water Conservation Board provided the District with a grant to help fund a Feasibility Study on the reconstruction, which was completed earlier this year. Reconstructing the dam and putting these water rights to beneficial use would firm RWSD's water supply and supplement the Aurora supply. One alternative to put the water to beneficial use would convey the water to Chatfield via Indian Creek, West Plum Creek, and Plum Creek, which has the additional benefit of improving flows in the creeks and addressing some concerns Colorado Parks and Wildlife has raised for the native fish in West Plum Creek impacted by low flows.

IV. **System Security:**

In 2021 RWSD completed a risk and resiliency analysis as required by the American Water Infrastructure Act. This analysis involved a detailed evaluation of the District's entire systems and vulnerabilities from natural disasters and malicious acts. Many of the identified vulnerabilities are already being addressed by upgrades to IT systems and additional alarms and video monitoring at specific facilities, but the District did identify the need to add fences and gates and several facilities.

- i. **Water Treatment Plant South Entrance Gate: \$160,000** – With the construction of the extension of Waterton Road from Rampart Range Road to Moore Road, RWSD's water treatment plant will have a permanent, paved access road that will replace the existing dirt access road that is nearly impassable in inclement weather. Secure controlled access to the water treatment plant is important to protecting this critical infrastructure and the communities water supply. A gate and key card access system will be needed at the new entrance in 2022.
- ii. **Zone 1 Tank Fence: \$15,000** – Other tanks in the District's system either have controlled access, fences, or both. The Zone 1 tanks sit on the west side of Rampart Range Road near the entrance to the Roxborough Park neighborhood. The District evaluated alternatives ranging from \$175,000 to \$15,000 and decided the \$15,000 option to put fence around the hatches on the two tanks, rather than trying to fence the entire site, was the most cost-effective alternative that would provide security for the sole access point on the tanks.
- iii. **Roxborough Lift Station Fence: \$120,000** – In 2020 the District installed fencing and an electronic gate at the Roxborough Lift Station, but because at that time it was anticipated that RWSD would one day operate the Chatfield Basin



ROXBOROUGH WATER AND SANITATION DISTRICT

Water Reclamation Facility (CBWRF), no fencing was installed between the lift station and the treatment plant site. Since then, the plans for operation of the CBWRF have changed and to maintain the integrity of these two critical facilities, a fence separating them is appropriate. The fence will be installed such that it does not interfere with operations at the CBWRF but maintains the separate responsibility for operation and security.

Roxborough Water and Sanitation District believes all these projects are needed over the next 5 years to preserve the District's ability to provide clean, safe drinking water and safe, efficient wastewater services to the residents and ratepayers. Douglas County's assistance with the costs of these projects will help protect public health and the environment and assist a local government that has been financially impacted by the pandemic. It will also help to alleviate the upward pressure on rates and/or property taxes for disadvantaged residents of the District.

Thank you for your consideration of this request.

Sincerely,

Barbara J. Biggs
General Manager

Roxborough Water and Sanitation District
 Summary of ARPA Grant Application Projects

Aging Infrastructure

Replace or Rehabilitate Aging Sewer Pipes	\$10,200,000
Replace or Rehabilitate Aging Water Mains	\$4,600,000
Water Pump Station Upgrades	\$3,100,000
Wastewater Lift Station Pump Replacement	\$600,000
Wastewater Lift Station Backup Generator Replacement	\$500,000
Replace O-Line Interceptor From Manhole 0-2 to 0-5	\$685,000
Subtotal Aging Infrastructure	<u>\$19,685,000</u>

System Reliability and Resiliency

Water Plant Emergency Containment Basin Phase 2	\$865,000
Rampart Pump Station Replacement	\$3,000,000
Flow/Pressure Monitoring System	\$330,000
Transition Vault Drainage Improvements	\$375,000
Flow Measuring Stations	\$375,000
Odor Control Upgrades to Roxborough Lift Station	\$450,000
Subtotal System Reliability and Resiliency	<u>\$5,395,000</u>

System Capacity

Rampart Range Transmission Main Replacement	\$3,000,000
Rampart Townhomes Pipeline Improvements	\$450,000
Lambert Reservoir Dam Reconstruction	\$2,000,000
Subtotal System Capacity	<u>\$5,450,000</u>

System Security

Water Treatment Plant South Entrance Gate	\$160,000
Zone 1 Tank Fence	\$15,000
Roxborough Lift Station Fence	\$120,000
Subtotal System Security	<u>\$295,000</u>

TOTAL REQUIRED IMPROVEMENTS	\$30,825,000
-----------------------------	--------------