AGENDA
Denver Board of Water Commissioners

Denver Water Board Room, 1600 W 12th Avenue, Denver, Co 80204 and

Video Conference: http://zoom.us/join, Meeting ID: 882 3417 6376 - Passcode: 600590 or

Dial in (669) 900-6833 - Meeting ID: 882 3417 6376 - Passcode: 600590

Members of the public are welcome to attend either in person or by video conference

Wednesday, February 14, 2024 9:00 a.m.

I. INTRODUCTORY BUSINESS

A. Call to Order and Determination of Quorum

B. Public Comment and Communications

At this point in the agenda, the Board may allow members of the public to address the Board on any item of interest within the jurisdiction of the Board, and not on the agenda for action. Speakers wishing to address a specific Action Item will be invited to address the Board when the item is being considered. Three minutes are allowed for each person unless the President determines otherwise.

1. Distributor Communications
2. Citizen Advisory Committee Communications

C. Ceremonies, Awards, and Introductions

D. Legislative Update **Andrew Hill** **5 minutes**

II. ACTION ITEMS

A. Consent Items

Items listed below are considered routine and may be enacted by one motion and vote. If any Board member desires discussion beyond explanatory questions, or corrections to the Minutes, the President may order that item to be considered in a separate motion and vote.

1. Minutes from January 10, 2024
2. Minutes from January 24, 2024
3. Backflow Prevention Assembly Improvements – Contract 505729
4. Third Authorization with Evotek Inc. – Contract 10428
5. Purchase and Sale Agreement of Wynetka Reservoir Property – Contract 505912

B. Individual Approval Items

III. POLICY MATTERS

A. Asset Management Policy 2024	Tom Roode	30 minutes
B. South System Planning Program (SSPP)	Daniela Castañeda	20 minutes

IV. EXECUTIVE UPDATE

A. CEO Update

B. CFO Update

C. Operations Update

V. BRIEFING PAPERS & REPORTS

A. Briefing Paper

1. Asset Management Policy 2024
2. South System Planning Program (SSPP)

B. Report

VI. ADJOURNMENT

VII. TRUSTEE MATTERS

VIII. EXECUTIVE SESSION

The Board may adjourn the regular meeting and reconvene in executive session on topics authorized by D.R.M.C Sec. 2-34.

A. Confidential Report

DENVER BOARD OF WATER COMMISSIONERS

Meeting Date: February 14, 2024 Board Item: II-A-3

Backflow Prevention Assembly Improvements
Contract 505729

☒Action by Consent ☐Individual Action

Purpose and Background:
The purpose of this Board item is to approve Contract 505729 to upgrade seven backflow prevention assemblies (BFPA) throughout the distribution system to meet current Colorado Department of Public Health & Environment (CDPHE) regulations and Denver Water standards for backflow prevention and cross-connection control. These BFPAs control cross-connections (connections between potable and non-potable use pipelines) and are responsible for preventing backflow, which can create unsafe water quality conditions.

The BFPAs proposed for upgrade were identified in a recent cross-connection control survey. The work includes installation of reduced-pressure principle backflow preventers in above ground, heated enclosures to meet current regulatory requirements.

Budget and Schedule:
The total amount of this contract is $2,198,355 and the term of the contract is February 14, 2024 through January 15, 2025. Funds for this contract will come from the 2024 budget for the Backflow Prevention Assembly Improvements business unit, which has sufficient funds to pay the $2,150,000 estimated to be needed in 2024. The remaining $48,355 will be budgeted in 2025.

Selection of Business Partner:
Denver Water solicited bids from four General Contractors listed on the prequalified contractor list. This contract was a restricted bid process using invitations to bid on the QuestCDN platform. On January 24, 2024, bids were received from four General Contractors. R&D Pipeline Construction, Inc. was selected based on the lowest cost bid.

S/MWBE Information:
The Small, Minority and Women-owned Business Enterprise goal established for this project is 3% participation. R&D Pipeline Construction, Inc. has proposed 3% participation.

Recommendation:
Staff recommends that the Board approve Contract 505729 with R&D Pipeline Construction, Inc. for Backflow Prevention Assembly Improvements for the contract period February 14, 2024 through January 15, 2025 for a total contract amount not to exceed $2,198,355.

Approvals

☒ Alan Salazar, CEO/Manager
☐ Julie Anderson, Chief of Staff
☐ Jessica R. Brody, General Counsel
☒ Angela C. Bricmont, Chief Finance Officer
☐ Brian D. Good, Chief Administrative Officer
☐ Richard B. Marsicek, Chief Water Resource Strategy Officer
☒ Robert J. Mahoney, Chief Engineering Officer
☐ Thomas J. Roode, Chief Operations Officer

DENVER BOARD OF WATER COMMISSIONERS

Meeting Date: February 14, 2024 Board Item: II-A-4

Third Authorization with Evotek Inc
Contract 10428

☒Action by Consent ☐Individual Action

Purpose and Background:
The purpose of this Board item is to complete the deployment of a comprehensive data backup and protection solution that aligns with our cybersecurity strategy across all of Denver Water's networks.

Budget and Schedule:
The requested authorization amount of $152,202.30 will increase the total amount of this contract to $868,062.20, and the term of the contract is January 1, 2023, through January 11, 2027. Funds for this contract will come from the 2024 approved budget for IT.

Selection of Business Partner:
This is an authorization to add funds to an existing contract. We propose to amend the existing contract rather than seek competitive bids to align with current technology and take advantage of competitive pricing the manufacturer provides to a single reseller.

S/MWBE Information:
Small/Minority and Women-owned Business Enterprise goals are not applicable for this item.

Recommendation:
Staff recommends that the Board approve the Third Authorization to Contract 10428 with Evotek Inc for Cohesity data protection services for an extension of the contract period through January 11, 2027, and for an addition of $152,202.30 for a total amended contract amount not to exceed $868,062.20.

Approvals

☒ Alan Salazar, CEO/Manager
☐ Julie Anderson, Chief of Staff
☐ Jessica R. Brody, General Counsel
☒ Angela C. Bricmont, Chief Finance Officer
☒ Brian D. Good, Chief Administrative Officer
☐ Richard B. Marsicek, Chief Water Resource Strategy Officer
☐ Robert J. Mahoney, Chief Engineering Officer
☒ Thomas J. Roode, Chief Operations Officer

DENVER BOARD OF WATER COMMISSIONERS

Meeting Date: February 14, 2024 Board Item: II-A-5

Purchase and Sale Agreement of Wynetka Reservoir Property Contract 505912

☒Action by Consent ☐Individual Action

Purpose and Background:
The purpose of this Board item is to approve the purchase and sale agreement Contract 505912 for the sale of Denver Water's Wynetka Reservoir property at 4501 W. Bowles Avenue, Littleton, Colorado for $3,200,000.

Denver Water declared the 9.828 acres of vacant land addressed as 4501 Bowles Avenue, Littleton (Property) surplus and available for disposition on July 10, 2002. Denver Water acquired the Property in 1916 for a future reservoir and pump station site. The construction of the Foothills Treatment Plant negated the need for the small Wynetka Pump Station. The Property was subsequently found to have no water works purposes and experiences frequent trespassing by the adjacent neighborhood residents.

Originally zoned A-1, the Property's use was limited to general agricultural and/or a single-family residential structure. The Property has been offered for sale through common commercial avenues such as Costar and Loopnet, along with a targeted-call campaign for more than 10 years. These efforts resulted in numerous inquiries and several written offers over the years from buyers interested in rezoning the Property for commercial or higher-density residential development. The lengthy and uncertain approval of the rezoning/entitlement process, together with strong opposition from the adjacent Bow Mar South neighborhood, has caused previous purchase contracts to fail.

In 2021, Denver Water participated in the City of Littleton's updating of the City's land use master plan and successfully petitioned to have the Property rezoned to LLR – Large Lot Residential. This translates to a potential of 10-15 developable residential lots, with allowances for open space, roads, and setbacks, and represents the highest and best use for the property. Miller United Real Estate, LLC has presented a draft development plan in line with the current zoning. A closing cost of $3,200,000 is consistent with Denver Water staff's estimated value of the Property.

Budget and Schedule:
Contract 505912 will convey the 9.828 acres to Miller United Real Estate, LLC for $3,200,000 with a $125,000 earnest money deposit, of which, $62,500 in earnest money becomes non-refundable approximately 13 months after the contract is signed. The contract allows for a three-month inspection period and an additional 16-month entitlement period. The purchase is expected to close approximately 18-24 months from execution of the contract.

Recommendation:
Staff recommends that the Board approve Contract 505912 with Miller United Real Estate, LLC for sale of the Wynetka Reservoir Property at 4501 W. Bowles Avenue for a total contract amount of $3,200.000. In addition, staff recommends that the Board authorize the CEO/Manager or Chief

Engineering Officer, subject to the approval of the Board's General Counsel, to execute closing documents; enter into subsequent amendments of the contract; and enter other agreements consistent with Contract 505912, if any, necessary to convey the Property.

Approvals

☒ Alan Salazar, CEO/Manager
☐ Julie Anderson, Chief of Staff
☐ Jessica R. Brody, General Counsel
☒ Angela C. Bricmont, Chief Finance Officer
☐ Brian D. Good, Chief Administrative Officer
☐ Richard B. Marsicek, Chief Water Resource Strategy Officer
☒ Robert J. Mahoney, Chief Engineering Officer
☐ Thomas J. Roode, Chief Operations Officer

DENVER BOARD OF WATER COMMISSIONERS

Meeting Date: February 14, 2024 Board Item: V-A-1

Briefing Paper for Asset Management
2024 Business Model and Policy Discussions

Introduction

Asset Management is defined by the International Organization for Standardization (ISO) 55000 as the coordinated activity of an organization to realize value from assets. Denver Water adopted the ISO standard as a guideline for the organization during the development of the Strategic Asset Management Plan (SAMP) in 2022, which is attached. A more detailed and practical definition from Wikipedia defines it as the combination of management, financial, economic, engineering, and other practices applied to physical assets to provide the best value level of service for the costs involved. It includes the management of the entire life cycle—including design, construction, commissioning, operating, maintaining, repairing, modifying, replacing, and decommissioning/disposal—of physical assets.

Denver Water relies on hundreds of thousands of physical assets, such as dams, treatment plants, tanks, pumps, valves, and pipes, to reliably deliver high-quality water to our customers. The way success of the asset management program is measured is through the ability to meet the metrics of delivering water to customers at the lowest lifecycle cost of these assets. While the focus of the asset management program (and this paper) is on our infrastructure assets used to collect, treat, and distribute water, the concept of asset management can be expanded to other areas of our operations, such as our watersheds, fleet, and hardware and software tools.

Industry Review

Denver Water exchanges knowledge and strategies with other local and national water and wastewater utilities through peer knowledge sharing forums, conferences, and direct communication with other entities. Denver Water also shares information and asset management approaches with other organizations, including electric and natural gas utilities. In general, these organizations follow similar, structured, asset-management approaches that include inventories of assets and associated data, condition assessment, failure analysis and prediction, maintenance strategies to extend life and replacement planning.

Across industries, most entities target the level of proactive maintenance based on the importance of the asset to business performance as well as the costs to maintain versus replace the asset, with greater investment made on more critical assets and those with a higher replacement cost to gain longer lifespan and higher reliability.

The maturity level of the organization's asset management approach can vary widely across the industry. The attached document titled "AWWA Survey Results - Level of Progress in Utility Asset Management" highlights the progress from 2015 to 2020 for over 500 US and international water utilities regarding maturity of asset management. There are a few key areas that reflect similar challenges faced by Denver Water including:

Dedicated Asset Management Resources – The study showed an 11% increase in organizations with full-time staff dedicated to asset management. Denver Water is

included in this group and during the period of the study, added a dedicated asset manager with two support staff.

Use of Data and Technology – Most utilities are struggling to get past building a simple inventory of their assets so that data can be collected and utilized to make better maintenance and replacement decisions. Like Denver Water's experience, most entities started in a world of direct communication and paper handoffs to dispatch and track maintenance work. Information about asset condition was stored as institutional knowledge with the technicians or in paper logbooks. Like Denver Water, many institutions began using IT systems in the 1990s to inventory physical assets and track work against them. This contributed to an increase in productivity in managing work. However, these systems were not organized to collect and retrieve data that would help make better asset management decisions such as consistent condition assessment data, root cause failure analysis, and life cycle cost of the asset. Similar to Denver Water, many utilities have initiated programs, or are contemplating them, to add or enhance this capability. Advancements using technology, such as artificial intelligence, will not be feasible without reliable data.

Planning Horizon – The study shows that most utilities are trying to extend their planning horizons. Because many utilities have been in existence for a long time, one of the most pressing issues is the ability to renew and replace aging assets in a sustainable manner that is aligned with available resources. Denver Water faces this issue and is working to extend our planning horizon and configure maintenance practices and renewal rates so that our investments can be stable and keep rates affordable both in the near and long term.

Denver Water Overview / History

Denver Water has always engaged in managing the assets needed to deliver water to customers and has been very successful in operating and maintaining a reliable system. Figure 1 provides a high-level summary of the condition of our assets and the current asset maturity level color coded with green being good and red needing improvement.

Program/Asset Class	General Condition	Asset Management Maturity	Budget Impacts and/or Policy Decisions on the Horizon	
Collection System				
Dams/Reserviors			N	
Tunnels			N	
Canals			Y	High line transformation
Watersheds			Y	Watershed strategy
Siphons			N	
Downstream reservoirs			Y	IRP
Water Treatment System				
Foothills			Y	South System Planning Program
Marston			Y	South System Planning Program
NTP			N	
Moffat			Y	Retirement process
Recycling			Y	One Water strategy
WRS (admin building)			N	
Distribution System				
Treated water reservoirs			Y	Marston DCB and Capitol Hill Replacement
Pump stations			N	
Mains			Y	Replacement pace
Hydrants			N	
System Wide Assets				
Valves			N	
Hydroturbines			Y	Sutainability strategy
Pumps			N	
Control systems			Y	Remote operations potential
Electrical			Y	Value Stream work and NFPA standards
Conduits (big pipes)			Y	Condition assesment
Vaults			N	
Buildings			Y	Backlog of work
HVAC systems			Y	Backlog of work
Generators			N	

Figure 1 – Current State of Assets and Asset Management at Denver Water

Areas that are not green include uncertainty in terms of asset condition, the approach to maintenance and replacement rate, or have open policy questions that need to be answered. The SAMP includes a 5-year roadmap to close these gaps. This includes items like building asset-class-specific Asset Management Plans (AMPs) which are under completion through the asset management value stream. As the AMPs are built and implemented, the work includes cleaning up our IT systems to align with plans and better track progress. This work involves a culture change within the organization—including gaining agreement on what asset failures are tolerable versus intolerable and what level of maintenance is good enough, asking whether the asset is still needed or correctly sized before replacing it in kind—to align with the asset management strategy.

It will also include policy discussions with the Board regarding service levels and the appropriate asset replacement rates, such as the mains program, which is summarized in the attached Mains Program Update Memo. In some cases, another evolving Board policy decision could impact the asset management strategy, such as the use of hydropower as compared to other generation options that might be less maintenance-intensive.

Policy Questions

1. Is Denver Water's overall approach to asset management—centered on asset criticality and costs to maintain versus replace the asset—the appropriate strategy to deliver best value to customers?
2. Is the desired pace of maintenance and renewal programs appropriate?
3. At what pace should the increased use of technology be explored?

Alternatives

As the gaps highlighted in Figure 1 and summarized below in Figure 2 are fully understood and characterized, they will be framed with alternatives and associated risks and costs for the Board to decide during the long-term and annual budgeting process.

Program/Asset Class	Budget Impacts and Policy Decisions on the Horizon
Canals	High line transformation
Watersheds	Watershed strategy
Downstream Reservoirs	IRP
Foothills Treatment Plant	South System Planning Program
Marston Treatment Plant	South System Planning Program
Moffat Treatment Plant	Retirement process
Recycling System	One Water strategy
Treated water reservoirs	Marston DCB and Capitol Hill Replacement
Mains	Replacement pace
Hydroturbines	Sutainability strategy
Control systems	Remote operations potential
Electrical	Value Stream work and NFPA standards
Conduits (big pipes)	Condition assesment
Buildings	Backlog of work
HVAC systems	Backlog of work

Figure 2

Attachments

Denver Water Strategic Asset Management Plan (SAMP)

AWWA Survey Results - Level of Progress in Utility Asset Management

Mains Program Update Memo

Respectfully submitted,

☒ Tad Cogan, Director Support Services

☒ Garth Rygh, Director Water Distribution

☒ Tom Roode, Chief O&M Officer

Agenda

SSPP Roadmap

DENVER BOARD OF WATER COMMISSIONERS

Meeting Date: February 14, 2024 Board Item: V-A-1

Briefing Paper for South System Planning Program

Strategic Plan Alignment

Lenses: ☒ Customer Centric ☒ Industry Leader ☒ Long-Term View ☐ Inclusivity

Denver Water aspires to serve our customers by being a national leader in delivering clean water, operating and maintaining a reliable and resilient system, and protecting the water resources of the West. The South System Planning Program (SSPP) is a fiscally responsible and flexible 20-year plan for the South System to continue delivering high-quality water to our customers and prepare for a changing future. The SSPP Charter aligned the Program objectives with Denver Water's Strategic Plan, specifically:

- Deliver an Adaptive Plan with Strong Financials by making financial decisions with long-term considerations to implement the right projects at the right time and at the optimum cost into the Long-Term Forecast. The South System Project Forecast was delivered with financial flexibility in mind by assigning project triggers and interdependencies to initiate or shift projects with changing conditions.
- Optimize the use of Bear Creek and Chatfield supplies, balancing water supply reliability and quality to maintain Excellent Operations through continued watershed protection, sustainability considerations in projects, and planning improvements with operating efficiency in mind.
- Identifying projects for Excellent Operations that address risks to supply and water quality including the impacts of climate change, aging infrastructure, and an uncertain future.
- Inspired People through diverse stakeholder engagement and communications throughout the execution of the project, resulting in decisions and project outcomes that reflected the input and priorities of different divisions.

Summary

The purpose of the SSPP was to identify the short and long-term capital needs of the South System, which comprises the raw water supply, the Marston and Foothills Water Treatment Plants, and associated finished water distribution system. The mission of this program was to create an adaptable roadmap encompassing a 20-year South System Project Forecast to reduce single points of failure within critical aging assets, anticipate needs related to potential regulations, foster a diversified supply portfolio, and help mitigate climate change impacts.

The South System needs were identified through an assessment of existing high-risk assets, evaluating current and anticipated changes in our source waters and the water quality challenges to the treatment plants, and anticipated changes in the regulatory landscape. Studies and capital projects were identified with input from stakeholders representing multiple divisions to reflect the comprehensive needs of the South System. The recommended projects were incorporated into the Long-Term Forecast with flexibility for uncertain future conditions in mind.

Background

Until recently, the North System had the oldest technology within Denver Water's treatment portfolio. The mission of the North System Renewal project was to improve the safety and reliability of Denver Water's North System since many assets were reaching a point in which they can no longer be maintained. Because Denver Water is near completion of the North System Renewal Program, the timing was right to develop a 20-year road map focused exclusively on the South System. With the "newest" South System plant (e.g., Foothills) originally constructed in the 1980s, some infrastructure in the South System is critically aging and being challenged by climate change impacts, increasingly stringent regulations, and the potential increased use of more challenging Eastern Slope supplies. The purpose of this plan is to increase Denver Water's overall system reliability through a fiscally responsible and flexible 20-year plan that balances the need to meet Denver Water's high level of service with the reality of an already fiscally demanding near-term CIP that includes Northwater Treatment Plant Commissioning, the ongoing Lead Reduction Program (LRP), and Gross Reservoir Expansion.

Increasing South System Resilience through Strategic Fiscal Stewardship

The key outcome from the SSPP is the actionable CIP road map presented as an attachment. The objectives of the SSPP were met using the following strategies to optimize expenditure smoothing:

- Development of a flexible program with project triggers (e.g., regulations, water quality, regional partnerships) and interdependencies that initiate or shift projects in the long-term forecast to avoid stranded assets or premature investment.
- Deployment of a more rigorous near-term watershed/reservoir monitoring program that provides the necessary data to inform Denver Water that a project is approaching its water quality trigger.
- Identification of things to influence such as prevention of increased concentrations of "forever chemicals" per- and poly-fluoroalkyl substances (PFAS) in Denver Water's supplies.
- Optimized use of Bear Creek and Chatfield supplies through modest investment in well-performing existing infrastructure (versus building a new treatment plant).
- Demonstrated success with Incremental Train Operations. With this Denver Water approach, a facility maintained in a dry, standby condition ready to be brought back online if a critical need arises reduces risk and lessens the need for complete bifurcation of facilities or building of additional capacity.
- Potential use of Emergency Demand Reduction as a tool to meet water demand during an unplanned outage event, reducing the level of investment required at Foothills to meet Denver Water Service Level Standards (i.e., design, operating, and planning benchmarks that ensure we are able to provide safe, reliable water that meets our customers' expectations).

Industry-Leading Solutions to Meet Denver Water Service Level Standards

Denver Water Service Level Standards are design, operating, and planning standards that ensure we are able to provide safe, reliable water to our customers. Given the near-term fiscal constraints of the existing Capital Improvement Plan until completion of major organizational programs like the LRP and North System Renewal, Denver Water stakeholders identified creative, lower-capital solutions to meet Denver Water Service Level Standards. An impactful example of this was the evolution of the Foothills Water Treatment Plant Bifurcation Project that had been

developed at a high level prior to the SSPP. Two key factors influenced the evolution of this concept:

- Emergency Demand Reduction Plan (completed outside of the SSPP)
- Foothills "What if" Failure Analysis (SSPP Foothills Workshop #1)

Denver Water explored Emergency Demand Reduction (EDR) as a tool to meet water demand during an unplanned outage event through a parallel EDR Study, which identified that Denver Water could conservatively offset peak summer demand in the event of an emergency. This strategy took pressure off meeting systemwide demand with half of Foothills offline, eliminating the driver for a bifurcated plant. The second factor that influenced the project's evolution was a critical "what-if" failure analysis where, after identification and analysis of points of failure throughout the plant, Denver Water determined the key vulnerabilities that would most likely result in a significant outage were in the electrical and instrumentation/controls (I&C) infrastructure. The net impact after considering these two factors was that bifurcation of Foothills could be replaced with more practical elements (e.g., redundancy in electrical and I&C infrastructure) and save Denver Water millions of dollars in near-term capital.

Budget

The Board approved the initial project budget on June 23, 2021. The project budget was amended in later stages of the project due to scope changes. The project's internal labor, professional services, contractor services, and Owner contingency accounted for a total project cost of approximately $1,100,000.

Alternatives

Once needs and risks were identified for the Marston and Foothills WTPs, conceptual evaluations were done to translate these into capital improvement projects at the plants. These capital projects were then grouped and prioritized into construction packages according to their criticality and to make capital improvements manageable. The goals for development of the construction packages were as follows:

- Prioritization of south system projects by key Denver Water stakeholders.
- Avoid simultaneous major construction projects at both Marston and Foothills plants to minimize vulnerability to Denver Water and sequence construction projects to meet facility outage schedules.
- Group related projects into biddable-size projects so that performance testing can confirm respective upgrades work independently and together.
- Consider impacts of other systemwide projects (e.g., Lead Reduction Program) on near-term financial forecasting. Enterprise Project Management Office's (EPMO) participation was critical to manage debt and cash reserves to support successful execution of the plan.

Projects with Triggers

Not all projects could be tied to a specific timeline as some influential factors are beyond the control of Denver Water. Building on the concept of implementation "triggers", select projects had triggers assigned such as the Marston alternatives to manage taste and odor challenges. Smaller chemical improvements are planned for the short-term, after which the performance will be monitored and if issues persist, additional capital upgrades may be triggered as necessary.

Phased and Flexible Approach to Problem-Solving
The option to increase the use of Chatfield and Bear Creek supplies, if needed, offers water supply resilience in the face of uncertain climate change and water supply impacts. However, some water quality issues could be exacerbated. A proactive solution is required that would allow Denver Water to preserve the option of increased use of these supplies without compromising Service Level Standards to our customers while also treating the more challenging water quality issues. As part of the SSPP, a flexible, phased series of projects was developed to achieve this while avoiding near-term capital investment that could be deferred. This phased approach to treatment challenges is one of many creative ways Denver Water has elected to face current challenges while being good fiscal stewards for ratepayers.

Approach

Participation across multiple divisions was a critical success factor for the SSPP. The SSPP included stakeholders from Engineering, Operations & Maintenance, Water Resource Strategy, Sustainability, and the EPMO, among others.

Identification of projects was a key outcome of each SSPP core task and was driven by the condition of the existing assets, increased use of Bear Creek and Chatfield supplies, potentially more stringent regulations, or a goal for more resiliency. Stakeholders participated in a series of workshops to identify and prioritize approximately 80 projects into logical construction packages as shown in the South System Road Map (Attachment).

The success of the SSPP ultimately lies in its implementation. The stakeholders for this plan have been heavily engaged and have thoughtfully identified, organized, and prioritized projects for implementation. To fold the SSPP into the continuous planning process at Denver Water, project owners familiar with the documented project context will be identified and projects will be carried out through the organization's project delivery methodology.

The SSPP has been identified as a key strategic initiative that provides significant contributions toward the attainment of Denver Water's Strategic Plan Goals and Objectives and has been recognized as an Organizational Program (Charter). Annual updates will be given to the Project Leadership Team on progress and major changes in projects and budgeting, as well as the short-term landscape for planned capital improvements in the South System. As part of this effort, select SSPP elements will be monitored and updated annually with input from project owners.

Owner(s) Daniela Castañeda, Engineering

Attachments 20-Year South System Road Map

Respectfully submitted,

☒ Daniela Castañeda, Engineer

☒ Robert J. Mahoney, Chief Engineering Officer

SSPP Briefing Paper

DENVER WATER

South System Planning Program

20-Year South System Road Map

Triggers

- Regulatory
- Water Quality
- Construction
- NICS Integration
- Deadline
- Study

Milestones

- Possible M/DBP Rule Compliance Deadline (2029)
- Lead Reduction Program Completion (2034)

- Marston Project
- Distribution Project
- Foothills Project

Marston Studies Part 1 (2024)
- Predesign for Disinfection Upgrades (UV/DCB)

Distribution Project (2024-2025)
Gore Range/Wynetka Vaults

Marston Construction Package 1 (2024-2028) ✪
Disinfection Upgrades (UV/DCB)
- Bypass Valves
- Phase 1 Solids Project
- PAC Upgrades
- Electrical Upgrades

Marston Studies Part 2 (2031-2033)
- Taste and Odor Pilot
- Solids Handling Study

Marston Construction Package 2 (2033-2035) ✪
- Phase 2 Solids Project
- Taste and Odor Project (pending study results)
- Chemical Upgrades
- Electrical Upgrades

Bear Creek Bypass (2034-2037)

Marston Construction Package 3 (2042+) ✪
- Electrical Upgrades

Increased Watershed Monitoring for South System

2024 2029 2034 2039 2044

Foothills Studies Part 1 (2024)
- Updated ArcFlash Study (absorbed into Denver Water ArcFlash Program)
- Water Recapture Compliance Study
- Foothills Alkalinity System Study

MCC Testing and Maintenance Project (2024-2025)
(every 2-3 year frequency given the lifespan of these assets)
- Electrical Improvements

Foothills Studies Part 2 (2028)
- Microturbine Feasibility Study

Foothills Construction Package 1 (2029-2032) ✪
- Electrical Bifurcation
- Raw/Headworks Valve Upgrades
- Floc/Sed Improvements
- Chemical System & Diffuser Improvements

Foothills Construction Package 2 (2037-2041) ✪
- New Chemical Facility and Chlorine Upgrades
- New Microturbine
- Plate Settlers and Additional Sludge Collectors (if needed)
- Electrical Upgrades