



**City Council Work Session Agenda**  
**Wednesday, June 17, 2026**  
**6:00 p.m. – Work Session**

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1. CALL TO ORDER
2. WASTEWATER RATES AND SYSTEM DEVELOPMENT CHARGES (SDCS) WORK SESSION
3. ADJOURNMENT

# STAFF REPORT

**DATE:** June 17, 2026  
**TO:** Adam Garvin, City Manager  
**SUBMITTED BY:** Geoff Hunsaker, Public Works Director  
**SUBJECT:** Wastewater Rates and SDCs Work Session

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## **Report in Brief:**

The purpose of this work session is to provide the City Council with an overview of the Wastewater Conveyance System Master Plan and Water Reclamation Facilities Plan and to facilitate a policy discussion regarding long-term funding strategies for wastewater infrastructure investments. The discussion will focus on balancing system reliability, regulatory compliance, growth accommodation, affordability, debt utilization, and intergenerational equity through a range of conceptual funding scenarios.

Staff is seeking policy direction regarding Council's priorities for implementation of the Wastewater Master Plan and the relative use of wastewater utility rates, System Development Charges (SDCs), debt financing, and project phasing to fund future capital improvements.

No formal action is requested at this work session.

## **Background:**

McMinnville's wastewater system is in a stable operational and financial position today because of difficult decisions made in the early 1990s. Prior to that period, the City did not consistently invest in wastewater infrastructure at a pace necessary to keep up with growth, aging assets, and evolving regulatory requirements.

The City made a significant investment in wastewater infrastructure in 1969 through a \$720,000 bond, equivalent to roughly \$6 million in today's dollars. While substantial at the time, it was not followed by sustained capital reinvestment.

By the late 1980s, the consequences of deferred investment had become evident. The City experienced frequent sanitary sewer overflows, and in 1992 approximately 20 percent of the wastewater collected by the system was discharged directly to the river through overflow events. Regulatory action by the Oregon Department of Environmental Quality (DEQ), combined with community concerns, required the City to bring the system into compliance.

Between 1993 and 2000, the City borrowed \$42 million, equivalent to more than \$95 million in today's dollars, to construct the existing wastewater treatment facility and several conveyance system improvements. Total project expenditures reached approximately \$54 million by 2000. These investments established the foundation for the level of service and regulatory compliance enjoyed today.

Over the past 25 years, the City has transitioned to a proactive, pay-as-you-go approach to infrastructure management. Wastewater rates have increased gradually over time. The City adopted a wastewater master plan in 2009, and many of the projects identified in that plan have been completed. As a result, the utility has avoided the cycle of reactive investment experienced in the 1980s and early 1990s.

However, the master plans have not undergone a comprehensive update since their original development, and utility revenues have not kept pace with rising construction costs, changing regulatory requirements, and new infrastructure needs associated with growth.

The City recently reached substantial completion on its comprehensive Wastewater Conveyance System Master Plan and Water Reclamation Facilities Plan, which establish a long-term roadmap for maintaining and improving the City's wastewater collection, conveyance, and treatment systems (Attachment 1). The plans evaluate existing infrastructure conditions, regulatory requirements, growth projections, operational needs, and system capacity constraints over a 20-year planning horizon.

The planning effort identified several significant challenges and opportunities, including:

- Aging wastewater infrastructure requiring rehabilitation and replacement.
- Existing capacity deficiencies within portions of the collection and conveyance system.
- Regulatory compliance obligations, including anticipated future treatment requirements.
- System resiliency and redundancy improvements.
- Infrastructure necessary to accommodate future growth within the Urban Growth Boundary.
- Escalating construction, operational, and maintenance costs.

The Master Plan recommends approximately \$95 million to \$123 million in conveyance system improvements over the next 20 years, in addition to significant treatment facility improvements identified in the Facilities Plan. The plans emphasize a phased approach that balances risk reduction, affordability, regulatory compliance, and future growth needs.

As Council begins considering adoption and implementation of the Master Plan recommendations, staff is seeking policy guidance regarding the City's overall funding strategy.

**Discussion:**

The Master Plan identifies infrastructure improvements necessary to maintain reliable wastewater service, reduce overflow risks, replace aging assets, meet future regulatory requirements, and accommodate future growth. The key policy question is not whether improvements are needed, but rather how and when those improvements should be funded and delivered.

The City has several funding tools available, including:

- Wastewater utility rates
- Wastewater System Development Charges (SDCs)
- State Revolving Fund (SRF) loans
- Water Infrastructure Finance and Innovation Act (WIFIA) loans
- Revenue bonds
- Grants and legislative appropriations

- Project phasing and prioritization
- Development partnerships

Each funding tool shifts costs differently between existing ratepayers, future ratepayers, and new development and creates different levels of risk, affordability impacts, and implementation timelines.

## **Conceptual Funding Scenarios**

To facilitate discussion, staff developed five conceptual funding scenarios (Attachment 2) representing different policy approaches (Attachment 3).

### Scenario 1 – Minimal Capital Investment

Focuses on minimizing financial impact to the community.

Characteristics:

- Delays many growth-related projects.
- Delays portions of rehabilitation and replacement programs.
- Focuses on essential maintenance and known regulatory compliance needs.
- Lowest financial impact to ratepayers.
- Highest long-term risk of infrastructure failure, need for emergency repairs, and conveyance system overflows.

### Scenario 2 – Existing System Focus

Prioritizes preservation and rehabilitation of existing infrastructure.

Characteristics:

- Emphasizes maintenance, replacement, and reliability.
- Delays most growth-related improvements.
- Reduces risk of infrastructure failures and emergency repairs.
- Moderate utility rate impacts.
- Limited to no growth accommodation.
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### Scenario 3 – Targeted Area Growth

Focuses investment in growth areas.

Characteristics:

- Supports selected growth areas.
- Limited to no existing infrastructure preservation.
- Relies more heavily on increased SDCs.
- Reduced rate impacts.
- Moderate to high risk of infrastructure failure, emergency repairs, and conveyance system overflows due to lack of preservation.

### Scenario 4 – Existing System with Targeted Growth

Provides balanced investment in both existing infrastructure and future growth.

Characteristics:

- Supports moderate-to-strong growth.
- Maintains robust rehabilitation programs.
- Utilizes a balanced combination of funding tools including rates, SDCs, and debt.
- Low to moderate infrastructure risk.
- Higher ratepayer impacts.

### Scenario 5 – Full Buildout / Comprehensive Investment

Fully funds system renewal and long-term expansion.

Characteristics:

- Supports full Urban Growth Boundary buildout.
- Aggressively addresses deferred maintenance.
- Provides maximum growth readiness.
- Lowest infrastructure risk.
- Highest utility rate and SDC impacts.

## **Policy Questions for Council Discussion**

Staff is seeking Council discussion and direction regarding policy considerations. Some suggested questions for the Council to consider are:

### Growth and Development

- What level of growth should the wastewater system be prepared to support over the next 20 years?
- Should infrastructure be constructed ahead of growth, concurrent with growth, or after growth occurs?
- How important is wastewater capacity in supporting future employment and economic development opportunities?

### Infrastructure Reliability

- What level of system reliability and redundancy should the City maintain?
- What level of infrastructure risk is acceptable if projects are delayed?
- How should regulatory compliance risks be weighed against affordability concerns?

### Cost Allocation

- How should infrastructure costs be shared between:
  - Existing customers,
  - Future customers, and
  - New development?
- What level of SDC increases are acceptable?
- What level of utility rate increases are acceptable?

### Debt Financing

- What role should debt financing play in delivering major infrastructure improvements?
- Should the City prioritize lower near-term rates through greater use of debt financing?
- How much debt capacity should be reserved for future needs?

**Attachments:**

1. Wastewater Masterplan Executive Summary
2. Funding Scenarios Summary Table
3. Funding Scenarios Capital Improvement Plans

## ES-1. Introduction

### ES-1.1 Background

The City of McMinnville (City) provides wastewater conveyance and treatment services to the residents, businesses, and industries within the city's urban growth boundary (UGB). By consistently and effectively providing these services, the City protects the water quality and supports the beneficial uses of the South Yamhill River.

The major elements of the City's wastewater infrastructure include the following:

- Sanitary conveyance system
- Conveyance system pump stations
- Raw Sewage Pump Station (RSPS)
- Water Reclamation Facility (WRF)
- Outfall to the South Yamhill River

The age and condition of the conveyance system varies widely because it was installed as the city developed and is undergoing continuous rehabilitation. The WRF was constructed in the early 1990s, replacing the city's outdated wastewater treatment plant on Riverside Drive.

The Water Reclamation Facilities Plan (Facility Plan) and Conveyance System Master Plan (Master Plan) will serve as the City's long-term plan for wastewater management. Wastewater facilities plans are typically prepared or updated approximately every 10 years and address a planning period of 20 years or more. The City's previous Master Plan was prepared in 2008 and the Facility Plan was prepared in 2009. At that time, buildout conditions were expected to be reached within the normal 20-year planning window, thus the 2009 Facility Plan provided an approach to accommodate buildout conditions. However, the city has experienced modest growth since 2009 and minimal increases in flows and loads. Looking forward to the next 20 years, recent changes to the city's UGB will result in more available land for development with corresponding increases to flows and loads.

The City has implemented several major capital project recommendations offered in the 2009 Facility Plan. The Current Facility Plan incorporates these changes and some of the evaluations completed as part of the projects, such as:

- Multiple rainfall inflow and infiltration (RDI/I) reduction projects in the conveyance system
- Secondary Expansion Project to add a third secondary treatment train to the WRF
- Solids Treatment Capacity Improvements Project to replace the first-generation autothermal thermophilic aerobic digestion (ATAD) system with a second generation ATAD system
- Tertiary Treatment and Disinfection Project to upgrade the existing tertiary filters and ultraviolet disinfection system

The WRF has operated on the same National Pollutant Discharge Elimination System (NPDES) permit since 2004. Like many other utilities in Oregon, the permit has been administratively extended since that time. Oregon Department of Environmental Quality (ODEQ) began working with the City in 2025 on updates to the NPDES permit, and a new permit is anticipated in 2026. Work on this Facility Plan began in 2023 and was largely complete by 2025, thus the content of the Current Facility Plan was not informed by the discussions with ODEQ in 2025 and 2026. However, this Facility Plan does include anticipated changes to effluent limits.

Recognizing the importance of peak flow management to overall success, and the interrelationship between the conveyance and treatment systems, the Facility Plan was prepared in conjunction with the Master Plan to establish a comprehensive, coordinated approach to wastewater management.

The Facility Plan and Master Plan develop and present strategies for addressing these issues. The strategies include:

- Developing an approach to accommodating increased flows and loads associated with growth through the planning period. The approach is consistent with ongoing comprehensive planning work
- Identifying deficiencies in the existing infrastructure and recommend corrective measures
- Anticipating potential future changes in the regulatory framework
- Developing a cost-effective approach to peak flow management
- Developing a coordinated implementation plan that considers the multiple needs of correcting system deficiencies, accommodating capacity demands, enhancing performance, and conforming to financial limitations

By adopting the recommendations of the Facility Plan and Master Plan, periodically reviewing the plans, and refining the wastewater management approach as dictated by changing conditions, the City will successfully meet the needs of local residents and businesses and further its reputation of environmental stewardship.

### ES-1.2 Study Area

Data from the Portland State University Population Research Center and City Planning Department were used to forecast population and employment for both the city boundary and the city UGB for the 20-year planning horizon (2041) and through buildout (2071). City zoning information and densities were used to confirm population and employment projections.

The city's UGB was expanded in 2020 and acknowledged in 2021. This boundary expansion and subsequent changes to utility service areas, including the wastewater service area, are documented in the *McMinnville Growth Management and Urbanization Plan, 2003 - 2023*. The Current Master Plan and Current Facility Plan are needed to ensure the wastewater system will continue to serve the adopted UGB.

The City Planning Department elected to retroactively select 2041 as the 20-year planning horizon for infrastructure planning work, which was established by a submission of a "post-acknowledgement plan amendment" to the Oregon Land Conservation and Development Commission regarding the City's Comprehensive Plan. This established the assumptions that the Current Master Plan would be based on the UGB adopted in 2020 and the population used for that area would be updated from 44,055 people to 47,498 people. In addition to the 2041 planning horizon, the 2045 planning horizon was considered to document the 20-year period from anticipated issuance of the updated Current Master Plan in 2026. The Capital Improvement Plan (CIP) is assumed to be implemented by 2045; thus, the planning horizon is often referred to as 2041-2045 or simply 2045.

## ES-2. Conveyance System Master Plan

The City's conveyance system consists of roughly 137 miles of sewer mainline in service, which ranges in size from 4 to 54 inches in diameter. The network includes 14 operating pump stations.

The Master Plan provides a long-range roadmap for maintaining reliable wastewater collection and conveyance services, reducing the risk of sanitary sewer overflows, supporting planned growth, and efficiently investing in McMinnville's wastewater conveyance infrastructure over the next 20 years. The plan evaluates system capacity, condition, and performance under wet-weather and future growth scenarios and recommends a phased CIP to address identified needs.

The Master Plan is intended to achieve the following:

- Ensure the conveyance system meets service and regulatory expectations
- Protect public health and the environment
- Support development consistent with the UGB
- Provide the City with a defensible basis for capital planning, prioritization, and funding decisions

### ES-2.1 Design Criteria

The Master Plan establishes consistent design criteria to evaluate system performance, identify deficiencies, and size future improvements. These criteria reflect industry standards, regulatory expectations, and City operational goals.

Design and performance criteria include:

- Wet-weather performance standards that limit gravity sewer surcharge and ensure adequate freeboard to reduce overflow risk. The primary wet-weather performance standards for the gravity sewers are to convey flows with a minimum of 3 feet of freeboard at all critical locations (manholes and other access points) and maintain velocities under 15 feet per second (fps).
- Pump station firm capacity criteria based on the ability to reliably convey peak wet-weather flows under single-unit outage conditions.
- Force mains are to convey the peak flows from their associated pump stations while maintaining velocities under 8 fps. A minimum velocity of 3.5 fps within force mains will prevent solids deposition.
- Gravity conduit dry-weather performance standards limit the daily maximum depth-to-diameter ratio to 0.9, and the daily minimum scouring velocities of 2.5 fps.
- Consideration of future growth, climate variability, and asset aging within a unified framework.

The design criteria for wet weather are based on ODEQ guidelines indicating that sanitary sewer overflows are prohibited except during winter storm events exceeding the 1-in-5-year frequency and summer storm events exceeding the 1-in-10-year frequency. For hydraulic modeling purposes, historical storm events beginning in December 2015 and November 2016 were identified as having appropriate frequencies to represent wet-weather conditions according to ODEQ standards. The Master Plan considers the future impacts of climate change to precipitation patterns applied as a factor to flow projections in the year 2075. Gravity infrastructure with an expected useful life greater than 50 years will be sized to convey flows impacted by climate change.

These design criteria provide a transparent and defensible basis for comparing alternatives, prioritizing projects, and planning phased investment.

### ES-2.2 Model Development

A dynamic hydraulic and hydraulic model was developed using Autodesk's Infoworks ICM software. Using a network that integrates the most current available information on pipes, pump stations, land use, and topography, the model simulates wastewater flows and system wet-weather response across the City's conveyance network under a range of flow conditions.

Key aspects of model development include:

- Use of flow monitoring and rainfall data collected across representative basins to calibrate wet-weather response.
- Integration of City GIS data for gravity mains, force mains, and pump stations.
- Explicit representation of system bottlenecks, surcharging, and overflow locations.

- Explicit representation of hydraulic conveyance of 32% of the total network extent, which excluded 8-inch-diameter and smaller pipes that served smaller areas.

The model was calibrated to flow monitoring and rainfall data collected in the 2022-2023 wet season by ADS Environmental Services at 13 flow and 1 rainfall location throughout the conveyance system. In addition to the 13 temporary flow monitoring locations, the simulated flows were compared to those measured at the RSPS. Table ES-1 provides the calibration criteria and results.

**Table ES-1. Calibration Criteria and Results**

Description	Criterion	Number Meeting Criterion	Overall Performance (at RSPS)
Dry-Weather Volume	-10% to + 20% of observed	10 of 14 on weekdays 10 of 14 on weekends	+14% for weekdays +4% on weekends
Dry-Weather Peak Flow	-15% to + 25% of observed	11 of 14 on weekdays 12 of 14 on weekends	-3% for weekdays +5% on weekends
Wet-Weather Volume	At least 2 of 3 storms within -10% to +20% of observed	13 of 14	-2%
Wet-Weather Peak	At least 2 of 3 storms within -15% to +25% of observed	14 of 14	-4%

The system model provides a planning-level tool to evaluate relative risk, compare alternatives, and understand how upstream changes affect downstream capacity. While not intended and developed for detailed design, the model supports confident decision-making at the master planning level and can be further refined and used in the future to support project implementation.

### ES-2.3 Flow Development

Flow development defines how flows in the conveyance system were estimated for existing conditions and projected into the future. These flows form the foundation for all capacity evaluations and capital recommendations.

Key flow components include:

- Base sanitary flow from existing residential, commercial, and industrial users. Wastewater use per capita is 55 gallons per day for residential lands and per employee is 30 gallons per day for commercial lands.
- RDI/I reflecting wet-weather contributions into the sanitary system. The RDI/I is modeled using the RTK Unit Hydrograph method to simulate response to rainfall.
- Base sanitary flows from future population growth and associated development are consistent with population projections and planned development densities within the UGB. Future population growth rates are based on several references, including the City’s Comprehensive Plan.
- New development also introduces some amount of wet-weather flow that is inevitable and unavoidable. The projected future flows are based on a gradually scaled rate of RDI/I from new development of 2500 gallons per net acre per day (gpnad) starting in 2025, 3250 gpnad in 2045 and 4,000 gpnad in 2075.

Current peak-hour flows in the conveyance system are estimated at 51 to 54 million gallons per day (mgd), although only 32 to 35 mgd is observed at the downstream Diversion Structure, likely due to upstream attenuation. If flows are allowed to grow unabated and the conveyance system continues to

expand without increasing capacity, peak-hour flows would reach the range of 56 to 60 mgd by 2045 and 61 to 67 mgd by 2075 (assuming a climate-enhanced storm). The peak-hour flow rates seen at the Diversion Structure would increase even more with greater conveyance capacity and reduction of bottlenecks causing attenuation. With RDI/I reduction, it is possible that the flows at the Diversion Structure can be maintained in the range of 50 to 53 mgd throughout the 50-year horizon.

### ES-2.4 System Capacity

Using the calibrated hydraulic model and future flow projections, the conveyance system was evaluated to identify capacity constraints under wet-weather conditions. This assessment focused on risk to public health, service reliability, and development capacity.

Findings indicate:

- Nine areas where gravity trunks are capacity-limited under current wet-weather conditions. Eight are predicted to be at risk of overflowing at manholes. These deficiencies are predicted to expand in extent and increase in number to a total of 13 areas by 2045.
- Seven of the 14 pump stations are predicted to have influent flows in excess of their firm capacity given existing flows. Two additional pump stations are predicted to have capacity deficiencies by 2045 due to increases in flows from future development upstream.
- Some constraints pose a near-term operational overflow risk, while others limit future growth.
- Downstream capacity limitations can be exacerbated by upstream RDI/I, emphasizing the importance of system-wide coordination.

Capacity deficiencies were categorized by severity and timing to support prioritization in the CIP. Three Mile Lane #1 and Cozine Pump Stations are the two most immediate pump station capacity concerns. The model predicts the gravity trunks in the southwest, north, and Three Mile Lane area to have overflows under existing flow conditions with storms larger than the 5-year frequency.

### ES-2.5 RDI/I Cost Effectiveness Analysis

Higher rates of RDI/I (in the range of 10,000 gpnad or more) can be effectively reduced through targeted rehabilitation. Cost-effectiveness analysis evaluated the role of RDI/I reduction relative to traditional capacity expansion. The analysis compared the cost of reducing wet-weather flows through rehabilitation against the cost of upsizing downstream infrastructure. The costs are compiled for the RDI/I reduction applied to areas with a range of RDI/I rates in cost curves.

Key conclusions include:

- Targeted RDI/I, more aggressive reduction at 65% of areas having RDI/I in excess of 25,000 gpnad, is the most cost-effective strategy, but it comes with risks of not being achievable. Generally, some RDI/I reduction mixed with modest upsizing is more cost-effective than focusing solely on pipe and pump upsizing, particularly in older service areas.
- RDI/I reduction provides system-wide benefits, including deferred capital costs for full pipe replacement, reduced overflow risk, and lower operations and maintenance demands.
- Achieving meaningful flow reduction requires comprehensive, sustained programs rather than isolated repairs.

Based on this analysis, the Master Plan adopts a measurable target of 35% RDI/I reduction for areas with RDI/I rates over 25,000 gpnad by 2045. A more aggressive flow reduction program by 2075 would balance out new flows introduced by additional development, keeping the future flow projections within a range of 51 to 54 mgd over a 50-year period. These flow reductions are embedded in project sizing and timing recommendations. The resulting flows support reasonable investments and expansions of the WRF, which is evaluated separately from the conveyance system.

## ES-2.6 Conveyance System Alternatives

Multiple alternatives are evaluated to address identified system deficiencies. These alternatives include combinations of the following strategies to resolve capacity risk:

- Pipeline and pump station upsizing alone
- New gravity alignments
- Pump station upgrades
- System consolidation with opportunities for pump station decommissioning
- Wet-weather storage
- RDI/I reduction programs

Alternatives were compared using criteria such as:

- Capital cost and lifecycle cost
- Operational complexity and maintenance burden
- Constructability and environmental impacts
- Flexibility under future uncertainty

The system was broken down into four major service areas corresponding to major branches of the conveyance network. Each area's deficiencies present unique opportunities for a variety of solutions and each area was evaluated to determine the alternative to most effectively meet the level of service requirements.

In two areas, system consolidation and strategic rerouting provide better long-term value than simply increasing the capacity of existing assets. Table ES-2 provides a summary of the recommended alternatives.

**Table ES-2. Summary of Recommended Alternatives by Service Area**

Area	Recommended Alternative
Southwest and Cozine	Consolidate the pumps by decommissioning Kathleen Manor and Cozine Wood Pump Stations. Gravity trunk and Cozine Pump Station capacity improvements will still be needed to alleviate predicted overflows.
Southeast and Three Mile Lane	Improve capacity of a single pump station (Three Mile Lane #1 Pump Station) and decommission the Three Mile Lane #3 Pump Station. Install a new gravity trunk through the McMinnville Landing Innovation District and parallel to existing trunk on Three Mile Lane to the Three Mile Lane #1 Pump Station.
Northeast, Riverside, and RSPS	Upsize the Northeast Trunk. Construct new local pump stations and force mains in developing areas along Riverside Drive with discharges to the Northeast Trunk. No pump station consolidation is recommended for this area.
Northwest	Upsize trunk sewers. No pump station consolidation or storage is recommended for this area.

## **ES-2.7 Recommended Plan**

The recommended plan integrates hydraulic performance, cost effectiveness, operations, and long-term flexibility into a single, phased strategy. Core elements include:

- A 20-year CIP cost in the range of \$95 million to \$123 million (2024 dollars).
- A 5-year near-term program focuses on existing capacity deficiencies and improvements to address the highest risk assets. This initial 5 years will also be critical in establishing programs that will support the City in successfully implementing the remaining CIP over the following 15-year period.
- Long-term projects support future growth and further optimize system operation and maintenance.
- Sustained RDI/I reduction and repair-and-replacement programs will be foundational investments that will smooth out the renewal costs needed for an aging conveyance system. These programs underpin the entire wastewater program, with effective flow abatement limiting needed capacity improvements in both downstream conveyance and treatment infrastructure.
- Flow monitoring and trigger-based scheduling will be used to adaptively manage timing and expenditures.

The recommended plan balances risk reduction, affordability, and service reliability, providing the City with a defensible path forward for wastewater conveyance investment.

## **ES-3. Water Reclamation Facilities Plan**

### **ES-3.1 Existing Facilities**

The McMinnville WRF is located at 3500 NE Clearwater Drive and serves McMinnville. The original wastewater treatment plant was initially constructed off of Riverside Drive and began operation in the early 1950s. However, due to stringent environmental standards enforced on the South Yamhill River in 1989, the new WRF was built and began operation in early 1996. The Diversion and Prescreening Facility and RSPS are still located at Riverside Drive. The City operates these facilities year-round and maintains both the wastewater conveyance and treatment systems.

Major treatment processes include offsite influent pumping and prescreening, fine screening, grit removal, secondary treatment in advanced oxidation ditches, secondary clarification, tertiary clarification, filtration, ultraviolet (UV) disinfection, and post aeration prior to discharge to the South Yamhill River. The solids treatment processes include thickening and ATAD. Liquid Class A biosolids are stored onsite during the wet-weather months and land applied, in liquid form, during the dry-weather months.

The existing wastewater treatment facilities were reviewed to establish a framework for the development of a long-term plant upgrade strategy. The review included analysis of historical plant operation, process modeling, and hydraulic modeling to identify performance and hydraulic deficiencies and confirm capacity of each unit process.

In general, the City has done an excellent job of maintaining the assets of the wastewater system, including those at the WRF and pump stations. Many components from the original 1996 construction remain operational. The maintenance program has extended the operational lifetime of this equipment, resulting in major cost savings for the City. Despite most assets being approximately 30 years old, the vast majority are in good condition. However, a larger portion of the assets are operating beyond their expected lifetime and will require replacement in the 20-year planning horizon.

The City should develop an asset replacement plan based on the relative risk of failure of the various City assets. Although current asset condition is important, the City should not continue to defer systemwide equipment replacement because the likelihood of failure will continue to rise, increasing the overall risk of significant failure.

### **ES-3.2 Wastewater Flows and Loads**

Operations personnel at the WRF regularly monitor influent and effluent parameters and report these data to ODEQ on a monthly basis as required by their NPDES permit. Data from the discharge monitoring reports and recent City-provided data were analyzed to estimate current wastewater flows and loads. Unit flow and loading rates were then developed and used along with population and land use projections to prepare flow and load projections for future conditions through 2041 and 2045, and buildout in 2074. The flow and load projections serve as the basis for assessing the adequacy of the existing treatment systems and sizing new treatment facilities.

#### **ES-3.2.1 Existing Flows and Loads**

Analysis of flow data from 2018 to 2022 show that dry-weather flows are lower generally than the 2003 to 2007 data presented in the 2009 Facility Plan, likely a result of water conservation measures. Wet-weather flows are generally comparable between 2003 to 2007 and 2018 to 2022.

Total suspended solids (TSS) and 5-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) loads were analyzed and compared to the loading data from the 2009 Facility Plan. CBOD<sub>5</sub> loads have slightly increased since the 2009 Facility Plan, likely due to increased industrial load contribution. Conversely, TSS loads are slightly lower, likely a result of source control efforts.

Similarly, ammonia nitrogen (ammonia-N) and total phosphorus (TP) were analyzed and compared to the loading data from the 2009 Facility Plan. Ammonia-N has increased since the 2009 Facility Plan, likely due to increased industrial loading. Conversely, TP loads have decreased.

### ES-3.2.2 Future Flows and Loads

Flow and load projections are based on current flows and loads and anticipated community growth. The relative mix of residential, commercial, and industrial users in McMinnville is not anticipated to change substantially as the city grows. Therefore, growth of baseline flows and loads to the WRF are expected to be proportional to population growth.

In addition to growth, future system flows will be impacted by City projects to reduce wet-weather impacts of RDI/I. The Master Plan includes a detailed discussion of RDI/I assumptions and analysis and makes recommendation on a cost-effective approach to RDI/I reduction. The effectiveness of the RDI/I abatement program has a direct impact on flows received at the WRF.

Table ES-3 provides an overview of current and projected flow and load criteria with comparison to historical values. Due to attenuation and capacity limitations in the conveyance system, the existing peak-hour flow predicted by the hydraulic model does not reach the treatment facilities. Projected flow is based on implementation of the recommended RDI/I improvements.

**Table ES-3. Flow and Load Criteria and Comparison to Historical Values**

	2018 to 2022	Projected, 2045
<b>Flows, mgd</b>		
Average Dry Weather	2.9	4.3
Average Annual	4.6	6.7
Peak Hour, as observed at treatment facilities	32 to 35	51
Peak Hour, as modeled	48.8	51
<b>CBOD<sub>5</sub> Loads, pounds per day</b>		
Average Annual	7,370	11,123
Average Dry Weather	7,040	10,642
Maximum Month Wet Weather	9,072	13,550
<b>TSS Loads, pounds per day</b>		
Average Annual	7,299	10,771
Average Dry Weather	6,559	9,071
Maximum Month Wet Weather	10,827	14,864
<b>Ammonia-N, pounds per day</b>		
Average Annual	615	893
Average Dry Weather	616	896
Maximum Month Wet Weather	722	1,049
<b>TP, pounds per day</b>		
Average Dry Weather	126	175

### **ES-3.3 Discharge Requirements**

The Facility Plan includes detailed documentation of the regulatory framework, receiving water characteristics, effluent characteristics, and mixing-zone analysis related to the WRF NPDES permit. This information is used to anticipate future discharge limits and regulatory considerations. The information was completed from 2024 to 2025, prior to ODEQ engagement on renewal of the WRF NPDES permit.

The most significant change anticipated for the upcoming NPDES renewal cycle relates to a more stringent effluent thermal load (ETL) limit. The City's current limit is 160 million kilocalories per day (kcal/day), and the new limit is expected to be less than 10 million kcal/day, representing a reduction of two orders of magnitude from the existing limit and over a 90% reduction in existing thermal load. The extremely low ETL limit will push the limit of available options/technologies, requiring investigation of multiple alternatives and creative solutions.

The regulation of the per- and polyfluoroalkyl substances (PFAS) group of chemicals is a fast-moving and widely discussed issue that affects drinking water utilities, municipal wastewater utilities, including both effluent and biosolids, and manufacturing and industrial operations. The City may wish to investigate any point sources of precursor compounds to the wastewater conveyance system. However, because the City does not have major industrial contributors and does not treat landfill leachate, it is likely that the precursor contribution is more distributed, potentially resulting from household sewer discharges.

Current understanding of the risks associated with low levels of PFAS in biosolids is limited. However, the beneficial aspects of biosolids land application are well understood. The City should continue to monitor the industry understanding of PFAS, the regulatory environment, and PFAS concentrations at the WRF.

### **ES-3.4 Liquids Treatment**

Wastewater management strategies were identified to address dry-weather and wet-weather conditions. Dry-weather strategies are focused on meeting stringent summer discharge limits, especially for excess thermal load. Wet-weather strategies are primarily focused on handling peak flows from the conveyance system.

#### **ES-3.4.1 Riverside Drive**

Facilities at the site of the old wastewater treatment plant on Riverside Drive should be upgraded and expanded to address increased peak flows. Demolition of the old treatment plant and rehabilitation of the storm sewers crossing the site should be coordinated with construction and modification of offsite facilities to optimize excavation quantities and maximize the reuse of soils and materials.

The Diversion Structure should be expanded and upgraded to address increasing peak flows and limit peak flow impacts to the downstream treatment processes. Several alternatives were considered to upgrade influent screening. The selected option includes moving fine screening from the WRF to the Diversion Structure. The raw sewage pipe between the Diversion Structure and RSPS must be replaced to allow higher peak flows to reach the RSPS without a sanitary system overflow. The Diversion Structure will allow for the controlled diversion of screened raw sewage by gravity to a new equalization basin.

Construction of a new offsite equalization tank for the storage of screened raw sewage is recommended to limit peak flows to the WRF and eliminate sanitary sewer overflows. The tank would be mostly below grade and the cover could provide beneficial use, such as parking, storage, or solar installations. There may also be opportunities for locating a future odor control facility, RV dump station, or septage receiving on the tank. The equalization tank will include pumps to return the equalized flow to the Diversion Structure. The tank will include self-cleaning features such as a tipping bucket and gates for flushing. The equalization tank pump station may include features to accommodate the temporary bypass of the RSPS for maintenance activities. Although the primary purpose of the equalization tank would be equalization of peak wet-weather flows, there may be opportunities for equalization of summer diurnal flows to support more stringent permit requirements.

The RSPS is expected to have sufficient firm capacity for attenuated peak flows by using the recommended offsite equalization and increasing the size of the raw sewage pipe from the Diversion Structure. Although the pump station itself does not require significant changes to support the recommended plan, deferred and preventative maintenance should be addressed.

### **ES-3.4.2 Water Reclamation Facility**

The recommended long-term influent screening alternative includes demolition of the fine screens at the WRF headworks. This will improve hydraulic limitations in the headworks influent channels without costly, complicated modifications to the headworks structure. However, due to the condition of the existing fine screens, near-term rehabilitation or replacement of the fine screens is required to maintain WRF operation until the new screens at the Diversion Structure are in place. Rehabilitation of the existing screens also provides more time for implementation of a packaged screening system to serve flows at the WRF and Public Works campus sites.

The existing secondary treatment process will be approaching capacity near the end of the 20-year planning period based on projected growth in loading. Addition of a fourth secondary treatment train, matching the existing trains, is recommended to accommodate future loads and provide onsite equalization when not in service.

No changes to tertiary treatment are anticipated.

The UV disinfection should be expanded to accommodate increased peak flows. The channel-narrowing baffles in the existing UV channels can be removed, modified, or replaced to accommodate additional UV modules in each bank. The power distribution centers are already designed to serve additional modules. The level control gates will need to be adjusted or replaced to accommodate the higher flows. Addition of a fourth UV channel is not required at this time.

More stringent effluent thermal limits are anticipated. Several solutions were considered as part of this Facility Plan, but a more comprehensive alternatives evaluation will be required once the new thermal limit is established. Two alternatives considered – effluent cooling with cooling towers and effluent reuse – could require interface with and modification of the existing UV structure and/or the existing reuse pump station. The scope of cooling requirements cannot be determined until the thermal limit is set.

The exact hydraulic capacity of the existing outfall is unknown, but there is operational evidence that it cannot pass much more than 32 mgd. A computational fluid dynamics (CFD) study to validate the capacity, using current Federal Emergency Management Agency flood maps, should be conducted to determine whether modification or replacement of the outfall will be required to convey increased peak flows.

### **ES-3.5 Solids Treatment**

Solids produced as part of the wastewater treatment process must be treated and reused or disposed of in an environmentally and economically acceptable manner. The WRF existing solids management program has been very effective historically. Sludge is thickened with gravity belt thickeners (GBTs), stabilized using an ATAD process, further stabilized in a storage nitrification denitrification reactor (SNDR), transferred to a biosolids storage tank, and hauled to agricultural land for use as a soil amendment.

Prior to 2025, the WRF operated an ATAD process based on first-generation ATAD technology. Although the process produced Class A biosolids, the ATAD process equipment was reaching capacity and end of service life, and the biosolids odor was problematic. In 2020, the City evaluated multiple biosolids management alternatives, including 9 end-use alternatives and 16 treatment alternatives. These were evaluated on a non-monetary and monetary basis, and the City selected the second generation ATAD technology as the basis for future solids processing at the WRF.

The Solids Treatment Capacity Improvements Project was completed in 2025 and includes two new ATAD tanks followed by SNDR to provide additional volatile solids destruction, reduction of total nitrogen in the digested sludge, and reduced odors. The SNDR step also enhances the dewaterability of the biosolids and reduces the ammonia load recycled to the liquids train from decanting or dewatering. Additionally, the decanter equipment located on top of the biosolids storage tank (BSST) was replaced with more effective equipment to minimize recycled solids to the headworks, and odor control for the headworks, BSST and ATAD facilities was replaced.

Although solids loading projections are expected to reach the capacity of the second generation ATAD system near the end of the planning period, the Solids Treatment Capacity Improvements Project represents a major change in solids processing capacity and performance. Additionally, the regulatory and public perception landscape is uncertain. The City should consider the following recommendations related to the solids processing system:

- The GBTs will be producing a thicker sludge than under historical operation. This change could affect throughput and/or required operating hours of the GBTs. As the GBTs age, the City could consider upgrading or replacing the GBTs, including to a technology that produces thicker sludge.
- After several years of operation of the new ATAD system, the City should reassess the system's solids processing capacity. This should be done in conjunction with a plantwide flow, load, and process model update. Updating the assessment of flows and loads will help the City to better understand where the influent projections stand with respect to the system capacity. The City may find that the second generation ATAD can handle a greater solids loading rate than anticipated.
- If land application of liquids Class A biosolids continues to be feasible from a regulatory and public perception standpoint, the City should continue to monitor load increases and projects to plan for ATAD expansion. This may occur within the 20-year planning period as indicated. However, if loads increase more moderately or the ATAD system has a greater capacity than anticipated, expansion could occur beyond the planning period.
- If land application of Class A biosolids is not feasible, the City should consider the following alternatives:
  - If feasibility is limited on a short-term or near-term basis, the City should consider contract dewatering.
  - If land application is expected not to be feasible in the medium term, the City should consider operating a temporary dewatering system.
  - If the City expects long-term problems with land application, design of a permanent dewatering system should begin. Depending on the regulatory and technology landscape, more advanced technologies, such as drying and pyrolysis, could be considered.

### ES-3.6 Water Reclamation

Identifying and evaluating opportunities for effluent reuse is an important part of the wastewater facilities planning effort. A preliminary assessment of effluent reuse opportunities included alternatives that could help to achieve short-term and long-term goals. The evaluation considered potentially more-restrictive future effluent discharge requirements, reuse regulatory requirements, WRF effluent characteristics, and local conditions. The reuse opportunities include land application, treatment wetlands, subsurface discharge, and industrial reuse. These were evaluated to preliminarily define the scope and feasibility of each, including, as applicable, the development of planning level water balances, land requirement assessments, and nutrient balances.

The upcoming NPDES renewal and expected reduction in ETL limit will influence the reasonable water reclamation opportunities the City can implement at the WRF. Once the new ETL limit is established, a more detailed alternatives analysis will be needed to determine how best to leverage the reuse opportunities, effluent evaporative cooling, riparian shading as part of a water quality trading program, or some combination of these alternatives.

### **ES-3.7 Recommended Plan**

The process and facility recommendations included in this Facility Plan form the basis for development of a 20-year CIP. The CIP has been coordinated with the Master Plan. The timing of improvements is typically based on one or more of the following generalized factors:

- Existing life of system
- Need for additional capacity
- Need for performance improvements
- Regulatory drivers
- Available financial resources

Due to the treatment system's wet-weather capacity limitation, aging infrastructure, and regulatory changes, several of the most significant projects are urgent and are prioritized earlier in the CIP. This includes the following projects:

- Upgrade Existing Headworks Screens
- Retrofit Prescreening Diversion Structure
- Offline Storage
- Relocate RV and Septage Receiving
- Thermal Load Mitigation Projects
- Wastewater Services (WWS) Administration and Maintenance Facilities
- Supervisory Control and Data Acquisition (SCADA) Master Plan Upgrades, Immediate and Short-Term Phases
- Maintenance/Replacement Urgent Action Phase

Other projects are dependent on the pace of conveyance system improvements, conveyance system expansion, regulatory changes, and other variable factors. This includes the following projects:

- Outfall Capacity CFD Analysis
- Flow/Load and Process Model Update
- SCADA Upgrades, Remaining Phase(s)
- Preventative Maintenance and Repair, Remaining Phase(s)
- Dewatering
- ATAD Expansion
- Secondary Expansion
- UV Expansion

A number of uncertainties exist that could substantially affect the City's approach to long-term wastewater and solids management. Therefore, as important regulatory, loading, and flow uncertainties become resolved over time, the City should revisit the strategies and recommendations presented in the Facility Plan to see if significant plan modifications are warranted.

## ES-4. Capital Improvements Plan

### ES-4.1 Capital Improvement Plan Projects

#### ES-4.1.1 Conveyance CIP Project List

Table ES-4 includes a list of CIP projects developed as part of the Master Plan.

Table ES-4. CIP Project List for the Conveyance System

Project Name	Project Description	Project Cost Estimate Range (US \$) <sup>a</sup>
Gravity Repair and Replacement Program	Establish a program to rehabilitate or replace (R and R) pipes in poor condition that are not covered in other CIP projects, including the RDII Reduction Program. The program would include CCTV inspection to identify defects and severity and pipes in the system in need of repair, rehabilitation, or replacement. However, the level of reinvestment needed to maintain the system is set at an annual rate based on estimated remaining useful life of existing pipes.	\$20,550,000
Inflow and Infiltration Reduction Program	Comprehensive RDII flow abatement program targeting a wet weather flow reduction of 35 percent in areas with more than 25,000 gallons per net acre per day peak wet weather flows. The program would rehabilitate an estimated 35, 4, and 2 miles of 8-inch, 10-inch, and 12-inch conduit, respectively, and their associated manholes and publicly owned portions of laterals. Includes flow monitoring, smoke testing, CCTV inspection, prioritization and inflow disconnection in areas with excessive flows and capacity-constraints due to upstream flow sources.	\$12,280,000
Downtown/Gateway	Upsize 2,090 linear feet of 21-inch gravity main to 30-inch.	\$1,750,000
3 Mile Lane #1 Pump Station	Increase firm capacity of the 3 Mile Lane #1 Pump Station from 6.3 to 8.3 MGD. Note: Capital cost is associated with the differential increase or upgrade.	\$1,610,000
3 Mile Lane (Lower Parallel Gravity)	Construct 4,080 linear feet of new 24-inch gravity main and associated manholes.	\$3,000,000
3 Mile Lane (Upper Parallel Gravity)	Construct 4,730 linear feet of new 24-inch gravity main and associated manholes.	\$3,480,000
3 Mile Lane (Existing Gravity Upsizing)	Upsize 820 linear feet of 12-inch gravity main to 15-inch. Upsize 2,060 linear feet of 12-inch gravity main to 18-inch. Upsize 230 linear feet of 12-inch gravity main to 24-inch. Upsize 122 linear feet of 12-inch gravity main to 24-inch.	\$2,210,000
3 Mile Lane #3 Pump Station Decommission	Decommission 3 Mile Lane #3 Pump Station.	\$110,000
Cozine Pump Station Phase 1	Increase firm capacity of the Cozine Pump Station from 10.4 to 25.9 MGD. Note: Capital cost is associated with the differential increase or upgrade.	\$6,670,000

## Conveyance System Master Plan and Water Reclamation Facilities Plan

Project Name	Project Description	Project Cost Estimate Range (US \$) <sup>a</sup>
Northwest 2nd St. Trunk (Lower - Phase 1)	Upsize 1,600 linear feet of 8-inch gravity main to 12-inch.	\$860,000
Northwest 2nd St. Trunk (Upper - Phase 2)	Upsize 838 linear feet of 8-inch gravity main to 12-inch.	\$770,000
Southwest McMinnville Trunk (Lower - Phase 1)	Upsize 870 linear feet of 12-inch gravity main to 30-inch. Upsize 3,910 linear feet of 15-inch gravity main to 30-inch. Upsize 1,060 linear feet of 24-inch gravity main to 36-inch.	\$16,290,000
South Cozine Pump Station	Install new pump station with a firm capacity of 4.4 MGD.	\$4,780,000
South Cozine Pump Station: Force Main	Construct 3,620 linear feet of new 15-inch force main.	\$2,850,000
Southwest McMinnville Trunk (Middle - Phase 2)	Upsize 1,210 linear feet of 15-inch gravity main to 18-inch. Upsize 170 linear feet of 15-inch gravity main to 21-inch. Upsize 2,510 linear feet of 15-inch gravity main to 24-inch.	\$2,580,000
Southwest Gravity Cross-Connections	Construct 1,370 linear feet of new 15-inch gravity main and associated manholes.	\$790,000
South Cozine Pump Station: Eastern Gravity Consolidation	Construct 1,560 linear feet of new 18-inch gravity main.	\$2,700,000
Cozine Wood Pump Station Decommission	Decommission Cozine Wood Pump Station.	\$110,000
Northeast Pump Station	Increase firm capacity of the Northeast Pump Station from 1 to 2.3 MGD.  Note: Capital cost is associated with the differential increase or upgrade.	\$1,760,000
Morgan Lane Pump Station Force Main	Upsize 440 linear feet of 4-inch force main to 6-inch.	\$160,000
Morgan Lane Pump Station	Increase firm capacity of the Morgan Lane Pump Station from 1.2 to 1.7 MGD.  Note: Capital cost is associated with the differential increase or upgrade.	\$650,000
Crestbrook Pump Station	Increase firm capacity of the Crestbrook Pump Station from 0.05 to 0.35 MGD.  Note: Capital cost is associated with the differential increase or upgrade.	\$1,010,000
Northeast McMinnville Trunk	Upsize 1,310 linear feet of 15-inch gravity main to 18-inch. Upsize 640 linear feet of 21-inch gravity main to 27-inch. Upsize 1,980 linear feet of 21-inch gravity main to 36-inch.	\$3,990,000

## Conveyance System Master Plan and Water Reclamation Facilities Plan

Project Name	Project Description	Project Cost Estimate Range (US \$) <sup>a</sup>
North McMinnville Trunks	Upsize 1,860 linear feet of 10-inch gravity main to 15-inch.	\$830,000
North Riverside Pump Station: Force Main	Construct 1,300 linear feet of new 8-inch force main.	\$470,000
North Riverside Pump Station	Install new pump station with a firm capacity of 0.85 MGD.	\$1,580,000
Northwest Wallace Rd. Trunk	Upsize 850 linear feet of 10-inch gravity main to 15-inch.	\$480,000
South Cozine Pump Station: Western Gravity Consolidation	Construct 2,740 linear feet of new 18-inch gravity main.	\$2,830,000
Kathleen Manor Pump Station Decommission	Decommission Kathleen Manor Pump Station.	\$110,000
Northeast McMinnville Tributaries	Upsize 1,490 linear feet of 8-inch gravity main to 12-inch. Upsize 410 linear feet of 10-inch gravity main to 12-inch. Upsize 1100 linear feet of 12-inch gravity main to 15-inch.	\$1,840,000
South Riverside Pump Station: Force Main	Construct 3,210 linear feet of new 8-inch force main.	\$1,170,000
South Riverside Pump Station	Install new pump station with a firm capacity of 1.25 MGD.	\$1,970,000
<b>Total for 20-year plan</b>		<b>\$103 million</b>
Cozine Pump Station FM (Beyond planning horizon)	Upsize 890 linear feet of 14-inch force main to 18-inch.	\$11,250,000 <sup>b</sup>

<sup>a</sup> The construction costs developed for this Master Plan are defined as order-of-magnitude-level (Class 5) cost estimates defined by the Association for the Advancement of Cost Engineering. The actual construction cost is expected to be within a range of -30% to +50% of an estimate of this type.

<sup>b</sup> This project is projected beyond the planning horizon, thus cost for it is not included in the totals.

### ES-4.1.2 Facilities CIP Project List

Table ES-5 includes a list of CIP projects developed as part of the Facility Plan.

## Conveyance System Master Plan and Water Reclamation Facilities Plan

**Table ES-5. CIP Project List for Treatment Facilities**

Project Name	Project Description	Project Cost Estimate <sup>a</sup>
Rebuild Existing Headworks Screens	Replace/upgrade existing Headworks fine screens.	\$260,000
Riverside Drive Site Pre-Design Study	Pre-design study to develop preliminary layout for the Riverside Drive site, including prescreening diversion, offline storage, RV dump, septage receiving. Includes cost estimating, evaluation of phasing, and project delivery alternatives.	\$1,000,000
Prescreening Diversion Structure	Increase Diversion Structure hydraulic capacity and replace existing coarse screens with fine screens to be new, single point for screening.	\$4,210,000
Offline Storage (4 MG Tank, Old WWTP Demo, Odor)	Construct 4 MG offline storage structure, primarily to manage wet weather flow. Project includes demolition of existing, abandoned structures from the old wastewater treatment plant; and, odor control facility.	\$79,270,000
RV Dump and Septage Receiving	Construct new RV Dump Station and Septage Receiving near Diversion Structure and Offline Storage.	\$2,490,000
Thermal Load Mitigation Alternatives Study	Evaluate alternatives for addressing thermal requirements according to anticipated NPDES Compliance Schedule.	\$80,000
Thermal Load Mitigation Implementation	Implementation of selected alternative for addressing thermal requirements according to anticipated NPDES Compliance Schedule. (Allowance for cost.)	\$3,000,000
Administration and Maintenance Expansion	Renovate and expand existing WRF Admin Building, construct new WWS Maintenance Shop, new electrical service for WRF.	\$17,900,000
WWS Facilities at PW Campus	Construct new Conveyance Shop and portion of PW Admin Facility to serve WWS staff. Includes only cost associated with WWS services.	\$13,100,000
SCADA Master Plan Upgrades Immediate Phase	Address high-priority SCADA system deficiencies, including cybersecurity improvements and network improvements.	\$1,310,000
SCADA Master Plan Upgrades Short Term Phase	Address remote pump station communication issues, including telemetry system and PLC replacements.	\$3,790,000
Flow/Load and Process Model Update	Update treatment process model based on latest flow and load data. Consider moving toward dynamic, predictive optimization software. Focus on understanding status of secondary and biosolids treatment system capacities updating flow and load projections.	\$100,000
Outfall Capacity CFD Analysis	Determine peak hour flow hydraulic capacity of existing outfall and effluent pipeline between Parshall flume and outfall.	\$50,000
Maintenance/Replacement Urgent Action Phase	Address items identified as needing urgent action and assess other system-wide deficiencies.	\$4,500,000
Maintenance/Replacement Near Term Phase	Address items identified as needing near-term action and beginning planning for long-term replacement activities.	\$13,000,000

## Conveyance System Master Plan and Water Reclamation Facilities Plan

Project Name	Project Description	Project Cost Estimate <sup>a</sup>
Dewatering	Construct dewatering and cake storage facilities to support transition from a liquid biosolids program to a cake biosolids program. Project triggered by regulatory requirements, public perception, or economics of hauling liquid biosolids.	\$12,430,000
Maintenance/Replacement Action Planning Phase	Address items identified as needing near-term action and beginning planning for long-term replacement activities.	\$22,000,000
Secondary Expansion (4th OD and SC)	Increase firm capacity of Secondary process and provide 2.9 MG of offline equalization.	\$27,750,000
UV Wet Weather Flow Modification	Modify UV system and channels to treat peak hour flow of 39 mgd.	\$770,000
Outfall Wet Weather Flow Modification	Modify the outfall structure to handle peak hour flow of 39 mgd.	\$7,160,000
Maintenance/Replacement Long Term Phase	Address items identified as needing near-term action and beginning planning for long-term replacement activities.	\$3,000,000
<b>Total</b>		<b>\$229 million</b>

<sup>a</sup> The construction costs developed for this Facility Plan are defined as order-of-magnitude-level (Class 5) cost estimates defined by the Association for the Advancement of Cost Engineering and adopted by the American National Standards Institute. An estimate of this type is normally expected to be within +50% or -30% of the actual construction cost.

MG = million gallon(s)

### ES-4.2 Implementation Schedule

#### ES-4.2.1 Conveyance Implementation Schedule

Figure ES-1 illustrates the recommended timing of each project for the Master Plan and includes anticipated timing for project design and project construction

#### ES-4.2.2 Facilities Implementation Schedule

Figure ES-2 is a schedule of CIP projects developed as part of the Facility Plan.

### ES-4.3 Cost

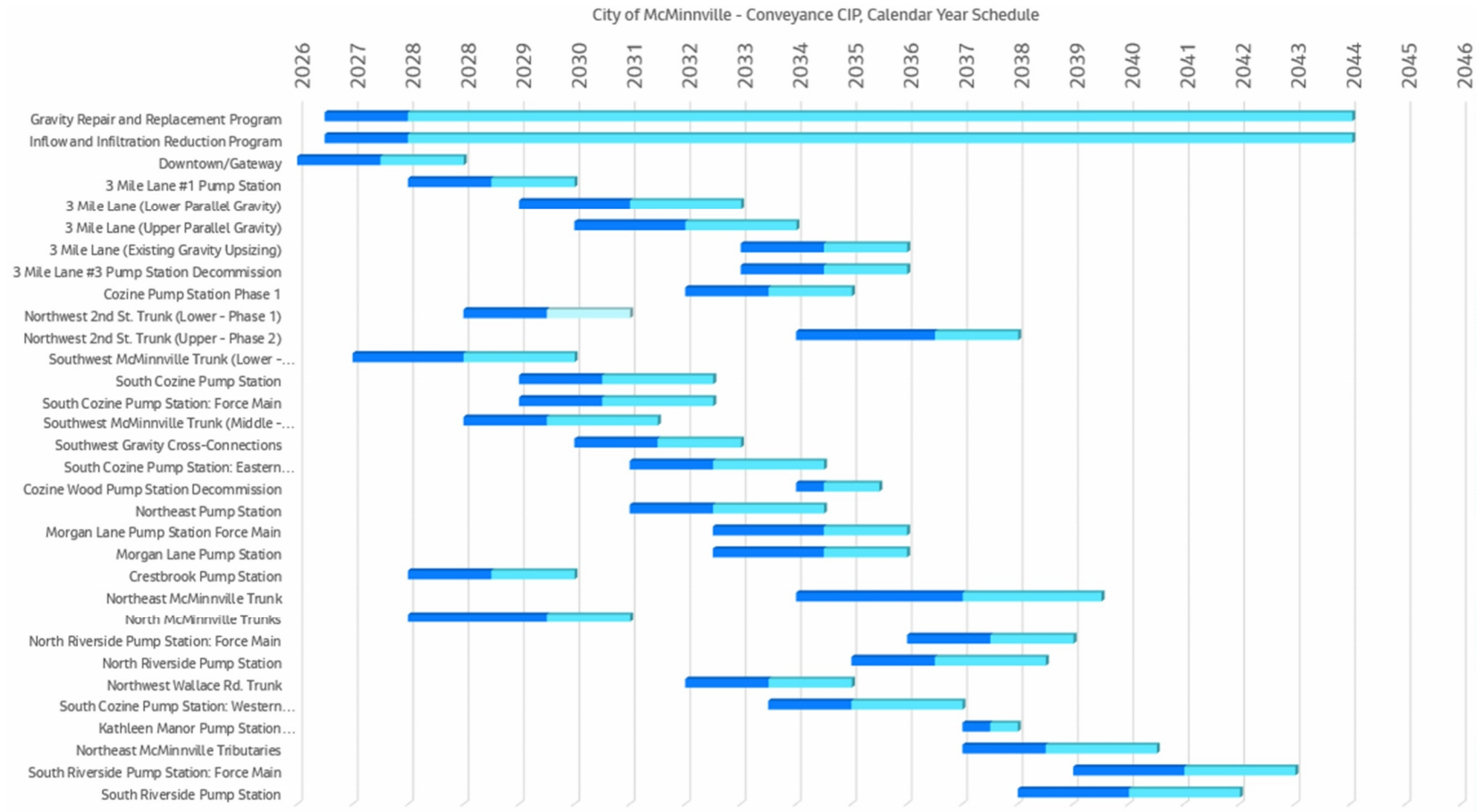
#### ES-4.3.1 Conveyance CIP Cost

Figure ES-3 shows the costs for CIP projects developed as part of the Master Plan.

#### ES-4.3.2 Facilities CIP Cost

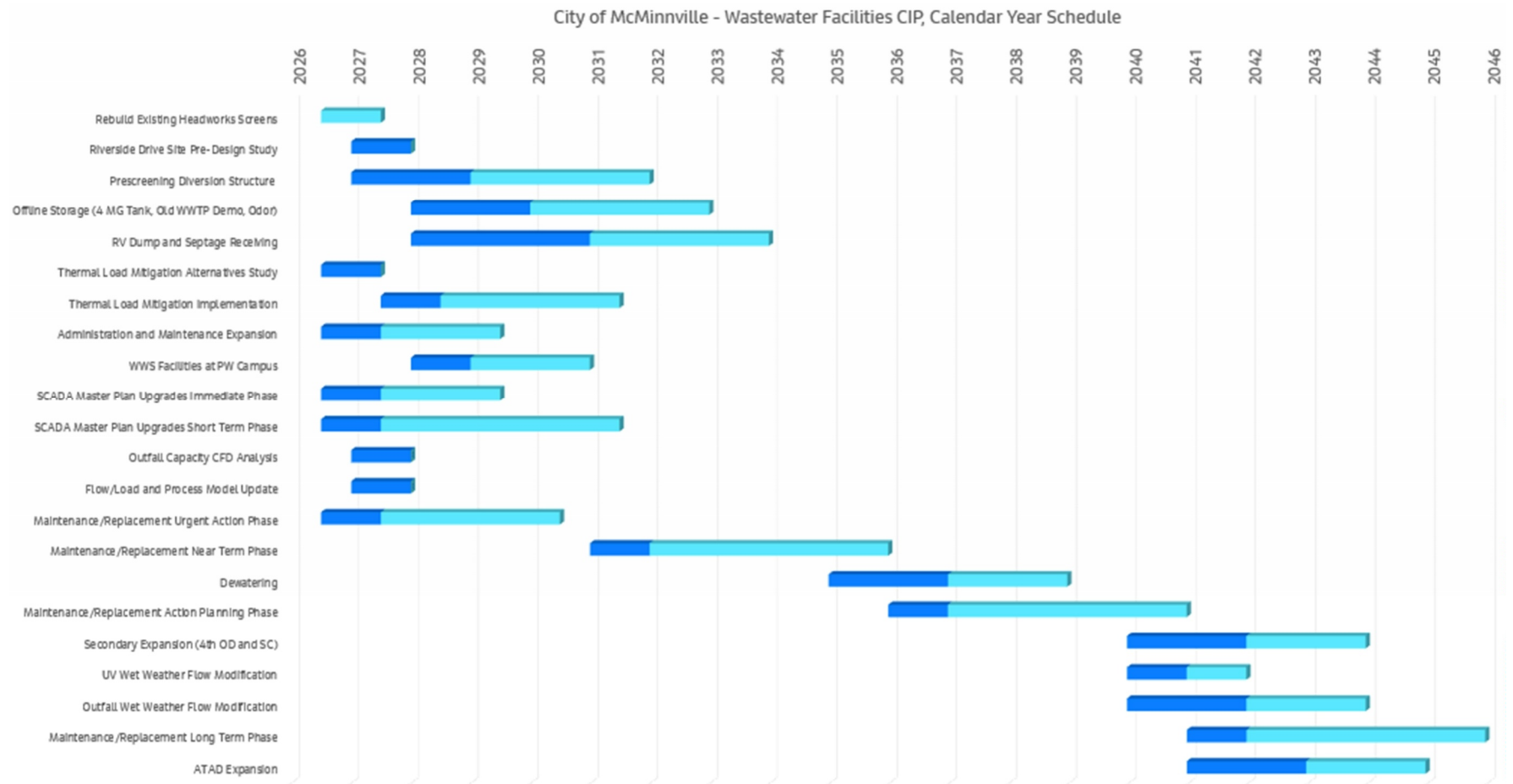
Figure ES-4 shows the costs for CIP projects developed as part of the Facility Plan.

# Conveyance System Master Plan and Water Reclamation Facilities Plan



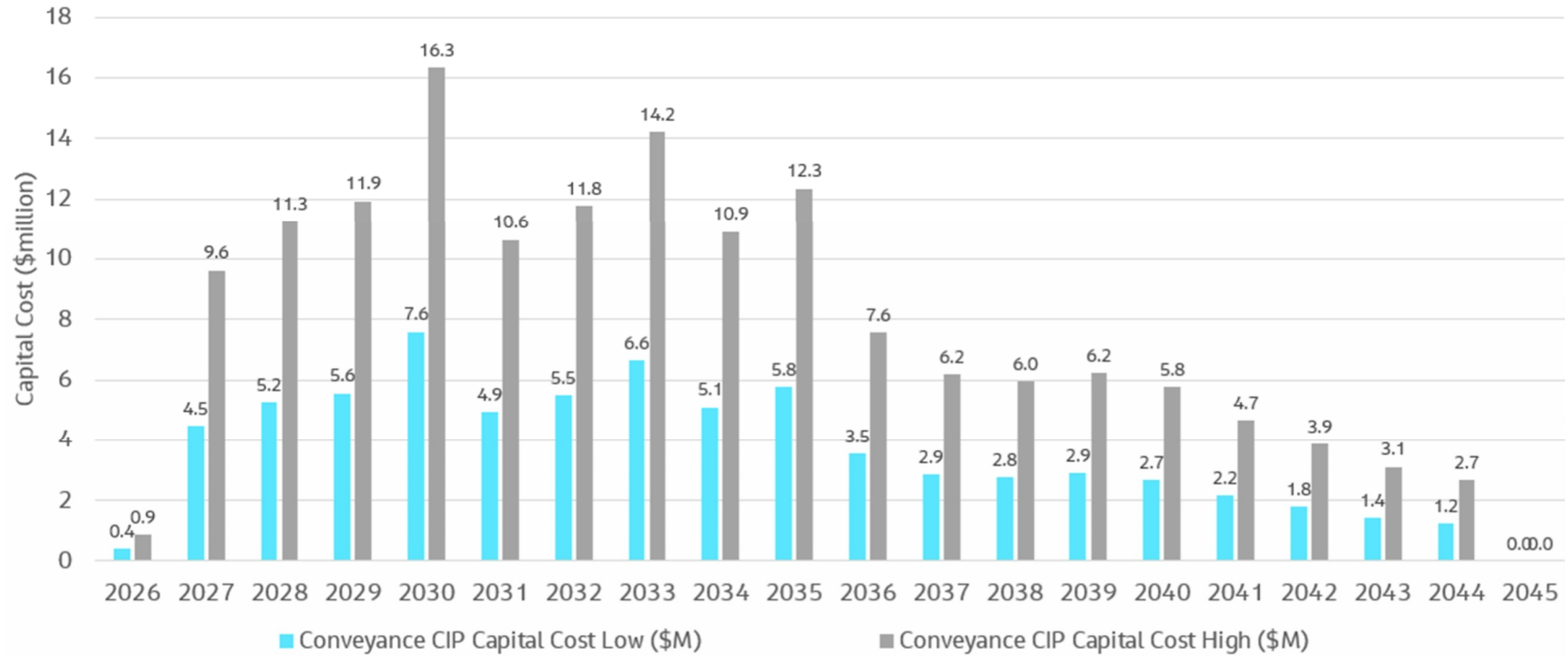
**Figure ES-1. Conveyance Capital Improvement Plan Schedule**

# Conveyance System Master Plan and Water Reclamation Facilities Plan



**Figure ES-2. Wastewater Treatment Facilities Capital Improvement Plan Schedule**

## Conveyance System Master Plan and Water Reclamation Facilities Plan



Note: Costs are according to Class 5 (Association for the Advancement of Cost Engineering RP 18R-97) and are in 2024 U.S. dollars.

**Figure ES-3. Conveyance Capital Improvement Plan Expenditure Projection**

# Conveyance System Master Plan and Water Reclamation Facilities Plan

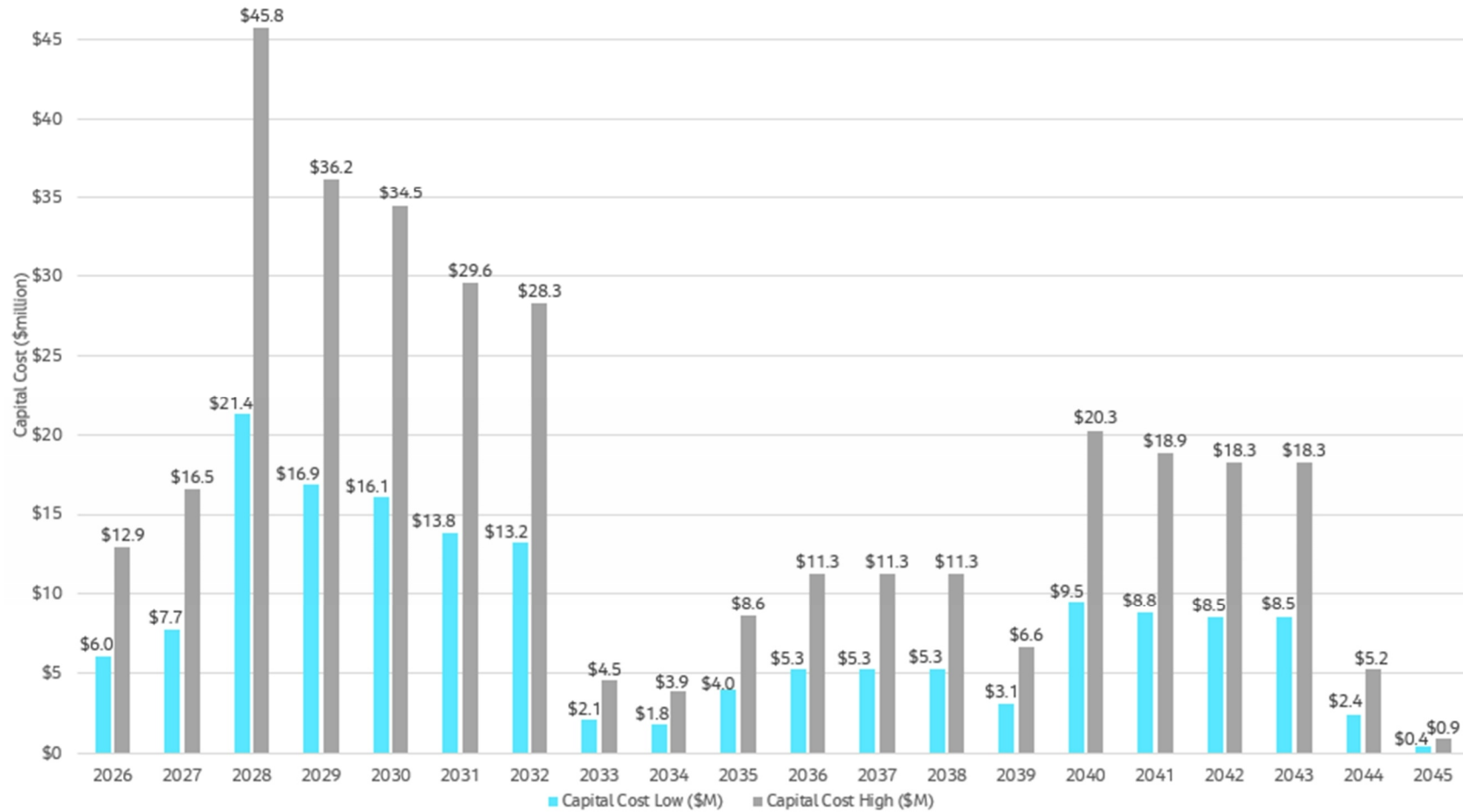


Figure ES-4. Wastewater Treatment Facilities Capital Improvement Plan Expenditure Projection

<b>Funding Scenarios</b>						
<i>FY2027-FY2036 Total</i>						
<b>Funding Source / Use</b>	<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Scenario 3</b>	<b>Scenario 4</b>	<b>Scenario 5</b>	
<b>CIP Program Size (with 3% Inflation)</b>	\$ 117,286,993	\$ 160,817,493	\$ 158,923,816	\$ 191,835,056	\$ 229,805,536	
Equipment & Buildings	\$ 11,827,061	\$ 11,827,061	\$ 11,827,061	\$ 11,827,061	\$ 11,827,061	
New Project Engineer	\$ 1,640,279	\$ 1,640,279	\$ 1,640,279	\$ 1,640,279	\$ 1,640,279	
General Fund Transfers / Support	\$ 6,398,988	\$ 6,398,988	\$ 6,398,988	\$ 6,398,988	\$ 6,398,988	
Debt Service Costs	\$ 3,184,328	\$ 7,311,248	\$ 7,962,681	\$ 14,765,545	\$ 18,938,137	
Uses	\$ 162,276,103	\$ 190,498,522	\$ 196,903,416	\$ 229,694,454	\$ 271,861,998	
Sources	\$ 162,276,103	\$ 190,498,522	\$ 196,903,417	\$ 229,694,455	\$ 271,861,998	
<b>Rate Revenue for capital</b>	\$ 87,867,495	\$ 95,488,602	\$ 91,364,901	\$ 96,143,873	\$ 115,114,950	
<b>SDC Revenue</b>	\$ 7,500,000	\$ 10,875,000	\$ 17,625,000	\$ 21,000,000	\$ 27,750,000	
<b>General Fund Loan Repayments</b>	\$ 5,555,540	\$ 5,555,540	\$ 5,555,540	\$ 5,555,540	\$ 5,555,540	
<b>Interest &amp; Other Income</b>	\$ 4,668,340	\$ 4,394,651	\$ 4,673,247	\$ 3,810,314	\$ 3,256,780	
<b>Debt Financing / Bonds / Grants</b>	\$ 23,500,000	\$ 41,000,000	\$ 44,500,000	\$ 70,000,000	\$ 87,000,000	
<b>Financing Tools</b>	SRF only	SRF+WIFIA	SRF+WIFIA	SRF+WIFIA+Bond	SRF+WIFIA+Bond	
Beginning Fund Balance	\$ 33,184,728	\$ 33,184,728	\$ 33,184,728	\$ 33,184,728	\$ 33,184,728	
<b>Estimated Ending Fund Balance</b>	<b>\$ 21,938,454</b>	<b>\$ 2,503,452</b>	<b>\$ 10,150,592</b>	<b>\$ 3,227,525</b>	<b>\$ 3,251,996</b>	
<b>SDC Multiplier on budgeted FY2027 Rev</b>	1	1.5X	2.5X	3X	4X	
<b>Annual Rate increase FY2028-FY2032</b>	8.50%	9.25%	8.5%	7.7%	9.8%	
<b>Annual Rate increase FY2027; FY2033-F</b>	4%/2.5%	4%	4%/3%	4%/7.7%	4%/9.8%	
<b>Current Bill</b>	\$64.53	\$64.53	\$64.53	\$64.53	\$64.53	
<b>Projected Ending Bill (FY2036)</b>	<b>\$111.39</b>	<b>\$122.19</b>	<b>\$113.58</b>	<b>\$130.84</b>	<b>\$155.67</b>	
Total % Increase	73%	89%	76%	103%	141%	
Note: Projected Ending Bill in FY 2036 with 4% annual rate increases:		<b>\$95.52</b>				

## SCENARIO 1 – CIP SUMMARY

### WRF Facilities Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1	Rebuild Headworks Screens	End of Life	\$ 260,000.00
2	Riverside Drive Site Pre-Design Study	End of Life and Future Growth	\$ 1,000,000.00
3	Prescreening Diversion Structure	End of Life and Future Growth	\$ 4,210,000.00
4	Offline Storage (4MG)	Future Growth	\$ 79,270,000.00
6	Thermal Load Mitigation Alternatives Study	Regulatory	\$ 80,000.00
7	Thermal Load Mitigation Implementation	Regulatory	\$ 3,000,000.00
10	SCADA Master Plan Updates Immediate Phase	End of Life	\$ 1,310,000.00
11	SCADA Master Plan Updates Short Term Phase	End of Life	\$ 3,790,000.00
		Subtotal	\$ 92,920,000.00

### Conveyance Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1A	Gravity Repair and Replacement Program	Reduce O&M	\$ 5,651,250.00 *This cost only represents half of the recommended budget for the 10 year period
1B	Inflow and Infiltration Reduction Program	RDII and Existing Capacity	\$ 3,377,000.00 *This cost only represents half of the recommended budget for the 10 year period
2A	Downtown/Gateway	RDII and Existing Capacity	\$ 1,750,000.00
		Subtotal	\$ 10,778,250.00
		Total	\$ 103,698,250.00 *Total does not account for inflation included in the financial model

## SCENARIO 2 – CIP SUMMARY

### WRF Facilities Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1	Rebuild Headworks Screens	End of Life	\$ 260,000.00
2	Riverside Drive Site Pre-Design Study	End of Life and Future Growth	\$ 1,000,000.00
3	Prescreening Diversion Structure	End of Life and Future Growth	\$ 4,210,000.00
4	Offline Storage (4MG)	Future Growth	\$ 79,270,000.00
6	Thermal Load Mitigation Alternatives Study	Regulatory	\$ 80,000.00
7	Thermal Load Mitigation Implementation	Regulatory	\$ 3,000,000.00
10	SCADA Master Plan Updates Immediate Phase	End of Life	\$ 1,310,000.00
11	SCADA Master Plan Updates Short Term Phase	End of Life	\$ 3,790,000.00
12	Flow/Load and Process Model	Future Growth	\$ 100,000.00
13	Outfall Capacity CFD Analysis	Future Growth	\$ 50,000.00
14	Maintenance/Replacement Urgent Action Phase	End of Life	\$ 4,500,000.00
15	Maintenance/Replacement Near Term Phase	End of Life	\$ 13,000,000.00
		Subtotal	\$ 110,570,000.00

### Conveyance Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1A	Gravity Repair and Replacement Program	Reduce O&M	\$ 11,302,500.00
1B	Inflow and Infiltration Reduction Program	RDII and Existing Capacity	\$ 6,754,000.00
2A	Downtown/Gateway	RDII and Existing Capacity	\$ 1,750,000.00
4A	Cozine PS Phase 1	RDII and Existing Capacity	\$ 6,670,000.00
5A	NW 2nd St - Lower Phase 1	RDII and Existing Capacity	\$ 860,000.00
5B	NW 2nd St - Upper Phase 2	RDII and Existing Capacity	\$ 51,333.33 *This cost only represents the portion of the project that occurs within the 10 year period
10A	Morgan Lane PS FM	RDII and Existing Capacity	\$ 160,000.00
10B	Morgan Lane PS	RDII and Existing Capacity	\$ 650,000.00
11A	Crestbrook PS	RDII and Existing Capacity	\$ 1,010,000.00
13A	North McMinnville Trunk	RDII and Existing Capacity	\$ 830,000.00
		Subtotal	\$ 30,037,833.33
		Total	\$ 140,607,833.33 *Total does not account for inflation included in the financial model

## SCENARIO 3 – CIP SUMMARY

### WRF Facilities Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1	Rebuild Headworks Screens	End of Life	\$ 260,000.00
2	Riverside Drive Site Pre-Design Study	End of Life and Future Growth	\$ 1,000,000.00
3	Prescreening Diversion Structure	End of Life and Future Growth	\$ 4,210,000.00
4	Offline Storage (4MG)	Future Growth	\$ 79,270,000.00
6	Thermal Load Mitigation Alternatives Study	Regulatory	\$ 80,000.00
7	Thermal Load Mitigation Implementation	Regulatory	\$ 3,000,000.00
10	SCADA Master Plan Updates Immediate Phase	End of Life	\$ 1,310,000.00
11	SCADA Master Plan Updates Short Term Phase	End of Life	\$ 3,790,000.00
12	Flow/Load and Process Model	Future Growth	\$ 100,000.00
13	Outfall Capacity CFD Analysis	Future Growth	\$ 50,000.00
	Subtotal		\$ 93,070,000.00

### Conveyance Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
2A	Downtown/Gateway	RDII and Existing Capacity	\$ 1,750,000.00
3A	3 Mile Lane #1 PS	Growth and Existing Capacity	\$ 1,610,000.00
3B	3 Mile Lane – Lower Parallel Gravity	Growth and Existing Capacity	\$ 3,000,000.00
3C	3 Mile Lane – Upper Parallel Gravity	Growth and Existing Capacity	\$ 3,480,000.00
3D	3 Mile Lane – Existing Gravity Upsizing	Growth and Existing Capacity	\$ 2,210,000.00
6A	SW McMinnville Trunk – Lower	Growth and Existing Capacity	\$ 16,290,000.00
6B	South Cozine Alt-PS	Population Growth	\$ 4,780,000.00
6C	South Cozine Alt-PS – FM	Population Growth	\$ 2,850,000.00
7A	SW McMinnville Trunk – Middle	Growth and Existing Capacity	\$ 2,580,000.00
7B	SW Gravity Alt Cross-Connections	Growth and Existing Capacity	\$ 790,000.00
8A	South Cozine Alt-PS – E. Gravity Consolidation	Population Growth	\$ 2,700,000.00
9A	NE PS	Growth and Existing Capacity	\$ 1,760,000.00
12A	NE McMinnville Trunk	Growth and Existing Capacity	\$ 266,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
15B	North Riverside Alt PS	Population Growth	\$ 79,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
16A	NW Wallace Rd Trunk	Population Growth	\$ 480,000.00
17A	South Cozine Alt-PS – W. Gravity Consolidation	Population Growth	\$ 1,556,500.00 *This cost only represents the portion of the project that occurs within the 10 year period
	Subtotal		\$ 46,181,500.00
	Total		\$ 139,251,500.00 *Total does not account for inflation included in the financial model

## SCENARIO 4 – CIP SUMMARY

### WRF Facilities Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1	Rebuild Headworks Screens	End of Life	\$ 260,000.00
2	Riverside Drive Site Pre-Design Study	End of Life and Future Growth	\$ 1,000,000.00
3	Prescreening Diversion Structure	End of Life and Future Growth	\$ 4,210,000.00
4	Offline Storage (4MG)	Future Growth	\$ 79,270,000.00
6	Thermal Load Mitigation Alternatives Study	Regulatory	\$ 80,000.00
7	Thermal Load Mitigation Implementation	Regulatory	\$ 3,000,000.00
8	Administration and Maintenance Expansion	Future Growth	\$ 17,900,000.00
10	SCADA Master Plan Updates Immediate Phase	End of Life	\$ 1,310,000.00
11	SCADA Master Plan Updates Short Term Phase	End of Life	\$ 3,790,000.00
12	Flow/Load and Process Model	Future Growth	\$ 100,000.00
13	Outfall Capacity CFD Analysis	Future Growth	\$ 50,000.00
14	Maintenance/Replacement Urgent Action Phase	End of Life	\$ 4,500,000.00
15	Maintenance/Replacement Near Term Phase	End of Life	\$ 13,000,000.00
	Subtotal		\$ 128,470,000.00

### Conveyance Plan

Project ID	Project Names	Project Driver	Estimated Costs by FY36
1A	Gravity Repair and Replacement Program	Reduce O&M	\$ 11,302,500.00
1B	Inflow and Infiltration Reduction Program	RDII and Existing Capacity	\$ 6,754,000.00
2A	Downtown/Gateway	RDII and Existing Capacity	\$ 1,750,000.00
3A	3 Mile Lane #1 PS	Growth and Existing Capacity	\$ 1,610,000.00
3B	3 Mile Lane – Lower Parallel Gravity	Growth and Existing Capacity	\$ 3,000,000.00
3C	3 Mile Lane – Upper Parallel Gravity	Growth and Existing Capacity	\$ 3,480,000.00
3D	3 Mile Lane – Existing Gravity Upsizing	Growth and Existing Capacity	\$ 2,210,000.00
3E	3 Mile Lane #3 PS – Decommission	Reduce O&M	\$ 110,000.00
4A	Cozine PS Phase 1	RDII and Existing Capacity	\$ 6,670,000.00
5A	NW 2nd St – Lower Phase 1	RDII and Existing Capacity	\$ 860,000.00
5B	NW 2nd St – Upper Phase 2	RDII and Existing Capacity	\$ 51,333.33 *This cost only represents the portion of the project that occurs within the 10 year period
9A	NE PS	Growth and Existing Capacity	\$ 1,760,000.00
10A	Morgan Lane PS FM	RDII and Existing Capacity	\$ 160,000.00
10B	Morgan Lane PS	RDII and Existing Capacity	\$ 650,000.00
11A	Crestbrook PS	RDII and Existing Capacity	\$ 1,010,000.00
12A	NE McMinnville Trunk	Growth and Existing Capacity	\$ 266,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
13A	North McMinnville Trunk	RDII and Existing Capacity	\$ 830,000.00
15B	North Riverside Alt PS	Population Growth	\$ 79,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
16A	NW Wallace Rd Trunk	Population Growth	\$ 480,000.00
	Subtotal		\$ 43,032,833.33
	Total		\$ 171,502,833.33 *Total does not account for inflation included in the financial model

## SCENARIO 5 – CIP SUMMARY

<b>WRF Facilities Plan</b>			
<b>Project ID</b>	<b>Project Names</b>	<b>Project Driver</b>	<b>Estimated Costs by FY36</b>
1	Rebuild Headworks Screens	End of Life	\$ 260,000.00
2	Riverside Drive Site Pre-Design Study	End of Life and Future Growth	\$ 1,000,000.00
3	Prescreening Diversion Structure	End of Life and Future Growth	\$ 4,210,000.00
4	Offline Storage (4MG)	Future Growth	\$ 79,270,000.00
6	Thermal Load Mitigation Alternatives Study	Regulatory	\$ 80,000.00
7	Thermal Load Mitigation Implementation	Regulatory	\$ 3,000,000.00
8	Administration and Maintenance Expansion	Future Growth	\$ 17,900,000.00
10	SCADA Master Plan Updates Immediate Phase	End of Life	\$ 1,310,000.00
11	SCADA Master Plan Updates Short Term Phase	End of Life	\$ 3,790,000.00
12	Flow/Load and Process Model	Future Growth	\$ 100,000.00
13	Outfall Capacity CFD Analysis	Future Growth	\$ 50,000.00
14	Maintenance/Replacement Urgent Action Phase	End of Life	\$ 4,500,000.00
15	Maintenance/Replacement Near Term Phase	End of Life	\$ 13,000,000.00
16	Dewatering	Regulatory	\$ 1,243,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
	Subtotal		\$ 129,713,000.00

<b>Conveyance Plan</b>			
<b>Project ID</b>	<b>Project Names</b>	<b>Project Driver</b>	<b>Estimated Costs by FY36</b>
1A	Gravity Repair and Replacement Program	Reduce O&M	\$ 11,302,500.00
1B	Inflow and Infiltration Reduction Program	RDII and Existing Capacity	\$ 6,754,000.00
2A	Downtown/Gateway	RDII and Existing Capacity	\$ 1,750,000.00
3A	3 Mile Lane #1 PS	Growth and Existing Capacity	\$ 1,610,000.00
3B	3 Mile Lane - Lower Parallel Gravity	Growth and Existing Capacity	\$ 3,000,000.00
3C	3 Mile Lane - Upper Parallel Gravity	Growth and Existing Capacity	\$ 3,480,000.00
3D	3 Mile Lane - Existing Gravity Upsizing	Growth and Existing Capacity	\$ 2,210,000.00
3E	3 Mile Lane #3 PS - Decommission	Reduce O&M	\$ 110,000.00
4A	Cozine PS Phase 1	RDII and Existing Capacity	\$ 6,670,000.00
5A	NW 2nd St - Lower Phase 1	RDII and Existing Capacity	\$ 860,000.00
5B	NW 2nd St - Upper Phase 2	RDII and Existing Capacity	\$ 51,333.33 *This cost only represents the portion of the project that occurs within the 10 year period
6A	SW McMinnville Trunk - Lower	Growth and Existing Capacity	\$ 16,290,000.00
6B	South Cozine Alt-PS	Population Growth	\$ 4,780,000.00
6C	South Cozine Alt-PS - FM	Population Growth	\$ 2,850,000.00
7A	SW McMinnville Trunk - Middle	Growth and Existing Capacity	\$ 2,580,000.00
7B	SW Gravity Alt Cross-Connections	Growth and Existing Capacity	\$ 790,000.00
8A	South Cozine Alt-PS - E. Gravity Consolidation	Population Growth	\$ 2,700,000.00
8B	Cozine Woods PS - Decommission	Reduce O&M	\$ 110,000.00
9A	NE PS	Growth and Existing Capacity	\$ 1,760,000.00
10A	Morgan Lane PS FM	RDII and Existing Capacity	\$ 160,000.00
10B	Morgan Lane PS	RDII and Existing Capacity	\$ 650,000.00
11A	Crestbrook PS	RDII and Existing Capacity	\$ 1,010,000.00
12A	NE McMinnville Trunk	Growth and Existing Capacity	\$ 266,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
13A	North McMinnville Trunk	RDII and Existing Capacity	\$ 830,000.00
15B	North Riverside Alt PS	Population Growth	\$ 79,000.00 *This cost only represents the portion of the project that occurs within the 10 year period
16A	NW Wallace Rd Trunk	Population Growth	\$ 480,000.00
17A	South Cozine Alt-PS - W. Gravity Consolidation	Population Growth	\$ 1,556,500.00 *This cost only represents the portion of the project that occurs within the 10 year period
	Subtotal		\$ 74,689,333.33
	Total		\$ 204,402,333.33 *Total does not account for inflation included in the financial model