



RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: DECEMBER 12, 2022

SUBJECT: **WATER LOSS PROGRAM PROJECTS – WORK ORDER NO. 2307729 TO EXTEND THE PREEMPTIVE SERVICE LATERAL REPLACEMENT PROGRAM IN THE AMOUNT OF \$750,000, WORK ORDER NO. 2301783 AUTHORIZING STAFF TO SEEK A SERVICES AGREEMENT FOR A PILOT ACTIVE LEAK DETECTION PROGRAM IN A NOT-TO-EXCEED AMOUNT OF \$49,999, AND WORK ORDER NO. 2308512 AUTHORIZING STAFF TO EXPAND THE METER REPLACEMENT PROGRAM IN THE AMOUNT OF \$153,000**

ISSUES:

Consider approving Work Order No. 2307729 to extend the Preemptive Service Lateral Replacement program in the amount of \$750,000; approving Work Order No. 2301783 to authorize staff to seek a services agreement for Leak Detection Equipment to perform an active leak detection pilot program in a not-to-exceed amount of \$49,999; and approving Work Order No. 2308512 to authorize field staff to expand the Meter Replacement program in the amount of \$153,000.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Approve Work Order No. 2307729 to extend the Preemptive Service Lateral Replacement program in the amount of \$750,000;
2. Approve Work Order No. 2301783 to authorize staff to seek a services agreement for Leak Detection Equipment to perform an active leak detection pilot program in a not-to-exceed amount of \$49,999; and
3. Approve Work Order No. 2308512 to authorize field staff to expand the Meter Replacement program in the amount of \$153,000.

BACKGROUND:

On October 9, 2015, the Governor signed Senate Bill 555 (SB 555) Water Loss Management, requiring all retail urban water suppliers to submit an annual validated water loss audit report to the Department of Water Resources (DWR) starting on October 1, 2017. SB 555 also directed

the State Water Resources Control Board (SWRCB) to adopt water loss performance standards for each retail water supplier by 2020. However, these standards were only recently adopted on October 19, 2022. Based on the adopted performance standards, water suppliers must meet their supplier-specific volumetric water loss target by 2027 (reported 2028) and submit questionnaires on data quality, asset management, and pressure management to report progress on meeting their target.

The Water Audit, following the industry standards detailed in the American Water Works Association's M36 Water Audits and Loss Control Programs Manual, focuses on the distribution system water loss, which is the major loss component in RPU's overall system. The goal is to identify and quantify real losses (i.e., leaks, main breaks) and apparent losses (i.e., meter inaccuracies, data handling errors, unauthorized consumption) to improve and inform a utility's water loss control practices to reduce and allow the utility to identify economically recoverable water losses. Performing a water audit alone will not result in savings and requires that corrective actions be implemented based on the information derived from the audit to ultimately yield savings to the utility.

Although RPU has implemented water loss control efforts and continues to expand its program, further actions must be developed and evaluated to recover as much lost water as economically feasible. There will be a point at which it will cost more to control leakage than is economically justifiable or the cost of water itself. However, other non-economical considerations, such as sustainability and compliance, must also be included in the evaluation of these decisions. Maintaining a balance of all other non-economical factors between water loss reduction and costs associated with implementing water loss-reducing measures is essential.

The water loss in RPU's system from production to end-user can be disaggregated into three categories; non-potable losses, losses in the transmission mains, and losses in the distribution system. In Calendar Year (CY) 2021, the water loss in the transmission mains, known as 'Water Loss Above Linden/Evans Reservoirs', was estimated at 200 Acre-Feet (AF); non-potable losses were approximately 665 AF, and distribution system losses were approximately 5,500 AF. This water loss represented 7.5% of non-revenue water throughout RPU's system in 2021, which was 1.2% lower than 'Unaccounted for Water' in 2020.

These water loss figures can vary slightly from year to year due to several factors, such as system demand volume, response time, and unexpected failures. However, more than 85% of RPU's losses usually originate in the distribution system. Based on these findings, focusing RPU's efforts on reducing water loss in the distribution system offers the best opportunity to bring down system losses within RPU's water system; with this focus, the following efforts are proposed for the Water Loss Program.

The efforts proposed for the Water Loss Program are part of the corrective actions to reduce real water loss and apparent water losses (i.e., revenue recovery from under-registering meters) following the results of the Water Audit. After the corrective measures are put in place, an evaluation of the results will be analyzed through the annual Water Audit, and the results will be presented to RPU's Board. This cycle is part of an iterative process that will continue until the water loss reduction goals are achieved.

DISCUSSION:

RPU's Water Loss Control Program is important to ensure that water produced by the utility is put to beneficial use, to adhere to California's water conservation policies and compliance requirements, and to minimize lost revenue for the City of Riverside. Reducing water loss can help improve drought resilience, save energy, and delay or avoid the need for new water supplies and infrastructure when it is deemed economically feasible.

On January 12, 2022, the Water Committee received an update on Water Loss in which several efforts to reduce Non-revenue water were discussed.

Enforcing water theft and unauthorized water use was among these efforts. On September 12, 2022, the Board of Public Utilities (Board) recommended that the City Council adopt an Ordinance for Chapter 14.23 of the Riverside Municipal Code to prohibit and enforce water theft and unauthorized water use. The ordinance was introduced to the City Council for adoption on October 4, 2022.

Three other efforts discussed at the January 2022 Water Committee included expanding meter replacements, continuing funding of the preemptive service lateral replacements program, and utilizing Leak Detection Equipment (LDE) to perform an active leak detection pilot program.

Preemptive Service Lateral Replacement Program

In December 2020, the Board approved the new Preemptive Service Lateral Replacement program to combat aging copper water services. The program was budgeted at \$750,000 per year for fiscal years 2019-20 through 2022-23. The program was created to address the increase in emergency service lateral leaks each year and its resulting overtime.

The lifespan of a copper water service lateral is 30-40 years; however, water mains can serve water for many more decades without the need for replacement. Data captured through the asset management program provided areas where water mains have few leaks, but the neighborhood is experiencing a high frequency of service lateral failure. To address aging copper service laterals and increasing overtime burden, staff recommended implementing a Water Service Lateral Replacement Program in which service laterals are replaced systematically, proactively, rather than on an emergency basis. City field forces can replace five service laterals under a planned event, compared to one service lateral under an emergency response.

The water loss control program is recommended to continue for an additional three fiscal years, 2023-24 through 2025-26. Since its inception, the department has replaced approximately 350 water service laterals through this program. As anticipated, the service laterals identified were found to be at the end of life, and many were actively leaking. Continuation of the program will further water loss control efforts, especially in the distribution system, where RPU has seen about 5,500 AF of water loss in 2021, and reduce the frequency of emergency repairs.

Leak Detection Equipment Pilot Program

A program that promises to assist with water loss control on the distribution system side is a proposed 90-day Leak Detection Equipment Pilot Program (LDEPP). This program will involve deploying four active leak detection units installed in fire hydrants that will cover an estimated 40,000 feet (7.5 miles) of pipeline within a pre-identified study area, to be determined by RPU with the assistance of the selected vendor. The units will be located on RPU's fire hydrants (within fire hydrant nozzles or valve cans). They will actively collect acoustical data that will feed into the

vendor's computer-based algorithm, which will identify specific locations within the study area where a leak might be present (based on the acoustical signature detected by the network of leak detection units). This data will be sent to RPU Field Forces to be able to proactively repair minor leaks before they escalate into larger emergency repairs, potentially requiring after-hours emergency callouts resulting in greater damage. The LDEPP will include training of RPU staff, labor, installation, and removal of equipment at a designated study area for a not-to-exceed cost of \$49,999. If this program is successful, RPU staff would recommend a larger-scale future implementation of the leak detection program, which would include purchasing permanent leak detection equipment to address identified leaks.

Expand Meter Replacement Program

A proposed expansion of the Small Meter Replacement Program is recommended as part of RPU's continued water loss control efforts. As meters age, their ability to accurately read water flows diminishes after 20 years in service. The annual replacement of meters will be determined by age. Currently, the replacement rate is approximately 2,500 meters per year, which produces a cycle time of 26 years to replace all 65,000 meters. Approval of Work Order No. 2308512 will authorize field staff to expand this program, increasing the replacement rate to 4,000 meters per year and reducing the cycle time to just over 16 years. Funding within the meter replacement account is sufficient to purchase the necessary materials, but additional funds are needed to expand this program. Between 2007 through 2012, the rate of meter replacement was increased up to 6,500 meters per year, as additional crews were focused on this effort. The proposed expansion will proactively manage the high volume of meters approaching 20 years of age in 2027-2032. Most importantly, the expansion will establish a realistic and repeatable approach for all future cycles of the Small Meter Replacement program and further RPU's water loss control efforts and capture of non-revenue water.

The estimated capital project expenditure breakdown for the proposed programs is as follows:

Project Expenses Breakdown		
Work Type	Performed By:	Amount (\$)
Preemptive Service Lateral Replacement (Capital Expense)	City Forces	\$750,000
Expanded Meter Replacement Program (Capital Expense)	City Forces	\$153,000
Leak Detection Equipment Pilot Program (Operational Expense)	Outside Vendor (To be selected through a competitive RFP process)	\$49,999
Work Order Total:		\$952,999
Reimbursements:		None
Anticipated Start Date:		January 2023
Anticipated Duration:		Continuous

STRATEGIC PLAN ALIGNMENT:

This item contributes to **Strategic Priority 4 - Environmental Stewardship** and **Goal 4.2 – Sustainably manage local water resources to maximize reliability and advance water reuse to ensure safe, reliable and affordable water to our community**, and **Strategic Priority 5 - High**

Performing Government and Goal 5.2 – Utilize technology, data, and process improvement strategies to increase efficiencies, guide decision making, and improve access to and delivery of financially sustainable City services.

This item aligns with each of the five Cross-Cutting Threads as follows:

1. **Community Trust** – The Water Loss Program aims to reduce water loss throughout the City, thereby enhancing community trust.
2. **Equity** – All people within RPU's service area will benefit from reduced water loss.
3. **Fiscal Responsibility** – The Water Loss Program will improve the City's financial strength and reduce its need for additional water resources.
4. **Innovation** – The Water Loss Program will utilize innovative technologies and services to reduce RPU's water loss and improve water use efficiency.
5. **Sustainability & Resiliency** – The Water Loss Program will help preserve vital resources and assist with long-term water sustainability.

FISCAL IMPACT:

The total estimated fiscal impact is \$952,999 for this work. Sufficient funds are currently available in the Public Utilities' Distribution Facilities Replacement Account No. 6230000-470706 to fund the Fiscal Year 2022-23 Service Lateral Replacement Program in the amount of \$750,000. Additional appropriations or a budget transfer will be needed to fund this program for Fiscal Years 2023-24 through 2025-26 and this item will be brought back to Board for future funding. Sufficient funds are currently available in the Public Utilities' Meters Account No. 6230000-470702 for the Expanded Meter Replacement Program in the amount of \$153,000; and sufficient funds are currently available in the Water Production and Operations' Professional Services Account No. 6205000-421000 in the amount of \$49,999 for the Leak Detection Equipment Pilot Program.

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Approved by:	Todd M. Corbin, Utilities General Manager
Approved by:	Kris Martinez, Assistant City Manager
Approved as to form:	Phaedra A. Norton, City Attorney

Certifies availability of funds:	Edward Enriquez, Interim Assistant City Manager/Chief Financial Officer/City Treasurer
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Attachment:	Presentation
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