AGENDA
IRVINE RANCH WATER DISTRICT
WATER RESOURCES POLICY AND COMMUNICATIONS
COMMITTEE MEETING
FRIDAY, NOVEMBER 3, 2023

This meeting will be held in-person at the District's headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Webex: https://irwd.webex.com/irwd/j.php?MTID=m5f0ad737870059080854145139e7c7ee
Meeting Number (Access Code): 2496 749 3914
Meeting Password: BntcPgF74K3 (26827437 from video systems)

As courtesy to the other participants, please mute your phone when you are not speaking.

PLEASE NOTE: Participants joining the meeting will be placed into the Webex lobby when the Committee enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Committee once the closed session has concluded. Participants who join the meeting while the Committee is in closed session will receive a notice that the meeting has been locked. They will be able to join the meeting once the closed session has concluded.

CALL TO ORDER 1:30 p.m.

ATTENDANCE
Committee Chair: Steve LaMar _____
Member: John Withers _____

ALSO PRESENT

Paul Cook	_____	Paul Weghorst	_____
Wendy Chambers	_____	Neveen Adly	_____
Kevin Burton	_____	Fiona Sanchez	_____
Christine Compton	_____	Jim Colston	_____
John Fabris	_____	Kellie Welch	_____
Mark Tettemer	_____	Amy McNulty	_____
_____	_____	_____	_____
_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. Public comments are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 8:00 a.m. on November 3, 2023.

COMMUNICATIONS

1. Notes: Weghorst
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted; and determine which items may be approved without discussion.

INFORMATION

4. IRWD WATER LOSS CONTROL PLAN – MCNULTY / BARRETO / SANCHEZ / WEGHORST

   Recommendation: Receive and file.

ACTION

5. REVIEW OF 2023 ADVOCACY ACTIVITIES AND 2024 LEGISLATIVE AND REGULATORY ISSUES PLANNING – COMPTON

   Recommendation: That the Board provide input on the proposed 2024 regional, state, and federal legislative issues of interest to IRWD, and receive and file the proposed "Initial 2024 Legislative and Regulatory Resource Allocation Plan" and the "Legislative / Regulatory Issues and Activities of High Concern to IRWD in 2024."

6. REVISED IRWD POLICY PRINCIPLES REGARDING METROPOLITAN WATER DISTRICT'S INTEGRATED WATER RESOURCES PLAN AND LOCAL RESOURCES PROGRAM – TETTEMER / WEGHORST

   Recommendation: That the Board adopt the revised IRWD policy principles regarding Metropolitan Water District's Integrated Water Resources Plan and Local Resources Program.

7. RESOLUTION FOR SYPHON RESERVOIR IMPROVEMENT PROJECT APPLICATION FOR TITLE XVI GRANT FUNDING – PALACIO / WELCH / SANCHEZ / WEGHORST

   Recommendation: That the Board adopt a resolution authorizing submission of a grant application under the Bureau of Reclamation WaterSMART – Title XVI WIIN Water Reclamation and Reuse Program for up to 25% of the total project costs, up to $30 million, for the Syphon Reservoir Improvement Project, and authorize the General Manager to execute a related agreement to receive grant funding.

OTHER BUSINESS

8. Directors' Comments

9. Adjourn

****

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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November 3, 2023
Prepared by: A. McNulty / G. Barreto
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

IRWD WATER LOSS CONTROL PLAN

SUMMARY:

Staff has developed a comprehensive IRWD Water Loss Control Plan to help plan, coordinate, and manage all of IRWD's activities related to minimizing water losses. The plan documents the various categories of water loss that are included in the District's annual water loss audit, and the programs are currently in place to ensure compliance with IRWD's water loss standard. The Water Loss Control Plan also provides an overview of future efforts to develop new programs as new water loss control technologies become available. At the Committee meeting, staff will present an overview of the IRWD Water Loss Control Plan.

BACKGROUND:

California Senate Bill (SB) 555, enacted in October 2019, required all urban water suppliers to submit an annual water loss audit to the Department of Water Resources (DWR). The legislation also required water suppliers to maintain water losses at or below the water loss standards set by the State Water Resources Control Board. Water loss standards are unique to each supplier and are based on data reported in the American Water Works Association (AWWA) water loss audit reports for fiscal years 2017 through 2020. IRWD's water loss standard is 20 gallons per connection per day. IRWD has had foundational water loss programs in place since the early 1990s and is well positioned to maintain compliance with the state water loss standard.

IRWD Water Loss Programs:

The need to cost-effectively minimize water losses drives IRWD's water loss control programs. These programs focus on reducing and preventing real and apparent losses. Real losses occur from leaks, while apparent losses result from malfunctioning meters, data errors, unauthorized consumption, and other issues. Proactively addressing water losses helps protect the integrity of IRWD's water system, minimizes the need for emergency repair work, and prevents losses in revenue.

Water Loss Control Plan:

Staff has prepared a comprehensive Water Loss Control Plan that is being used to plan, coordinate, and manage IRWD's existing and future water loss control programs. Development of the Water Loss Control Plan demonstrates IRWD's continued leadership in water loss audit reporting and the implementation of cost-effective programs. The Water Loss Control Plan is provided as Exhibit "A". At the Committee meeting, staff will present an overview of the plan and the associated programs that will ensure compliance with the District's water loss standard. A draft of the presentation slides is included as Exhibit "B".

Plan Description:

The Water Loss Control Plan provides an overview of IRWD's historical efforts associated with implementing water loss programs and efforts to improve data collection for future AWWA audits. The plan includes IRWD's baseline water balance, explains the various categories of water losses, and the programs and policies that are currently in place to address losses. The plan also identifies future programs that will be developed to further control water losses. IRWD's Water Loss Control Plan will be updated regularly as new data are collected, new water loss control technologies become available, and cost-effective programs are implemented.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" – IRWD Water Loss Control Plan
Exhibit "B" – Presentation of IRWD Water Loss Control Plan – Draft

DRAFT

Water Loss Control Plan

2023

Irvine Ranch Water District

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Glossary of Terms

Apparent Loss: Paper losses due to meter inaccuracies, unauthorized consumption, and systematic data handling errors. This type of loss has the potential for revenue recovery through means of back billing or minimizing losses through programs.

Customer Care and Billing (CC&B): The District's billing system which contains data on meter reads, customer financial information, field activities and customer communications.

Field Activity (FA): CC&B work orders to initiate and track field work. Field activities (FAs) may sync with other District applications such as Field Mapplet and Maximo.

Field Mapplet: The District's fieldwork management system synched with CC&B. This application is integrated with GIS data to enable workorder routing tools and spatial capabilities for recording incidents such as illegal connections that are not associated with a customer location. An online dashboard provides access to reports and data on completed field activities.

Hidden Leaks: These leaks are not yet found and can only be discovered if a water utility has an active leakage detection program. Once discovered through leak detection, hidden leaks move into the unreported leaks category, or if they worsen and surface they could become reported leaks.

High Lines: A temporary connection used to maintain water service to a business or residence during system upgrades or reconstruction. This is typically performed by connecting a temporary service line to the nearest IRWD fire hydrant. These temporary connections are not metered or billed.

Hydrant Flushing: The running of water through a fire hydrant to flush out stagnant water and contaminates after the valve has been exercised.

Illegal Connection: Any water taken from the water distribution system without the authorization of the District. This may include (unpermitted) water withdrawn from fire hydrants, private fire systems, angle stops, bypasses to customer meters, meter or meter reading equipment tampering, or similar actions.

Main Line Flushing: Use of potable water from district hydrants to flush and or charge a new main line.

Malfunctioning Meter: A meter that does not register usage accurately. This can occur due to mechanical failure because of age, damage from foreign objects or debris, or faulty parts.

Maximo: The District's computerized maintenance management system (CMMS) used to plan and track field work conducted on assets. Maximo can interface with both Field Mapplet and CC&B data.

Non-revenue Water: Those components of system input volume that are not billed and produce no revenue; equal to unbilled authorized consumption plus apparent losses

Real Loss: The physical escape of water from the distribution system and includes leakage and overflows prior to the point of end use.

Reported Leak: Those leakage events that are brought to the attention of the water utility by the general public or other parties as a result of either water showing on the ground surface or other visible places, or of customer complaints such as poor pressure or noise in plumbing systems.

Stopped Meter: A meter that has stopped recording water usage or registered zero usage for a consecutive period and is suspected of malfunctioning.

Systematic Data Handling Error: Specifically defined in the International Water Association/American Water Works Association water audit method, systematic data handling error pertains to customer consumption and billing error that occurs in the water utility's business processes as a result of lax oversight, poor procedure, or gaps in information programming and archiving. These are apparent losses caused by structural or random errors existing in the meter reading, data transfer, accounting, or archival function of customer consumption management, inaccurate estimates, extended periods where no meter readings are obtained, poor account adjustment protocols, and poor accountability allowing some customers to exist without accounts in the billing system are common in many ways. These shortcomings distort the actual volume of water registered as a customer consumption and cost the utilities revenue to which they are entitled.

Unreported Leaks: These leaks, usually hidden, are found only if a water utility has an active leakage control program, or when they worsen and appear in some fashion and become reported leaks.

Overview

Responsible resource management is at the core of IRWD's values and cost-effectively minimizing water loss is at the forefront of the District's Water Loss Control Programs. Where there is water, there will be leaks. The District developed this Water Loss Control Plan (Plan) to maintain a record of historical efforts, describe current water loss control programs and practices, and identify future opportunities to ensure compliance with state regulations.

Value and Importance of Water Loss Control Programs

Proactively addressing water losses helps protect the integrity of the water system, minimizes the need for emergency repair work, and prevents revenue loss. IRWD has been implementing water loss control programs for over thirty years. Foundational programs addressed real losses through a proactive leak detection program and apparent losses through a lifetime-based meter replacement program. Beginning in 2017 the District augmented these foundational programs and added Loss Prevention staff to address other areas of water loss and potential revenue recovery. These programs cost-effectively address water loss in the District and are periodically evaluated, and updated as appropriate, to adapt to changing conditions and new technologies.

As a leader in the industry, IRWD strives for excellence in all aspects of water resource management and offers the following mission statement to capture its approach to water loss:

Mission Statement

To demonstrate IRWD's leadership in responsible resource management by addressing known and potential sources of real and apparent water losses through implementation of cost-effective proactive programs informed by accurate data collection and reporting.

Compliance with Regulations

Water loss became an increased area of focus for the District in 2014 with adoption of SB 1420 which required urban water suppliers to complete an annual water loss audit in order to be eligible for state grant funding through the California Department of Water Resources (DWR). IRWD thus began compiling a water loss audit on an annual basis. In 2015, California Senate Bill (SB) 555 was passed, which requires all urban water suppliers to submit an annual water loss audit and maintain water losses at or below a water loss standard established by the State Water Resources Control Board. IRWD's water loss standard was set by the state at 20 gallons per connection per day (GPCD). Compliance with SB 555 begins in 2028 and will be based on the average GPCD from IRWD's 2025, 2026 and 2027 audits. This plan will help sustain compliance with the state standard and document IRWD's efforts.

Plan Organization

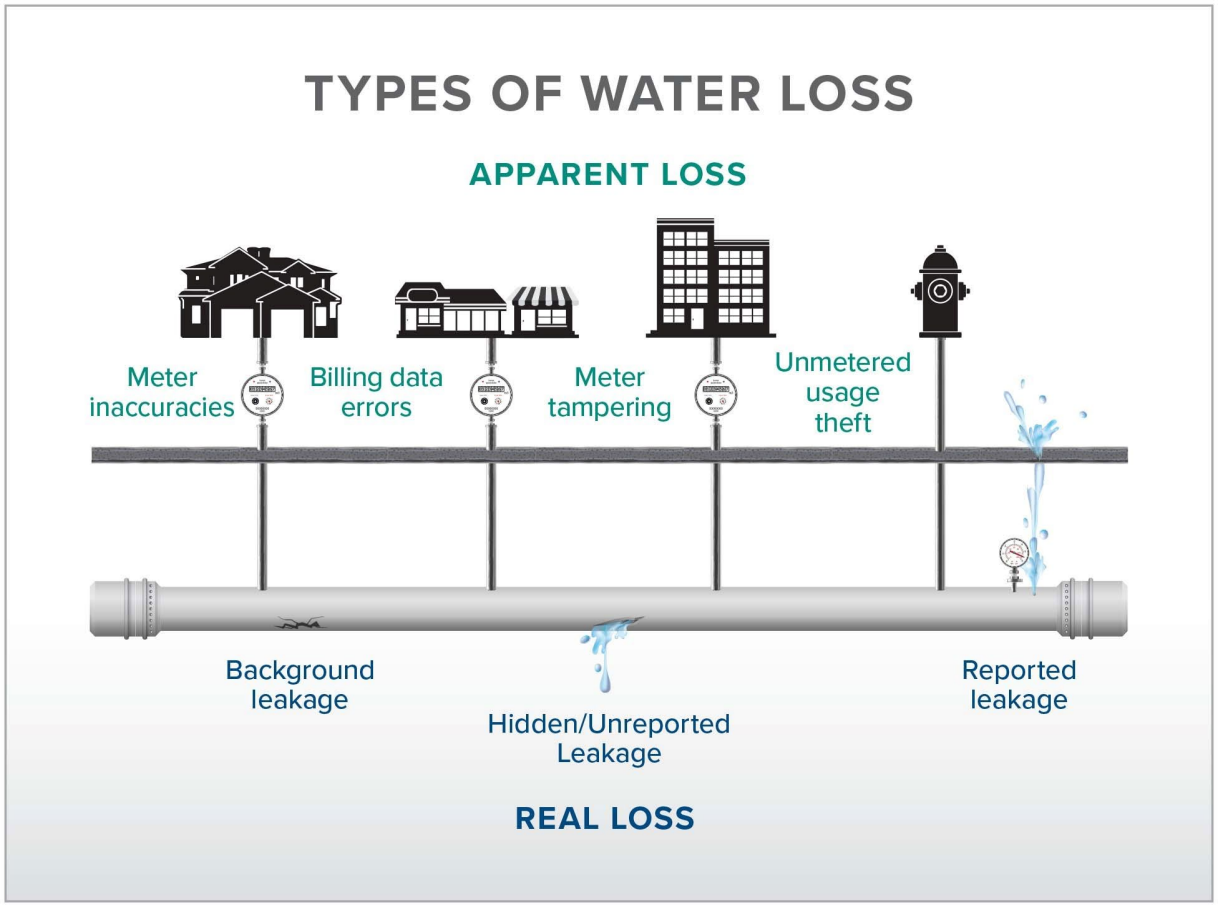
The plan provides an overview of historical program implementation efforts and audit data improvements. The plan is organized based on the categories included in the American Water Works Association (AWWA) audit water balance and begins with an in-depth description of each. The various water loss programs are also organized based on the type of loss they are designed to address. Procedures for each program are included as Water Loss Procedures (WLP) in Appendix A and will be updated as programs change or new programs are introduced. Support for some program activities comes from the District's Rules and Regulations. Appendix B includes excerpts of the relevant sections of the Rules and Regulations and will be updated as needed. Appendix C provides educational resource materials that also provide support for some of the programs. As new program materials are developed this section will be updated.

Planning for the Future

Water loss is an ongoing part of business operation and will continue to evolve as new methods for identifying and addressing losses emerge and as new state regulations take effect. This plan will help maintain compliance with the state water loss standard and document IRWD's efforts into the future. The District is currently working with consultant ESource to prepare a water loss audit gap assessment, and develop a leak simulation model, which are expected to be completed by the end of 2023. Additionally, ESource will assist the District in completing a Component Analysis, which is an in-depth assessment of potential sources of water loss, following completion of the FY 2022-2023 Water Loss Audit. The plan will be updated to reflect the findings from these projects and any resultant modifications to the suite of water loss control programs. Additionally, the plan is designed to be revised in alignment with the District's two-year budget cycle. This will maintain its relevance into the future as water loss control technologies, data and methods change, to support IRWD's continued leadership in water loss control management.

Section 1: Introduction

The Irvine Ranch Water District (IRWD) has always seen the value in managing resources responsibly and has been implementing programs to minimize water loss since the early 1990's. Water loss occurs from a variety of causes. In short, water Loss is the difference in the amount of water that enters the distribution system and the water that exits through customer meters, export meters, and other authorized water uses. Water use that cannot be accounted for is considered water loss. Understanding the type of water loss is vital to designing effective water loss control programs. The image below illustrates the two primary types of water loss, Apparent Loss and Real Loss and their common causes.



Since 2010 the District has completed an annual water loss audit using the American Water Works Association (AWWA) Water Loss Audit (Audit) Software Version 5. The audit organizes all water loss into categories and produces a water balance for the period reported. The District has been implementing proactive leak detection and meter replacement programs since the 1990s. These programs were in place before IRWD began completing the audits, therefore a baseline water loss data prior to implementation of these programs is not available.

The effectiveness of the water loss programs, however, is demonstrated in the results of the audits for the past several years.

The Audit was incorporated into Senate Bill (SB) 555 which began requiring water suppliers to submit audits to the California Department of Water Resources (DWR) annually. SB 555 also required the development of a water loss standard The volume attributable to the water loss standard is also included as a component of a supplier's Water Use Efficiency Objective (Objective), a separate water efficiency standard that will be adopted by the State Water Resources control Board (State Board) as a results of SB 606 and Assembly Bill (AB) 1668, the Making Conservation a California Way of Life legislation.

IRWD is poised to respond well to the new state regulations. The District was actively engaged with the State Board in the policy discussion. Leading up to the official rulemaking and throughout the multi-year process, the District sought technical assistance from experts to identify areas of improvement with the District's water loss audit data validity and data collection, reporting, and program effectiveness. A brief summary of these efforts is listed in Table 1: Summary of Water Loss Technical Assistance below:

Table 1: Summary of Water Loss Technical Assistance

Fiscal Year	Consultant/Organization	Work Performed
2015-16	Water Systems Optimization (WSO)	Reviewed the audit from Fiscal Year 2013-14 and provided recommendations for Fiscal Year 2014-15 audit.
2016-17	WSO	Conducted a Component Analysis of Real Losses which included the economics of IRWD's proactive leak detection program, testing of a random sample of 299 small meters, and analysis of large meter routine test results.
	American Water Works Association (AWWA)	Water Loss Technical Assistance Program (TAP)
2017-18	AWWA	Water Loss Technical Assistance Program (TAP)
2018-19	IRWD	Conducted a review of water loss audit data input sources and refined billed metered data.
2019-20	AWWA	Participated on the AWWA California-Nevada Section Water Loss Committee
2020-21	WSO	Reviewed the State Board Economic Model Custom Inputs utilizing data collected by IRWD through the repair of leaks and proactive leak detection program.

2021-22	IRWD	Implemented reconciliation process for water purchase and delivery data between operations and financial reports to better align source data.
2022-23	ESource	Evaluated impacts of the new AWWA version 6 audit. Work began on a Water Loss Gap Assessment and Leak Simulation Model.
2023-24 (planned)	ESource	Perform a Real Loss Component Analysis and develop recommendations on IRWD's water loss standard adjustment and/or variance for compliance with SB 555, if needed.

This plan provides information on the following:

1. The AWWA Audit and Water Balance;
2. IRWD's Water Loss Control Programs;
3. Policy Implementation; and
4. Planned Activities and Programs.

Section 2: AWWA Audit and Water Balance

The AWWA water loss audit includes all the data required to inform a water balance. As shown in Table 2 below, the water balance diagram helps organize all water volumes that enter the distribution system. In the water balance diagram water flows from left to right and results in either generating revenue or not. IRWD's baseline water balance is included as Exhibit "A".

Table 2: Water Balance Diagram

<table>
<tr><td rowspan="8">Water Supplied</td><td rowspan="4">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
<tr><td>Billed Unmetered Consumption</td></tr>
<tr><td rowspan="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="6">Non-Revenue Water</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="4">Water Losses</td><td rowspan="3">Apparent Losses</td><td>Unauthorized Consumption</td></tr>
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<tr><td colspan="2">Real Losses</td></tr>
</table>

Organizing water supplied into the water balance categories helps inform water suppliers of where there may be opportunities to reduce water loss and recover revenue. Programs that address non-revenue categories of loss can shift this water into the revenue generating category. These types of changes and associated revenue can help provide funding for water loss programs and create a positive benefit-cost ratio for implementing new programs. A detailed description of each of the water balance categories follows.

Authorized Consumption

The Authorized Consumption category of the Water Balance includes Billed and Unbilled Authorized Consumption. These two sub-categories are further broken down into metered and unmetered categories. This volume will increase as the service area continues to grow and more customers are added.

Billed Authorized Consumption

This category of the water balance includes both metered and unmetered consumption that is billed to customers.

<table>
<tr><td rowspan="7"></td><td rowspan="3">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
<tr><td>Billed Unmetered Consumption</td></tr>
<tr><td rowspan="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="5">Non-Revenue Water</td></tr>
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</table>

Billed Metered Consumption

The District uses an Oracle Customer Care and Billing (CC&B) system to record monthly meter reads for over 130,000 meters. Customer bills are generated monthly for the water used during the bill period.

Billed Unmetered Consumption

The District does not routinely bill for unmetered consumption. Water use on malfunctioning meters is calculated per the Back Billing Procedures described WLP 2 and the volume is recorded with the billed metered data stored in CC&B. The District policies allow billing unmetered consumption where appropriate and the usage can be substantiated.

Unbilled Authorized Consumption

This category of the water balance includes both metered and unmetered unbilled consumption, but this usage does not generate revenue.

Unbilled Metered Consumption

IRWD strives to meter all types of water use to produce the most accurate water audit reports possible. This category of the water balance includes water use from the following activities:

<table>
<tr><td rowspan="8">Water Supplied</td><td rowspan="4">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
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</table>

- **IRWD facility meters**: these meters are included in the normal meter reading cycle, but a bill is not generated.
- **Firelines**: private firelines include a small bypass meter that is read as part of the normal monthly meter reading cycle. Firelines are for the sole purpose of providing water for fire suppression and therefore they are billed a fixed amount based on the diameter of the pipe and the number of fire hydrants on the line.
- **Street sweeping**: street sweepers are provided meters for each vehicle to record the usage of each truck fill. These reads are provided by the end user and are manually entered into the billing system for water loss tracking purposes.
- **Mainline flushing**: newly constructed pipelines require cleaning or "flushing" and water quality testing to ensure it is safe to connect to the IRWD distribution system. This water use is metered and reads are manually entered into the billing system for water loss tracking purposes.

Unbilled Unmetered Consumption

This category includes water used for the following activities:

- **Fireline hydrant flushing:** this activity is required periodically to maintain water quality. There is opportunity in the future to begin metering this activity which would move it into the Unbilled Metered Category and provide a more accurate quantification of the water used.
- **Temporary connections:** to commercial buildings typically installed to continue water service during minor construction activities.

Water Losses

The Water Losses section of the Water Balance includes two primary categories for suppliers to understand how water loss is occurring. Apparent Loss, results from unauthorized connections and water theft, meter read inaccuracies, data errors; and Real Loss which results from distribution system leakage. Knowing where losses are occurring helps water suppliers prioritize and design cost-effective water loss control programs.

Apparent Losses

This category of the water balance includes unauthorized consumption or theft, customer meter inaccuracies, and data handling errors. These volumes are not metered and thus difficult to quantify without completing a water loss audit. An avoided revenue loss value can be used to evaluate the cost effectiveness of programs that reduce apparent losses. The categories of Apparent Loss are further broken down below.

<table>
<tr><td rowspan="7">Water Supplied</td><td rowspan="3">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
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</table>

Unauthorized Consumption

Unauthorized connections cost the District money in production costs and do not provide any revenues. Another term for unauthorized connections is theft. Since these volumes are unmetered, the District uses the AWWA recommended default value of 0.25% in the water loss audit to calculate a volume attributable to this category. Unauthorized consumption occurs from the following activities:

- Illegal connections to fire hydrants and other appurtenances
- Meter tampering

Customer Metering Inaccuracies

Customer meters range in size from 5/8 inch up to 10 inches and are supplied by multiple manufacturers. Malfunctioning meters are meters that have either completely stopped and do not register any usage or only register a portion of the water that passes through the meter.

Data Handling Errors

Since these volumes are unmetered, the District uses the AWWA recommended default value of 0.25% in the water loss audit to account for errors that occur from the following:

- Data transfer errors
    - Incorrectly entered meter reads
    - Incorrect meter register unit conversion
- Data analysis errors
    - Meter read estimates
    - Account activation lapses – new building lacking a billing account, a water meter and meter reading, i.e., the customer is unknown to the utility's billing system.

Real Losses

Real losses are the result of leaks on the distribution system. This is unmetered non-revenue water which can be broken down into four categories of leakage: Reported, Unreported, Background and Hidden. These are defined below.

<table>
<tr><td rowspan="7">Water Supplied</td><td rowspan="4">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
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</table>

Reported Leaks

Leaks that surface are very evident and require immediate attention. These are typically reported to the District by customers or other members of the public because they are so noticeable. These require emergency repairs and are often resource intensive and expensive.

Unreported Leaks

Leakage that is found prior to surfacing and becoming reported leaks are called unreported. These leaks are lying low and slowly getting bigger. These may continue for years before they surface. This type of leakage can be found through proactive leak detection programs and can be scheduled for repair which reduces the need for emergency measures.

Hidden Leakage

Leakage that is available to be discovered with proactive leak detection programs. This is the volume of suspected leakage that could possibly be recovered through more frequent proactive leak detection. Hidden leaks are undiscovered unreported leaks.

Background Leakage

Leakage that is undetectable using most leak detection equipment and often can only be minimized by reducing system pressure. This is a calculated volume based on the age of and condition of the system. All water systems have a certain minimal level of background leakage that is ever present.

IRWD Leakage Profile

IRWD worked with consulting firm, WSO to assess the District's leakage profile for Fiscal Year (FY) 2014-15 using infrastructure and pressure information and leak detection and repair data. The leakage profile quantified the volume of water losses associated with the four categories of leakage. As shown in Figure 1 below, IRWD's total leakage for FY 2014-15 was 3,240 acre feet (AF) with a combined volume of 997 AF attributable to unreported, reported, and hidden leakage[1]. These categories of leakage could be minimized with proactive leak detection, robust mainline replacement, or enhanced pressure management programs.

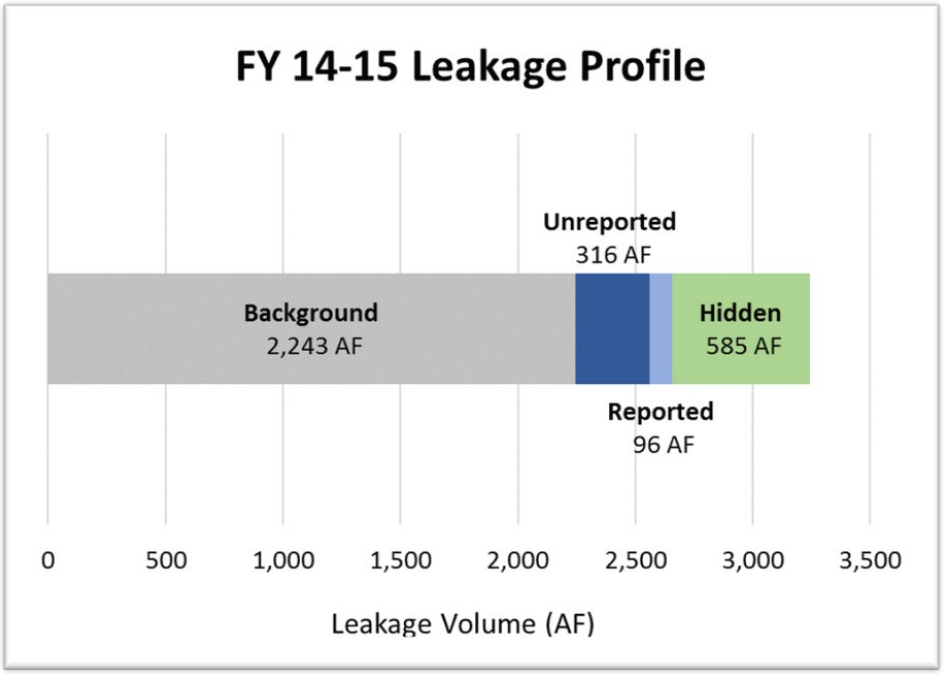


Figure 1: FY 2014-15 IRWD Leakage Profile

[1] Advanced Water Loss Assessment: Findings & Recommendations, Water Systems Optimization, April 2017

Section 3: IRWD's Water Loss Control Programs

"Water losses don't go away: they keep coming back. Water loss control is not a one-time project; it is a continuous and changing solution to an ever-changing problem".

– Julian Thornton[2]

The District is considered a leader in the industry and has implemented proactive water loss programs since the early 1990s. Core programs for proactive meter replacement and leak detection have maintained low levels of loss and new areas are continually evaluated.

Apparent Loss Programs

The four pillars recommended by the AWWA Water Loss Committee include customer meter accuracy, data transfer errors, billing errors, and theft. Figure 2: Pillars of Managing Apparent Loss shows the four program pillars encompassing the three levels of total apparent losses. The three levels acknowledge that program activity should be based on cost-effectiveness and that there will always be some level of Unavoidable Apparent Loss.

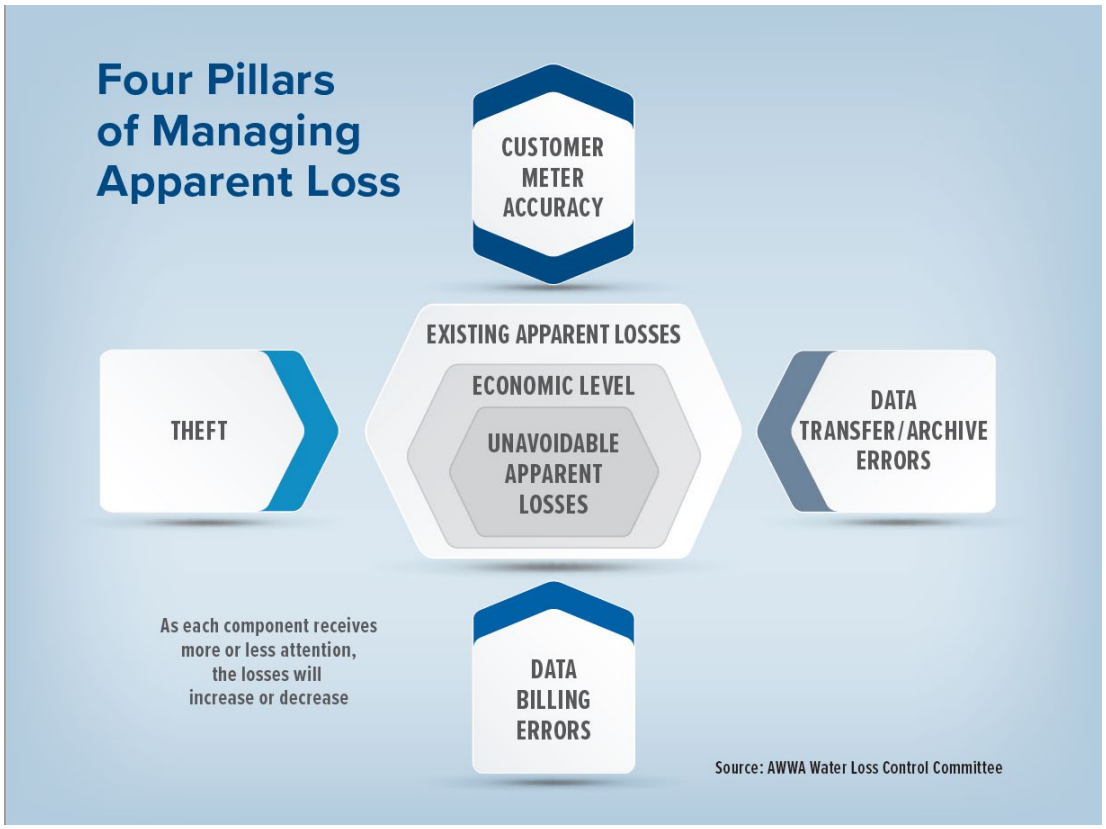


Figure 2: Pillars of Managing Apparent Loss

[2] Water Loss Control Programs. Julian Thornton, 2002.

Customer Meter Accuracy

The meter read is the foundation of the billing process. The meter read is used to calculate the volume of usage that a customer should be billed for. If the meter is not performing optimally, this could cause the meter to miss some of the water usage and not bill for the full amount of water the customer used. To address this, the District employs two types of meter replacement programs. The first is based on a predetermined lifetime for each meter size and type. The second is based on meter performance regardless of age or meter type.

Lifetime Based Meter Replacement

Lifetime based meter replacements are scheduled and routinely performed on all customer meters. The lifetime for each meter size was determined at the onset of this program in the early 1990s and was based on meter performance studies.

Meter lifetimes are assigned based on the size and type of meter and meters are either replaced or refurbished depending on the most cost-effective approach. Details on the meter replacement schedules can be found in Water Loss Procedure (WLP) 5.

Malfunctioning Meter Detection

The IRWD CC&B billing system collects monthly meter read data. All of the read data is evaluated for anomalies. Abnormal usage profiles are investigated, and field activities created for unusual meter reads that may indicate poor meter performance or water theft. This program focuses on the meter read accuracy regardless of age or meter type. Meters with the highest volume of potential losses are prioritized for investigation. The District uses a variety of analysis to identify potentially malfunctioning meters.

Stopped Meters: Meter read data is monitored for consistent zero usage on meters that previously had usage. Staff can set various parameters depending on the type of service, volume of typical usage and time of year. Meters that are identified as potentially malfunctioning are reviewed by staff using multiple data points, field verifications and flow tests as described in WLP 1.

Double Zero Meter Malfunction: The Double Zero type of malfunction targets the high prevalence of meters that get stuck when the last two digits of the register reached zero. In these cases, the meter register typically sticks on the first dial turn at the 100 mark instead of turning over to 101. It is suspected that a high-volume flow or tapping on the meter may "restart" the register. The register will record usage for a while until the dial reaches 200 when it stops again. This type of meter malfunction can be identified by monitoring the billing usage for extended zero usage, although it is harder to detect due to the intermittent

usage. Meters that are confirmed to have Double Zero malfunction are automatically sent for replacement.

Potential Meter Tampering: Using the percentage of customer usage to the water budget allocation is another method that helps to identify other types of malfunctions or meter tampering. Field inspections confirm meter tampering, and the findings are recorded on the field mapplet field activity.

Figure 3 shows the results of all stopped meters for Fiscal Year 2022-23. Out of the 3,166 meters that were identified for review based on poor performance evident in the meter read data, 43% were confirmed malfunctions. The 52% of meters that demonstrate they are performing correctly have a standardized comment added to the field activity to explain the reason for legitimate zero usage. If the meter appears on subsequent suspected meter malfunction lists the comments inform staff of what action to take and reduces unnecessary fieldwork. This also enables staff to follow up at longer intervals to verify that there is still a legitimate reason for continued zero usage. Other findings include meters that are unable to be flushed or flow tested, and meters with unique circumstances.

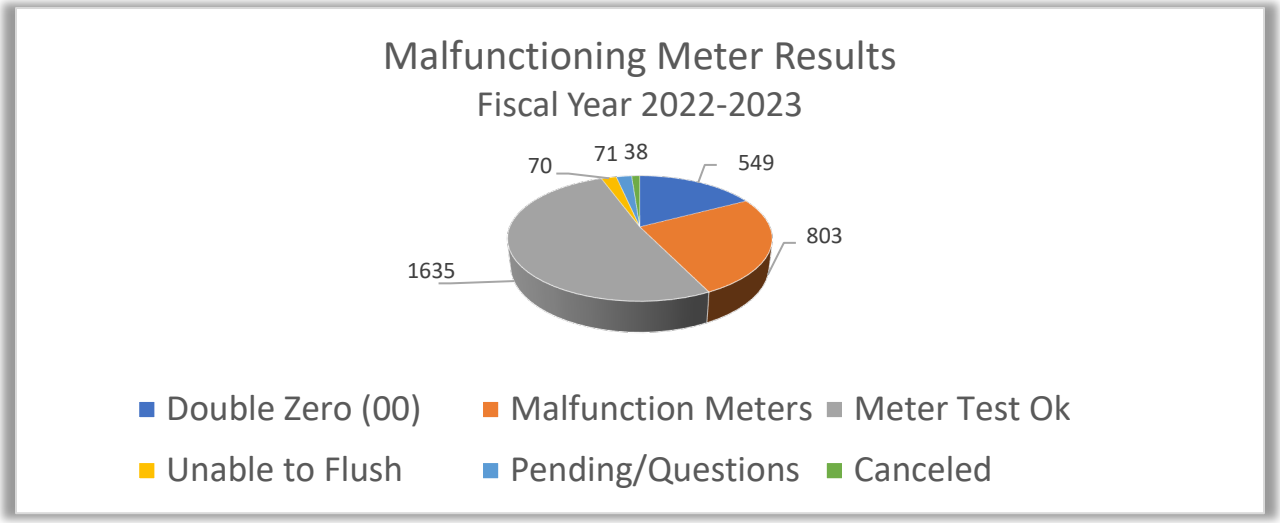


Figure 3: Malfunctioning Meter Results

Data Transfer / Archive Errors

There are a variety of data errors that can cause meter register consumption volumes to be less than the actual consumption volume. Types of errors in this category include meter read input errors or incorrect unit conversion factors. IRWD addresses these types of errors by requiring photographs of the meter read if the read falls outside of an acceptable range for that meter.

Other issues automatically generate meter re-read field activities for staff to review abnormal meter reads prior to processing customer billing.

Data Billing Errors

Errors in data can also result in apparent losses. These types of errors can occur from inaccurate meter read estimates, lapses in account activation that allow new customers to begin using water without meter readings, or delays between new services that are installed and the establishment of a billing account. IRWD addresses these types of errors by limiting the frequency of meter read estimates. The CC&B billing system autogenerates a field activity if a meter read is missing at the close of a bill cycle. This prompts staff to go out and get the meter read. In the event, staff were unable to retrieve a read, the billing system will estimate the volume of usage for that bill period. Staff routinely audit the billing system for consecutive bill estimates to identify potential issues. Staff may conduct field investigations to confirm the meter operates and obtain the read. Staff can also audit the billing system to identify meters that do not have a customer account associated with it. These situations are investigated in the field to identify the appropriate customer to assign and bill for service.

The water loss audit includes this category with a default assumption that 0.25% of all billed metered usage may fall into this category during any given audit period. If the audit validator approves documentation from a supplier's records, a different volume may be used but may never be zero. Inclusion of this category removes a portion of water that would otherwise be categorized as a real loss and appear as system leakage.

Theft

Water theft can occur from meter tampering so water use does not show up on the meter or by customers connecting to the system without following the proper process. Prevalent points of connection for theft are fire hydrants and on construction sites. IRWD implements a suite of strategies to address this type of water loss including the development of a Loss Prevention team with a dedicated email and hotline to make reporting easy for other District staff, customers and members of the public. Loss Prevention staff monitor the service area for incidences of unmetered hydrant usage, meter tampering, and meet with new developers at the onset of construction activities to review the District's connection policy and metering requirements. If unmetered or unauthorized connections are found, staff attempt to find the responsible party to explain the corrective action that is needed. Connections are removed and a meter tampering tag installed at the point of connection.

Successful programs require that all parties have a clear understanding about what is expected. To help communicate the expectations related to the District's connection policy to developers and customers IRWD developed an educational brochure. Staff proactively meet with construction industry professionals at the start of new construction projects. These Pre-Construction meetings provide responsible parties with information on the District's policies related to construction water use before construction activities begin. The Pre-Construction Brochure is included as Appendix C and includes the following information:

- A definition of unauthorized connections,
- Temporary meter application process,
- Contact information for key District staff and departments,
- Guidelines for best management practices that comply with District policy, and
- A description of the District's escalating enforcement action plan.

Unbilled Usage

There are many water uses that are authorized but not metered. Improving the ability to accurately measure these volumes can reduce apparent water loss. Installing meters for these water uses where possible removes this type of use from the unmetered category of the water balance and eliminates the need to rely on estimated water volumes in the annual water audit. The result is a more accurate water balance with which to inform water loss program efforts.

Fireline Usage

The purpose of a fireline is to supply water for fire suppression only. Therefore, firelines are billed a fixed monthly charge based on the size of the pipe and the number of hydrants. Unless there has been a fire, there should not be any usage on the fireline except minimal volumes for required fire system testing. Fireline usage is recorded on a small meter installed on a bypass line which captures only a portion of the total usage. A mathematical formula based on the diameter of the fireline pipe can be used to multiply the bypass meter reads to calculate the actual total volume of water that passed through the fireline pipe.

Firelines that show abnormally high water use are targeted for inspection to determine if there are unauthorized connections to hydrants or leaks. If unauthorized connections are discovered, customers are informed of the District's connection policy and required to get a temporary meter on the hydrants if water is needed for other uses. If there are leaks, staff work with the customer to encourage them to make repairs. If timely corrective actions are not completed, customers may be billed at the current Wasteful tier rate to incentivize them to make leak repairs or install a separate meter for the non-fire related water use.

Mainline Flushing

Newly constructed mainlines must pass water quality tests prior to connecting to IRWD's distribution system. These mainlines are cleaned by flushing water through the line at a high

velocity and super chlorination to remove bacteria and other contaminates. The volume of water used for the flush must be three times the volume of the mainline capacity. Following the flush and super chlorination is a series of two water samples that are collected on different days to ensure that the appropriate water quality is sustained. If the samples fail, the flushing and super chlorination activities are repeated and the whole process starts over again. In some cases, mainlines repeat this process numerous times and require several flushing events before passing all of the water quality tests. IRWD has the ability to bill for mainline flush water that exceeds a reasonable number of flushes. This approach provides an incentive to the contractor to ensure the line passes testing.

In 2017, IRWD began requiring meters for mainline flushes greater than 250 linear feet of pipe. This provided accurate volumes for this type of water use and reduced the volume of apparent losses reported in the annual water loss audit. Prior to this change, the flush volumes were based on the pipeline size calculations. This change had the added benefit of reducing the time and volume of water used for flushing events because flushing could stop once the meter recorded the required volume of use. When flushing activities were unmetered the water typically flowed for longer periods than were required to reach the calculated volume.

Real Loss Programs

Distribution system leakage is the area this category of water loss programs address. The four pillars recommended by the AWWA Water Loss Committee included active leakage control, pressure management, maintenance rehabilitation and repair, and speed and quality of repairs. Figure 4 shows the four program pillars encompassing the three levels of total real losses. The levels acknowledge that program activities should be based on cost-effectiveness and that there will always be some level of Unavoidable Real Loss. IRWD's real loss programs are cost effective and described in more detail below.

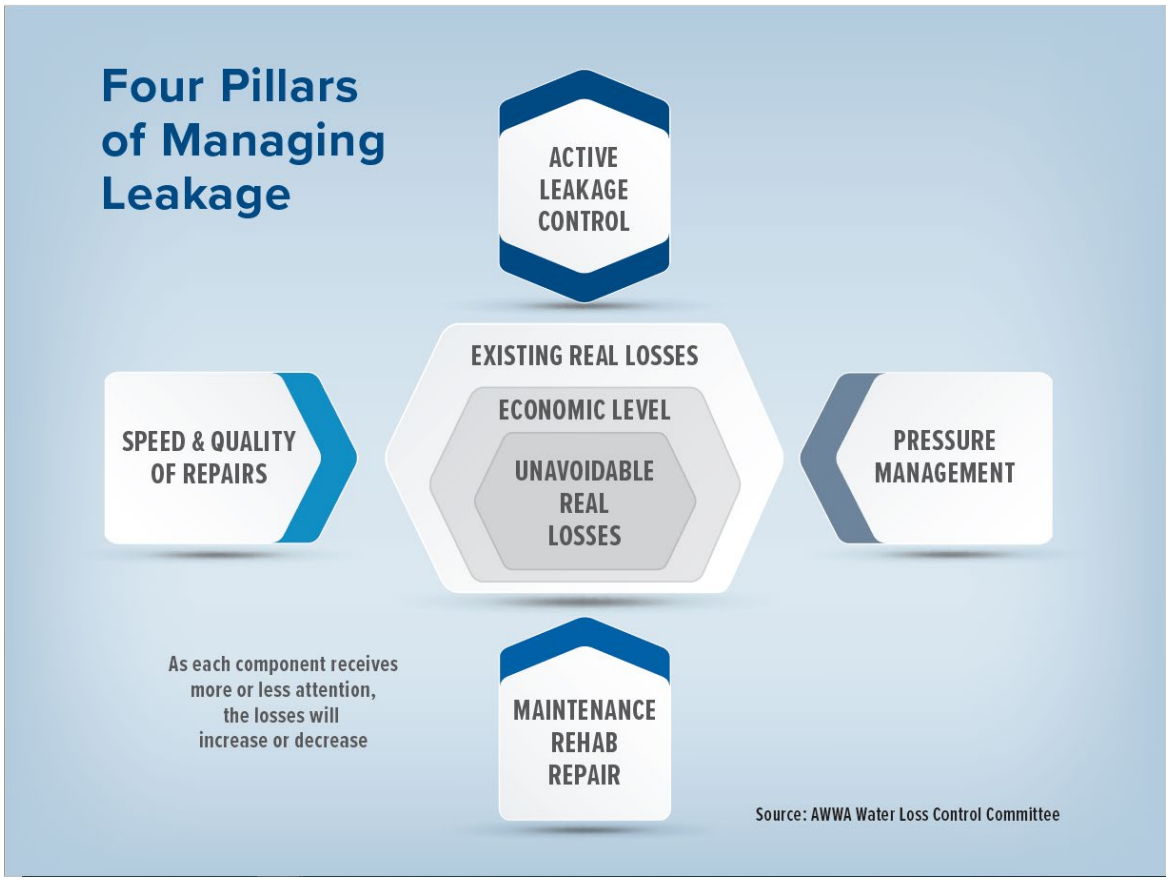


Figure 4: Four Pillars of Managing Leakage

Active Leakage Control

Proactive leak detection programs seek to find leaks before they surface and cause significant damage and require emergency repairs.

The District has had a proactive distribution system leak detection program in place since the early 1990s. Dedicated staff use acoustic leak detection equipment to survey the distribution system by walking and listening to the pipes for sounds of leaks. This program was evaluated by

consulting firm WSO as part of the Component Analysis in 2016 and found to be cost effective based on the volume of Hidden Leakage, the variable cost of water at the time, and program implementation costs[3]. Based on the analysis, WSO recommended that IRWD consider reducing the frequency of the whole system survey or implement a targeted approach. In 2023, the District sought technical assistance from consulting firm ESource to model leak simulations to determine the cost effectiveness of acoustic leak detection and evaluate the cost effectiveness of alternative strategies, such as installation of pressure monitoring equipment in lieu of staff walking the entire system. This analysis is expected to be completed at the end of 2023 and may lead to changes in IRWD's leak detection program. This plan will be updated as programs and procedures change.

Pressure Management

The District manages pressure to ensure water deliveries are optimized, efficient and adhere to distribution system requirements and capacities. Due to the wide range in pressure requirements, IRWD has placed Pressure Regulating Valves (PRV) throughout the distribution system. System pressures are monitored continuously at every pump station and at multiple PRV sites via the District's Supervisory Control and Data Acquisition (SCADA) system. In addition to remote monitoring, physical site inspections are conducted routinely. Repair responses are based on the assessed risk of the PRV failure and its potential impact to the system and the public.

Maintenance Rehabilitation and Repair

The District is in the process of the evaluation and development of a Capital Improvement Plan (CIP) for IRWD's potable and non-potable distribution systems. The project incorporates concepts such as desktop condition assessment, risk analysis, replacement costs, remaining useful life, and level of service. It is intended to standardize IRWD's approach to condition assessment and capital replacement and rehabilitation for pipelines and provide a clear framework for annual updates. This project is expected to be completed by the end of August 2024. The results from this project will generate Consequence of Failure Scores for each pipeline. This information can be used with the IRWD Replacement Planning Model to calculate a cost for consequence of failure per pipe segment. This information can be incorporated into the Leak Simulation Model to determine the most cost-effective leak detection strategies. As new information leads to changes in IRWD's approach to water loss control the programs and procedures described in this plan will be updated.

[3] Advanced Water Loss Assessment: Findings & Recommendations, Water Systems Optimization, April 2017

Speed and Quality of Repairs

The District has a Construction Services Department that is responsible for handling emergencies and scheduled repairs for the infrastructure. Any unscheduled repairs that arise from mainline breaks or other incidents are addressed immediately. If leaks are deemed non-emergency, which would include very small leaks that do not cause any property damage or pose any safety risks, repairs are completed as soon as practicable following the underground service alert process (USA). IRWD maintains a high level of customer satisfaction by responding promptly to all customer service requests and repairs water leaks with minimal impact to customers. This industry best practice also reduces water loss, reduces property damage, and maintains positive public relations.

Section 4: Policy Implementation

State Water Loss Regulation

The State of California passed Senate Bill (SB) 555 in 2015 to mandate water loss reporting and adherence to a water loss standard. Following in 2018, the governor signed into law Assembly Bill 1668 and SB 606 known jointly as the "Making Conservation a California Way of Life" legislation which also includes water loss as a component of urban supplier's water use efficiency objectives. IRWD actively engaged in the development and rulemaking process for the water loss standard. IRWD participated in several committees and provided comments and data to support the development of the water loss performance metric and compliance schedule. IRWD tested and provided input on the State Board Economic Model to calculate the cost effectiveness of water loss programs and provided comments on questionaries on Data Quality and Pressure Management, and presented to the State Board on multiple occasions.

SB 555 required each urban retail water supplier submit to the Department of Water Resources (DWR) completed Water Loss Audits by January 1 of each year starting in 2017. Prior to submittal to DWR, audit data and all of the supporting documentation must be reviewed and verified by a third party "Data Validator". DWR does not accept unvalidated audits. The water loss standard set by the State Board is unique for each supplier based on the data reported in their validated audits from 2017 through 2020. The District's water loss standard is 20 gallons per connection per day (GPCD). Compliance will be determined based on a rolling 3-year average and include a five GPCD margin of error. The margin of error is in place to accommodate the expected fluctuations in audit results year to year due to the number of dynamic variables that are included. Annual reporting is ongoing with compliance beginning in 2028 which will be based on audits for years 2025, 2026 and 2027.

IRWD Rules and Regulations

District policies govern day-to-day operation and are detailed in IRWD's Rules and Regulations. Support for water loss control programs are included in the following sections and are included in full in Appendix B:

- Illegal connections, diversions and tampering (Section 4.7)
- Meter testing (Section 4.8)
- Fire hydrant use (Section 4.9)
- Enforcement and penalties (Section 14)

The Rules and Regulations provide the authority to remove illegal connections, bill for unmetered usage, levy fines and terminate service for non-compliance. For corrective actions related to illegal connections and meter malfunction, the IRWD rate structure provides support in

several ways. A key component of the rate structure is the use of water budgets for each bill period. Meters that malfunction and stop recording usage have the missing usage calculated using the account's average percentage of usage to budget. This approach is defensible and accurate at the customer level and enables the District to recover lost revenues through "back billing" the customer in these instances. The Back Billing procedures are included as WLP 2.

Firelines with consistent abnormal usage can be billed at the Wasteful tier rate as an incentive for customers to make repairs to leaks or obtain a temporary meter if needed. The Fireline Loss Prevention Procedures are included as WLP 6. Other compliance tools include escalating actions such as fines, fees, and disconnection of service. These tools are a last resort as education and guidance are often effective at helping customers and water users understand and follow IRWD's Rules and Regulations.

Section 5: Planned Activities and Programs

The District's water loss control programs have been modified over time and will continue to adapt. This plan is designed to evolve and adapt to changes in the way water loss is managed and at a minimum, will be revised to align with the District's two-year budget cycle. There are several planned activities that will evaluate existing programs as well as new opportunities, as described below.

Water Loss Gap Assessment: IRWD is working with consultant ESource to evaluate its water loss practices through a water loss gap assessment. The aim of the assessment is to better understand water loss in IRWD's water distribution system by improving the accuracy of inputs in the water audit and leakage tracking. The gap assessment identifies opportunities to reduce the uncertainty around the volume of loss calculated by the water audit. Improvements in water loss data and maintenance practices will result in an audit that better represents IRWD's distribution system, which will lead to more informed efforts to reduce water loss in the long term. The gap assessment is expected to be completed by the end of 2023.

Leak Simulator Model: consultant ESource is developing a simulation model that will evaluate optimal, cost-effective leakage control strategies. The model, which is expected to be completed by the end of 2023, will estimate future system-wide loss rates under varying assumptions for leakage characteristics and loss recovery efforts that can be compared with state regulatory targets or other performance goals. Results from the Capital Improvement Plan also are expected to be available by the end of 2023 and can be incorporated into the leak simulation.

Sewer Line Cleaning Truck Meters: sewer line cleaning uses water from vacuum trucks. Vacuum truck fills are currently unmetered. This water volume is therefore not accounted for in the water loss audit and is categorized as a real loss. By accounting for this volume of water, it will move out of the real losses category into the metered unbilled category of the audit.

Firelines: bypass meters on firelines only capture a small portion of the total water used and these may be stolen or the bypass valves turned off. Staff is evaluating a program that would encourage customers to install locking devices on valves to prevent them from being turned off. The devices have the added benefit to the customers of deterring theft. Ensuring firelines are properly metered will minimize losses from unauthorized use and leaks.

Revenue Recovery: staff will evaluate unmetered uses, and develop recommendations for consideration in the next budget and rate-setting process, as to whether any of those uses could be billed to recover revenues.

Data Analysis: staff will review data and evaluate opportunities for improvements to reduce apparent losses from data errors.

Policy Engagement: IRWD will continue to engage with policy makers on legislation and implementation of the regulations related to water loss.

IRWD Baseline Water Balance

(Acre Feet)

<table>
<tr><td rowspan="6">Water Supplied
54,828</td><td rowspan="3">Authorized Consumption
51,409</td><td rowspan="2">Billed Authorized Consumption
50,779</td><td>Billed Metered Consumption
50,779</td><td rowspan="2">Revenue Water
50,779</td></tr>
<tr><td>Billed Unmetered Consumption
0</td></tr>
<tr><td rowspan="2">Unbilled Authorized Consumption
630</td><td>Unbilled Metered Consumption
229</td><td rowspan="5">Non-Revenue Water
4,049</td></tr>
<tr><td>Unbilled Unmetered Consumption
401</td></tr>
<tr><td rowspan="3">Water Losses
3,419</td><td rowspan="2">Apparent Losses
818</td><td>Unauthorized Consumption
137</td></tr>
<tr><td>Customer Meter Inaccuracies
554</td></tr>
<tr><td>Data Handling Errors
127</td></tr>
<tr><td colspan="2">Real Losses
2,601</td></tr>
</table>

Average of Fiscal Years 2016/17 - 2019/20

Appendix A: Water Loss Program Procedures

WLP 1 - Malfunctioning Meters Procedures

WLP 2 - Back Billing Procedures

WLP 3 - Mainline Flushing Procedures

WLP 4 - Leak Detection Procedures

WLP 5 - Meter Replacement Procedures

WLP 6 - Fireline Usage Procedures

WLP 7 - Water Loss Audit

WLP 1 - Malfunctioning Meter Procedures

DEFINITION

A malfunctioning meter is a meter that has failed to record usage because the register is stopped, only registering intermittent usage, or tampering has occurred.

GENERAL PURPOSE

- To outline the process for running the malfunctioning meter report.
- To identify, inspect and replace meters that are not working properly for various reasons.
- To prioritize these meters for replacement to minimize revenue and apparent losses.

Malfunctioning Meter Identification:

CC&B data is routinely monitored to detect potentially malfunctioning meters. Malfunctioning meters are identified by type and a Zero Usage Field Activity (FA) is created. As shown in Table 3: Zero Usage Field Activities, each type of Zero Usage FA is treated with a specific corresponding action:

Table 3: Zero Usage Field Activities

Zero Usage Field Activity Type	Action
"00" Meters: meters that repeatedly stop recording usage when the last two digits of the read are 00.	Meter Exchange FAs are automatically generated for these to be replaced by Field Services.
Regular Zero Usage Meters: meters with consecutive months of zero usage.	These meters are investigated in the field by Loss Prevention.
Duplicate Meters: meters that have previously appeared on the Regular Zero Usage list.	The report includes the comments from previous field investigations to inform Loss Prevention staff of what action to take.
Looped and Pooled: two or more meters connected together to feed the same end uses; meter malfunction may be hidden by the usage recorded on the other meter.	The meter read data is reviewed to identify meters that have stopped registering usage. These meters are investigated in the field by Loss Prevention and flow tested.
Commercial, Industrial, and Institutional (CII) Account Start: meters at new CII accounts with more than six months of zero water use on the meter after the account starts.	These meters are investigated in the field by Loss Prevention.

PROCESS

Malfunctioning meter reports are uploaded into CC&B to generate FAs for all potentially malfunctioning meters. Zero Usage FAs are then automatically synced from CC&B to Field Mapplet Console and then organized into folders in Field Mapplet for on-site inspections. Each FA is completed and closed out using Standardized Comments shown below in Table 2 to help inform future actions based on the following findings:

Malfunctioning Meters: Zero Usage FA's completed where the meter was malfunctioning auto populate a Meter Exchange FA to Meter Shop when the "Action" selected is "Meter Malfunction". Completed Zero Usage FAs are monitored for first new meter read and then sent to Customer Service for back-billing per Back Billing procedures (WLP 2).

Tampering. Zero Usage FA's completed where meter tampering occurred, will be back-billed by according to the WLP 2. When reasonable evidence exists that meter tampering has occurred, the customer may be charged an administrative fee and charged for the cost of repairs due to damage from tampering and assessed a penalty or fine at the discretion of the District pursuant to District Rules and Regulations.

- Document, photograph and video all evidence that tampering has occurred.
- Any additional actions, notes or comments shall be entered into the Zero Usage and Meter Exchange FA and CC&B using "Customer Contacts".

Operates Normally. Zero Usage FA's will be completed using the Standardized Comment and no further action is required. Comments will be included should the meter appear on the malfunctioning meter report again in the future.

The malfunctioning meter workflow required coordination with the meter reading contracted service, IRWD Customer Service, Water Efficiency, and Field Services departments as shown in Figure 5. This workflow ensures accurate data collection and reporting required to support the Back Billing process (WLP 2).

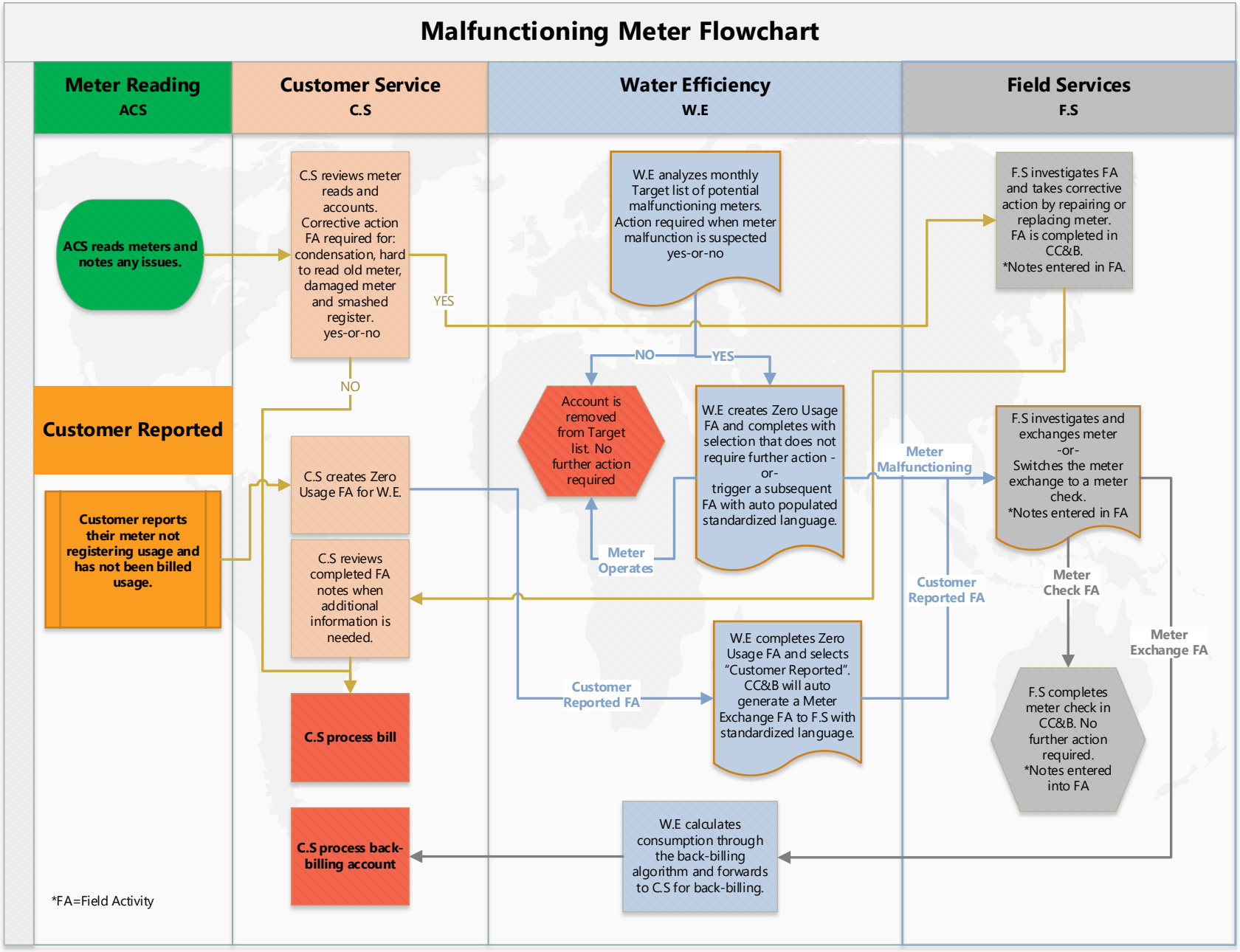


Figure 5: Malfunctioning Meter Flowchart

PROCEDURE

Zero Usage FA's that required field inspections should be organized by the route feature in Field Mapplet for efficient use of vehicles and time.

1. Review meter information
    a. The CC&B Service Descriptor may include details on what this meter serves, such as building, landscape, cooling towers, suites, pools etc.
    b. Read all FA instructions before exiting truck
2. Locate the meter
    a. Verify meter number
    b. Get current meter read
3. Conduct a visual inspection
    a. Meter installed correctly
    b. Signs of tampering
    c. Missing or damaged register
    d. Dials:
        i. Stuck dials
        ii. Are multiple dials rolling over
4. Flow test - (Do NOT flow test fire lines)
    a. The flow test points for the exterior and interior of Potable and Recycled meters are listed below.

- Potable: Residential, Commercial, Industrial, Landscape
    - Exterior: Hose bib, Backflow bleeder valve, Irrigation valve/sprinklers
    - Interior: sinks and toilets
- Recycled: Residential irrigation, Commercial irrigation, Industrial, Landscape
    - Exterior: Backflow bleeder valve, Hose connection (inside green irrigation box), Irrigation valve/sprinklers
    - Interior: Toilets (in rare cases only, mostly high rise buildings and public restrooms)

5. .Meter evaluation based on visual inspection and/or flow test.
    a. Meter operates normally
    b. Register damaged, removed or missing
    c. Meter malfunctioning
    d. Registering low flow only
    e. Registering high flow only
    f. Unable to determine
    g. Other
6. Service evaluation

a. Occupied
    i. Service is on/off-(check backflow if applicable)
    ii. Landscape on/off-(check backflow if applicable)
    iii. Vacation
    iv. Construction
b. Vacant
    i. Service is on/off-(check backflow if applicable)
    ii. Landscape on/off-(check backflow if applicable)
    iii. Construction

Based on the meter and service evaluations, Zero Usage FAs are updated with the Finding Type which will automatically send FAs to Field Services for follow up actions, if required. Table 4: Standardized Field Activity Comments shown below, includes the Finding Types and corresponding actions.

Table 4: Standardized Field Activity Comments

Finding Type	Standardized Comments	Follow-up Action
Meter Check	Unable to flow test – please check meter and replace if necessary	Meter Check FA sent to Field Services
Replace	Stuck 00 Meter	Meter Exchange FA automatically sent to Field Services. No field inspection.
	Stuck Meter – dial sticks	Meter Exchange FA sent to Field Services after meter inspection.
	Dead Meter – dial does not turn	
	Meter Tampering	
Cancel	Low Volume User	Zero Usage FA closed. If the meter appears on future Malfunctioning Meter reports it will include the comment.
	Vacant	
	Model Unit	
	Slope	
	Apartment Hose	
	Parks Restroom	
	Landscape Renovation	
	Maintenance Bldg	
	Fire Suppression	

	Drinking Fountain	
	UFT (unable to flow test)	
Looped and Pooled	LP off FT	
	LP Off UFT	
	LP Locked	

WLP 2 - Back Billing Procedures

DEFINITION

Creating a customer bill to charge for previously unmetered and unbilled usage.

GENERAL PURPOSE

The intent of this procedure is to create and automate the customer account back-billing (back-billing) process in a manner that is equitable to both the customer and the District and complies with state law. In the interest of continuous improvement, this process will be periodically reviewed and modified, as approved by the Executive Director of Finance.

PROCESS

Back billing is processed in a manner that is cost-effective to the District. Currently meter reads from accounts that were not originally billed must be manually entered into CC&B. This process may be automated in the future. Any proposed changes from the current process requires approval from the Executive Director of Finance.

Dispute Resolution

Customers may dispute the back-bill charges by contacting the District and providing any pertinent documentation. The District may request additional information from the customer. Back-bill dispute adjustments require approval from the Executive Director of Finance.

Roles and Responsibilities

Water Efficiency

- Identification of accounts that require back-billing due to malfunctioning meters and other reasons related to Loss Prevention Program activities.
- Establish the back-billing methodology for calculations.
- Automation of the back-billing calculations based on the approved procedures and data upload into CC&B.
- Provide regular updates and recommend procedural modifications as necessary to upper management. Coordinate with Information Services (IS) and Customer Service (CS) on CC&B back-billing implementation.

Customer Service

- Determine customer notification thresholds.
- Place customer notification phone calls for customers with back-billing results that exceed the established thresholds.
- Customer correspondence as appropriate.

- Coordinate with Water Efficiency and IS on CC&B back-billing implementation.

Procedures

Primary Methodology: Residential, Commercial, Industrial, Landscape accounts

The monthly usage for the months that were not previously billed will be estimated using the historical percent of budget for each of the months that require back-billing. A prior three-year historical percent of budget will be used for the same month requiring back-billing. If the IRWD budget calculation changed during the back billing period, it will be reviewed on a case-by-case basis.

Example:

July	Billed	Budget	Percent	Estimated
2023	Stopped	100 ccf	**89%**	**89 ccf**
2022	80 ccf	90 ccf	89%	-
2021	100 ccf	110 ccf	91%	-
2020	70 ccf	80 ccf	88%	-
			Average = **89%**	-

Primary Methodology: Agricultural, Lake Filler accounts

The usage for the months that were not previously billed will be calculated using a prior three-year historical usage for the same month requiring back-billing.

Example:

July	Billed
2023	Stopped
2022	80 ccf
2021	100 ccf
2020	70 ccf
Average =	83 ccf
Estimated =	**83 ccf**

Secondary Methodology: Residential, Landscape accounts

In the absence of historical usage, the estimated usage will be calculated using the average percent of budget for the customer's Service Point type (SP) and analogous peer group.

The analogous peer group includes:

1. Same SP Type, Village, and/or ET Zone.

Secondary Methodology: Commercial, Industrial, Agricultural

In the absence of historical consumption data, the customer shall be charged using a reasonable calculation approved by the Executive Director of Finance.

Secondary Methodology: Lake Fillers

In the absence of historical data the usage will be calculated using the monthly ET data and the surface area of the lake to estimate the evaporative loss.

WLP 3 - Mainline Flushing Procedures

DEFININTION

Newly constructed pipelines must meet stringent water quality standards to ensure the lines are clean and free of contaminants before connecting to the IRWD system.

GENERAL PURPOSE

Flushing high water at a high velocity through new pipelines clears the line in preparation for water quality testing. The volume used to flush the line must be two and a half to three times the volume of the pipeline capacity. Sequential water quality testing is then conducted over the course of several days to ensure there are no contaminants present.

PROCEDURES

Flushing for newly constructed mainlines that are longer than 250 feet is metered. This practice provides an accurate record of the water used and appropriately allocated to the Authorized Unbilled Metered category of the water loss audit. Metering flushing has the added benefit of ensuring that water is not wasted since the flushing can stop once the meter reaches the required volume for the flush rather than trying to time the duration required to flush the required volume of water.

Prior to heading to the proposed starting area of the flushing activity, the following shall be performed:

- Pre-trip vehicle that is to be utilized for the day
- Assemble all proper equipment, materials and tools and insure they are in good working order
- Ensure all PPE is operable

Upon arrival to the proposed starting area of the flushing area, find the safest area on the street or construction site to park. Utilize high visibility arrow bar, strobe lights, flashers and traffic cones when needed. Place a safety cone behind the vehicle when parked. Safety vests (class 2 or 3) are to be donned prior to exiting the vehicle. Be aware of the speed limits in your area and wear the appropriate vest type.

Prior to the mainline flushing procedure, backflow and pressure test must pass.

1. **Backflow and Pressure Testing**
    a. Must be completed and passed.
2. **Meter**
    a. Contractor applies for a flushing meter.
    b. Loss Prevention staff provides the meter to the developer/contractor to install.
3. **High Chlorination**

a. After the backflow and pressure tests pass, the contractor injects chlorine into the line to reach 100 parts per million (ppm).
b. The line then sets for 24 hours to allow the chlorine time to neutralize any bacteria in the line.
c. Record meter read at the end of the chlorination to ensure that no water is used during the required contact period.

4. **Sample Collection**
    a. Collect a sample to check chlorine residual at the feed point for comparison with the chlorine residual at the flushing point. This identifies potential trouble spots or sample points and can indicate if the line contains significant contaminations. Sometimes a higher flush flow rates is needed to move the chlorine all the way through the line.
5. **Flushing**
    a. Begin the flush.
    b. If flushing into the sewer, notify the Collections Department and ensure the flow rate does not exceed 150 gpm.
    c. When the required volume of flush water has passed through the meter, stop the flushing and notify the site's IRWD inspector.
    d. Record the time to begin the required 24-hour waiting period. This time is to ensure any remaining bacteria are eliminated.
    e. After the 24-hour contact time, the IRWD inspector collects one or more samples and delivers to the IRWD laboratory to be tested for bacteria (BacT).
    f. If the first set of samples pass, a second set of samples are collected and delivered to the laboratory for BacT testing.
    g. If the second set of samples pass the line is approved to connect to the IRWD system. If the second set of samples do not pass then a Reflush is required.
6. **ReFlush**
    a. If one of the samples fail, a second flushing will be conducted without the need of a high chlorination process. If this third set of samples fail then the line must begin again at the High Chlorination step and subsequent flushing and sample collection process.

WLP 4 - Leak Detection Procedures

DEFINITION

Using acoustic or other leak detection equipment to routinely survey the IRWD distribution system for unsurfaced leaks.

GENERAL PURPOSE

To minimize distribution side leaks that require emergency repair and pose significant negative impacts to the community. Leaks found through proactive leak detection activities can have repair work scheduled during normal work hours and can reduce the total volume of water loss that would have otherwise occurred due to the undetected leak.

PROCEDURE

Receive a work location for the leak detection survey from the Water Maintenance Supervisor. Utilize the Maximo work order to determine the starting point for the day's work if one hasn't been assigned. Review mapplet to note all potential listening contact points that will be accessed for the leak detection process:

- Mainline valves
- Fire hydrants
- Metered services
- Air Vacs
- Blow Offs

The Water Maintenance Supervisor will compile all information, including the leak detection location, and add it to the department daily that is forwarded to other departments. Use the most recent copy of the "Daily Activity for Departments 425 and 430". To ensure all relevant staff are informed, complete the appropriate section of the form with the following information:

- Employee name
- Vehicle number
- Office phone number
- Cell phone number
- Village name
- Street names within the village to be surveyed

Prior to heading to the proposed starting area of the leak detection survey, the following shall be performed:

- Pre-trip vehicle that is to be utilized for the day
- Assemble all proper equipment, materials and tools and insure they are in good working order

- Ensure all PPE is operable

Upon arrival at the proposed starting area of the leak detection survey, find the safest area on the street to park. Utilize high visibility arrow bar, strobe lights, flashers and traffic cones when needed. Place a safety cone behind the vehicle when parked. Safety vests (class 2 or 3) are to be donned prior to exiting the vehicle. Be aware of the speed limits in your area and wear the appropriate vest type.

MAINLINE SURVEY

Mainline survey is to be performed by two employees working together in one assigned vehicle.

Select mainline valve, metered service, fire hydrant, air vac or blow off to be listened to for leak sounds. Decide on the safest way to perform and complete the task. If an issue requires further investigation when listening to mainline valves for leaks, follow the following procedure:

- Employee 1 with electronic listening device stands watch for hazards
- Employee 2 with tools performs the task of opening the valve can lid
- Employee 2 stands watch
- Employee 1 listens to valves for leak sounds
- Employee 2 closes valve can lid
- Employees 1 and 2 retreat to safe area in assigned vehicle

Select the next valve to survey and drive to its location with high visibility arrow bar and strobe lights on. Drive along water mainline to the next listening point and repeat the above-mentioned process.

LEAK LOCATING / PINPOINTING PROCEDURES

Confirming a possible district side leak on a metered service line when no water is surfacing:

- Note settings on amplifier volume, gain and meter display
- Turn off the customer side valve and the district angle stop
- Carefully remove water meter
- Listen to angle stop for leak sounds and note settings on electronic listening device
- If there is no increase in the leak sound, check for ambient mainline flow sound
- If there is still no increase in leak sound, document the location of a possible leak noting all electronic listening device settings.
- A return work order will be issued at a later date and time to listen for leak sounds. Use previously noted electronic listening device settings to confirm a leak.

Confirming a district mainline valve leak when water is surfacing:

- Note settings on amplifier volume, gain and meter display
- Check Field Mapplet for a valve description as butterfly or gate type
- Using a valve key, confirm that the valve is fully open
- If valve stack is filled with water, pump out water prior to using electronic listening device
- Listen to valve for leaks sounds and note settings on electronic listening device
- If there is no increase in the leak sound, check for ambient mainline flow sound
- If there is still no increase in leak sound, document the location of a possible leak noting all electronic listening device settings.
- A return work order will be issued at a later date and time to listen for leak sounds. Use previously noted electronic listening device settings to confirm a leak

If a leak is pinpointed and confirmed to be a district side leak certain procedures and policies are to be followed.

- Mark out proposed repair excavation area in white chalk paint (concrete or asphalt).
    - If the area is not of a hard type surface, the use of stakes or white flags is acceptable.
- Call 811 Underground Service Alert.
- The leak detection personnel who identified the leak must initiate a work order in Maximo. Include the following information:
    - Requestors name.
    - Department number.
    - Current Date.
    - Address or location of work to be performed.
    - System Type (domestic or reclaimed).
    - Copy of USA Ticket.
    - Pictures.
    - Detailed description of work to be performed.
    - City inspector’s contact information.
    - Vacuum contact list.
- Submit work order.
- Follow up on the completed repair.
    - Retrieve damaged pipe material.
    - Complete a Field Mapplet LT log with the following information:
        - Location.
        - Leak Type.
        - G.P.D
        - Repair Date.
        - Meter Number.

- System Pressure.
- How Determined.
- Staffer Name.
- Damaged Part.
- Type of Break.
- Pipe Material.
- Type of Soil.
- Existing Bedding.
- Type of Cover.
- VWR.

WLP 5 - Meter Replacement Procedures

DEFINITION

Mechanical meters are designed to perform at a standard accuracy rating. This accuracy degrades overtime leading to apparent losses and the associated revenue loss. District meters are proactively replaced based on a predetermined lifetime based on the size and type of meter.

GENERAL PURPOSE

To ensure all revenues for water sales are realized by proactively removing meters that may be under performing based on their age.

PROCEDURE

IRWD meters are replaced based on the following lifetime schedule:

Meter Size and Type	Replacement Cycle (years)
5/8”, 3/4", 1”, 11/2”, 2” Disc	17
2” Turbo	5
3” Turbo	3
4” Turbo	2
6”, 8”, 10” Turbo and Propeller	1

Malfunctioning meter replacement identification and processing are described in WLP 1.

WLP 6 - Fireline Usage Procedures

DEFINITION

Firelines are billed a fixed monthly service charge based on the size of the fireline, rather than based on volumetric use. Consequently, unnauthorized connections, leaks and water waste may occur unnoticed by the customer since the usage information is not included on the bill. Furthermore, meters on these lines are installed on a bypass line which captures only a portion of the total usage. Since the customer does not pay based on the volume of water used on a fire line, there is no financial incentive for the customer to stop the usage or fix leaks other than the potential to avoid property damage. In addition, firelines with no usage for extended periods of time may have a malfunctioning meter or the meter may have been tampered with to hide the unauthorized usage.

GENERAL PURPOSE

To address unauthorized usage on firelines and ensure connections to the system align with District connection policy.

PROCEDURES

Firelines with consistent or abnormal usage are identified in the CC&B meter read data by Water Efficiency. Accounts showing usage are grouped by the customer. This enables staff to efficiently correspond with customers who may have multiple firelines showing usage. Staff can also prioritize outreach based on the volume of usage. Table *5* below provides the communication strategy and escalating actions that are employed if needed. Staff plans to develop informational materials to provide to the customers and Corrective Action Notice forms to better document findings and track compliance.

Table 5: Firelines with Usage Communication Strategy

Action	**Details**
On-site inspection (IRWD staff)	The firelines and surrounding areas will be inspected in an attempt to determine the cause of the abnormally high usage. Cause of high use may be due to leak, unauthorized hydrant connection, or unknown
Contact Customer	Usage over wasteful usage threshold (as determined by IRWD)

Corrective Action Notice	First time informing customer of the issue. Include some language on the leak, IRWD Rules and Regulations (R&Rs) and documentation of issue. Include date for compliance with corrective action - 2 weeks and that staff will follow up then.
Corrective Action Extension	Upon follow-up, if customer demonstrates a "good faith" effort to correct the issue, extensions may be granted in two-week increments. Documentation may be required for subsequent extensions.
Written Warning	Informs customer of IRWD R&Rs in more detail and CA water code, consequences for non-compliance and includes documentation of IRWD investigation and previous communications to the customer on the incident. Inform the customer that IRWD may bill for the usage at the Wasteful rate.
Notice of Violation	Includes information from Written Warning and potential fine.

WLP 7 - Water Loss Audit Procedures

The AWWA Water Loss Report v6 has five sections that require data inputs to calculate the water loss KPIs, such as apparent losses (gpcd),real losses (gpcd), and Infrastructure Leak Index. The inputs for the five sections and their subsections are outlined below:

Water Supplied

- *Volume from Own Sources:*
  - IRWD uses the Purchased Potable Well Water volumes from the Operations Report. The meters on the supply lines vary in configuration. Depending on the meter placement, the well wastewater may need to be subtracted from the total volume on the supply meter because this water does not enter the distribution system (see Figures at the end of this section).
  - Well waste volumes are diverted before the meter so the total from the well meters for the following facilities is used:
    - Dyer Road Well Field (DRWF) wells 1, 2, 4, 11, 12, 14, and 18
    - Deep Aquifer Treatment System (DATS)
    - PTP System Facility
    - 21/22 Desalter Treatment Facility
    - Orange Park Acres (OPA) Well (System)
    - Lake Forest Well (Osterman)
  - Well waste volumes from Wells 3, 5,6, 7, 10, 15, 16, and 17 need to be subtracted from the DRWF System Well Water Volume because this water did not enter the system.
- *Volume from Own Sources: Master meter and supply error adjustment*
  - IRWD gets this data from the Operations department from the Reservoir Storage Report.
  - This provides data on the 39 Storage Reservoirs that IRWD maintains.
- *Water Imported*
  - IRWD uses the Purchased Potable and Inter Agency Connections volumes from the Operations Report.
  - Well waste volumes are diverted before the meter so the total from the well meters for the following facilities is used:
    - Metropolitan Water District (MWD) Feeder Turnout
    - MWD Allen McColloch Pipeline (AMP) Turnout
    - Laguna Beach Water District (LBWD) Turnout

        - Aufdenkamp Turnout
        - East Orange County Water District (OCWD) Turnout
        - Baker Water Treatment Plant (BWTP) IRWD Allocation
- *Water Imported: Master meter and supply error adjustment*
    - MWDOC provides the MWD supply meter Error Number (EN) (%) testing and calibration reports annually.
    - Use the formula provided in the AWWA M36 Manual:
        - CV = OV*(1/(1-EN)-1)
          where:
          CV= Corrected Volume (AF)
          OV= Original Volume (AF)
          EN = Error Number (value less than 1.0)
    - IRWD supply mag-meters are not volumetrically flow tested due to limitations with their pipeline and meter configuration. These mag-meters are only tested electronically.
- *Water Exported*
    - IRWD uses data from both the Operations Report and Finance Water Flow Consolidated Report for the exported volumes because they are different types of supplies provided to a neighboring water district, Trabuco Canyon Water District (TCWD).
        - TCWD (Finance) – are volumes billed by IRWD to TCWD for TCWD customers who are connected to IRWD's system.
        - TCWD (Operations) – is the volume supplied by IRWD direct to TCWD's distribution system.
        - IRWD also exports water to the El Toro Water District which is another exported volume.

Authorized Consumption

- *Billed-Metered Consumption*
    - Staff queries CC&B for the billed usage of all potable meters within the fiscal year. This includes the prorated usage volume on meters with billing period that overlap the fiscal year dates.
- *Billed-Unmetered Consumption*
    - IRWD does not have this type of customer in the service area, so it gets marked as 0 in the report
- *Unbilled-Metered Consumption*

  - Staff queries CC&B for all unbilled potable water usage including fire lines and street sweeping within the fiscal year. This includes the prorated usage volume on meters with billing periods that overlap the fiscal year start and end dates.
- *Unbilled-Unmetered Consumption*
  - IRWD uses the default % provided in the AWWA audit software to account for the other unmetered usage on firefighting events on nearby areas.
- *Apparent Losses*
  - IRWD currently uses the default percentage provided in the AWWA audit software.
  - IRWD collects data on a variety of unauthorized consumption to compare with the default percentage volume. This volume may be used instead of the default if approved by the audit data validator.
- *Customer Metering Inaccuracies*
  - Staff queries all the potable meter usage that falls within the fiscal year and applies the inaccuracy (%) per meter size. This includes the prorated usage volume on meters with billing periods that overlap the fiscal year start and end dates.
  - The usage on malfunctioning meters from queried data including the pro-rated usage is also calculated.
  - The meter error adjustment is calculated using the AWWA M36 formula
- *Systematic Data Handling Errors*
  - Staff uses the default percentage (0.25%) from the AWWA audit software because no data exists on data handling errors currently.

System Data

- *Length of Mains*
  - Planning (GIS) provides the length in miles for Mainline and Fire Service lines only. Laterals are not included in the length total.
- *Total Number of Active and Inactive Service Connections*
  - Staff queries all service points with active and inactive accounts from the CC&B database. In some areas, Recycled water meters may be supplied by potable water due to water quality or other recycled water system supply constraints. These service points are still coded as recycled in the CC&B database so must be known in advance and queried separately.
- *Average Operating Pressure*
  - Planning provides data from the Hydraulic Pressure Model to get the average pressure.

Cost Data

- *Total Annual Cost of Operating the Water System*
    - Finance provides the total operating cost of the water system.
- Current Retail Unit Cost (CRUC) is applied to Apparent Losses
    - Finance calculates the CRUC by using the Total Commodity Cost + Total Pumping Cost. The sum is divided by total Potable Sales Volume.
- Variable Production Cost is Applied to Real Losses
    - The cost for imported supplies is used. This does not include the MWDOC Readiness to Serve or meter charges since these are fixed charges and would not change in relation to the volume purchased.

Once data is entered into the 'Worksheet' tab of the AWWA audit software, there are 19 grading categories in the 'Interactive Data Grading' sheet that correspond to each of the data inputs. This gives the Water Audit Data Validity score (1-100) and an associated tier as shown in *Table 6* below. All data provided for the audit is then validated by a third party to ensure that the data and scoring are accurate.

Table 6: AWWA Audit Data Validity Matrix

AWWA Free Water Audit Software: Determining Water Loss Standing

FWAS v6.0

Water Audit Report for: Irvine Ranch Water District

Audit Year: 2021 Jul 01 2020 - Jun 30 2021

Data Validity Tier: Additional data entry required

Water Loss Control Planning Guide

	Water Audit Data Validity Tier (Score Range)				
Functional Focus Area	**Tier I (1-25)**	**Tier II (26-50)**	**Tier III (51-70)**	**Tier IV (71-90)**	**Tier V (91-100)**
Audit Data Collection	Launch auditing and loss control team; address supply metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations; Identify data gaps; improve supply metering	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs; Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or AMR/AMI system	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon with PIs for performance comparisons for real losses	Performance Benchmarking with PIs is meaningful in comparing real loss standing	Identify Best Practices/ Best in class; PIs are very reliable as real loss performance indicators for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

SUPPLY METER CONFIGURATION FIGURES

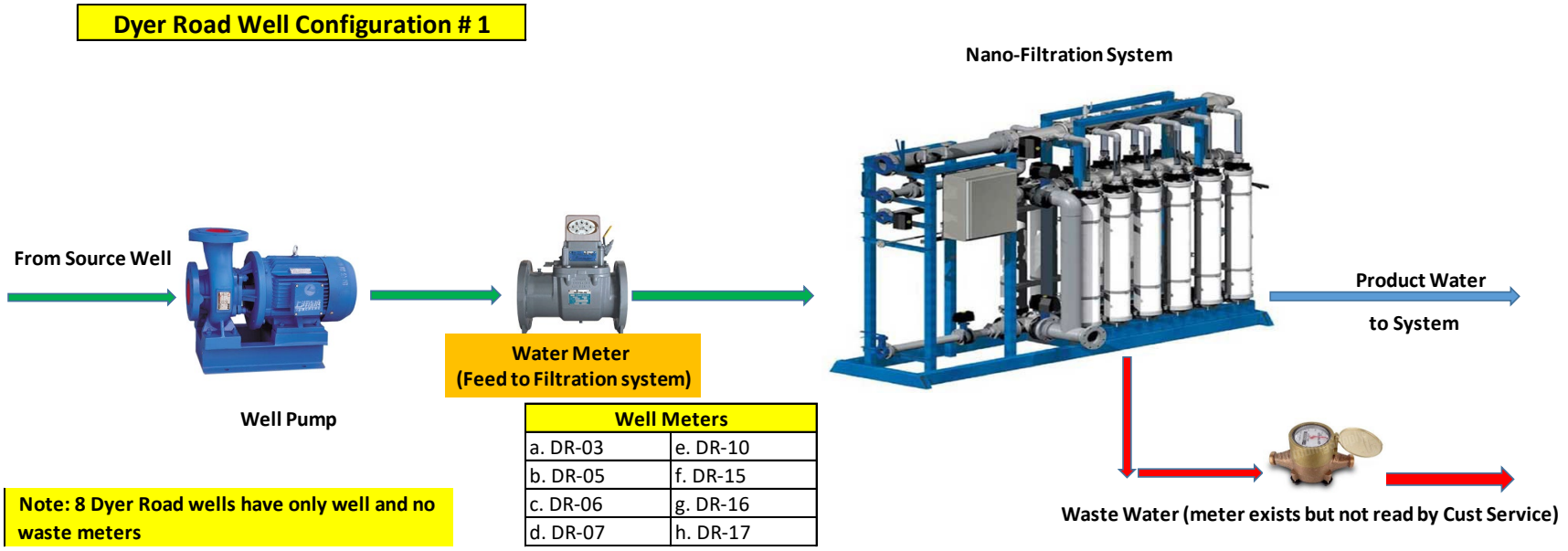


Figure 6: Dyer Road Well Configuration #1

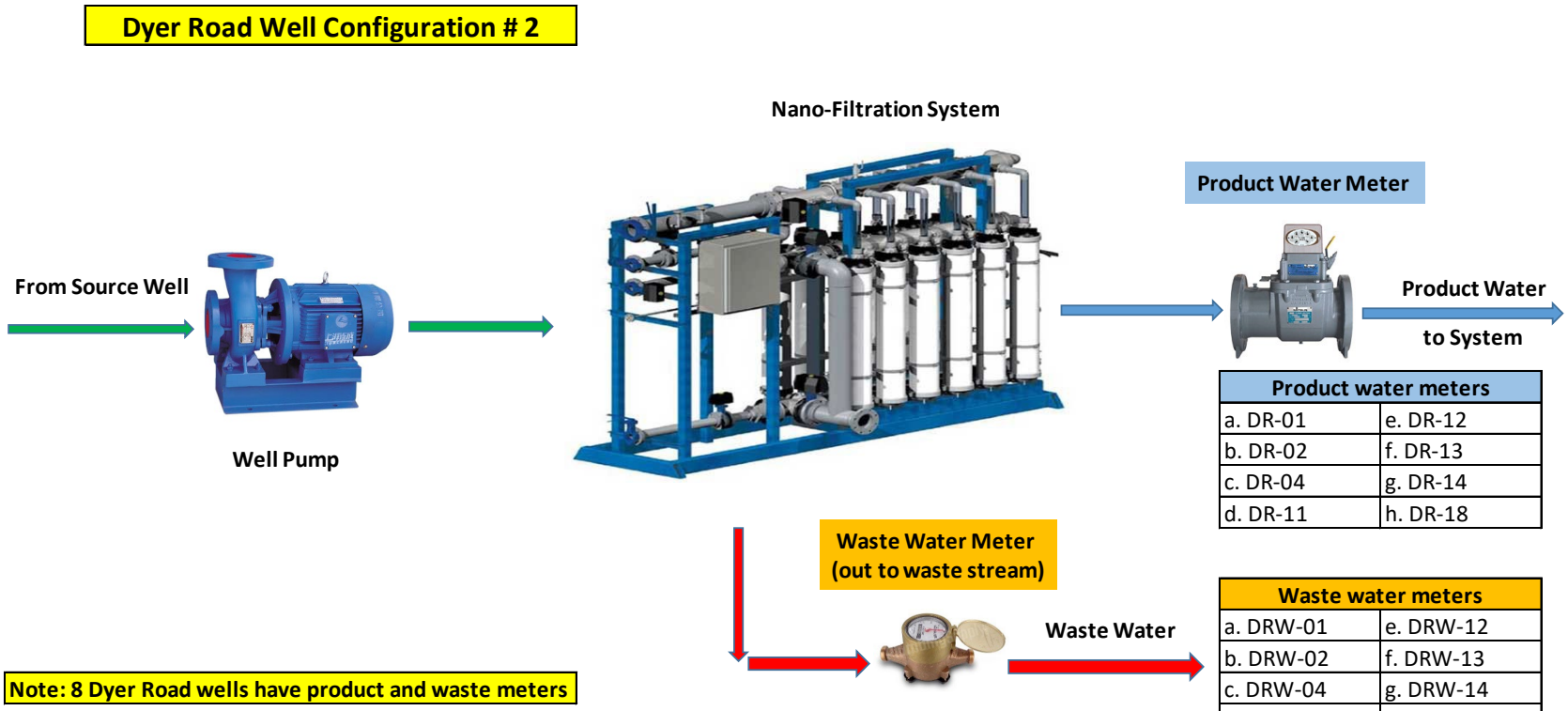


Figure 7: Dyer Road Well Configuration #2

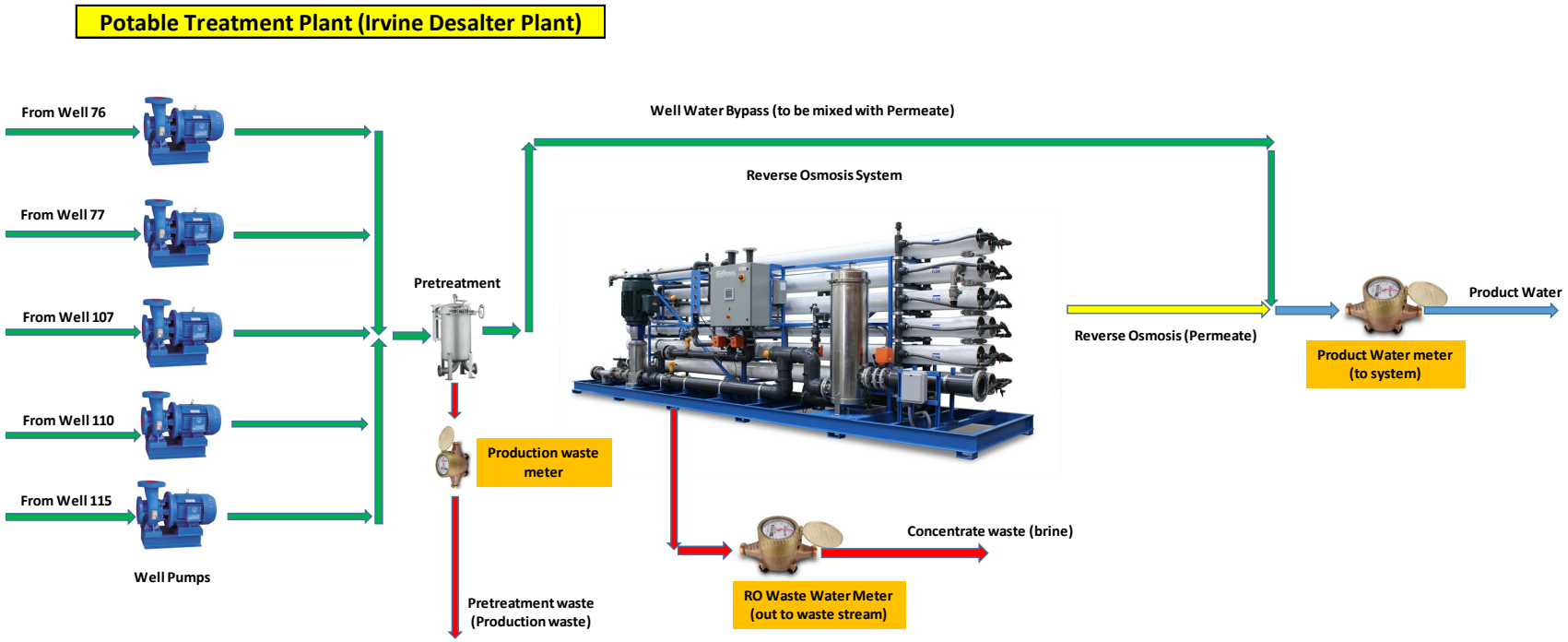


Figure 8: Potable Treatment Plant

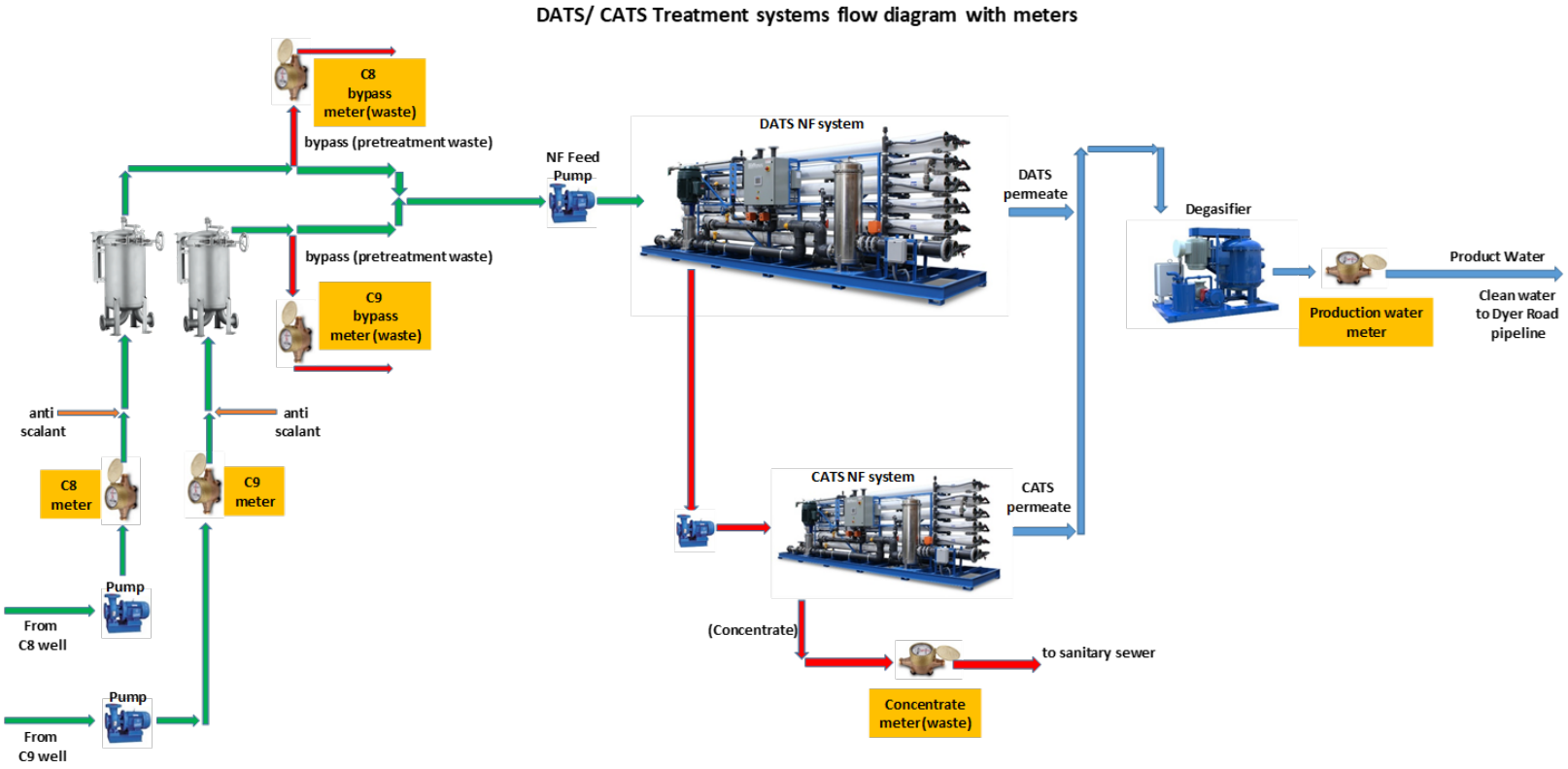


Figure 9: Deep Aquifer Treatment

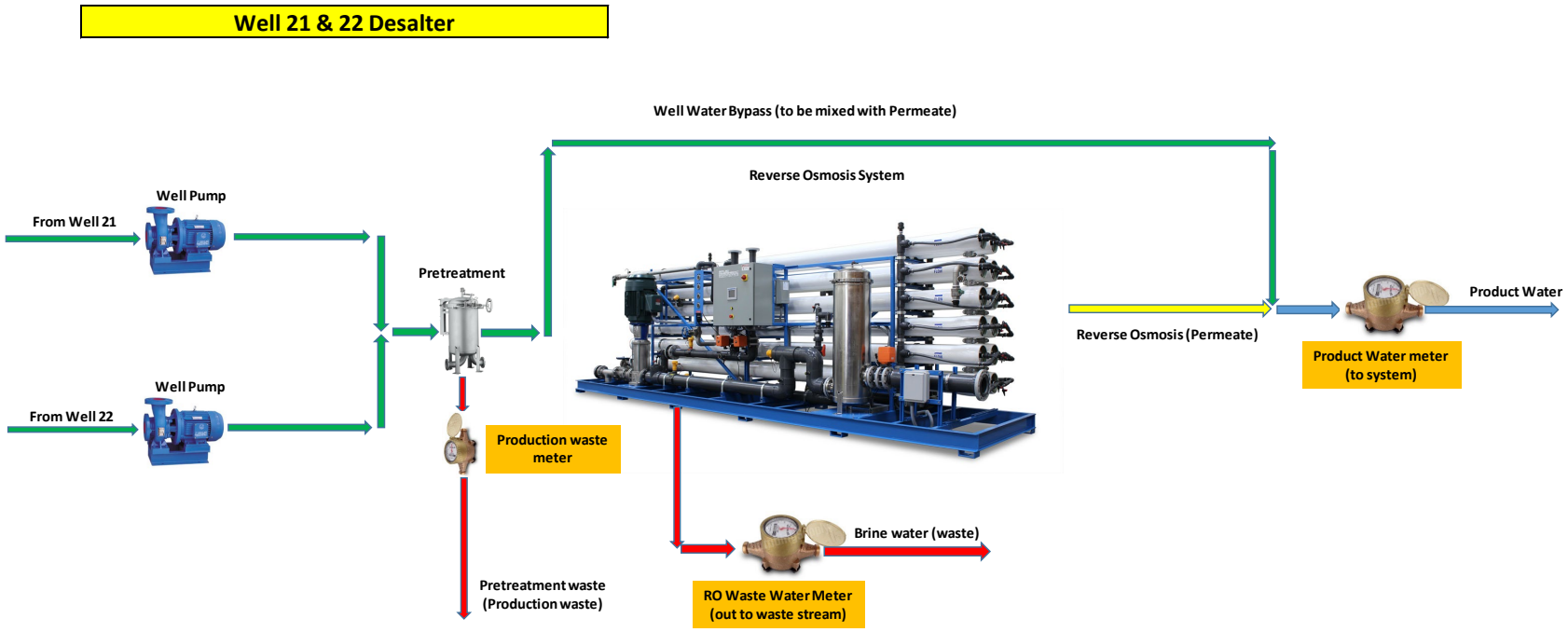


Figure 10: Wells 21 & 22 Desalter

Appendix B: Relevant Rules and Regulations

4.7 ILLEGAL CONNECTIONS, DIVERSIONS, OR TAMPERING

4.7.1 Definitions

"Divert" means to change the intended course or path of water or wastewater into or out of the District's system without the authorization or consent of the District. Any unpermitted discharge into the District's facilities, and any unpermitted withdrawal of potable or recycled water from the Districts' facilities is a "diversion."

"Tampering" means the unauthorized entering, breaking, damaging, destroying, uncovering, defacing, rearranging, injuring, altering, or interference with any temporary or permanent structure (including any pipeline), equipment (including any pumps or back-flow devices), or appurtenance owned by the District or that is part of the District's water, wastewater, recycled water, or natural treatment systems. Any unpermitted connection to the District's facilities is "tampering."

Installation by anyone other than the District of any equipment installed in a District facility, including a meter box or pressure regulating valve (PRV) vault onto any meter or PRV, is "tampering". This includes but is not limited to leak detection equipment, flow sensors, batteries or antennas. If any unpermitted equipment is installed it will be removed by District staff.

Tampering also includes but is not limited to diverting from the District's system any water which has not been correctly registered, reconnecting water service that has been disconnected or shut-off by the District for nonpayment or other reasons, removing the meter register so flow is not detected and removing the meter tampering tag.

4.7.4 Penalties for Diversion or Tampering.

Diversion and tampering are crimes under the California Penal Code and are violations of the Water Code and the Civil Code. Diversion and tampering may be subject to charges and penalties, as well as referral to the District Attorney for criminal prosecution. All charges and penalties shall be applicable and collected in accordance with section 14 and Exhibit B, Schedule of Rates and Charges and pursuant to all other applicable laws and regulations.

4.8 METER TESTING

4.8.1 If a water or recycled water meter fails to register during any period or is known to register inaccurately, the customer shall be charged using a reasonable average daily consumption based on prior consumption or other reasonable calculation in the absence of historical consumption data. Upon the customer's written demand and payment of a testing deposit, the District will examine and test the meter through which water or recycled water is being furnished to determine whether it is correctly registering the amount of water or recycled water being delivered through it.

4.9 FIRE HYDRANTS

4.9.1 Fire hydrants connected to the District's mains and fire hydrants that are served by an applicant, owner, or customer fire line are provided for the sole purpose of furnishing water to fight fires and shall be opened and used only by persons authorized by the District. If the District permits the use of hydrants for purposes other than extinguishing fire, that permit will be granted only through the procedures and provisions contained in Section 4.1 of these Rules and Regulations. Rates to be charged for water extracted from a hydrant for temporary construction use or other purposes will be in accordance with the applicable schedule contained in Exhibit B, Schedule of Rates and Charges.

4.9.2 Unpermitted hydrant use is hereby deemed a waste of water, and is subject to interim or permanent revocation of the underlying connection permit and fees or fines pursuant to Section 14 and Exhibit B, Schedule of Rates and Charges. Interim and or permanent revocation of water service provided for the sole purpose of fighting fires may require, pursuant to Orange County Fire Authorities regulations, the applicant, owner, or customer to provide sufficient fire protection and or fire watch at no cost to the District.

SECTION 14: ENFORCEMENT AND PENALTIES

14.1 GENERAL

14.1.1 Violation. It is unlawful to violate any provision of these Rules and Regulations or a permit issued by the District.

14.1.2 Notice of Violation. The District shall notify any person found violating any of these Rules and Regulations, any permit issued by the District, or any applicable Federal, State, or local statutes, regulations, ordinances, or other requirement. The written notice of violation will state the nature of the violation and provide a reasonable time to correct

that violation. The offender must, within the time stated in the notice, permanently cease all violations. This provision is in addition to and not by way of derogation of any other remedies or procedures available to the District by law, regulation, or pursuant to any of the provisions of these Rules and Regulations including, but not limited to, Section 7 and Section 15.

14.1.3 Misdemeanor; Fines. Pursuant to Water Code Section 35424, any violation of these Rules and Regulations is a misdemeanor, the violation of which shall, upon conviction, be subject to a fine of not less than $25.00 nor more than $200.00. Pursuant to Water Code Section 377, any violation of Section 15 is a misdemeanor punishable by imprisonment in the County Jail for not more than 30 days or by fine of not more than $1,000, and a violator may also be held civilly liable in an amount not to exceed $10,000.

14.1.4 Revocation. Failure to permanently cease all violations within the time stated in the Notice of Violation will result in revocation of the permit by the District and termination of water, sewer, recycled water and/or natural treatment system service as provided in Sections 14.2 and 14.3. Violations regarding any one service may result, at the sole discretion of the Board or Manager, in termination of any combination of or all water, sewer, recycled water and natural treatment system service.

14.2 INTERIM REVOCATION

In cases where the serious nature of the violations described above require immediate action, the Board or Manager may, in the sole discretion of the Board or Manager, immediately revoke the permit on an interim basis and thereupon cease water, sewer, recycled water and/or natural treatment system service, subject to a timely decision on permanent revocation of permit pursuant to a public hearing as provided herein. In cases of sewer service termination, there shall be no discharge of any type by an applicant, owner, or customer into the District’s sewer facilities.

14.3 PERMANENT REVOCATION

14.3.1 Notice; Public Hearing. Permanent revocation of a permit shall occur only subsequent to a public hearing held in the manner hereinafter provided. The Adopted 12/16/2019 Page 114 applicant, owner, or customer shall be given written notice ten (10) calendar days prior to a hearing on the possible permanent revocation of any permit by the District. The notice shall specify the grounds of the proposed revocation of any such permit in reasonable detail. It may but need not describe suggested corrective action acceptable to the District. Notice may be delivered personally to the applicant, owner, or customer or it may be given by depositing such in the United States mail with postage prepaid, addressed to the applicant, owner, or customer either at the address for the

applicant, owner, or customer as reflected on the last equalized assessment roll of the County of Orange as defined in the Revenue and Taxation Code of the State of California.

14.3.2 Effectiveness of Revocation. Any action to permanently revoke the permit shall be effective ten (10) calendar days after notice of the Board's decision. The District shall notify the applicant, owner, or customer by United States mail, postage prepaid, addressed to the applicant, owner, or customer.

14.3.3 Surcharge. In the alternative to revocation, the District may establish a fine or penalty amount on the continuation of water, sewer, recycled water and/or natural treatment system service by the District until such time as the applicant, owner, or customer has taken action to comply with all of the herein above described requirements for obtaining service from the District in its reasonable discretion. Any request to reestablish service subsequent to the revocation of a permit and the termination of water, sewer, recycled water and/or natural treatment system service shall be in the manner prescribed for initially obtaining service from the District, which may include the collection of a security deposit. However, in addition, the District may, in its discretion, require that an agreement and financial security conditioned upon compliance with the District's Rules and Regulations be provided in an amount, manner, and for a period of time as determined by the Board.

14.3.4 Application. The foregoing provisions of these Rules and Regulations apply to all permits.

14.3.5 Waiver/Modification. The Board, if it deems such to be in the best interest of the District, may on an interim basis or otherwise waive or modify any of the foregoing.

15.3 EXEMPTIONS

15.3.1 The General Manager may permit an exemption from the permanent restrictions set forth in 15.4 or restrictions implemented pursuant to the Water Shortage Contingency Plan during a shortage level under 15.5, upon a finding that enforcement of the applicable restriction would either (1) cause an unnecessary and undue hardship to the applicant or the public, or (2) would cause or threaten an emergency condition affecting the health, sanitation, fire protection, or safety of the applicant or the public.

15.4 GENERAL PROHIBITIONS AND ONGOING MEASURES

15.4.1 Prohibitions. The following prohibitions are in effect at all times, regardless of whether any declared shortage condition is in effect.

(1) Gutter Flooding - No person shall cause or permit any water furnished to any property within the District to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device into any gutter or otherwise to escape from the property if such running or escaping can reasonably be prevented.

(2) Leaks - No person shall permit leaks of water that he has the authority to eliminate.

(3) Washing Hard Surface Areas - Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards.

(4) Waste - No person shall cause or permit water under his control to be wasted.

(5) Washing of Motor Vehicle – No person shall wash a motor vehicle with a hose not fitted with a shut-off nozzle.

(6) Use of Potable Water in a Fountain – No person shall use potable water in a fountain or other decorative feature, except where the water is recirculated, or recirculation would cause a public health safety or sanitary hazard.

(7) Application of Potable Water to Outdoor Landscapes – No person shall apply potable water to outdoor landscapes during and within 48 hours of measurable rainfall.

(8) Irrigation of Public Street Medians – No person shall use potable water to irrigate ornamental turf on public street medians during a declared shortage or pursuant to any regulation adopted by the State Water Resources Control Board.

(9) Single Pass Cooling – No person shall operate a single pass cooling system.

(10) Commercial Car Washes –

(a) All new commercial car washes must be equipped with and operate recirculating systems. Adopted 12/16/2019 Page 118

(b) Existing car washes with recirculating systems must maintain and operate the recirculation system.

15.4.2 **Demand Management**. When a declared shortage condition is not in effect, basic water budgets established by the District under the water budget-based tiered pricing structure will be limited to the amount that is reasonable for the customer's needs and property characteristics and will exclude wasteful use. Reductions may be applied to basic budgets to establish a reasonable amount during a declared shortage condition, as specified herein.

15.6.2 Enforcement of Restrictions

(1) This Section 15 and Section 4 are part of the District's water conservation program and are adopted pursuant to Water Code Section 376. Subject to appeal to the Board of Directors, the General Manager may take any measures authorized under Water Code Section 377 to hold a person civilly liable for violation of the District's water conservation program.

(2) Prior to enforcement of the restrictions pursuant to Section 15.4 (General Prohibitions) and 15.5 (Shortage Restrictions), any person who is suspected of violating the restrictions hereby imposed shall be given a preliminary notice in writing of such violation, with the description of violation set forth in such preliminary notice. Such person shall have 24 hours to correct such violation or terminate the use. If the violation is not corrected or the use not terminated, the General Manager may immediately:

(a) disconnect service,

(b) install flow-restricting devices restricting non-health and safety related water service, or

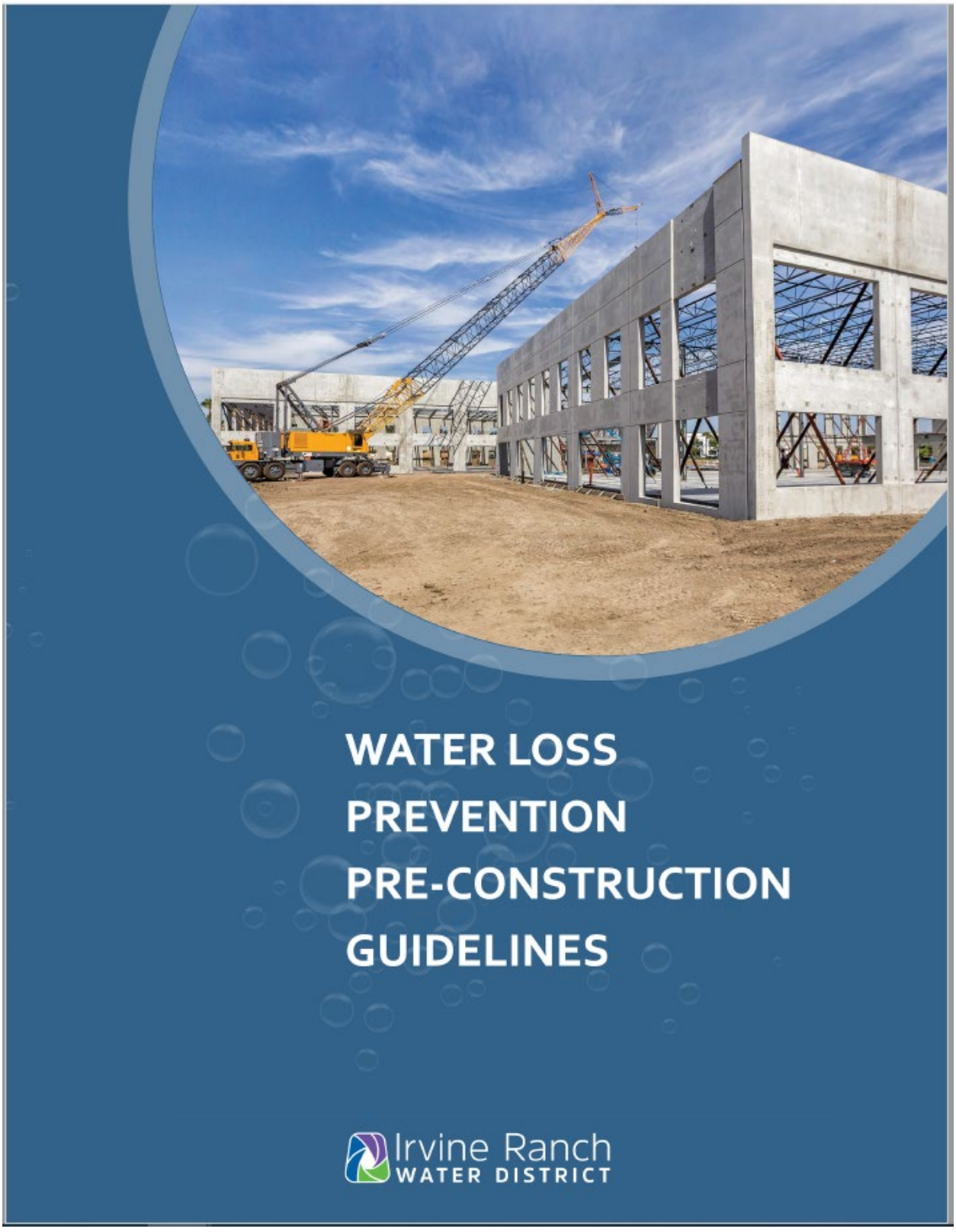
(c) order issued a second preliminary notice.

(3) Service disconnected or restricted pursuant to 1(a) or 1(b) above will be restored only upon payment of the turn-on and other charges fixed by the Board of Directors as provided in these Rules and Regulations.

(4) Any other sanctions or penalties that the District is presently authorized to impose or that the District may at some future time be authorized to impose may be imposed to enforce this prohibition of water wastage.

(5) From and after the publication or posting of any ordinance or resolution implementing any restrictions or mandatory measures under the Water Shortage Contingency Plan, violations thereof shall be misdemeanors punishable by imprisonment in the County Jail for not more than 30 days or by fine of not more than $1,000, or both, or as otherwise provided by law or such resolution or ordinance.

Appendix C: Industry Education Materials



Irvine Ranch Water District
Water Loss Prevention
Pre-Construction Guidelines

WATER — A PRECIOUS RESOURCE

Irvine Ranch Water District's Water Loss Prevention Program focuses on preventing unauthorized connections. It protects the public's drinking water supply by ensuring that all connections comply with IRWD's rules and regulations.

Loss Prevention's public outreach program is designed to help educate construction industry professionals on the proper connections to IRWD's water system. Staff are readily available to meet and present information about IRWD's policies to job site personnel. Staff can review plans to identify the appropriate connection points to help prevent any unauthorized connections from occurring on site.

IRWD prides itself on responsible resource management and has implemented many innovative supply development and demand management programs.

IRWD's demand management programs help customers use water efficiently and prevent water loss from unauthorized connections. Water use related to construction should always be metered and properly connected to the IRWD system to avoid the potential for cross-connections and backflow.

CROSS-CONNECTION

IRWD's Water Loss Prevention Program takes a proactive approach to minimizing water loss and protecting the public water supply by preventing unmetered and unauthorized connections that can lead to cross-connection and backflow.

What is a cross-connection?

A cross-connection is an actual or potential connection between any part of a potable (drinking) water system and an environment that would allow substances to enter that potable water system. Those substances could include gases, liquids, or solids. Examples are: chemicals, steam, water from other potable or nonpotable sources, and any matter that may add an odor or change the color or taste of water.

Cross-connections pose a serious health risk and backflow can occur under several conditions, including backsiphonage and backpressure.

CROSS-CONNECTION (continued)
What is backsiphonage?

Backsiphonage occurs when there is a partial vacuum (negative pressure) in a water supply system. This results in a reversal in flow, drawing water and anything to which the water is connected back into the potable water supply.

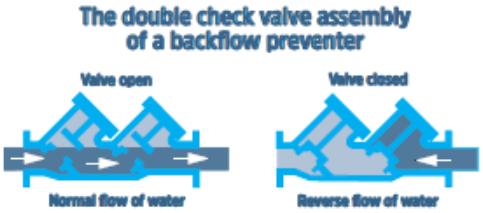
Q: What can lead to backsiphonage or backpressure?

A: Backsiphonage can occur when normal water supply pressure drops due to water district main line breaks or repairs, firefighting, system flushing, and installation or charging of new main lines.

Backpressure is the reversal of normal flow caused when the service line pressure is lower than the downstream pressure.

How are cross-connections and backflow prevented?

To reduce the potential for a cross-connection, IRWD requires installation of a backflow assembly to prevent unwanted flow of water into the distribution system. Building codes, plumbing codes, and state and federal regulations mandate a series of measures and backflow-prevention devices. For more information on the regulations please visit irwd.com/doing-business/engineering. A diagram of proper backflow operation is shown at right.



Authorized, metered connections

The photos below illustrate the proper way to connect to IRWD's system. These connections ensure that water quality is protected by a backflow assembly and that usage is metered.


Backflow assembly


Meter with backflow assembly


Another meter with backflow assembly

WHAT IS AN UNAUTHORIZED CONNECTION?

Diverting or tampering with IRWD's water-distribution or sewer system without IRWD's permission constitutes an unauthorized connection. To prevent backflow, IRWD recommends frequent site inspections by the on-site supervisor to check for unauthorized connections and water waste.

The photos below illustrate prohibited connections that do not have meters nor backflow prevention devices installed. Connections like these can introduce pollutants into the water supply and pose a significant public health risk.

Unauthorized, unmetered connections

The photos below illustrate connections that are not metered and are therefore considered unauthorized connections. These types of connections are unprotected from cross-connection.

Q: How can I prevent unauthorized connections?

A: Train all current and future site personnel on the correct procedures for accessing the water they need. An informed job-site supervisor should walk the site periodically to ensure there are no unauthorized connections.

Unauthorized connections also include:

Diverting	Tampering
To change the intended course or path of water or sewage into or out of the water district's system without the authorization or consent of the water district. Any unpermitted withdrawal of water from IRWD facilities is a diversion.	The unauthorized entering, breaking, damaging, destroying, uncovering, defacing, rearranging, injuring, altering, or interference with any structure or equipment owned by the water district. Any unpermitted connection to IRWD facilities is tampering.

WHAT HAPPENS IF AN UNAUTHORIZED CONNECTION IS DISCOVERED ON SITE?

Noncompliance with IRWD rules and regulations may result in fines and penalties pursuant to applicable laws and regulations, including the California Health Code, which defines cross-connection violations as misdemeanors punishable by fines and/or imprisonment (California Health Code Sections 11680 – 116820).

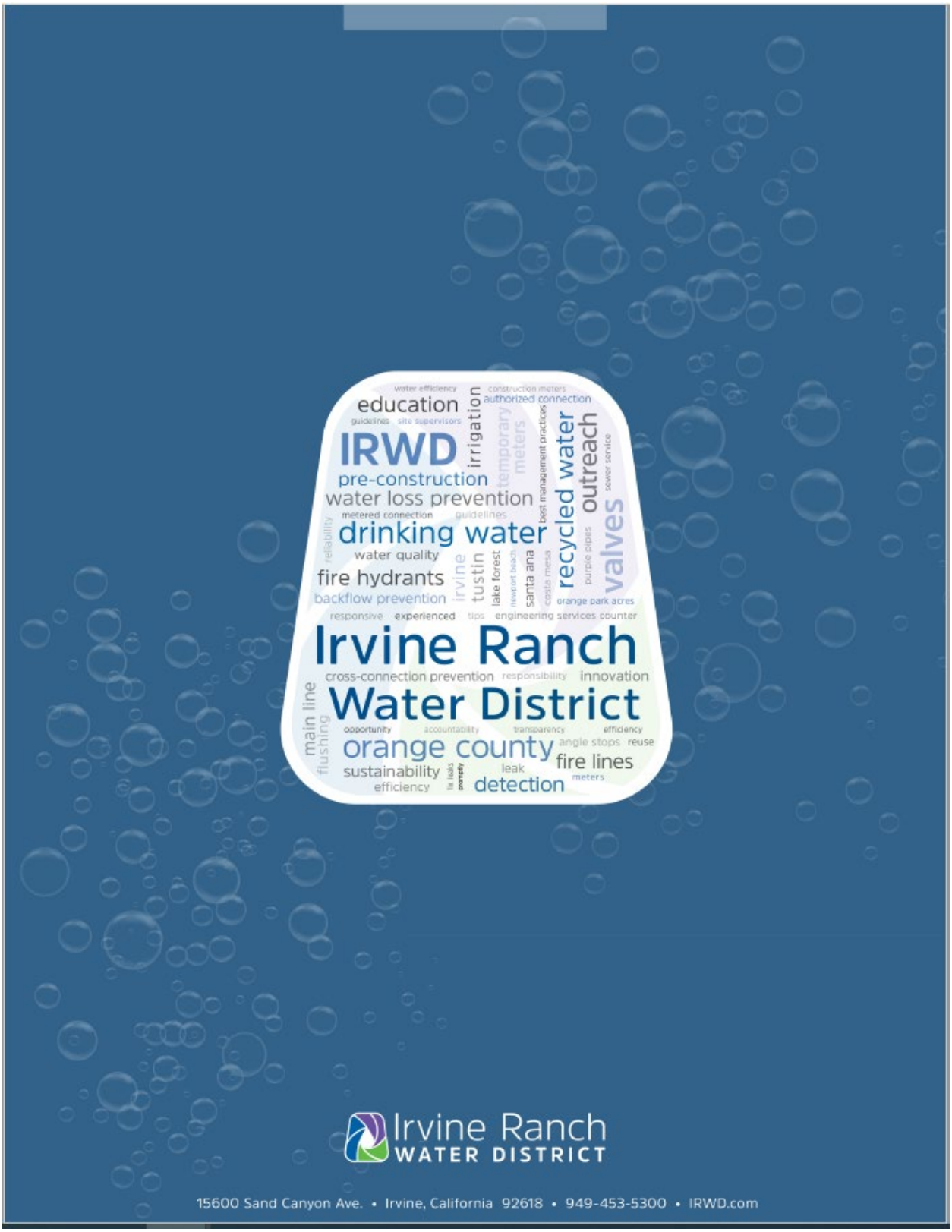
IRWD has an escalating enforcement plan, which may result in any combination of a notice of violation, fines, termination of water service to the job site, and legal action. Depending on the severity of the unauthorized connection, and at IRWD's sole discretion, an uncorrected violation may result in one or all of the following:

Occurrence	Action
First unauthorized connection	Notice of violation
Second unauthorized connection	Noncompliance charge
Third unauthorized connection	Termination of water services

Q: When should I apply for a temporary construction meter?
A: The sooner the better. Times can vary on meter sets so we recommend at least two days before the service is needed.

Q: What happens if a cross-connection is discovered on my site?
A: Staff will remove the cross-connection to ensure the integrity of the public drinking water supply, and a notice of violation will be issued.

Q: What happens if I get caught tampering or diverting?
A: Depending on the severity of the offense, a notice of violation may be issued, or the offense could result in fines, penalties or site shutdown.


water efficiency
construction meters
education
authorized connection
guidelines
site supervisors
irrigation
temporary meters
best management practices
IRWD
recycled water
outreach
sewer service
pre-construction
water loss prevention
metered connection
guidelines
drinking water
reliability
water quality
purple pipes
valves
fire hydrants
irvine
tustin
lake forest
newport beach
santa ana
costa mesa
backflow prevention
orange park acres
responsive
experienced
tips
engineering services counter
Irvine Ranch
cross-connection prevention
responsibility
innovation
main line
flushing
Water District
opportunity
accountability
transparency
efficiency
orange county
angle stops
reuse
fire lines
sustainability
leak
meters
efficiency
detection
Irvine Ranch
WATER DISTRICT
15600 Sand Canyon Ave. • Irvine, California 92618 • 949-453-5300 • IRWD.com

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1

AGENDA

- What is Water Loss?
- Background
- Water Loss Control Plan
  - Purpose
  - AWWA Audit and Water Balance
  - Apparent Loss Programs
  - Real Loss Programs
  - Policy Implementation
  - Planned Activities and Programs

Irvine Ranch WATER DISTRICT

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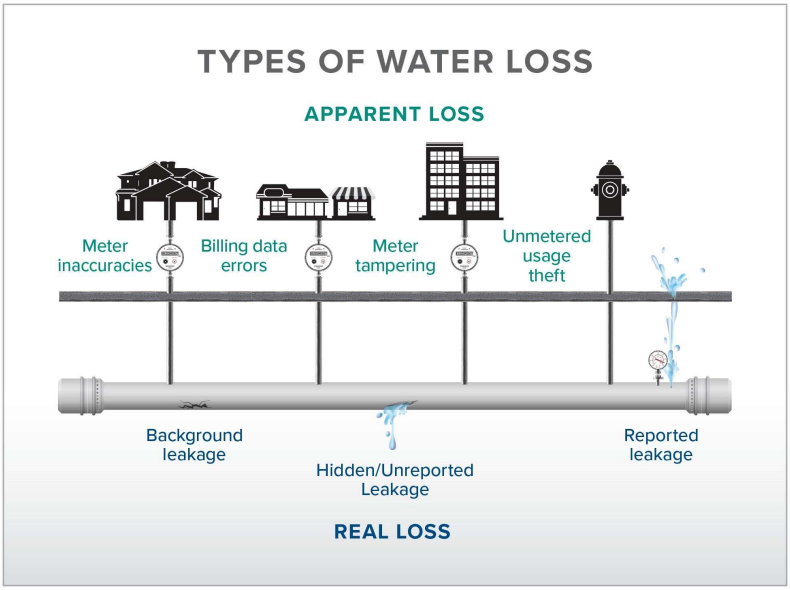
WHAT IS WATER LOSS?



Irvine Ranch Water District

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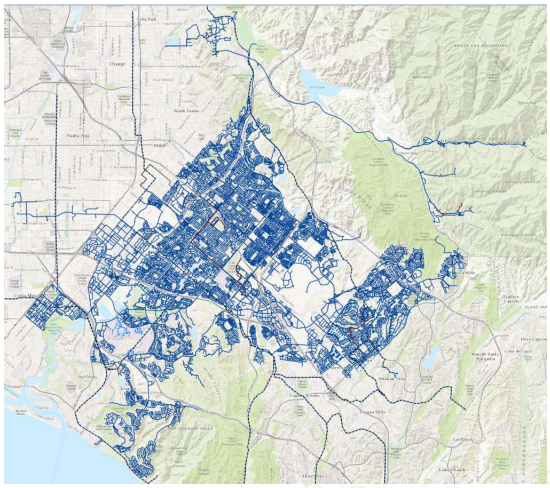
BACKGROUND – FOUNDATIONAL PROGRAMS

- Proactive leak detection
- Targeted customer meter replacement
- Large meter testing
- Annual water loss audits
  - AWWA software



Irvine Ranch WATER DISTRICT

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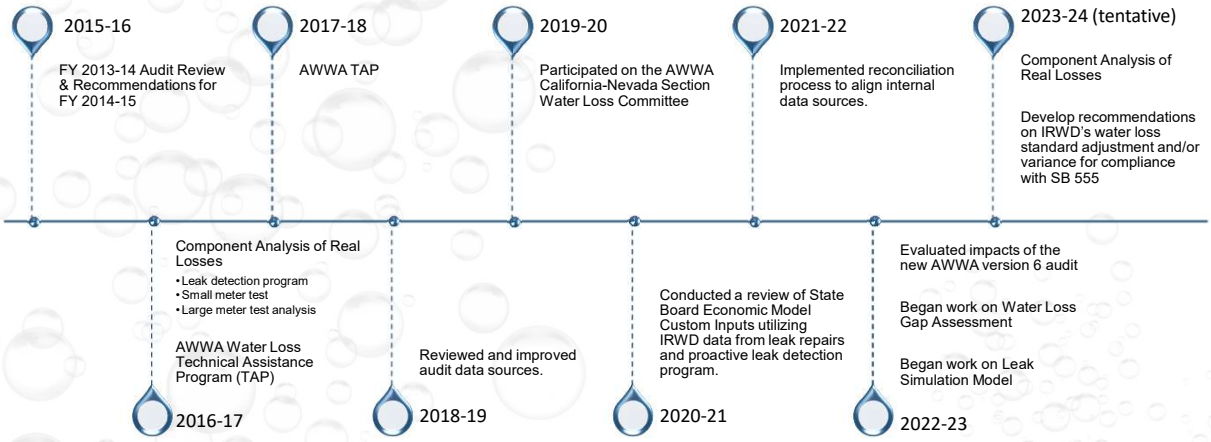
Exhibit "B"

BACKGROUND – TECHNICAL ASSISTANCE



Irvine Ranch WATER DISTRICT

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WATER LOSS CONTROL PLAN PURPOSE

Mission Statement:

To demonstrate IRWD's leadership in responsible resource management by addressing known and potential sources of real and apparent water losses through implementation of cost-effective proactive programs informed by accurate data collection and reporting.

- To help plan, coordinate and manage District activities related to water losses
- Plan will be revised in sync with the two-year budget cycle
- Will include results from water loss technical assistance
- Programs will evolve with new discoveries and new technology

Irvine Ranch WATER DISTRICT

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Exhibit "B"

AWWA WATER LOSS AUDIT
BASELINE WATER BALANCE (ACRE FEET)

Water Supplied 54,828	**Authorized Consumption 51,409**	**Billed Authorized Consumption 50,779**	**Billed Metered Consumption 50,779**	**Revenue Water 50,779**
			Billed Unmetered Consumption 0	
		Unbilled Authorized Consumption 630	**Unbilled Metered Consumption 229**	Non-Revenue Water 4,049
			Unbilled Unmetered Consumption 401	
	Water Losses 3,419	Apparent Losses 818	**Unauthorized Consumption 137**	
			Customer Meter Inaccuracies 554	
			Data Handling Errors 127	
		Real Losses 2,601		

Average of Fiscal Years 2016/17 - 2019/20

Irvine Ranch WATER DISTRICT

Water flow

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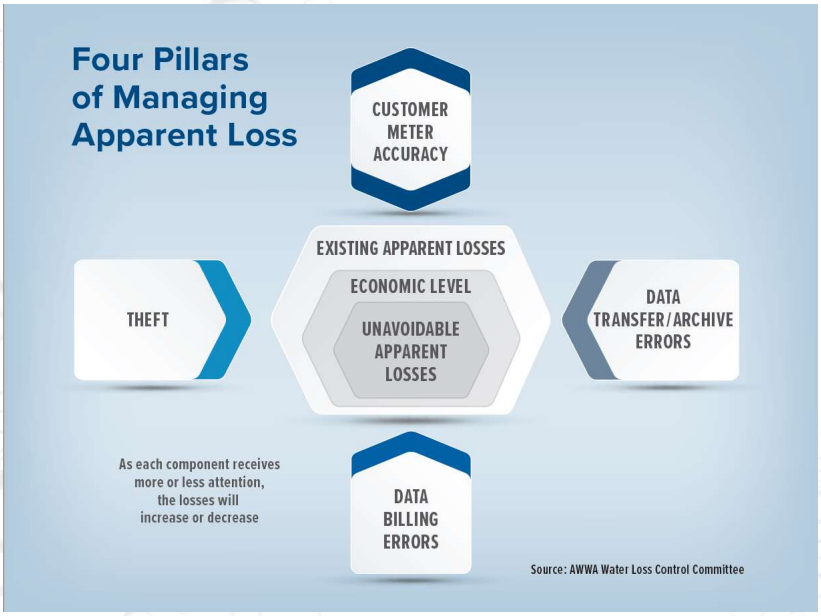

Irvine Ranch WATER DISTRICT

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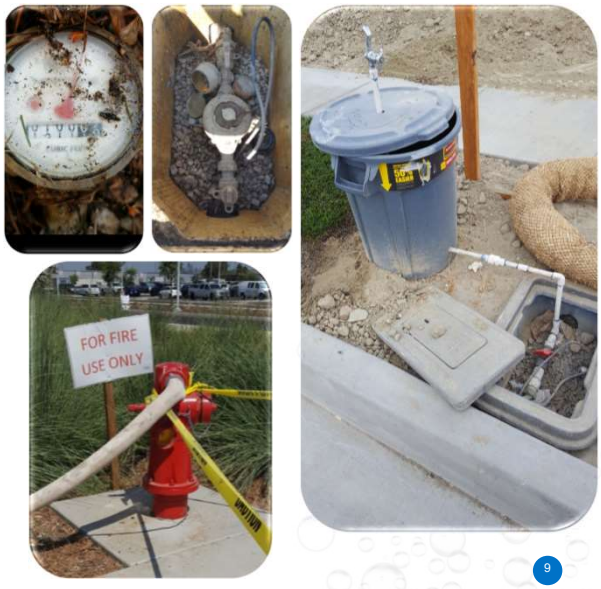
APPARENT LOSS PROGRAMS

- Meter replacement programs
  - Lifetime based on meter size
  - Performance based on read accuracy
- Malfunctioning meters
- Meter tampering
- Unauthorized connections (theft)
- Firelines with usage
- Back billing



Irvine Ranch WATER DISTRICT

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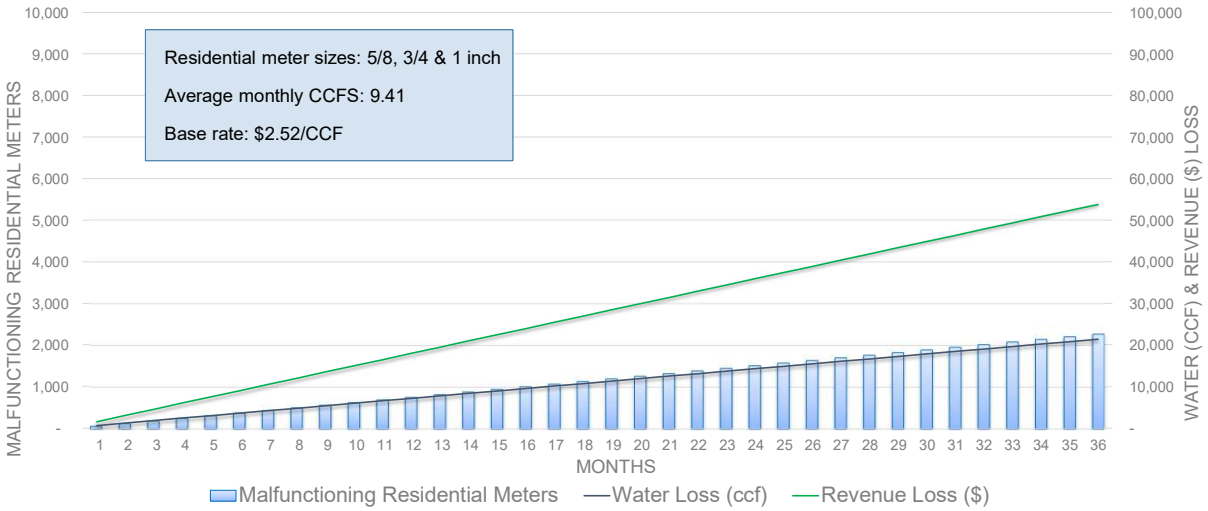
WATER & REVENUE LOSS
WITHOUT APPARENT LOSS PROGRAMS



Irvine Ranch WATER DISTRICT

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Exhibit "B"

IRWD POTABLE SYSTEM
BASELINE WATER BALANCE (ACRE FEET)

Water Supplied 54,828	Authorized Consumption 51,409	Billed Authorized Consumption 50,779	Billed Metered Consumption 50,779	Revenue Water 50,779
			Billed Unmetered Consumption 0	
		Unbilled Authorized Consumption 630	Unbilled Metered Consumption 229	Non-Revenue Water 4,049
			Unbilled Unmetered Consumption 401	
	Water Losses 3,419	Apparent Losses 818	Unauthorized Consumption 137	
			Customer Meter Inaccuracies 554	
			Data Handling Errors 127	
		Real Losses 2,601		

Average of Fiscal Years 2016/17 - 2019/20

Water flow

Irvine Ranch WATER DISTRICT

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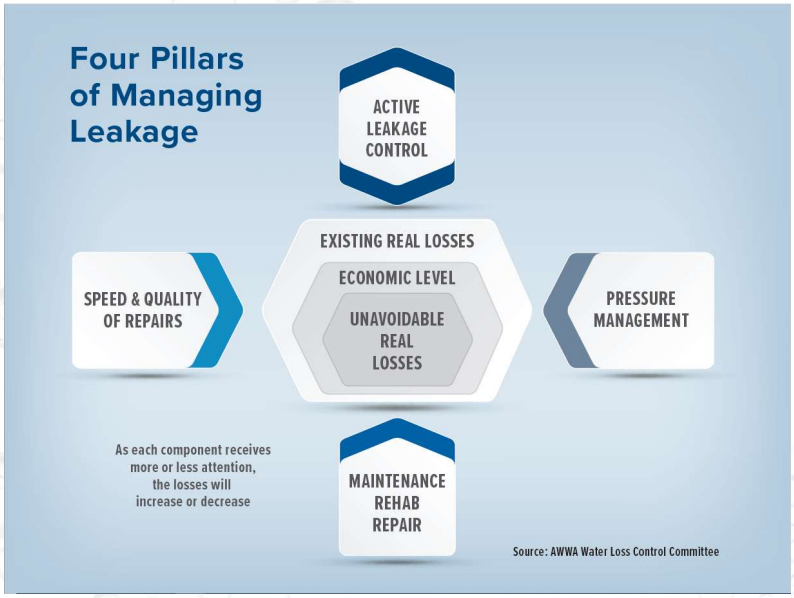

Irvine Ranch WATER DISTRICT

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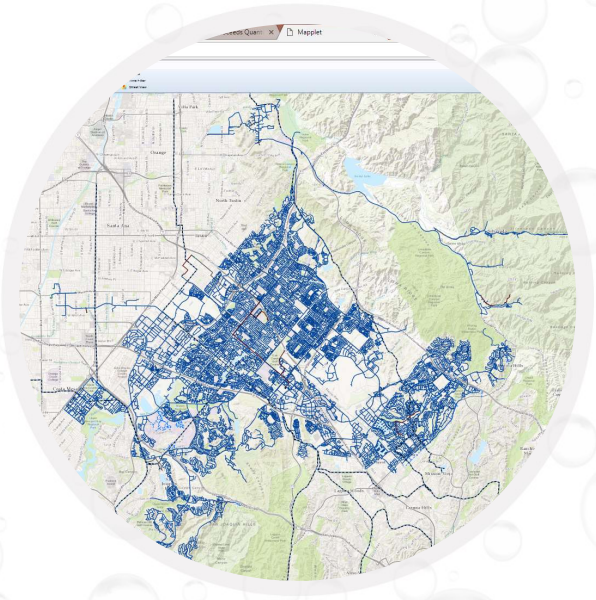
REAL LOSS PROGRAMS

- Leak Detection Program
- Systematically Survey Entire Potable System
  - Residential Areas
    - Walking 4 to 6 miles per day
  - Mainlines and Commercial Areas
    - Drive major arterial streets
    - All commercial development
  - Sensors
    - Monitor system pressure



Irvine Ranch Water District

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CATEGORIES OF LEAKAGE

TYPE	DISCOVERY	FLOW RATE	DURATION	INTERVENTION
Reported	reported to utility by customers and staff; usually surfaces	varied, but generally high flow rates	relatively short duration function of leak repair practices	shorter repair times pressure optimization
Unreported	unsurfaced; discovered through proactive leak detection	varied but sufficient to be acoustically detectable; generally mid-range flow rates	duration is a function of proactive leak detection policy	proactive leak detection and repair pressure optimization
Background	undetectable	acoustically undetectable, low flow rates (e.g. seeps and drips at joints and fittings)	ongoing	pressure optimization infrastructure replacement

Irvine Ranch WATER DISTRICT

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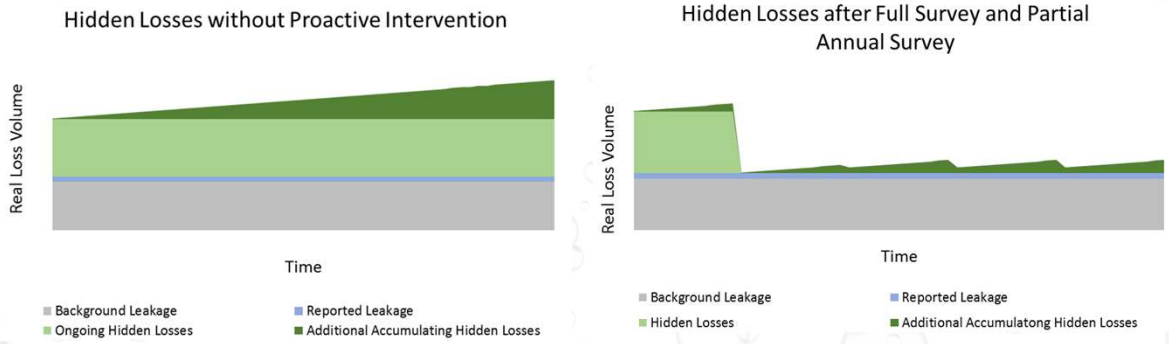
REAL LOSS - LEAKAGE



Irvine Ranch WATER DISTRICT

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POLICY IMPLEMENTATION

State Water Loss Regulation

- SB 555 Adopted in 2015
- IRWD's water loss standard 20 gallons per connection per day
- Compliance begins 2028
- Based on three-year average from 2025, 2026 and 2027 audits

IRWD Rules and Regulations

- Prohibit diversion and tampering
- Billing unauthorized fireline usage

Irvine Ranch WATER DISTRICT

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PLANNED ACTIVITIES AND PROGRAMS

- Technical activities
  - Water audit gap assessment
  - Leak simulation modeling
  - Component Analysis of Real Losses
  - Capital Improvement Plan
- Sewer pipe cleaning
- Firelines
- Policy engagement
- Water Loss Control Plan updates
  - Align with 2-year budget cycle
  - Reflect new data, methods and technologies

Irvine Ranch WATER DISTRICT

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November 3, 2023
Prepared and
submitted by: C. Compton
Approved by: Paul A. Cook

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

REVIEW OF 2023 ADVOCACY ACTIVITIES AND
2024 LEGISLATIVE AND REGULATORY ISSUES PLANNING

SUMMARY:

This report provides a review of IRWD's 2023 legislative and regulatory priorities and advocacy activities. It also provides an overview of expected 2024 legislative and regulatory issues in Washington, D.C., Sacramento, and regionally. Also described are proposals that the District's associations and stakeholders are sponsoring. The report proposes an initial 2024 staff resource allocation plan for legislative and regulatory issues of importance to IRWD in the coming year.

Staff recommends that the Board provide input on the proposed 2024 regional, state, and federal legislative issues of interest to IRWD and receive and file the proposed "Legislative / Regulatory Issues and Activities of High Concern to IRWD in 2024" (provided as Exhibit "A") and the "Initial 2024 Legislative and Regulatory Resource Allocation Plan" (provided as Exhibit "B").

BACKGROUND:

2023 IRWD Priorities and Activities:

In December 2022, the Board reviewed an overview of expected 2023 legislative issues in Washington, D.C., and Sacramento, including proposals that the District's statewide associations were considering for introduction. At that time and after providing input, the Board received and filed the initial 2023 Legislative and Regulatory Resource Allocation Plan and the Legislative / Regulatory Issues and Activities of High Concern to IRWD in 2023. The document helped guide the District's governmental relations efforts this past year.

The 2023 priorities included actively engaging in the discussions related to the implementation of the "Making Water Conservation a California Way of Life" legislation, the development of a dam safety program at the state level, the Surplus Land Act amendments, and engagement on many regulatory proposals. Over the past year, staff and IRWD's state legislative and regulatory advocates worked on each of these issues and other issues of importance to the District, including legislation related to rate studies and proposals on climate resilience bonds.

The 2023 priorities at the federal level included reauthorization of the Water Storage Program, federal funding for the Kern Fan Groundwater Storage Project, seeking creation of a federal dam safety program, advocating for an increased funding authorization for Title XVI's Water Reclamation and Reuse Program, and seeking additional funding for the Syphon Reservoir Improvement Project. Staff engaged in regulatory and legislative measures to address PFAS contamination and tracked the rulemaking related to a definition of "Waters of the United States" (WOTUS).

Expected 2024 Federal Legislative and Regulatory Issues:

While it is expected that in 2024 Congress and federal agencies will work on a number of issues of interest to the water and wastewater communities, staff expects significant activity on federal regulations, including finalization of a U.S. Environmental Protection Agency (EPA) rule designating Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the Lead and Copper Rule Improvements. Staff also expects continued activity in the distribution of infrastructure funding by federal agencies.

Staff, joined by the District's federal advocates, will discuss the expected 2024 political environment and federal issues with the Board. Among the federal issues staff will discuss with the Board include:

- Reauthorization of the Water Resources Development Act;
- Seeking additional federal funding for the Kern Fan Groundwater Storage Project;
- Continued advocacy for the creation of a federal dam safety program, which focuses on funding infrastructure rehabilitation and improvement projects;
- Federal funding for the Irvine Lake and Santiago Dam Outlet Tower and Spillway Project; and
- Seeking additional federal funding for the Syphon Reservoir Improvement Project.

Expected 2024 Statewide Legislative and Regulatory Issues:

As is typical at the beginning of each legislative year, staff expects that the California Legislature and State regulatory agencies will take up a number of issues of interest to the water and wastewater communities in 2024. Staff, joined by the District's state advocates, will discuss the expected 2024 political environment and state issues with the Board. Among the state issues staff will discuss with the Board are:

- Climate resilience bond;
- Water rights legislation;
- "Making Water Conservation a California Way of Life" implementation;
- Surplus Land Act changes;
- Low-income water rate assistance;
- SB 366 (Caballero, D-Salinas) – The California Water Plan Long-Term Supply Targets;
- Direct Potable Reuse Regulations;
- Implementation of the Governor's Water Supply Strategy;
- Possible IRWD sponsored legislation; and
- Other State Board and other State agency regulations.

Expected 2024 Association Proposals:

IRWD's association and industry partners are in the process of completing their 2024 legislative planning. A summary of those planning efforts is provided below:

ACWA:

ACWA held its 2024 legislative planning meeting on October 20, 2023. The ACWA State Legislative Committee (SLC) considered two proposals for sponsorship in 2024. The SLC decided to sponsor one of the proposals. This next year, ACWA will be sponsoring legislation to clean up SB 3 (Dodd, 2023) with language negotiated with the author and the Attorney General's Office but that was not able to be inserted into the bill before the passage deadline.

While not considered at this year's planning meeting, ACWA staff is still exploring legislation proposal from last year related to Proposition 218. That proposal seeks to avoid lawsuits related to water and sewer rates by requiring that constitutional issues of concern related to those rates to be brought up during the rate setting process for someone to sue and would seek to codify a record-review rule, as limited by a 1995 California Supreme Court holding that established narrow exemptions, applying the rule to Proposition 218 litigation.

Bioenergy Association of California (BAC):

BAC will hold its annual planning meeting on November 7, 2023. At the time of the writing of this report no specific proposals or topics have been released for consideration at the meeting. Staff will provide an update on any new information.

California Association of Sanitation Agencies (CASA):

CASA will hold its annual planning meeting on December 8, 2023. At the time of the writing of this report no specific proposals or topics have been released for consideration at the meeting. Staff will provide an update on any new information.

California Municipal Utilities Association (CMUA):

CMUA held its 2023 legislative and regulatory planning meeting on November 9, 2023. At the time of the writing of this report no specific proposals or topics have been released for consideration at the meeting. Staff will provide an update on any new information.

California Special Districts Association (CSDA):

CSDA held its 2024 legislative and regulatory planning meeting on October 26, 2023. CSDA will again sponsor a concurrent resolution recognizing Special Districts Week. Staff will provide updates to the Committee and the Board, as appropriate, as these proposals move forward.

WateReuse California:

The WateReuse Association of California has not yet met to discuss its 2024 legislative and regulatory efforts. Staff will provide an update on any new developments.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

That the Board provide input on the proposed 2024 regional, state, and federal legislative issues of interest to IRWD, and receive and file the proposed "Initial 2024 Legislative and Regulatory Resource Allocation Plan" and the "Legislative / Regulatory Issues and Activities of High Concern to IRWD in 2024."

LIST OF EXHIBITS:

Exhibit "A" – Proposed Legislative / Regulatory Issues and Activities of High Concern to IRWD in 2024
Exhibit "B" – Proposed IRWD's Initial 2024 Legislative and Regulatory Resource Allocation Plan

EXHIBIT "A"

LEGISLATIVE / REGULATORY ISSUES AND
ACTIVITIES OF HIGH CONCERN TO IRWD IN 2024

As a state and federal leader in water resources public policy and governance, IRWD works to promote policy initiatives that allow the District, along with other water purveyors in California, to enhance the quality and reliability of water supplies throughout the state. While IRWD will engage in a number of legislative and regulatory issues of interest to the District, the following are specific issues and activities of high concern to IRWD in 2024:

2024 Federal Issues and Activities of High Concern:

1) Seek federal funding for the Kern Fan Groundwater Storage Project;

2) Seek the creation of a federal dam safety program to provide federal funding to improve dam safety and modernization at reservoirs used for water supply;

3) Seek federal funding for the Irvine Lake and Santiago Creek Dam Outlet Tower and Spillway Project; and

4) Continue to engage with the Bureau of Reclamation and congressional staff on additional funding for the Syphon Reservoir Improvement Project.

2024 State Issues and Activities of High Concern:

1) Protect IRWD's various revenue sources, and method of setting rates and other charges, in order to ensure that the District can continue to provide high quality services to its customers at low rates. Specifically, retain the District's ability use its water budget-based rate structure and ability to achieve invest its replacement fund.

2) Engage with the Legislature, State Board, and Department of Water Resources on legislation related to and regulations implementing the "Making Water Conservation a California Way of Life" legislation enacted, changes to the Model Water Efficient Landscape Ordinance and restrictions on landscape types.

3) Seek recognition of the importance of emergency water supplies in water resiliency, pre-emergency designation of such supplies, and protection their use during droughts or other water shortages.

4) Seek additional funding for the state dam safety program to provide state funding to improve dam safety and modernization at reservoirs used for water supply.

5) Engage with the State Board, the Department of Water Resources, and the California Air Resources Board on policy, regulatory and permits issues of concern to IRWD.

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EXHIBIT "B"

DRAFT

IRWD's Initial 2024 Legislative and Regulatory Resource Allocation Plan

The proposed initial resource allocations are aimed at balancing the importance of an issue to IRWD, the projected level of District resources available to work on the issue, and the likelihood that the issue will be raised and the District will be able to shape the policy, legislative and regulatory discussions or outcomes related to the issue in 2024. The allocation of District resources may change over the course of the year, based on continued input from the Water Resources Policy and Communications Committee and the Board of Directors. The allocation categories are intended to reflect the following expected levels of resource use:

Very High - IRWD's resource allocation would be significant. Staff and IRWD's legislative advocates would dedicate a larger portion of their overall advocacy efforts to the issues designated "Very High" and would actively seek to be a key stakeholder shaping the policy, legislative or regulatory discussions related to those issues.

High - IRWD's resource allocation would be considerable. Staff and IRWD's legislative advocates would work to create strategic opportunities to shape the policy, legislative or regulatory discussions and outcomes related to issues designated "High."

Moderate - IRWD's resource allocation would be modest. Staff and IRWD's advocates would actively engage in association and industry conversations on issues designated "Moderate" but would expect to work largely through issue-specific coalitions on these issues. Staff and IRWD's advocates would work to identify and capitalized on opportunities to shape narrow aspects of a policy, legislative or regulatory outcome related to such issues.

Low - IRWD's resource allocation would be low. Staff and IRWD's advocates would track policy, legislative and regulatory discussions and outcomes related to issues designated "Low" and would continue to seek positive outcomes for the District through IRWD's association and industry partners. Staff and IRWD's advocates would work on such issues should resources be available. For issues that are currently not expected to be acted upon legislatively or regulatorily this next year and are given a "Low" initial allocation, staff will reevaluate the allocation when action appears likely and increase it, as appropriate.

DRAFT Expected 2024 Legislative and Regulatory Issues	Proposed Allocation of IRWD Resources
FEDERAL ISSUES	
Kern Fan Groundwater Storage Project – Seek federal funding for the project by engaging with the Bureau of Reclamation and Congress on the project.	**Very High**
Dam Safety Program – Advocate for federal investment in dam safety and the modernization of dams important to water supplies.	**High**
Irvine Lake and Santiago Creek Dam Outlet Tower and Spillway Project – Seek funding for the Irvine Lake and Santiago Creek Dam Outlet Tower and Spillway Project.	**High**
Syphon Reservoir Improvement Project – Continue to engage with the Bureau of Reclamation and congressional staff on additional funding for the project.	**High**
Lead and Copper Rule– Monitor developments and proposed revise the federal Lead and Copper Rule, advocate for changes that effectively protect public health while limiting the annual testing burden on water agencies (e.g. seek modification to the proposed school and childcare facility testing schedule).	**Moderate**
PFAS CERCLA Exemption – Engage on efforts to designate PFOA and PFOS as "hazardous substances" under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and advocate for exemptions from liability for water and wastewater utilities.	**Moderate**
PFAS – Advocate for a science-based and cost-based approach in the development of PFAS regulations	**Moderate**
Water Resource Development Act – Seek enactment of a WRDA bill every two years which is beneficial to IRWD and Orange County, and which includes authorizations for the water infrastructure programs and funding supported by IRWD.	**Moderate**
Atmospheric River Research – Advocate for federal programs and funding for atmospheric river research aimed at improving reservoir operations.	**Low**
Clean Water Act Definition of "Waters of the U.S." – Advocate for changes in the definition of "Waters of the U.S." that limits impact to IRWD and it is facilities and includes an exemption for constructed treatment wetlands.	**Low***
Bureau of Reclamation's Title XVI, Water Reclamation and Reuse Program, Reauthorization – Advocate for the reauthorization of Title XVI and an increased funding authorization for the Water Reclamation and Reuse Program.	**Low**
Colorado River – Monitor the long-term planning effort to protect the Colorado River system.	**Low**
Delta Conveyance Implementation – Advocate for a change in the operation of the Delta, consistent with the co-equal goals of ecosystem protection and water supply reliability; seek the federal actions necessary to implement a permanent solution in the Bay Delta.	**Low**
Tax-Exempt Municipal Bonds – Maintain the current tax-exempt status of municipal bonds with the exception of restoring the tax-exempt status of local government advanced refundings. Oppose prohibitions on the use of tax-exempt bonds within WIFI or any similar program.	**Low**
Tax Parity for Water Efficiency Rebates – Advocate for tax parity between water and energy efficiency rebates.	**Low**

DRAFT Expected 2024 Legislative and Regulatory Issues	Proposed Allocation of IRWD Resources
Total Maximum Daily Load Limits – Advocate that the Environmental Protection Agency use the best available science when setting Total Maximum Daily Load (TMDL) limitations related to Clean Water Act compliance and approve TMDLs for California based on relevant studies related to California's environment and local conditions.	**Low**
Water Storage Program Reauthorization – Advocate for the reauthorization of the federal Water Storage Program and an increased funding authorization for the program, or other similar programs.	**Low***
STATE ISSUES	
Conservation, Water Use Efficiency Regulations – Engage with the Legislature, State Board and Department of Water Resources (DWR) on legislation related to and regulations implementing the "Making Water Conservation a California Way of Life" legislation enacted, changes to the Model Water Efficient Landscape Ordinance and restrictions on landscape types.	**Very High**
Dam Safety Program – Advocate for state investment in dam safety and the modernization of dams important to water supplies.	**Very High**
DWR – Engage with DWR on policy, regulatory and permits issues of concern to IRWD.	**Very High**
Emergency Supplies – Seek recognition of the importance of emergency water supplies in water resiliency, pre-emergency designation of such supplies, and protection their use during droughts or other water shortages.	**Very High**
State Board – Engage with the State Board on policy, regulatory and permits issues of concern to IRWD.	**Very High**
Water Rates & District Revenues– Protect IRWD's various revenue sources, and method of setting rates and other charges, in order to ensure that the District can continue to provide high quality services to its customers at low rates. Specifically, retain the District's ability use its water budget-based rate structure and ability to achieve invest its replacement fund.	**Very High**
CECs and PFAS – Engage with stakeholders, industry associations, and regulatory agencies on establishing better processes for identifying and regulating contaminants of emerging concern (CECs). Engage with stakeholders, industry associations, and regulatory agencies on microplastics and PFAS, and the regulatory actions proposed by state agencies including regulatory actions that would restrict land application or other uses of Class A and Class B biosolids due to PFAS.	**High**
Groundwater Management – Engage productively in discussions of groundwater management in California to protect IRWD's interests. Promote greater water banking opportunities to benefit IRWD banking programs.	**High**
Low Income Water and Wastewater Rate Assistance Program – Continue to engage in discussion regarding the creation of a statewide Low-Income Water and Wastewater Rate Assistance Program that is consistent with the Board's adopted policy on a statewide public goods charge, opposing a statewide tax on water for Low-Income Rate Assistance, or to fund other resiliency efforts.	**High**
Proposition 218 Reforms –If Proposition 218 reforms are proposed, engage in discussions surrounding the reform efforts to protect IRWD's interests. Communicate the District's concern over any water rate legislation which is not consistent with the California Constitution, not voluntary in nature, or that does not provide sufficient clarity or flexibility to water agencies.	**High**

DRAFT Expected 2024 Legislative and Regulatory Issues	Proposed Allocation of IRWD Resources
Potable Reuse – Advocate for the expansion of potable reuse in California and support a science-based and fit-for-purpose regulatory approach to the various types of potable reuse, including direct potable reuse, considered in the California Water Code Section 13561.	**High**
Real Estate Investments – Engage on regulatory or legislative proposals that may impact IRWD's ability to maintain a high return of investment on its real estate investments.	**High**
Atmospheric River Research – Advocate for state programs and funding for atmospheric river research aimed at improving reservoir operations.	**Moderate**
Biosolids – Seek a broader spectrum of permissible uses of biosolids byproducts including a possible "healthy soils" designation. Engage on the State Board's review of the General Order (WDR) for the use of biosolids on land.	**Moderate**
Climate Change Adaptation – Engage in policy discussions related to climate change adaptation within the water and wastewater sectors.	**Moderate**
Groundwater Clean-up – Support efforts to obtain State funding to clean up groundwater contamination in the Orange County Basin, and funding for basin replenishment.	**Moderate**
Homelessness – Within the larger discussions on addressing homeless, ensure that the impacts of homeless on water and wastewater agencies is recognized, and that agencies continue to retain adequate authority to secure their facilities.	**Moderate**
Lead Testing Requirements – Engage in policy discussions related to expanding lead testing requirements in order to protect IRWD's interests.	**Moderate**
Public Fleets –Engage in the implementation of regulations that require zero emission vehicle purchases and advocate that the regulations reflect commercial and operational viability and the availability of mandated replacement technology. Oppose proposals governing the public fleets of water and wastewater providers that do not consider the constraints of certain technologies on the provision of essential public services during or after an emergency.	**Moderate**
Public Records Act – Monitor proposed changes to the Public Records Act that could impact IRWD costs including new requirements for local agency websites, data production and reporting.	**Moderate**
Recycled Water – Promote the expanded use of recycled water, and its acceptance as a resource, by advocating for the removal of hindrances to recycled water projects and storage. Seek to: • Remove recycled water as a waste, including addressing recycled water discharge requirements. • Promote a "Fit for Purpose" regulatory approach for recycled water. • Promote the development of needed potable water reuse regulations. • Eliminate operational constraints on recycled water operations and use, including unintended impacts created by the Enclosed Bays and Estuaries Policy. • Seek updates to Title 17 and 22, including relief of dual-plumbed inspection/testing requirements.	**Moderate**
Safe Drinking Water- Engage on the implementation of the Safe and Affordable for Equity and Resilience Program (SAFER) to ensure that the program is implemented in a way to effectively move communities to sustainable access to safe drinking water	**Moderate**
Water Transfers and Markets – Engage with the California Department of Water Resources, in coordination with IRWD's Water Banking partners, in advocating for expedited processes to facilitate water transfers/exchanges and streamlined water marketing.	**Moderate**

DRAFT Expected 2024 Legislative and Regulatory Issues	Proposed Allocation of IRWD Resources
Water Law Modernization – Monitor and engage, as appropriate, on the efforts to "modernize" California's water law, including laws related to water rights.	**Moderate**
Water Quality – Engage productively in policy discussions related to changes in water quality and various discharge permits in order to protect the District's interests.	**Moderate**
Wildfire Prevention and Liability – Seek to ensure that proposals related to wildfire prevention and liability proposals consider the perspective of water and wastewater providers.	**Moderate**
30 Percent by 2030 – Engage on the implementation of 30 percent by 2030 to ensure water supplies and resources are adequately considered, and to limit impacts to existing and future water infrastructure and operations.	**Low**
Delta Conveyance Implementation – Advocate for a change in the operation of the Delta, consistent with the co-equal goals of ecosystem protection and water supply reliability. Seek the State actions necessary to implement a solution in the Bay Delta and oppose efforts to make implementation of a solution more difficult.	**Low**
Drought Response – Continue to advocate that the State's drought response be based on a data-driven approach and consider the reliability of urban water supplier supply portfolios by using a water efficiency standards-based approach as eliminating mandatory percent reductions for those agencies whose total water demands are below the cumulative standards.	**Low***
Energy – Advocate for policies that encourage energy reliability in Orange County, and energy efficiency or reductions in embedded energy in the water and wastewater sectors, including use of energy conservation funding within the water sector, and expanded availability of direct access programs, without an increase in cost to or mandates on local entities; seek incentives for energy self-reliance projects (i.e. storage, generation, efficiency).	**Low**
Limitations on Ocean Discharges – Engage productively in discussions surrounding proposals to eliminate ocean discharges to protect the District's interests. Support efforts to promote funding of treatment process upgrades that improve water quality and reuse options.	**Low***
Operators Certifications – Address inconsistent certification processes for operator certifications (treatment, distribution, and recycling). Monitor for changes in certification requirements.	**Low**
Political Reform Act/FPPC Issues – Monitor for changes to the Political Reform Act and FPPC regulations that could impact IRWD.	**Low**
Property Tax Allocations– Protect existing property tax allocations to special districts.	**Low**
Public Agency Liability and Public Contracting – Oppose efforts to impose greater liability on public agencies for work performed by its contractors. Oppose proposals that make public contracting for labor, service or public works projects more cumbersome including reductions in contract retentions or changing the criteria agencies may consider when awarding contracts.	**Low**
Plumbing Code Updates – Seek clarification that Chapter 15 of the California Plumbing Code does not apply to recycled water irrigation sites. Work with the Building Standards Commission, Housing and Community Development Department, and Department of Water Resources on revisions to the California Plumbing Code during code revisions.	**Low***
Unfunded Pension Liability – Oppose legislation or regulations that would increase IRWD's pension liability either by making local agencies responsible for the pension liabilities of other entities (e.g. joint powers authorities) or by failing to recognize the liability reduction benefits of	**Low**

DRAFT Expected 2024 Legislative and Regulatory Issues	Proposed Allocation of IRWD Resources
Section 115 Trust and other pre-funding efforts. Seek state support for refinements in the GASB rules that limit recognition of the benefits Section 115 Trust.	
Water Tax – Consistent with the Board's adopted policy on a statewide public goods charge, oppose a statewide tax on water for Low Income Rate Assistance or to fund other resiliency efforts	**Low**
Video Recording Retention Periods – Advocate for greater flexibility for special districts related to the required retention period prescribed by law for video recordings.	**Low**
REGIONAL ISSUES	
Santa Ana and San Diego Regional Water Quality Control Boards –Work with the Board on issues of concern to IRWD including adjusting storm-induced overflow protections and expand the use of recycled water in decorative lakes.	**High**
Recycled Water Use Site Inspection and Testing – Work with Orange County Health Care Agency on completion of the Orange County Guidelines which include the frequencies and methods for conducing recycled water use site visual inspections and periodic cross-connection tests.	**Low**

*Increase allocation of resources if warranted due to legislative or regulatory activity.

November 3, 2023
Prepared by: M. Tettemer
Submitted by: P. Weghorst
Approved by: Paul A. Cook

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

REVISED IRWD POLICY PRINCIPLES REGARDING
METROPOLITAN WATER DISTRICT'S INTEGRATED WATER RESOURCES PLAN AND
LOCAL RESOURCES PROGRAM

SUMMARY:

Metropolitan Water District is updating its Integrated Water Resources Plan (IRP), which will identify new regional targets for local water resource development. These new targets will affect updating and implementing Metropolitan's Local Resources Program, which provides incentives to water agencies to develop water recycling, groundwater recovery, and seawater desalination projects. On May 9, 2022, the Board adopted an updates to this policy paper to help guide IRWD's advocacy efforts related to ongoing policy discussions on Metropolitan's IRP and Local Resource Program. To ensure that IRWD's policy positions remain up to date for its continued advocacy efforts, this policy position paper is being revised again. Staff recommends the Board adopt this revised IRP and Local Resources Program policy principles.

BACKGROUND:

In 2004, IRWD began producing policy papers on topics of interest to the District. Because of IRWD's standing in the water industry, the opinion of IRWD is regularly solicited on issues of vital interest to the industry and the community. To keep these position papers current for explaining IRWD's position, staff occasionally recommends that the Board review the papers and, when appropriate, adopt new policies or incorporate revisions.

Metropolitan's Integrated Water Resources Plan:

In 2020, Metropolitan initiated a new two-phase IRP process that considers four different scenarios, each assuming specific forecasts of climate change impacts on imported supplies and different regional water demands. In evaluating these scenarios, Metropolitan is investigating a suite of programs and projects needed to maintain reliable water supplies through the year 2045. These new requirements will affect the updating and implementing of the Metropolitan's Local Resources Program.

Metropolitan's Local Resources Program:

Metropolitan provides financial incentives through its Local Resources Program for developing water recycling, groundwater recovery, and seawater desalination projects that offset a demand or prevent adding a new demand on Metropolitan's imported water supplies. Sliding scale payments made through the Local Resources Program are based on actual project unit costs that exceed Metropolitan's prevailing Full-service Tier-1 Treated Water Rates. Local Resources Program incentives are contingent upon the approval of Metropolitan's Board of Directors. Upon completion of the 2020 IRP, Metropolitan is expected to make revisions to the program.

Revised IRWD Policy Principles:

To help guide IRWD's continued advocacy efforts related to ongoing policy discussions on Metropolitan's 2020 IRP and Local Resources Programs, staff has updated IRWD's policy position paper. The revised policy paper is provided as Exhibit "A". The current version of this policy paper, adopted by the Board on May 9, 2022, is provided for reference as Exhibit "B". Staff recommends the Board adopt the revised policy principles.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

None.

RECOMMENDATION:

That the Board adopt the revised IRWD policy principles regarding Metropolitan Water District's Integrated Water Resources Plan and Local Resources Program.

LIST OF EXHIBITS:

Exhibit "A" – Draft IRWD Policy Position Regarding Metropolitan Water District's Integrated Water Resources Plan and Local Resources Program
Exhibit "B" – Current IRWD Policy Position Regarding Metropolitan Water District's Integrated Water Resources Plan and Local Resources Program dated May 9, 2022

Exhibit "A"

DRAFT

IRVINE RANCH WATER DISTRICT POLICY POSITION METROPOLITAN WATER DISTRICT'S INTEGRATED WATER RESOURCES PLAN AND LOCAL RESOURCES PROGRAM

November 3, 2023

Issue Summary:

Metropolitan Water District of Southern California formulates its long-term strategy to provide its customers with cost effective and reliable water supplies through the development and implementation of its Integrated Water Resources Plan (IRP). The last update to Metropolitan's IRP was in 2015, which focused on a single forecast of supplies and demands. In 2020, Metropolitan initiated a new two-phase IRP process that looks at four different scenarios, each assuming specific forecasts of climate change impacts to imported supplies and different regional water demands. By evaluating these multiple scenarios, Metropolitan can investigate a suite of programs and projects needed to maintain reliable water supplies through the year 2045.

In the first phase of the 2020 IRP process, Metropolitan identified a substantial need for new water supplies and storage to meet the demands of its member agencies. These new requirements will affect updating and implementing of Metropolitan's Local Resources Program (LRP), which is used to incentivize new local water supplies developed by Metropolitan's member agencies.

IRP Phase 1 Regional Needs Assessment:

Phase 1 of Metropolitan's 2020 IRP process concluded with the preparation of a Regional Needs Assessment that was adopted by Metropolitan in April 2022. The assessment identified water supply gaps associated with four future supply and demand scenarios, two of which involved significant impacts to imported supplies due to climate change. The assessment further identified the amount of new core supplies, flexible supplies and storage that would be needed to address the predicted gaps. A core supply is water that would generally be available every year. A flexible supply is implemented on an as-needed basis, such as water banking. The following table summarizes the needs for these resources in 2045 for the two IRP scenarios involving significant climate change induced reductions in imported supplies and uncertainties in future water demands:

Additional Water Resources Needed in 2045
For Scenarios Assuming Significant Climate Change

Water Resource	Low Water Demands	High Water Demands
Additional Storage	500,000 acre-feet	1,500,000 acre-feet
New Flexible Supplies	200,000 acre-feet	1,200,000 acre-feet
New Annual Core Supplies	100,000 acre-feet	650,000 acre-feet

The assessment concluded that forecasted shortages to the State Water Project (SWP) dependent areas of Metropolitan's service area can be severe and that these new resources must be made available to those areas. The Regional Needs Assessment also concluded that maintaining and developing new local supplies will be critical to meeting future demands in Metropolitan's service area.

IRP Phase 2 CAMP4W Process:

The Regional Needs Assessment developed in Phase 1 of the 2020 IRP process is providing a foundation for Metropolitan's development of its Climate Adaptation Master Plan for Water (CAMP4W). The development of the master plan is considered Phase 2 of the 2020 IRP process. During this phase, Metropolitan is evaluating the benefits and financial sustainability associated with projects and programs such as Metropolitan's proposed Pure Water of Southern California Project, Delta Conveyance Project, Sites Reservoir Project, additional land purchases in Palo Verdo Irrigation District, and continuation of the Metropolitan's LRP.

Metropolitan's consideration of the financial sustainability of future projects and programs is occurring through the preparation of a Long-Range Financial Plan (LRFP). Currently, the LRFP is considering costs of up to $3,000 per acre-foot (AF) for new core supplies and $600 per AF for new flexible supplies.

Changing Conditions:

Metropolitan has historically implemented a regional approach to planning that has ensured its ability to provide reliable and high-quality water to its member agencies. The ability to continue with this approach into the future is being affected by the following changing conditions:

- Metropolitan's member agencies are collectively using less imported water supplies, which is likely to continue with the implementation of the California Conservation as a Way of Life legislation;
- Climate change continues to impact the SWP and an over-allocated Colorado River;
- Uncertainties surrounding the timing of the implementation of the proposed Delta Conveyance Project implementation;
- Accumulating risks that a major earthquake near the Sacramento-San Joaquin River Delta would dramatically impact water supplies to Southern California. The California Department of Water Resources estimates that there is a 62 percent chance of a magnitude 6.7 or greater earthquake in the Delta region over the next 30 years;
- Emerging contaminants impacting local groundwater basins are creating increased dependence on imported water supplies from Metropolitan;
- Some member agencies are reducing dependence on Metropolitan by implementing local base-loaded supply projects while relying on Metropolitan more as a "back-up supply". Such shifts could eventually require a change in how Metropolitan charges for its services and how it operates facilities;
- IRWD and other agencies have developed as-needed extraordinary supplies and other projects that can be used during major droughts and emergencies that do not negatively affect Metropolitan financially;
- Metropolitan's variable revenue structure may not be effective at recovering all of Metropolitan's costs into the future, creating financial instability; and

- Storage in groundwater basins in Metropolitan's service area is under-utilized.

Scenario Planning:

IRWD supports Metropolitan's proposed multi-scenario planning approach to the 2020 IRP. Throughout that process, Metropolitan should: (1) protect existing imported water supply infrastructure and deliveries; (2) minimize potential stranding of conveyance, treatment, and storage assets; (3) carefully evaluate new water supply projects to improve regional water supply reliability; and (4) establish the highest priority for planning for the most likely scenario of reduced imported water supplies and reduced demands.

Local Resources Program Overview:

In the 1990s, Metropolitan developed the LRP out of concern that its member agencies were overly reliant on imported water supplies and that supply diversification would benefit all of Metropolitan's service area. The intent of the program was to incentivize new local water supplies to be developed by Metropolitan's member agencies. This program has provided incentives to water agencies to develop water recycling, groundwater recovery, and desalination projects that offset a demand or prevent adding a new demand on Metropolitan for imported water supplies. The incentive program has also indirectly increased regional water supply reliability, decreased use of Metropolitan's infrastructure, reduced costs, and freed up conveyance capacity in Metropolitan's system. Currently, Metropolitan offers LRP subsidies for local projects in the amount of up to $475 per AF.

Importance of Recycled Water Projects:

Recycled water projects such as IRWD's have resulted in reduced demands for water supplies from Metropolitan, resulting in more water that Metropolitan can use for potable purposes. Further investments by Metropolitan in recycled water projects would significantly reduce the need to secure the 650,000 acre-feet per year of additional core supplies identified in the Regional Needs Assessment described above. Such projects would result is increased potable supplies throughout the rest of Metropolitan's service area at a cost of up to $475 per AF, versus the $3,000 per AF currently being considered in the LRFP.

Some water supplies within the Metropolitan service that could be recycled are lost to the ocean because of the lack of demand and/or storage available in winter periods. Incentivizing the design and construction of cost-effective recycled water storage in Metropolitan's service area should be a priority for Metropolitan. Such storage projects would maximize the use of existing recycled water supplies while increasing the availability of Metropolitan's water supplies for potable sales – especially during the high-demand summer months.

Ongoing Policy Discussions:

Currently, Metropolitan and its member agencies are engaged in policy discussions related to how the changing conditions described above will affect completing the 2020 IRP and refining

the LRP. The Municipal Water District of Orange County is involved in the discussions and seeking input from its member agencies on the issues. To help guide IRWD's advocacy efforts related to the ongoing policy discussions on Metropolitan's IRP and LRP, staff has prepared the following policy principles.

Integrated Resources Plan Policy Principles:

1. Metropolitan should continue its regional approach to water resources planning and work to ensure its financial stability while maintaining the ability to provide reliable, cost effective and high-quality water supplies to its member agencies.
2. Metropolitan should consider member agencies' plans for implementation of local supply projects when evaluating regional water supply reliability.
3. Metropolitan should work with its member agencies to maximize use of groundwater storage in its service area prior to making additional investments in new storage facilities.
4. Metropolitan and its IRP should recognize the importance of reducing the loss of potentially recyclable water to the ocean.
5. Metropolitan should support member agencies implementing as-needed projects that augment Metropolitan supplies during major droughts and supply interruptions.
6. Metropolitan should actively support efforts to ensure that state mandates do not discourage the use of as-needed supply projects.
7. Metropolitan should reduce risks to its imported supplies by investing in the Delta Conveyance and Sites Reservoir Projects as well as supporting subsidence related repairs to the California Aqueduct and developing new innovative programs on the Colorado River.
8. Should Metropolitan be unable to maintain rate and financial stability, it should consider enhancing its variable revenue structure with a fixed rate component that ensures it can cover its full cost of regional service.
9. Metropolitan should plan for the most likely scenario of reduced future imported water supplies and reduced demands by establishing a suite of policies, programs and projects that will maintain regional water supply reliability through the year 2045.
10. Metropolitan should use the results of its evaluation of the less than likely scenarios to inform creation of an adaptive management strategy to deal with future uncertainties.
11. In preparing its 2020 IRP, Metropolitan should consider the likelihood and effectiveness of implementing local supply projects when accounting for regional benefits.

Metropolitan's Local Resources Program Policy Principles:

1. Metropolitan should give priority to incentivizing local drought resilient recycled water production and storage projects that increase the availability of water supplies for potable uses by Metropolitan member agencies.

2. Metropolitan should incentivize extraordinary supply projects and other as-needed supplies that augment Metropolitan supplies during major droughts and supply interruptions.

3. Metropolitan should consider prioritizing LRP incentives for local as-needed supply projects, rather than base-loaded supplies, in the SWP dependent areas.

4. Metropolitan should balance providing LRP incentives with the development of Metropolitan-owned supply and storage projects in a way that supports Metropolitan's rate and financial stability.

5. Metropolitan should consider potential risks to its rate and financial stability before incentivizing base-loaded local projects and other supplies that strand capacity in Metropolitan's water treatment facilities.

6. Metropolitan should not provide incentives for local projects that obligate the local communities in one part of Metropolitan's service area to subsidize other communities in Metropolitan's service area.

7. Metropolitan should consider reallocating Local Resource Program funds to incentivize purchases of imported water from Metropolitan to reduce overdraft in groundwater basins within Metropolitan's service area.

8. Metropolitan should only consider providing incentives to local groundwater treatment projects up to the lowest cost and effective treatment of regulated constituents impacting the supplies.

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EXHIBIT "B"

IRVINE RANCH WATER DISTRICT POLICY POSITION
METROPOLITAN WATER DISTRICT'S INTEGRATED WATER RESOURCES PLAN
AND LOCAL RESOURCES PROGRAM

May 9, 2022

Issue Summary:

One way that Metropolitan Water District of Southern California plans for the future is through the development and implementation of its Integrated Water Resources Plan (IRP). The purpose of the plan is to formulate a long-term strategy to provide Metropolitan's service area with cost effective and reliable water supplies. The last update to the IRP was in 2015 and in 2020 Metropolitan began preparing its 2020 update to the plan. The 2015 IRP established goals to achieve additional water use efficiency and conservation, to stabilize and maintain imported water supplies, and to develop additional local water supplies. In its 2015 IRP, Metropolitan focused on a single forecast of supplies and demands.

Completion of the 2020 update to the IRP has been delayed due to complexities associated with analyzing multiple scenarios that could play out in the future, and how Metropolitan could respond to maintain water reliability for its service area. The 2020 update will anticipate how much water Southern California can expect from its imported and local supplies under four different scenarios, with each assuming specific forecasts of regional water demands. By looking at multiple scenarios, Metropolitan will investigate a suite of resources, policies, programs, and projects that may be needed to maintain reliable water supplies through the year 2045. New targets for 2045 will affect the updating and implementation of Metropolitan's Local Resources Program. There are numerous changing conditions, some of which are described below, that will influence Metropolitan's efforts to update both the IRP and Local Resources Program.

Changing Conditions:

Metropolitan has historically implemented a regional approach to planning that has ensured its ability to provide reliable and high-quality water to its member agencies. The ability to continue with this approach into the future is being affected by the following changing conditions:

- An unexpected future where member agencies are collectively trending towards requiring less imported water supplies;
- Climate change impacts to the State Water Project (SWP) and an over-allocated Colorado River;
- Increased environmental constraints and ongoing uncertainties of a long-term solution to conveyance in the Sacramento-San Joaquin Delta make it difficult to predict the availability of Metropolitan's future water supplies;
- Accumulating risks that a major earthquake will occur in the Delta that will dramatically reduce water supplies to Southern California;
- Emerging contaminants are impacting local groundwater basins creating short-term, increased dependence on imported water supplies from Metropolitan;

- Some member agencies are reducing dependence on Metropolitan by developing base-loaded local supplies that are relied upon continuously. Such base-loaded supplies negatively affect Metropolitan financially and strand capacity in Metropolitan's water treatment facilities by reducing demands for imported supplies. Agencies that develop these base-loaded supplies still rely on Metropolitan as a "back-up supply" in the event local supplies are interrupted;
- IRWD and other agencies have developed extraordinary supplies and other projects that can be used during major droughts and emergencies. These types of supplies are referred to as "as-needed supplies". Such as-needed supplies do not negatively affect Metropolitan financially and assist in maintaining local water supply reliability; and
- Metropolitan's variable revenue structure may not be effective at covering all of Metropolitan's costs into the future, creating financial instability.

Scenario Planning:

IRWD supports Metropolitan's proposed multi-scenario planning approach to the 2020 IRP. Throughout that process, Metropolitan should: (1) protect existing imported water supply infrastructure and deliveries; (2) minimize potential stranding of conveyance, treatment, and storage assets; (3) carefully evaluate new water supply projects to improve regional water supply reliability; and (4) establish the highest priority for planning for the most likely scenario of reduced imported water supplies and reduced demands.

The complexities associated with planning for multi-scenarios is delaying the evaluation of the most likely scenario of reduced imported supplies and reduced demands. Completion of the 2020 IRP process for this most likely scenario first would help provide the region an understanding of the most likely suite of resources, policies and investments that may be needed to maintain reliable water supplies through the year 2045. The subsequent evaluation the other less likely scenarios would help identify uncertainties associated with what would be needed over the planning period.

Local Resources Program Overview:

In the 1990s, Metropolitan developed the Local Resources Program out of concern that its member agencies were becoming too reliant on imported water supplies and that supply diversification would benefit all of Metropolitan's service area. The intent of the program was to incentivize new local water supplies to be developed by Metropolitan's member agencies. This program has provided incentives to water agencies to develop water recycling, groundwater recovery, and desalination projects that offset a demand or prevent adding a new demand on Metropolitan for imported water supplies. The incentive program has also indirectly increased regional water supply reliability, decreased the burden on Metropolitan's infrastructure, reduced costs, and freed up conveyance capacity in Metropolitan's system.

Ongoing Policy Discussions:

Currently, Metropolitan and its member agencies are engaged in policy discussions related to how the changing conditions described above will affect the update to Metropolitan's IPR and the Local Resources Program. The Municipal Water District of Orange County is involved in the discussions and seeking input from its member agencies on the issues. To help guide IRWD's advocacy efforts related to the ongoing policy discussions on Metropolitan's IRP and Local Resources Programs, staff has prepared the following policy principles.

Integrated Resources Plan Policy Principles:

1. Metropolitan should continue its regional approach to water resources planning and work to ensure its financial stability while maintaining the ability to provide reliable, cost effective and high-quality water supplies to its member agencies.
2. Metropolitan should evaluate previous approaches taken in the preparation of IRPs and develop a new approach that provides flexibility in dealing with current and future conditions and uncertainties.
3. Metropolitan's new approach to the 2020 IRP should balance regional and member agency water supply reliability in a way that allows Metropolitan to maintain rate and financial stability.
4. Metropolitan's 2020 IRP should encourage member agencies to take responsibility for complying with water conservation legislation and to implement projects that augment Metropolitan supplies during major droughts and supply interruptions.
5. To reduce risks to its imported supplies, Metropolitan should invest in the proposed Delta Conveyance Project, support subsidence related repairs to the California Aqueduct, and develop new innovative programs on the Colorado River.
6. Metropolitan should take actions to stabilize demands for its imported supplies to help maintain rate and financial stability.
7. Should Metropolitan be unable to maintain financial stability, it should consider enhancing its variable revenue structure with a fixed rate component that ensures it can cover its full cost of regional service.
8. Metropolitan should first plan for the most likely scenario of reduced future imported water supplies and reduced demands. This would establish a most likely suite of resources, policies, programs and projects that may be needed to maintain reliable water supplies through the year 2045.
9. Metropolitan should use the results of its evaluation of the less than likely scenarios to inform the development of an adaptive management strategy to deal with uncertainties associated with increased demands and/or increased imported supplies.
10. In preparing its 2020 IRP, Metropolitan should consider the feasibility, risk and ease of implementation of local supply projects when accounting for the potential benefits of the projects on regional water supply reliability.

Local Resources Plan Policy Principles:

1. Metropolitan should incentivize local drought resilient recycled water projects, extraordinary supply projects and other as-needed supplies that augment Metropolitan supplies during major droughts and supply interruptions while improving local water supply reliability. Metropolitan should also take an active role in ensuring that state mandates do not discourage the use of supplies from such projects.
2. Metropolitan should prioritize providing its incentives to local projects located in areas that have less access to local supplies, such as areas at high risk of shortage because they can only receive water from the State Water Project. Incentives provided to these high-risk areas should focus on development of as-need supplies rather than base-loaded supplies.
3. Metropolitan should consider limiting use of its Local Resources Program until average annual demands for water from Metropolitan are at levels that stabilize Metropolitan's finances.
4. Projects shall be funded by the Local Resources Program through a competitive process based on specific criteria and block grants.
5. Metropolitan should not subsidize base-loaded local projects and other supplies that strand capacity in Metropolitan's water treatment facilities and increase risk to rate and financial stability.
6. Metropolitan should not provide incentives for local projects that obligate the local communities in one part of Metropolitan's service area to subsidize other communities in Metropolitan's service area.
7. To increase demands for its supplies, Metropolitan should consider reallocating Local Resource Program funds to reduce overdraft in groundwater basins within Metropolitan's service area.
8. Metropolitan should only consider providing incentives to local groundwater treatment projects up to the lowest cost and effective treatment of regulated constituents impacting the supplies.

November 3, 2023
Prepared by: N. Palacio / K. Welch
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook

WATER RESOURCES POLICY AND COMMUNICATIONS COMMITTEE

RESOLUTION FOR SYPHON RESERVOIR IMPROVEMENT PROJECT
APPLICATION FOR TITLE XVI GRANT FUNDING

SUMMARY:

In August 2022, IRWD was awarded funding in the amount of $12.2 million for the Syphon Reservoir Improvement Project under the Bureau of Reclamation WaterSMART-Title XVI Water Reclamation and Reuse Program (Title XVI Program), as amended by the Water Infrastructure Improvements for the Nation (WIIN) Act. The program allows project sponsors to apply for funding multiple times until a project's total funding award has reached 25% of the total project cost, up to a maximum of $30 million per project. Reclamation is accepting applications for grant funding under the Title XVI Program for fiscal years 2023 and 2024. Staff recommends the IRWD submit an application for the Syphon Reservoir Improvement Project for 25% of total project costs that are expected to be incurred through December 7, 2026.

As a condition of the grant application process, Reclamation requires that an applicant's governing body adopt a resolution designating an authorized representative to submit the grant application and to enter into an agreement to receive the funding. Staff recommends the Board adopt a resolution authorizing submission of a grant application under the WaterSMART Title XVI WIIN Water Reclamation and Reuse Program for 25% of total project costs, up to $30 million, for the Syphon Reservoir Improvement Project and authorize the General Manager to execute a related agreement to receive grant funding.

BACKGROUND:

Since 2018, IRWD has submitted separate grant funding applications for the Syphon Reservoir Improvement Project under Reclamation's WaterSMART – Title XVI Program as amended by the WIIN Act. Eligible applicants for Title XVI funding are sponsors of water recycling projects that have completed a Feasibility Study that Reclamation has found to meet the requirements of Title XVI. On August 22, 2017, Reclamation approved a Title XVI-compliant Feasibility Study for the Syphon Reservoir Improvement Project.

The Syphon Reservoir Improvement Project was awarded funding under the Title XVI Program for Fiscal Year 2022, in the amount of $12.2 million. In September 2023, an agreement was executed between IRWD and Reclamation for the disbursement of these funds. Under this agreement, IRWD will receive 25% of project planning, design and construction costs incurred from February 7, 2018, through September 30, 2025, up to the awarded $12.2 million.

2023 Title XVI Funding Opportunity:

In September 2023, Reclamation issued a new Notice of Funding Opportunity (NOFO) for grants under the Title XVI Program for fiscal years 2023 and 2024. This NOFO will be used to allocate

up to $179 million in available funding under the Bipartisan Infrastructure Law. Applicants that are awarded funding under the Bipartisan Infrastructure Law will need to meet additional requirements, including Buy American and Wage Rate Requirements. Since the Syphon Reservoir Improvement Project was previously awarded funding under the Bipartisan Infrastructure Law, the project has been deemed to already meets these additional requirements.

Grant Funding Application:

Based on the 2023 NOFO, Title XVI Program funding can be applied to planning, design, and/or construction costs incurred from February 7, 2018, through December 7, 2026. Staff will estimate eligible Syphon Reservoir Improvement Project costs that will be incurred by December 2026 and submit a grant application for 25% of those costs, less the $12.2 million in funding awarded under last year's program. In accordance with the Title XVI Program, IRWD will be required to provide at least 75% of total project costs. The program allows project sponsors to reapply for funding multiple times until a project's total funding award has reached 25% of the total project cost up to a maximum of $30 million. Based on expected costs to be incurred through December 2026 and the funding award maximum, IRWD's funding request for this year's application will be $17.8 million, for a combined total of $30 million.

Under this NOFO, there are two application submittal periods. The first application submittal period closes on December 7, 2023, and the second and final application submittal period closes on September 30, 2024. Staff plans to submit a grant application by the first application submittal period closing date.

Board Resolution:

As part of the grant funding process, Reclamation requires that a resolution be adopted by the applicant's governing body. The resolution must designate an authorized representative to submit the application for grant funding and to enter into an agreement to receive funding. It also must confirm that the applicant has the ability to provide the required cost share of up to 75% of the project costs. Accordingly, staff recommends the Board adopt the resolution, provided as Exhibit "A", which supports a WaterSMART grant application for the Syphon Reservoir Improvement Project.

FISCAL IMPACTS:

The Syphon Reservoir Improvement Project (Project 03808) is included in the FY 2023-24 and FY 2024-25 Capital Budget.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act as authorized under the California Code of Regulations Title 14, Chapter 3, Section 15004. A Final Environmental Impact Report for the Syphon Reservoir Improvement Project was approved and adopted by the Board on July 26, 2021, and a Notice of Determination was filed on July 27, 2021. This project is also subject to the National Environmental Policy Act (NEPA). On August 14, 2023,

Reclamation prepared and certified a Categorical Exclusion for the project, pursuant to 43 CFR 46.210(c).

RECOMMENDATION:

That the Board adopt a resolution authorizing submission of a grant application under the Bureau of Reclamation WaterSMART – Title XVI WIIN Water Reclamation and Reuse Program for up to 25% of the total project costs, up to $30 million, for the Syphon Reservoir Improvement Project, and authorize the General Manager to execute a related agreement to receive grant funding.

LIST OF EXHIBITS:

Exhibit "A" – Resolution Authorizing Submission of a Grant Application for the WaterSMART – Title XVI WIIN Water Reclamation and Reuse Program

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Exhibit “A”

RESOLUTION NO. 2023 -

RESOLUTION OF THE BOARD OF DIRECTORS OF
IRVINE RANCH WATER DISTRICT
AUTHORIZING SUBMISSION OF A GRANT APPLICATION
FOR THE WATERSMART TITLE XVI WIIN
WATER RECLAMATION AND REUSE PROGRAM TO THE
DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
WATER RESOURCES AND PLANNING OFFICE

The Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office (“Reclamation”) has released a Funding Opportunity Announcement to provide federal grants under the WaterSMART: Title XVI WIIN Water Reclamation and Reuse Projects funding opportunity for fiscal years 2023 and 2024 as amended by the Water Infrastructure Improvements for the Nation Act (“WIIN Act”).

Reclamation is seeking applications from water agencies with projects eligible under section 4009(c) of the WIIN Act for grant funding for the planning, design and/or construction of water reclamation and reuse projects.

The Irvine Ranch Water District is eligible to submit applications for grant funding for up to 25 percent of the total project cost, up to a maximum of $30 million, for its Syphon Reservoir Improvement Project.

The Board of Directors of Irvine Ranch Water District therefore resolves as follows:

Section 1. The General Manager of the Irvine Ranch Water District or his designee is hereby authorized to submit an application to Reclamation for grant funding for up to 25 percent of the total project cost, up to a maximum of $30 million, for its Syphon Reservoir Improvement Project.

Section 2. The Board of Directors of the Irvine Ranch Water District has reviewed and supports the application for grants from Reclamation for the WaterSMART Title XVI WIIN Water Reclamation and Reuse Program.

Section 3. The Irvine Ranch Water District hereby confirms that it has the capability to provide 75 percent or more of the total project costs as specified in the application’s project funding plan.

Section 4. The General Manager or his designee is hereby authorized to enter into a cooperative agreement and any amendments thereto with Reclamation on behalf of the Irvine Ranch Water District.

Section 5. The General Manager or his designee is hereby authorized to work with Reclamation to meet the established deadlines for entering into a cooperative agreement.

Section 6. The Secretary is hereby authorized to certify a copy of this resolution to accompany the grant application.

ADOPTED, SIGNED AND APPROVED this 13th day of November, 2023.

_____
President, IRVINE RANCH WATER DISTRICT
and the Board of Directors thereof

_____
Secretary, IRVINE RANCH WATER DISTRICT
and the Board of Directors thereof

APPROVED AS TO FORM:
Hanson Bridgett, LLP

By: _____
District Counsel