MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
PLANNING & OPERATIONS COMMITTEE
18700 Ward Street, Conf. Room 101, Fountain Valley, CA 92708
August 4, 2025, 8:30 a.m.

Teleconference Sites:
25652 Paseo De La Paz, San Juan Capistrano, CA 92675
17420 Walnut Street, Fountain Valley, CA 92708

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P&O Committee:
Director Seckel, Chair
Director Yoo Schneider
Director Dick

Staff: H. De La Torre, M. Baum-Haley, A. Crespi, V. Osborn, C. Busslinger, D. Micalizzi, K. Pham

Ex Officio Member: President McVicker

MWDOC Committee meetings are noticed and held as joint meetings of the Committee and the entire Board of Directors, and all members of the Board of Directors may attend and participate in the discussion. Each Committee has designated Committee members, and other members of the Board are designated alternate committee members. If less than a quorum of the full Board is in attendance, the Board meeting will be adjourned for lack of a quorum and the meeting will proceed as a meeting of the Committee with those Committee members and alternate members in attendance acting as the Committee.

ROLL CALL

PUBLIC COMMENTS - Public comments on agenda items and items under the jurisdiction of the Committee should be made at this time.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Determine need and take action to agendize item(s), which arose subsequent to the posting of the Agenda. (Requires a unanimous vote of the Committee).

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING

Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than 72 hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Website, accessible at http://www.mwdoc.com.

PRESENTATION ITEM

1. WATER LOSS CONTROL TECHNICAL ASSISTANCE PROGRAM AND NEXT STEPS

DISCUSSION ITEM

2. GIS NEEDS ASSESSMENT CONSULTANT FINDINGS

ACTION ITEM

3. MASTER AGREEMENT FOR SHARED PROGRAMS AND SERVICES BETWEEN THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY & THE CITY OF SANTA ANA

INFORMATION ITEMS

4. THE ASSOCIATION OF CALIFORNIA WATER AGENCIES' (ACWA) ELECTION OF PRESIDENT, VICE PRESIDENT, AND REGION 10 BOARD OF DIRECTORS

5. METROPOLITAN DIRECTORS' INSPECTION TRIP PRESEASON PLANNING

6. OC WATER SUMMIT UPDATE

7. JUNE 26TH WATER POLICY FORUM ACCOUNTING

8. PUBLIC AFFAIRS HIGHLIGHTS

9. DEPARTMENT ACTIVITIES REPORTS
   a. Ongoing MWDOC Reliability and Engineering/Planning Projects
   b. WEROC
   c. Water Use Efficiency Projects
   d. Public and Government Affairs

10. REVIEW OF ISSUES RELATED TO PLANNING OR ENGINEERING PROJECTS, WEROC, WATER USE EFFICIENCY, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, PUBLIC AFFAIRS PROGRAMS AND EVENTS, PUBLIC INFORMATION PROJECTS, PUBLIC INFORMATION CONSULTANTS, DISTRICT FACILITIES, and MEMBER AGENCY RELATIONS

ADJOURNMENT

NOTE: At the discretion of the Committee, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated, and may be subject to action by the Committee. On those items designated for Board action, the Committee reviews the items and makes a recommendation for final action to the full Board of Directors; final action will be taken by the Board of Directors. Agendas for Committee and Board meetings may be obtained from the District Secretary. Members of the public are advised that the Board consideration process includes consideration of each agenda item by one or more Committees indicated on the Board Action Sheet. Attendance at Committee meetings and the Board meeting considering an item consequently is advised.

Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Angela Crespi, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at 18700 Ward Street, Fountain Valley, CA 92708. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.

Item No. 1

PRESENTATION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Rachel Davis, Water Loss Control Programs Manager

SUBJECT: **WATER LOSS CONTROL TECHNICAL ASSISTANCE PROGRAM AND NEXT STEPS**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee receive and file the presentation.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

According to the American Water Works Association, *"Water Loss Control represents the efforts of water utilities to provide accountability in their operation by reliably auditing their water supplies and implementing controls to minimize system losses."*

To achieve this, MWDOC developed a comprehensive Water Loss Control (WLC) program with two integral components:

1. **WLC Technical Assistance Program (WLC-TAP)** - provides data analysis services that help agencies comply with State regulations and strategically guide field interventions to achieve an economically optimized level of water loss; and
2. **WLC Shared Service Program** - provides water loss control field interventions such as leak detection, customer meter accuracy testing, and pressure surveys.

WLC-TAP Background

On October 21, 2015, the Board of Directors authorized the General Manager to enter into a three-year professional services agreement with E Source Companies, LLC (E Source), to

Budgeted: ☐ Yes ☐ No ☒ N/A	Budgeted amount:	Core: ☐	Choice: ☐
Action item amount: N/A	Movement between funds: ☐ Yes ☒ No		

provide water loss control technical assistance to the member agencies, as well as the cities of Anaheim, Fullerton, and Santa Ana. The resulting WLC-TAP has been in existence for ten years. Through subsequent bid processes and agreement renewals, E Source has continued to deliver this service.

Additionally, over the last ten years, water loss control regulations evolved through Senate Bill (SB) 555, SB 606, Assembly Bill (AB) 1668, AB 1414, and an extensive State Water Resources Control Board (SWRCB) formal rulemaking process. As a result, to better meet the agencies' needs thus far over the program term, the number of Technical Assistance tasks provided to participating retail water agencies has grown from five to twelve tasks. The WLC-TAP also includes bi-monthly Water Loss Control Workgroup Meetings with consistent, robust attendance by retail water agency staff. These work groups served as a venue for the agencies to develop an understanding of water loss control regulations and best practices, as well as share experiences and ideas.

Program Achievements

The collaboration and coordination between MWDOC staff and E Source in the facilitation of the WLC-TAP has been highly beneficial with agency participation and feedback being overwhelmingly positive. Every Orange County retail water agency has either participated in the WLC-TAP or the WLC Shared Services Program.

Within Orange County, of the 27 retail water agencies required to submit their audits to the Department of Water Resources and mandatory questionnaires to the SWRCB, 25 utilized the WLC-TAP. Ten agencies also worked with E Source through the WLC-TAP to calculate custom parameter adjustments to the SWRCB economic model, thereby increasing their real loss standard, right-sizing their target, making compliance more realistic, and reducing excessive spending.

Retail water agency staff often expressed their appreciation for the WLC-TAP, such as Gar Huang, Associate Engineer with the City of Fullerton, who shared:

> "*MWDOC's Water Loss Control Technical Assistance Program has been outstanding. Partnering with the E Source team has been a true asset - they're highly responsive, incredibly knowledgeable, and genuinely passionate about what they do. Their in-depth analysis of our water loss data has not only enhanced our understanding of system performance but also improved the accuracy of our reporting. Thanks to this support, the City of Fullerton is making meaningful progress toward compliance and long-term system efficiency*."

Beyond the assistance to the retail water agencies, E Source provided MWDOC with invaluable expertise during the rulemaking process, allowing MWDOC to be an active voice in the development of the regulations. E Source also authored MWDOC's Water Loss Shared Services Business Plan, which became the basis for the WLC Shared Services Program, including distribution system leak detection, which launched in 2019. Additionally, E Source developed three different dashboards to allow MWDOC staff to manage, analyze, and interpret compliance trends, customer meter accuracy testing results, and leak detection data.

Next Steps

On July 28, 2025, MWDOC released a request for proposals to continue the WLC-TAP, with an anticipated Board action to follow in November 2025. Water loss regulations will require ongoing monitoring, tracking, and action. Therefore, MWDOC's WLC-TAP will continue to offer choice-funded services to Orange County's retail water agencies to help them comply with the existing and ongoing water loss control regulations.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☐ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☒ *Work with member agencies to develop water supply and demand objectives.*
- ☒ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

Attachments/Links:
Attachment 1: Water Loss Control Technical Assistance Program Ten-Year Update Presentation



Water Loss Control Technical Assistance Program 10 Year Update

Planning and Operations Committee

August 4, 2025

Introductions

Rachel Davis, Water Loss Control Programs Manager, MWDOC

Kim Manago Ph.D., Director, E Source

Presentation Purpose

- Program background and context
- Program scope and assistance offered
- Key accomplishments
- Look ahead to the future of the program

Definitions

Water Loss Control

represents the efforts of water utilities to provide accountability in their operation by reliably auditing their water supplies and implementing controls to minimize system losses.

Technical Assistance Program

provides MWDOC and Member Agencies with data analysis services that help them comply with State regulations and strategically guides field interventions to achieve an economically optimized level of water loss.

Real Loss

represents the physical leakage occurring in a distribution system.

Shared Services Program

provides MWDOC and Member Agencies with access to water loss control field interventions like leak detection, customer meter accuracy testing and pressure surveys. These services are largely performed by MWDOC staff.

Water Loss Control TAP Background and Context

- SB 555 (2015), SB 606 (2018), AB 1668 (2018), AB 1414 (2019)
  - Gave SWRCB the authority to set and enforce individualized water loss targets for urban water suppliers (SB 555, AB 1414)
  - Made these targets part of the Conservation as a California Way of Life Framework (SB 606, AB 1668)
- MWDOC Board approved the original Water Loss Control (WLC) Technical Assistance Program (TAP) agreement with E Source in October 2015
- Approved again by the board again in December 2020



Program Scope & Services

Regulatory Services

- Audit Compilation
- Billing Data Chain Assessment
- SWRCB Standard Assistance
- Water Loss Team Development
- Water Loss Standard Compliance Plan

Analysis to Inform Field Intervention

- Production Meter Test Design
- Component Analysis
  - Apparent Losses
  - Real Losses
- Water Loss Pilot Program Management and Evaluation

Water Loss Control Workgroup
MWDOC Directed Projects

Key Accomplishments – Case Studies

Program/Strategy Development

Water Loss Team Development	Facilitated workshops with staff from various departments	Developed internal: • Source meter testing program • Customer meter testing program
Real Loss Component Analysis	Assessed leak detection economic intervention frequency	Performed leak detection with MWDOC resulting in cost-effective leakage reduction

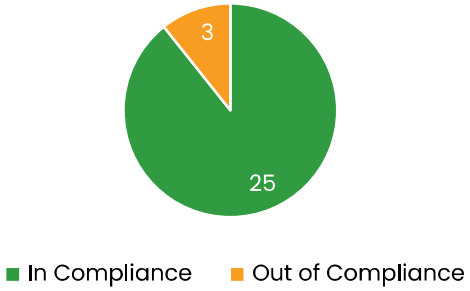
Data Improvements

Water Audit Compilation	Applied totalizer unit correction	Reduced real loss by 39 gpcd (69% reduction)
Source Meter Testing	Discovered source meters were over-registering	Reduced real loss by 10 gpcd (24% reduction)
Customer Meter Testing	Discovered significant customer meter under-registration	Reduced real loss by 23.5 gpcd (84% reduction)

Key Accomplishments - Compliance Dashboard

- Developed Orange County dashboard to monitor compliance with water loss regulations
- Dashboard allows MWDOC to reach out to agencies in most need of services
- Agency-specific dashboard provides a high-level overview of projected compliance status
- Assists agencies make decisions on next steps to comply with water loss regulations

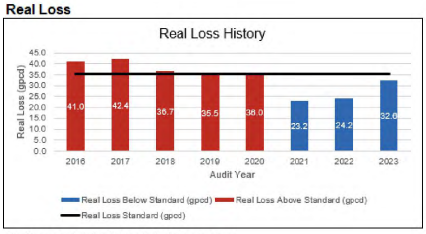
Projected Compliance Status Based on 3 Most Recent Water Audits



Key Accomplishments - Compliance Dashboard

Agency-Specific Summary

Real Loss

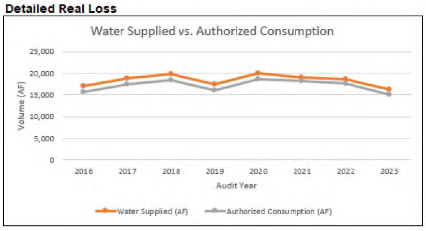


* Real Loss must be below the standard to be in compliance

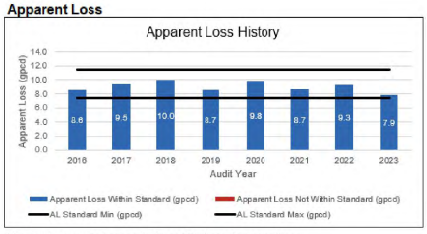
Real Loss Standard (gpcd): 35.4

Compliance Scenario	Status
Compliance Likelihood Based on Historic Audits:	33%
2028 Compliance Assessment Based on 3 Most Recent Audits:	In Compliance
Number of 3 Most Recent Audits with Real Loss < Standard	3
2031+ Compliance Assessment Based on 3 Most Recent Audits:	In Compliance
Average Real Loss for 3 Most Recent Audits	26.7

Detailed Real Loss



Apparent Loss

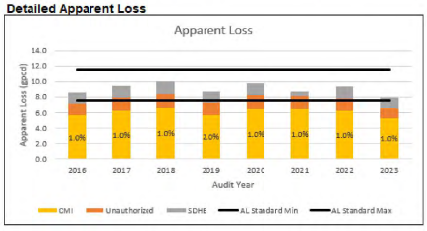


* Apparent Loss must be between the Min and Max lines to be in compliance

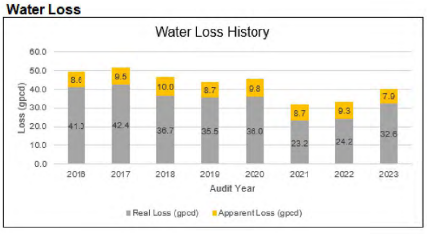
Apparent Loss Standard (gpcd): 9.5

Compliance Scenario	Status
Compliance Likelihood Based on Historic Audits:	100%
2028 Compliance Assessment Based on 3 Most Recent Audits:	In Compliance
Number of 3 Most Recent Audits with Apparent Loss within Standard	3
2031+ Compliance Assessment Based on 3 Most Recent Audits:	In Compliance
Average Apparent Loss for 3 Most Recent Audits	8.6

Detailed Apparent Loss



Water Loss



Reporting Requirements

Report	Submitted or Due Date*
Baseline Data	All Data Submitted
Data Quality Questionnaire	Submitted
Pressure Management Questionnaire	Submitted
Asset Management Questionnaire	7/1/2024
Pressure Management Questionnaire Update	7/1/2026
Asset Management Questionnaire Update	7/1/2027
Break Registry (2025, 2026, 2027 data)	1/1/2029
Break Registry (3 Most Recent Years of Data)	2032 + every 3 years

* Submission status is based on SWRCB posted data released on April 9, 2024.

Legend

In Compliance
Compliance Risk
Out of Compliance

Acronyms

Acronym	Description
AF	Acre-Feet
AL	Apparent Loss
CMI	Customer Metering Inaccuracy
gpcd	gallons per connection per day
SDHE	Systematic Data Handling Error

Lessons Learned/Agency Feedback

Lessons Learned

- Water loss is complex and involves participation from nearly every department at a water agency
- Water loss is one of many responsibilities the water loss lead at each agency must take on
- Documentation of processes is critical due to staff turnover
- Tracking water loss regulations is time consuming, confusing, and difficult

Agency Feedback

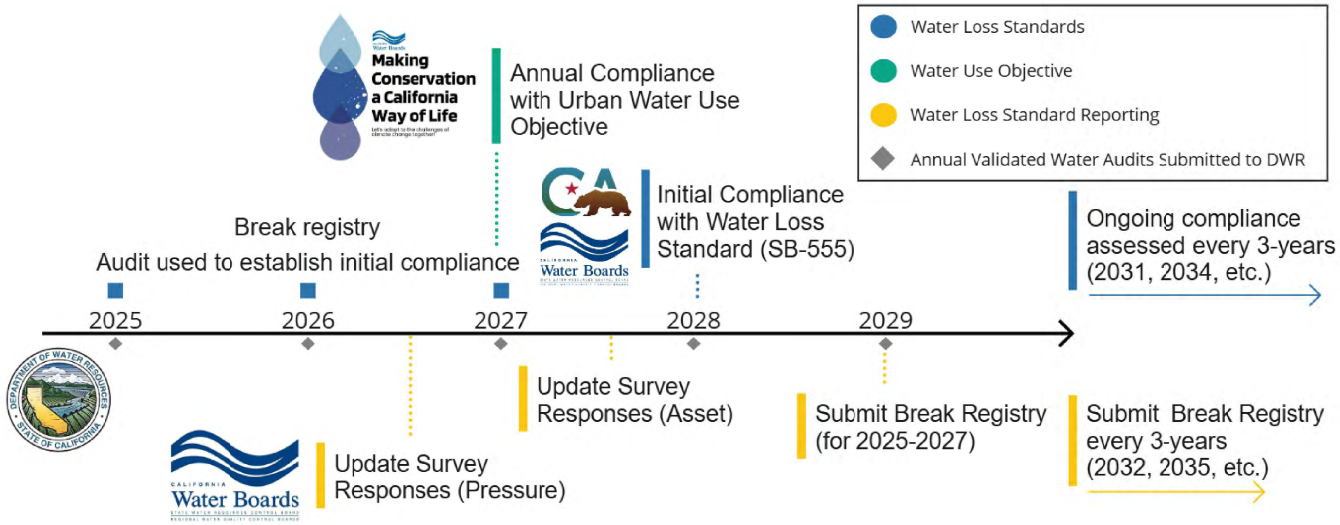
"MWDOC's Water Loss Control Technical Assistance Program has been outstanding. Partnering with the E Source team has been a true asset—they're highly responsive, incredibly knowledgeable, and genuinely passionate about what they do. Their in-depth analysis of our water loss data has not only enhanced our understanding of system performance, but also improved the accuracy of our reporting. Thanks to this support, the City of Fullerton is making meaningful progress toward compliance and long-term system efficiency."

-Gar Huang, Associate Engineer, City of Fullerton

Program Impacts

Provided updates on constantly evolving water loss regulations and reminders on compliance deadlines	Helped right-size targets, making compliance more realistic and reduce excessive spending	Provided guidance and recommendations on next steps to comply with water loss regulations
All MWDOC member agencies have submitted required audits to DWR and questionnaires to SWRCB.	10 agencies have submitted custom parameter adjustments to increase their real loss standard (average increase of 55%).	All OC retail water agencies have participated in MWDOC's Water Loss Technical Assistance and/or Shared Services Program

Looking Ahead



Next Steps

- Water loss regulations will require ongoing monitoring, tracking, and action
- Bi-Monthly Water Loss Control Work Group Meeting
- Continue choice funded WLC Technical Assistance Program
- Current agreement ends December 2025
- RFP released July 28



Item No. 2

DISCUSSION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Charles Busslinger, Director of Eng./District Engineer
Sarina Sriboonlue, Principal Engineer

SUBJECT: **GIS NEEDS ASSESSMENT CONSULTANT FINDINGS**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee review and discuss the information presented.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Background

Geographic Information Systems (GIS) represent a critical resource for MWDOC's operations, enabling enhanced visualization and analysis of location-based (spatial) and time-based (temporal) data management. MWDOC's 2024 Resources Needs Assessment identified GIS system and analyst support as one of the most significant resource needs to accomplish the Board's Strategic Priorities adopted in June 2023.

Currently, MWDOC's in-house GIS capabilities are primarily limited to Water Loss Control Shared Services. At the same time, Engineering, Water Emergency Response of Orange County (WEROC), and Water Use Efficiency departments have growing GIS needs that are not being adequately met through existing resources. A comprehensive GIS system would significantly enhance MWDOC's ability to:

- Support informed decision-making across departments;

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount: **$130,000**	Core: ☒	Choice: ☐
Action item amount:	Movement between funds: ☐ Yes ☐ No		

- Serve as a central data resource for member agencies;
- Integrate with existing data management;
- Improve coordination between MWDOC, MET, and member agencies; and
- Enhance emergency response capabilities and situational awareness.

MWDOC GIS Needs Assessment Findings

In March 2025, the Board approved a contract award to FLO Analytics (FLO) to provide professional services for the MWDOC GIS Needs Assessment. The goal of the GIS Needs Assessment was to provide a high-level assessment to evaluate MWDOC's current GIS environment, assess organizational and departmental GIS needs, and develop a strategy and roadmap for a successful implementation of GIS expansion.

The effort kicked off in early April 2025 with an evaluation of the use of GIS through interviews with MWDOC staff and multiple stakeholders, including MWDOC member agencies, the Three-Cities, and the Center for Demographic Research (CDR). FLO prepared a GIS Needs Assessment presentation and report, Attachments 1 and 2, that capture MWDOC's organizational goals, GIS goals and priorities, gap analysis, findings and recommendations, as well as a recommended five-year roadmap and estimated budget.

The development of a comprehensive GIS implementation at MWDOC will enable the improvement of internal operations for data management and analysis work, build staff skillsets to better serve member agencies, and provide more effective emergency management coordination under WEROC. The key recommendations for MWDOC's GIS expansion consist of the following components:

- **GIS Governance:** Develop a GIS governance structure with appropriate leadership, roles, processes, and standards. Develop consistent GIS practices in conjunction with member agencies to provide guidance for improving MWDOC's trusted data hub. Explore future GIS Shared Services Program opportunities to support our member agencies with specific GIS needs.

- **Software Technologies:** Implement an Environmental Systems Research Institute, Inc. (Esri) based GIS platform consisting of "Esri Enterprise GIS" in conjunction with "Esri ArcGIS Online" to securely host large and complex datasets and internal applications at lower costs. This configuration also sets the foundation to provide future capacity to support member agencies and operate as an effective data hub to receive/provide support data, enable direct agency collaborations, and build advocacy tools.

- **Hardware, Server, and Network Resources:** Establish new server requirements and deployment location to support "Esri Enterprise GIS" building on MWDOC's existing capacity and capabilities for basic GIS editing and use.

- **Spatial Data Repositories:** Consolidate and store core spatial data within the Esri GIS environment to remove data siloes. Develop a consistent data structure storage approach for analysis and mapping work to optimize the use of very large datasets. Use external web data services where applicable to reduce load and ensure data currency.

- **Departmental/Personnel:** Provide GIS training to staff and improve integration of program processes and procedures. Increase automation (e.g., map atlases, data processing, report generation) to increase efficiency. Develop applications and dashboards for decision-making, data viewing, and analysis purposes.

Next Steps

The MWDOC Fiscal Year (FY) 2025–26 Budget appropriated a $130,000 funding placeholder to implement the initial steps of the GIS expansion. The GIS Needs Assessment recommends utilizing existing staff, supported by consultants with specialized GIS expertise as needed throughout the five-year roadmap for GIS expansion. MWDOC staff will return to the Board in late 2025 for authorization to enter into a professional services agreement with an on-call GIS consultant.

The GIS Needs Assessment identified the following Year 1 (FY 2025–26) priorities and activities:

- Develop GIS governance and standards to establish a consistent, scalable framework.
- Enhance in-house GIS utilization and data management practices to improve efficiency and cost-effectiveness in data collection, updates, and aggregation.
- Build internal GIS capabilities, workflow improvements, standardize data processes, and provide staff training to increase efficiency.
- Implement an Esri Enterprise GIS system in coordination with ArcGIS Online.

Throughout the five-year implementation of GIS expansion and as MWDOC's strategic priorities evolve, MWDOC staff will continuously evaluate progress, returning to the Board for authorization of appropriate resources.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☒ *Invest in workforce development and succession planning.*

Attachments/Links:

Attachment 1: GIS Needs Assessment Presentation

Attachment 2: FLO Final Draft of MWDOC GIS Needs Assessment Report

GIS Needs Assessment for the Municipal Water District of Orange County

MWDOC mission: to provide reliable, high-quality supplies from The Metropolitan Water District of Southern California and other sources to meet present and future needs at an equitable and economical cost and to promote water use efficiency for all of Orange County

FLO Analytics

Grant Herbert gherbert@flo-analytics.com
Kyle Pote kpote@flo-analytics.com

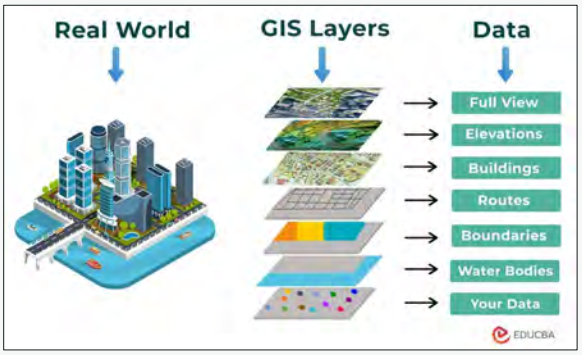
August 2025

MWDOC

1

Assessment Goal.

- Evaluate the use of Geographic Information System (GIS) at MWDOC
- Identify gaps and future GIS needs for furthering the District's goals
- Identify any gaps and develop a road map to take MWDOC GIS and data to the next level



- GIS is a technology that is used to create, manage, analyze, and display data.
- Important data for MWDOC includes:
  - property, demographics, aerial imagery
  - rebate programs, landscape, and land use
  - agency infrastructure
  - leak detection field data
  - emergency field data

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2

2

MWDOC Goals & Expectations.

Organizational goals:

- Provide **cost-effective, long-term water reliability and security for member agencies** and Orange County constituents.
- **Support member agencies** through coordinating and leading planning and investments in water supply development, water use efficiency, public information and education, legislative advocacy and emergency preparedness.
- Provide a **platform for data dissemination** and information of interest to member agencies.
- Provide effective **emergency response**





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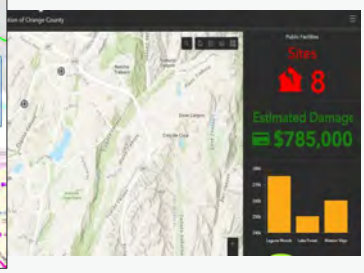
3

GIS Goals & Expectations.

- Using GIS **industry best practices** that **encourage and enable future growth** while being **manageable by the District.**
- Developing MWDOC datasets and analysis to **support the District's mission.**
- Tools and data that can be used to **make decisions, communicate, educate, and inform.**
- Improve **in-house capabilities** and **efficiency.**
- Support **Emergency event response.**
- Supporting and enhancing **member efficiency and compliance with legislation.**
- Provide **GIS leadership and support to member agencies** that have limited capacity themselves.





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4

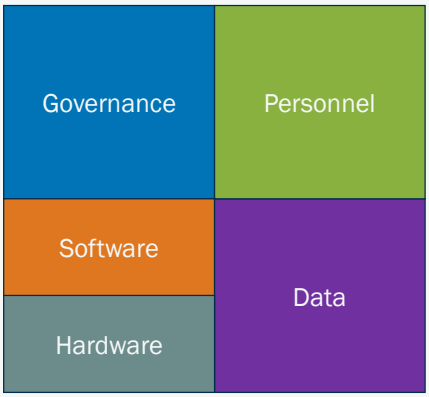
Assessment Process.

Department Interviews:

- Emergency Management/WEROC
- Water Use Efficiency
- Water Loss Control Program
- Planning and Engineering
- Water Resources (Metropolitan Issues)
- Information Technology

Data and report reviews

Member Agency representation



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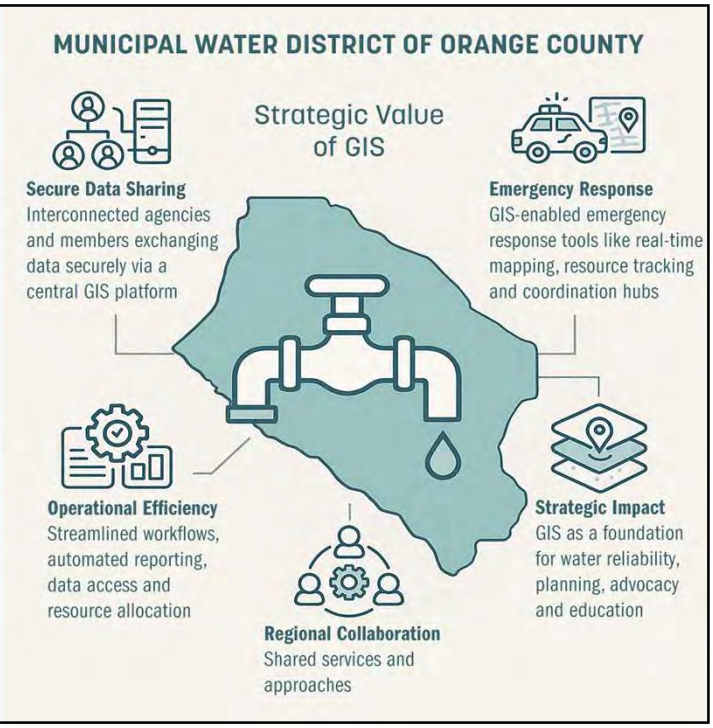
5

Strategic value of GIS.

- Secure data sharing
- Collaboration tools
- Common operational picture
- Education and advocacy
- Internal efficiency, freeing up staff time
- Field tools, access, training and practice to support WEROC emergency response.



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6

Key Findings.

- **Governance:** With no current GIS or data governance structures in place, processes and data are not optimized.
- **Software Technologies:** Limited access to the right tools has led to work-arounds and data duplication.
- **Hardware, Server, and Network Resources:** The District is well resourced and has sufficient capacity and capabilities.
- **Spatial Data Repositories:** Data is siloed and hard to find. Large datasets hard to use. District is generally reliant on external parties to consolidate and analyze.
- **Departmental/Personnel:** Department staff want to do more with GIS and their data, but data is not structured to support trust and confidence in analysis. Capacity is limited. Staff need the tools and training to analyze data for decision making.
- **MWDOC** is seen as a **trusted regional leader** and a logical choice to help members improve their own GIS.

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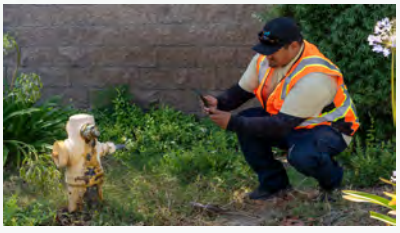
Key Recommendations.

- **GIS Governance:** Develop a governance structure with appropriate leadership, roles, processes, standards and key performance indicators. Develop consistent GIS practices in conjunction with member agencies to provide guidance for improving MWDOC's trusted data hub. Explore future GIS Shared Services program opportunities.
- **Software Technologies:** Implement "Esri Enterprise GIS" (Portal) in conjunction with "Esri ArcGIS Online" for consistent and unified software tools, data management and analysis tools. Secure access and collaboration is managed through Portal (internal) and ArcGIS Online (member/public) controls. A focus on service-based GIS data access will ensure compatibility across the two environments and foster collaboration.
- **Hardware, Server, and Network Resources:** Establish new server requirements to support "Esri Enterprise GIS". Mobile devices for Field Tasks and WEROC Emergency Response for training and consistency.



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Key Recommendations.

- **Spatial Data Repositories:** Consolidate and store core spatial data within the Esri GIS environment. Develop a consistent data structure storage approach for analysis and mapping work. Use of external web data services where applicable will ensure data currency.
- **Departmental/Personnel:** Staff GIS training and improved documentation of departmental processes and procedures. Automation opportunities (e.g., map atlases, data processing) for increasing efficiency. Applications and dashboards for decision making, data viewing and analysis purposes.





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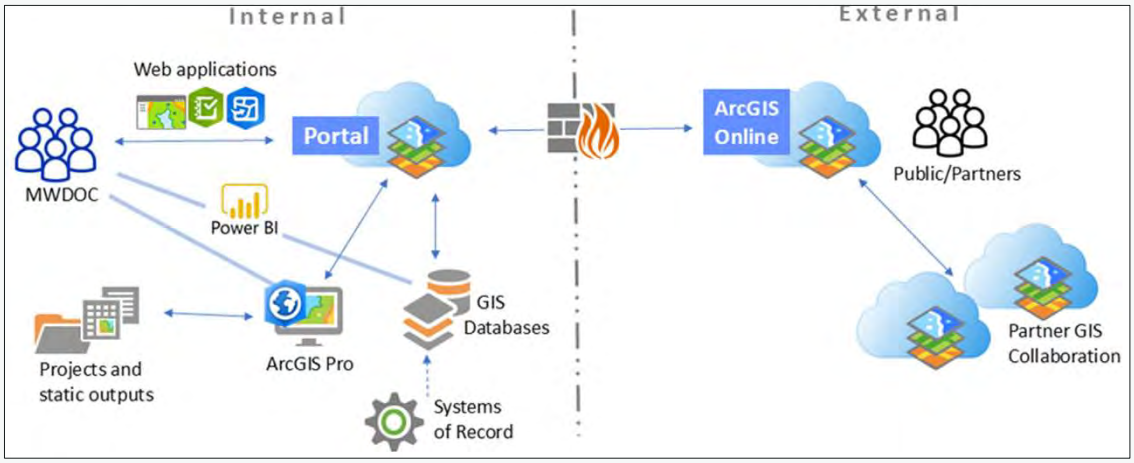
MWDOC Esri Enterprise GIS.



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Highest Priorities (Year 1-2).

- Develop internal GIS governance and standards – establishing the basis.
- Implement an "Esri Enterprise GIS" system coordinating with ArcGIS Online for emergency response and member collaboration opportunities – self service data access, analysis, collaboration, and communication.
- Data management, consolidation and access (including PowerBI and other tools).
- Improve internal efficiencies through documentation, standardized data, workflow improvements, and training.
- Targeting high value outputs and deliverables.
- Supporting and enhancing Emergency Response.

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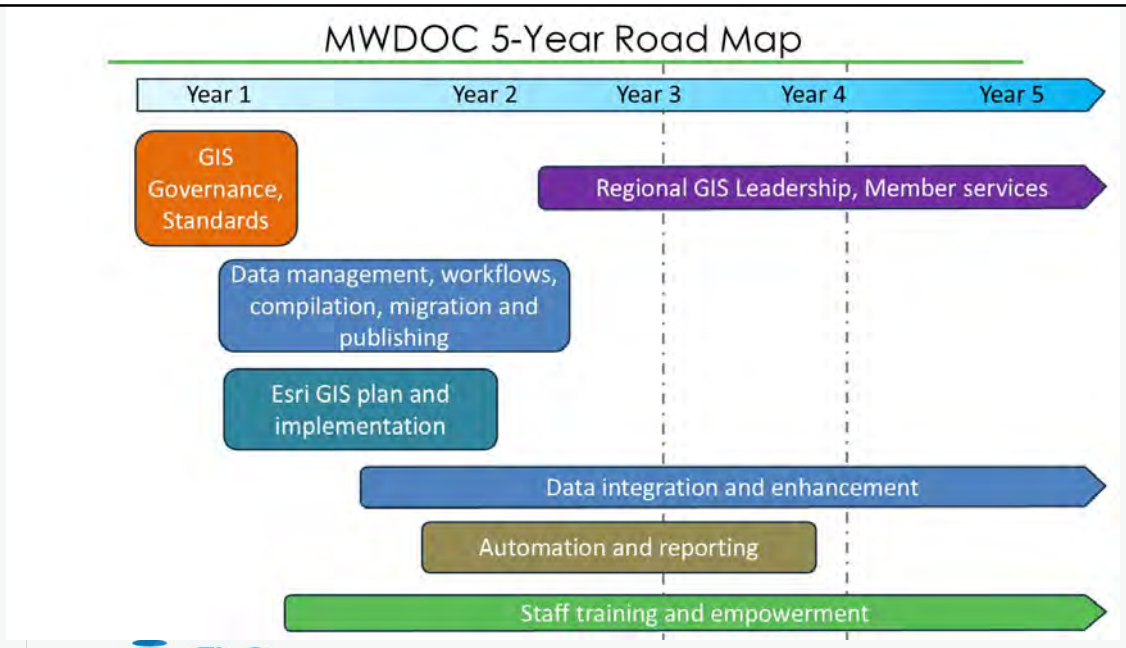

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5-Year Budget Estimate.

Estimated Budget for Planning Purposes.

	Year 1	Year 2	Year 3	Year 4	Year 5
Estimated Budget	**$154,000**	**$140,000**	**$110,000**	**$80,000**	**$100,000**
Software/Hardware	$30,000	$35,000	$30,000	$30,000	$30,000
Training	$2,000	$5,000	$5,000	$5,000	$5,000
Consulting	$122,000	$100,000	$75,000	$45,000	$65,000

*Some recommendations are not anticipated to have any budget impact while others are expected to reoccur each year (for example software licensing, conference attendance costs and training).

*The budget estimate is expected to be refined as projects are further scoped and implemented.

*Consulting costs include both the estimated consultant effort required for projects as well as a general consulting budget for on-call support and data requests.

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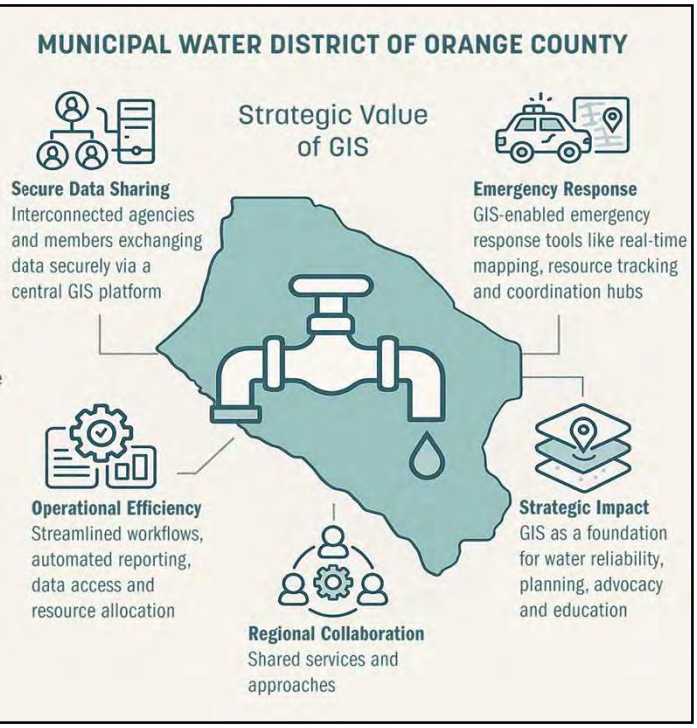
Key Takeaways.

- Delivering value:
  - Secure data sharing and data platform
  - Collaboration tools
  - Common operational picture
  - Education and advocacy
  - Internal efficiency, freeing up staff time
  - Field tools, access, training and practice to support WEROC emergency response.



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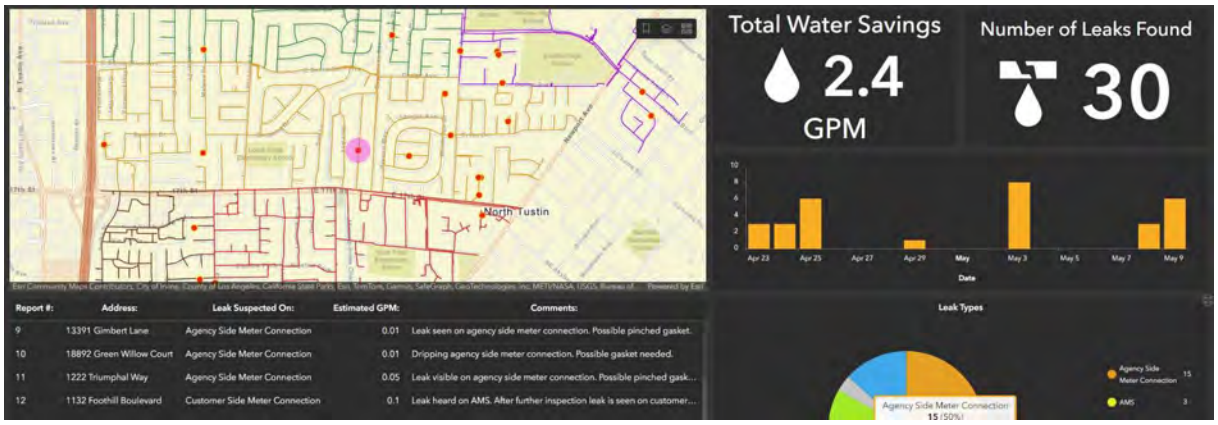

Geographic Information System (GIS) Needs Assessment

MWDOC Planning & Operations Committee Meeting

Charles Busslinger, P.E., District Engineer

August 4, 2025

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Next Steps for MWDOC GIS

MWDOC GIS Program Implementation

- Combo effort of existing MWDOC staff + as-needed consultant
- Request for Proposal for On-Call GIS Consulting Services (Late 2025)
- Focus on Year 1 Priorities

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Next Steps for MWDOC GIS

Year 1 Priorities of MWDOC GIS Program Implementation

- **Develop GIS Governance –** Establish a consistent & scalable framework (staff roles, processes, standards, KPIs)
- **Improve GIS Use & Data Management Practices –** Improve data collection, updates, aggregation, access, and use of data.
- **Enhance In-House GIS Capacity & Skills –** Staff training (tailored to core GIS users and ad hoc users), e.g. Esri training, conferences
- **Right fit GIS Infrastructure** – Investigate pricing options & procure software that is cost-effective and provides MWDOC with most flexibility

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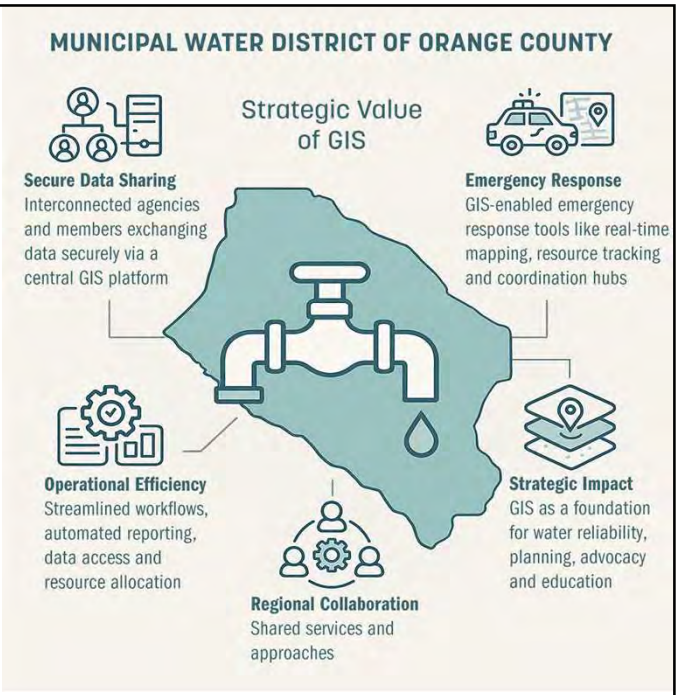
Thank you for your attention.

Please let us know if you have questions



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MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

GIS Needs Assessment

2025

Final Draft

FINAL DRAFT

Prepared for:

Municipal Water District of Orange County

July 25, 2025

Project No. F2616.01.001

Prepared by:

FLO Analytics
www.flo-analytics.com

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GIS Needs Assessment

2025

The material and data in this report were prepared under the supervision and direction of the undersigned.



Grant Herbert
Principal GIS Analyst

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Project GIS Analyst

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EXECUTIVE SUMMARY

From April through July 2025, FLO Analytics (FLO) conducted a Geographic Information System (GIS) Needs Assessment for the Municipal Water District of Orange County (MWDOC, or the District). The purpose of the study was to evaluate the use of GIS at MWDOC, identify future GIS needs, establish any changes in requirements or priorities, and develop a road map tied to District goals.

The District operates in an inherently spatial environment and needs to be able to maintain a common operating picture of that environment, incorporating infrastructure, economic and political aspects. The District is currently underutilizing GIS across the organization. With no GIS governance structures in place, there are no unified decision-making processes, or standards that relate to GIS data and its use. Along with inconsistent access to GIS software tools, this has resulted in "data silos" which are not searchable, visible, or accessible in a consistent manner across the organization. Staff reported frustration that they struggle to access their own data effectively and identified several areas where they felt they could deliver significant value to member agencies if they could easily view, combine or analyze this data. Data silos encourage data duplication and the use of outdated information, resulting in missed opportunities and a poorer understanding of the impacts of District programs. Existing GIS-related processes are poorly documented and at risk of knowledge loss. Staff that are using GIS to enhance and conduct their work often do not have the training or the capacity to make significant improvements in their workflows.

To effectively deliver on the District's goals, particularly in supporting member agencies and promoting water use efficiency, an enterprise-level GIS program approach is recommended. The development of a comprehensive GIS program at MWDOC will enable the improvement of internal operations, data collection and analysis work, build staff skillsets to better serve member agencies, and provide more effective emergency management coordination under Water Emergency Response Organization of Orange County (WEROC). The program consists of governance, software and data management, with training and support from consultants. The software, a combination of Esri Enterprise and ArcGIS Online, is intended to securely host data and internal applications while also being able to support members through providing supporting data, enabling direct collaborations, and the ease of building advocacy tools. This will enable MWDOC to securely and effectively host large aerial imagery and complex datasets and provide an opportunity for SQL database integration. The District will initially require the assistance of external consultants for the implementation, system management and administration of the expanded GIS system, which is commensurate with its existing approach of using consultants for advanced GIS data manipulation and analysis. With training, it is feasible for District staff to be able to take on more of the day-to-day management of the GIS system and data analysis.

This Enterprise approach will play a significant role in allowing the District to improve internal efficiency, analysis and decision-making, as well as providing the platform to operate as an effective data hub for member agencies. Internal efficiency opportunities come through improved access to data and tools, the ability to leverage other department's work, and process and data automation, while the platform supports education and advocacy goals, providing supplementary data to member agencies, and direct collaboration. The use of ArcGIS Online and Enterprise, and the purchase of mobile devices for internal use will provide emergency response staff with the ability to easily practice deployments, train users, and test applications in advance.

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The priorities for the first 1-2 years include developing internal GIS governance and standards, implementing an Enterprise GIS system incorporating ArcGIS Online for emergency response and member collaboration opportunities, and improving internal efficiencies through documentation, standardized data, workflow improvements, and training. Improved data storage is intended to support both GIS and other tools including PowerBI. It is expected that automation opportunities and increased ability for staff to "self-serve" the production of GIS data analysis and outputs (maps and applications) will further increase efficiency, freeing up staff resources and enabling analytics in a shorter timeframe. With a GIS program in place the District will be better positioned to securely collaborate and interact directly with both member and external agency GIS, provide flexible emergency response tools, and increase its overall value to members through analysis, data and advocacy.

KEY FINDINGS

Key findings from this update are summarized below:

- **Governance:** There are no current GIS or data governance structures in place, resulting in data silos and departments having issues accessing GIS data.
- **Software Technologies:** There is currently a mix of different GIS viewing software in use which requires data conversion for compatibility, making it difficult to easily incorporate data.
- **Hardware, Server, and Network Resources:** The District is well resourced and has sufficient capacity and capabilities for basic GIS editing and use.
- **Spatial Data Repositories:** Data is siloed, hard to find and access, heavily reliant on external parties to consolidate and prepare. Some very large and important datasets are not being used as they are difficult to work with in their current location or configuration.
- **Departmental/Personnel:** Departments want to do more with their data, and have access to a clean, consistent, and well-documented dataset to allow them to have trust and confidence in their analysis. Staff are generally feeling that they do not have the skillsets to make the best use of the data and tools they have.

KEY RECOMMENDATIONS

Key recommendations from this update are summarized below:

- **Governance:** Develop a governance structure with appropriate leadership, roles, processes, standards and key performance indicators. Developed in conjunction with member agencies, these can establish consistent GIS practices and provide guidance for member agencies and the organization and will be an important part of delivering a GIS Shared Services program and trusted data hub.
    - **Impacts**: Internal Efficiency, Compliance, Data Platform, Service Delivery.
- **Software Technologies:** Implement Esri Enterprise GIS in conjunction with ArcGIS Online for consistent and unified software experience, data management and analysis tools. With Enterprise as the internal tool, data can be synced with ArcGIS Online which will serve as the data hub and for external partner collaboration. A focus on service-based GIS data access will ensure compatibility across the two environments and enable better collaboration.
    - **Impacts:** Data Integrations; Data Platform; Internal Efficiency; Service Delivery

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- Hardware, Server, and Network Resources: Establish new server requirements and deployment location to support Esri Enterprise. Purchasing and configuring mobile devices specifically for WEROC use is recommended for training and consistency.
    - **Impacts:** Data Integrations; Data Platform; Emergency Response; Internal Efficiency.
- Spatial Data Repositories: Consolidate and store core data within the Enterprise GIS environment, develop a consistent project data structure storage approach for analysis and mapping work, and use external web data services where applicable to reduce load and ensure data currency.
    - **Impacts:** Data Integrations; Data Platform; Infrastructure Planning; Internal Efficiency; Promoting Water Efficiency; Service Delivery
- Departmental/Personnel: Staff GIS training and improved documentation of departmental processes and procedures is needed. There are a number of potential automation opportunities (e.g., map atlases, data processing) along with internal applications and dashboards for decision-making and analysis purposes.
    - **Impacts:** Compliance; Emergency Response; Internal Efficiency; Promoting Water Efficiency.

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Appendixes

Appendix A

Table of Recommendations

Appendix B

Road Map and Timeline

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ABBREVIATIONS AND ACRONYMS

AGO	ArcGIS Online
AWS	Amazon Web Services
CDR	Center for Demographic Research
Conservation Framework	Making Conservation a California Way of Life Framework
District	Municipal Water District of Orange County
ELA	Enterprise License Agreement
FLO	FLO Analytics
GPU	graphics processing unit
KML	Keyhole Markup Language
KPI	key performance indicator
LOE	level of effort
MWDOC	Municipal Water District of Orange County
NDA	Non-Disclosure Agreement
Portal	Municipal Water District of Orange County's Enterprise GIS
REST	Representational State Transfer
RDBMS	Relational Database Management System
SAML	Security Assertion Markup Language
WEROC	Water Emergency Response Organization of Orange County
WLC	Water Loss Control
WUE	Water Use Efficiency

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1 INTRODUCTION

1.1 Background

From April through July 2025, FLO Analytics (FLO) conducted a GIS Needs Assessment for the Municipal Water District of Orange County (MWDOC, or the District). The purpose of the study was to evaluate the use of GIS at MWDOC, identify future GIS needs, establish any changes in requirements or priorities, and develop a road map tied to District goals with recommendations and cost estimates.

MWDOC is a wholesale water supplier and a regional resource planning agency serving nearly 3.2 million residents through 26 member agencies, including water agencies and cities. With a mission to provide high-quality water supplies to meet present and future Orange County needs, and to promote water efficiency, the District focuses its efforts on planning and investments in water supply development, water use efficiency, public information and education, legislative advocacy and emergency preparedness.

MWDOC staff interviewed are listed below their department name:

Planning & Engineering

- Charles Busslinger – District Engineer
- Sarina Sriboonlue – Principal Engineer

Emergency Management/Water Emergency Response Organization of Orange County

- Vicki Osborn – Director of Emergency Management
- Gabby Landeros – WEROC Specialist
- Janine Schunk – WEROC Coordinator

Water Use Efficiency

- Joe Berg –Director of Water Use Efficiency
- Rachel Waite-Harvey – WUE Program Supervisor
- Sam Fetter – WUE Analyst II

Water Loss Control Program

- Joe Berg –Director of WUE
- Rachel Davis – Water Loss Control Program Supervisor

Metropolitan Issues (Water Resources)

- Alex Heide – Senior Water Resources Specialist
- Kevin Hostert – Senior Water Resources Specialist

Information Technology

- Dave Anderson – IT System Analyst II

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Informational interviews were also carried out with the following groups:

- Center for Demographic Research (CDR) at California State University Fullerton
- City of Fullerton
- El Toro Water District
- Irvine Ranch Water District
- Santa Margarita Water District
- Serrano Water District

2 ORGANIZATIONAL EVALUATION

2.1 Goals and Expectations

The District's mission is as follows:

> Our mission is to provide reliable, high-quality supplies from The Metropolitan Water District of Southern California and other sources to meet present and future needs at an equitable and economical cost and to promote water use efficiency for all of Orange County.

The District's organizational goals and objectives include the following:

- Providing cost-effective, long-term water reliability and security for member agencies and Orange County constituents.
- Supporting member agencies through coordinating, leading planning, and investments in water supply development, water use efficiency, public information and education, legislative advocacy and emergency preparedness.
- Providing a platform for data dissemination and information of interest to member agencies.
- Effective emergency response.

GIS has been identified as a core component to assist the District in delivering services and information to member agencies, legislators, staff and the public, and in supporting organizational goals. Specific GIS-related goals and expectations are detailed below:

- Establishing a suitable and efficient GIS structure that encourages and enables future growth while being easy to run and manage with limited internal GIS resources.
- Supporting the consolidation and management of data from member agencies and encouraging data coordination between member agencies and MWDOC through industry best practice approaches.
- Developing MWDOC datasets of interest to member agencies and supporting the District's mission.
- Ability to provide access to data in easy-to-digest forms, such as dashboards and maps that can be used to communicate, educate, and inform.

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- Supporting and enhancing member efficiency and compliance with legislation, such as the Making Conservation a California Way of Life Framework (Conservation Framework).
- Having GIS data management standards, processes, and methodologies, including those designed to support data sharing, interoperability between member agencies, and any requirements for member agencies to be able to participate in a potential GIS Shared Services program.
- To be able to provide GIS support to member agencies that have limited capacity themselves.

2.2 GIS Priorities

A list of GIS priorities identified include:

- Establish a baseline of accurate water infrastructure mapping in Orange County.
- Improve GIS use and data management to ensure efficiency and cost-effectiveness in data updates, data collection and aggregation, and use.
- Develop and enhance in-house GIS capabilities and capacity, with a focus on efficiency and accuracy.
- Conduct analysis on behalf of member agencies and long-term planning.
- Improve visibility of data and increase communication with member agencies and other entities.
- Reliability planning.
- Ensure appropriate staff capabilities.
- Improve response times to water quality issues.
- Supply accurate real-time data particularly during emergency events.
- Transition paper-based data to digital formats.
- Transfer existing digital data to spatial data.
- Establish capability for quick map creations.
- Establish comprehensive datasets.
- Enhance the manageability of GIS data and applications.
- Integrate connections between GIS and other systems such as PowerBI, AccuFund, and Laserfiche.

2.3 Gap Analysis

The District is currently underutilizing GIS across the organization. With no GIS governance structures in place, there are no unified decision-making processes or standards that relate to GIS data and its use. This has resulted in data silos (inability to access or know about the data another department holds), which risks data duplication and leads to GIS data not being searchable, visible or accessible in a consistent manner across the organization. This underutilization leads to inefficiencies and reduces the data's value to MWDOC and member agencies. It has also directly resulted in a mix of tools being used internally requiring data conversion to accommodate incompatibilities between the Esri and Google Earth software. A significant portion of critical data is not directly utilized by the District; instead, it is provided to consultants and contractors for analysis. While these external

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services meet the District's specific requirements, the extra administrative procedures, the necessity for MWDOC to specify the desired deliverables without the benefit of their own preliminary investigation, and the delays in receiving the deliverables result in staff frustration that they cannot readily explore the raw data and a sense of not knowing what insights may be possible.

Staff are carrying out a variety of tasks using GIS software and data, but most staff reported that they felt their GIS skill levels are insufficient to allow them to do more. Staff identified several areas where they felt they could deliver significant value to member agencies if they could easily view, combine, or analyze data. There was a general sense that many staff were not sure what possibilities were available with respect to analysis and visualization of District data and unsure of how best to use the tools they have access to. Where staff have been able to put together effective processes incorporating GIS data and tools to support their work, without sufficient documentation and cross training the management and knowledge of these processes is at risk. The day-to-day management of a comprehensive GIS program that will enable the District to meet internal and external data management, visualization and collaboration requirements is not currently within the realm of existing resources. Until internal staff are fully trained, the District will require assistance from contractors/consultants for system management and advanced analysis.

The District operates in an inherently spatial environment and needs to be able to maintain a common operating picture of that environment, incorporating infrastructure, economic, and political aspects. To effectively deliver this, an enterprise-level GIS approach is required with consistency of governance, software, data storage, and data management. This will play a significant role in allowing the District to improve internal efficiency, analysis, and decision-making as well as operate as an effective data hub for member agencies.

2.4 Summary of Recommendations

A summary of recommendations is shown in Table 1, and a full version is included in Appendix A.

To ensure that the District's GIS program can deliver business value, a GIS governance structure should be put in place to ensure that decision-making and GIS technology are aligned with business needs, incorporate stakeholder feedback, and provide clear guidance on appropriate data management and requirements.

To effectively manage GIS datasets and build out its internal GIS program, it is recommended that the District implement Esri Enterprise GIS alongside the existing ArcGIS Online (AGO) environment. This recommendation is primarily driven by existing data requirements, and the desire to collaborate with multiple partners as necessary. Foremost, the size and nature of large current and anticipated datasets, such as Aerial Imagery and the landscape classification data associated with the Conservation Framework, can be more cost-effectively hosted on an internal Esri Enterprise environment than AGO. Esri Enterprise, as the District's internal GIS environment, will offer secure internal data hosting and consumption of aerial imagery while enabling future integrations with the Rebate database and other colocated SQL Server systems if required.

Although the District's current infrastructure data does not necessitate specific geodatabase functionality, a Relational Database Management System (RDBMS, e.g., SQL Server)-hosted enterprise geodatabase will be beneficial as many member agencies are moving to adopt the Esri Utility Network schema (a GIS data structure that models utility system components). This will allow the District to directly use the Utility Network model for planning and analysis, supporting emergency response through functionalities such as tracing and estimating shutoff impacts. The Enterprise Data Store (a system managed geodatabase) will be essential for managing users' self-hosted data and

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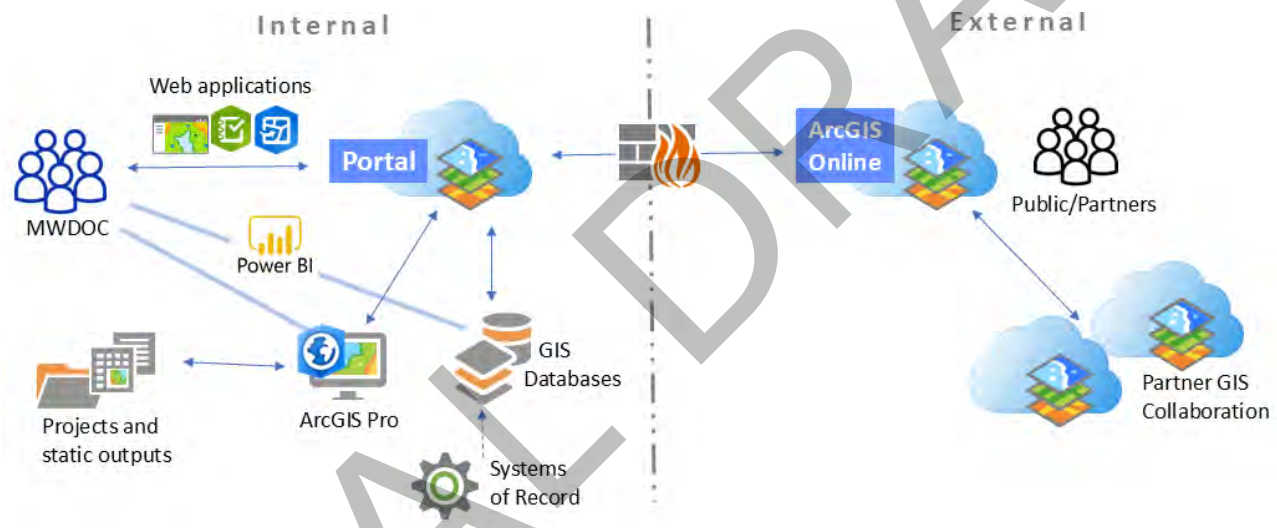
analysis results. The system will make field data collection tools and data more accessible to internal users by bringing the current AGO-hosted fieldwork data in-house.

The internal Enterprise system will work closely with the District's existing AGO, allowing it to serve as a key data hub for member agencies and the public as well as supporting collaboration options with member AGO environments. Enterprise GIS datasets can be synced to AGO and made securely available to member agencies and support public-facing advocacy and education applications.

Figure 1 shows a conceptual diagram of the District's Enterprise GIS ("Portal"), with internal users (including field staff) accessing data via web applications and desktop tools including ArcGIS Pro and PowerBI, with public data dissemination and collaboration with partners via the AGO bridge. Synchronization between AGO and the Enterprise system provides data transfer if necessary. It should be noted that Water Emergency Response Organization of Orange County (WEROC) will still be operating out of AGO, but it is anticipated that testing and training environments can be set up in Enterprise for enhancing emergency readiness.

Figure 1. MWDOC Enterprise GIS Concept



Staff training will be a necessary component for successful implementation, use, and development of the District's GIS program. While staff with GIS responsibilities will be the key users and maintainers, other staff and management will be encouraged to use web maps, applications and dashboards to view and interact with data applicable to their needs. The use of external consultants and contractors will remain to provide supplemental capacity and specialized technical expertise for analysis and data consolidation tasks. However, equipping staff with the necessary tools and training to conduct initial analysis and generate data and mapping products will improve their efficiency and enable them to manage the problems and data independently.

Table 1 includes a summary of the recommendations, ordered by priority and grouped by section (see also Appendix A). The ID value represents the specific recommendation in the document. The Impact Areas field associates each recommendation with the appropriate MWDOC objective. Priority ratings are based on both the importance of the recommendation in establishing effective GIS at the District and ensuring that necessary dependencies are addressed. A high-priority item is a necessary requirement and/or precursor to future recommendations, followed by medium-priority items. Low-priority items do not need to be deferred; however, in many cases they can be achieved in parallel with other recommendations. We recommend that priority ratings be reassessed after major tasks are completed to ensure that actionable deliverables are not delayed unnecessarily.

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Table 1. Summary of Recommendations

Priority[a]	Recommendation	Impact Areas	Cost[b]	LOE[c]	Section	ID
High	Define GIS program roles and authority (GIS champion/ steering committee)	Internal Efficiency	Low	Low	Governance	3
High	Identify departmental data stewards	Internal Efficiency	Low	Medium	Governance	4
High	Develop GIS data standards	Data Platform; Internal Efficiency; Service Delivery	Low	Medium	Governance	5
High	Document required GIS deliverables	Compliance; Data Integrations; Internal Efficiency	Low	Low	Governance	6
High	Identify and document appropriate security controls	Compliance; Internal Efficiency	Low	Low	Governance	7
High	Identify District GIS KPIs	Internal Efficiency	Low	Low	Governance	11
High	Plan and Implement Esri Enterprise GIS	Data Integrations; Data Platform; Internal Efficiency	Medium	Medium	Software	12
High	Establish appropriate staff GIS licenses	Data Platform; Internal Efficiency	Medium	Low	Software	13
High	Refine server specifications and Enterprise architecture	Data Platform	Low	Low	Hardware	17
Medium	Utilize Enterprise/AGO web applications for internal and public data communication	Emergency Response; Internal Efficiency; Public Information/ Education	NA	Low	General	2
Medium	Develop a standard data-sharing agreement template	Compliance; Data Integrations; Internal Efficiency	Low	Low	Governance	8
Medium	Establish a MWDOC-led regional GIS forum	Public Information/ Education; Service Delivery	Low	Medium	Governance	9
Medium	Use SAML logins for Esri systems	Internal Efficiency	NA	Low	Software	14
Medium	Publish aerial imagery to Esri Enterprise	Data Platform; Emergency Response; Service Delivery	Low	Low	Spatial Data	22
Medium	Evaluate Enterprise Geodatabase	Data Platform; Internal Efficiency	Low	Low	Spatial Data	23
Medium	Use Esri Data Store or network storage for GIS project files	Data Platform; Infrastructure Planning; Internal Efficiency; Promoting Water Efficiency	Low	Low	Spatial Data	24
Medium	Evaluate Flume data for hosting and analysis	Data Integrations; Data Platform	Low	Low	Spatial Data	27
Medium	Moasure capture documentation and training	Internal Efficiency	Low	Low	Spatial Data	28

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Priority[a]	Recommendation	Impact Areas	Cost[b]	LOE[c]	Section	ID
Medium	WEROC data as the core organization data	Internal Efficiency; Infrastructure Planning	Low	Low	Spatial Data	29
Medium	Consolidate GIS data and publish	Data Integrations; Internal Efficiency	Low	Medium	Spatial Data	30
Medium	Evaluate specific data workflows to optimize and automate	Internal Efficiency	Low	Medium	Spatial Data	31
Medium	Evaluate migrating Rebate database to spatial format	Data Integrations; Data Platform	Low	Medium	Spatial Data	33
Medium	Document member data schemas	Internal Efficiency; Service Delivery	Low	Low	Spatial Data	34
Medium	Review AGO-hosted data, move to Enterprise	Data Integrations; Data Platform	Low	Medium	Spatial Data	37
Medium	Budget for mid-to-long-term on-call GIS consultant support	Internal Efficiency	Medium	Medium	Dept/ Personnel	38
Medium	Develop a training plan for staff	Internal Efficiency	Low	Medium	Dept/ Personnel	39
Medium	Document departmental data processes and procedures	Compliance; Internal Efficiency	Low	Medium	Dept/ Personnel	40
Medium	Establish standardized data schemas	Emergency Response; Internal Efficiency	Low	Medium	WEROC	43
Medium	Establish layout templates in ArcGIS Pro	Emergency Response; Internal Efficiency	Low	Low	WEROC	44
Medium	Train additional WLC staff to assist with key GIS tasks and workflows	Internal Efficiency; Promoting Water Efficiency	Low	Medium	WLC	48
Medium	IT training in GIS specific management	Internal Efficiency	Low	Low	IT	50
Medium	Executive dashboards and summary tool requirements	Advocacy; Infrastructure Planning; Internal Efficiency; Promoting Water Efficiency; Service Delivery	Low	Medium	Executive	51
Low	Establish required content and purpose of collaborative planning tools	Data Platform; Emergency Response; Service Delivery	Low	Low	General	1
Low	Establish GIS Shared Services program parameters	Service Delivery	Low	Medium	Governance	10
Low	Include GIS integration in RFPs	Data Integrations	NA	Low	Software	15
Low	Retire Google Earth in favor of web maps and applications hosted in AGO/Enterprise	Internal Efficiency; Data Platform	NA	NA	Software	16
Low	Establish Enterprise GIS backup	Data Platform	Low	Low	Hardware	18
Low	Dedicated mobile devices for Emergency Response and Field Data Capture	Emergency Response; Internal Efficiency	Low	Low	Hardware	21

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Priority[a]	Recommendation	Impact Areas	Cost[b]	LOE[c]	Section	ID
Low	GIS REST Services for external data	Data Platform; Internal Efficiency; Service Delivery	Low	Low	Spatial Data	25
Low	Automate periodic data downloads from external sources	Data Platform; Internal Efficiency	Low	Low	Spatial Data	26
Low	Assess migration of PDFs and tabular data to GIS	Data Integrations	High	High	Spatial Data	32
Low	Agency data attribution for filtering	Internal Efficiency: Service Delivery	Low	Low	Spatial Data	35
Low	Connect spatial data to Laserfiche	Data Integrations	Low	Low	Spatial Data	36
Low	Attend Esri User Conference or Esri IMGIS Conference	Data Platform; Internal Efficiency	Low	Low	Dept/ Personnel	41
Low	Identify partners and options for a GIS Shared Services program	Service Delivery	Low	Medium	Dept/ Personnel	42
Low	Review departmental data and work planning	Internal Efficiency; Promoting Water Efficiency	Low	Medium	WLC	46
Low	Streamline and automate weekly reporting	Data Integrations; Internal Efficiency; Promoting Water Efficiency	Low	Medium	WLC	47
Low	Evaluate feasibility of new GIS focused services as needed	Service Delivery	Low	Medium	WLC	49
Low	Continue to host Emergency Response data in AGO	Emergency Response	Low	Low	WEROC	45
None	GPU recommended for ArcGIS Pro power users	Internal Efficiency	Low	Low	Hardware	19
None	Colocated virtual machines for GIS use are not required	Internal Efficiency	NA	NA	Hardware	20

Notes
AGO = ArcGIS Online.
GPU = graphics processing unit.
KPI = key performance indicator.
LOE = level of effort.
NA = not applicable.
MWDOC = Municipal Water District of Orange County.
REST =Representational State Transfer.
RFP = request for proposal.
SAML = Security Assertion Markup Language.
WEROC = Water Emergency Response Organization of Orange County.
WLC = Water Loss Control.
[a]Priority ratings reflect relative importance with respect to the planned timeline and order of implementation. Projects may be re-prioritized.
[b]Cost categories: Low is < $25,000, Medium is < $60,000, High is >$60,000.
[c]LOE categories: Low is < 3 months, Medium is < 6 months, High is > 6 months.

2.5 Budget

Growth of the GIS program after Year 2 may impact the budget in one or more of the following ways:

- Data storage and server requirements may need to increase to handle increased data and usage.

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- User licenses may need to be increased (assuming there is no ELA in place).
- Additional internal staff may be desired to provide in-house analysis and data management, and/or Enterprise GIS system management. Additional staff are not included in the budget estimates.

The implementation of a GIS Shared Services program, along with increased coordination and alignment between MWDOC and member agencies through a regional GIS forum, should deliver an increase in GIS capacity, data quality, and collaboration among all parties involved. This should reduce the cost of member data compilation over time.

The following 5-year budget is an estimate only. Some recommendations are not anticipated to have any budget impact while others are expected to reoccur each year (for example software licensing, conference attendance costs and training). The budget estimate is expected to be refined as projects are further scoped and implemented. Consulting costs include both the estimated consultant effort required for projects as well as a general consulting budget for on-call support and data requests.

Table 2. Estimated Budget for Planning Purposes.

	Year 1	Year 2	Year 3	Year 4	Year 5
Estimated Budget	**$154,000**	**$140,000**	**$110,000**	**$80,000**	**$100,000**
Software/Hardware	$30,000	$35,000	$30,000	$30,000	$30,000
Training	$2,000	$5,000	$5,000	$5,000	$5,000
Consulting	$122,000	$100,000	$75,000	$45,000	$65,000

2.6 Road Map and Timeline

A 5-year project road map with key recommendations is shown in Figure 2 (also attached as Appendix B). A red border indicates high-priority projects while an orange border indicates medium-priority projects. The timeline is estimated, with projects in dependency order as much as practicable in the space available. The size of the recommendation does not necessarily reflect how long it is expected to take.

The high-priority projects for Year 1 are to establish the governance basis for the management of the GIS program, refine the specific server and licensing requirements and plan and implement the internal Enterprise environment. Medium-priority projects—including a comprehensive data review, consolidation and publishing effort—will establish the core data and applications for internal use and set the stage for optimization and automation efforts aimed at improving efficiency and freeing up staff time. Comprehensive training will ensure that staff can make the best use of the systems.

From Year 2 onwards, the focus shifts to incremental improvements, the development of more communication tools, and MWDOC positioning itself as the guiding force behind a GIS forum designed to improve cooperation, knowledge-sharing and GIS best practices, and support among its member agencies. While many of the recommendations can be executed simultaneously, it is expected that the District will establish a timeframe that is appropriate for its internal capacity.

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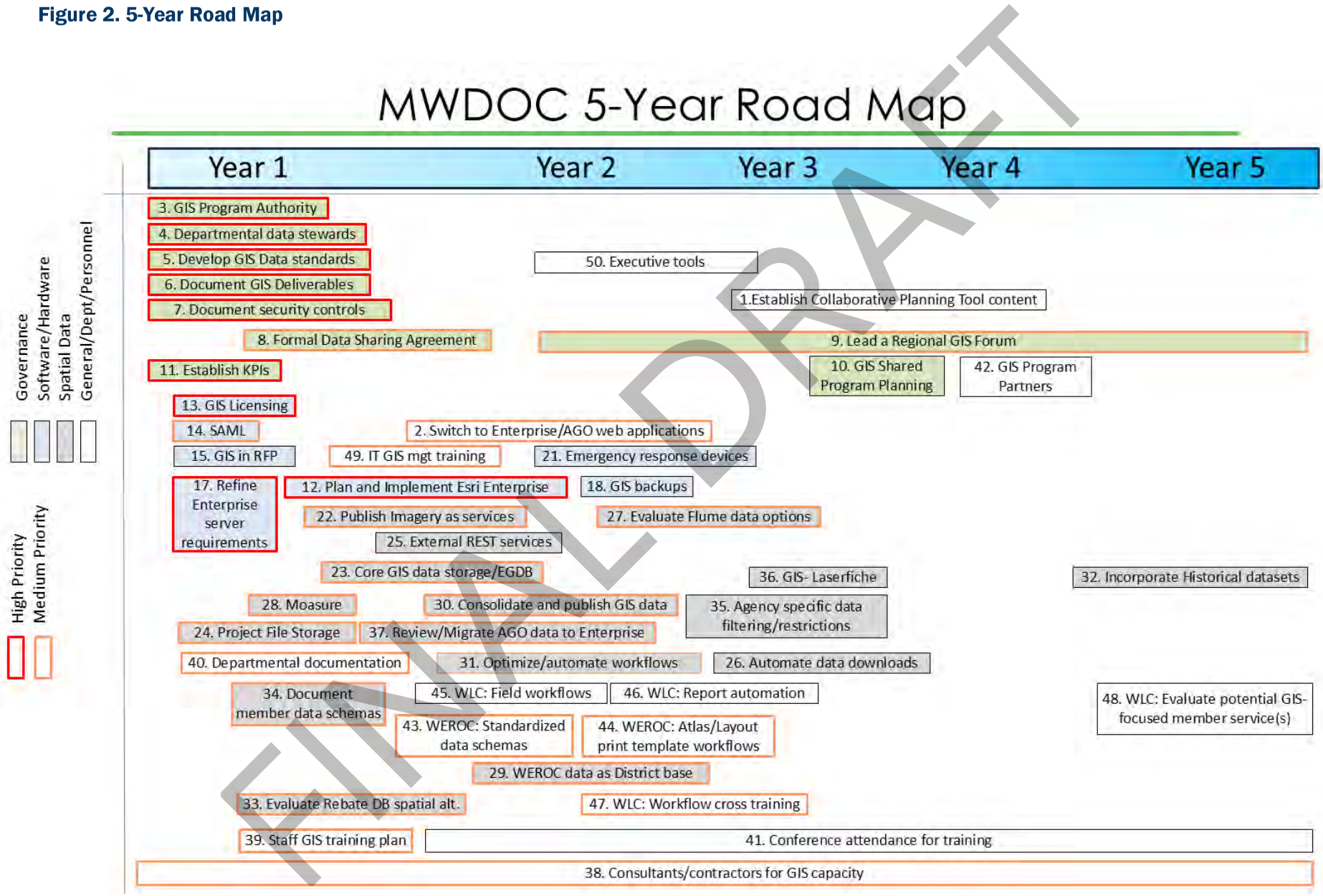
Figure 2. 5-Year Road Map



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2.7 Findings and Recommendations

A recurring theme throughout the interviews was that department staff emphasized feeling they were not using GIS effectively and there was a need to establish a well-structured foundation with respect to the use of GIS, including developing GIS data management standards, processes, and methodologies for long-term implementation. There is encouragement for data coordination from and with member agencies, and staff emphasized the importance and usefulness of the District acting as a data hub for member agencies. This includes being the source of consolidated data, providing analysis, and offering a platform for data dissemination and information of interest.

There is a need to manage a large amount of aerial imagery and detailed landscape classification data internally, in addition to managing the agency data that is compiled to support emergency response. This data is intended to support several departments and activities across the District but is currently hard to access due to data silos between departments and lack of consistent data formats and software access.

Although GIS is seen as an important tool at the District, and staff have been using it to create maps and data (particularly to support the Leak Detection program), the current use of GIS technology is not sufficiently managed nor structured to support the District's goals. Particularly, there are opportunities for increasing internal efficiency through improved access to data and tools, supporting education and advocacy goals, providing data to member agencies in an effective manner, and empowering emergency response.

2.7.1 General Recommendations

1. Establish the required content and purpose of collaborative tools for planning and emergency scenarios, e.g., real-time field updates in the event of a main break or water quality incident, identifying impacted service areas, and planning temporary redirections.
2. Utilize web applications, Story Maps, and dashboards for both internal and public communication/information of data, e.g., communicating water restrictions, best practices, and emergency event updates.

2.7.2 Governance

Key characteristics of governance involve a formal structure for making and managing decisions about the long-term direction of a GIS program. It typically defines roles, responsibilities, policies and standards, and identifies key performance indicators suitable for helping the organization identify whether it is making progress. Governance should empower managers with oversight and authority as needed to ensure that the GIS program meets the business requirements. Governance aims to achieve the following:

- Aligning technology investments with business needs.
- Optimizing risk by considering small changes that deliver continuous value over time, leveraging existing capabilities, avoiding overlapping or redundant technologies where possible, and guiding technology choices.
- Maintaining stakeholder engagement with user representation.
- Assisting with decisions on resource optimization and getting the right people, skills, and capabilities to solve business problems.
- Ensuring that the business knows who is responsible for what.

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The current state of the District's GIS governance is almost nonexistent. There is little to no formal structure for GIS-related decision-making, with each department operating independently, and no existing organizational policies or standards that can assist staff in ensuring that they are managing their GIS tools and data in a consistent fashion. As a result, each department has developed its own approach independently with the consistency of GIS data and tool use dependent almost entirely on individual staff making decisions based on their experience and desired outcomes. There is minimal to no documentation for key tasks and processes, and data is stored in a variety of locations. This makes it difficult to onboard and train staff, work effectively with contractors and other departments, and find data that is needed.

2.7.2.1 Governance Recommendations

The recommendations in this section are designed to develop initial GIS governance policies with a focus on the following (data governance and delivery are likely to be key):

3. Define the roles and division of authority over the GIS program (strategy, technology, data, workforce, and budget). Having clear leadership, identified points of contact, and a decision structure is necessary for successful implementation and management. A "GIS champion" (often a steering committee) is important both for representing and communicating the GIS projects, and individual projects should have their own "champion" identified.
4. Identify data stewardship and responsibilities for District-created, -compiled, or -managed GIS data such as aerial imagery, WEROC, and Water Loss Control (WLC) leak detection. Each department should have at least one person identified as the data steward for data they create, manage, or are responsible for obtaining and storing.
5. Develop GIS data standards to document and establish MWDOC GIS data management, metadata, and best practices. Standards should focus on elements associated with data understanding and use, security, integrity, and quality control. These standards may be developed in partnership with member agencies for wider use across the region.
6. Develop documentation describing appropriate GIS deliverables for external parties and consultants to be compatible with MWDOC data standards, metadata, and preferred data formats. These should form a part of all GIS work requests made by the District.
7. Identify and document appropriate security controls and requirements for specific data, including Non-Disclosure Agreement (NDA) compliance and access limitations. As necessary, use software controls to limit sharing and access.
8. Develop a standard data-sharing agreement that can be used as a template for MWDOC member agency data sharing, or between member agencies as applicable. The purpose of the agreement is to formalize the approach and acceptable use of the data, which can be extended as necessary to accommodate specific requirements. As the bulk of the District's data comes from member agencies with different data-sharing approaches, the default position of the District should be to not publicly share any member data without explicit authorization.
9. Establish a MWDOC-led regional water GIS forum, including member agencies and critical partners, where open discussion and presentations can be used to share and encourage consistent GIS practices and support. This group may be used to provide feedback on the adoption of MWDOC GIS standards.
10. Establish the parameters and requirements for a potential GIS Shared Services program, including the overall goals and vision of the program, any required technologies or inputs, and the intended outcomes for the member agencies along with internal responsibilities.
11. Identify appropriate District GIS KPIs that can be measured. Examples can include the number of staff using GIS, the number of users accessing a particular dataset or application, percentage of data with identified owner, percentage of data with metadata, etc.

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2.7.3 Software Technologies

The list of software in this section is not exhaustive and is intended to highlight key systems for which GIS integration into the system is desired, or which may contain data that might be useful or have a potential spatial component.

2.7.3.1 Esri

AGO is Esri's Platform-as-a-Service GIS, used to host and publish District data, web maps, and applications. Current storage usage is forecast at 6,000 credits a year (approximately 500 credits a month) with another 1,000 to 2000 credits for analysis (primarily Rebate data geocoding work done by Water Use Efficiency (WUE) and Survey 123 feature reporting activity). The largest user of AGO is WLC, which manages leak detection activities through Feature Layer storage, Field Maps, and Survey123 applications.

The District has four Creator licenses and three Mobile Worker licenses. The existing AGO licenses renew on 9/11 each year. Each Creator licenses one ArcGIS Pro Professional Basic license (for a total of four) delivered through AGO. ArcGIS Pro usage was reported by WLC (one), WUE (one) and WEROC (one). Esri licenses are needed to create, edit, and view secured data in AGO.

The District has considered using an Esri Small Utilities Enterprise Licensing Agreement (ELA), which would allow extensive use of almost all Esri GIS software available, including AGO and Enterprise. This license is extensive in its scope and is expected to be more than sufficient to meet the District's GIS analysis, display, and field data collection needs for the foreseeable future.

2.7.3.2 Google Earth

Google Earth is used within MWDOC to access and interact with GIS data supplied by CDR in a Keyhole Markup Language (KML) format. While this has the advantage of being free, it does not allow for interaction with existing Esri format GIS data or data hosted in AGO to be brought in.

2.7.3.3 AccuFund

The District's HR and Financial system, AccuFund, is slated to be replaced within a year with a new Enterprise Resource Planning system. This is not expected to require any GIS integration or data.

2.7.3.4 Microsoft Excel

Microsoft Office Excel is widely used by District staff for data analysis and reporting.

2.7.3.5 PowerBI

PowerBI is increasingly used by District staff, including the Metropolitan Issues department for analysis and reporting. Integration with GIS data is desired and currently under consideration; dashboards are a highly desired component. Planning and Engineering and WUE have been considering this tool as well. PowerBI can connect to SQL Server and PostgreSQL databases.

2.7.3.6 SharePoint

The District preferentially uses the Microsoft SharePoint environment and OneDrive libraries for document and file storage for all users with the default Documents folder directed to SharePoint. Official document archiving is the preserve of Laserfiche.

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2.7.3.7 Laserfiche

Laserfiche is used for the official archive of documents and runs on a Hyper-V on-premises server. It has a thick client and a web client, both of which require the user to be on the network (on-site or via VPN) to access.

2.7.3.8 Microsoft SQL Server

The WUE department has an on-premises Rebate database containing nonspatial data stored in Microsoft SQL Server, which has a custom front-end application (FORTEC) running on the same machine. Data from the online Rebate programs is extracted and loaded to this database. No GIS data is currently hosted in SQL Server. The District is considering alternative options to the Rebate application.

2.7.3.9 Software Recommendations

12. With the requirement to securely store and manage its own, as well as member agency data, and the need to potentially collaborate and coordinate with a variety of external entities, including member agencies, it is recommended that the District implement an internal Esri Enterprise GIS in addition to expanding its current use of AGO. An Esri Enterprise geodatabase would support PowerBI connections to both the Representational State Transfer (REST) services (if applicable) and the raw database tables, along with for direct database integration with other databases in the same network. As Esri Enterprise can only collaborate with a single AGO organization, it is recommended that the District consider partnering with its own AGO for data dissemination and use AGO for broader interagency collaboration. Although there is a limit currently of 20 partnered organizations within AGO, this will provide the greatest flexibility in configuration.
13. GIS user licensing is currently insufficient to increase access to tools for staff. The District should consider establishing at least ten Professional/Creator licenses, evaluate additional Mobile Worker licenses for field staff, and 50 to 100 Viewer licenses to allow access to tools for District and member staff. Additional licenses at different levels may be warranted for consultants and other entities, including member representatives and field users during emergency response events. At least two Administrators are recommended in AGO and Portal. License levels may need to be adjusted to reflect changes in use as the GIS is developed. If the aerial imagery data supports analysis and this is desired, consider including an Esri Image Server license. Confirm the costs and benefits of the Esri Small Utility ELA program to deliver the software and user counts.
14. Use the District's existing Security Assertion Markup Language (SAML) logins for easy staff access to the Esri systems (this also allows for non-SAML administrator or other independent logins that may be required). This should be set up for both the Enterprise and AGO environments.
15. Include language required vendor-supported GIS integration/data input/output capabilities to future software procurement as applicable.
16. Retire the use of Google Earth in favor of web maps and applications hosted in AGO/Enterprise.

2.7.4 Hardware, Server, and Network Resources

The District has five physical on-premises servers running 12 virtual machines. The existing environment does not have backup power supplies. A server replacement program is being planned for the near future. Machines are structured to support specific applications and are well-specified. An in-house IIS environment is available. Most internal applications require the user to be on site or connected over VPN to access. There are no concerns about providing internet access to an on-premises GIS application if necessary. Microsoft Active Directory/Entra is used for authentication.

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Data storage is currently being migrated from the local SMB to SharePoint and the preference is to look at cloud-hosted (Azure) servers first for future deployments.

The District has a Bring Your Own Device policy for cellphones, providing a stipend for business use. Personal smartphones are used in the field for the WLC leak detection data capture. Both iOS and Android devices are used by staff.

The District provides both desktops and laptops for staff and is moving to providing only laptops and a docking station. Laptops are i7 or i9 processors with 32 GB of RAM and 1 TB SSD storage. Graphics are generally handled by the built-in Intel graphics chips. The current machines are capable of running ArcGIS Pro for general data editing and simple analysis requirements but would benefit from a dedicated Graphics Card for more advanced tasks.

Internet bandwidth is currently symmetrical 200/200, with a planned move to 500/500. This is considered sufficient for supporting increased GIS web application and REST service use within the organization.

Moasure devices are used for field landscape measurement tasks to calculate the square footage of areas related to rebates.

2.7.4.1 Hardware, Server, and Network Recommendations

17. Refine server specifications and architecture for Esri Enterprise and ensure that these are accommodated within the IT infrastructure plan with capacity for vertical scaling in the future. The systems can be hosted on physical infrastructure or virtual machines hosted on a cloud provider, with the only requirement that colocation of all components is necessary, and a recommendation that colocation with other systems for which direct database integration is desired. A base Esri 11.3 two-or-three-machine deployment is recommended, with web adaptors installed on the existing IIS web server. General specifications for base deployment are Portal (4 CPU, 16 GB RAM, 200 GB HDD), Server + Data Store (4 CPU, 32 GB RAM). Storage for the Server and Data Store will need to be large enough to accommodate imagery tile caches (anticipated to be 1 TB+), which could grow significantly if historical versions are maintained. A separate RDBMS geodatabase (can be an existing SQL Server machine) is recommended for PowerBI access to GIS data.
18. Establish appropriate separate backup requirements for both the Esri Enterprise servers and an Esri WEBGISDR disaster recovery backup file.
19. Current i7 and i9 processors with four to eight cores and 32 GB RAM are sufficient for the expected GIS usage (light editing of services and basic map creation). ArcGIS Pro power users will benefit from a dedicated mid-range GPU supporting DirectX 12/OpenGL 4.5 with 2–4 GB of onboard memory. Web application users can be supported with an integrated GPU.
20. As core GIS data editing is expected to be service based, colocated virtual machines for GIS use are not expected to be needed at this time.
21. Purchase a small number of dedicated mobile devices for Emergency Response and Field Data Capture use, testing, and training.

2.7.5 Spatial Data Repositories and Management

Overall, GIS (and nonspatial) data at the District is siloed, difficult to access, and managed without consultation with other internal users. The majority of the GIS and associated data is generated outside of the District by member agencies, consultants, and other external partners. Member agencies create GIS data for their own purposes and share some or all of it with the District. The District primarily uses consultants to create or process data on behalf of the District and provide a

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defined deliverable for use. Data updates are manually handled within departments upon receipt from member agencies.

CDR creates demographic data for the Engineering department's use in planning activities. CDR also conducts a yearly data aggregation project on behalf of MWDOC to compile member GIS asset infrastructure data into a coherent dataset for the WEROC department. This dataset represents a unique compilation of the infrastructure data of its member agencies to provide a common operating picture of the region. While this is extremely important for emergency response activities and regional cooperation with Metropolitan Water District, this data (or derivatives) is not widely available within MWDOC for use by other departments. The District also has a GIS-based hydraulic model of the regional backbone water system, obtained from Metropolitan Water District and maintained by a consultant. Most of the GIS data represents critical infrastructure and is sensitive data that needs to be kept secure.

Data is stored in a variety of locations on the network, predominantly stored on the shared MWDOC OneDrive/SharePoint location. GIS project data and associated documentation are generally stored in SharePoint, while ArcGIS Pro users usually use the Esri default of the Documents folder, which is redirected to a personal OneDrive. Data may be stored in a variety of formats, from KML files, shapefiles, and file geodatabases to CAD files and Excel spreadsheets. Nonspatial Rebate Program data from an external source is being stored within a SQL database, which is not readily matchable as the address field needs cleaning to be able to match it reliably.

Some GIS data is uploaded to AGO-hosted feature classes to support field data collection and web access. Approximately 2 GB of data is currently stored in AGO, consuming approximately 500 credits a month. Much of this may be old but still valuable for historical analysis, and there is no archiving or backup process in place.

Notable datasets include:

- **Water Leak Detection inspection data.** Using GIS data supplied by the agencies (representing the main pipes that are to be inspected), staff generate a map for use in the field as well as summarize the miles of pipe inspected. Data is split into sections of approximately a week's worth of work for one person and uploaded to AGO to support the field data capture.
- **Landscape classifications and delineation data**, which represent a detailed analysis of the ground cover for an agency. This dataset is very detailed and large.
- **Water Infrastructure Data.** WEROC has a dataset that summarizes the GIS data provided across all agencies, focused on main water transmission pipes and critical infrastructure. This data is used to support emergency response.
- **Conservation Framework Landscape Area Classification data** is very detailed vector data and important for WUE projects and meeting the California Conservation Framework regulations and reporting requirements. This dataset is very large, around 136 GB in size, and stored on SharePoint. It is currently not being used to its potential.
- **A store of aerial imagery**, approximately 1.5 TB in size, exists on an external hard drive. Currently this is only shared with consultants. These aerial images are purchased approximately every two to three years and are rarely being used internally.
- The District has started using a tool called Moasure to measure landscape areas in the field. Data is manually compiled and can be exported in DWG and CSV format. The data is not able to be brought into GIS and georeferenced without manual effort and the establishment of common reference points at the time of capture.

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- **Flume aggregated water consumption data** is purchased to identify and incentivize water-efficient device installation. WUE consumes this data (which splits indoor and outdoor water usage) for water usage and demand projections. Engineering would like to use the data for demand projections and board communication.
- **Agency water consumption data** lives in Excel format and is being used intermittently. The data is collected and used at least monthly for analysis, billing, and reporting.
- **Rebate program data** is currently extracted from the online platform and loaded into an old SQL database. This is accessed through a FORTEC front end to blend the Rebate program datasets (e.g., turf removal, spray to drip, smart timer, rotating nozzles, and rain barrel) into one master database; additional programs may be incorporated. FORTEC is considered difficult to navigate and export from. The data is not spatial but contains site address information, this is occasionally geocoded in batches by WUE staff when needed.
- **Evapotranspiration and spatial weather data** provided by CIMIS contains estimates of the loss of water to the atmosphere and is desired to be used for analysis by WUE and Metropolitan Issues (Water Resources).
- **Nonspatial legal data and documents** pertaining to infrastructure currently exist in Laserfiche. This source was reported as being difficult for extracting information.

2.7.5.1 Spatial Data Recommendations

22. Imagery data storage: Publish the existing aerial imagery to Esri Enterprise as cached map services for use as basemaps across the organization. Consider imagery analysis services.
23. Core GIS data storage: Initially the Esri Data Store can be used to store and manage core GIS data. Further evaluation is recommended to identify whether establishing an Enterprise Geodatabase is required to provide cross-database integration opportunities or to store data for specific use cases. Specific use cases can include lidar and the Conservation Framework data.
24. GIS Project File storage: Use the Esri Data Store or network storage for GIS project files rather than SharePoint. Configure ArcGIS Pro to use a default folder that is not synchronized with OneDrive or SharePoint for the best performance and safest operation. As the expectation is for the District to focus on a service-based editing architecture using ArcGIS Pro, this will primarily affect users conducting local data analysis and generating temporary data. Note that ArcGIS Pro does not natively support connecting to cloud storage services via a URL and it is recommended that OneDrive be set to keep files always on the device to minimize synchronization and performance issues.
25. External GIS Data Services: Establish a preference to use GIS REST Services to bring in external data (e.g., parcels, roads) for viewing purposes.
26. External GIS Data Sources: If necessary, establish automated periodic data downloads from external sources to store up-to-date versions on the server. This may be required if the District needs to maintain consistent data structures from disparate external sources, if there is a need to process the data (e.g., Census data) or integrate the data with other systems, or for offline use in the field.
27. Flume data: Evaluate data hosting and use for analysis, dashboards, and generating data visuals for communication of demand projections to the board.
28. Establish and document internal Moasure data capture standards, guidelines, and recommended procedures for exporting, georeferencing, and compiling the data. Establish training for internal staff, agencies, and contractors.

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29. Use the WEROC data as the core infrastructure for the organization and make it available more widely available within MWDOC. Data views can be used to restrict access to sensitive information or features if necessary.
30. Consolidate existing GIS data as applicable, apply metadata, and make it available internally (and externally with appropriate controls as necessary).
31. Evaluate specific data workflows (spatial and nonspatial) for opportunities to optimize and automate.
32. Migrate existing and historical static datasets currently in PDFs and tabular format into GIS datasets where applicable.
33. Establish the feasibility of migrating the Rebate program database into a spatial format and storing it within Enterprise GIS. Explore potential to auto-geocode Rebate data and/or match to address as it comes in prior to data loading.
34. Document member data schemas to establish appropriate data conversion and consolidation approaches.
35. For datasets desired to be split/restricted per agency, include attributed information with agency details to allow data filtering/querying.
36. Establish a connection between spatial infrastructure data to agreement documents stored in Laserfiche. This may involve developing a dedicated GIS layer representing areas of document coverage, setting up a search, or making direct links from existing features.
37. Review existing AGO-hosted data and identify datasets that will be delivered from Enterprise or applications that should be hosted in Enterprise over AGO.

2.8 Departmental/Personnel Resources and Responsibilities

This section contains findings and recommendations for each of the departments interviewed at the District, along with a summary of the findings from member interviews. Recommendations that are applicable to all departments are given in the recommendation section immediately below. Each department may have additional recommendations specific to them.

The District has approximately 40 staff, with a mix of in-person and hybrid remote workers. Of these, two or three are regular GIS desktop users, with three field GIS users. Departmental responsibilities and personnel resources are detailed in the named sections below, with specific recommendations following each section where applicable. General departmental and personnel recommendations are consolidated in Section 2.8.1 below.

Overall, there is a desire to be able to do more GIS and data work in-house to speed up production time for mapping and data products. However, the District prefers not to have to increase full-time equivalent positions initially and works with consultants instead to obtain GIS resources but will consider hiring specialist GIS or data management staff when this can be justified. Overall, most MWDOC staff do not consider themselves GIS specialists.

CDR currently provides GIS analysis and data management capacity to MWDOC, predominantly the WEROC, Metropolitan Issues, and Engineering departments. The District requests an estimate for the work and formalizes it through a work order. While this has been working, there is a desire to do more work in-house to accelerate timelines. GIS-related work performed includes updating and developing political and agency boundaries and redistricting work, making maps for websites and communications, updating WEROC data and maps, generating graphics for reports, and conducting analyses including those for housing, land, population, infrastructure siting, and scenarios. Currently CDR provides a significant amount of the resources used for GIS within MWDOC.

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The District operates a number of Shared Services programs, such as consumer confidence reports, leak detection, Conservation Framework compliance assistance, and Urban Water Management Plans. These programs are important to MWDOC member agencies as many have limited staff and technical resources to do this work internally. The District operates some of its programs through consultants, serving as the contract and program or project administrator, allowing the member to focus on providing data and working directly with the consultant. This framework has worked well to allow member agencies to take advantage of specialist expertise and resources at a reduced cost through the benefits of economies of scale.

2.8.1 Departmental/Personnel Recommendations

38. Capacity: Given the existing personnel resources, it is recommended to budget for mid-to-long-term on-call GIS consultant support to supply both technical expertise and capacity as required. The consultant should be able to provide Enterprise and AGO support, along with data processing, and technical assistance. This will be especially valuable for work that happens infrequently or requires advanced GIS knowledge.
39. Skill sets: To accelerate the ability to do work in-house, a GIS training plan with documentation should be developed for staff. This will help ensure that staff are able to operate effectively and provide a pathway to increased internal management of GIS data and analysis. Crosstrain specialist skills where possible.
40. Each department creating or managing data should document their processes and procedures in accordance with MWDOC data standards.
41. Consider having staff attend the annual Esri User Conference, Esri IMGIS Conference and/or the Esri SoCal Water Forum events for exposure to new ideas and technology, and as a training tool to broaden understanding of GIS use cases and advancements.
42. Identify appropriate partners and options for developing, administering and delivering a GIS Shared Services program, with the goal of providing GIS specialist capacity to member agencies.

2.8.2 Planning and Engineering

The department is responsible for long-term regional planning, including water demand forecasting and economic impacts. The department does not currently do its own GIS analysis and outsources map creation and data updates—including water infrastructure mapping, maintaining and updating service area boundaries, analysis and demographics—to CDR. The department primarily receives spatial data in KML format and uses Google Earth for viewing the data, which has limited functionality. Microsoft Excel is used for analysis.

Goals and expectations of the department include:

- Establish a baseline of accurate water infrastructure mapping for the county, including various department dependent layers (regional pipelines, service connects, water structures, member agency boundaries).
- Have in-house ability to update the Our Service Area webpage map.
- Ability to maintain geospatially accurate boundary data, especially for political and service area boundaries.
- Have the capability to manipulate and represent data effectively and accurately.
- Establish a connection between Laserfiche infrastructure information and the spatial data.
- Perform analysis of project demand forecasting and demand curve.

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- Have the ability to analyze data using multiple programs.
- Ensure that the organization can maintain data integrity and quality control.
- Transition from Google Earth to Esri products.
- Streamline and increase efficiency of day-to-day tasks.
- Enhance communication with elected officials and member agencies via visuals and analysis results.
- Act as a data hub for member agencies lacking GIS tools.
- Fill gaps within missing map data.
- Improve response time to water quality issues by enhancing speed of data and figure updates.
- Establish a common platform for departmental data visibility and access, incorporating data ownership.
- Establish data-sharing agreements.
- Having the internal capability to create quick maps for alternative scenario discussions with member agencies.
- Improve operational management communications and coordination among wholesale and retail water agencies.
- Establish a Water Quality Data Platform to serve as a central hub for communicating timely water quality data between Metropolitan Water District and MWDOC member agencies.
- Serve as an information resource for Engineering staff for spatial and temporal information regarding water infrastructure and agreements including pipeline capacity rights, service connection agreements, operating agreements, operating bulletins, pipeline Operations & Maintenance features (i.e., blow-off locations, pressure control structures, hydraulic high/low points, residual parcel ownership along the Allen McColloch Pipeline, etc.)

Primary issues identified include:

- Extracting information from Laserfiche is difficult.
- It is difficult to maintain geospatially accurate boundary data, particularly political and service area boundaries.
- Outsourcing data and map work to CDR is a slow process and internal capabilities are important to develop.
- It is difficult to know of and access data in other departments.
- Google Earth data incompatibilities are inhibiting the capability for using and sharing data with the rest of the organization.
- Many maps, such as the Metropolitan Water District pipeline map, contain gaps in infrastructure.
- There is a need to improve response times to water quality issues by promptly updating data and figures.

Personnel

The Planning and Engineering department has two GIS users, primarily using Google Earth and a copy of the data provided in a KML format by CDR to view and explore. Users do not use ArcGIS Pro

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or AGO, and do not edit the data. Google Earth is primarily used for referencing data provided by CDR and the creation of quick screen captures for discussion.

Data

The department does not create spatial or spatial-adjacent data. It primarily uses demographic data including historical population and housing estimates, water infrastructure and water projection data, political/agency boundaries and water provider service areas.

2.8.2.1 Engineering Recommendations

There are no separate departmental recommendations.

2.8.3 Water Use Efficiency

WUE develops, implements, and evaluates water use efficiency programs designed to improve water supply reliability for Orange County. The department manages water-savings rebate programs and offers incentives for turf replacement, high-efficiency irrigation retrofits, high-efficiency indoor water fixtures and appliances, industrial assistance, and potable-to-recycled water conversions. Additionally, the department offers programs to its member agencies to help support compliance with various legislation and other topical matters. The department applies for and manages state and federal funding to support its efforts, with additional tasks including invoicing funding sources, marketing, and reporting.

WUE acquires aerial imagery every two or three years and oversees Conservation Framework data being used by consultants for classifying and measuring mapped landscape areas, as well as Flume data for insights on water usage in home for indoor compared to outdoor usage. Member agencies conduct field data capture for landscape measurements, consisting of nonspatial measurements and photographs. The department uses AGO for geocoding address data and ArcGIS Pro for creating maps.

Goals and expectations of the department include:

- Expand their use of analytics and visualization tools including GIS, PowerBI, and data APIs.
- Develop internal analytical capabilities and ability to produce reports and maps for each agency to communicate efficiency program reach and impacts.
- Visualize and analyze benefits achieved through water use efficiency implementation (e.g., water savings, trees planted, etc.)
- Establish a way to consistently and reliably map the existing (or new) Rebate SQL database for use in analysis and marketing efforts to increase participation in the Rebate program.
- Incorporate GIS, the rebate programs, and their public interaction points more effectively.
- Better use spatial and reference data—such as aerial imagery, Conservation Framework data, and lidar data—for viewing and analysis internally.
- Ability to manage agency and external data (such as consumption data) and support data partitioning to control data access per agency.
- The ability to import, connect, and use external data sources (such as evapotranspiration rates, weather patterns, landscape change) for analysis. This may include live data feeds.
- Have an oversight of tree health for plantings in part of southern California's xeriscape initiatives.
- Convert Moasure landscape measurement data into spatial GIS data.

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- Share rebate program information for internal agency statistical analysis.
- Establish a framework to view and analyze commercial, industrial, and institutional customer classifications.

Primary issues identified include:

- Limited GIS experience and outdated GIS skills among staff.
- Transitioning to Moasure device for calculating landscape areas. However, the Moasure data created is not geolocated by default.
- Rebate data is housed in an old SQL database format and not spatially enabled. The existing web interface is somewhat clunky, and the department has developed a PowerBI interface for reports and data exports. The database contains a user-entered address that may not be accurate or standardized. The existing website used to capture rebate applications may be changing within six to 12 months.
- Difficulty in accessing or consuming external data appropriately.
- Overall, the department has very large data storage requirements including aerial imagery and the Conservation Framework data stored in file geodatabases.
- Underutilization of Conservation Framework data in decision-making and reporting, currently have consultants using the data.
- The department would like to be able to do more analysis and visualization of the data to share with member agencies and assist with internal decision-making.

Personnel

The department has one primary GIS user who uses ArcGIS Pro and AGO to create basic maps for reports. Two WUE staff members have AGO logins, however one login is not being used. The department has interns who handle simple GIS tasks that require minimal guidance. In the future, two, or potentially three, GIS users will be responsible for editing and modifications to GIS data.

Data

The department periodically creates geocoded datasets from selected rebate data to display on a map. The majority of the department's data is currently handled in a tabular form.

2.8.3.1 Water Use Efficiency Recommendations

There are no separate departmental recommendations.

2.8.4 Emergency Management/WEROC

WEROC supports planning and emergency responses for 36 water and wastewater agencies in Orange County. The department facilitates multiagency coordination with its member agencies who may delegate authority to WEROC in case of emergencies. This agreement has been effective since the 1980s. A key component of this work is compiling agency data to provide a single infrastructure dataset for emergency response use. The department also provides logistical support to agencies, as well as situational awareness tools and access to key data through electronic and paper maps. The department is entirely dependent on outside data sources (including the agencies with which the department has agreements) and consultants to compile data. The department currently uses AGO to host data and maps.

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Goals and expectations of the department include:

- Maintain accurate and comprehensive water and wastewater infrastructure data to support emergency response and provide enhanced situational awareness.
- Provide emergency response assistance for member agencies (e.g., coordination, data, tools).
- Increased access to data from external agencies and partners including county, health-care agencies, power, telecommunications, transportation, etc.
- Incorporation of regulatory oversight data (identifying who has authority in specific areas, i.e., Fish & Wildlife, EPA, Water Conservation Authority, etc.).
- The establishment of a defined data digitization process enhancing validation and accuracy.
- The ability to incorporate additional attributes to existing data.
- The ability to provide field tools to view infrastructure and related data, capture initial damage estimates and assessments, manage real-time data from the field, and enable agency feedback.
- Capability to quickly and easily produce map products, including infrastructure maps, map books and atlases, and scenario maps.
- Establish dashboards for internal and agency usage (e.g., weather, fire watch, flood).
- Create a comprehensive dashboard providing various partner data for emergencies (e.g., Do Not Drink, Boil Water).
- Ability for quick scenario sketching.
- Establish a firewall for different agency data to reflect specified datasets with WEROC as an admin user over common operating picture and collective data capture. Access to data must comply with existing NDAs.

Overall, a number of geospatial tools and resources are desired:

- Staff-specific applications such as structural assessments. GIS tools for mitigation, preparedness, and response.
- Automation to generate physical map books.
- External and in-house support for various GIS tasks.
- An application that pulls all relevant data into one spot. The ability to run queries on and visualize critical areas, hazards, demographics, socioeconomic, vulnerability data, etc. A lot of this data will need to be pre-built and maintained regularly or pulled in from external sources.
- The ability to pull up asset information and associated system data such as CityWorks, maintenance records, photos, and history.
- Incorporating real-time weather (radar) and air quality data from external sources.
- The ability to print in various formats and sizes.
- Provide public-facing data for communication.
- Provide simple emergency response data collection forms with the ability to quickly manage and publish this data in a crisis.
- In-field access to infrastructure data and emergency maps.

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Primary issues identified include:

- Lack of general GIS knowledge and skills has delayed deployment of existing dashboards.
- Data accuracy is a concern.
- Desire additional attributes and data, particularly for hazardous materials.
- Workflow for fast map-making.
- Data portability is a concern due to GIS staff turnover at CDR.
- Data is digitized from scanned documents, which impacts accuracy.
- Agencies supply data in various ways (such as geodatabases, paper copies), which require compilation.

Personnel

The department has three staff members with varying levels of proficiency with GIS. Although they do not want to be GIS power users, they currently require additional training and support to effectively use tools such as existing dashboards. Staff have Survey123 experience through windshield surveys. GIS data work is currently outsourced to CDR, although the department would prefer to have a dedicated MWDOC GIS staff member to ensure data integrity and facilitate prompt updates to maps and data. There is a high level of reliance on CDR staff for GIS assistance. A primary concern for WEROC is to ensure access to water infrastructure data in the field and to provide informative maps and dashboards during emergencies. There are concerns about the accuracy of existing data, particularly regarding correct georeferencing of agency PDF data. Current maps lack detail and information due to the limited space available compared to electronic formats.

GIS is primarily used as a communication tool for the department. Staff create real-time information dashboards through CDR via Survey123 but not directly through MWDOC.

Data

The department has a Survey123 form and data is currently hosted in AGO.

2.8.4.1 Emergency Management/WEROC Recommendations

43. Establish standardized data schemas for existing and future datasets, particularly hazardous materials data.
44. Establish workflow and training using layout templates in ArcGIS Pro for quick map production.
45. Continue to host WEROC Emergency Response data and applications securely in AGO for resiliency. Test and training versions may be hosted in Enterprise.

2.8.5 Water Loss Control

WLC is the newest department to MWDOC, performing acoustic leak detections with three field technicians as part of a Shared Services Program. The department works closely with 25 different agencies by collecting file geodatabases and shapefiles. The department primarily uses ArcGIS Pro to prepare and publish data to AGO. Data is processed for planning and assigning fieldwork and is accessed by staff via Esri's Field Maps. Data in the field is collected using Esri's Survey123. MWDOC reports data collected to the agencies via Excel, Survey123, and dashboards. Esri Field Maps is also used to locate hydrants when performing pressure surveys using loggers.

Goals and expectations of the department include:

- Improving the sharing of statistical leak detection survey data with member agencies.

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- The ability to offer GIS data capture capabilities to member agencies.
- Live feed of maps and data between field staff displaying progress.
- Improved visibility and easier reporting of weekly results to agency staff.
- Improving GIS data management and dashboards.
- Establish standardized processes and procedures and implement automation to reduce repetitive manual workflows.
- GIS training for staff to allocate key resources efficiently.

The department receives file geodatabases and GIS data from member agencies along with an indication of the work locations. The data is partitioned by staff to establish the weekly work list and uploaded to AGO. Field staff perform acoustic leak detection and collect data using Survey123 against the AGO-hosted datasets. MWDOC staff generate reports using a mixture of Microsoft Excel and Survey123, sending reports to the agency each week. An internal Excel dashboard detailing water savings from the program has been created for MWDOC executive use. A GIS dashboard has been recently developed to allow agencies to view live findings during leak detection operations; however, there has been a lack of interest in the dashboard by agencies due to login requirements.

As the group is out in the field and interacting with agency assets, the department is considering its capacity and ability to offer potential GIS-related field verification and update services; however, staff were concerned this may negatively impact their current leak detection pace.

Primary issues identified include:

- A new survey is created for each project from a template. Currently there is only one staff member who knows how to do this.
- Increased capacity to set up surveys and data collection.
- A lack of process and procedure documentation.
- Additional GIS training to better use the tools that they have.
- Lack of ability to see each other's fieldwork and coordinate progress.
- Concerns over staff safety as they work alone and there is little visibility in their locations.
- Staff often use temporary paper records and submit form data at the end of a session, which may make location less reliable.

Personnel

The department has one primary GIS user, and three field staff who use AGO, Field Maps, and Survey123 to conduct their Leak Detection program work. Five years' worth of leak detection data is being stored on AGO. No other personnel besides the primary GIS user are trained or capable of setting up GIS projects. Currently, there is reluctance for the primary user to play an administrative role for GIS in the department due to lack of time and higher priority tasks. There is also a lack of capacity to explore and improve processes or develop new analysis such as trends over time.

Data

Water loss detection data is collected in the field using Esri's Survey123 and stored on AGO. Data collected from member agencies is published and managed on AGO for use in Field Maps to assign and conduct fieldwork.

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2.8.5.1 Water Loss Control Recommendations

46. Undertake a project to review departmental data and work planning for potential efficiency gains.
47. Undertake a project to streamline and automate weekly reporting of Leak Detection activity and results in conjunction with the dashboard.
48. Train additional staff to assist with key GIS tasks and workflows, especially setting up the data and Survey123 forms for each project.
49. Evaluate potential benefits and costs to developing new GIS focused services for member agencies (as requested or identified as suitable opportunities).

2.8.6 Metropolitan Issues (Water Resources)

Water Resources oversees water usage tracking for all MWDOC member agencies and three cities. The department implements water management plans and policies and processes meter reading data from Metropolitan Water District for monthly member agency invoices. The department currently outsources GIS analysis, map creation, and data updates to CDR. Data manipulation and analysis are primarily done using Microsoft Excel, with occasional use of Google Earth.

Goals and expectations of the department include:

- Display existing information with better data visualization and connection to geographic areas and projects.
- Ability to compare project effectiveness.
- Enhance communication with external parties.
- Transition paper data to digital.
- Create reports for member agencies, particularly invoicing for imported water. Eventually switching to shared web services with PowerBI.
- Ability to create simple maps displaying service areas, member agency locations, and infographics.
- Location-based mapping for meter locations with visuals of water flow between agencies.
- Ability to create high-level maps, interactive maps, and data for other agency use.
- Convert existing PDF master utility plan to a large GIS dataset that includes all member agency details for emergency response usage.
- Connect user and producer of water (e.g., link WUE and Water Resources data together).
- Display Local Resources Project, monthly production, and project life cycle data.
- Convert geographically referenced data into spatial data.
- Overlay data to display, measure, and compare program effectiveness.
- Convert the meter split process into a GIS format and include self-service components for member agencies contributions.
- Optimize and streamline invoices to member agencies to meet deadlines.

Primary issues identified include:

- Fieldwork entails meter reading, which presents a significant challenge regarding timing. Meter data is managed in Excel and split monthly by a single staff member to meet a tight invoice

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deadline. The process of performing meter splits for shared service connections is complex and time-consuming.

- The timing of meter readings presents significant challenges, particularly from MWDOC's funding perspective. The department needs to optimize and streamline invoice processes to ensure timely payments to Metropolitan Water District.
- Inability to combine cross-departmental data hampers the full view of the resource.
- Additional GIS/data requests are forwarded to CDR for evaluation and can be a lengthy process if there is insufficient capacity to commence the work.
- The use of paper-based data is inefficient.
- There is heavy reliance on Excel spreadsheets for task and project tracking purposes.
- Metropolitan Water District connection data is accessed through Google Earth and is rarely being used.

Personnel

Staff are viewing and consuming GIS data rather than creating or updating it. GIS services are outsourced to CDR, mainly for map requests. One staff member reports foundational GIS knowledge and being comfortable making basic maps in the AGO environment. Staff also consume GIS data through Google Earth for service connections and mains. Most data-intensive tasks are conducted through Excel instead.

Data

All external data used is tabular rather than spatial.

2.8.6.1 Metropolitan Issues (Water Resources) Recommendations

There are no separate departmental recommendations.

2.8.7 Information Technology

IT staff are responsible for managing the network, servers, and computing resources for the organization. The department oversees security, documentation of authority, and responsibilities.

Goals and expectations of the department include:

- Identifying and addressing anticipated and required infrastructural needs.
- Providing sufficient computing power, storage displays, and other requirements to meet business needs.
- Reviewing and hardening cyber- and data security.
- Consolidation of hardware where needed.
- Hosting within Amazon Web Services (AWS) or Azure environment if possible.

With an upcoming server refresh, the department is currently evaluating infrastructure or hardware requirements and needs to know the likely GIS impacts. The department is responsible for cybersecurity and wants to ensure that documentation of authority, responsibilities, and system requirements are met. The department prefers using cloud providers, such as AWS or Azure, for computing needs and to reduce its on-premises and hardware footprint where practicable.

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Primary issues identified include:

- Understanding the impact of any proposed GIS architecture on the IT plan to accommodate it successfully.

Personnel

Although IT staff are familiar with ArcGIS Pro and AGO, they do not regularly create or edit GIS data as part of their normal workflows. IT support is expected to primarily provide appropriate computing power and storage.

2.8.7.1 IT Recommendations

50. Training in GIS specific backups and system management as well as user administration if necessary.

2.8.8 Executive

The Executive group (management and the board) are particularly concerned with managing the overall direction and efficiency of the District and services offered to member agencies. No executives or board members were interviewed.

Personnel

The executives and directors do not have any GIS-related personnel resources and responsibilities. It is expected that MWDOC will replace or augment static PDF files with dashboards and other tools to provide key information in a user-friendly and interactive manner for improved communication, observability, and monitoring.

2.8.8.1 Executive Recommendations

51. Establish requirements for dashboards and summary tools for providing at-a-glance key data to executives and directors. These may be map-based or not, depending on the context, and include internal and external data as needed.

2.8.9 Member Agencies and Partners

A series of interviews were held with a set of the existing MWDOC member agencies and key partners, including CDR. The goal of the interviews was to establish a representative sample of member agency GIS capabilities, gather their opinions on priority factors and issues important to them, and identify key GIS-related factors that they felt MWDOC could provide a regional role in supporting. Member agency capabilities ranged from those that had an existing GIS program and were actively using GIS and advanced tools (such as the Utility Network) and those who had limited GIS capabilities or resources. While no recommendations are for the use of member agencies in this document, their feedback has been incorporated into the recommendations provided in the rest of the document.

The key insight is that extending MWDOC's existing regional leadership role to include GIS with a focus on interagency planning, collaboration and communication, and the establishment of a GIS Shared Services program, would be generally welcomed by member agencies.

A common theme heard throughout the interviews was:

- Member agencies are very appreciative of existing MWDOC programs (non-GIS) and assistance and value these highly.

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- MWDOC is seen as a vital part of keeping member agencies up to date on regional issues and regulatory reporting requirements.
- MWDOC is seen as being a logical choice to play an important regional leadership role in technology and GIS.
- Access to demographic and community data was important to assist with grant applications.
- Many member agencies have limited GIS resources, and these may be further restricted by having part-time GIS responsibilities. Interviewees in general reported a lack of time and resources to do more with their GIS. GIS staff may be spread across different internal departments or consolidated in an organization-wide group such as IT. While some interviewees reported they are adding GIS resources, others mentioned that this would be difficult for them.
- Member agencies would like to have a clear description of the benefits and advantages of GIS associated projects, tools, and technology to get buy-in from board members.
- Infrastructure data security is a concern and consideration for member agencies, with differing opinions on the degree and importance.
- MWDOC data representing the interconnection between agencies is extremely valuable for the region as a whole.
- Asset management is the primary focus of each agency, with different degrees of sophistication. Agencies with asset management systems in place do use their GIS data, although agencies may be considering changing software in order to better use GIS and address shortcomings.
- GIS data is generally in a semi-standard format, such as an Esri Geometric network, and there is growing interest in migrating to the Esri Utility Network, with some member agencies already undergoing or planning a migration in the short-to-medium-term (i.e., one to two years).
- Member agencies have largely migrated to using newer Esri tools, such as ArcGIS Pro, with differing levels of comfort with the software reported. Some member agencies are using ArcGIS Enterprise and/or AGO.
- Data accuracy improvements are an important element of maintaining the current GIS data and improving its usefulness.
- Member agencies expressed the importance of documentation, data standards, and best practices, recognizing that they may need assistance developing these.
- Member agencies are often focused on creating map books and printed products for use in the field and emergency situations.
- Member agencies often use consultants for specific GIS projects.
- Member agencies currently work closely with county, city, and neighboring agencies with respect to GIS data and assistance.
- Member agencies expressed interest in secure data-sharing with MWDOC and are often sharing data directly with each other on request.
- Larger more sophisticated member agencies are currently supporting neighboring agencies with GIS and other tools where they have capacity to do so.

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LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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APPENDIX A

Table of Recommendations

Provided as a supplemental Excel document.

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APPENDIX B

Road Map and Timeline

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MWDOC 5-Year Road Map

Year 1 | Year 2 | Year 3 | Year 4 | Year 5

Governance
Software/Hardware
Spatial Data
General/Dept/Personnel

High Priority
Medium Priority

3. GIS Program Authority
4. Departmental data stewards
5. Develop GIS Data standards
6. Document GIS Deliverables
7. Document security controls
8. Formal Data Sharing Agreement
11. Establish KPIs
13. GIS Licensing
14. SAML
15. GIS in RFP
17. Refine Enterprise server requirements
12. Plan and Implement Esri Enterprise
22. Publish Imagery as services
25. External REST services
23. Core GIS data storage/EGDB
28. Moasure
30. Consolidate and publish GIS data
24. Project File Storage
37. Review/Migrate AGO data to Enterprise
40. Departmental documentation
31. Optimize/automate workflows
34. Document member data schemas
43. WEROC: Standardized data schemas
44. WEROC: Atlas/Layout print template workflows
29. WEROC data as District base
33. Evaluate Rebate DB spatial alt.
39. Staff GIS training plan
50. Executive tools
1.Establish Collaborative Planning Tool content
9. Lead a Regional GIS Forum
10. GIS Shared Program Planning
42. GIS Program Partners
2. Switch to Enterprise/AGO web applications
49. IT GIS mgt training
21. Emergency response devices
18. GIS backups
27. Evaluate Flume data options
36. GIS- Laserfiche
32. Incorporate Historical datasets
35. Agency specific data filtering/restrictions
26. Automate data downloads
45. WLC: Field workflows
46. WLC: Report automation
48. WLC: Evaluate potential GIS-focused member service(s)
47. WLC: Workflow cross training
41. Conference attendance for training
38. Consultants/contractors for GIS capacity

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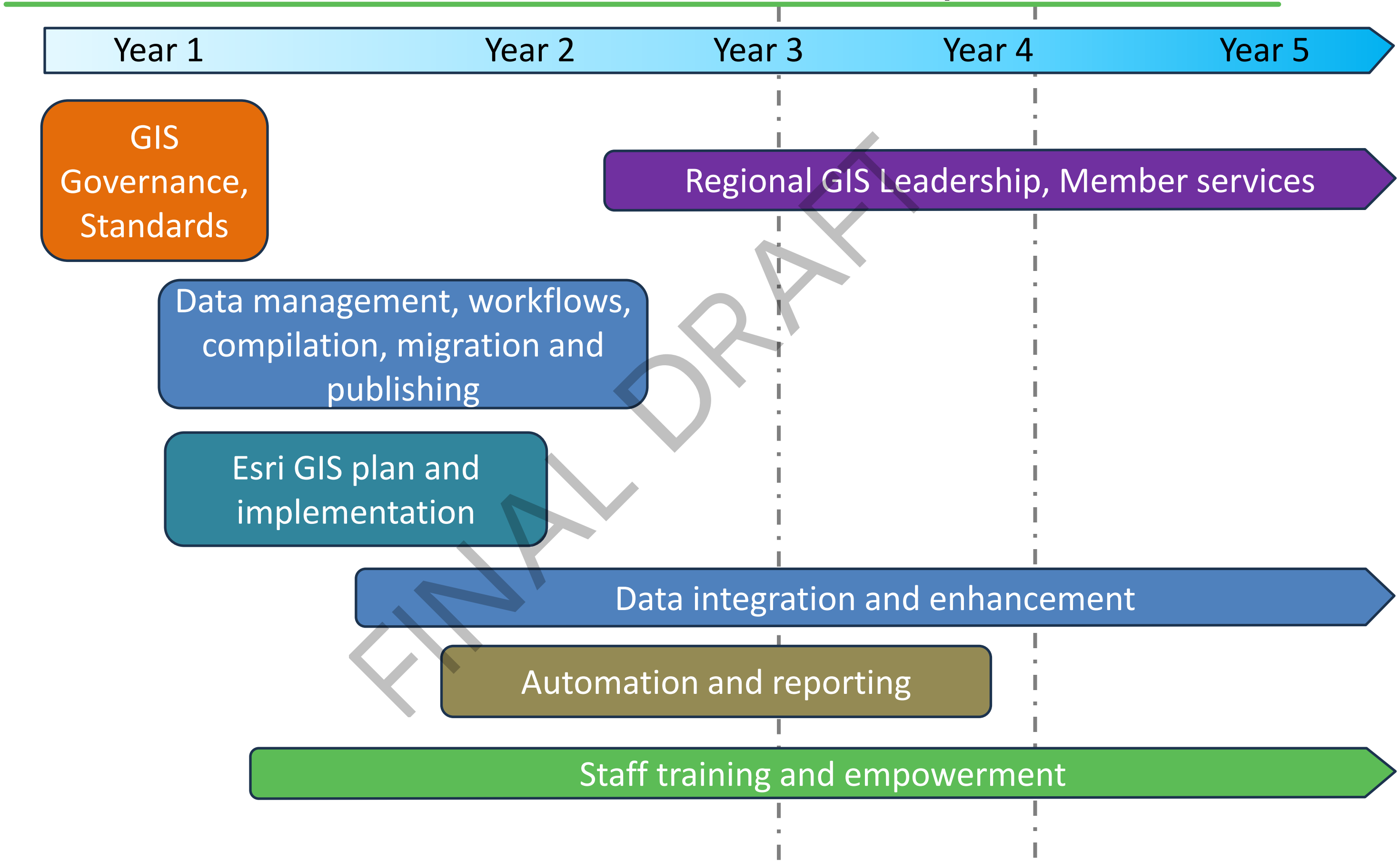
MWDOC 5-Year Road Map



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Item No. 3

ACTION ITEM
August 20, 2025

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

Harvey De La Torre, General Manager

Staff Contact: Beth Fahl, Senior Water Use Efficiency Analyst

SUBJECT: **MASTER AGREEMENT FOR SHARED PROGRAMS AND SERVICES BETWEEN MUNICIPAL WATER DISTRICT OF ORANGE COUNTY & THE CITY OF SANTA ANA**

STAFF RECOMMENDATION

Staff recommends that the Board of Directors authorize the General Manager to execute the Master Agreement for Shared Programs and Services between Municipal Water District of Orange County & The City of Santa Ana, subject to any non-substantive changes or modifications.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

In May 2022, the Municipal Water District of Orange County (MWDOC) entered into master agreements for shared services and programs (Master Agreements or Agreements) with the cities of Anaheim, Fullerton, and Santa Ana (Three Cities). The Master Agreements allow MWDOC to provide services and programmatic support to each of the Three Cities and for MWDOC to be reimbursed for the costs associated with these services. The Agreements are beneficial to all parties in providing both economies-of-scale services and the ability to collaboratively pursue joint external funding as a contiguous county for many of these activities.

Budgeted: ☐ Yes ☐ No ☒ N/A	Budgeted amount: N/A	Core: ☐	Choice: ☒
Action item amount: N/A	Movement between funds: ☐ Yes ☒ No		

Each of the Three Cities established both its term limit and a funding obligation limit. Initially, Santa Ana set its term at five years with a funding obligation limit of $750,000. The other Agreements are each now set at a ten-year term limit, with the Anaheim funding obligation limit set at $2,000,000, and the Fullerton funding obligation limit increased to $3,000,000 in February 2025.

Each of the Three Cities is responsible for monitoring both its respective activity under its Master Agreement and tracking its total funding obligations.

Master Agreement Amendment Program Activity

When the Master Agreements were drafted in 2022, the Three Cities staff made informed assumptions about which MWDOC programs they would participate in and at what activity level. Between 2022 and 2025, MWDOC put together a series of programs designed to meet regulatory and statutory requirements for our member agencies. These programs include:

- Lead and Copper Rule Revisions;
- *Making Conservation a California Way of Life* Technical Assistance Program;
- Landscape Area Measurement Project; and
- Water Loss Control Activity.

The Three Cities all participated in these programs to varying degrees to take advantage of both the administrative efficiencies and the cost savings provided by the programs. This additional activity by the Three Cities resulted in faster-than-anticipated spending under their initial total funding obligation limits.

The table below shows how much each agency has spent under its respective Master Agreement to date.

Master Agreement	Initial Term Funding Limit (5 Years)	Spend to Date[1]	Current Total Term Funding Limit (10 Years)
Anaheim	$2,000,000	$827,801	$2,000,000
Fullerton[2]	$1,500,000	$676,332	$3,000,000
Santa Ana	$750,000	$621,687	-

1. As of June 30, 2025
2. Fullerton amended their Agreement in February 2025 to increase its funding limits

Due to the increased activity in the programs, the City of Fullerton and MWDOC amended the Fullerton Master Agreement in February of 2025 to increase the initial term funding to $1,500,000 and increase the total term funding limit to $3,000,000.

Similarly, due to increased programmatic activity, the City of Santa Ana is also requesting modifications to its Master Agreement. Per City of Santa Ana policy, the City requires that agreement terms are no greater than five years in total. With the City of Santa Ana's term expiring in 2027, it is administratively more efficient to enter into a new Master Agreement with the City of Santa Ana to extend both the term and the funding obligation limit, rather than to modify the funding obligation limit solely.

Master Agreement for Santa Ana

To ensure that there is no lapse in MWDOC-provided programs and services for which the City of Santa Ana has committed, and that there is timely reimbursement for these programs by the City of Santa Ana, a new Santa Ana Master Agreement is proposed.

Due to the increase in MWDOC-provided programs and the increased activity level from the City of Santa Ana, the City is proposing an updated funding obligation limit of $1,500,000. All other aspects of the 2022 Master Agreement are currently working as anticipated. Therefore, the only proposed changes between the City's 2022 Master Agreement and the 2025 Master Agreement are an increase to the funding obligation limit and an updated term. Per City of Santa Ana policy, the initial term of the Agreement is three years, with the option of two one-year administrative extensions, bringing the total term to five years.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☒ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

BOARD OPTIONS

Option #1: Authorize the General Manager to execute the Master Agreement for Shared Programs and Services between Municipal Water District of Orange County & The City of Santa Ana, subject to any non-substantive changes or modifications.

Fiscal Impact: This amendment allows for the invoicing of the Three Cities' proportional share of the choice costs and programs and has no direct fiscal impact to MWDOC.

Option #2: Do not authorize the General Manager to execute the Master Agreement with the City of Santa Ana.

Fiscal Impact: Not authorizing the General Manager to execute the Master Agreement would result in a decrease in efficiency in the administration of MWDOC's regional programs and projects for the City of Santa Ana and could result in delays of payments and the inability to collaborate on grant funding opportunities**.**

Attachments/Links:
Attachment 1: City of Santa Ana's Master Agreement for Shared Programs and Services

MASTER AGREEMENT FOR SHARED PROGRAMS AND SERVICES BETWEEN THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY & THE CITY OF SANTA ANA

This Master Agreement for Shared Programs and Services Between the Municipal Water District of Orange County & the City of Santa Ana ("Agreement") is made and entered into as of _____ day of _____, 2025, or as of the last day executed below, whichever is later ("Effective Date"), by and between the Municipal Water District of Orange County ("MWDOC") and the City of Santa Ana ("City") to provide for participation by the City in various programs and services administered by MWDOC, as described herein. The City and MWDOC are referred to jointly as "Parties" and individually as "Party."

RECITALS

WHEREAS, the Parties are both member agencies of the Metropolitan Water District of Southern California ("Metropolitan") and have many common interests related to water activities, programs, and organizations within Orange County;

WHEREAS, the Parties share many water planning characteristics, including location, climate history, demographics, water sources, water supplies, and demand management measures;

WHEREAS, the Parties share a long and successful history of collaborating on water resource activities, planning analysis and reports, water use efficiency programs, and other joint efforts;

WHEREAS, the Parties previously entered into a Master Agreement for Shared Programs and Services Between the Municipal Water District of Orange County & the City of Santa Ana on June 21, 2022, and desire to enter into a new agreement for the same purpose;

WHEREAS, the Parties desire to continue to cooperate and pool resources to obtain economies of scale on joint studies and programs, share information developed independently, simplify the process of implementing water use efficiency measures, and maximize grant funding for all of these activities; and

WHEREAS, the Parties have prepared this Agreement to continue consolidating and streamlining the contracting procedures required for MWDOC's administration of, and the City's participation in, the programs and services referenced herein;

NOW, THEREFORE, the Parties agree as follows:

1. Water Use Efficiency Programs ("WUE Programs")

1.1 Notice Procedures

1.1.1 Subject to the limitations set forth in this section, the Parties shall work together to make WUE Programs available to water users throughout the City's water service area. In general, the City will have access to the same "choice", or pay-for-service, WUE Programs that are currently available to MWDOC member agencies. Within thirty (30) days of the Effective

Date, MWDOC shall send a written notice to the City listing all available WUE Programs and the requirements for each, along with enrollment forms for participation in those WUE Programs. This written notice shall contain the estimated costs of the WUE Program as well as that program's specific requirements and terms and conditions. Thereafter, MWDOC shall provide a written notice with this information for every upcoming fiscal year at the time of MWDOC's budget preparation or within thirty (30) days of new information being made available to MWDOC by Metropolitan. The notices to be provided by MWDOC shall be referred to herein as the WUE Program Notice. MWDOC shall also provide the City with any other information or documents that are required for participation in WUE Programs or reasonably requested by the City in connection with WUE Programs. For each fiscal year, the City shall review the WUE Program Notice and choose the WUE Programs and the level of its participation that the City deems beneficial. In connection with the foregoing, the City will notify MWDOC in writing by indicating in the WUE Program Notice the level of the City's participation in any WUE Program for each fiscal year ("WUE Participation Notice).

1.1.2 If a new WUE Program is introduced or a material amendment is made to an existing WUE Program during a fiscal year, MWDOC shall provide the City with a written notice thereof ("Amended WUE Program Notice") as soon as reasonably possible prior to the date the new program or amendment is scheduled to commence. This Amended WUE Program Notice shall contain the program's specific requirements and terms and conditions and any costs that may be ascertainable at such time. Within thirty (30) days of receiving the Amended WUE Program Notice, the City will notify MWDOC in writing whether the City will participate in the new or amended WUE Program and the level of its participation ("Amended WUE Participation Notice").

1.1.3 Except to the extent of the elections made in the WUE Participation Notice and the Amended WUE Participation Notice, the City shall have no obligation to participate in any WUE Program, including, but not limited to, any obligation to provide financial contribution to such program.

1.1.4 The City understands that specific requirements and terms of conditions may apply to each WUE Program that the City chooses to participate in and agreeing to such requirements and terms and conditions is a prerequisite to the City's participation in such WUE Programs. In connection with the foregoing, MWDOC shall provide the City with all applicable specific requirements and terms and conditions in a WUE Program Notice or Amended WUE Program Notice.

1.1.5 The City understands that by entering into this Agreement it agrees to pay MWDOC for its proportionate share of MWDOC's costs for administering MWDOC's WUE Program based on and to the extent of the City's level of participation as more particularly described in Section 1.8. If the City elects to participate in any or all MWDOC WUE Programs, MWDOC will invoice the City for such costs as described in Section 1.8.

1.1.6 The City is responsible for monitoring its level of participation in any WUE Program and is responsible for payment of all funding contributions required of the City by the WUE Program as authorized by a WUE Participation Notice or Amended WUE Participation Notice. In connection therewith, MWDOC is not responsible for any of the City's required payments or funding contributions even if they are above any cost estimate or the City's budgeted

amounts authorized by a WUE Program Notice or Amended WUE Program Notice, except pursuant to the results of an audit by the City under Section 8.3.

1.1.7 In the event a WUE Program is terminated early, City is responsible for payment of any funding contributions required by the WUE Program to the extent of applications initiated prior to the effective date of the termination. For purposes of the preceding sentence, an application is deemed initiated when an application has been received by Metropolitan's rebate vendor, by MWDOC, or a reservation has been made within any of MWDOC's online application portals that is pursuant to any of the WUE Programs described within this Agreement.

1.1.8 Notwithstanding any other provision of this Agreement, MWDOC providing funds for any of the MWDOC WUE Programs is conditioned upon the availability of funds and MWDOC is under no obligation to provide funding to City for any WUE Program if MWDOC determines, in its own discretion, that such funding is exhausted, reduced, eliminated, or unavailable from any funding source, for any reason. In the event MWDOC determines funding for a WUE Program has been exhausted, reduced or unavailable, it will notify the City immediately and City may terminate its participation in that affected WUE Program upon MWDOC's receipt of the City's written notice.

1.2 WUE Programs Availability

1.2.1 Subject to the limitations set forth herein, the Parties agree that the WUE Programs chosen by the City for participation in the City's WUE Participation Notice or Amended WUE Participation Notice, shall be made available throughout the City's water service area for the Term, without the need for a separate agreement between the Parties in addition to this Agreement.

1.2.2 MWDOC shall involve the City in the WUE Program marketing to occur within the City, and the City agrees to assist in the marketing of WUE Programs it participates in under this Agreement; provided, City may terminate any MWDOC marketing efforts within the City's water service area which City deems contrary to its best interests. If any marketing efforts will extend to areas outside of the City's water service area, MWDOC will work with the City to address City's concerns. In those cases where MWDOC and City do not reach a mutually acceptable compromise, MWDOC will make all reasonable efforts to remove the City from such objectionable marketing efforts at the City's written request.

1.3 Grant Funding

1.3.1 Subject to any grant requirements and conditions, Grant funding obtained by MWDOC for WUE Programs may be made available to end water users within the City's water service area. In order for end water users within the City to be eligible to receive such grant funds from MWDOC, MWDOC will provide the City with the applicable grant terms and conditions and, if acceptable to the City, the City will provide MWDOC written notice of its acceptance of those terms and conditions. The administration of any MWDOC grant funding will be on a program-by-program basis, contingent upon the terms and conditions of each program.

1.4 MWDOC-Administered Programs.

1.4.1 From time to time, funding may be made available from Metropolitan for MWDOC to operate a customized local water conservation incentive program or programs ("MWDOC Administered" or "MAA Program") in its service area, with access to the Metropolitan base incentives for such. As City is also a Metropolitan member agency, in order for MWDOC to administer the MAA Program for City, City would be required to apply to Metropolitan separately for funding. If the City desires MWDOC to administer an MAA Program, City will provide MWDOC a WUE Participation Notice or an Amended WUE Participation Notice. In such cases, MWDOC will administer the MAA Program for City and invoice City for activity in City's service area. City will reimburse MWDOC for any activity, and the City is also responsible for seeking and securing reimbursement directly from Metropolitan. Specific terms and conditions will be provided by MWDOC to the City in the annual WUE Program Notice or an Amended WUE Program Notice.

1.5 Supplemental Funding

1.5.1 If the City elects to provide supplemental funding or enhanced incentives for a WUE Program provided under this Agreement, the City is responsible for tracking the use of and the remaining availability of such supplemental funds. MWDOC will assist in every reasonable way, but the ultimate responsibility for tracking all City funding is the responsibility of City, and City is responsible for any overuse of City funding. Supplemental funding designations should be indicated in the WUE Participation Notice or Amended WUE Participation Notice. In the event any City-provided funding for any WUE Program is exhausted, and the City does not elect to add additional funding or transfer available funding from another WUE Program, MWDOC will discontinue offering the additional rebate funding for that Program in the City's service area.

1.5.2 City may also choose to provide additional supplemental funding of its own to augment the Metropolitan base incentives offered through SoCal Water$mart. City will coordinate any such supplemental funding directly with Metropolitan.

1.6 Installation Verification and Inspection

1.6.1 The City shall be responsible for conducting installation verifications/inspections of items and devices installed, distributed, and/or rebated pursuant to this Agreement to ensure compliance with program requirements, and/or for paying all costs associated with this verification/inspection. Installation verification/inspection measures shall conform with MWDOC's Inspection and Verification Procedures attached hereto as Exhibit A ("Inspection and Verification Procedures") and incorporated herein by reference.

1.6.2 In connection with any selected WUE Programs that require installation verifications/inspection and to ensure compliance with program requirements, the City may elect to (1) conduct its own installation verifications/inspections by either utilizing its in-house staff or contracting with a third-party vendor of its choice; or (2) utilize MWDOC's installation verification/inspection contractor to conduct the installation verification/inspections. MWDOC shall invoice the City monthly for any such inspection costs incurred by MWDOC on behalf of the

City. In addition to the direct costs to MWDOC, reasonable staff time and overhead attributable to the verification/inspection services may be invoiced to the City.

1.6.3 Notwithstanding any other provision in this Agreement, City understands and agrees that if City utilizes MWDOC's verification/inspection vendor that MWDOC is in no way liable or responsible for the acts or omissions of such vendor and makes no representations or warranties regarding the quality of such vendor's work. City's sole recourse as to any action, claims, or damages arising out of the acts or omissions of MWDOC's verification/inspection vendor is with the vendor and not with MWDOC.

1.6.4 MWDOC reserves the right to conduct installation verification/inspection of items and devices within the City's service area that are installed in connection with a WUE Program covered by this Agreement.

1.6.5 In connection with any WUE Program covered by this Agreement, the City acknowledges that any item or device receiving funding from Metropolitan may be subject to an installation verification/inspection to be performed by Metropolitan, or its agent(s), at Metropolitan's discretion.

1.6.6 The City shall promptly refund to MWDOC any amounts paid under any WUE Program for installed or distributed items or devices, including any grant funds, in the event MWDOC or Metropolitan establishes via installation verification/inspection and/or audit that the program items or devices were not installed in compliance with the requirements set forth in the Inspection and Verification Procedures and this Agreement. If the inspection/installation verification is conducted prior to the payment/rebate being issued to the customer, the customer may, at the discretion of MWDOC and/or MET, be offered an opportunity to remedy any installation deficiencies in order to receive the maximum eligible rebate. Installation deficiencies discovered post-payment will be addressed on a case-by-case basis and may require the reimbursement of any payment/rebate previously issued.

1.6.7 For this section 1.6, "items" and "devices" include, but are not limited to, plumbing fixtures, irrigation devices, turf (removal and replacement), and any other items, devices or materials that are installed in connection with a WUE Program covered by this Agreement.

1.6.8 At the time this Agreement is made, both the Turf Removal Program and the Spray to Drip Rebate Program require inspection services from the City.

1.7 Program With Matching Contribution Requirement

1.7.1 From time to time, WUE Programs may be developed that require a matching contribution from the City in order for the City to participate in such WUE Programs.

1.7.2 The amount of local match funding required for a particular device or program will be determined by the availability of other funding, and the City's share of the local match funding will be set forth in the WUE Program Notice or Amended WUE Program Notice.

1.8 WUE Program Cost Allocation and Invoicing

1.8.1 During its annual budget process, MWDOC shall allocate to the City a proportionate share of MWDOC's estimated WUE Program costs ("Choice Costs"). This share of MWDOC's estimated WUE Program costs shall be determined by dividing the total outside funding provided during the previous calendar year to WUE Program participants within the City's service area by the total outside funding provided during the previous calendar year to WUE Program participants within the service area of all MWDOC member agencies and other agency participants. That percentage is then applied to MWDOC's total WUE "choice" program budget, including personnel and overhead costs. An example of the annual reconciliation process is shown in Exhibit C.

1.8.2 MWDOC shall invoice the City for Choice Costs, which do not include the WUE Program administration and funding costs described below in Section 1.8.4, no later than September 30 of each year, and the City shall pay the amount due within forty-five (45) days of receipt of the invoice. MWDOC must be notified of any disputed invoice within thirty (30) days of receipt. An invoice template is shown in Exhibit B, which is attached hereto and incorporated by reference.

1.8.3 With regard to the Choice Costs referenced in Section 1.8.2 above, a reconciliation of actual WUE Program costs will be performed at the end of each year during MWDOC's budget process, and any debts or credits will be reflected in the invoice sent to the City the following year.

1.8.4 MWDOC shall invoice the City on a monthly basis for supplemental funding or enhanced incentives pursuant to Section 1.5.1. These costs are separate from the Choice Costs.

2. Shared Consulting Services

2.1 The Parties shall continue to participate in and fund collective efforts in planning, research, policy development, and other activities that require engagement of an outside consultant. MWDOC shall provide the City a copy of each consultant's proposal for review and comments. For each consultant so engaged, the City will notify MWDOC in writing if it elects to participate in the consulting services and the limit of its financial participation. The City shall have no obligation to pay for any consultant unless the City has agreed to participate in writing and shall not be responsible for paying any costs above the City's identified limit.

2.2 Water Resource Planning

2.2.1 Subject Section 2.1, the Parties may participate, without the need for an additional agreement, in joint activities and studies designed to ensure water supply and system reliability, including but not limited to, water reliability analyses, water supply and demand projections, master planning for water use efficiency, water system loss analysis and leak detection studies, preparation of urban water management plans and drought contingency plans, demand management studies, and studies related to water transfers, water recycling, groundwater recovery, and water storage programs.

2.2.2 The Parties may participate, without the need for an additional agreement, in joint activities and studies related to system reliability efforts for emergency response.

2.2.3 The City shall have no obligation to pay for consultant unless City has agreed to participate as set forth in Section 2.1.

2.3 Award and Administration of Consultant Agreements

2.3.1 When programs or services administered by MWDOC require MWDOC to engage a consultant, MWDOC will use its standardized professional services agreement as a form and will modify it as required for each particular engagement. MWDOC will award the agreement pursuant to its own Administrative Code and procedures, except as noted in this Agreement.

2.3.2 For each professional services agreement, MWDOC will determine appropriate insurance requirements. When MWDOC requires a consultant acquire insurance naming MWDOC, its directors, officers, agents, employees, attorneys, consultants, volunteers, and participating agencies as additional insureds. the insurance requirements, including waiver of subrogation rights, are extended to the City as additional insured to the extent it is a participating agency.

2.3.3 MWDOC shall administer such professional services agreements and coordinate all aspects of the proposed work. MWDOC shall communicate with the City regularly and upon request regarding the status of the agreement and the work for each professional services agreement in which the City has elected to participate.

2.3.4 MWDOC shall invoice the City for the City's share of total costs anticipated for each professional services agreement in which the City has elected to participate, as contemplated in this Agreement. Such invoices shall be mailed by the 10th day of each month for the preceding month and shall be paid by the City within forty-five (45) days. The City shall have no obligation to pay for consultant unless City has agreed to participate as set forth in the first paragraph of this Section 2.

2.3.5 MWDOC shall inform the City on a timely basis of any proposed extra work to be performed for the City under any professional service agreement being administered by MWDOC that would result in an increase in the City's payment under this Agreement (“Extra Work”). MWDOC shall obtain input and written concurrence from the City and any other participating agencies prior to the authorization of Extra Work by the consultant. City shall not have any obligation to pay for any Extra Work unless the City Manager or his or her designee has provided to MWDOC a written notice of City's agreement for the performance of the Extra Work. MWDOC will be responsible for paying consultants directly.

3. Water Loss Control “WLC” Shared Services and Technical Assistance

3.1.1 MWDOC shall release WLC Shared Services and Technical Assistance Exhibits ("Exhibits") annually. In general, the City will have access to the same "choice" WLC Programs that are currently available to MWDOC member agencies. For each fiscal year, the City shall review the Exhibits and choose the WLC Programs and the level of its participation that the City deems beneficial. In connection with the foregoing, the City will notify MWDOC in writing by indicating in the Exhibits the level of the City's participation in any WLC Program for each fiscal year.

3.1.2 If a new WLC Program is introduced or a material change is made to an existing WLC Program during a fiscal year, MWDOC shall provide the City with updated written materials ("Amended WLC Exhibits") as soon as reasonably possible and prior to the date the new program or change is scheduled to commence. The Amended WLC Exhibits shall contain the program's specific requirements and terms and conditions and any costs that may be ascertainable at such time. Within thirty (30) days of receiving the Amended WLC Exhibits, the City will notify MWDOC in writing whether the City will participate in the new or amended WLC Program and the level of its participation.

3.1.3 Except to the extent of the elections made in the WLC Exhibits and amended WLC Exhibits, the City shall have no obligation to participate in any WLC Program, including, but not limited to, any obligation to provide financial contribution to such program.

3.1.4 The City understands that by entering into this Agreement, it agrees to pay MWDOC for its proportionate share of MWDOC's costs for administering MWDOC's WLC Program based on and to the extent of the City's level of participation as more particularly described in Section 3.1.1. If the City elects to participate in any or all MWDOC WLC Programs, MWDOC will invoice the City for such costs as described in Section 3.1.1.

3.1.5 Funding may be made available from Metropolitan for MWDOC to operate a customized local water loss control incentive program or programs ("Grant" or "MAA Program") in its service area, with access to the Metropolitan base incentives for such. As City is also a Metropolitan member agency, in order for MWDOC to administer the MAA Program for City, City would be required to apply to Metropolitan separately for funding. If the City desires MWDOC to administer a water loss control MAA Program, City will provide MWDOC the WLC Exhibits or Amended WLC Exhibits. In such cases, MWDOC will administer the MAA Program for City and invoice City for activity in City's service area. The City will reimburse MWDOC for any activity and is responsible for seeking and securing reimbursement directly from Metropolitan. Specific terms and conditions will be provided by MWDOC to the City in the annual WLC Exhibits or Amended WLC Exhibits.

3.1.6 MWDOC shall invoice the City on a monthly basis for WLC Shared Services and Technical Assistance work completed.

4. MWDOC K-12 Water Education Programs ("Choice School Programs")

4.1.1 Choice School Programs. The Parties agree that the Choice School Program, or pay-for-service offerings, will be made available in the City's water service area for the Term of this Agreement, without the need for a separate agreement between the Parties in addition to this Agreement. The City sponsors program offerings within its service area at no cost to the schools or students by opting-in. The City will have no obligations to participate in any Choice School Program unless the City has agreed in writing to participate through the annual Choice School Programs Commitment Form.

There are multiple Choice School Program options: (a) a program for students in Kindergarten through Second Grade ("K-2 Choice Elementary School Program"); (b) a program for students in Third Grade through Fifth Grade ("3-5 Choice Elementary School Program"); (c) a

program for students in Sixth Grade through Eighth Grade ("Choice Middle School Program"); and (d) a program for students in Ninth Grade through Twelfth Grade ("Choice High School Program"). Program offerings include options for in-person and live virtual lessons presented by trained education specialists. The school approved to receive any Choice School Program will determine whether the program can be delivered in-person or virtually.

During the Term and before the start of each school year and the commencement of any Choice School Program, MWDOC will provide the City with a detailed description of the program offerings and a complete price breakdown for each. The program description provided to the City will include budget recommendations and expected commitments and require written consent by the City before implementation. The City may request minor adjustments during the course of the program, but will not incur additional costs without the City's prior written consent.

4.2 Annually, the City will set Choice School Program commitments. MWDOC and its contractors will attempt to fulfill the commitment amounts. However, there is no guarantee as to the number of schools and students that will participate in the Choice School Programs. MWDOC will invoice the City for the total annual estimated costs. MWDOC will provide a reconciliation at year-end based on the actual services provided. The City will be responsible for paying MWDOC the difference if the estimate is lower than the actual costs, and MWDOC will reimburse the City the difference if the estimate is higher than the actual costs.

4.3 Choice School Program Invoices. MWDOC will submit invoices to the City in January and July each year for the services provided in accordance with the Agreement. The City agrees to pay MWDOC for undisputed invoices within forty-five (45) days after receiving the submittal.

4.4 Choice School Program Insurance. MWDOC agrees that all agreements with consultants, who will be performing the work on behalf of MWDOC, will include appropriate insurance levels and requirements, pursuant to Section 2.3.2. above.

5. The Water Emergency Response Organization of Orange County ("WEROC")

5.1.1 The City of Santa Ana is signatory to the 1983 Orange County Volunteer Emergency Preparedness Organization Agreement, which was Amended in 1991 to change the name to WEROC (MWDOC Board Resolution 1623). MWDOC provides the overall staff and support for WEROC and has historically allocated the costs for WEROC among MWDOC, Orange County Water District, the Cities of Anaheim, Fullerton, and Santa Ana, the Orange County Sanitation District, and the South Orange County Wastewater Authority. The purpose of WEROC is to support the resiliency of Orange County's 36 water and wastewater agencies, and the community of 3.2 million people it serves by working with these agencies and the County to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recover from threatened or actual natural disasters, acts of terrorism, or other man-made disasters. Services include preparedness and response coordination for mutual aid and other services and to represent water and wastewater entities within the Orange County Operational Area. In order to build the relationships needed for effective response, WEROC works with MWDOC member agencies, Metropolitan, the County Operational Area, the State Office of Emergency Services, Department of Water Resources, EPA, FEMA and other emergency organization partners throughout the year

to educate, network, provide training and when required advocate for water and wastewater agencies. WEROC staff works with its member agencies and the City on emergency plans and standard operating procedure development, review of state and federal required trainings for grant eligibility, disaster readiness, disaster exercise development, grant identification and applications, and response and recovery coordination. WEROC provides information sharing and resource coordination when disasters impact the water and wastewater utilities of Orange County. Lastly, WEROC staff maintains a primary emergency operation center and alternate emergency operations center, its own response plans, and ensures the WEROC radio communications system partnership with the County 800 MHz system remains intact.

5.1.2 By executing this Agreement, the City elects to participate in WEROC, and MWDOC will charge the City a percentage of WEROC's annual budget to fund WEROC operations. The historical percentage allocated is 3.8% and is based on historical negotiations among the WEROC funding partners. In January of each year of the City's participation, the proposed program budget and funding agency charges will be submitted to the City for budgetary consideration. If approved by the City, MWDOC will invoice the City the approved amount at the beginning of the fiscal year. If the City requires additional conversation about the proposed budget prior to approval, these items will be addressed at the next MET Managers Meetings or during a special scheduled meeting.

6. Term and Agreement Limit

6.1 This Agreement shall commence and be effective as of the Effective Date and shall continue for one three-year term (“Term”), unless terminated earlier in accordance with Section 6.3, below. The City Manager or his or her designee is authorized, on behalf of the City, to approve the Term. The Term of this Agreement may be extended for up to two (2), one-year periods upon a writing executed by the City Manager and City Attorney.

6.2 The City's total funding obligation for this Agreement shall not exceed $1,500,000.000("Agreement Limit") for all programs and services covered herein during the Term. The City is responsible for monitoring its costs pursuant to this Agreement and to the extent that it incurs obligations consistent with this Agreement that exceed the Agreement Limit, the City is responsible for paying such additional costs to MWDOC. If the City wishes to add or delete any programs, activities, or studies set forth in this Agreement, notice of such additions or deletions must be received by MWDOC prior to March 15th for the following fiscal year.

6.3 The City or MWDOC may terminate this Agreement in its entirety at any time upon thirty (30) days' written notice to the other Party.

6.4 In the event either Party terminates this Agreement, any funds paid by the City in the year of termination for costs that had not yet been incurred by MWDOC as of the date of termination will be subject to reconciliation during MWDOC's budget process. At that time, MWDOC will determine whether the funds will be credited or refunded to the City. Further, any costs incurred by MWDOC as of the date of termination that have not yet been invoiced to the City shall be invoiced by MWDOC promptly and paid by the City within thirty (30) days of invoice receipt.

7. Delivery of Notice

7.1 Except as expressly provided herein, all notices permitted or required under this Agreement shall be given to the respective Parties at the following address, or at such other address as the respective Party may provide in writing for this purpose:

7.1.1 If to MWDOC:
18700 Ward Street
Fountain Valley, CA 92708
Mailing Address: PO Box 20895
Fountain Valley, CA 92728
Phone: (714) 963-3058
Fax: (714) 964-9389
Attention General Manager

If to City:
P.O. Box 1988, M-24
Santa Ana, CA 92702
Attention: City Manager

7.1.2 Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

8. Accounting and City Manager Authorization

8.1 MWDOC shall keep a correct and current accounting of payroll costs, travel, subsistence, field, and incidental expenses. MWDOC shall use recognized accounting methods in preparing such invoices and reports.

8.2 City reserves the right to request an audit of MWDOC records related to invoices prepared pursuant to this Agreement and to designate a representative(s) to examine any cost, revenue, payment, claim, or any other records or procedures related to this Agreement. Any such audit(s) would be done at reasonable times with full cooperation from MWDOC. If MWDOC fails to provide supporting documentation for any costs charged City to the City's reasonable satisfaction, then MWDOC agrees to reimburse City for those disputed costs.

8.3 The right to audit shall be extended to three (3) years beyond the date of final payment, or longer if required by law. MWDOC agrees to retain all necessary records/documentation for the entire length of this audit period. Any required adjustments and/or payments resulting from the audit will be made within thirty (30) days of written notification to MWDOC.

8.4 The City Manager or his or her authorized designee is authorized to commit the City to any program or service covered by this Agreement as well as provide written notices on behalf of the City.

9. Independent Contractors

9.1 Any consultant engaged by MWDOC as contemplated in this Agreement will not be a party or third-party beneficiary to this Agreement and will not be an employee or agent of MWDOC or the City, either as a result of this Agreement or as a result of any professional services agreement between MWDOC and the consultant. The professional services agreement between MWDOC and any consultant engaged by MWDOC as contemplated in this Agreement will specify that the consultant is an independent contractor. It is understood that these consultants may be required to enter into confidentiality agreements with the City in the event these consultants require confidential information and/or critical infrastructure information from the City to perform a service.

10. Indemnification

10.1 When WUE Programs provided in the City's water service area require participants to sign an application form that contains a release, waiver, and/or indemnification, the application form shall specify that the release, waiver, and/or indemnification covers both MWDOC and the City.

10.2 To the extent that either Party performs any activities in connection with the programs or services provided as contemplated in this Agreement, each agrees to indemnify and hold the other harmless from any and all liability, claims, obligations, damages, and suits arising out of the activities it performs, excluding any loss or liability caused by the other Party's sole willful conduct or active negligence in the performance of this Agreement.

10.3 To the extent a consultant is hired by the City to perform any activities in connection with the programs or services provided as contemplated in this Agreement, the City will require the consultant indemnify and hold MWDOC harmless from any and all liability, claims, obligations, damages, and suits arising out of the activities performed, excluding for MWDOC's sole willful conduct or active negligence, or otherwise ensure the agreement provides MWDOC the same indemnity and hold harmless obligation provided to the City.

11. Jurisdiction and Venue

11.1 In all matters concerning the validity, interpretation, performance, or effect of this Agreement, the laws of the State of California shall govern and be applicable. The Parties hereby agree and consent to the exclusive jurisdiction of the courts of the State of California and that venue of any action brought hereunder shall be in Orange County, California.

12. Joint Drafting

12.1 All Parties have participated in the drafting of this Agreement. The Agreement may be signed in counterpart to facilitate processing.

13. Electronic Signatures

13.1 Notwithstanding any grant obligation to the contrary, the Uniform Electronic Transactions Act, California Civil Code section 1633.1 et seq., authorizes Parties to conduct

business electronically. In accordance with California Civil Code section 1633.5, Parties acknowledge, consent, and agree that transactions subject to this Agreement may be effectuated by electronic means through the use of electronic and/or digital signatures. For purposes of this section, an electronic signature means an electronic symbol or process logically associated with the intent to sign an electronic record pursuant to Civil Code section 1633(h). A digital signature, which is a type of electronic signature, means an electronic identifier, created by a computer, that is intended to have the same force and effect as the use of a manual signature under Government Code 16.5(d). An example of an electronic signature would be a JPG of a manual signature imposed onto this Agreement. An example of a digital signature would be the use of DocuSign or similar provider that requires an encrypted key that certifies the authenticity of the signature.

14. Severability

14.1 If any provision of this Agreement shall be held illegal, invalid, or unenforceable, in whole or in part, the legality, validity, and enforceability of the remaining provisions shall not be affected thereby.

15. Entire Agreement

15.1 This Agreement contains the entire agreement of the Parties relating to the subject matter hereof, and the Parties have made no agreements, representations, or warranties, either written or oral, relating to the subject matter hereof that are not set forth herein. Except as provided herein, this Agreement may not be modified or altered without prior written approval from both Parties.

IN WITNESS WHEREOF, the Parties have executed this Agreement by and through their authorized officers.

1. MWDOC

Date: _____

By: _____
Harvey De La Torre, General Manager
Municipal Water District of Orange County

Approved as to Form:

Date: _____

By: _____
General Counsel

2. City of Santa Ana

Date: _____

By: _____
Alvaro Nuñez,
City Manager, City of Santa Ana

ATTEST:

_____
Jennifer L. Hall
City Clerk, City of Santa Ana

Approved as to Form:
SONIA R. CARVALHO
City Attorney

By: _____
Kyle Nellesen
Assistant City Attorney

RECOMMENDED FOR APPROVAL:

_____
Nabil Saba, PE
Executive Director
Public Works Agency

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY INSPECTION AND VERIFICATION PROCEDURES

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I. Purpose of this document

It is the practice of the Municipal Water District of Orange County (MWDOC) to ensure that public funds used to administer Rebate Programs are utilized for its intended purposes. Therefore, the purpose of this Inspection and Verification Procedures document (Inspection Procedures) is to establish a clear set of inspection procedures to be followed by MWDOC and/or and its member agencies (hereafter "Participant Agency") and inspection contractors when conducting pre- and/or post-installation verification inspections for all MWDOC-Administered and or Participant Agency-Administered Rebate Programs. These procedures are required regardless of the funding source (Grant funded, Metropolitan Water District of Southern California funded (Metropolitan), or fully funded by Participant Agency, etc.) and/or regardless of program administrator (MWDOC or Participant Agency). This Inspection Procedures document will be updated as needed to reflect new or modified inspection requirements, techniques, or procedures as they arise.

II. Program Implementation Process

For ease of explanation, this document categorizes the MWDOC Rebate Programs into the following rebate program types:

- Device-Based Rebate Programs
  - Residential
  - Commercial
- Area-Based Rebate Programs
  - Turf Replacement
  - Spray to Drip

The inspection procedures contained in this document have been developed in coordination with requirements from Metropolitan pursuant to its Residential and Commercial Water Conservation Funding Agreements and Addendums thereto, MWDOC, and/or supplemental grant funding agreements.

The following general rules apply for all programs types.

Application Package

When receiving an application package, **all** components should be examined before requestingan inspection. The application package currently requires, at a minimum, a fully completed application signed by the property owner and containing the following:

- Current water bill within 3 months of application date to determine:
  - Participant Agency is participating in the program.
  - Project site is located within Orange County
  - Payee name matches the name on the water bill.
- Device eligibility if a device-based program
- Site plan for area-based rebates
  - Indicate the project area, location, and project intent.

    - If receiving Metropolitan funding, indicate which sustainability feature will be installed.
- Pictures of the site for area-based rebates. Pictures to show.
    - Current site condition
    - Complete area to be removed.
    - Area complies with eligibility criteria.

It is recommended that the application, terms and conditions, and program guidelines each contain language stating that inspections (both pre and/or post may be performed) will be performed and are required for participation in any rebate programs.

Invoice and Receipt Submission

Rebates may not exceed the total project/equipment costs nor the reserved rebate amount. For a receipt/invoice to be considered eligible, it must include the following:

Invoices must be typed and include:

- Clearly marked as an "Invoice"
- Name of company or contractor providing the service or materials
- Date when the work was performed or issued; Dated within the project period.
- Address where the work was performed and/or materials delivered (if applicable)
- A description of the work performed and/or materials purchased/delivered.
- Any items that are ineligible for reimbursement must be itemized separately from eligible items.
- Itemized to include make, model, SKU, quantity, price per item, total price (if applicable)
- A dollar amount for the total invoice cost

Receipts must be typed and include:

- The name of the company providing the materials.
- A date when the transaction occurred.
- A description of the materials purchased.
- Any items that are ineligible for reimbursement must be itemized separately from eligible items.
- A dollar amount for the total receipt charge

Ineligible items include, but are not limited to:

- Applicant Labor
- Gardening supplies such as shovels, hoses, wheelbarrows, trowels, etc.
- Any plant or irrigation materials installed outside of the approved project area.

Once projects are completed and invoices and receipts are submitted to the program administrator and MWDOC, all invoices and receipts are to be tabulated by the program administrator and MWDOC to prevent payment for materials/costs not associated with the program; specific program-eligible material/costs are based on program type.

Federal, State, and Local Laws and Ordinances

All projects, including projects at historic sites, are subject to the terms of their local agency's ordinances and must comply with all applicable federal, state, and local laws, as well as applicable Covenants,

Conditions & Restrictions (CC&R) and/or Homeowners Association (HOA) restrictions. Applicants must obtain all necessary approvals for their projects, prior to beginning their project, from their city's/county's code enforcement and/or HOA/CC&R board. It is the responsibility of each applicant to ensure his or her project is in compliance. Customers must agree to adhere to their local rules and provisions in order to accept funding. Questions from program participants regarding compliance with any of the above laws, ordinances, and/or restrictions will be directedto Participant Agency for guidance.

Supplemental Inspections

Some sites may need to be re-inspected (ex. a secondary post inspection) by MWDOC and/or Metropolitan when unique circumstances arise. At these times, communication with the customer is vital in order to remain in adherence with the program's intent while ensuring that projects are successfully completed. All inspection and verification procedures and invoice criteria described in this document must be adhered to. Participant Agency to work with MWDOC and Metropolitan to schedule supplemental Inspections. Inspection results may affectpayment made to Participant Agency or may be billed to Participant Agency if already paid.

Inspection Confirmation Quality Control

In order for Participant Agency to be reimbursed for incentives, Participant Agency must certify on each invoice that the terms and conditions within each project have been met, all devices havebeen installed, and all work has been performed. For projects approved under Metropolitan's Member Agency Administered Program (MAA Program), Metropolitan will develop a tailored inspection plan for each project and provide it to the Member Agency/Participant Agency upon project proposal approval. The Member Agency/Participant Agency is required to adhere to this plan and must provide documentation outlined with the plan upon request. Participant Agency must perform inspections and indicate the method of verification/inspection on each invoice.

Each Participant Agency performing their own inspections/verifications will be required to adoptthese Inspection Procedures as their own or, alternatively, to develop and submit for approval byMetropolitan and/or MWDOC Participant Agency's own inspection and verification procedures document in line with the requirements and procedures contained in this document. All projectsthat require inspection must be inspected prior to Participant Agency invoicing MWDOC or MWDOC issuing a check. MWDOC/Metropolitan may request inspection reports from ParticipantAgency at any time. Installation vendors hired for project implementation cannot inspect their own installations.

Metropolitan and/or MWDOC reserve the right to verify and perform onsite inspections of any projects at any time. This can be before, during, and/or after project installation, and/or after the rebate payment, and results of these inspections may affect payment made to the applicantand/or Participant Agency or require a refund to be paid by Participant Agency to MWDOC. If installation cannot be verified, Participant Agency must reimburse MWDOC and/or Metropolitan, depending on the source of funds.

Requirements for device projects, direct install projects, and turf-related projects are listed below and detail the amount/percentage of inspections required. For all other types of projects not listed below, such as outreach, classes, etc., Member Agency/Participant Agency will inspect a minimum of ten percent (10%) of each project approved by Metropolitan pursuant to the tailored inspection plan detailed on the project approval before invoicing.

III. Device-Based Inspection Procedures

For residential and commercial devices rebated through Metropolitan's regional rebate program, device-based inspections will be conducted primarily by Metropolitan, at its discretion. On occasion, MWDOC and/or Participant Agency may be requested to conduct inspections for devices rebated through Metropolitan's regional rebate program. For devices rebated through a MWDOC and/or a Participant Agency-Administered Program (MAA Program), the inspection procedures are set forth below.

Member/Participant Agency must maintain as part of its invoice package all necessary back-up documentation to substantiate the costs on the invoice. This documentation, to be available upon request by Metropolitan, will include, but not be limited to, the following:

- If project performed by an outside contractor or vendor provide contract agreement or purchase order.
- All extra work order(s) approved by the agency.
- Progress payment requests or invoices from vendor or contractor. If payments are made on a schedule of values basis provide sufficient detail to substantiate any and all line-item charges.
- Photographs, inspection reports, or any other record that will assist in the review of the costs incurred by Member/Participant Agency.

In order for Member/Participant Agency to be reimbursed for incentives, Member/Participant Agency must certify on each invoice that the terms contained within each project have been met, all devices have been installed, and all work has been performed. Metropolitan will develop a tailored inspection plan for each project and provide it to the Member/Participant Agency upon project proposal approval. The Member/Participant Agency is required to adhere to this plan and must provide documentation outlined within the plan upon request.

Metropolitan may perform onsite inspections of projects prior to payment or at any time. Inspection results may affect payment made to Member/Participant Agency or may be billed to Member/Participant Agency if already paid.

Metropolitan will review invoices and, if necessary, request back-up documentation to substantiate costs. If documentation is not sufficient, an additional request will be made. If the back-up documents provided do not properly and sufficiently justify the requested cost at the discretion of Metropolitan all, or any part of, Metropolitan reserves the right to make an independent estimate using the back-up documents provided and issue a unilateral payment. In case where there is no back up or the documentation provided is insufficient to make an independent estimate Metropolitan reserves the right to deny the request for payment. Metropolitan reserves the right to verify and inspect any approved projects at any time.

All projects that require inspection must be inspected prior to Member/Participant Agency invoicing Metropolitan. Member/Participant Agency may not use Member Agency Administered Program funding to meet Metropolitan's imposed inspection plan for any approved projects.

Member/Participant Agency is required to invoice Metropolitan for active projects at least on a quarterly basis. Programs or projects containing vendor/consultant/other invoices that are older than six months from the Member/Participant Agency invoice date may not be reimbursed.

Residential Devices

Residential device inspections must satisfy both the Metropolitan and MWDOC inspection procedures in place at the time of the post-inspection and issuance of the rebate check. Currently,those inspection procedures are as follows:

In order for Participant Agency to be reimbursed for incentives from MWDOC/Metropolitan, Participant Agency must certify on each invoice that the terms and conditions within each project have been met, all devices have been installed, and all work has been performed. Theparty signing each invoice must have signing authority to certify the invoice.

For residential device-based MAA Programs, Participant Agency shall utilize the sample size calculator provided by MWDOC or other methodology as may be required by MET, to assist indetermining the appropriate number of devices to inspect to ensure a 98% installation rate given the overall quantity of devices. Participant Agency must report verification/inspection method employed on each invoice submitted.

Participant Agency must:

a. Validate quantity of devices installed.

b. Verify new device type, make, and model with Project information.

c. Verify Installation address or specific locations within the address with Project documentation.

d. With permission from the customer, take photographs relating to the devices installed to be included in Inspection report.

    i. Indoor Inspection: Indoor inspection includes detailed fixture count of toilets and clothes washer(s). Access to fixture locations (such as bathrooms and laundry facilities) are required to perform the inspection, and property owner/applicant person should be made aware of this through the application.

    ii. Outdoor Inspection: Outdoor inspection includes detailed fixture counts of installed and operating landscape devices such as rain barrels, cisterns, irrigation controllers, residential drip, and nozzles. For irrigation controllers, inspect the model to ensure it matches the rebate application, verify that it is operating as a “smart device” and is communicating with the onsite weather station or is receiving offsite/remote weather data and, if possible, have the contact person show the inspector how the controller has been programmed, and confirm quantity of stations of timer model.

Commercial Devices

Commercial MAA Program device inspections must satisfy both the Metropolitan and MWDOC

inspection procedures in place at the time of the post-inspection or issuance of the rebate check. Metropolitan may require Participant Agency to submit inspection reports for specific projects, and Metropolitan/MWDOC reserves the right to perform onsite inspections of projects/sites prior to payment.

To determine the number of inspections required for commercial devices, Participant Agency must apply the following criteria (a-e below) to the project(s):

a. Automatic Inspection: Regardless of the 5% rule listed in Section d below, Participant Agency must first determine if any site within the MAA Program Project requires an Automatic Inspection. Automatic Inspections are triggered when any site within an MAA Program Project has been approved for Metropolitan's funding in excess of $10,000. All sites receiving in excess of $10,000 in funding must be automatically inspected by Participant Agency. Participant Agency must also notify MWDOC/Metropolitan within 3 to 5 business days of upcoming inspection by Participant Agency for site(s) exceeding $10,000. MWDOC, Metropolitan or a designated representative may attend inspection. Notification of upcoming inspection to be sent to bfahl@mwdoc.com and maconservation@mwdh2o.com

To determine how many devices need to be inspected at a $10,000+ site, follow the next twopoints.

i. If the site triggering an Automatic Inspection also meets the criteria for a Large Project, as described below, then Participant Agency must inspect a minimum of 10% of the devices installed.

ii. If the site triggering an Automatic Inspection does not meet the criteria for a Large Project, then the Participant Agency must inspect 100% of devices at the site.

b. Large Project/Sites: Participant Agency must next determine if any of the sites meet the definition of a Large Project/Site. Regardless of the 5% rule listed in Section d below, any site with less than $10,000 in funding but that receives the designation of Large Project/Site **must** be inspected. The total number of devices to be inspected for Large Projects/Sites will be a minimum of 10% of the total devices installed at each site. If any site within your overall MAA Program Project installs any combination of the following number of devices, you must conduct an inspection of a minimum 10% of any combination of the devices installed.

Large Projects/Sites are defined as:

i. For plumbing devices – 50 device units or more at one installation address.

ii. For irrigation controllers – 20 controllers or more at one installation address. Note that irrigation controllers may be installed in different landscape areas inside a single complex.

iii. For sprinkler nozzles – 100 nozzles or more at one installation address.

c. Regular Projects/Sites: For sites not meeting: (a) $10,000+ in funding per site or (b) the Large Project/Site criteria above, Participant Agency must inspect 100% of devices at the site.

d. For each MAA Program Project for which Participant Agency submits a Request, Participant Agency must physically inspect a minimum of 5% of the value of each device-based MAA

Program Project approved by MWDOC/Metropolitan before invoicing. For example, if the MAA Program Project is approved for $100,000, then a minimum of $5,000 worth of devices must be inspected.

e. Inspections for Regular Projects/Sites: Sites defined as Automatic Inspections (mandatory), as well as those defined as Large Projects/Sites (mandatory) count towards the 5% (section d above) minimum of the value of each device-based MAA Program Project to be inspected. Participant Agency will report progress toward the 5% inspection requirement on each invoice for all inspections required by MWDOC/Metropolitan. The party signing each invoice must have signing authority to certify the invoice.

Inspection Requirements

Participant Agency inspection at a minimum will:

a. Validate quantity of devices installed.

b. Verify new device type, make, and model with Project information.

c. Verify Installation address or specific locations within the address with Project documentation.

d. With permission from the customer, take photographs relating to the devices installed to be included in Inspection report.

i. Indoor Inspection: Indoor inspection includes detailed fixture count of toilets, urinals, dry vacuum pumps, food steamers, and/or ice machines. Access to bathrooms, kitchens, eating facilities, and medical facilities are required to perform the inspection and property owner/applicant should be made aware of this at the application stage.

ii. Outdoor Inspection: Outdoor inspection includes count of installed and operating landscape devices such as irrigation controllers and nozzles; and cooling tower controllers. Access to either landscape area or rooftop is required to perform the inspection. For irrigation controllers, inspect the model to ensure it matches the rebate application, verify that it is operating as a “smart device” and is communicating with the onsite weather station or is receiving offsite/remote weather data and, if possible, have the contact person show the inspector how the controller has been programmed, and confirm quantity of stations of timer model.

Potential Inspection Results

a. Partial fail: Inspection completed with discrepancies between Project information and inspection process. Participant Agency to bill MWDOC only for verified quantity.

b. Device(s) installed at a different location: The installation must be inspected prior to billing MWDOC. If installation is verified at a different location, Project information must be revised to reflect new information.

c. Device count is different from the application:

i. If the count is more, only the amount approved in the Project will be reimbursed.

ii. If the inspection count is less, only the verified count will be billed to MWDOC. For Large Projects where the inspection count is less, the Participant Agency inspector will increase the inspection from 10% to 20% of total installations. The percentage found to be installed for Large Projects will be applied against the total and the total quantity will be reduced by that percentage. For example, after inspecting 20% of the total installations of 100 toilets, 15 out of 20 toilets were verified installed (75% installed); then the final approved count would be 75 toilets (75% of the 100 = 75), rather than 100. If inspection reveals a discrepancy as described in the example, Participant Agency may choose to inspect 100% of the project, otherwise the extrapolation as shown on the example must be taken and the amount revised prior to billing MWDOC.

d. The make/model is different from the application: Verify that the different make/model is a Metropolitan approved device. If so, inspect as usual and revise information on Project documentation prior to billing MWDOC.

e. Failed inspections will not be billed to MWDOC. Reasons for failure:
- Device(s) not installed.
- Device(s) installed, but no working properly.
- For “smart” irrigation controllers, device(s) not operating as a “smart” device.
- Installed device(s) has been removed.
- Access to property not allowed.
- Device(s) installed at a different site.
- Unable to schedule inspection with Applicant.

MWDOC/Metropolitan reserves the right to verify and inspect any approved projects at anytime. If installation cannot be verified, Participant Agency must reimburse MWDOC.

IV. Area-Based Programs

Area-based programs include any program where the rebate amount is determined by an area measurement. Such programs currently include, but are not limited to, residential and commercial Turf Replacement and residential and commercial Spray to Drip.

General Inspection Procedures

For all customer types, all sites will be measured by either Metropolitan, MWDOC, and/or theParticipant Agency and/or its inspector, using the Moasure measuring device (Moasure), for 100% of the project areas during both the pre- and post-inspections. Required minimum techniques for area measurements are described in Section V -Measurement Techniques. All inspection procedures/verifications must adhere to the following additional inspection and certification requirements:

- Area-Based Inspections Exceeding $10,000 in Metropolitan Funding: For area-based inspections with an approved Metropolitan rebate amount exceeding $10,000, Participant Agency must notify MWDOC five business days prior to upcoming post-inspection(s) by Participant Agency. MWDOC, Metropolitan or a designated representative may attend inspection. Notification of upcoming inspection to be sent to turfremoval@mwdoc.com.

- Participant Agency will only bill MWDOC/Metropolitan for the square footage measured.

- Participant Agency must adopt these Inspection Procedures as their own or, alternatively, to develop and submit for approval by Metropolitan and/or MWDOC Participant Agency's own inspection and verification procedures document in line with the requirements and procedures contained in this document. MWDOC/Metropolitan Participant Agency to submit them. MWDOC/Metropolitan may perform onsite and will require inspections of projects prior to payment. Result of the inspection may affect payment made to Participant Agency

- All projects that require inspection must be inspected prior to Participant Agency invoicing MWDOC. MWDOC may request inspection reports from Participant Agency at any time.

Turf Replacement Participation Procedure

The Turf Replacement Rebate Program Process, as it currently exists, is depicted in the following chart. The process flow is broken down into 11 distinct steps starting with the Customer Application Submittal and ending with Metropolitan and Participant Agency Invoicing. The 11 steps are as follows:

Step 1: Online Application and Document Submittal Process

Performed by the Customer

Step 2: Application Review Process and Pre-Inspection Distribution

Performed by MWDOC

Step 4: Pre-Installation Inspection Process

Performed by Participant Agency or Inspection Vendor and sent to MWDOC for review

Step 5: Letter to Proceed or Denial Letter to Customer

Performed by MWDOC

Step 6: Participant Project Installation and Project Completion Notification

Performed by Customer

Step 7: Initial Project review, Post-Work Order Generation and Distribution

Performed by MWDOC

Step 8: Post-Installation Inspection Process

Performed by Participant Agency, MWDOC, or Inspection Vendor and sent to MWDOC for review.

Step 9: Application Approval or Denial and Invoice Review Process

Performed by MWDOC

Step 10: The Rebate Check Run and W-9 Request Process

Performed by MWDOC

Step 11: Metropolitan Water District and Participant Agency Invoicing Process

Performed by MWDOC

Please note: a potential Step 12 would be a secondary Metropolitan post inspection.

Turf Replacement Guidelines Specific to Residential Applicants

Project must have a minimum of 250 square feet of turf removed or, if the entire project area isless than 250 square feet, all turf must be removed.

Maximum of 5,000 square feet of turf eligible per home, per fiscal year (July to June). Limit of one application per home per fiscal year.

Eligible areas for transformation are all areas of live turf on the property.

Applicant to provide a simple landscape plan showing intended transformation, including the required storm water/sustainability feature.

Turf Replacement Guidelines Specific to Commercial Applicants

Project must have a minimum of 250 square feet of turf removed or, if the entire site is less than250 square feet, all turf must be removed.

Maximum of 50,000 square feet of turf eligible per water meter for funding per fiscal year (July toJune). Limit of one application per water meter per fiscal year.

Applicant to provide a simple landscape plan showing intended transformation, including the required stormwater/sustainability feature.

Proposed project areas irrigated with recycled water are eligible unless barred by ParticipantAgency.

Turf Replacement Guidelines Specific to Public Agency Applicants

Project must have a minimum of 250 square feet of turf removed, or if the entire site is less than250 square feet, all turf must be removed.

Maximum of 200,000 square feet of turf eligible per water meter for funding per fiscal year (July to June). Limit of one application per water meter per fiscal year.

Public agency applicants to provide documentation of proof of public agency status at time of application submittal. Only public agencies may apply for the public agency turf rebate. The public agency turf rebate may not be paid to a private company.

Applicant to provide a simple landscape plan showing intended transformation, including therequired stormwater/sustainability feature.

Proposed project areas irrigated with recycled water are eligible unless barred by ParticipantAgency.

Turf Replacement Guidelines Specific to All Applicant Types

The converted area must be covered by at least three (3) plants per 100 square feet. If the project area is divided into multiple sections, such as a front yard and a back yard, each section must meet the plant minimum requirement based on that section's square footage.

A three-inch-deep ring of mulch must surround all plants. Acceptable forms of organic mulch include shredded bark, bark nuggets, or wood chips. Organic mulch should not be placed around any plants installed in the bottom or sides of a vegetated swale, dry riverbed, or rock garden. Therefore, the plants located within a vegetated swale, dry riverbed, or rock garden are exempt from this requirement.

MWDOC has the discretion to allow certain plants to be exempt from this requirement if they are plants that would survive better without it, such as succulents. Projects within a CalFire designated Very High Fire Severity Zone may use inorganic mulch such as rock or decomposed granite in place of organic mulch.

No bare soil is allowed. The use of organic materials is recommended as a groundcover for any barespaces within the project area. Mulch or other permeable hardscape must cover any other bare spaces within the project area. The use of any synthetic materials or rubber mulch is not allowed in the project area.

Pavers must not exceed 3 feet by 3 feet, must be spaced a minimum of 2 inches, and must not have grout or mortar to be considered as eligible permeable hardscape.

Irrigation modification or conversion required for all projects:

- Convert overhead sprays to drip, micro-spray, bubblers, or rotating nozzles; whichever is applicable; or
- Cap sprinkler heads or remove irrigation equipment and hand-water.

No overhead spray sprinklers are allowed in the completed project.

No synthetic turf is eligible for rebate.

No plants that appear to be turf are allowed.

Project areas converted to swimming pools/Jacuzzis, ponds, fountains, or other water containing fixtures do not qualify.

No plants categorized as invasive to Southern California are allowed.

Areas which have already been converted are not eligible.

Areas with structures such as decks, fire pits, etc. are not eligible.

Customers are responsible for complying with all applicable laws, codes, policies, covenants, conditions, and restrictions.

Program Recommendations

- Installation of a smart controller is recommended.
- A recommended plant list is available.

The converted area must be designed to capture rainfall through infiltration or on-site storage for reuse. Infiltration and rainwater capture has to be achieved using one of the following techniques: rain gardens, rock gardens, dry riverbeds, vegetated swales, berms, rain barrels/cisterns, or sustainability feature trees. Selected method should allow infiltration or capture of rainfall/runoff and not channel to impervious surfaces and must meet all local and regional requirements. Project must include at least one of the following components, whichever is most desirable or feasible for project area:

Rain Gardens – a rain garden is a planted depression or hole filled with a loose, permeable soil mix that allows rainwater runoff from impervious urban areas like roofs, driveways, walkways, parking lots, and compacted lawn areas to be absorbed. Rainwater collects in the soil mix and ponding area and eventually seeps into surrounding soils over time. Plants are distributed throughout the garden. Stormwater is soaked into the ground rather than flowing into storm drains and surface waters. Installation of a rain garden within your landscape project can reduce erosion, pollution, flooding, and diminished groundwater.

Rock Gardens – a rock garden is a shallow depression filled with 1–3-inch diameter gravel. This shallow depression should have enough of a side slope that the difference between level ground and the lowest point in the rock garden is visible to the eye. Rainwater is stored in the space between the stones and eventually percolates into the soil. Plants are distributed throughout the rock garden and there is no ponding area – so one can walk on it.

Dry Riverbeds – a dry riverbed or dry stream is an area designed to slow heavy flows of water from rainfall and correct erosion problems. It is made up of a shallow swale (see section on vegetated swales) lined with stone substantial enough to withstand a serious downpour. Large chunks of stone are used to slow the speed of stormwater and prevent erosion. In a garden, the careful placement of water-worn stone or river slicks along a swale can be a beautiful design that also provides an ideal place for plants. The dry riverbed or stream should have enough of a side slope that the difference between level ground and the lowest point in the dry riverbed is visible to the eye.

Vegetated Swales – A vegetated swale is a shallow ditch that has gently sloping sides. These side slopes should create a ditch that is visibly lower than the surrounding landscape. Native perennial grasses are planted along the bottom and sides of the swale to slow runoff, filter sediments, and remove excess nutrients. A swale relies on gravity to move water and is designed to direct the water where you want it to go, such as flower or vegetable gardens. In order for the water to gravity flow, it is recommended that there be a minimum 2% slope from beginning to end. In other words, the swale should be higher in elevation on one end and then slowly get lower – visualize a very slow slide. Organic mulch should not be placed around any plants installed in the bottom or sides of the swale.

Berms – berms are mounds of compacted earth with sloping sides that are usually located along a contour on gently sloping sites or between areas of approximately the same elevation. Berms are designed to direct or redirect water to a permeable and retentive area and prevent water from flowing off the property. Berms must be visibly higher in elevation than the surrounding landscape. Berms must be firmly tamped and topped off with mulch to prevent erosion. Plants can be planted along the top of a berm.

Rain Barrel/Cisterns – rain barrels and cisterns are storage containers that capture runoff water from downspouts from a non-permeable area catchment area such as a rooftop. Cisterns are alarger version of rain barrels, with a larger capacity for rainwater collection and storage. Rain barrels and cisterns must be connected to properly installed rain gutters and downspouts. In order for the rain barrel/cistern to qualify as a rainwater capture feature, the property must have existing gutters around the full perimeter of the roof and existing downspouts for adequate water collection. In the case of a partially flat roof, gutters and downspouts must be throughout all pitched areas in order to qualify. Rain barrels and cisterns must be properly installed and meet all local and regional requirements. Existing rain barrels and cisterns qualify provided they have been properly installed and provide water to the conversion/project area.

Sustainability Feature Trees - Trees reduce stormwater runoff by capturing and storing rainfall in their canopy. Tree roots and leaf litter also create soil conditions that promote the infiltration of rainwater into the soil. To qualify as a Stormwater Tree, selected tree must be included on the Eligible Sustainability Feature Trees List of species that qualify for the program. The minimum number of trees required is 1 per 10,000 sq ft of project area.

Pre-Inspection Procedures – Turf Replacement

Customer is to provide photos of the turf area to be removed as part of the application process. Photos of project area (4 to 6) must reflect the current turfgrass area at the time of applying. Google Earth/satellite images will not be accepted in place of photos. Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Pre-inspections will be conducted on 100 percent of total projects submitted. The Moasure will be utilized for all inspections. For commercial or public agency applications, Metropolitan, via Metropolitan's inspection contractor, will conduct the inspection at no cost to Participant Agency. For residential applications, Participant Agency or its inspector will conduct the pre-inspection.

After an application is received and the information has been verified, a project cannot be accepted and funding is not reserved until a "pre-inspection" is conducted by Metropolitan, MWDOC, the Participant Agency, or by a vendor inspector. The pre-inspection is a means to determine confirmation of eligibility. The pre-inspection process verifies that the project area contains live turf or sufficient evidence that live turf recently existed and that the requested square footage to be removed is consistent with the inspector's measurement. This requirement applies to both residential and commercial turf replacement areas unless otherwise noted.

When establishing that areas are eligible, careful inspection with accurate and precise measurements, as described in Section V, is always required. All pre- and post-inspections shall be conducted using the Moasure device. For Turf Replacement, during the pre-inspection the total project area square footage

is measured. Any non-eligible square footage is deducted, such as non-turf areas including bare soil, trees, shrubs, mulch, paving, and utility box footprint, etc. Refer to specific program terms and conditions for eligibility criteria.

Once the pre-inspection is complete, the inspector will complete the Pre-Inspection section in Droplet, in full, and upload all photos and documentation. Once the Pre-Inspection form has been submitted, it will be reviewed by MWDOC. The square footage listed on the application is to be used as a reference. The initial project area is to be based on the square footage as measured during the pre-inspection. Once the initial project area square footage has been determined, that number is used to reserve funding, and a Letter to Proceed (LTP) is generated and sent to the customer.

Metropolitan reserves the right to request application packages as necessary and may perform its own inspections of random residential applications. This is likely to be in addition to the required pre-inspection. For pre-inspections, Metropolitan will review the Participant Agency's physical pre-inspection reports.

On-Site Pre-Inspection

In-person pre-inspections must include:

- Visual verification of existing turf
- Physical/manual measurement of proposed turf replacement area using Moasure.
- Documentation of existing trees in the proposed turf replacement area
- Photos taken by inspector of project area (4 to 6), which must reflect the current turf grass area at the time of inspection. Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Measuring Sites Aerially

Measuring sites aerially must include:

- GIS or equivalent aerial measurement
- Please note that measuring sites aerially is allowed for **pre-inspections only.**
- Customer is to provide photos of the turf area to be removed before starting the project (pre-project installation).
- The inspector should be capable of spotting abnormalities in pre-project photos submitted by customers, and if found, should perform mandatory on-site inspections.
- If aerial review is not possible due to obstructions (tree coverage), or inconclusive, member agency should perform a physical pre-inspection as described above.

On-Site Inspections for Area-Based Rebates

Unless the program guidelines specifically state otherwise, on-site eligibility verification and area measurement for the pre-inspection is the method to be utilized by an inspection vendor performing inspections on behalf of a Participant Agency.

Condition of Turf at Pre-Inspection

If bare areas were included by the customer, the inspector must subtract those areas. In many cases, due to drought or season, dormant or dead brown grass is present. Dormant or dead brown grass that appears to have been maintained in the recent past is still eligible. However, siteswhere there is bare soil that appears compact and no turf was present in the recent past, are noteligible. In addition, moss areas where there is no turf or areas that have grown, or mowed weeds would be ineligible. A lawn with weeds would still remain eligible. Photo documentation of the turf is required in order to approve the site. For on-site inspections, photos of the entire area should be taken, including detailed photos showing turf and bare soil conditions. For large sites with multiple separated areas (or sub-areas), a site map must be submitted identifying the area measured for each separate sub-area.

Multiple Applications under same Site

Residential sites have a limit of one application per home per fiscal year. Commercial and Public Agency sites have a limit of one application per water meter per fiscal year.

Modifications to Initial Project Area

If a customer wants to add or remove area(s) from their designated project area, they are free to do so up until their pre-inspection. The customer will need to submit by email to MWDOC a new site plan detailing the area to be added or removed. If a customer wishes to add an area to the project after the pre-inspection has been completed, they are only free to do so if the area was measured in the pre-inspection. Any areas found to be converted during the post-inspection that were not included in pre-inspection measurements are not eligible for rebate. If a project area should fall below the minimum 250 square feet of project size, it may also be considered ineligible if it does not include the removal of all turf onsite.

Post-Inspection Procedures – Turf Replacement

Post-inspections will be conducted on 100 percent of total projects submitted. The Moasure device will be utilized for all inspections. For commercial or public agency applications, Metropolitan, via Metropolitan's inspection contractor, will conduct the inspection at no cost to Participant Agency. For residential applications, Participant Agency or its inspector will conduct the pre-inspection.

Entire (100%) project re-measurement should occur during the post-inspection. Negative deviations between the pre- and post-inspections area measurements, as well as swapped areas occurring without a proper pre- inspection and approval from MWDOC, will result in a reduction of the rebate eligible area (meaning the lesser area measurement will be the basis for the rebate). All projects must be inspected prior to Participant Agency approving payment or invoicing MWDOC.

When establishing that areas are eligible, careful inspection with accurate and precise measurements, as described in Section V, is always required. For Turf Replacement, during the post-inspection the total converted area square footage must be measured. Any non-eligiblesquare footage is deducted, such as remaining-turf areas, bare soil, or non-permeable area including hardscape and pools. Refer to specific program terms and conditions for eligibility criteria.

While the initial project area square footage established during the pre-inspection is to be used as a reference, the final project area is to be based on the square footage as measured during the post-inspection. Once the final project area square footage has been determined, that number, if equal to or

less than the approved square footage on the Letter to Proceed, is used to determine the actual potential rebate amount, so long as it does not exceed the total eligible project costs. Only that final project square footage measured by the Participant Agency/inspection vendor may be approved for payment by MWDOC.

Customer is to provide post-project installation photos (4 to 6). Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Prior to scheduling the post-inspection, the Application will be reviewed by MWDOC to confirm the following:

- Application is completed in full.
- Payee Name and Mailing Address for Rebate Check are provided and matches that on the water bill.
- Applicant has attached photos showing:
    - Sustainability feature installed in the project area.
    - Plants installed in the project area to meet the minimum requirement.
    - Mulch installed in all project areas.
    - Irrigation modification, if applicable.

- Applicant has attached copies of any project-related receipts or invoices. For an invoice to be considered eligible it must be:
    - Typed
    - Dated within the project period.
    - Include the name of the company or contractor providing the services and/or materials.
    - Include the address where the work was performed, or materials delivered.
    - Provide a description of the work performed and/or materials purchased, itemized to include price per item and total price.
    - Any items that are ineligible for reimbursement must be itemized separately from eligible items.

- For a receipt to be considered eligible it must be:
    - Typed
    - Dated within the project period.
    - Include the name of the company or contractor providing the services and/or materials.
    - Include the address where the work was performed, or materials delivered.
    - Provide a description of the work performed and/or materials purchased, itemized to include price per item and total price.
    - Any items that are ineligible for reimbursement must be itemized separately from eligible items.

- Ineligible items include, but are not limited to:

- Applicant labor
- Gardening supplies such as shovels, hoses, wheelbarrows, trowels, etc.
- Any plant or irrigation material installed outside of the approved project area.

If the Application is missing or does not comply with the requirements of any of the above, MWDOC/Participant Agency shall work with the applicant to obtain the information and or appropriate photos/documents prior to scheduling the post-inspection. If applicant is unable to provide receipts/invoices that meet the requirements set forth above, the post-inspection will beconsidered a fail, the application will be denied, no rebate will be issued, and no on-site post-inspection should be scheduled.

If the Application has satisfied all of the above requirements, MWDOC/Participant Agency and/or its inspector will work with Applicant to schedule the mandatory on-site post-inspection. The purpose of the on-site post-inspection is to serve as an independent verification of the information contained in the Application.

Participant Agency or its inspector will conduct an **on-site** post-inspection on 100 percent of approved residential projects. On-site inspections will include:

a. Utilizing the Moasure device, validating square footage converted to eligible landscape.

b. Verifying the number of new trees installed in the project area. Each eligible new tree, up to five, will qualify as three plants to meet Metropolitan's plant count requirement.

c. Verifying the number of plants installed meet Metropolitan's minimum requirement of three plants per 100 square feet.

d. Verify that no invasive species were installed.

e. Verification that a sustainability feature has been included in project.

f. Verify mulch is around plants and no bare soil exists.

g. Verify irrigation system modifications have been completed.

h. Photos of overall project area, sustainable landscape approach used, mulch, and a sample of the irrigation system modification. Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Once the on-site post inspection is complete, inspector will complete the Post-Inspection section in Droplet, in full, and upload all photos and documentation. Once the Post-Inspection form has been submitted, it will be reviewed by MWDOC, along with copies of all receipts and invoices, and if the Turf Replacement project has satisfied all the terms, conditions, guidelines, and requirements of the program, the application will be processed for rebate. If not all the terms, conditions, guidelines, and requirements of the program have been satisfied, the post-inspection will be considered a fail, and the application will be denied, and no rebate funds will be issued.

Metropolitan will perform its own inspections of random applications. This is likely to be in additionto the required post-inspections. Example: if Metropolitan selects a site for a follow-up post inspection, this may be

conducted after the required post inspection. For post inspection, Metropolitan will pull random samples from MWDOC invoices. Metropolitan will conduct its own measurements and provide payment based on the following:

For Residential Applications - If the measurement taken by Metropolitan is within 10 percent of the Participant Agency's measurement, Metropolitan will pay the amount measured by the Participant Agency. If the difference is greater than 10 percent, Metropolitan will pay at the squarefootage measured by Metropolitan.

For Commercial/Public Agency Applications - The following applies for commercial/public agency applications inspected by Metropolitan:

Commercial/public agency turf replacement inspections will fall into the pool of all required inspections at any given time. Although special circumstances appear from time to time, in general no special considerations are given to individual applications.

Any discrepancy found following a secondary inspection (i.e., an inspection of the inspector) or during an audit inspection will result in a Metropolitan staff and contractorresolution, and the financial liability associated with varied measurement of a site will notfall back on MWDOC or the Participant Agency for payment.

For public agency projects, all plants must be counted within the first 50,000 square feet. For square footage above that amount, a minimum of 10% of the area must have a plant count. The total number of plants must be calculated from both numbers.

For both residential and commercial/public agency projects, unless otherwise noted, once the LTP has been issued, the initial project area square footage may not increase; however, it may decrease if the customer decides to remove less turf than what was measured or converts some area into ineligible structures, i.e., a deck.

Project Extensions

In some instances, projects may experience delays. As all projects have a 90-day deadline to complete their project, an extension may be requested. Extensions are granted on a case-by-case basis and are not guaranteed. Extensions will only be granted to sites that are making progress toward completing their project. Documentation or a site visit may be required for the purposes of verifying that progress is being made at a site. Examples of documentation are signed contracts with a landscape contractor, photos of the site with turf removed and work underway, or canceled checks to a contractor. This is an important step; if a site is not showing progress and there is no motivation to complete, it may be cancelled to allow the funding of other, more motivated, rebate customers.

Spray to Drip - Residential

The residential portion of the Spray-to-Drip Rebate Program is a device-based program with different inspection requirements and criteria than other device-based inspections. The inspection requirements for residential Spray-to Drip Rebate projects are described below:

Pre-Inspection Procedure

After an application is received, a project cannot be approved and no funding can be reserveduntil a "pre-inspection" is conducted, as follows:

MWDOC reviews the application to confirm:

- Program application is completed in full.
- A copy of a current water bill (within 3 months for application date) is attached and confirms that:
  - Participant agency is participating in the program.
  - Project site is located within Orange County
  - Payee name matches the name on the water bill.
- Applicant has attached at least 4 photos of the project area taken with the existing sprinkler system turned on and running. Photos must clearly show the sprinkler system in use and that the spray heads are functional. Photos must also contain identifying features (house in background, unique landscape/decorating features, etc.) to confirm that photos submitted are for the property/site listed in the application.
- The square footage of the area to be converted from spray irrigation to drip for which the applicant is applying/eligible.
- A simple site plan has been attached indicating the proposed Spray-to-Drip conversion areas.
- Any supplemental documents included have been reviewed.

After an application is received and the information has been verified, a project cannot be accepted and funding is not reserved until a "pre-inspection" is conducted by MWDOC, the Participant Agency, or by a vendor inspector. The pre-inspection visit is a means to determine confirmation of eligibility. The pre-inspection process verifies that the project area contains spray irrigation and that the requested square footage to be removed is consistent with the inspector'smeasurement. This requirement applies to both residential and commercial irrigation conversion areas unless otherwise noted.

When establishing that areas are eligible, careful inspection with accurate and precise measurements, as described in Section V, are always required. For Spray to Drip, during the pre-inspection the total project area square footage is measured. Any non-eligible square footage isdeducted, such as areas that already have drip irrigation or are hand watered by the customer.

Once the pre-inspection is complete, inspector will complete the Pre-inspection section in Droplet, in full, and upload all photos and documentation. Once the Pre-inspection form has been submitted, it will be reviewed by MWDOC. The square footage listed on the application is to be used as a reference. The initial project area is to be based on the square footage as measured during the pre-inspection. Once the initial project area square footage has been determined, that number is used to reserve funding, and aLetter to Proceed (LTP) is generated and sent to the customer.

If the applicant is applying for the Turf Replacement Program simultaneously, a mandatory inspection should occur for the Spray to Drip application at the time of Turf Replacement pre-inspection.

On-Site Pre-Inspection

In-person pre-inspections must include:

- Visual verification of existing spray irrigation
- Physical/manual measurement of proposed irrigation conversion area using the

Moasure device.

- Photos taken by inspector of project area (4 to 6), which must reflect the spray irrigation at the time of inspection. Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Measuring Sites Aerially

Measuring sites aerially must include:

- GIS or equivalent aerial measurement
- Please note that measuring sites aerially is allowed for **pre-inspections only.**
- Customer is to provide photos of the spray-to-drip conversion area before starting the project (pre-project installation).
- The inspector should be capable of spotting abnormalities in pre-project photos submitted by customers, and if found, should perform mandatory on-site inspections.
- If aerial review is not possible due to obstructions (tree coverage) or inconclusive, Participant Agency should perform a physical pre-inspection as described above.

Photo-based Pre-inspection

MWDOC can perform a photo-based pre-inspection for Spray to Drip applicants who have already received a pre-inspection for an accompanying Turf Replacement application, as long as the requested square footage is the same. This occurs in a case-by-case scenario.

If the application has satisfied all of the above requirements, a Letter to Proceed is generated by MWDOC and emailed to the applicant. The funding is reserved at this point and cannot increase. However, the funding amount may decrease if the applicant installs less drip equipment than was specified on the application or if the costs of the equipment are less than anticipated. Should the application fail the pre-inspection process, the application will be denied. MWDOC reserves the right to conduct, or to require Participant Agency to conduct, an on-site pre-inspection of any Spray-to-Drip application should MWDOC, in its best judgment, deem it necessary to do so.

If the applicant is applying for the Turf Replacement Program simultaneously, an on-site inspection should occur for the Spray to Drip application at the time of Turf Replacement pre-Inspection. Otherwise, a photo-based approval may be conducted by MWDOC for the application.

Post-Inspection Procedures

Customer is to provide post-project installation photos (4 to 6). Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Prior to scheduling the post-inspection, the Application will be reviewed by MWDOC to confirm the following:

- Application is completed in full.
- Payee Name and Mailing Address for Rebate Check are provided and matches that on thewater bill.
- Applicant has attached at least 3 completed conversion area pictures showing:
    - Wide angle view of completed project area(s)

  - Close-up(s) of installed pressure regulation/filtration component(s)
  - Close-up(s) of installed drip tubing
- Applicant has attached copies of any project-related receipts or invoices. For a receipt/invoice to be considered eligible it must be:
  - Typed
  - Dated within the project period.
  - Include the address where the work was performed, or materials delivered.
  - Include the name of the company or contractor providing the service or materials.
  - Provide a description of the work performed and/or materials purchased, itemized to include make, model, SKU, quantity, price per item, total price.

If the Application is missing or does not comply with the requirements of any of the above, MWDOC/Participant Agency shall work with the applicant to obtain the information and or appropriate photos/documents prior to scheduling the post-inspection. If applicant is unable to provide receipts/invoices that meet the requirements set forth above, the post-inspection will beconsidered a fail, the application will be denied, no rebate will be issued, and no on-site post-inspection should be scheduled.

If the Application has satisfied all of the above requirements, MWDOC/Participant Agency and/or its inspector will work with Applicant to schedule the mandatory on-site post-inspection. The purpose of the on-site post-inspection is to serve as an independent verification of the information contained in the Application. As part of the on-site post-inspection, Participant Agency/inspector must verify the following:

- The actual square footage of the conversion area. All residential Spray-to-Drip sites will be measured using the Moasure device by the Participant Agency and or its inspector for 100% of the sites for 100% ofthe Spray-to-Drip conversion areas during the post-inspections. The required minimum techniques for area measurements are described in Section V - Measurement Techniques.
- That drip irrigation equipment has been installed. For residential on-site post-inspection, if microspray, point-source emitters, or any other type of drip irrigation other than embedded emitter tubing has been installed, this must be noted and photographed. Only embedded emitter tubing installations are eligible for rebates in residential settings.
- That pressure regulation/filtration components have been installed as part of the drip conversion. Manufacturer/make, model, model number/SKU, and quantity should be documented, and the equipment should be photographed.
- That drip tubing has been installed. The drip tubing should be photographed. If covered, a minimum of a 10-foot section must be uncovered for the photograph.
- That spray irrigation is no longer functional in the drip conversion area(s). Any remaining spray heads in the conversion area must be capped (no exceptions).
- That any irrigation ineligible for the rebate, such as spray or bubblers, runs on a separate valve from the eligible drip equipment.

While the initial project area square footage established during the pre-inspection is to be used as a reference, the final project area is to be based on the square footage as measured during the post-inspection. Once the final project area square footage has been determined that number,if equal to or less then the approved square footage on the Letter to Proceed, is used to determine the actual potential rebate amount, so long as it does not exceed the total eligible project costs.

Once the on-site post inspection is complete, the inspector will complete the Post-Inspection section in Droplet, in full, and upload all photos and documentation. Once the Post-Inspection form has been submitted, it will be reviewed by MWDOC, along with copies of all receipts and invoices, and if the Spray-to-Drip project has satisfied all the terms, conditions, guidelines, and requirements of the program, the application will be processed for rebate. If not all the terms, conditions, guidelines, and requirements of the program have been satisfied, the post-inspection will be considered a fail, and the application will be denied, and no rebate funds will be issued.

MWDOC reserves the right to conduct or attend any on-site post-inspection of any Spray-to-Drip application should MWDOC, in its best judgment, deem it necessary to do so.

Spray to Drip - Commercial

The commercial portion of the Spray-to-Drip Rebate Program is administered in a similar way to the residential portion. The inspection requirements for commercial Spray-to Drip Rebate projects are described below:

Pre-Inspection Procedure

Once an application is received, a project cannot be accepted and no funding is reserved until a“pre-inspection” is conducted, as follows:

MWDOC reviews the application to confirm:

- Program application is completed in full.
- A copy of a current water bill is attached and confirms that:
    - Participant agency is participating in the program.
    - Project site is located within Orange County
    - Payee name matches the application name.
- Applicant has attached at least 4 photos of the project area taken with the existing sprinkler system turned on and running. Photos must clearly show the sprinkler system in use and that the spray heads are functional. Photos must also contain identifying features (buildings in the background, unique landscape/decorating features, etc.) to confirm that photos submitted are for the property/site listed in the application.
- Applicant has provided the square footage of the proposed Spray-to-Drip conversion area.
- A simple site plan has been attached indicating the proposed Spray-to-Drip conversion areas.
- Any supplemental documents included have been reviewed.

Once MWDOC confirms that the application is complete and satisfies the above requirements, MWDOC will forward the application to the Participant Agency or Inspection contractor to conduct a mandatory

pre-inspection. For commercial sites that are also participating in the Turf Replacement Program and inspected by Metropolitan's inspection contractor, Participant Agency is required to perform the pre-inspection for the Spray-to-Drip portion of the project.

On-Site Pre-Inspection

In-person pre-inspections must include:

- Visual verification of existing spray irrigation
- Physical/manual measurement of proposed irrigation conversion area using the Moasure device.
- Photos taken by inspector of project area (4 to 6), which must reflect the spray irrigation at the time of inspection. Photos must be taken from appropriate angles, with visible points of reference, and at a sufficient distance to allow for review.

Measuring Sites Aerially

Measuring sites aerially must include:

- GIS or equivalent aerial measurement
- Please note that measuring sites aerially is allowed for **pre-inspections only.**
- Customer is to provide photos of the spray-to-drip conversion before starting the project (pre-project installation).
- The inspector should be capable of spotting abnormalities in pre-project photos submitted by customers, and if found, should perform mandatory on-site inspections.
- If aerial review is not possible due to obstructions (tree coverage) or inconclusive, Participant Agency should perform a physical pre-inspection as described above.

Photo-Based Pre-Inspection

MWDOC can perform a photo-based pre-inspection for Spray to Drip applicants who have already received a pre-inspection for an accompanying Turf Replacement application, as long as the requested square footage is the same. This occurs in a case-by-case scenario.

Once the pre-inspection is complete, the inspector will complete the Pre-inspection section in Droplet, in full, and upload all photos and documentation. Once the Pre-inspection form has been submitted, it will be reviewed by MWDOC. If the application has satisfied all of the above requirements, a Letter to Proceed (LTP) is generatedby MWDOC/Participant Agency and emailed to the applicant. The funding is reserved at this pointand cannot increase. However, the funding amount may decrease if the applicant installs less drip equipment than was specified on the application or if the costs of the equipment are less than the estimated rebate amount. Should the application fail the pre-inspection process, the application will be denied.

Post-Inspection Procedure

Once the Spray-to-Drip Project is complete, applicant completes the Spray-to-Drip application to request a **mandatory on-site post-inspection**. Prior to scheduling the post-inspection, the application will be reviewed by MWDOC to confirm the following:

- Application is completed in full.
- Payee Name and Mailing Address for Rebate Check is provided.
- Applicant has attached completed conversion area pictures showing:
    - Wide angle view of completed project area(s)
    - Close-up(s) of installed pressure regulation/filtration component(s)
    - Close-up(s) of installed drip tubing
- Applicant has attached copies of any project-related receipts or invoices. For a receipt/invoice to be considered eligible it must include the following:
    - Typed
    - Dated within the project period.
    - Include the address where the work was performed, or materials delivered.
    - Include the name of the company or contractor providing the service or materials.
    - Provide a description of the work performed and/or materials purchased, itemized to include make, model, sku, quantity, price per item, total price. If microspray or point source emitters have been installed, the flow rate for each must be 2.5 gallons per hour or less, or per the terms and conditions of the Program.

If the application is missing or does not comply with the requirements of any of the above, MWDOC/Participant Agency shall work with the applicant to obtain the information and/or appropriate photos/documents/invoices prior to scheduling the post-inspection. If applicant is unable to provide photos/documents/invoices that meet the requirements set forth above, the application will be considered incomplete, the application will be denied, no rebate will be issued, and no on-site post-inspection should be scheduled.

If the application has satisfied all of the above requirements, Participant Agency and/or its inspector will work with Applicant to schedule the mandatory on-site post-inspection. The purpose of the on-site post-inspection is to serve as an independent verification of the information contained in the application. For commercial sites that are also participating in the Turf Replacement Program and inspected by Metropolitan's inspection contractor, Participant Agencyis required to perform the on-site post-inspection for the Spray-to-Drip portion of the project. As part of the on-site post-inspection, Participant Agency/inspector must verify the following:

- The actual square footage of the conversion area. All commercial spray-to-drip sites will be measured using the Moasure device by the Participant Agency and or its inspector for 100% of the sites for 100% of the spray-to-drip conversion areas during the post-inspections. The required minimumtechniques for area measurements are described in Section V -Measurement Techniques.

- That drip irrigation equipment has been installed. The type of drip equipment (embedded emitter tubing/microspray/point source emitters) must be noted and photographed. Please note that ineligible equipment, such as bubblers, would invalidate the project.

- That pressure regulation/filtration components have been installed as part of the drip conversion. Manufacturer/make, model, model number/SKU, and quantity should be documented, and the equipment should be photographed.

- That drip tubing has been installed. The drip tubing should be photographed. If covered, a minimum of a 20-foot section must be uncovered for the photograph.

- That spray irrigation is no longer functional in the drip conversion area(s). Any remaining spray heads in the conversion area must be capped (no exceptions).

Once the on-site post-inspection is complete, the inspector will complete the post-inspection, in full, and upload all photos and documentation. Once the post-inspection Form has been submitted, it will be reviewed by MWDOC, along with copies of all receipts and invoices, and if the Spray-to-Drip project has satisfied all the terms, conditions, guidelines, and requirements of the program, the application will be processed for rebate. If not all the terms, conditions, guidelines, and requirements of the program have been satisfied, the post-inspection will be considereda fail, and the application will be denied, and no rebate funds will be issued.

MWDOC reserves the right to conduct or attend any on-site post-inspection of any Spray-to Drip application should MWDOC, in its best judgment, deem it necessary to do so.

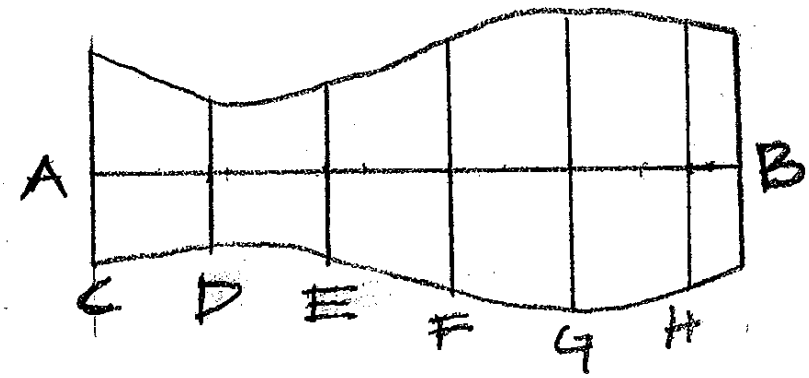
V. Measurement Techniques- On Site

When measuring sites, the Moasure device must be used. A measuring wheel may be used, on a case-by-case basis, in the event the Moasure device is nonfunctional. Measuring wheels are nearly as accurate when rolling on a flat surface, such as concrete or asphalt. However, measuring wheels on turf or shrub areas run the risk of being inaccurate. For large sites, a map should be provided indicating all the turf areas intended for removal, and all project areas should be measured and noted with square footage.

Odd shapes are often hard to measure accurately. The Moasure device is ideal for these situations. In the event, a measuring wheel or alternative method of measurement must be used, the below is a listing of acceptable measurement techniques of odd shapes.Alternative measuring techniques must be submitted to MWDOC for review and approval prior to implementation and must be at least as accurate as the techniques listed here.

Non-Uniform Rectangular

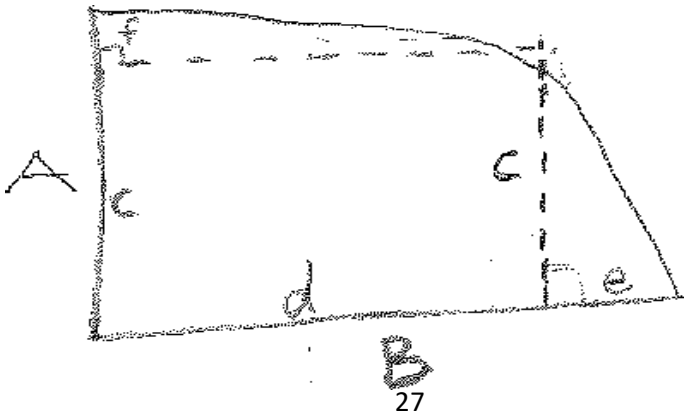
First measure the length of the longest axis of the area (line AB). This is called the *length line*. Next, divide the length line into equal sections, for example 13 ft. At each of these points, measure the distance across the area in a line perpendicular to the length line at each point (lines C through H). These lines are called *offset lines*. Finally, average the lengths of all offset lines and multiply the result times line AB (65 ft. in this example). This is most notably differentfrom the Non-Uniform Ellipse method in that exactly one of the left or right edges is measured,in this case line “C.”



Example: Non-Uniform Rectangular
Length line (AB) = 65 ft Distance between offset lines is 13 ft apart. Length of each offset line: C = 20 ft F = 20 ft D = 10 ft G = 25 ft E = 15 ft H = 20 ft Average length of offset lines = (C + D + E + F + G + H) / (Number of offset lines) = (20 + 10 + 15 + 20 + 25 + 20) / 6 = 18.3 ft Total Area = (Length line) x (Average length of offset lines) = 65 ft x 18.3 ft = 1189.5 ft^2

Irregular Rhombus or Widening Rectangular

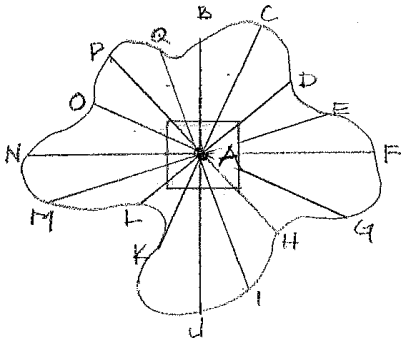
A fast way to measure irregular rhombi is shown in the example below. Stake one end of the measuring tape at point (A, B); measure line d and then line B. Without removing the stake measure line c and then line A. Using those four measurements you will be able to find line f andline e. The areas of triangle (fd), triangle (ce), and rectangle (cd) can now be calculated.

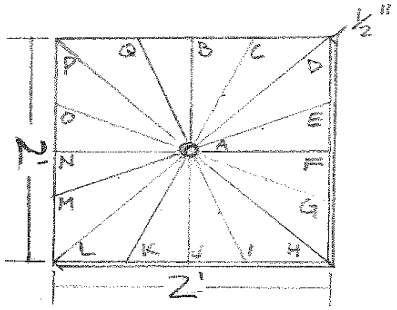


Example: Irregular Rhombus or Widening Rectangular
Length of each line: A = 20 ft c = 18 ft B = 25 ft d = 21 ft Line (f) = A – c Line (e) = B – d = 20 ft – 18 ft = 25 ft – 21 ft = 2 ft = 4 ft Area (cd) = c x d = 18 ft x 21 ft = 378 ft^2 Area (ce) = (c x e) / 2 = (18 ft x 4 ft) / 2 = 36 ft^2 Area (fd) = (f x d) / 2 = (2 ft x 21 ft) / 2 = 21 ft^2 Total Area = Area (cd) + Area (ce) + Area (fd) = 378 ft^2+ 36 ft^2 + 21 ft^2 = 435 ft^2

Non-Uniform Round

First measure 16 evenly spaced radii from the same center point (point A). This is called the *center point*. Next take the average of all the radii (B + C + D + E + F + G + H + I + J + K + L + M + N + O + P + Q) / 16. Use the average radii to calculate the area of a circle. (12.25 ft. in this example).





Example: Non-Uniform Round

Length of each offset line:
B = 10 ft E = 12 ft H = 10 ft K = 9 ft N = 16 ft Q = 9 ft C = 15 ft F= 15 ft
I = 15 ft L = 8 ft O = 10 ft D = 10 ft G = 13 ft J = 17 ft M = 15 ft P = 12 ft

Number of radii = 16

Average length of offset lines
= (B + C + D + E + F + G + H + I + J + K + L + M + N + O+ P + Q)
/ (Number of radii)

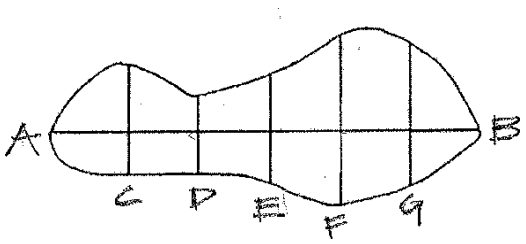
= (10 + 15 + 10 + 12 + 15 + 13+ 10 + 15 + 17 + 9 + 8 + 15 + 16 + 10 + 12 + 9)
/ 16

= 12.25 ft

Total Area = π x 12.25^2 ft
= 3.14 x 12.25 ft x 12.25 ft
= 471 ft^2

Non-Uniform Ellipses

The method used for irregular shaped areas is called the "offset method". First measure the lengthof the longest axis of the area (line AB). This is called the *length line*. Next, divide the length line into equal sections, for example 10 ft. At each of these points, measure the distance across the area in a line perpendicular to the length line at each point (lines C through G). These lines are called *offset lines*. Finally, add the lengths of all offset lines and multiply the result times the distance that separates these lines (10 ft. in this example). This is most notably different from Non-Uniform Rectangular in that neither the left nor right edges of the shape are measured in theellipse.



Example: Non-Uniform Ellipse

Length line (AB) = 60 ft
Distance between offset lines is 10 ft apart.

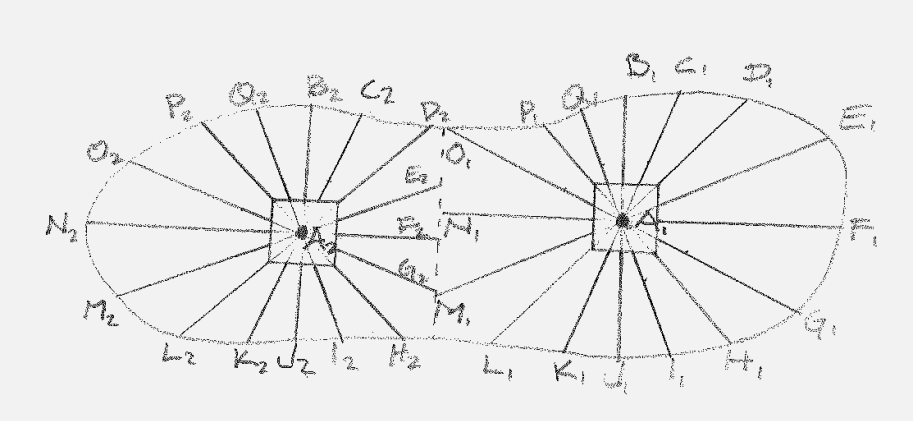
Length of each offset line
C = 15 ft F = 25 ft
D = 10 ft G = 20 ft
E = 15 ft

Total length
of offset lines = C + D + E + F + G
= 15 + 10 + 15 + 25 + 20
= 85 ft

Total Area = (Distance between offset lines)
x (sum of the length of offset lines)
= 10 ft x 85 ft
= 850 ft^2

Non-Uniform Ellipses Alternate

An alternate method of measuring non-uniform ellipses is by dividing the ellipses into uniform partsand utilizing the non-uniform round method as described above. An example is shown below.



VI- Measurement Techniques - Aerial

Please note that aerial inspections are allowed for area-based **pre-inspections only.**

Aerial inspections must be performed using GIS software, such as ArcGIS, NearMap, or GoogleEarth. Imagery resolution should be at least 1 foot. Google MyMaps or Google Maps will not be sufficient for performing aerial inspections. If you would like an exception or have a question about a specific method, please ask MWDOC.

When performing aerial inspections, please see the steps:

- Look up the site address in your GIS system.
- If measuring aerially is difficult due to tree cover or other issues, you must perform an on-site pre-inspection.
- Use the site plan and/or customer-submitted photos as a guide for measuring the application areas.
- Draw out one or more polygons measuring the area on the map.
- Screenshot the aerial measurement with the polygons that must be uploaded to the Droplet portal.
- Complete pre-inspection form and upload it to Droplet portal.

Exhibit B

P.O. Box 20895
Fountain Valley, CA 92728
Phone: (714)963-3058
Fax: (714)964-9389

Invoice No. 16871

EXAMPLE

INVOICE

Customer

Name	Agency				
Street	P.O. Box 30205				
City	Orange	State	CA	ZIP	92607-0205
Attn:	Accounts Payable				

Date	8/29/2022
Due Date	Upon Receipt

Description	Amount
FY 2021-2022 Choice Programs Billing Invoice	
Water Use Efficiency FY 21-22	$ 101,507.28
WUE Adjustment for prior year FY 20-21	$ (264.07)
School Program FY 21-22	$ 7,455.93
School Program Adjustment for prior year FY 20-21	$ -
Total Refund Due	**$ 108,699.14**

Payment Details

Cust #:	Example
GLA #:	
GLA #:	
GLA #:	
GLA #:	

Please direct your inquiries to the Accounting Department.

Exhibit C

MWDOC Water Use Efficiency Choice Allocation for FY 2024/25

Based on Outside Funding in January 1, 2023 - December 31, 2023

By Retail Agency	Metropolitan Incentives [1]	MWDOC Grants [2]	Vendor Fees [3]	Total Outside Funding	Percentage Share	Initial Choice Allocation	Prior Year Percentage Share [4]	Ajustment for Prior year [5]	Current Year Invoice Amount
Brea	$151,253	$27,174	$599	$179,026	2.41%	$23,811.72	1.08%	($1,413.22)	$22,398.50
Buena Park	$157,344	$14,764	$4,460	$176,568	2.37%	$23,484.83	0.68%	($895.05)	$22,589.78
East Orange County Water District	$42,591	$14,913	$202	$57,706	0.78%	$7,675.32	0.17%	($227.23)	$7,448.09
El Toro Water District	$155,004	$22,977	$6,545	$184,526	2.48%	$24,543.28	1.73%	($2,273.60)	$22,269.68
Fountain Valley	$56,619	$26,263	$660	$83,542	1.12%	$11,111.69	0.70%	($915.56)	$10,196.13
Garden Grove	$72,597	$20,632	$1,935	$95,164	1.28%	$12,657.48	0.65%	($855.23)	$11,802.25
Golden State Water Company	$41,322	$9,702	$3,356	$54,381	0.73%	$7,233.00	1.15%	($1,513.14)	$5,719.86
Huntington Beach	$394,458	$103,489	$2,632	$500,579	6.73%	$66,580.56	6.61%	($8,672.98)	$57,907.58
Irvine Ranch Water District	$1,753,309	$175,232	$45,224	$1,973,765	26.53%	$262,524.84	11.41%	($14,967.02)	$247,557.82
La Habra	$71,923	$30,684	$933	$103,540	1.39%	$13,771.57	0.86%	($1,134.50)	$12,637.07
La Palma	$1,662	$535	$196	$2,393	0.03%	$318.30	0.02%	($23.97)	$294.33
Laguna Beach County Water District	$15,847	$4,582	$260	$20,689	0.28%	$2,751.84	0.39%	($510.62)	$2,241.22
Mesa Water District	$281,711	$68,174	$1,465	$351,350	4.72%	$46,732.03	3.84%	($5,037.91)	$41,694.12
Moulton Niguel Water District	$862,916	$141,116	$9,878	$1,013,909	13.63%	$134,857.17	21.83%	($28,641.95)	$106,215.22
Newport Beach	$145,637	$20,791	$2,000	$168,428	2.26%	$22,402.15	5.37%	($7,042.32)	$15,359.83
Orange	$463,183	$78,557	$3,477	$545,217	7.33%	$72,517.73	4.85%	($6,359.44)	$66,158.29
San Clemente	$165,332	$21,659	$2,856	$189,847	2.55%	$25,250.98	8.96%	($11,760.73)	$13,490.25
Santa Margarita Water District	$549,448	$109,272	$12,412	$671,133	9.02%	$89,265.48	11.38%	($14,936.25)	$74,329.23
Seal Beach	$43,245	$6,795	$247	$50,287	0.68%	$6,688.47	0.16%	($205.11)	$6,483.36
Serrano Water District	$1,177	$421	$135	$1,732	0.02%	$230.41	0.34%	($447.29)	($216.88)
South Coast Water District	$272,030	$14,274	$1,603	$287,906	3.87%	$38,293.61	7.63%	($10,015.72)	$28,277.89
Trabuco Canyon Water District	$111,797	$10,811	$493	$123,101	1.65%	$16,373.35	4.58%	($6,010.22)	$10,363.13
Tustin	$161,736	$37,134	$773	$199,643	2.68%	$26,553.97	2.09%	($2,746.97)	$23,807.00
Westminster	$56,902	$11,586	$1,040	$69,529	0.93%	$9,247.81	1.11%	($1,450.49)	$7,797.32
Yorba Linda Water District	$240,388	$32,647	$1,651	$274,686	3.69%	$36,535.21	2.28%	($2,990.82)	$33,544.39
Anaheim	$0	$30,917	$0	$30,917	0.42%	$4,112.22	0.06%	($79.14)	$4,033.08
Fullerton	$0	$15,906	$0	$15,906	0.21%	$2,115.56	0.04%	($52.17)	$2,063.39
Santa Ana	$0	$13,641	$0	$13,641	0.18%	$1,814.42	0.01%	($16.66)	$1,797.76
Orange County Total	$6,269,431	$1,064,649	$105,032	$7,439,112	100%	$989,455.00	100.00%	($131,195.31)	$858,259.69

[1] Incentive amounts funded though Metropolitan's Conservation Credits Program. Programs include Commercial, Industrial, Institutional, Residential, Landscape, Recycled Water Conversion.

[2] Outside funding through grants awarded to MWDOC by the California Department of Water Resources and US Bureau of Reclamation. Excludes member agency administrative and supplemental contributions.

[3] Vendor fees are administrative processing costs paid for by Metropolitan or through MWDOC grants.

[4] Prior year percentage share is rounded to the nearest hundredth of a percent.

[5] Prior year adustment to benefits per audit.

Item No. 4

INFORMATION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Heather Baez, Director of Governmental Affairs

SUBJECT: **THE ASSOCIATION OF CALIFORNIA WATER AGENCIES' (ACWA) ELECTION OF PRESIDENT, VICE PRESIDENT, AND REGION 10 BOARD OF DIRECTORS**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee review the candidates for both ACWA President and Vice President, and the Region 10 Board of Directors, and determine if they would like to direct the District's designee to vote for particular candidates.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

The Association of California Water Agencies (ACWA) conducts annual elections for President, Vice President, and regional board positions. On May 21, the MWDOC Board of Directors authorized Board President Bob McVicker or his designee to cast the District's ballot, with direction for staff to bring this item back to the Board for final review once candidate information was available.

Ballots were distributed on July 21, and the candidates for President, Vice President, and Region 10 Board of Directors are listed below. As a reminder, voting no longer takes place at the ACWA Fall Conference, but instead will be facilitated electronically, with results announced at the end of September.

Budgeted: ☒ Yes ☐ No	Budgeted amount:	Core: ☒	Choice: ☐
Action item amount: n/a	Movement between funds: ☐ Yes ☒ No		

KEY DATES

Election Committees Appointed	February 28
Call for Candidates Begins	April 21
Deadline to Submit Voter Designation Form	June 20
Deadline for Candidates to Submit Nominating Resolutions and Statement of Qualifications	June 20
Ballots Distributed	July 21
Deadline to Submit Ballots	September 19
2026-2027 President and Vice President/Region Board Members Announced	September 26
2026-2027 President and Vice President/Region Board Members Introduced at Fall Conference	December 3

OFFICIAL CANDIDATES

President

- Ernesto A. Avila, Board President, Contra Costa Water District

Vice President

- Carol Lee Gonzales-Brady, Rancho Water District

Region 10 Board of Directors

Chair:
- George Murdoch, Board President, East Orange County Water District

Vice Chair:
- Dana Friehauf, Board Member, Santa Fe Irrigation District

Board Members:

San Diego Candidates for Board Members - May select **up to 3** of the following:
- Alexandra Berenter, Deputy of External Affairs, City of San Diego
- Jennifer DeMeo, Director, Fallbrook Public Utility District
- Jose Martinez, General Manager, Otay Water District
- Scott Maloni, Board of Directors Division 2, Olivenhain Municipal Water District
- Frank Nunez, Board of Directors Division 2, Vista Irrigation District
- Inki K. Welch, Director, Rincon Del Diablo Municipal Water District

Orange County Candidates for Board Members – May select **up to 2** of the following:
- Marice H. DePasquale, Board President, Mesa Water District
- Deborah Neev, Commissioner, Laguna Beach County Water District

VOTING INFORMATION

Voting for President, Vice President, and the Region 10 Board is done electronically, with ballots due no later than 5:00 p.m. on September 19. There is an option to either vote the recommended slate below, or vote for individual board members, who are all listed above.

The recommended Region 10 slate is as follows:

Chair:

- George Murdoch, Board President, East Orange County Water District (OC)

Vice Chair:

- Dana Friehauf, Board Member, Santa Fe Irrigation District (SD)

Board Members:

- Alexandra Berenter, Deputy Director of External Affairs, City of San Diego (SD)
- Marice H. DePasquale, President Board of Directors, Mesa Water District (OC)
- Jose Martinez, General Manger, Otay Water District (SD)
- Scott Maloni, Board of Director Division 2, Olivenhain Municipal Water District (SD)
- Deborah Neev, Commissioner, Laguna Beach County Water District (OC)

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

BOARD OPTIONS

Option #1: Review the candidates for both President and Vice President, and the Region 10 Board of Directors, and determine if they would like to direct the District's designee to vote for particular candidates.

Fiscal Impact: None

Option #2: Take no action and MWDOC's Board President, or his designee, would vote on behalf of the District using their best discretion.

Fiscal Impact: None

Attachments/Links:
Attachment 1: Candidates Statements and Qualifications

ERNIE AVILA FOR ACWA President



"The Association of California Water Agencies (ACWA) truly represents the nexus of knowledge and leadership in water for California. As the current Vice-President of the Association of California Water Agencies (ACWA), I am most proud of the thought, energy and collaboration that went into developing the 2025-'29 Strategic Plan. I want to be the next ACWA President to continue the momentum we have built focusing on four primary goals of Advocacy, Connections, Education and Organizational Effectiveness. This Strategic Plan is about finding new ways to benefit the members of ACWA as we navigate the shifts in water policy at the state and federal level. My commitment is to unify our collective efforts and better assert ACWA's leadership in shaping California's water policy."
– Ernesto (Ernie) Avila, P.E.

ACWA LEADERSHIP

- Vice-President
- Executive Committee of the ACWA Board of Directors
- ACWA Strategic Plan Task Force Chair
- ACWA Region 5 Board of Directors
- ACWA JPIA Executive Committee

ACWA COMMITTEES

- Local Government Committee, Chair
  - Property Tax Working Group
  - Housing Densification Working Group
  - Paving Standards Working Group
- Federal Affairs Committee
- Foundation Fundraising Working Group

CONTRA COSTA WATER DISTRICT

- Contra Costa Water District, Board President
- Operations & Engineering, Committee Chair
- East Bay Leadership Council, Director

PROFESSIONAL EXPERIENCE

- Vice-President, Avila and Associates Consulting Engineers, Inc.
- Monterey Peninsula Water Management District, General Manager
- Director of Engineering, Contra Costa Water District
- California Urban Water Agencies, Executive Director

ERNIE AVILA FOR ACWA President

Ernesto (Ernie) Avila, PE
Board President
Contra Costa Water District

Recent ACWA and Regional Water Coalition Experience

Association of CA Water Agencies (ACWA). I have had the honor of supporting ACWA over twenty years at the regional, state and federal level. My recent ACWA experience has included serving on ACWA's:



- Vice President
- Executive Committee of the ACWA Board of Directors
- Strategic Plan Task Force Chair
- Region 5 Board of Directors
- ACWA JPIA Executive Committee of the Board
- Local Government Committee (Chair)
  - Property Tax Working Group
  - Housing Densification Working Group
  - Paving Standards Working Group
- Federal Affairs Committee
- Foundation Steering Committee
  - Foundation Fundraising Working Group

Most recently, I led ACWA's effort to develop the 2025 – 2029 Five-Year Strategic Plan. This work included revising ACWA's mission, vision and values followed by identifying four primary goals: Advocacy, Connections, Education and Organizational Effectiveness. This Plan will provide a framework to unify the ACWA community and better assert our leadership in shaping California Water Policy.

I led ACWA's assessment of potential water industry impacts associated with Sacramento-based housing initiatives including Auxiliary Dwelling Units, Commercial Properties and Transit Center Hubs and led a workshop to consider potential ACWA next steps associated with these new initiatives and their related changes to water agency fees and charges. I also participated in the ACWA Foundation Steering Committee including several related Ad Hoc committees and contributed to Federal Affairs Committee work groups associated with the Water Infrastructure Finance and Innovation Act (WIFIA).

Multi-State Salinity Coalition (MSSC). For over 20 years, I have served as Program Director and Board member of MSSC which consists over 30+ water agencies from New Mexico, northern and southern California, Nevada, Colorado, Arizona and Texas. The MSSC mission is to promote advancements in technologies for desalination, reuse, salinity control strategies (watersheds and agriculture), water/energy efficiencies and related policies that will assist communities in meeting their water needs. I also helped to establish relationships regarding salinity management and desalination with water agencies in Australia, Mexico and Israel. In February 2023, the MSSC awarded me with the ***MSCC "Salt of***

the Earth" National Award for outstanding commitment, leadership, vision and dedication to our water industry.

Contra Costa Water District (CCWD). As President of CCWD, I am focused on the investments needed in infrastructure to serve our community and improve water supply reliability today and into the future. The aging Contra Costa Canal, built by the Bureau of Reclamation in 1930s, is the backbone of CCWD's water system and essential to water system reliability for the region. In order to move forward with plans to replace the aging canal with a pipeline, I worked closely with federal legislators to secure needed legislation to transfer title of the facility from Reclamation to CCWD.

California Urban Water Agencies (CUWA). As Executive Director, I led CUWA's effort in the development of Department of Water Resources (DWR) Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use as part of the Water Conservation Act of 2009 (Senate Bill X7-7) with our southern and northern California water agency members. I also made certain that CUWA's finances and practices were sound and transparent.

Northern California Salinity Coalition. As Executive Director, I led a coalition of ten San Francisco Bay Area water agencies in crafting grant application strategies and DWR outreach that would demonstrate the value of supporting watershed management, brackish desalination and groundwater project associated with salinity management. Working with the Coalition agencies, we secured the largest Proposition 50 grant funding for our region.

Professional Work Experience (40 years)

- Vice-President, Avila and Associates Consulting Engineers, Inc.
- General Manager, Monterey Peninsula Water Management District
- Director of Engineering, Contra Costa Water District
- Associate Engineer, East Bay Municipal Water District
- Construction Manager, CH2M Hill
- Professional Civil Engineer (California – C41727)

Community Service Experience

- Contra Costa Water District, President of the Board
- John Muir Community Health Fund Board of Directors (Treasurer)
- Association of California Engineering Companies – Chair of the Healthcare Trust (non-profit)
- Knights of Columbus, Scholarship Chair
- St. Francis of Assisi School Board, President
- City of Concord, CA – Planning Commission, Chair
- City of Concord, CA – Design Review Board
- City of Walnut Creek, CA – Transportation Commission, Vice-Chair

Education and Related Credentials

- B.S. – Civil Engineering, Santa Clara University
- M.B.A. – St. Mary's College of California
- Professional Civil Engineer (California – C41727)
- California Farm Bureau Member

ERNIE AVILA FOR ACWA President

ERNESTO (ERNIE) AVILA | BIOGRAPHY AND QUALIFICATIONS

Ernesto (Ernie) A. Avila, P.E., was appointed in March 2016 to represent Division 3 for the Contra Costa Water District, which includes eastern Concord, Clayton, and part of Walnut Creek and Pleasant Hill. He began serving as President in May 2022.

Mr. Avila has over 42 years of professional experience in planning, environmental compliance, regulation, design, and construction of water, wastewater and recycled water works and municipal facilities in excess of $10 Billion in value. He is currently Vice-President of a private civil and environmental engineering firm.

Mr. Avila has been involved with the Association of California Water Agencies (ACWA) for over twenty years at the regional, state and federal level. He currently serves as Vice President. He has also represented ACWA members on the Executive Committee of the ACWA Board of Directors, Region 5 Board, Local Government Committee (Chair), Federal Affairs Committee, ACWA Foundation Steering Committee and the ACWA JPIA Executive Committee of the Board.

Over his first year as Vice President, Mr. Avila led ACWA's effort to develop the 2025-'29 Strategic Plan which identifies four primary goals of Advocacy, Connections, Education and Organizational Effectiveness. This Plan provides clearly defined strategies and objectives to achieve each goal and 50 key performance indicators to gauge progress. The aim of this effort is to unify our collective efforts and better assert ACWA's leadership in shaping California's water policy

For the community, Mr. Avila has volunteered for many citizen-based committees / organizations including the Walnut Creek Transportation Commission, the Concord Planning Commission, the John Muir/Mount Diablo Community Health Fund, the Knights of Columbus, the East Bay Leadership Council, and the St. Francis of Assisi School Board. While working full time, he has made volunteering in the community a priority, representing his neighbors and family on important issues that affect their everyday life.

Mr. Avila is passionate about water issues in his professional life, working on a variety of issues statewide during his career. Among several relevant positions, he served as Director of Engineering at Contra Costa Water District before moving on to become General Manager of Monterey Peninsula Water Management District. He also served as Executive Director for the California Urban Water Agencies, Program Director for the Multi-State Salinity Coalition, and

is on the Executive Committee of the Association of California Water Agencies Board of Directors and ACWA JPIA. He has experience on water projects of all shapes and sizes, including water treatment plant improvements, dam retrofits, and watershed management and habitat conservation projects. In recognition of his work, Mr. Avila recently received the 2023 ***"Salt of Earth" Award*** by the Multi State Salinity Coalition for his commitment, leadership, vision and dedication to the water industry by promoting advancements in technologies for desalination, reuse, salinity control strategies, water/energy efficiencies, and related public policies that assist communities in meeting water needs.

Mr. Avila lives in Clayton with his family and is a licensed civil engineer with a Bachelor of Science in Civil Engineering from Santa Clara University and a master's degree in Business Administration from St. Mary's College of California. He is also a proud member of the California Farm Bureau.



ELECT CAROL LEE GONZALES-BRADY
ACWA VICE PRESIDENT

PROTECTING OUR WATER, TODAY AND TOMORROW

Background

As an elected Director of Rancho California Water District in Temecula, I understand that water issues are complex and we sometimes have different opinions on solutions. I serve as Vice-Chair for ACWA's Region 9, representing members - desert, coastal, residential, commercial, and agricultural - with diverse priorities and perspectives. ACWA's Regions statewide may be different, but we can agree on one thing - that the need for prudent, sustainable water management in California is critical.

I've served as a member on several Standing Committees, Sub-committees, Task Forces and Work Groups. My experience on our ACWA Board, on our Executive Committee, and on our Strategic Planning and Water Policy Task Forces has prepared me for our next steps as we execute the initiatives of our recently streamlined strategic plan. It will provide us with a clear, focused framework as we address water issues and position ACWA in its continued role as a strong, vital industry leader.

I earned my Bachelor of Science degree (magna cum laude) in Business Management from Pepperdine University. My professional career in procurement, contracts and strategic management has spanned federally regulated industries including water and electric utilities. I am committed to building relationships, partnerships and alliances with other water, business and community leaders. In addition to my work at ACWA, I serve on the Boards of Southern California Water Coalition and Urban Water Institute, and was twice appointed by our Board of Supervisors as a Director of a Resource Conservation District.

I'm a grower for local wineries, and my husband and I have lived on our family vineyard for over 20 years. I support important causes and my community through participation and memberships in charities, churches, associations, and advocacy groups such as the Farm Bureau and Southwest California Legislative Council.

You can learn more about me by visiting RanchoWater.com/ACWAVP. Thank you for your support.

Rancho California Water District (RCWD)

Vice President, Board of Directors
Elected 2017; Re-elected 2022
Past Board President (2021 & 2022)

Association of California Water Agencies (ACWA)

Executive Committee (2024-2025)
Board of Directors (2024-2025)
Region 9 Vice Chair (2024-2025)
Region 9 Board Member (2019-2025)
Committees: Membership, Communications, Election (past)
Task Forces: Strategic Planning, Water Policy (Vice Chair)

ACWA/Joint Powers Insurance Authority (JPIA)

JPIA Director, representing Rancho Water (2022-2024)

Southern California Water Coalition (SCWC)

Board of Trustees, Water Segment (2021-present)
Co-Chair, Legislative Task Force (2021-present)

Urban Water Institute (UWI)

Board Member (2023-present)

CAROL LEE GONZALES-BRADY
FOR ACWA VICE PRESIDENT

RanchoWater.com/ACWAVP

The ACWA Election Committee has formally endorsed and recommended Carol Lee Gonzales-Brady as the preferred candidate for ACWA Vice President for the 2026-2027 term.

CAROL LEE GONZALES-BRADY IS PROUD TO BE ENDORSED BY THE FOLLOWING AGENCIES

ACWA Election Committee

Chino Basin Water Conservation District

Coachella Valley Water District

Desert Water Agency

Eastern Municipal Water District

Elsinore Valley Municipal Water District

Fallbrook Public Utility District

Helix Water District

Imperial Irrigation District

Inland Empire Utilities Agency

Irvine Ranch Water District

Las Virgenes Municipal Water District

Mesa Water District

Monte Vista Water District

Montecito Water District

Moulton Niguel Water District

Municipal Water District of Orange County

Olivenhain Municipal Water District

Rainbow Municipal Water District

Rancho California Water District

Salton Sea Authority

Santa Clarita Valley Water District

Santa Fe Irrigation District

Santa Margarita Water District

Valley Center Municipal Water District

Vista Irrigation District

Western Canal Water District

Western Municipal Water District

Yuima Municipal Water District

CAROL LEE
GONZALES-BRADY
FOR ACWA VICE PRESIDENT

Biography and Qualifications



Candidate for ACWA Vice President

Carol Lee Gonzales-Brady was elected to the Rancho California Water District (RCWD) Board of Directors in 2017 and re-elected in 2022, serving as Board President for two terms. Rancho Water is a Special District that provides water and wastewater services to residential, commercial, and agricultural customers. It is the 10th largest retail water district in California (based on water sales), serves more than 150,000 people, and covers 100,000 acres of service area.

Director Gonzales-Brady has been a member of the Association of California Water Agencies (ACWA) since 2017. She joined the Region 9 Board in 2019 and currently serves as Vice Chair, representing the Region on ACWA's Board of Directors. In 2024, she was elected by the Board to the Executive Committee.

She has been active on standing committees and task forces in volunteer and appointed roles such as the Membership and Communications Committees, Communications Ag Sub-Committee, Election Committee, Region 9 Membership Engagement Work Group (Chair), Strategic Planning Task Force, and Water Policy Task Force (Vice Chair). Sound water policy, aligned with the guiding principles of ACWA's Strategic Plan, will be key as ACWA navigates complex water issues and advocates on behalf of its members.

Dedicated to building alliances and cultivating partnerships, Director Gonzales-Brady serves on the Board of Trustees of Southern California Water Coalition (SCWC) and is co-Chair of their Legislative Task Force. She is also on the Board of Directors of Urban Water Institute (UWI) and is a past Director of ACWA/JPIA, representing RCWD. Prior to her election to Rancho Water's Board, she was twice appointed by the Riverside County Board of Supervisors to the Board of Directors of their Resource Conservation District.

Director Gonzales-Brady earned her Bachelor of Science degree (*magna cum laude*) from Pepperdine University's Graziadio School of Business and Management. Her international professional experience, with an emphasis in procurement, contracts, and strategic management includes federally regulated industries such as water and electric utilities, nuclear procurement, geothermal power plant design/engineering/construction, and medical device manufacturing.

A native Californian and winegrape grower in Temecula's Wine Country, Director Gonzales-Brady and her husband have lived on their vineyard for over 20 years. She is immersed in her community and supports the outreach and assistance provided by local organizations, charities, and advocacy groups. Her volunteer efforts and memberships include Temecula Winegrowers' Association, Riverside County Farm Bureau, Temecula Valley Horsemen's Association, and Southwest California Legislative Council.

CAROL LEE GONZALES-BRADY
FOR ACWA VICE PRESIDENT

Carol Lee Gonzales-Brady

Director, Rancho California Water District

Candidate Statement

Candidate for ACWA Vice President

I am pleased to offer my Statement of Qualifications as a Candidate for ACWA Vice President. I'm passionate about delivering prudent fiscal and environmental stewardship and advocating for sound policy. My philosophy: Protect our water, today and tomorrow, with a diversified portfolio of both immediate and long-range strategies and solutions.

I was elected to the Rancho California Water District (RCWD)'s Board of Directors in 2017 and re-elected in 2022, serving two terms as Board President. I joined ACWA in 2017 and became a Region 9 Director in 2019, serving as Vice Chair for the 2024-25 term. I represent the Region on ACWA's Board of Directors, and in 2024 was honored to be elected by the Board to the Executive Committee.

Other committees and task forces include:

- Water Policy Task Force - Vice Chair
- Membership and Communications Committees
- Region 9 Membership Engagement Work Group - Chair
- Strategic Planning Task Force (past)
- Election Committee (past)

Committed to building alliances and cultivating partnerships, I also am a past Director of ACWA/JPIA and serve on other industry Boards including Urban Water Institute (UWI) and Southern California Water Coalition (SCWC) - Legislative Task Force co-Chair.

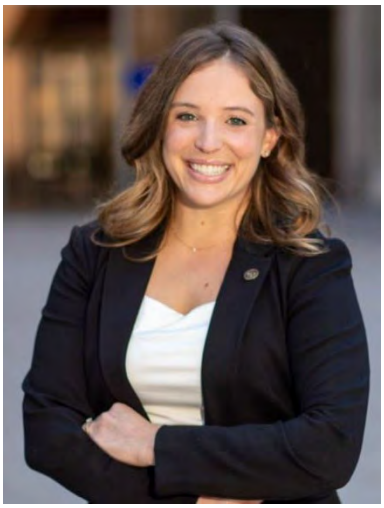
I earned my BS (magna cum laude) in Business Management from Pepperdine University. My professional career in procurement, contracts, and strategic management has spanned federally regulated industries including water and electric utilities. A native Californian and vineyard owner, I have given back to my community as an appointed Director on a Resource Conservation District Board and through charities, associations, and local advocacy groups such as the Southwest California Legislative Council.

It has been my honor to serve alongside my dedicated colleagues on the ACWA Board. I look forward to continuing to build upon ACWA's work to promote and advance the priorities, initiatives, and interests of our members.

Please visit RanchoWater.com/ACWAVP. Thank you for your support.

Rancho Water
WORKING FOR OUR COMMUNITY

42135 Winchester Road, Temecula, CA
(951) 296-6900 RanchoWater.com



Alexandra Berenter has been working on water issues for nearly 15 years and currently serves as the Deputy Director of External Affairs for the City of San Diego's Public Utilities Department. Since joining the City in 2019, she has served in two mayoral administrations, advising on key water issues before transitioning into executive leadership for the utility. In addition to her current role, she has overseen the department's human resources, safety, training, and contracting teams, gaining a comprehensive understanding of utility operations and workforce management.

In her current role, Alexandra leads the department's communications, legislative affairs, intergovernmental coordination, and stakeholder engagement strategies, supporting one of the largest water and wastewater utilities in California. She serves as a key advisor to City leadership on regional, state, and federal water policy matters and plays an active role in advancing the City's water, wastewater, and recycled water initiatives.

Before joining the City, Alexandra was Director of Public Affairs at the Downtown San Diego Partnership, where she led strategic policy and advocacy efforts to foster economic development. She began her career in Washington, D.C., where she served as congressional staff for six years. There, she managed a diverse legislative portfolio and led California water negotiations for the House delegation. Her work helped secure the inclusion of drought-related provisions in the Water Infrastructure Improvements for the Nation (WIIN) Act.

A native San Diegan, Alexandra holds a Bachelor of Arts in Political Science from Washington University in St. Louis. She is committed to strong regional collaboration and believes ACWA is essential in helping agencies navigate today's evolving water landscape.

Re-Elect Marice H. DePasquale to ACWA Region 10 Board

President, Mesa Water District (Mesa Water®)



OBJECTIVE: To continue advancing the goals of ACWA Region 10 in best serving its members, ACWA, and the industry by contributing my experience in community and water leadership, including as an ACWA Region 10 Board Member since 2022, and my skills as an advocacy and communications professional.

STATEMENT OF QUALIFICATIONS:

- **Mesa Water** – President, Present & 2021-2023, Vice President, 2019-2021; Executive Committee, 2019-Present; prior service as Legislative & Public Affairs Committee Chair and Engineering & Operations Committee Alternate
- **ACWA** – Region 10 Board, 2022-Present; Communications Committee member, 2018-Present; featured in ACWA's "Investing in our Future" video, 2019
- **CalDesal** – Vice Chair, 2020-Present
- **Water UCI** – Board Member, 2018-Present
- **Other** – City of Huntington Beach, Affordable Housing Committee; Lifetime Girl Scout & Former Troop Leader; Orange County Building Industry Association; Seneca Family of Agencies, Former Board Member; University of California, Irvine (UCI) School of Social Science, Dean's Board of Counselors

BACKGROUND: With a Bachelor of Arts degree in Political Science from UCI, President Marice H. DePasquale has decades of public relations experience and is Principal of MConsensus, an award-winning public affairs firm specializing in land use entitlement, government and community relations, and grassroots lobbying. A Mesa Water Director since 2017, she values public service and giving back to the community, and is committed to assuring a safe, affordable, abundant, and reliable water supply for all Californians.

9 of 55

Attachment to Nomination Form
CANDIDATE: DANA FRIEHAUF

Describe your ACWA-related activities that help qualify you for this office:

For the past 35 years in public water agency work, I have supported, and will continue to support, ACWA and its mission. I currently serve as the Region 10 Board Chair and as a member of the ACWA Board. This past year I served on ACWA's Strategic Planning Task Force to develop a new Strategic Plan for ACWA. For the previous 2022-2023 term, I served as the Region 10 Board Vice-Chair. I have also served on the ACWA Finance Committee, ACWA Finance Education Subcommittee, ACWA Climate Change Working Group and ACWA Board Infrastructure Task Force. During my career at the San Diego County Water Authority, I served as a member of the Water Management Committee, technical working group that drafted water-use efficiency legislation, contributor to 2005 Blueprint, "No Time to Waste", coordinated with Region 10 members to prepare 2014 Drought Report, and presented and served as moderator at past ACWA conferences.

Attachment
Region 10 Board Candidate (Vice-Chair) - Nomination Form



DANA FRIEHAUF
Board Member
Santa Fe Irrigation District Board of Directors

Half-page bio summarizing the experience and qualifications that make you a viable candidate for ACWA Region Leadership:

I was honored to have been elected to the Santa Fe Irrigation District Board in November 2020 and appointed to a second term in 2024. During my tenure, I have served as Board Vice-President and a member of the Executive Committee and Administrative and Finance Committee. The SFID Board also unanimously appointed me to represent our agency on the San Diego County Water Authority Board in December 2024. At SDCWA I currently serve as Vice-Chair of the Water Planning and Environmental Committee and a member of the Engineering and Operations Committee and the Resource Strategy Work Group. I have also spent my entire career working in the field of water resources for public water agencies. I retired from SDCWA in March 2019, as a Water Resources Manager, after working 30 plus years in the areas of water planning and policy. Throughout my career at SDCWA and now as an SFID and SDCWA Board member, my priority and passion has been to work collaboratively with others to solve problems and issues. I have been thrilled to serve as Region 10 Vice-Chair and Chair these past two term, where my priority has been to work collaboratively with the Region 10 Board to ensure ACWA is meeting its members' needs, to discuss the critical water issues we face and provide relevant and educational events for the Region 10 membership. I have thoroughly enjoyed working with my colleagues from both San Diego and Orange Counties. As an ACWA Board member, my priority has been to collaborate with ACWA members throughout the state on ensuring ACWA is an effective organization and to also ensure that Region 10 members' issues and concerns are heard at the Board meetings. These are examples of the collaborative leadership skills I would continue to bring to the ACWA Region 10 Board as Vice-Chair, which makes me a highly viable candidate for this position.
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Mr. Maloni was elected to OMWD's Board of Directors in 2024. In addition to his duties as Treasurer, Mr. Maloni also serves on OMWD's Finance, Facilities, Public Policy, and Elfin Forest Recreational Reserve Executive committees. He has been a valued and insightful member of the OMWD Board.

Mr. Maloni holds a bachelor of arts degree in public policy from Brown University and brings to the table more than 25 years' experience as a water industry professional. His experience includes his work at a global infrastructure engineering firm Black & Veatch, where he serves as the Desalination Solution Growth Leader. Prior to his current position, Mr. Maloni was the Vice President of Project Development for Poseidon Water, where he was a member of the executive team that successfully developed the Claude "Bud" Lewis Carlsbad Seawater Desalination Plant as a public-private partnership.

Throughout his 14-year career with Poseidon Water, Mr. Maloni worked with ACWA public water agency members in both San Diego and Orange County to achieve water supply reliability. He is a strong proponent of regional planning and cooperation.

Mr. Maloni believes the most profound challenges facing Californians today are climate change, water scarcity, and infrastructure development. He is extremely active and engaged in all aspects of California water resources, and his wealth of experience makes him an excellent choice for a seat on the Region 10 board.

Jennifer DeMeo 760-975-1594 | jendemeo@gmail.com

Professional Summary Dynamic and results-driven Board President with a proven track record of leadership and governance in the water utility sector. Elected to serve on the Fallbrook Public Utility District, Division 3, since 2016. Skilled in running board meetings, collaborating with district staff, and overseeing the General Manager to ensure effective operations and strategic planning.

Key Skills and Expertise

- Leadership and Governance
- Strategic Planning and Decision Making
- Team Collaboration and Relationship Building
- Budget Management and Fiscal Responsibility
- Transparency and Accountability
- Personnel Management and Subcommittee Leadership

Experience

Board President / Board Member | Fallbrook Public Utility District, Division 3 | Fallbrook, CA *Elected since 2016; Board President (2021, 2024)*

- Elected to represent Division 3 on the Fallbrook Public Utility District Board of Directors.
- Successfully ran board meetings, ensuring adherence to governance principles and efficient decision-making.
- Collaborated effectively with district staff to address operational challenges and implement strategic initiatives.
- Provided oversight to the General Manager, ensuring effective operations and alignment with strategic goals.
- Appointed as ACWA JPIA Board Member representing FPUD (since 2018).
- Elected to ACWA Region 10 Board (since January 2024).
- Achieved historic milestone as the First Female Board President of FPUD in the district's 100-year history.

Education

Bachelor of Arts in Religious Studies
Certificate in Secretarial Skills | **Coursework, Life, Health, and Disability Insurance & Annuities** | Kaplan Financial Online School

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Notable Achievements

- Appointed as ACWA JPIA Board Member representing Fallbrook Public Utility District (FPUD) since 2018.
- Elected to ACWA Region 10 Board since January 2024.
- First Female Board President of FPUD in the district's 100-year history.

ACWA Region 10 – Nomination for Regional Board Application – Debbie Neev

ACWA-related Activities

I currently serve on the ACWA Region 10 Board and have attended and actively participated in more than 40 ACWA conferences over the past thirty+ years, both as a commissioner representing the Laguna Beach County Water District (LBCWD) and as a consultant for a Fortune 500 Engineering and Environmental Firm. During this time, I have served on the ACWA Region 10 Groundwater Committee, as an ACWA Outreach Ambassador, as a speaker at ACWA conferences, and as an ACWA/JPIA director.

Water Experience

I will be an excellent candidate for this position as I have served as a Water Commissioner for the LBCWD for over twenty years as a member, vice-chair, and chair numerous times. I have served or am currently serving on the Water District's engineering committee, personnel committee, conservation committee, and desalination committee, including dedicated CalDesal participation. I have been passionately involved in water and energy educational outreach with our local schools through our solar cup sponsorship, the water conservation grant program, and the implementation of MWDOC outreach programs by participating in the "edible aquifer" demonstrations. For many years I have represented the District in the South Orange County Agency meetings and at the WACO meetings, and I am a current member and past chair and vice chair of the South Orange County Watershed Management Area Executive Board.

Professionally, I have been and continue to be actively involved in water issues, not only in California, but worldwide throughout my entire environmental and engineering consulting career and as a senior vice president for a major consulting firm where I managed a $200 million P&L and 32 offices worldwide. My technical experience included both investigation and implementation of water remediation systems (an example is the remediation of perchlorate contamination in the cities of Rialto and Glendale, CA) as well as identification and implementation of water resources (an example is brackish desalination in the Marianas Islands, which expanded their access to potable water well beyond six hours/day). As a Colorado School of Mines graduate, I have been an active alumnus, participating in water engineering opportunities for new graduates and women in engineering.

Lastly, I have served two Governors of California with appointments to the Pipeline Safety Committee and the Santa Ana Regional Water Quality Control Board where major issues have included the salinity of imported water and the potential impact of prescription drugs in our groundwater, and I recently served on the Board of the University of California Irvine Water Advisory Board.

ELECT DEBBIE NEEV to ACWA Region 10 Board



I seek your support to represent ACWA Region 10 members with my extensive water experience, knowledge base, community involvement, and commitment to ACWA.

BACKGROUND

As a Geophysical Engineer from the Colorado School of Mines, I have been and continue to be actively involved in water and environmental issues, not only in California, but worldwide.

My technical and consulting experience includes both investigation and implementation of water remediation systems (an example is the remediation of perchlorate contamination in the cities of Rialto and Glendale, CA) as well as identification and implementation of water resources (an example is brackish desalination in the Marianas Islands, which expanded their access to potable water well beyond six hours/day).

QUALIFICATIONS

ACWA - Current ACWA Region 10 Board member; current ACWA/JPIA Director; served on the Groundwater Committee, Outreach Ambassador; attendance at over 30 ACWA conferences, and a supporting member of Women in Water.

Laguna Beach County Water District - Commissioner for over 20 years, serving as Chair, Vice-Chair several times and serving on the Engineering, Personnel, Desalination, and Water Use Efficiency and Outreach Committees .

South Orange County Watershed Management Area Executive Committee - Current member and Past President and Vice President .

CalDesal- Current board member .

Governor Appointments- Santa Ana Regional Water Quality Control Board and the Pipeline Safety Committee.

Attachment
ACWA Region 10 Board Candidate - Nomination Form



FRANK NUÑEZ
Director, Division 2
Vista Irrigation District Board of Directors

Describe your ACWA-related activities that help qualify you for this office:

As a newly appointed Board Member of the Vista Irrigation District (VID), representing Division 2, I am honored to bring a fresh perspective and a strong commitment to public service. Although I am still early in my tenure, I have already begun engaging in activities to better understand and contribute to the water community. I recently attended the CSDA quarterly dinner meeting in Kearny Mesa and look forward to continuing my involvement. I am eager to immerse myself further in the responsibilities of this role and to grow in knowledge and leadership. I see this potential opportunity with ACWA as a way to serve with integrity, learn from experienced colleagues, and help advance sound water policy for our region.

Write below or attach a half-page bio summarizing the experience and qualifications that make you a viable candidate for ACWA Region leadership:

In April of 2025, I joined the Vista Irrigation District Board, an opportunity that allows me to apply decades of leadership and business experience to one of our community's most vital resources: water. Although I am newly appointed to the Board of Directors, I bring a strong background in leadership, business management, and creative problem-solving that uniquely qualifies me for ACWA Region leadership. My professional experience includes serving as a sales manager and playing a key role in growing the largest independent wholesaler on the West Coast, with annual sales exceeding $1 billion. I was part of the founding team for the company's Los Angeles distribution center and helped bring the operation into profitability within just a few years. My active participation in weekly profit and loss meetings gave me a solid foundation in financial oversight, strategic planning, and operational efficiency.

In addition to my business background, I hold a degree in Cinema and Television Arts, and I have extensive experience in professional video production. I continue to be hired for creative projects that require sharp attention to detail, collaboration, and the ability to deliver results on time and within budget. These diverse experiences, ranging from corporate leadership to creative production, have equipped me with the communication, analytical, and team-building skills necessary to be an effective and innovative leader in the water community. I am eager to bring this multifaceted perspective to ACWA and to contribute meaningfully to its mission.



INKI KIM WELCH

Inki Kim Welch was elected to the Rincon del Diablo Municipal Water District's Board in November of 2020 and also in 2024 as the Division V representative of Rincon Water's Improvement District "1" and Improvement District "E". Currently Ms. Welch is the Vice President, and she has served on the Finance, Insurance and Personnel, Audit, Engineering & Long-Range Planning, Emergency Preparedness and Fire Services, Public Information & Intergovernmental Relations, and Sewer Committees. Ms. Welch has completed the CSDA Leadership Academy and attended a number of conferences, including ACWA, CSDA, Urban Water Institute, and the Council of Water Utilities.

Ms. Welch worked in the commercial finance arena from 1980 to 1993 managing commercial loan portfolios through financial, security, credit, market/industry analyses, and risk assessment/management that afford executive decisions on loan facilities and mergers/acquisitions. Since 1994, Ms. Welch has been the owner of a small business which offers consulting, selling/buying business opportunities, mortgage brokering, and property management services. She has held a broker's license from the State of California Bureau of Real Estate since 1994.

Ms. Welch has served on a number of boards and has been an active member of the community. Community service includes:

- Served as the President on Escondido K-8 Charter School Board, Escondido Charter High School Board, and American Heritage Education Foundation Board; Was successful in acquisition of the K-8 building and construction of a state-of-the-art high school building in 2000 without having to issue bonds.
- Served as the Board President (from 1997 to present) on the House of USA, a 501 (c)3 organization and the executive board president (from 2023 to 2024) of the House of Pacific Relations International Cottages, Inc. ("HPR") in Balboa Park, a 501c3, non-political, and non-partisan organization established In 1935 and a consortium of 34 nations/cultures, each a separate non-profit organization, promoting goodwill and understanding through various cultural and educational programs to public at large.

Born and raised in South Korea, Ms. Welch immigrated to the Unites States and became a citizen in 1974. Transitioning from Hawaii to San Diego in order to attend Point Loma Nazarene University, she earned her Bachelor of Arts degree in Economics/Accounting in 1980, followed by a Master of Business Administration degree in Financial Management from National University in 1983.

Ms. Welch and her husband have lived in Escondido since 1986. She is the mother of two daughters and a son, and the grandmother of four.

Item No. 5

INFORMATION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Damon Micalizzi, Director of Public Affairs
Katie Vincent, Public Affairs Coordinator I

SUBJECT: **METROPOLITAN DIRECTORS' INSPECTION TRIP PRESEASON PLANNING**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee receive the information.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

The Metropolitan Water District of Southern California (MWD) will once again host inspection trips for MWD directors and their invited guests. Each inspection trip aims to inform and educate attendees on water issues and MWD operations, programs, and objectives. Additionally, it builds water-smart communities by sparking informed conversations and inspiring wise decisions about our most vital resource — water. The program is under MWD's Administrative Code Sections 2610 through 2615. The goal is to provide participants with firsthand insights into California's water infrastructure, fostering informed discussions about the state's water future.

This season, each Director can take up to one two-day trip and one one-day trip. Directors are encouraged to share a trip with another MWD director. MWDOC currently has the following four trips scheduled for the 2025–2026 season. The trips are listed on page 2.

Budgeted: ☐ Yes ☐ No ☒ N/A	Budgeted amount:	Core: ☐	Choice: ☐
Action item amount: N/A	Movement between funds: ☐ Yes ☐ No		

Scheduled Inspection Trips for the 2025–2026 Season

Date: September 12–13, 2025
Location: Hoover–Colorado River Aqueduct
Directors: Ackerman (MWDOC), Erdman (MWDOC)
MWD Host: Eduardo Garcia

Date: September 30, 2025
Location: Local/OC infrastructure for OC Grand Jury
Directors: Dick (MWDOC), Seckel (MWDOC)
MWD Host: Russ Patras

Date: November 7–8, 2025
Location: Hoover–Colorado River Aqueduct
Directors: Seckel (MWDOC), Armstrong (Eastern Municipal Water District)
MWD Host: Greg Widman

Date: March 28–29, 2026 *(pending move to March 27–28)*
Location: Colorado River Aqueduct/Agriculture
Directors: Dick (MWDOC), Luna (City of Los Angeles)
MWD Host: Eduardo Garcia

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

Attachments/Links:
N/A

Item No. 6

INFORMATION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Damon Micalizzi, Director of Public Affairs

SUBJECT: **OC WATER SUMMIT UPDATE**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee receive the information.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Planning for the 2025 OC Water Summit (Summit) is in its final stages. The event will be held on Friday, September 5, 2025, at the Westin South Coast Plaza, bringing together water leaders, policymakers, researchers, and community stakeholders. As a leading regional forum, the Summit provides critical insights into California's evolving water challenges and opportunities, aligning with MWDOC's mission of regional collaboration and public engagement.

Sponsorship & Registration Update

As of July 29, the Summit has secured **$48,800 in sponsorships**, with strong support from public agencies, private firms, and community partners. The current sponsor list includes:

- **Luncheon**: Mesa Water District
- **Program**: Irvine Ranch Water District
- **A/V**: Hazen and Orange County Sanitation District
- **Associate**: Butier Engineering, Inc.

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount:	Core: ☒	Choice: ☐
Action item amount: N/A	Movement between funds: ☐ Yes ☒ No		

- **Table Sponsors**: Anaheim Public Utilities, CDM Smith, Disneyland Resort, Irvine Ranch Water District, Metropolitan Water District of Southern California, Michael Baker International, Moulton Niguel Water District, MWH Constructors, South Coast Water District, Water Energy Education Alliance Next Gen Workforce (2 tables), Western Municipal Water District, and Yorba Linda Water District
- **Exhibitors**: ECORP Consulting, Inc. and Tripepi Smith
- **Speaker Dinner**: Rutan & Tucker and Tucker Ellis

Registration stands at *229 total attendees,* broken down as follows:

- Sponsors: 128
- Individuals: 39
- Complimentary tickets (VIPs, speakers, board, executive staff): 46
- Exhibitors & working staff: 16

Program & Session Preview

Returning as emcee, Fritz Coleman will guide the day's sessions with insight and humor. This year's program includes four panel discussions:

Session 1: Responding to PFAS – Balancing Protection, Policy, and Practicality

Session 2: Rethinking the Bay-Delta: Restoration with Benefits

Session 3: Is the State Prioritizing Abundant Water Supply?

Session 4: Getting Water on the Ballot

The Speaker Dinner will be hosted the evening before the event at The Capital Grille.

LOOKING AHEAD

The next OC Water Summit Ad Hoc Committee meeting will be held on August 11, 2025.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
☒ *Strengthen communications and coordination of messaging.*
☒ *Work with member agencies to develop water supply and demand objectives.*
☒ *Solicit input and feedback from member agencies.*
☒ *Invest in workforce development and succession planning.*

Attachments/Links:
N/A

Item No. 7

INFORMATION ITEM
August 4, 2025

TO: **Planning & Operations Committee**
(Directors Seckel, Yoo Schneider, Dick)

FROM: **Harvey De La Torre, General Manager**

Staff Contact: Damon Micalizzi, Director of Public Affairs

SUBJECT: **JUNE 26TH WATER POLICY FORUM ACCOUNTING**

STAFF RECOMMENDATION

Staff recommends that the Planning & Operations Committee receive the information.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

MWDOC's June 26, 2025, Water Policy Forum at The Westin South Coast Plaza featured keynote remarks from Troy Edgar, Deputy Secretary of the U.S. Department of Homeland Security. The event drew 180 attendees, including local elected officials, several first-time attendees, water industry leaders, and agency partners.

The event generated $24,368.41 in revenue and incurred $33,434.47 in expenses, resulting in a net cost of $9,066.06 to the District's Public Affairs Budget (Cost Center 32). This includes costs for two additional hotel spaces reserved for DHS staging and security, as well as complimentary registrations for several late-arriving DHS guests. Major expenditures included catering, labor, audiovisual services, and parking. Individual tickets were priced at $150, with reserved tables available for $1,200.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

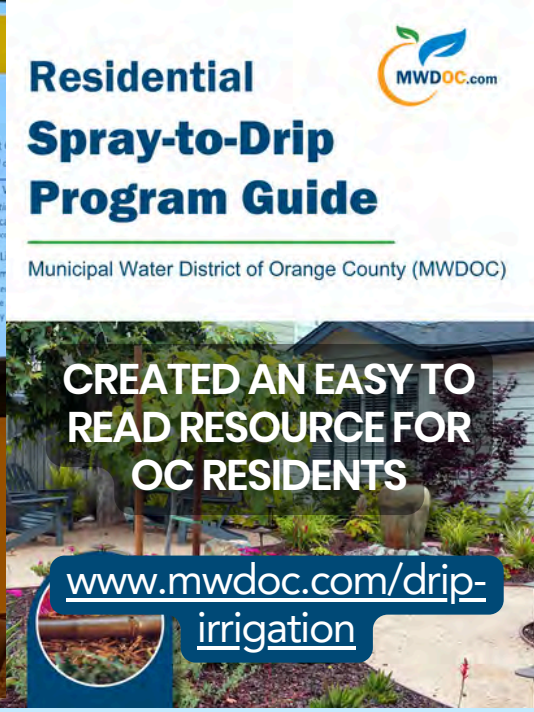
- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☒ *Work with member agencies to develop water supply and demand objectives.*
- ☒ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount:	Core: ☒	Choice: ☐
Action item amount: N/A	Movement between funds: ☐ Yes ☒ No		

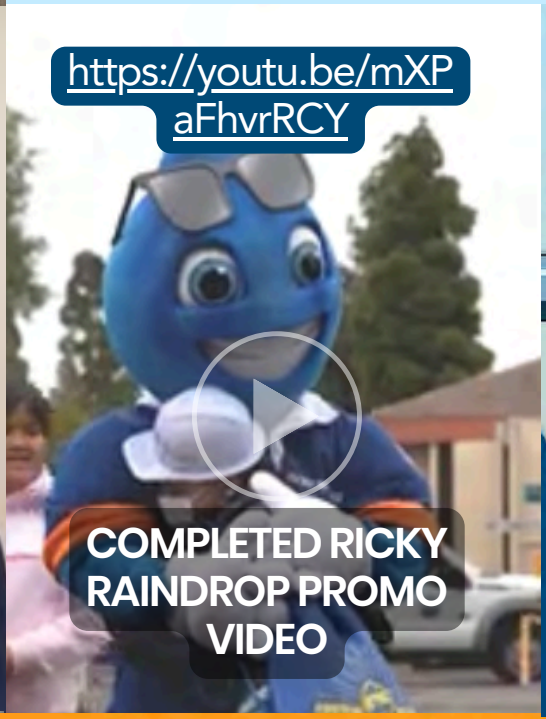
Attachments/Links:
N/A


HOSTING THE METROPOLITAN TRAVELING ART SHOW & PROVIDED INTERN PRESENTATION


SPEAKERS BUREAU
Data & Dialogue
WEEA SPONSORSHIP MEETING HOSTED AT METROPOLITAN


Residential
Spray-to-Drip
Program Guide
Municipal Water District of Orange County (MWDOC)
MWDOC.com
CREATED AN EASY TO READ RESOURCE FOR OC RESIDENTS
www.mwdoc.com/drip-irrigation


https://youtu.be/5S2KcwCAI6A
COLLABORATED WITH MWD FOR DELTA CONVEYANCE VIDEO


https://youtu.be/mXPaFhvrRCY
COMPLETED RICKY RAINDROP PROMO VIDEO


TURNING the VALVE
Abundance fo
Orange County
Friday, September
Westin South Coast Plaz
ocwatersummit.co
Presented by
MWDOC
OUTREACH SUPPORT FOR OC WATER SUMMIT


Smart Irrigation Month!
3.3% SOCIAL MEDIA ENGAGEMENT RATE
A Good Rate is 1-5%
MWDOC.com


Soak up the Summer Savings!
Smart Irrigation Timer: Automatically adjusts your waterin
schedule based on weather conditions or soil moisture.
Rebates up to $180 per timer
Rotating Sprinkler Nozzles: Water your landscape
DEVELOPED SUMMER BILL INSERTS FOR MEMBER AGENCIES
Spray-to-Drip Program: Convert spray heads to drip
irrigation that delivers water close to plant root zones.
Rebates up to $1 per sq. ft.
Apply for rebates today: mwdoc.com/Rebates
Have questions?

ENGINEERING & PLANNING	
Orange County Water Demand Forecast Project and 2025 Urban Water Management Plan	The Urban Water Management Planning Act enacted by the California legislature requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare, adopt, and file an Urban Water Management Plan (UWMP) with the California Department of Water Resources (DWR). These reports are required every five years. The upcoming UWMP cycle is the 2025 UWMP which will be due to DWR on July 1, 2026. On December 18, 2024, the MWDOC Board approved a contract award to Hazen and Sawyer (Hazen) to provide professional services for the 2025 Orange County Water Demand Forecast Project to support 2025 UWMP development. The project began in January 2025, and an All-Agency Kickoff Meeting took place in mid-February 2025. The project remains on schedule. A draft of the demand projections will be presented to Orange County agencies for review and comment at an all-agency workshop in August 2025, followed by a second presentation at the MWDOC Member Agencies meeting. A final presentation to the Board is anticipated in October 2025. MET water supply projections are anticipated in December 2025. On July 16, 2025, the MWDOC Board approved a contract award to Carollo Engineers (Carollo) to provide professional services for the preparation of the 2025 UWMPs for MWDOC and participating agencies under the MWDOC Shared Services Program. The 2025 UWMP schedule aligns with the demand forecast development with MWDOC staff working towards a Notice to Proceed for Carollo in early August 2025. Currently, 24 agencies have indicated interest in participating in the program. Final agency signups are anticipated in September 2025.
MWDOC GIS Needs Assessment	See Discussion Item No. 2 of August 4, 2025, P&O Packet.
Lake Mathews - Upper Feeder Shutdown - Outlet Tower Repairs July 12-25, 2025.	On July 21, 2025, Metropolitan began a five-day shutdown of Lake Mathews to inspect a stuck slide gate for Tower 1 at the Lake Mathews Junction shaft. The shutdown was a success. Lake Mathews returned to normal operations on July 25, 2025. A future scheduled shutdown for a rehabilitation for a more permanent fix of the stuck slide gate is anticipated for November 2025.

General Managers Report
WEROC Status Report

JULY 2025

JULY EVENTS
(EVENTS LISTED ONLY INCLUDE WEROC INVOLVEMENT. EVENTS AND INCIDENTS HAPPEN EVERYDAY, BUT MAY NOT REQUIRE REPORTING, OR COORDINATION WITH WEROC)

Wildland Fire – Rancho Fire, Laguna Beach
Vicki coordinated directly with the impacted agencies, as well as state and county partners, to ensure they were informed of WEROC's presence and response activities during the fire incident, in alignment with efforts led by the Orange County Fire Authority (OCFA) and Laguna Beach Fire Department.

WEROC AGENCY PLANNING, COORDINATION AND PROGRAM EFFORTS

AlertOC – Orange County Mass Notification System
Janine successfully completed the AlertOC renewal project in collaboration with WEROC's participating member agencies, ensuring uninterrupted access to the County of Orange's mass notification system under the renewed Everbridge contract.

To accomplish this project, Janine:

- Coordinated directly with the County of Orange and Everbridge to ensure system updates and contract requirements were aligned with agency needs.
- Conducted outreach to all participating member agencies to confirm continued enrollment and system access.
- Collected and processed signed Memoranda of Understanding (MOUs) from each participating agency, formalizing their commitment to the program.
- Oversaw the execution of Individual User Agreements for staff members designated as system "Users," ensuring appropriate access controls and accountability.
- Provided guidance and clarification to agencies on system roles, user responsibilities, and security protocols.
- Verified the accuracy of contact information and alerting pathways for each agency to maintain operational readiness.

This comprehensive effort ensures that all WEROC agencies remain fully integrated into the AlertOC system, enhancing coordinated communication during emergencies.

America's Water Infrastructure Act (AWIA) Compliance

Planning efforts under the America's Water Infrastructure Act (AWIA) continued in July:

- **Tier I ERP Updates:**
  Emergency Response Plan updates are underway with Herndon Solutions Group (HSG). Agencies have completed their gap assessment of their plans with HSG. Change orders are being completed for the additional work required or requested by the participating agencies. Tier I agencies must self-certify ERP completion to the EPA by September 30, 2025.
- **Tier II RRA Coordination:**
  Risk and Resilience Assessment (RRA) meeting cycles are in progress. Agencies must certify RRAs to the EPA by December 31, 2025.

Vicki is coordinating change orders for several Tier I agencies that have requested additional updates to their Emergency Operations Plans (EOPs), based on agency-specific needs identified during the ERP gap assessment process.

CalWARN Coordination and Activities

CalWARN is in the process of merging with the California Utilities Emergency Association (CUEA), a critical step toward strengthening unified utility response and recovery efforts during disasters. This strategic alignment enhances coordination across all utility sectors — water, wastewater, power, communications, and transportation—under a single, statewide emergency response framework.

CUEA serves as the official utility representative in the State Operations Center (SOC) and Joint Field Office (JFO) during state and federal disaster responses. Merging with CUEA ensures that water and wastewater agencies have a direct voice in these high-level coordination environments, enabling better access to information, resources, and decision-making channels alongside other utility partners.

This partnership represents a significant win for California's emergency management system by unifying utility response under one banner, improving representation, and streamlining mutual aid and situational awareness during large-scale incidents.

Cyber Security Coordination with OCIAC & DHS

Vicki continues to distribute timely alerts and resources related to critical cybersecurity threats affecting the water and wastewater sectors.

On July 3rd, she met with the Orange County Intelligence Assessment Center (OCIAC) and Sensemakers to review the After-Action Report from the May 2025 Cybersecurity Tabletop Exercise.

Additionally, Vicki facilitated email introductions to WEROC member agencies for the region's new DHS/CISA representative, who is currently engaging with local agencies to share available support services and strengthen partnerships.

Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)

As of July 28, 2025, 14 of the 15 agencies (one remains) have submitted adoption resolutions. FEMA is issuing updated approval letters upon each submission. The plan is effective through April 15, 2030.

Operational Area, State and Federal Activities & Meetings
Key Meetings & Activities

July 10 – OCEMO Monthly Meeting:
Janine and Gabby attended the Orange County Emergency Management Organization (OCEMO) monthly meeting and the Training & Exercise Design Subcommittee. They provided input on the 2025 Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR). Eight priority capabilities were identified for regional focus in the upcoming year. Gabby also participated in a follow-up meeting at the Operational Area Emergency Operations Center (OA EOC) on **July 24** to continue development of the THIRA/SPR and ensure water and wastewater considerations were reflected.

July 11 – CESA Legislative Committee:
Vicki participated in the California Emergency Services Association (CESA) Legislative Committee meeting, where over 40 emergency management-related bills were reviewed and are now being tracked for potential impact on local and regional agencies.

July 15 – CalWARN Regional Chair Meeting:
Vicki facilitated the CalWARN Region I Chair Meeting, which focused on proposed governance updates, partnership opportunities, and the launch of a refreshed CalWARN website to improve communication and resource access for members.

July 15 – Hospital Water Resiliency Coordination with HOAG:
Vicki met with representatives from HOAG Hospital to address the new California Department of Public Health (CDPH) requirements mandating hospitals maintain access to 150 gallons of potable water per day during emergencies. She provided strategic guidance on sustainable compliance options and emphasized that relying on water truck deliveries is not a realistic or dependable solution during large-scale events. Her input helped the hospital explore more practical, long-term water resiliency strategies.

July 22 – Joint Operations Meeting with OC Sheriff and OCFA:
Vicki attended a joint operations meeting with the Orange County Sheriff's Department

and Orange County Fire Authority (OCFA) to discuss interagency coordination, response priorities, and opportunities for improved integration of water and wastewater agencies in future emergency operations.

July 23 – EOC Academy 101 Working Group:
Gabby and Vicki attended the EOC Academy 101 Working Group planning session to support the development of future training opportunities for new and existing EOC responders across Orange County.

July 24 – OCFA Coordination Meeting:
Vicki met with the OCFA Deputy Fire Marshal and staff to discuss their recent outreach to water agencies requesting infrastructure maps and related data. The meeting strengthened coordination and clarified the intent behind OCFA's engagement. Vicki will be following up with General Managers and Operations Managers/Superintendents to determine the next steps for enhanced collaboration and data-sharing protocols with OCFA.

July 31 – MARAC Southern Regions I & VI Meeting:
Gabby and Vicki attended the Mutual Aid Regional Advisory Committee (MARAC) meeting for Southern California Regions I and VI. The meeting focused on regional mutual aid coordination, resource sharing, and upcoming training and exercise opportunities.

WEROC UASI Grant Funding

Gabby is working with the Urban Area Security Initiative (UASI) on a potential funding opportunity to replace aging water vessels on previously funded UASI potable water trailers. The current tanks have deteriorated due to age, heat, and UV exposure, affecting water quality and taste. Upgraded vessels would enhance mass care capabilities, particularly for individuals with access and functional needs.

Gabby surveyed the 11 member agencies that manage the 13 trailers and is developing a proposal for the Urban Area Working Group (UAWG), which includes law enforcement, fire, and emergency management partners. Her presentation is scheduled for August 13th. To support the proposal, Gabby and Janine participated in a maintenance demonstration with the City of Orange to better understand current system conditions and needs.

Please note that if our project is selected, it may take 3 – 4 years to receive funding unless unspent UASI funds become available.

WEROC Mapping Project

Janine has completed the WEROC Water and Wastewater Atlas Project. All deliverables have been received, and wall maps are in the process of being delivered to the member agencies.

Mobile Command Vehicle (MCV) and Logistics Base Update

Janine and Gabby have been actively field-testing the WEROC Mobile Command Vehicle (MCV) to verify connectivity and functionality of key components, including the plotter, printer, and laptops. This effort ensures the vehicle remains deployment-ready. As part of the MCV Standard Operating Procedure, Gabby is developing a connectivity heat map to identify areas within the County with limited service.

The WEROC team also worked with Finance to complete the year-end inventory reconciliation for both the MCV and Peters Canyon Logistics/Staging Base (PCLSB). In coordination with IT, obsolete equipment was collected and destroyed on-site. The EOC phone line through CalNET has been successfully activated and is operational. Additional facility improvements include coordinating with MET to replace the garage weather stripping to prevent rodent intrusion, with quarterly pest control to follow.

Ongoing maintenance and operational readiness of both the MCV and Peters Canyon Logistics/Staging Base remain a priority.

WEROC Plan Development & Misc Updates with Member Agencies

Vicki has reviewed the following County Plans and WEROC plans provided comments on behalf of the WEROC Organization:

- OA Radio Standard Operating Procedure (SOP)
- Orange County Operational Area and County of Orange Emergency Operations Plan (EOP)
- WEROC PSPS SOP

July 22: Janine and Gabby attended the City of Orange Water Division’s quarterly Water Trailer maintenance. The process for cleaning and preparing the UASI Water Trailer for public use was presented to Gabby and Janine as part of Gabby’s preparation for potential funding opportunities from the Urban Area Security Initiative (UASI) for upgraded or new equipment for the existing 13 Member Agency Water Trailers.

July 29: WEROC was invited to Moulton Niguel Water District’s Public Safety Appreciation Event. Janine and Gabby will be attending to represent WEROC.

WEROC Fuel Planning
Vicki met with Herndon Solutions Group (HSG), WEROC's consultant for AWIA and hazard mitigation projects. The MWDOC scope of work is being revised so HSG can assist in developing the fuel planning scope, identifying regulatory requirements, and supporting vendor selection for the upcoming RFP.

Janine will be assisting with the project, and the first item to occur will be a fuel survey.

WEROC Presentations, Training and Exercises

Presentations

- July 15: Vicki provided an update presentation on CalWARN and WEROC to the AWWA CA/NV Security and Emergency Management Committee.

Upcoming Presentations (look ahead):
August 8: Building Industry Association (BIA) Southern California Water Conference
August 20: Southern California Edison (SCE) Critical Lifelines Working Group
August 22: Urban Water Institute, San Diego

Training & Exercises

- July 8: OC SANs Operations Training *custom built
- July 14: Met with Paula to begin planning for a full scale and functional exercise in Spring of 2026
- July 26: Virtual AlertOC training was conducted for WEROC agencies end users.
- July 24: OC SANs Planning & Intel Training* custom built

Staff Training

- July 9: Gabby attended the DR-4856 Hazard Mitigation Webinar with CalOES.
- On July 14 – 15, Gabby attended the MGT-343: Disaster Management for Water & Wastewater Utilities course and received a certificate of completion.

Status of Water Use Efficiency Projects
July 2025

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
SoCal Water$mart Residential Indoor Rebate Program	MWDSC	Ongoing	Ongoing	In June 2025, 96 high-efficiency clothes washers and 19 residential premium high-efficiency toilets were installed in Orange County. To date, 131,109 high-efficiency clothes washers and 61,945 high-efficiency toilets have been installed through this program.
SoCal Water$mart Commercial Rebate Program	MWDSC	Ongoing	Ongoing	In June 2025, no commercial devices were installed in Orange County. To date, 119,662 commercial devices have been installed through this program.
Flow-Monitoring Device Rebate Program	MWDSC	Ongoing	Ongoing	In June 2025, 13 flow-monitoring devices were installed in Orange County. To date, 1006 flow-monitoring devices have been installed through this program. More than 3,300 verified flow-monitoring devices have been installed in Orange County; however, not all were installed via the rebate program.
Smart Timer Rebate Program	MWDSC	Ongoing	Ongoing	In June 2025, 67 residential and 17 commercial smart timers were installed in Orange County. To date, 35,674 smart timers have been installed through this program.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Rotating Nozzles Rebate Program **Rotating Nozzles Rebate Program (cont.)**	MWDSC	Ongoing	Ongoing	In June 2025, 323 rotating nozzles were installed in Orange County. To date, 586,014 rotating nozzles have been installed through this program.
Rain Barrel Rebate Program	MWDSC	Ongoing	Ongoing	In June 2025, 3 rain barrels were installed in Orange County. To date, 9,069 rain barrels have been installed through this program.
Turf Replacement Program	MWDOC	Ongoing	Ongoing	In June 2025, 21 rebates were paid, representing $405,868.20 in rebates paid this month in Orange County. To date, the Turf Replacement Program has removed approximately 29.5 million square feet of turf.
Spray to Drip Rebate Program	MWDOC	Ongoing	Ongoing	In June 2025, 19 rebates were paid, representing $134,623.00 in rebates paid this month in Orange County. To date, the Spray to Drip Program has converted approximately 5.3 million square feet of standard spray irrigation to drip irrigation.
Tree Rebate Program	MWDOC	Ongoing	Ongoing	In June 2025, 40 eligible trees were planted in Turf Replacement Program project areas. To date, 261 trees have been planted through this program.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Landscape Design Rebate Program	MWDOC	Ongoing	Ongoing	In June 2025, 8 landscape designs received a rebate through the MWDOC Turf Replacement Program. To date, a total of 1,166 landscape design and/or landscape maintenance packages have been delivered to MWDOC Turf Replacement Program customers.
Industrial Process/ Water Savings Incentive Program (WSIP)	MWDSC	Ongoing	Ongoing	This program is designed to improve water efficiency for commercial customers through upgraded equipment or services that do not qualify for standard rebates. Incentives are based on the amount of water customers save and allow customers to implement custom water-saving projects. Total water savings to date for the entire program is 1,269 AFY and 11,033 AF cumulatively.
Recycled Water Retrofit Program	MWDSC	Ongoing	Ongoing	This program provides incentives to commercial sites for converting dedicated irrigation meters to recycled water. To date, 194 sites irrigating a total of 1,756 acres of landscape have been converted. The total potable water savings achieved by these projects is 3,901 AFY and 31,502 AF cumulatively.

Public & Governmental Affairs Activities Report
July 9, 2025 – July 29, 2025

Member Agency Support	Public Affairs Staff: • Met with South Coast Water District Public Information Officer to continue planning for the next Member Agency video spotlight Government Affairs Staff: • Distributed the Grants Tracking and Acquisition Report to all participating member agencies and made updates to the distribution list • Provided an update on the Delta Conveyance Project Streamlining Trailer Bill and the Golden Mussels Trailer Bill efforts to the OC Met Managers • Attended the Treated Water Surcharge Member Agency Workshop
Community and Special Events	Public Affairs Staff: • Met with The Metropolitan Water District of Southern California (Metropolitan) to plan for September 12-13 Inspection Trip with Directors Ackerman and Erdman • Began planning for OC Grand Jury Inspection Trip on September 30 • Hosted the Metropolitan's Traveling Art Show in the MWDOC lobby, featuring the 2024 winning posters from Metropolitan's service area Government Affairs Staff: • Coordinated with staff from IRWD for OC Grand Jury Inspection Trip
K-12 Water Education	Public Affairs Staff: • Met with Orange County Department of Education's Inside the Outdoors to discuss potential workshops for water educators • Met with the City of Santa Ana to provide an overview of the MWDOC Choice School programs • Developed a series of social media posts to distribute over the next few months to promote the MWDOC Choice School Programs • Provided El Toro Water District a list of schools in their service area participating in the MWDOC Choice School Programs
Workforce Initiative: Water Energy Education Alliance (WEEA)	Public Affairs Staff: • Participated in Metropolitan's Member Agency Workforce Development working group meeting • Met with a student from San Diego State University interested in public affairs careers in the water industry • Completed the Water Energy Education Alliance (WEEA) year-end report • Facilitated an in-person WEEA Sponsor's meeting hosted at Metropolitan to discuss workforce challenges, successes, priorities, and deliverables for fiscal year 2025-26. Also invited to the discussion were Metropolitan's Coro Fellowship interns. • Met with the California Environmental Education Foundation to discuss WEEA's participation in the annual Teacher Institute ○ Provided draft activities and supplementals for review

	• Reached out to the National Society of Black Engineers, Tomorrow's Talent, and WEEA sponsors to inform them of WEEA's sponsorship of the 2025 OC Water Summit and invite them to start identifying and preparing trade school, community college, and university students for the opportunity to participate • MWDOC's Assistant General Manager provided a MWDOC 101 overview and site tour to Metropolitan's Coro Fellowship interns. MWDOC Public Affairs added water supply outreach and water industry careers to the discussion
Digital Communications, Publications, and Media Engagement	Public Affairs Staff: • Completed several updates for the MWDOC.com website • Developed and distributed social media content across all MWDOC social media channels • Promoted Smart Irrigation Month with social media content featuring MWDOC rebates • Collaborated with Metropolitan to develop a video on the Delta Conveyance Project • Created a webpage for Water Use Efficiency about AB 1572 • Completed the Spray-to-Drip Program Guide for Water Use Efficiency • Supported the promotion of the 2025 OC Water Summit in partnership with Orange County Water District
Special Projects	Public Affairs Staff: • Developed promotional video for Ricky the Rambunctious Raindrop℠ • Met with Metropolitan to plan for a leak detection Autonomous Sensory Meridian Response (ASMR) video reel Governmental Affairs Staff: • Drafted and distributed the WACO Planning Agenda • Staffed the WACO meeting featuring speakers from SoCal Gas • Drafted and distributed the Call for Candidates notice for the ISDOC 3rd Vice President vacancy • Staffed the WACO Planning Committee meeting • Participated in an interview panel with Metropolitan for a senior public affairs representative position with an emphasis on water education

Outreach Metrics	Public Affairs Staff:
	• Google Performance Analytics (GM Report Timeframe)
	  ○ 190 business profile interactions
	  ○ 1,123 people viewed the business profile
	• Website Analytics (GM Report Timeframe)
	  ○ 6,613 pageviews
	  ○ Top pages for this date range
	  ▪ Home Page – 1,211
	  ▪ Residential Rebates – 399
	  ▪ Agendas, Packets, Minutes – 374

	▪ RFPs/RFQs – 297 ▪ Turf Replacement Program – 296 o ocwatersmartparks.com: 9 site sessions • ocwatersmartgardens.com Analytics (June 2025) o 670 Sessions, 507 New Users o Top pages for this date range ▪ Eligible Sustainability Feature Trees ▪ Plant Common Name ▪ Helpful Plant List • Social Media (GM Report Timeframe) *According to Hootsuite – the global leader in social media management –a good engagement rate is between 1% to 5%.* For this period, MWDOC's engagement rate is 3.3% o 10,145 post reach (number of people) ▪ 335 Post engagement (actions taken – likes, shares, etc.)
Legislative Affairs	Governmental Affairs Staff: • Participated in the ACWA Region 10 State Legislative Committee prep meeting • Attended the CMUA Regulatory Committee meeting • Participated in the CMUA Legislative Committee meeting • Participated in the CSDA Brown Act Working Group meeting • Attended the CCEEB Summer Issues Seminar • Attended the CMUA Advanced Clean Fleets Working Group meeting • Participated in the Golden Mussels Working Group meeting