



WaterReuse California  
ANNUAL CONFERENCE  
**2021**

# Eastern Municipal Water District Equitable Recycled Water Expansion Through Principles, Policies and Fees

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BUILDING A RESILIENT FUTURE TOGETHER

# Today's Talk

- EMWD Background
- Recycled Water Distribution Study
  - Distribution System Analysis
  - Guiding Principles and Key Policy Proposals
  - Adopted Administration Code Changes
- Fee Considerations and Financial Analysis
- Next Steps

## EMWD Background

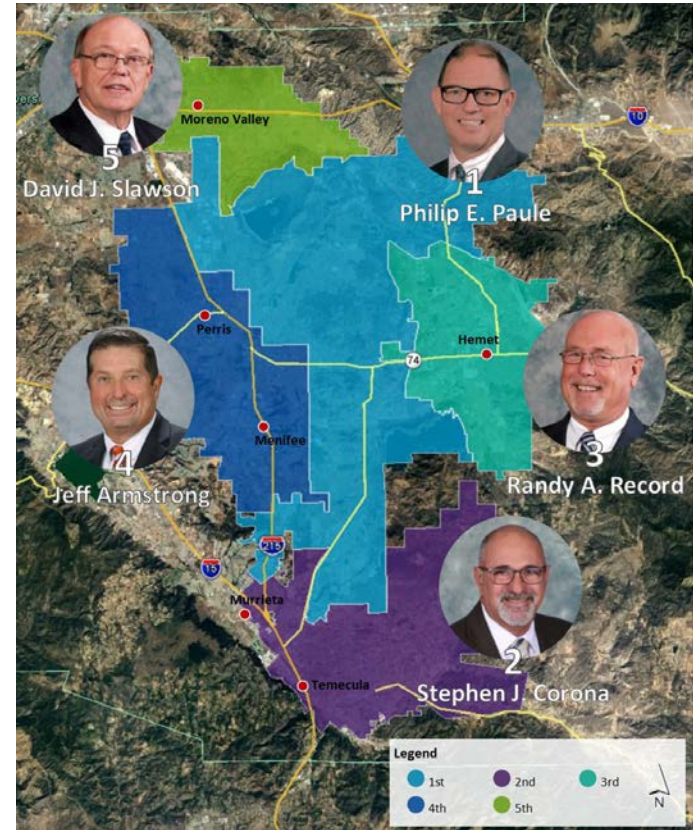
# Eastern Municipal Water District

- Moreno Valley to Temecula
- Seven cities and unincorporated Riverside County
- One of 26 member agencies of The Metropolitan Water District of Southern California (MWD)
- EMWD Representative to MWD:
  - Randy Record



# Eastern Municipal Water District

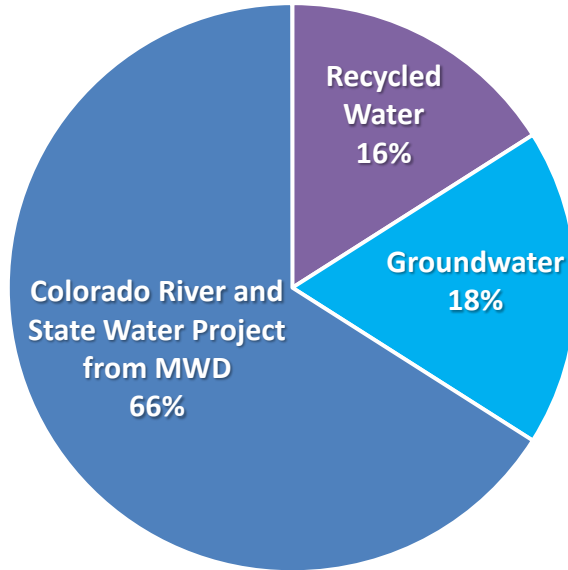
- Five division publicly-elected Board of Directors
- More than 600 employees
- Annual operating budget of \$325 million for FY 2020-21
- Five-year capital program of \$450 million for FYE 2021-25
  - More than 170 active capital projects
- Sixth largest public water utility in California



# Water Supply Portfolio – 1990 and 2020

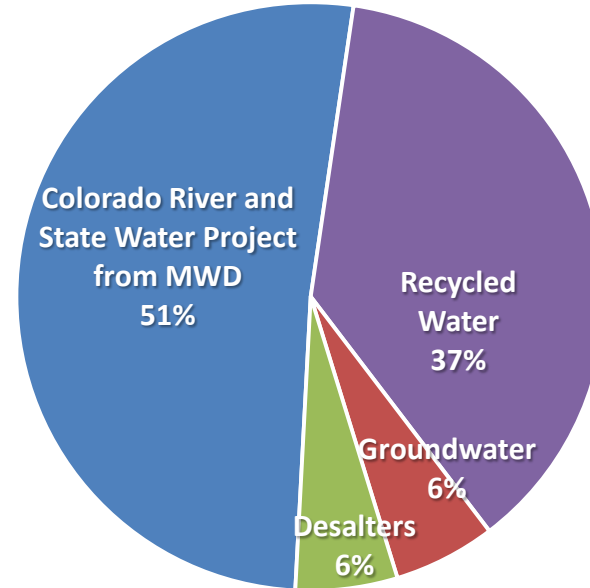
1990

Population served: 358,000



2020\*

Population served: 850,000



\*Total Water Supply: 135,008 AF per EMWD Comprehensive Annual Financial Report, FYE 2020



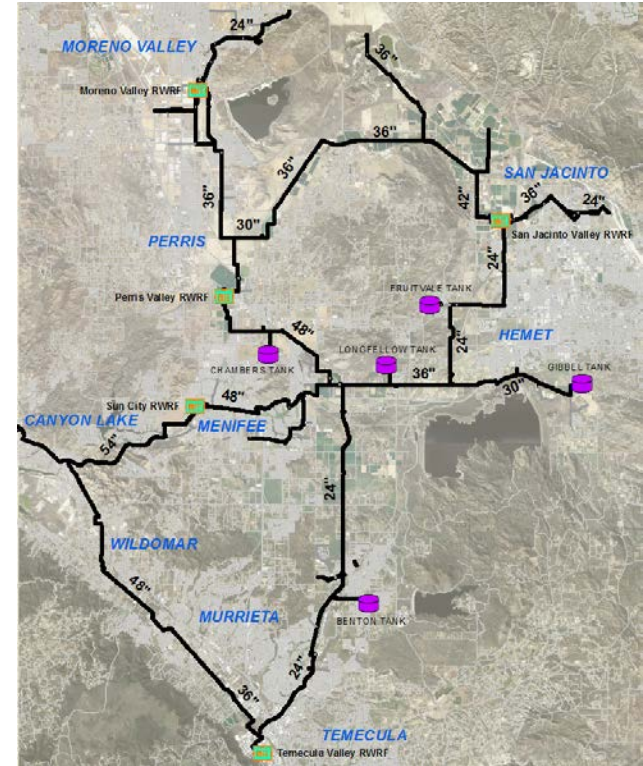
# EMWD Recycled Water Program History

- **1960's:** Treated effluent disposed through on-site percolation/evaporation ponds
- **1966:** Began marketing recycled water to local farmers for irrigation of feed and fodder crops
- **1991:** Received funding through the United States Bureau of Reclamation to develop a recycled water transmission system
- **2003:** Initial system pressurization
- **2008:** Received funding through USBOR to stabilize recycled water system
- **Today:** EMWD is an industry leader in the use of recycled water



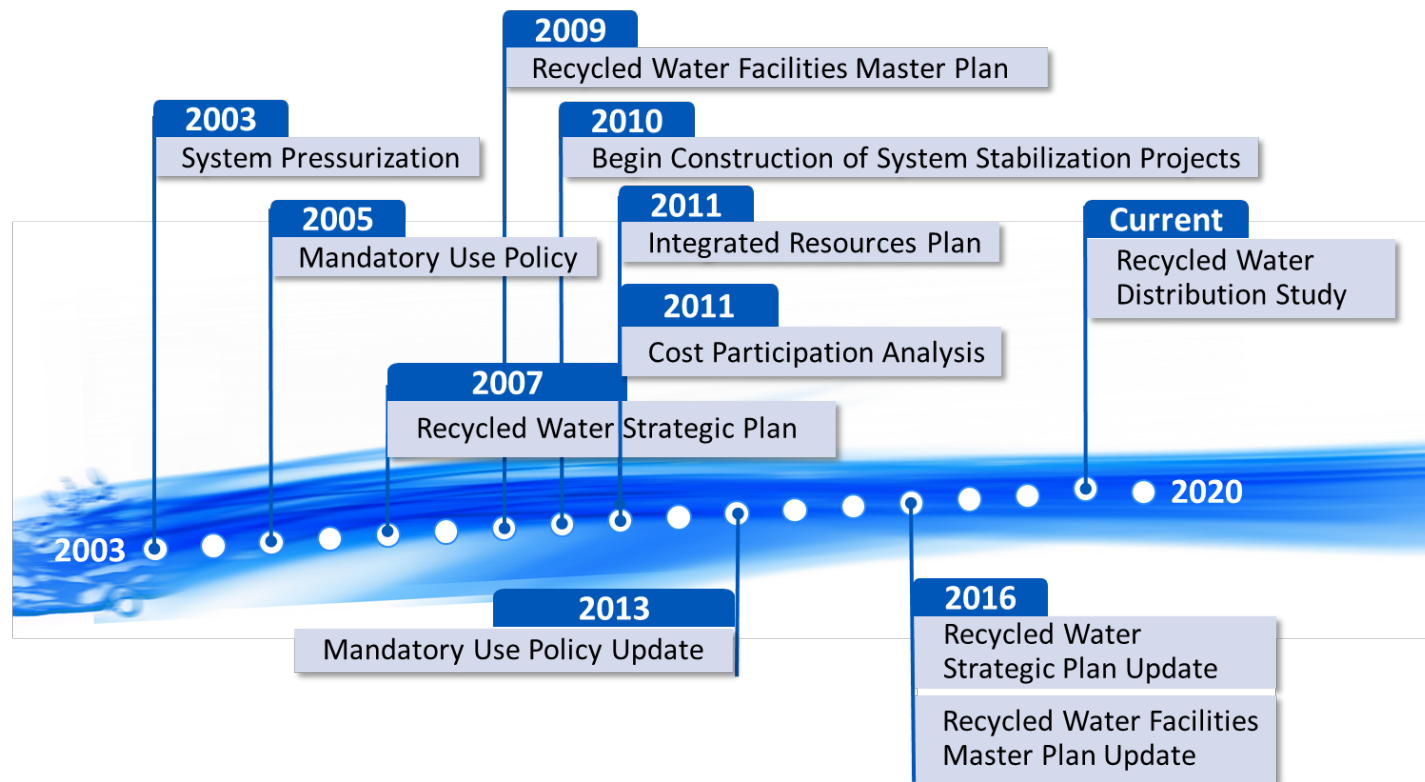
# Current Recycled Water System

- \$220 million in capital investments
- 225 miles of recycled water pipeline
- 7,900 AF of seasonal storage
- Four pressure service zones consisting of:
  - 19.5 MG of elevated storage
  - Six booster pump stations
  - Eight pond pump stations





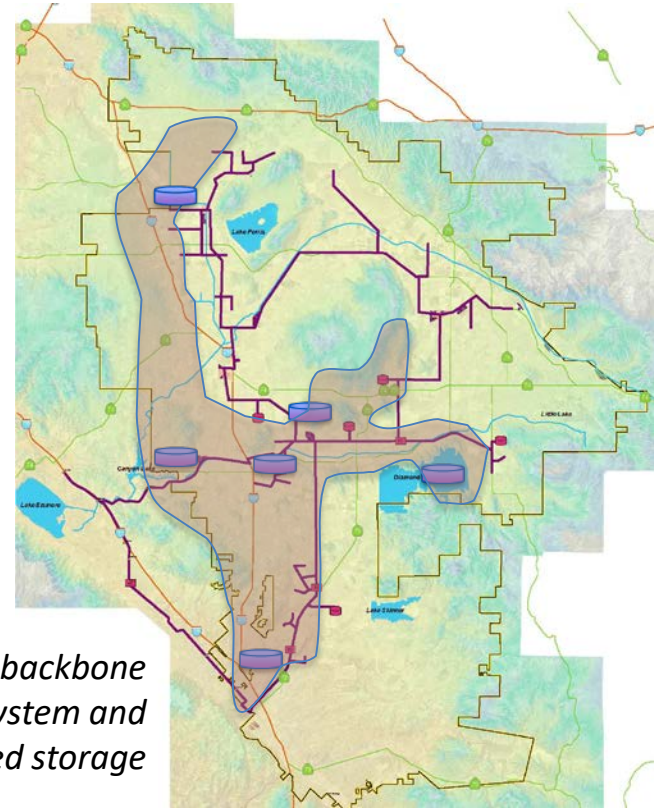
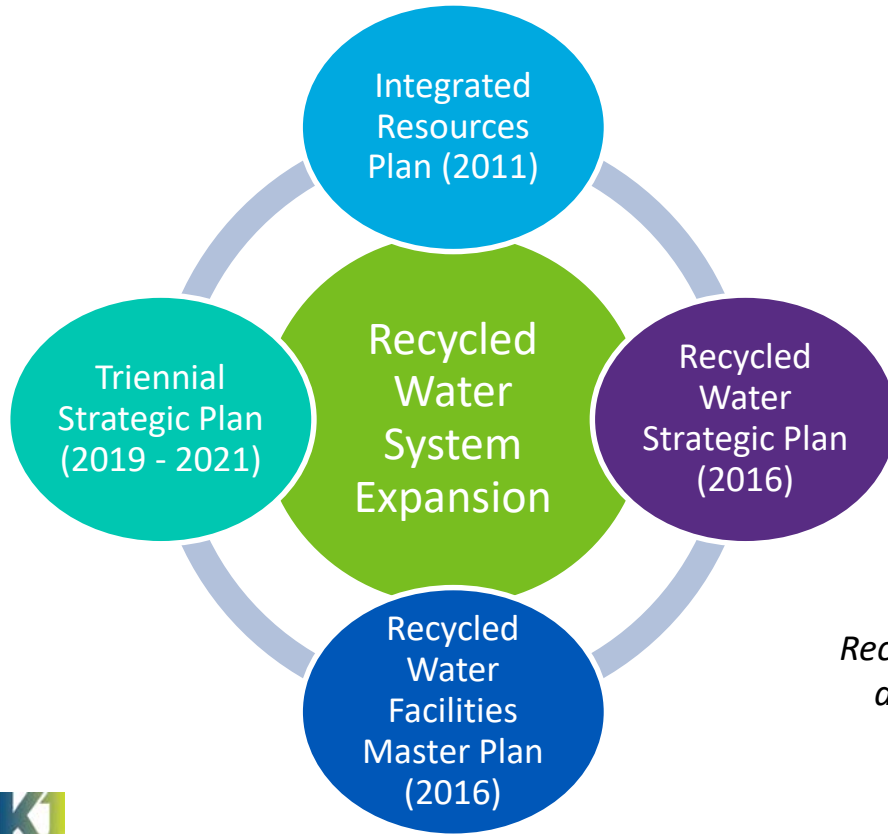
# Recycled Water System Expansion Initiatives



**Consistent Goal:**  
Maximize Beneficial Reuse

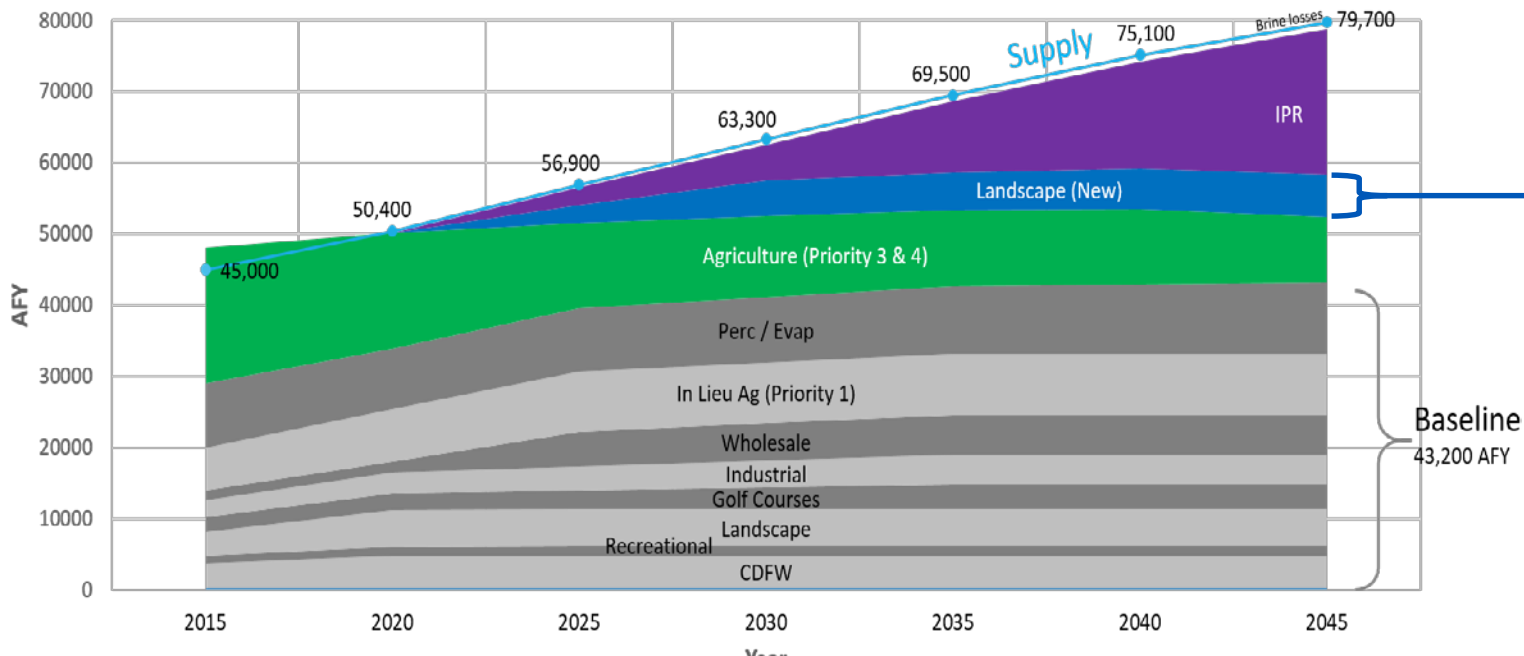
**Consistent Approach:**  
Improve system reliability and level of service

# Recycled Water System Expansion Guiding Documents



*Recycled Water backbone  
distribution system and  
elevated storage*

# Future Recycled Water Demand Projections



*New Landscape Demands identified in the 2016 Recycled Water Strategic Plan – 8,000 AF*

# Strategic Evolution of the Mandatory Use Policy

2005 – Ord 68.2

- All landscape requests
- Within 1-mile of pipeline

*Resulted in overly broad requirements for recycled water use in new development areas*

2013 – Admin Code

- Approved uses
- Over GW basins suitable for RW use

Practice Prior to RW Distribution Study

Review criteria applied to potential sites including:

- Demands
- Proximity to pipelines
- Type of use

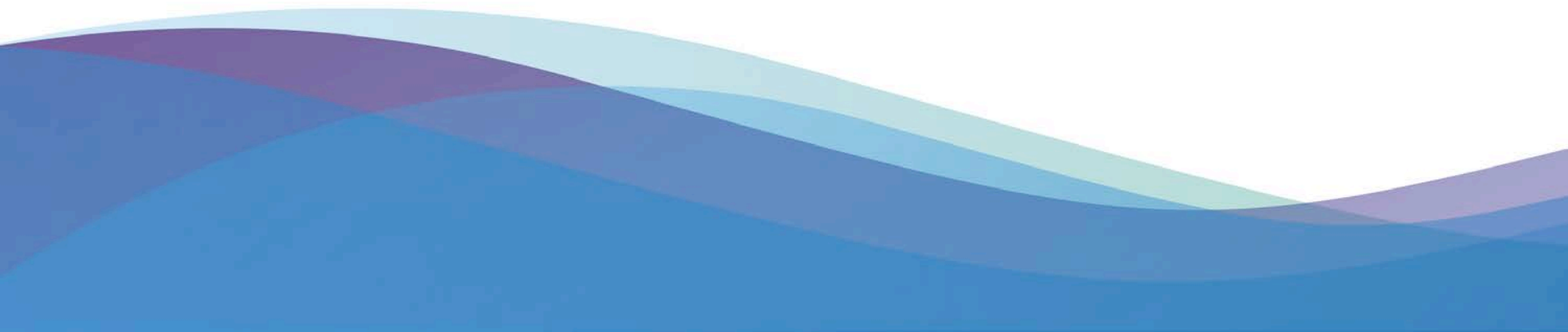
# Recycled Water Distribution Study Goals

1. **Allocate** the available recycled water supply for landscape irrigation consistent with prior recycled water plans
2. **Streamline** the recycled water conditioning process by defining areas that are required to utilize recycled water and identifying distribution system expansion requirements
3. **Recommend** necessary associated policy updates





# Recycled Water Distribution Study





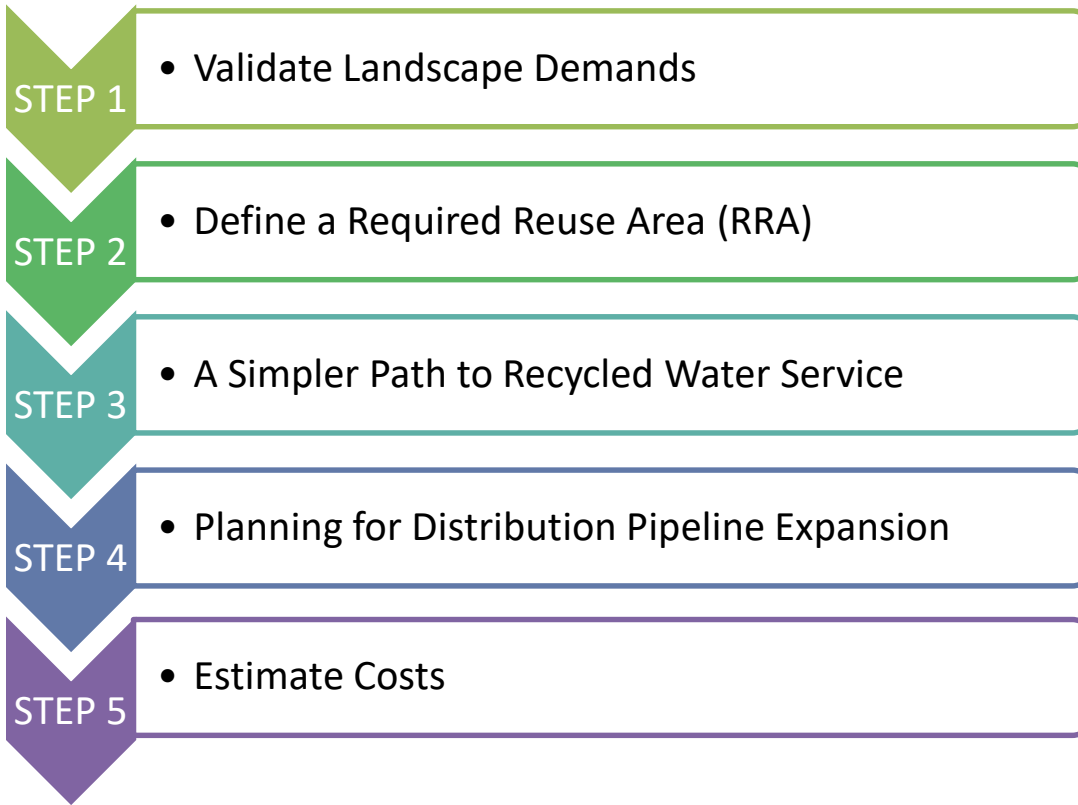
# Inter-Department Collaboration was Key to Success

- **Participants:**
  - Engineering, Development Services, Operations, Environmental Regulatory Compliance and Finance Departments
- **Defining Program Need:**
  - RW system, standards and planning requirements were not clearly defined to developers.
  - Conditioning process for recycled was lengthy, uncertain and sometimes costly;
  - Discrepancies across different studies in terms of common language and terms;
  - Admin Code not sufficient to empower staff;



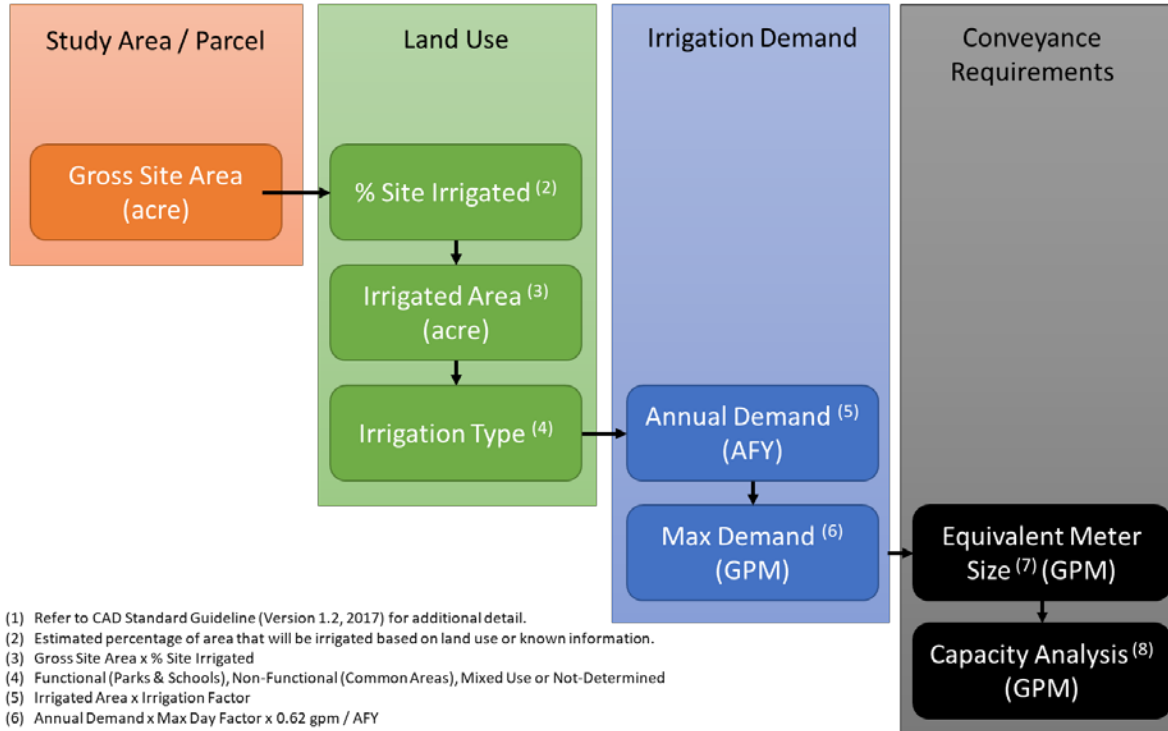
# Recycled Water Distribution Study: Distribution System Analysis

# 5-STEP Distribution System Analysis



# STEP 1: Validate Landscape Demands

## Recycled Water Use Plan (RWUP) Study Area Demand<sup>(1)</sup>



(1) Refer to CAD Standard Guideline (Version 1.2, 2017) for additional detail.

(2) Estimated percentage of area that will be irrigated based on land use or known information.

(3) Gross Site Area x % Site Irrigated

(4) Functional (Parks & Schools), Non-Functional (Common Areas), Mixed Use or Not-Determined

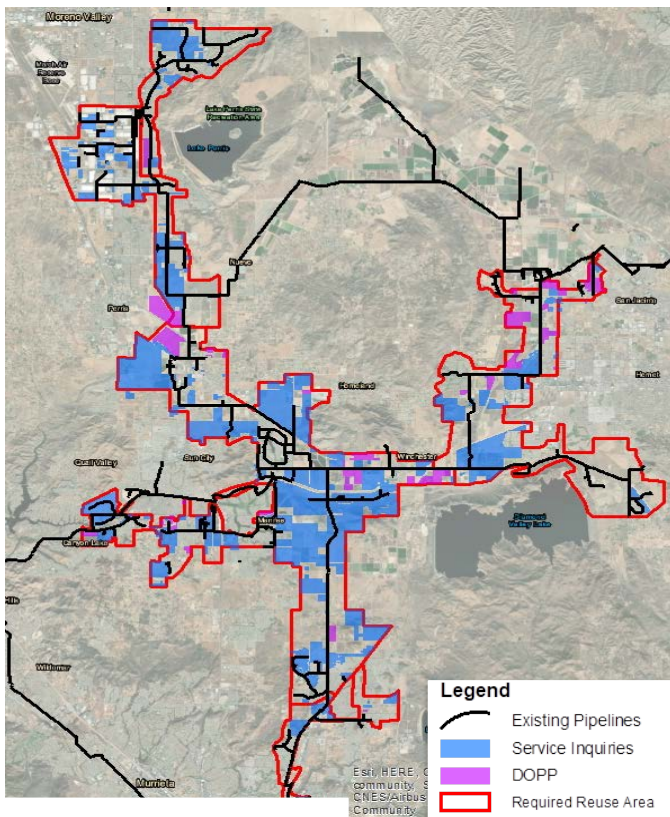
(5) Irrigated Area x Irrigation Factor

(6) Annual Demand x Max Day Factor x 0.62 gpm / AFY

(7) The size of the meter that should be installed to meet demand

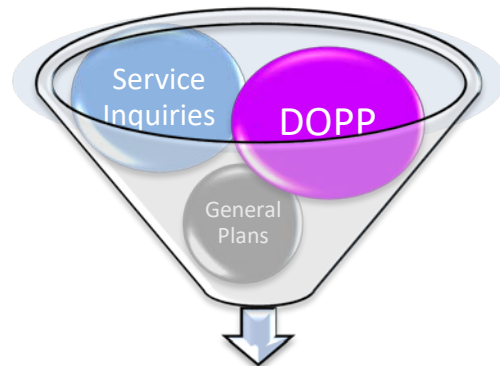
(8) Max Demand x 1.5

## STEP 2: Define a Required Reuse Area (RRA)



**Goal: Efficient distribution of RW for landscape irrigation**

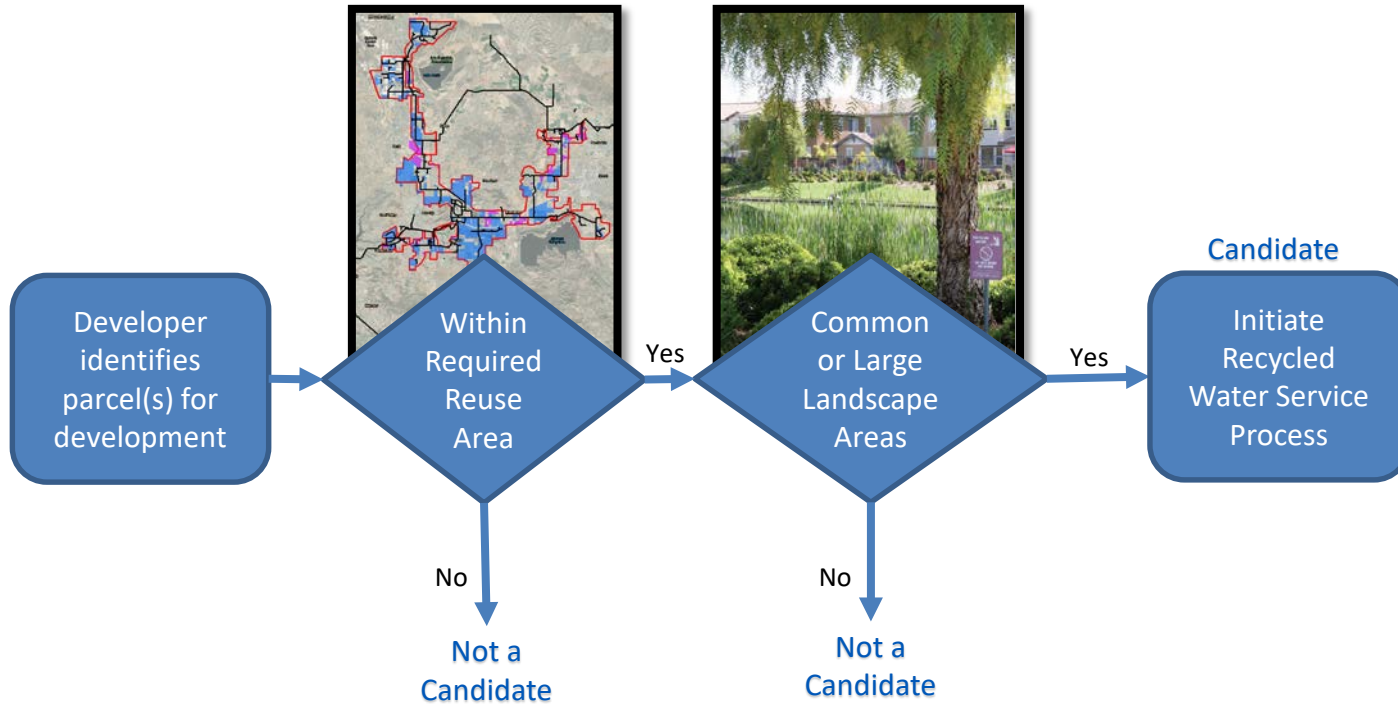
- Highest level of service
- Minimal distribution system costs



**Required Reuse Area (RRA)**

- Essentially a Mandatory Use zone
- Creates a concentrated and contiguous reuse area
- Clearly communicates expectations to developers
- Can be reviewed and updated as development evolves

## STEP 3: A Simpler Path to Recycled Water Service





# STEP 4: Planning for Distribution Pipelines Expansion

## STUDY STEPS

Pipeline Classification

Preferred Alignments

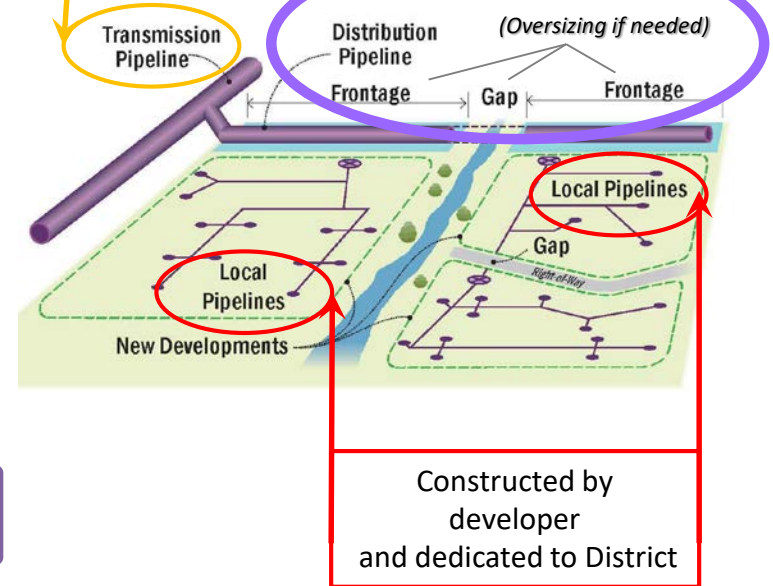
Demands and Hydraulics

Sizing Requirements

Cost Projection

Focus of 2016 RWFMP

Focus of this Study



## STEP 5: Estimate Costs

$$\begin{array}{ccccccc} \text{Pipeline Cost} & = & \text{Construction} & + & \text{Contingency} & + & \text{Soft Costs} \\ & & \text{Unit Cost} & & & & \\ & & \$16/\text{"-dia-LF} & & @30\% & & \text{District @35\%} \\ & & \text{(e.g. 8"-dia = \$128/LF)} & & & & \text{Developers @20\%} \end{array}$$

### Estimated Unit Costs:

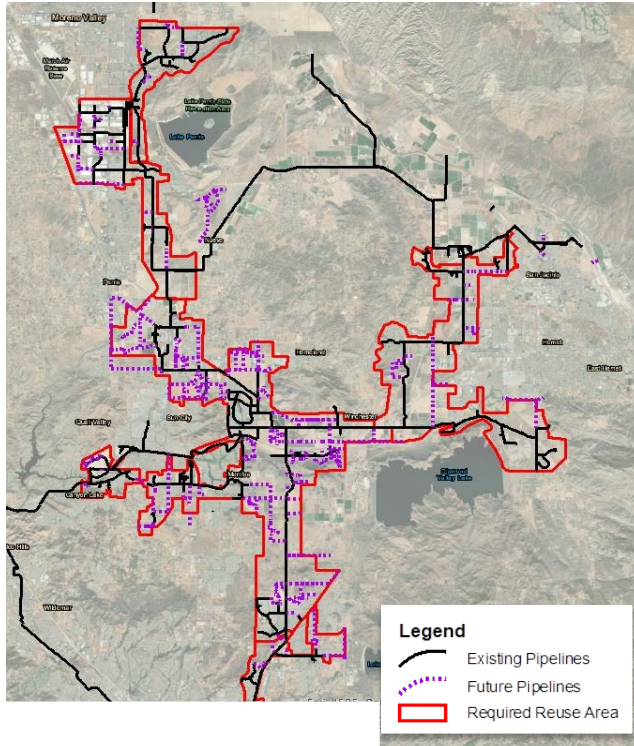
- District Open Cut Pipeline = \$26/"-dia-LF
- Developer Open Cut Pipeline = \$24/"-dia-LF
- Trenchless = \$1,900/LF

### Pipeline Sizing & Cost Estimating Approach:

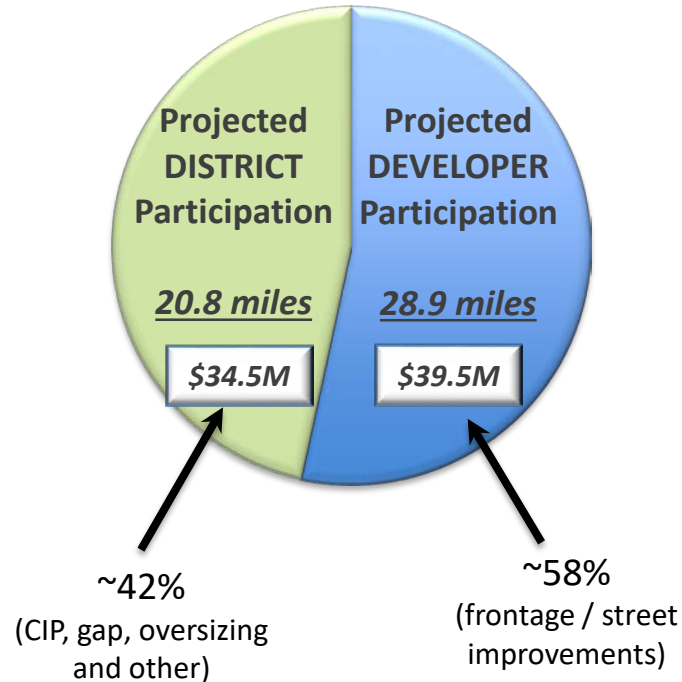
- Identify Proposed (In Process Pipelines) + Future Pipelines (Short- and Long-Term)
- Size based on estimated demands and maximum pipelines velocity
- Size x Unit Cost = Capital Cost (2019\$)

# OUTCOME: 2045 Distribution Pipeline Requirements

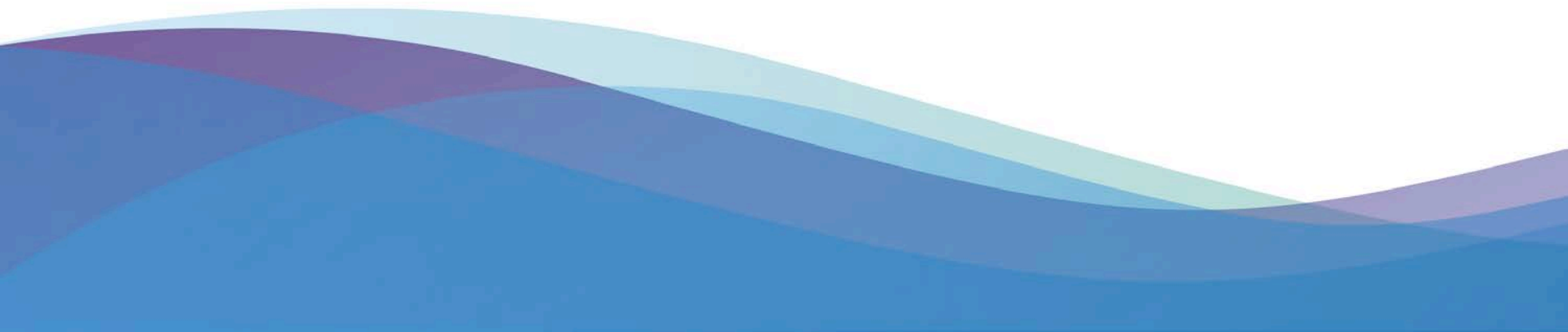
To meet RW strategic planning objectives:  
~ 50 miles of future pipeline (8" to 18" dia)



## Distribution Pipeline Participation (Sharing the level of investment)



# Recycled Water Distribution Study: Guiding Principles and Key Policy Proposals



# Guiding Principles | Triennial Strategic Plan (2019-21)

## Relevant to Policy Proposals for Distribution System Expansion

- **Leadership:** EMWD places highest the value on recycled water
- **Innovation:**
  - ✓ Strategic distribution expansion strategy improves recycled water service.
  - ✓ Streamlining the conditioning process improves customer service.
- **Transparency:** RW Policy updates are intended to fairly distribute costs for NPR expansion, reflecting:
  - ✓ Developers as partners in the recycled water program
  - ✓ District as a partner in distribution expansion
  - ✓ Benefits to the greater service area

# Four Key Policy Proposals

## A.Required Reuse Area

- New developments in RRA with common landscape are candidates for recycled water

## Frontage Pipelines

- Developers are required to construct frontage segments

## Oversized Pipelines

- Cost reimbursement defined in the Admin Ordinance;
- Align with potable water policy, where appropriate.

## Gap Pipelines

- Developer construct w/ required street improvements or option to extend
- Cost reimbursement defined in the Admin Ordinance;
- Align with potable water policy, where appropriate.





# Recycled Water Distribution Study: Adopted Administrative Code Changes

# Recommended Policies and Supporting Principles

Component	Policy Proposal	Supporting Principles
Required Reuse Area (RRA)	<ul style="list-style-type: none"> <li>New developments in RRA with common landscape are candidates for recycled water.</li> </ul>	<ul style="list-style-type: none"> <li>Recycled water is a value resource.</li> <li>Required reuse in RRA saves money.</li> <li>Entire service area benefits from reuse.</li> </ul>
Distribution Pipeline Expansion	<ul style="list-style-type: none"> <li>Developers are required to construct frontage segments.</li> <li>Developer construct within required street improvements.</li> <li>Cost reimbursement to align with potable water policy, where appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Transparency and clarity through a streamlined process for developers.</li> <li>Developers are partners with equitable contribution to facility costs. District are partner to cover added facility costs, funded by greater service area.</li> </ul>

✓ ***Codify the RRA into Administrative Code***

✓ ***Approval to use **Distribution Pipeline Expansion Policy and Principles** as basis for conditioning development***

# Administrative Code Adopted Resolutions

*Board Meeting April 15, 2020: Adopt a Proposed Resolution of the Board of Directors of Eastern Municipal Water District Amending the EMWD Administrative Code Regarding Recycled Water Use Requirements*

Resolution 2020-062 on April 15, 2020

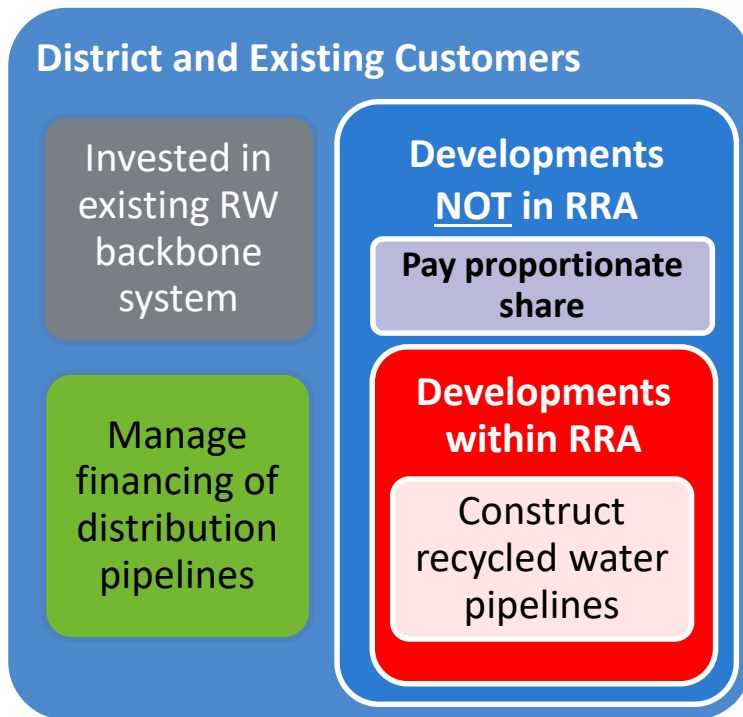
- **TITLE 5 - Potable Water Service, ARTICLE 6 – Water Conservation**
  - **5.602 Recycled Water Use** - Amended to define RRA (subsection (d))

# Fee Considerations and Financial Analysis

*(Presented ideas to be refined and implemented by Finance Department)*



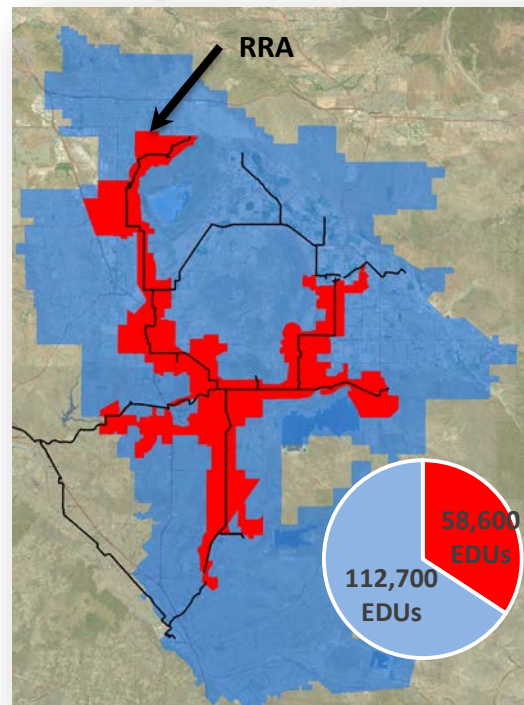
# GOAL = Equity between District, Customers and Developers



***Growth Manages Growth***

***Fees = growth funding and equity mechanism***

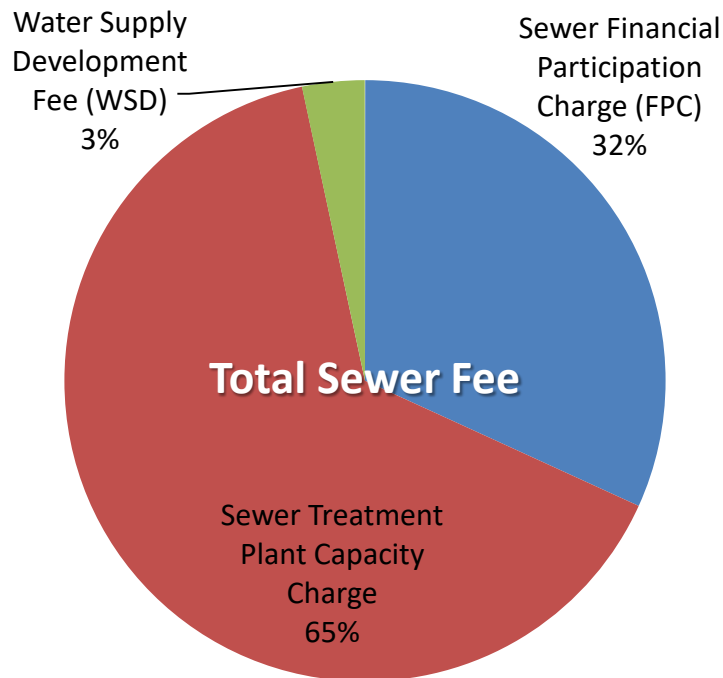
***171,300 Projected New Sewer Equivalent Dwelling Units (EDU) thru 2045***



# Current Sewer Fee for New Developments

**Need:** An adjustment/increase to fund RW distribution pipeline expansion

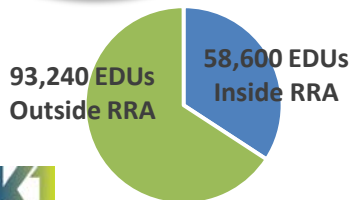
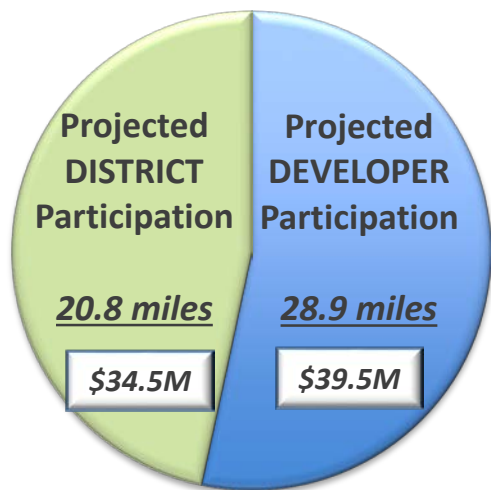
**Proposal:** Increase or add a new fee for recycled water to advance development of the entire distribution system.





# Illustration: Proportionate Share Allocation

## Simple Math Example



	Inside RRA <i>(Relative cost to build)</i>	Outside RRA <i>(Relative cost to participate)</i>
Total Cost	\$39.5M <i>(Developer Participation)</i>	\$34.5M <i>(District Participation)</i>
# of EDUs <sup>1</sup>	58,600	93,240
Cost \$/EDU	\$675/EDU <sup>3</sup>	\$372/EDU <sup>2</sup>

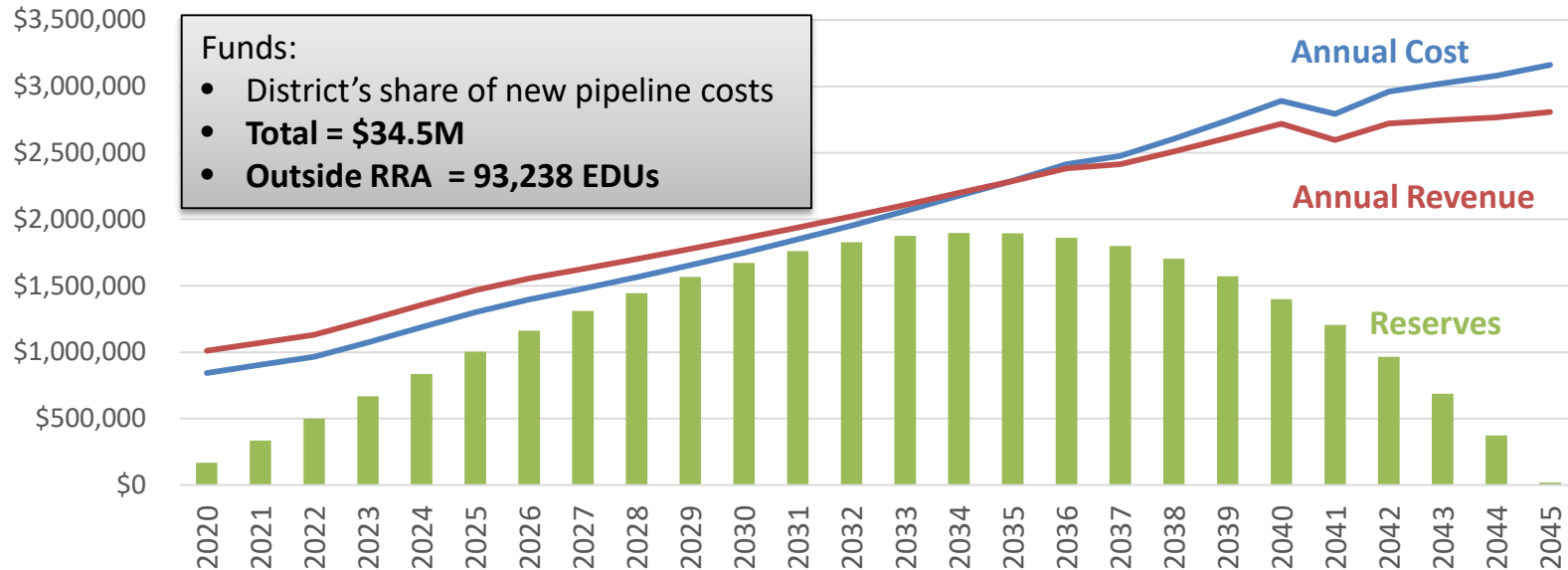
<sup>1</sup> Equivalent Dwelling Unit = Is the unit of measure by which the user is charged for sewer services provided by. This example does not include EDUs overlapping with the RCWD service area.

<sup>2</sup> Subject to further study as part of the ongoing FPC study

<sup>3</sup> Represents relative costs incurred by developments in the RRA to construct recycled water facilities. Important to also recognize other benefits associated with reuse (no capacity fees, lower water rates, etc.)

# Example of an Additional Fee for New Developments Not Connecting to Recycled Water

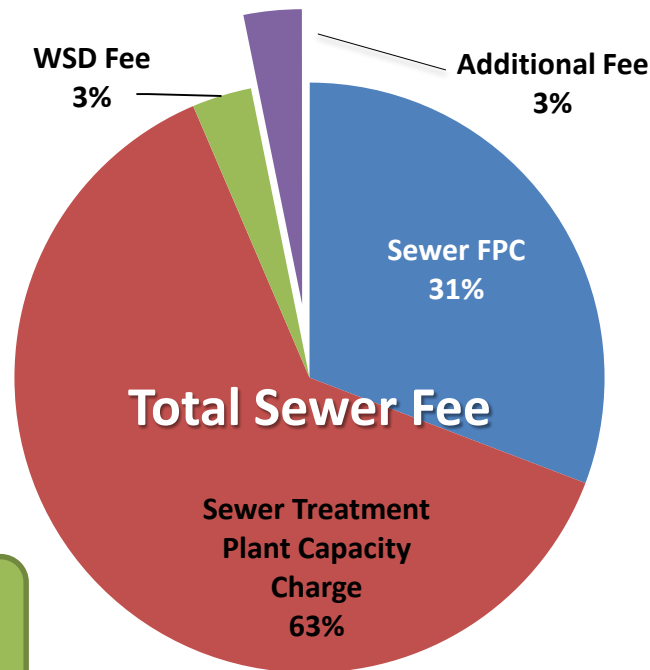
Future Cash Flow  
Additional Fee = \$372/EDU, 1.4% Annual Increase



## This Example Reflects a Small Impact of an Additional Fee

- Additional fee would only apply to New Developments that do NOT connect to RW
- Recognize added benefits of RW expansion (for all)
  - ✓ Reduced sewer discharge costs
  - ✓ Offset high cost of new potable supplies
  - ✓ Increases water reliability
  - ✓ Operational savings
  - ✓ Supports growth

**Proposal:** Provides a fair, equitable and transparent approach to fund recycled water expansion



# Recycled Water Distribution Study Key Outcomes

1. **INSTITUTIONAL OUCOMES:** Inter-departmental communication was critical to aligning policy proposals with District-wide strategic planning objectives and implementing Admin Code Changes.
2. **ENGINEERING OUCOMES:** Validated demands, confirmed hydraulics, and streamlined tools/processes to maintain high level of service for non-potable expansion and support future potable reuse.
3. **FINANICAL OUCOMES:** Identified an equitable approach to cost sharing based on the foundation that “growth manages growth”.

# Recycled Water Distribution Study Parting Message

This Study conveys the message to staff, executive management and the Board that ....

- ✓ *In **PRINCIPLE**, we are all in this together.*
- ✓ *In **POLICY**, we can develop an equitable approach to cost sharing.*
- ✓ *Through **FEES**, we are able to implement.*



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# THANK YOU

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