

# Flushing Out The Facts: Are Toilet Conservation Programs Still Worth It?



Anya Kamenskaya, East Bay Municipal Utility District  
Justin Burks, Santa Clara Valley Water District  
Debby Dunn, San Diego County Water Authority  
Moderator: Justin Finch, Moulton Niguel Water District



# Flushing Out The Facts: Are Toilet Conservation Programs Still Worth It?

## Panelists

## Moderator



**Anya Kamenskaya**  
Water Conservation  
Representative  
East Bay  
Municipal Utility District



**Justin Burks**  
Senior Water Conservation  
Specialist  
Santa Clara Valley  
Water District



**Debby Dunn**  
Senior Water Resources  
Specialist  
San Diego County  
Water Authority



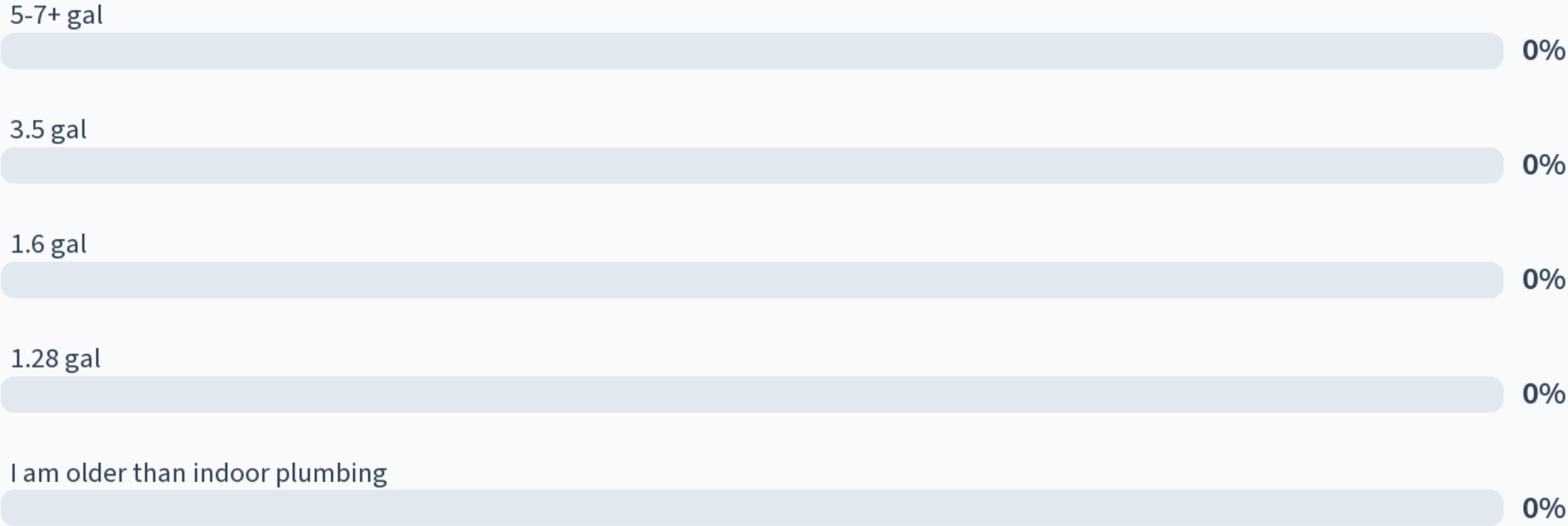
**Justin Finch**  
Water Efficiency  
Manager  
Moulton Niguel  
Water District



# Audience Poll – WHAT WAS YOUR ‘TOILET FLUSH VOLUME’ ERA?



# In my Toilet Flush Era : What was the standard toilet flush volume the year you graduated high school?



# Our Approach

*Four pillars driving meaningful outcomes*



# Adaptive Management Cycle

**Plan**  
(AWWA M52: Ch 2, 4, 5)



**Adjust**

**Implement**  
(AWWA M52: Ch 7)

**Evaluate**  
(AWWA M52: Ch 3,7)  
(CalWEP M&V Manual)

**Phase Out**

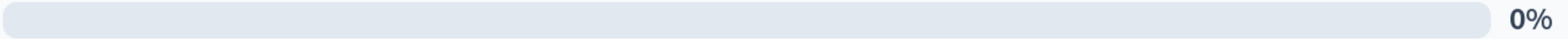


# Audience Poll – WHAT KIND OF WATER NERD ARE YOU?

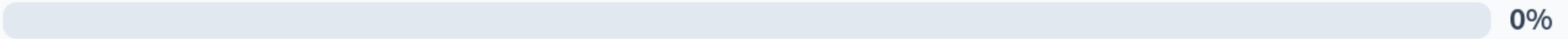


## What kind of Water Nerd Are You?

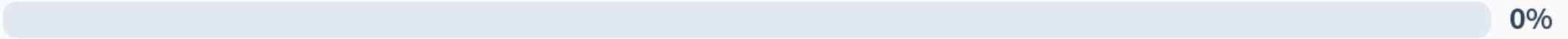
GIS nerd



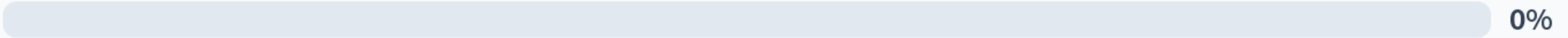
Data nerd



Policy nerd



Plumbing nerd



Plant nerd



Communications nerd



I'm just here for the CEUs

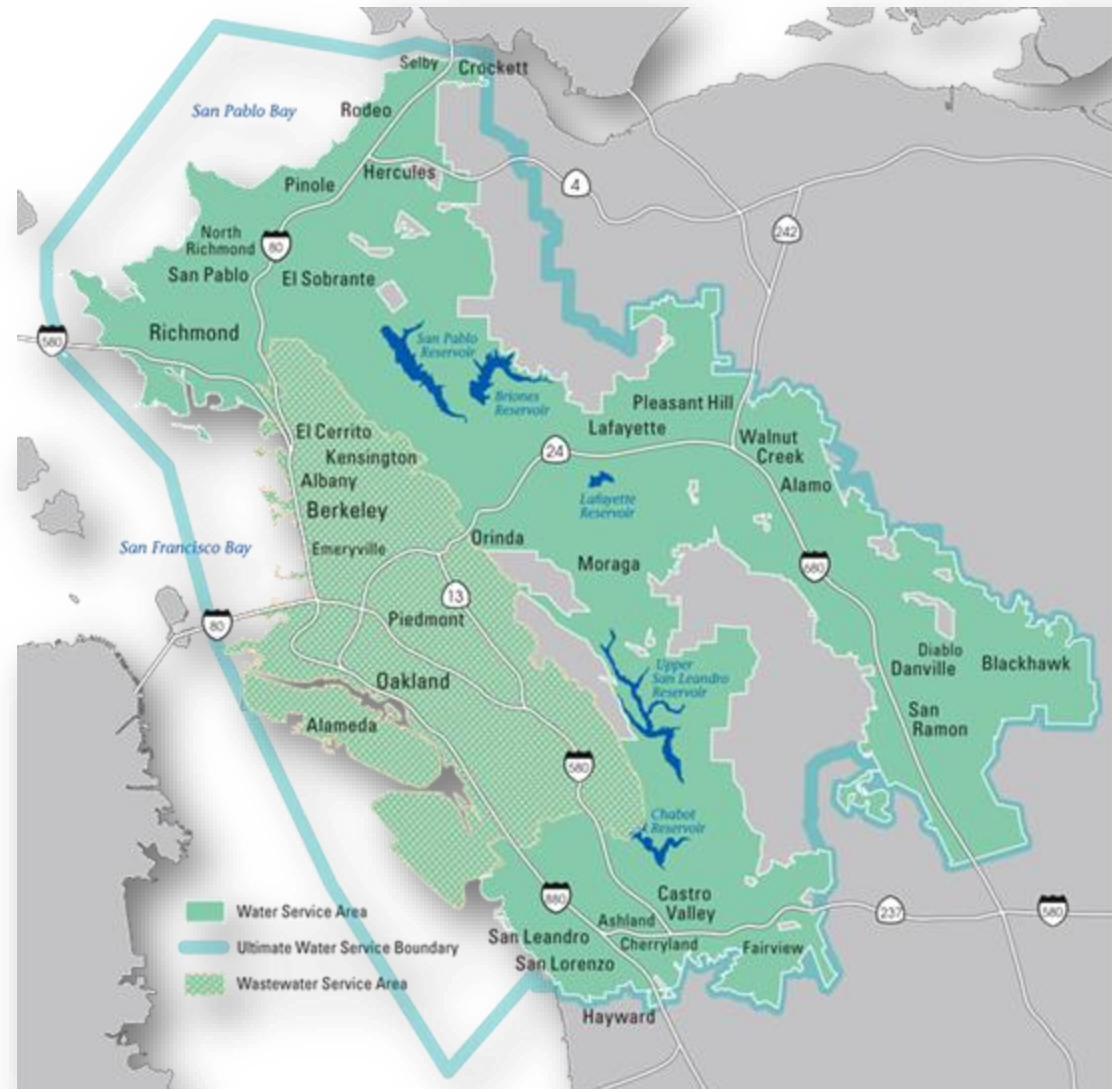




**Anya Kamenskaya**  
Water Conservation Representative  
East Bay Municipal Utility District

# EBMUD Water & Wastewater Service Areas

- Multi-jurisdiction Special District w/publicly elected board
- Alameda & Contra Costa Counties in SF Bay Area of CA
- 1.4 million water customers
  - ~330K SFR connections
- 740,000 wastewater customers
- > 4,200 miles of pipe



# Toilet Regulation History

## Energy Policy Act of 1992 & 2005

- By Jan 1, 2005, all property types must install a ULFT (max 1.6 GPF)

## California Assembly Bill 715

- 100% of sold or installed toilets must be a HET (max 1.28 GPF) to be implemented on or after January 1, 2014.

## California State Bill 407

- All noncompliant plumbing fixtures must be replaced by the property owner with water-conserving plumbing fixtures.
  - For single-family properties, compliance date is January 1, 2017.
  - For multi-family and commercial properties, compliance date is January 1, 2019.

## Role of WaterSense

- Influence on code



# EBMUD Toilet Rebate History

**1994: EBMUD is one of the first water agencies in California to start offering toilet rebates.**

- 1.6 GPF (at the time, this was considered ULFT)
- Started with a \$200 incentive/device --> graduated to a \$50 incentive several years in
- Program sunset Jan 1, 2017, when CA SB 407 goes into law

## **Program numbers:**

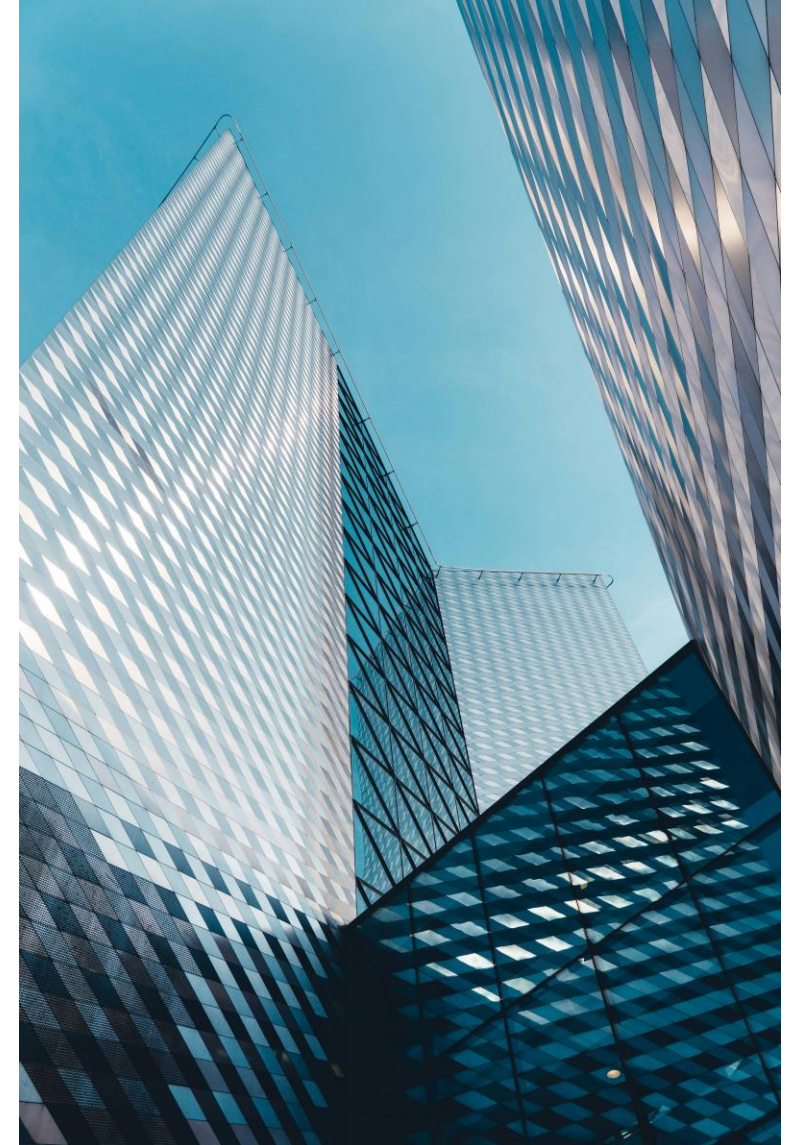
- 22GPD estimated toilet replacement savings for single-family homes
- 16-48GPD estimated commercial water savings, depending on property type
- 60,000+ toilets rebated during program with an estimated \$3.2 million in rebate cost.



# EBMUD Toilet Rebates in 2026

## Rebate lives on for commercial customers

- To incentivize upgrading the ~18% of non-compliant toilets and support water conservation equity
- Capture the entire water savings based on the existing toilet GPF
  - Eg: if the existing toilet is 3.5 GPF and the new toilet is 1.28 GPF, the customized rebate amount will be based on these amounts.
- Incentive operates thru EBMUD's Customized Rebate Program



# Lessons Learned

- Technology must be backed by performance standards
- Direct installation for SFR properties can come with baggage
- Keeping Board apprised with frequent updates on relevant law, studies, program performance = program acceptance
- Market saturation = customer acceptance at program conclusion



# Contact us:

[akamensk@ebmud.com](mailto:akamensk@ebmud.com)

**Anya Kamenskaya**



Flowing  
into the  
Future

# Audience Poll – IS YOUR TOILET PROGRAM CURRENTLY...



**STABLE**



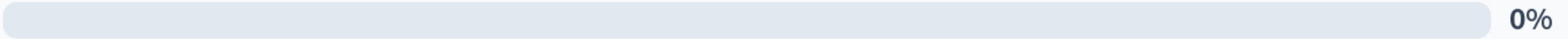
**THRIVING**



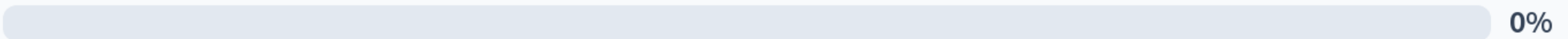
**RETIRED**

## Is your agency's toilet program currently...

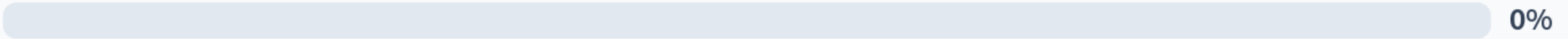
#Thriving



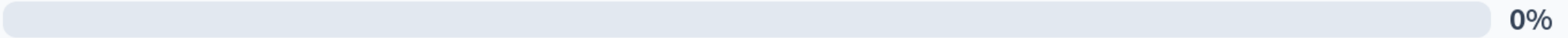
Stable



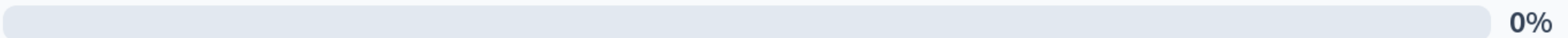
Targeted only



On life support



Retired



It depends who you ask ;-)





**Justin Burks**  
Senior Water Conservation Specialist  
Santa Clara Valley Water District



# Let's talk about Toilets

**Justin Burks**

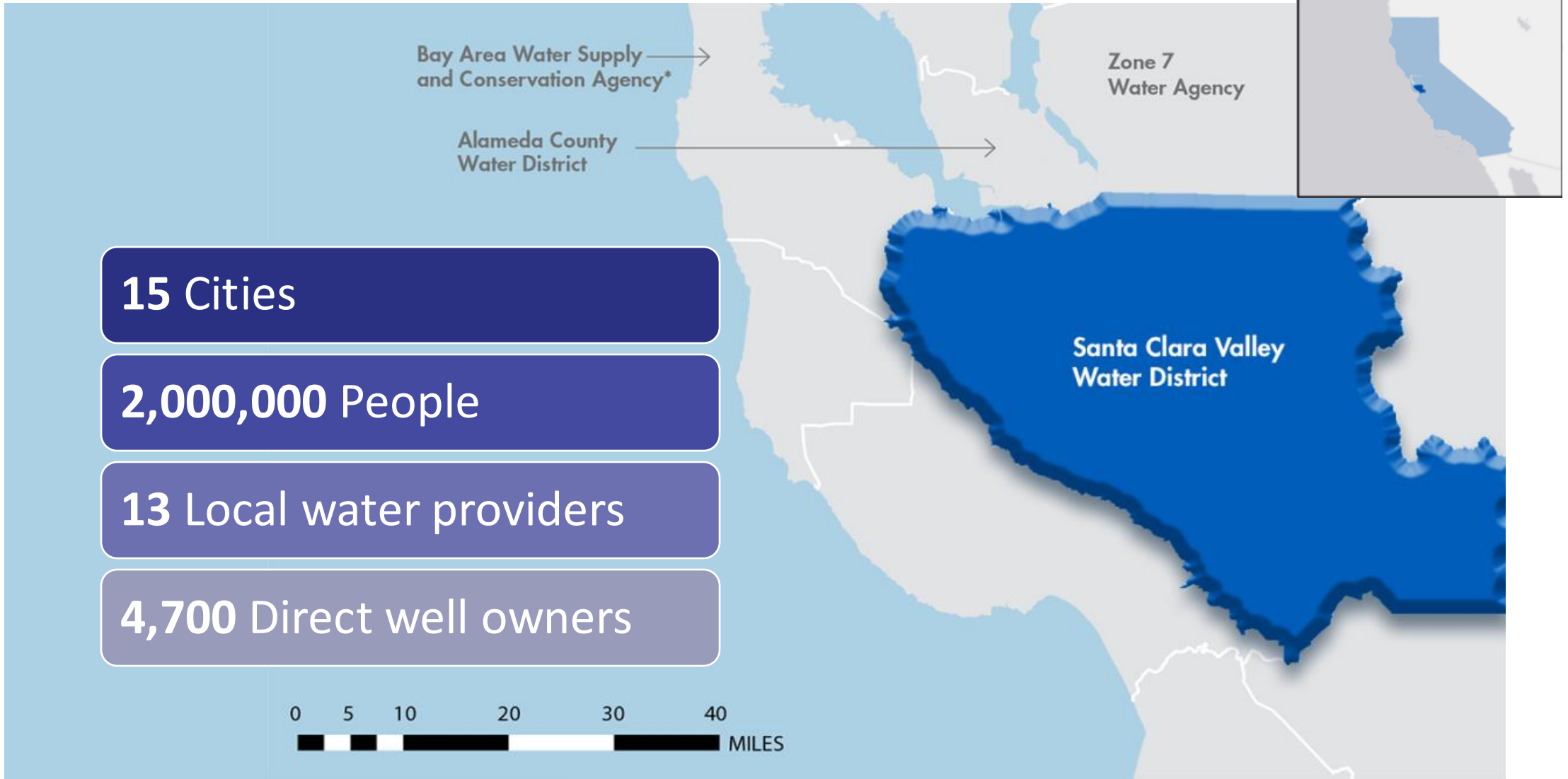
Sr. Water Conservation Specialist  
Valley Water

CalWEP Peer to Peer 2026



# Valley Water: Who We Serve

1



15 Cities

2,000,000 People

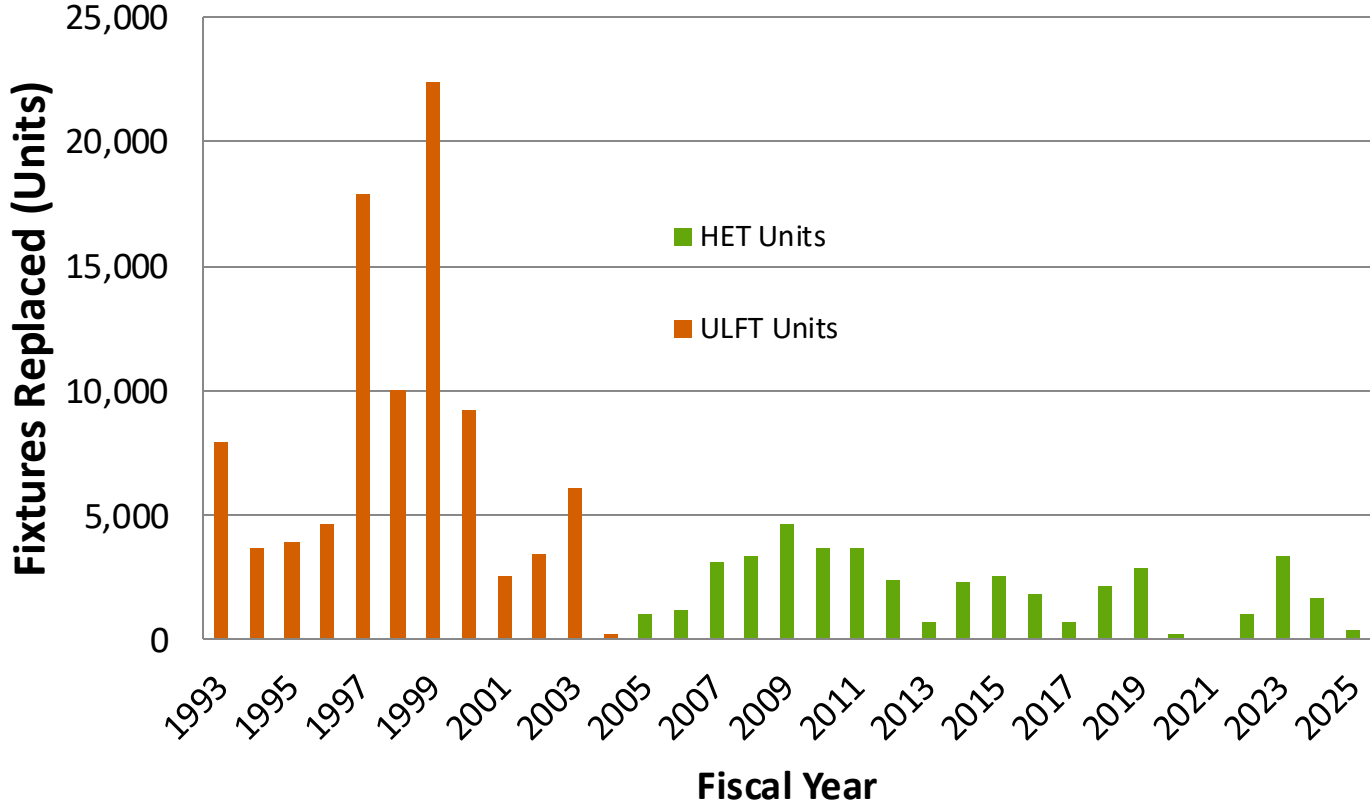
13 Local water providers

4,700 Direct well owners

valleywater.org

# Participation: CII and MF Toilets

Annual Fixture Participation: ULFT & HET Programs | 1992–2025

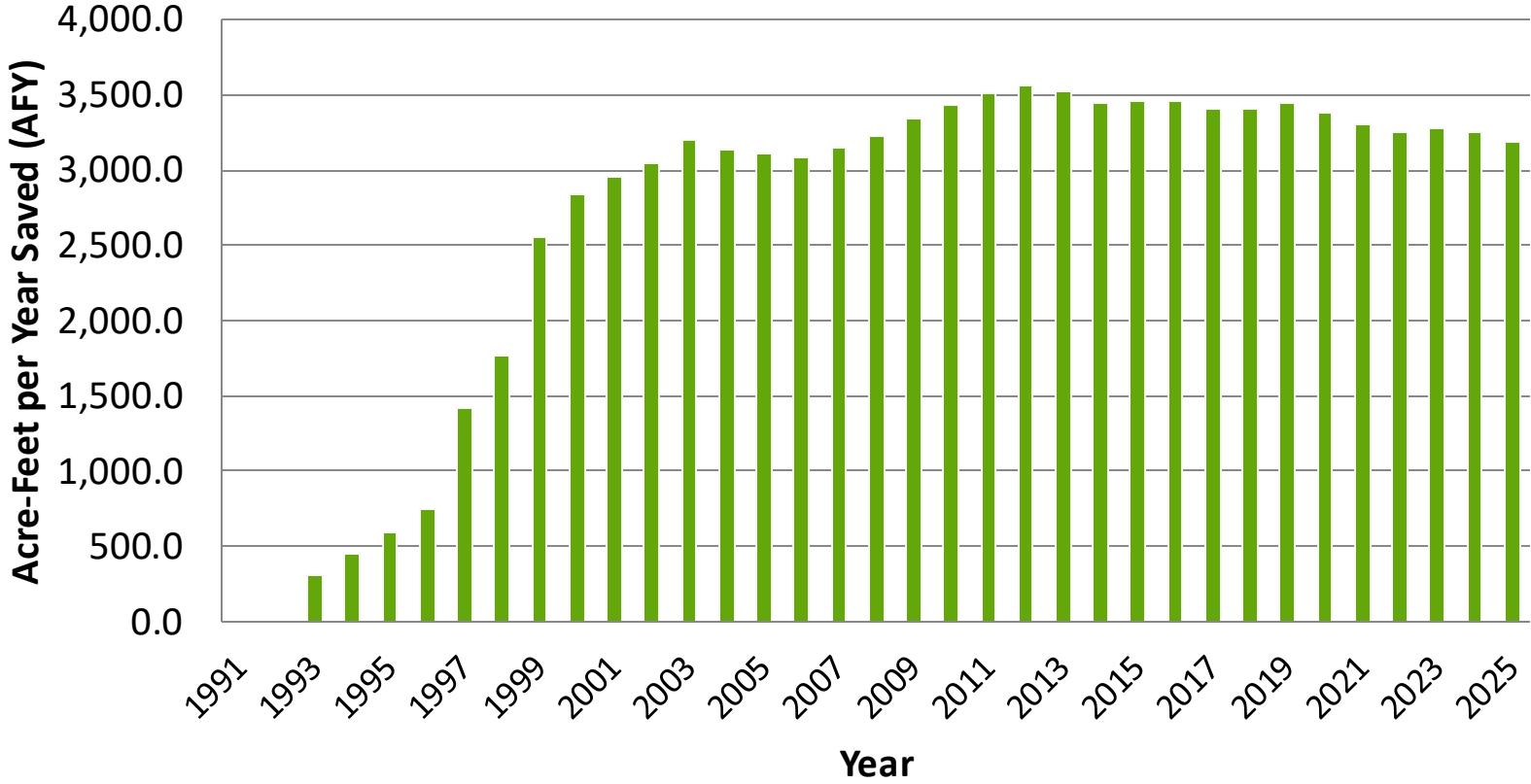


- Over 135,000 toilets replaced
- Early 1990s: Prevalent 5-7 gpfs
- Mid 2000s: 1.6 gpfs dominate
  - Natural replacement
  - Program and policy progress
- Low-hanging fruit captured. What was the result?

valleywater.org

# Savings Over Time: CII and MF Toilets

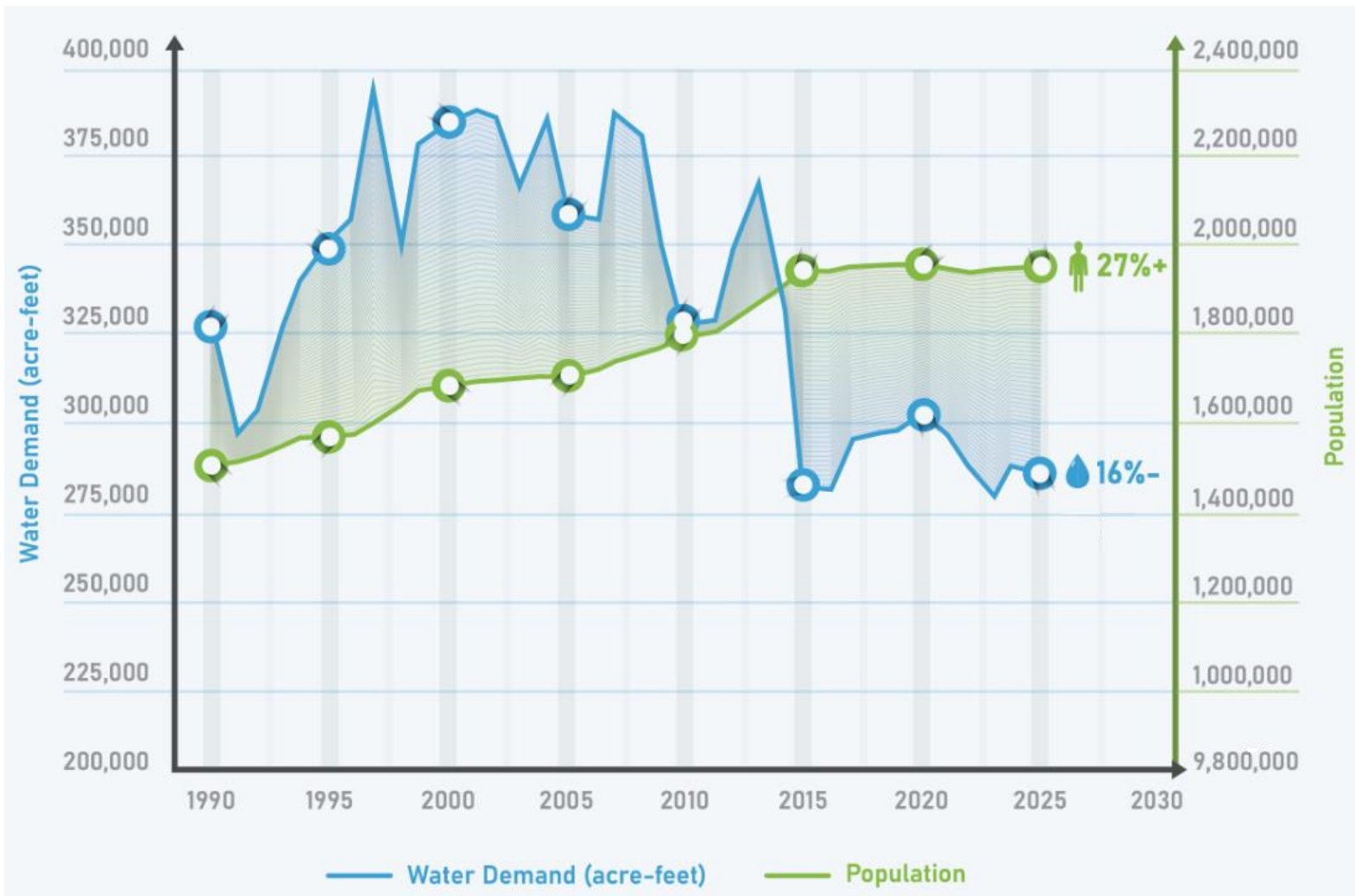
CII and MF Toilet Program Savings



- Over 3,000 AFY Conserved
- HET Rebate Programs: ended 2016
- Expanding eligibility helped maintain savings into the present

valleywater.org

# Demand Over Time



- Silicon Valley's population increased while water demand has decreased.
- Increased toilet efficiency contributed greatly to this outcome

valleywater.org

# Why Continue?

26

- *Very* old toilets were dependable
  - Early 1.6 gpf were not dependable
  - 1.6 gpf tanks on 3.5 gpf bowls common
- Well documented cases and studies of Double-flushing and clogged toilets
- Would expanding eligibility to replace 1.6 gpf be worth it?



“We have to flush 3, 4, or in the case of my wife, Peggy Hill, 6 times.”  
*Hank Hill, King of the Hill, May 2000*  
Source: Fox Animation Studios

# The Expanded Eligibility Direct Install Pilot

27

- Replace 1.6 gpf toilets with state-of-the-art 0.8 gpf
- Site Details
  - Low-income property
  - Mix of 1.6 and 3.5 gpf toilets
- Opportunity:
  - Launch as we ended the CII Direct Installation Program that only replaced 3.5 gpf or higher
  - Measured flush behavior and leak presence



valleywater.org

Pilot (1.6 gpf elig.)	CII Direct Install (3.5 gpf elig.)
59	43

# Pilot Results

- 10% with leaks
- 81% flushed more than ratings
- Performance worsened with toilet age (1.6 gpf median age: 24 years old)
- 2.9 acre-feet saved (9,121 gpy per unit)
- **Expanded eligibility launched: 2022**



Newly eligible 1.6 gpf toilet being replaced  
*Source: Futurama, Fox Animation Studios*

Flush Technique	Pilot (1.6 gpf+ Replaced)		CII Direct Install (3.5 gpf+ Replaced)	
	Actual Volume	Difference	Actual Volume	Difference
Quick flush	2.1 gpf	0.5 gallons+	3.5 gpf	No diff.*
Full flush	3.0 gpf	1.4 gallons+	4.3 gpf	0.8 gallons+

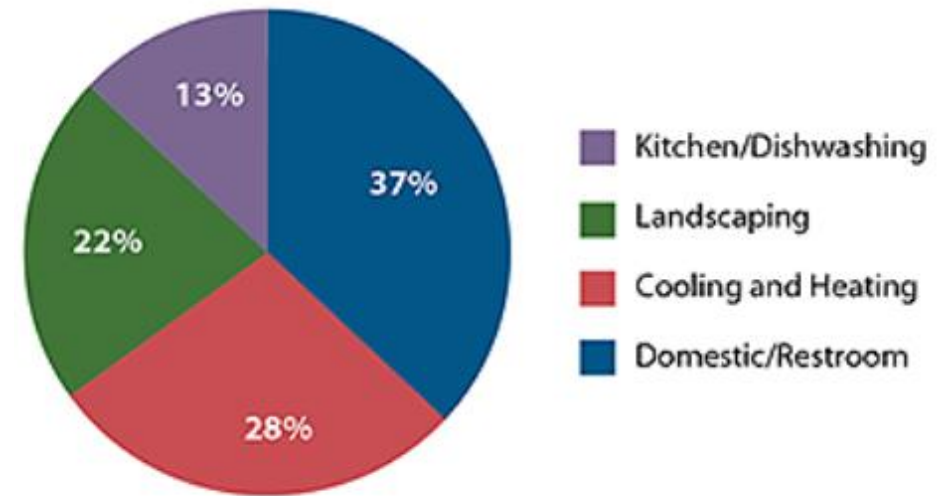
# Why CII Toilets Matter

- Toilets are still **among the largest uses** of indoor water in commercial buildings
- CII sector has **high-savings potential**: fewer accounts, higher per-fixture water use
- Legacy CII fixtures are **still out there: 3.5+ gpf**
  - Most recently, April 2026
  - Replaced 20, **3.5 gpf** at a church with **1.28 gpf**. Twenty!!

GPF	MF	CII
<b>3.5+</b>	<b>11%</b>	<b>15%</b>
1.6	43%	40%
1.28 or less	46%	45%

Source: Valley Water's Savings Model

## End Uses of Water in Office Buildings



Source: EPA WaterSense

# CII Sites can be Special

- Clarify risks early
  - Identify the true decision maker
  - Understand operational risk – or know who does
- Complex coordination
  - Scheduling constraints
  - Material and installation constraints
- How low can they go?
  - Long drains → Biggest performance decline: 1.0 and 1.28 gpf
  - Replacing 3.5 gpf → Be mindful when pushing less than 1.28 gpf

*Plumbing Efficiency Research Coalition (PERC) 2012, 2016*



*Source: Valley Water, flush-valve diaphragm being retrofitted*



*Source: Justin Burks's local Yoga Studio*

# Program Tradeoffs – Direct Installation

## ADVANTAGES

- ✓ **Controlled participation & budget**  
Full program oversight from enrollment to installation
- ✓ **High-density site impact**  
Maximize savings with as few as a single site contact
- ✓ **Barrier removal for customers**  
Eliminates cost, logistics, and knowledge gaps
- ✓ **Contractor expertise & quality control**  
Robust knowledge base and quality assurance built-in
- ✓ **Immediate water savings**  
Rate impact reduction from day one
- ✓ **Guaranteed installation**  
Minimal dependence on customer follow-through

## RISKS & CONSIDERATIONS

- ⚠ **High & escalating program costs**  
Per-unit costs continue to rise with labor and materials  
Flushometer toilets cost more than tank toilets  
Prevailing wages: CII installations are higher than residential
- ⚠ **Liability exposure**  
Contractor work on customer-owned infrastructure  
Ensure strong indemnification language and clear expectations
- ⚠ **Customer-specific installation needs**  
Non-standard fixtures and access requirements vary
- ⚠ **Elevated risk in aging plumbing**  
Unknown or deteriorated systems increase failure rates  
Limits to how low you may go
- ⚠ **Complex logistics at institutions**  
Hospitals, jails, and campuses require specialized coordination

# Program Tradeoffs – Rebates

## ADVANTAGES

- ✓ **Lower cost per project**  
Reduced program expenditure without field crews
- ✓ **Minimal hands-on management**  
Customer-driven process reduces operational overhead
- ✓ **Customer flexibility**  
Participants select contractors, materials, and timing

**KEY TRADEOFF** Rebates reduce program cost but shift savings realization risk to customer behavior — best suited when participation incentives are strong or timing flexibility is acceptable.

## RISKS & CONSIDERATIONS

- ⚠ **Higher likely upfront customer costs**  
Customers bear initial fixture purchase and labor expenses
- ⚠ **Reduced control over participation & quality**  
Enrollment rates and installation standards depend on customers
- ⚠ **Customer-timeline dependency**  
Project pacing effects savings potential
- ⚠ **Fewer fixtures per application**  
Partial or single-fixture upgrades limit per-site savings potential

# Going Forward

- Direct Installs are:
  - Easier to upsize than a rebate
  - Harder to pivot quickly to capture new savings
- Build CII networks and support local jobs
  - Toilet programs can generate leads
  - Consider limited CII toilet rebates for specific conditions
- Evaluate water savings potential:
  - CII behavior has changed rapidly
  - Ongoing savings study with school cohort



Source: Valley Water



Source: AcornVac.com



Source: A Doctor's Office

# QUESTIONS?

*Are people really  
flushing 10, 15 times  
at once?*

*Source: The Muppets,  
Jim Henson Company/Disney*



# Valley Water

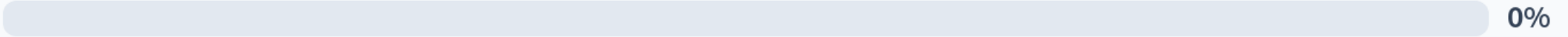
Clean Water • Healthy Environment • Flood Protection

# Audience Poll – WHAT KILLS A PROGRAM FIRST?

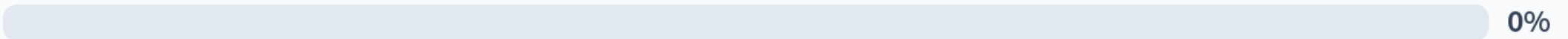


## What kills a program first?

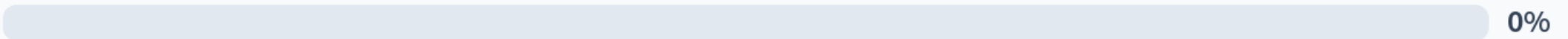
Budget cuts



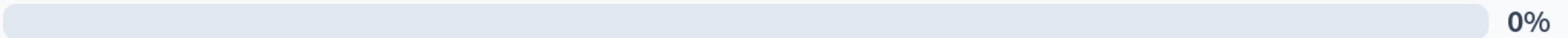
Saturation



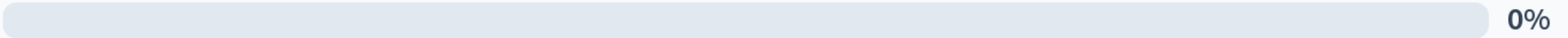
Staff turnover



Prioritization



Policy/ Code



Low participation





**Debby Dunn**  
Senior Water Resources Specialist  
San Diego County Water Authority

# Direct Install Income Qualifying Toilet Program

You = "Tell Me More"      Me = "They Want More!"

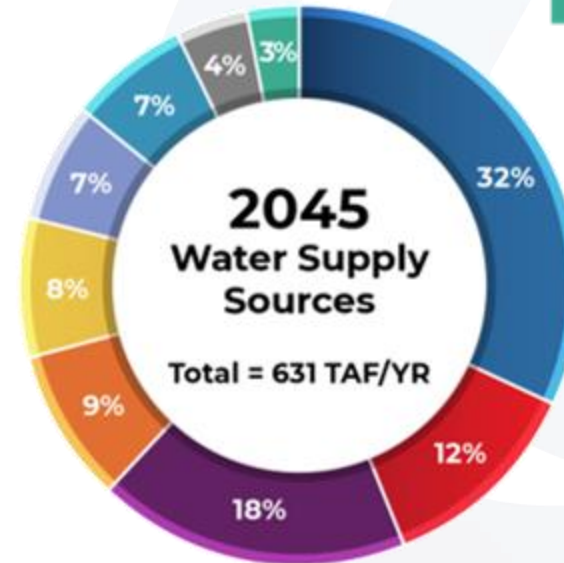
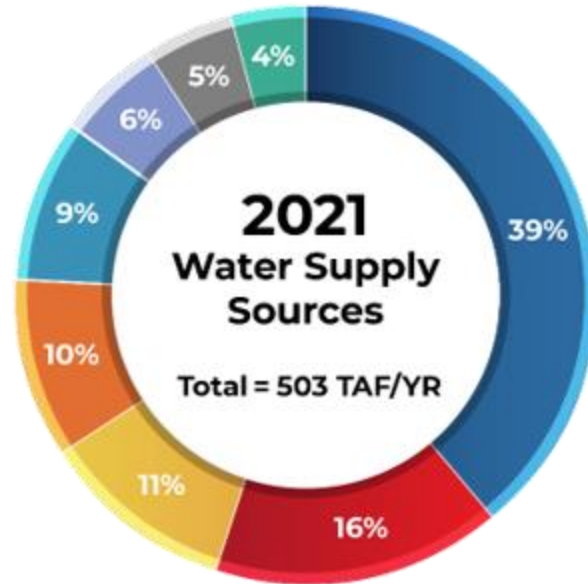
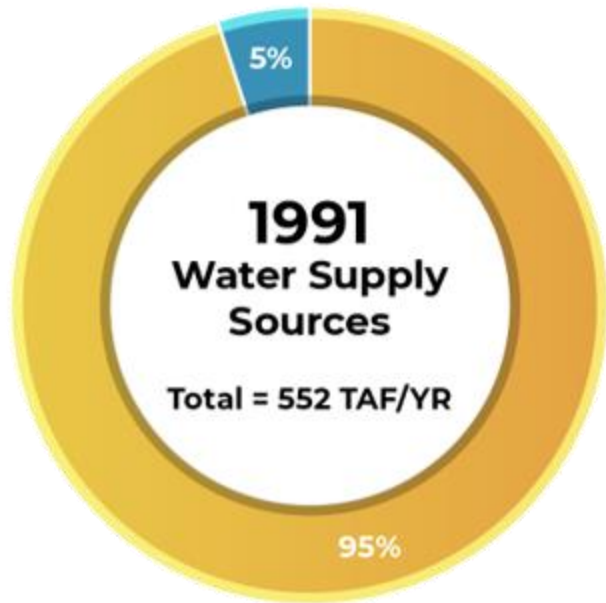


**Debby Dunn**

San Diego County Water Authority



# Results of Supply Diversification



- Conserved Water/IID
- Conserved Water/Canal Lining
- Potable Reuse
- Seawater Desalination
- Metropolitan Water District
- Recycled Water
- Local Surface Water
- Groundwater
- San Luis Rey Water Transfer

# TOILET TALK



“Join Me  
Today for  
Another  
Not So Crappy  
Episode of  
Toilet Talk”

**Debby Dunn**

San Diego County Water Authority

# 2019 BC – P2P PP



By Debby Dunn

aka:

Vanna Water



# The Reality of Water



# Shower Power



# Shower Power



# Shower Dower



9 heads x  
1 gpm x  
20 minutes =  
180 gallons



Shower in Moulton Niguel Water District

# Dripping Faucet?



Not good or encouraged

# High Flow Faucet



Aerator benefits

# Realities & Priorities

**Wa-ter you worrying about?**

**Go for the BIG FLOW!**



# Running Toilets



# Really, My Toilet?



# One Innocent Toilet

2☹☹ gallons an hour

4,8☹☹ gallons a day

or

292,8☹☹ gallons in 2 months/  
billing cycle!\*

\* How often do you bill?

**And** when will the customer realize  
there is an issue?



# One Toilet/One Billing Cycle



That's equivalent  
to 18 Pools

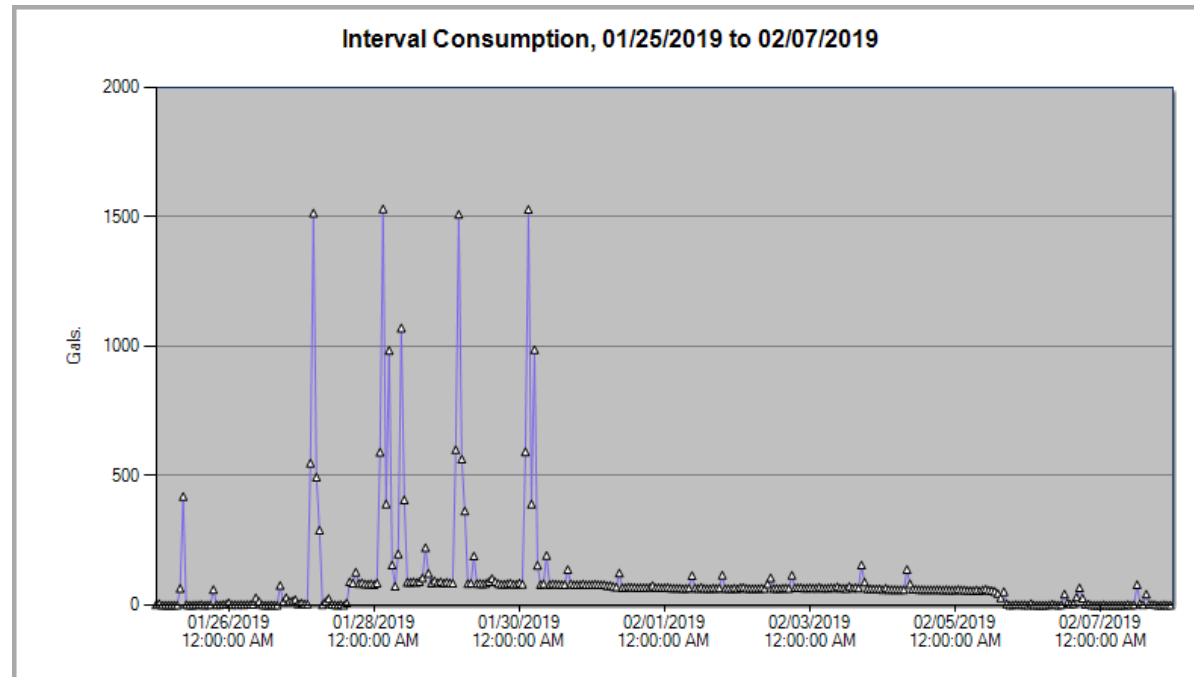
# One Toilet/One Billing Cycle



That's equivalent to  
17,325 water bottles

# AMI Data

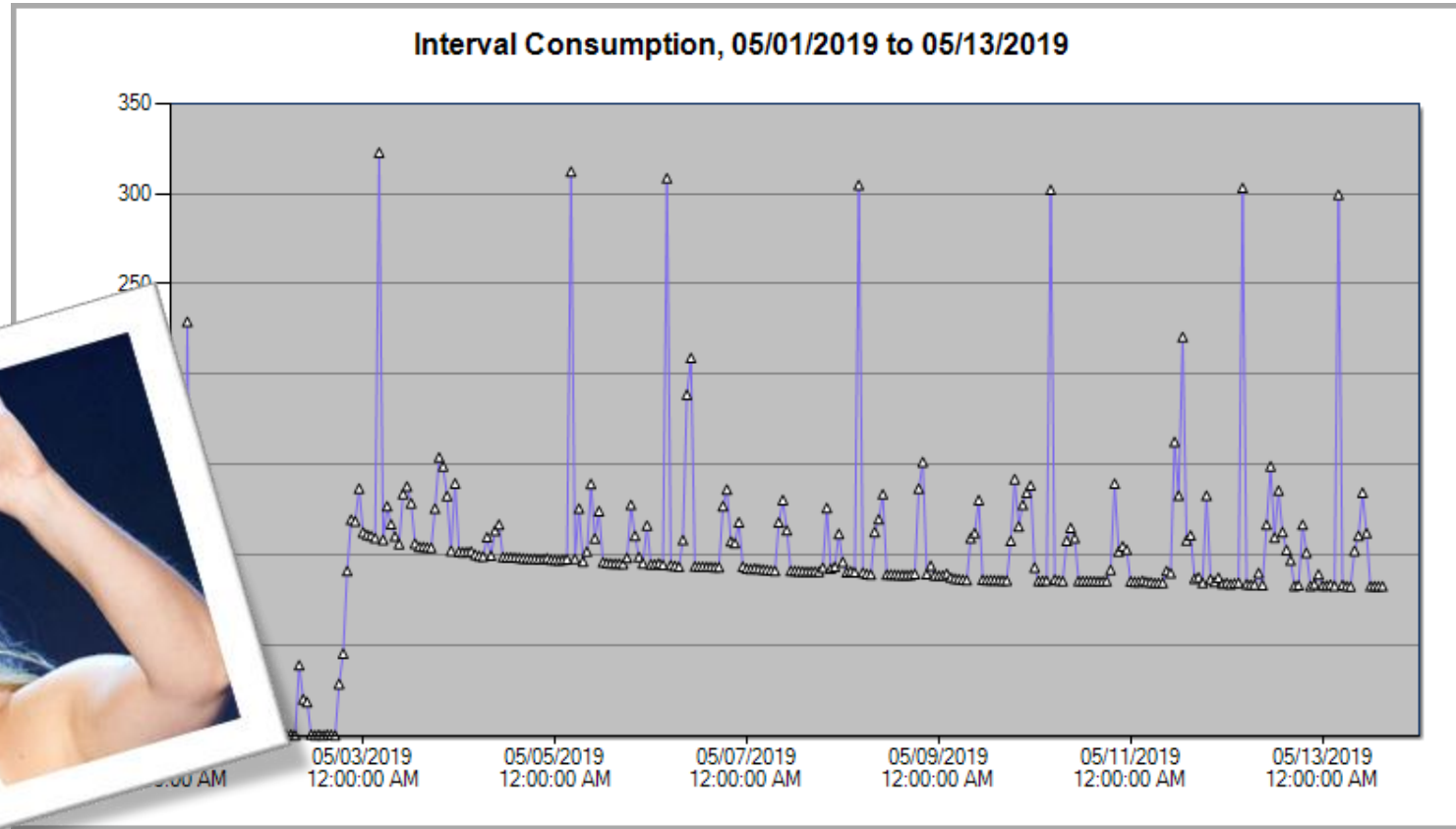
- 💧 Aclara data
- 💧 Each triangle = 1 hr of water use
- 💧 Spikes = irrigation
- 💧 Table top = flow/leak



And da' data don't lie!

# AMI Says ...

Keep an open mind, NOT an open flapper!



# Wa-ter you gonna' focus on?

With limited resources/staff = biggest bang for buck

↓ Same Amount of Water Use/Waste ↓

Running toilet for 1 day =

Shorter shower	480
Full loads of laundry	1,120
Water off/teeth brushing	1,600



# San Diego County Water Authority Direct Install Toilet Program



San Diego County  
Water Authority's

## INCOME-QUALIFIED DIRECT INSTALL TOILET PROGRAM



### Program Overview

Income-qualified customers can get free toilets for their homes with San Diego County Water Authority's Direct Install Toilet Program. This program is designed to help residents and multi-family property owners conserve water and save on utility bills.

This program reduces water use by replacing older toilets with **high-efficiency toilets**. Installation is done by a professional, licensed contractor.

Eligible participants can also upgrade to **weather-based irrigation controllers** that save water by automatically adjusting irrigation based on the weather.

### Eligibility Criteria

1. Live in the Water Authority's service area.
2. Meet income or program requirements.

### Program Details & Application

[www.synergycompanies.com/utility-program/sdcwa-dip](http://www.synergycompanies.com/utility-program/sdcwa-dip)  
(888) 272-8349

### More water-use efficiency resources and rebates at

[www.WaterSmartSD.org](http://www.WaterSmartSD.org).

### WHY UPGRADE?

 Toilets account for about 30% of the water used in homes.

 Premium high-efficiency toilets use almost 50% less water and flush just as efficiently.

 One running toilet can waste up to 200 gallons an hour, enough water to fill a pool in 4 days.

Funding for this project has been provided in full or in part from the Budget Act of 2021 and through an agreement with the State Department of Water Resources.



# Program Details

- Feb 2022 – May 2026
- Used two different companies
- Income qualifying customers
- \$5,300,000 (grant and MWD \$ – no operating funds)
- 10,500 toilets (Stealth & Seasons 8)
- 70% Apartments (balance SF and a few MHP)

## Free Toilet & Flume Device Installation

Income-qualifying customers in single family homes can get free toilets installed at their homes with San Diego County Water Authority's Direct Install Toilet Program. This program is designed to help residents conserve water and save on utility bills. In addition, customers can get a free **Flume** Water Leak Detection device installed. Flume helps homeowners better understand and manage their water use (ex: leaks, over irrigation, etc) via an app on their phone which shows every minute of water use.



To sign up or for more information, contact WebersWater Conservation  
johnw@weberswater.com (858) 205-0143



# Why?

- Building Owners
- More issues here
- Happy Board
- Saturation
- Water waste is extra high



# Program Benefits

1. Upgrades old, high flow toilets with 0.8 gpf

Vendor Master #	Test Date	Customer Name	Address	Unit or Apartment Number	City	Zip	Phone	Square Feet	Vintage	Property Type	Occupancy	Existing Make	Existing Model	Existing GPF	Existing Toilet Flapper Leaking	Existing Toilet Loose	Existing Toilet Cracked	Existing Toilet Ada	WATER PRESSURE (psi)
874094	6/16/2025	1038 AUTUMN RIDGE APARTMENTS	1038 PEACH AVE	1	EL CAJON	92021	6193346948	18,700	1970	Multifamily	6	UNK	UNK	1.5	Small Leak	Yes	No	No	

# Program Benefits

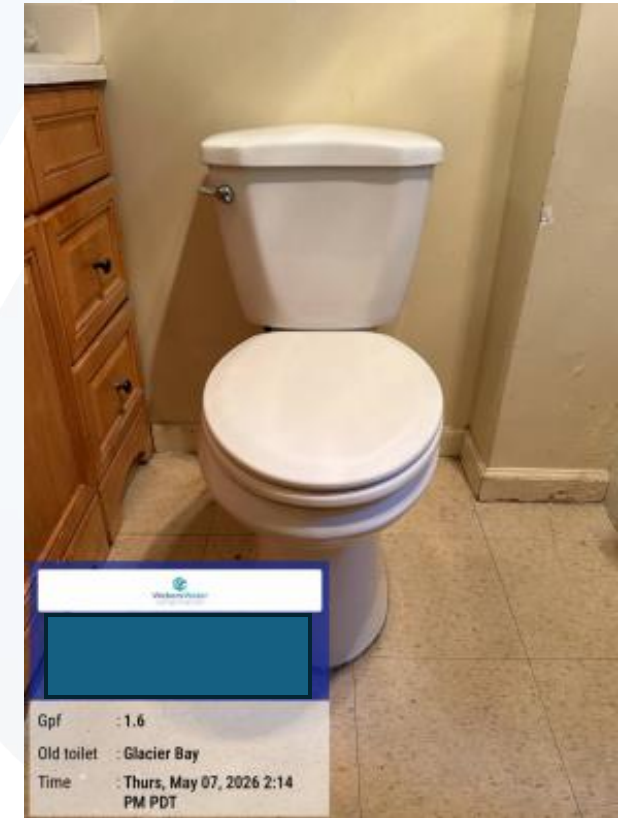
1. Upgrades old, high flow toilets with 0.8 gpf
2. New toilets stop running and wobbly toilets
  - 5% found leaking; 5% cracked; 25% wobbly

Vendor Master #	Test Date	Customer Name	Address	Unit or Apartment Number	City	Zip	Phone	Square Feet	Vintage	Property Type	Occupancy	Existing Make	Existing Model	Existing (GPF)	Existing Toilet Flapper Leaking	Existing Toilet Loose	Existing Toilet Cracked	Existing Toilet Ada	WATER PRESSURE (psi)
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# Program Benefits

1. Upgrades old, high flow toilets with 0.8 gpf
2. Stop running and wobbly toilets
  - 5% leaking; 5% cracked; 25% wobbly
3. Contractor checks for other programs w/SDGE
  - Low flow showerheads and aerators
  - Energy saving devices

# Old Toilet Syndrome



# Toilet Pride



# Out with the old and in with the new

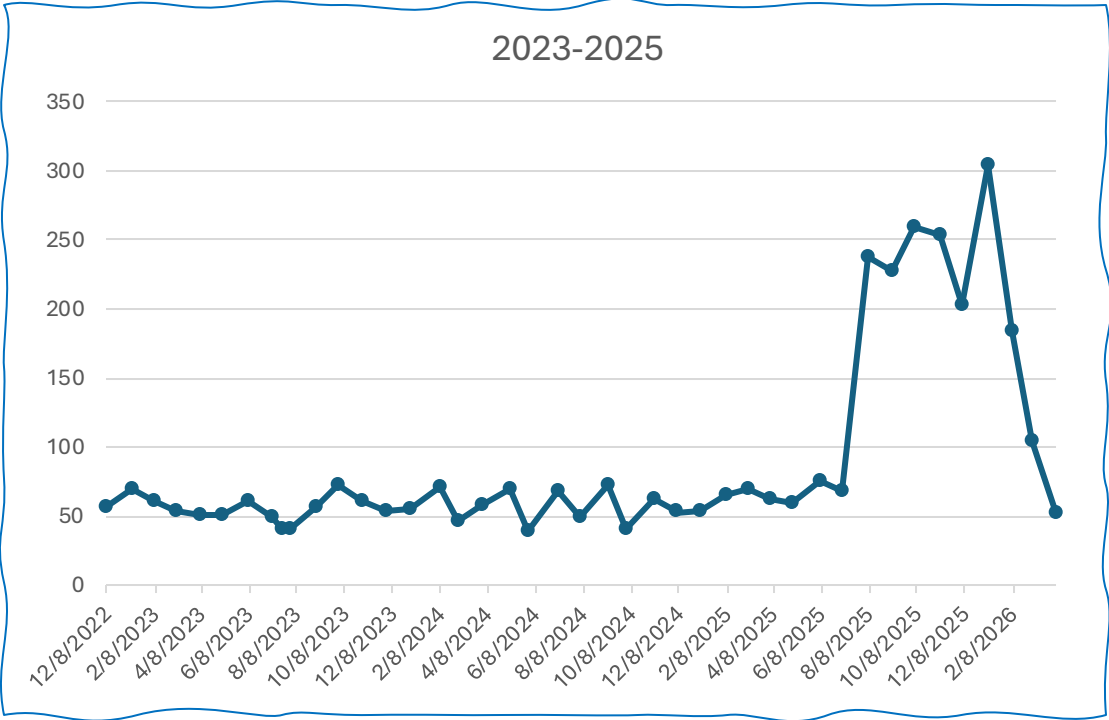


*A three seater privy, Townsend House, Leominster*



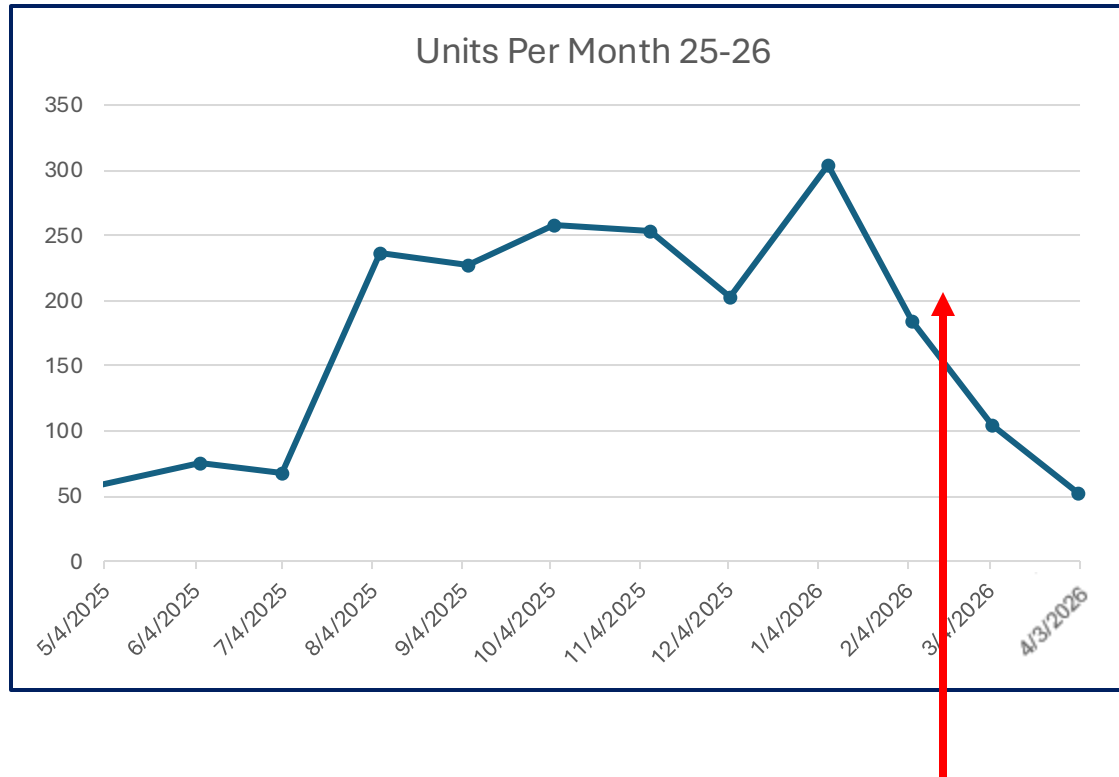
A two seater deluxe TP passer

# Direct Install Toilets



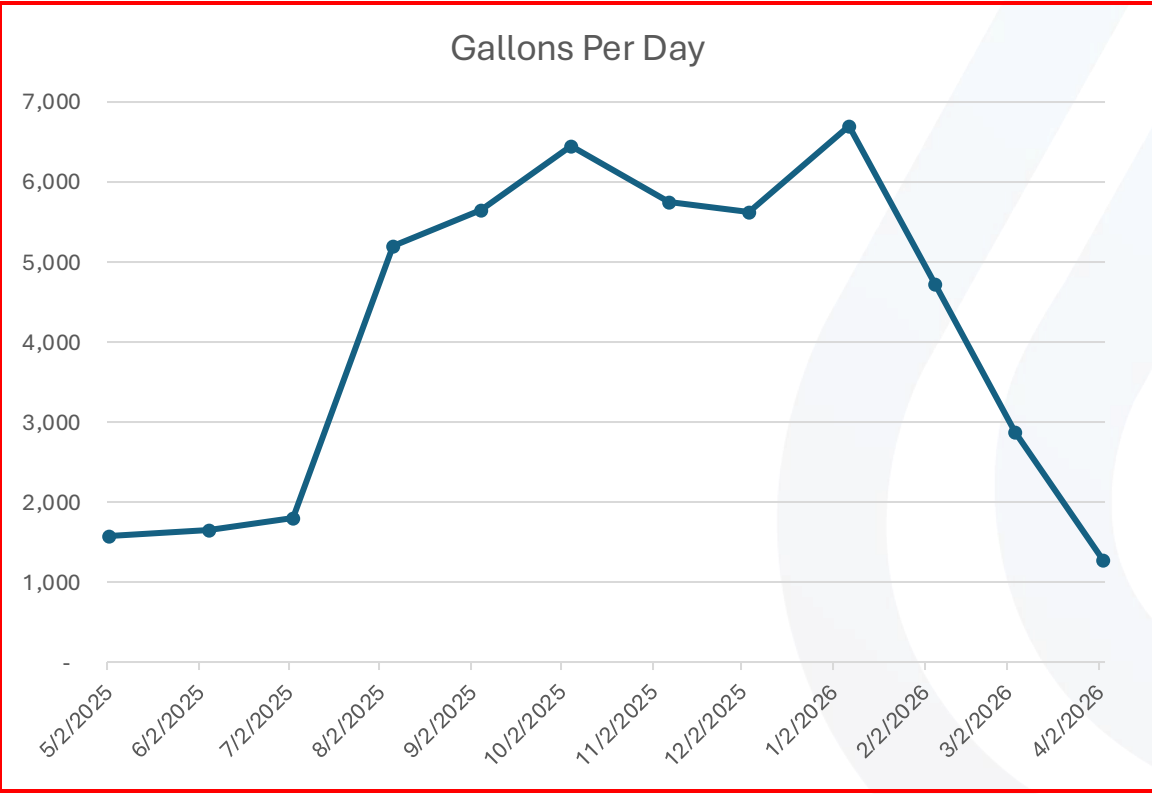
- 20 apts (1 toilet per apt)
- Install is Urgent!
- 200 units waste/mo. billing cycle
- 1,800,000 gallons a year
- Enough for 117 people/year!

# How Much Water Waste?



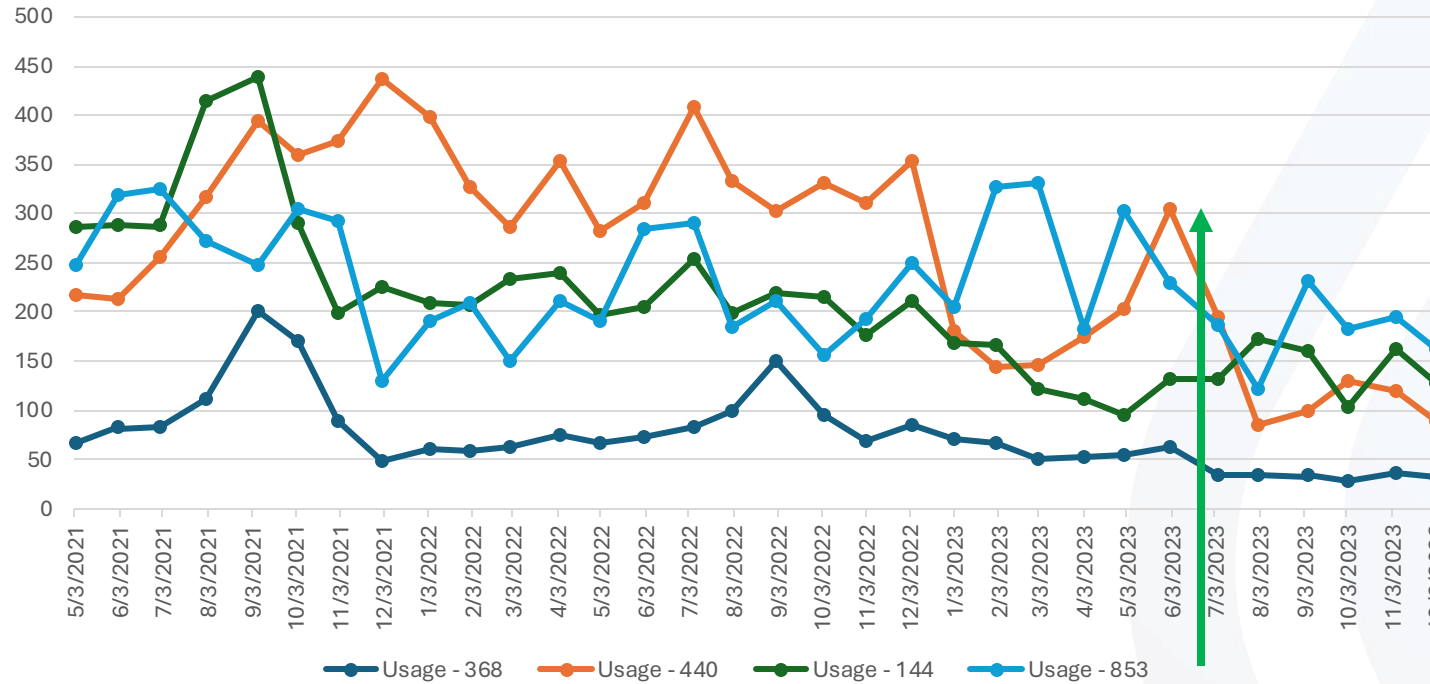
- Install on 3/4/26
- 18 toilets - 2 running & 2 cracked or wobbly
- Back to where is should be!

# How Much Water Waste?



# Toilet Program Water Data

Monthly Usage for 4 Meters/Buildings



Orange  
from 300-400  
units/month  
To 100 units

Green  
from 200-300  
Unit/month  
to 150 units

Install Date: 5 - 7/2023  
154 PHET Installed (4 meters/bldgs)

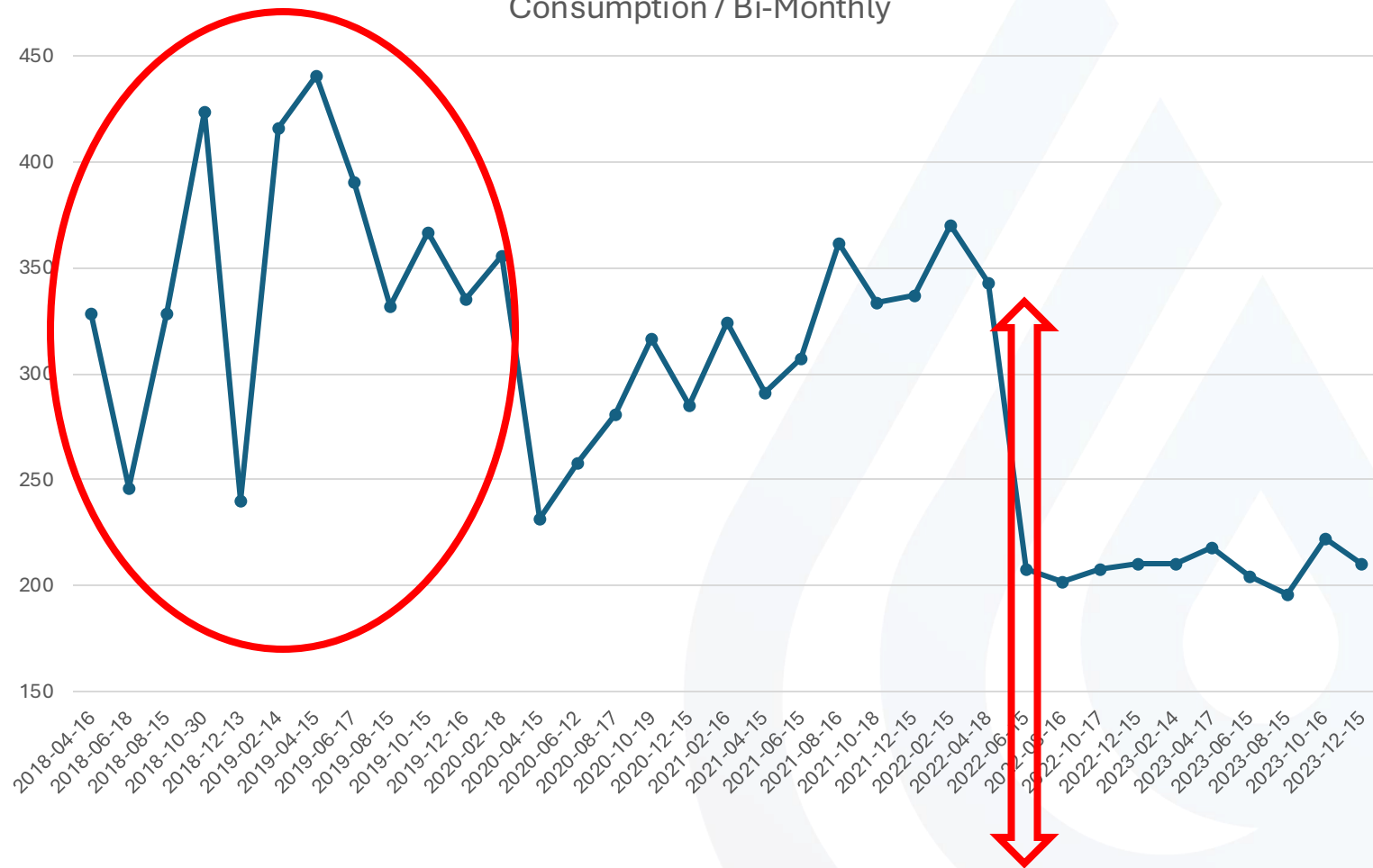
Fixing a flapper  
vs. a new toilet

Without AMI or Flume, issue can flow for a long time

100 gal  
x 24 hrs  
x 30 days  
x 2 mo

**192 Units**  
**144,000 gallons**

Consumption / Bi-Monthly



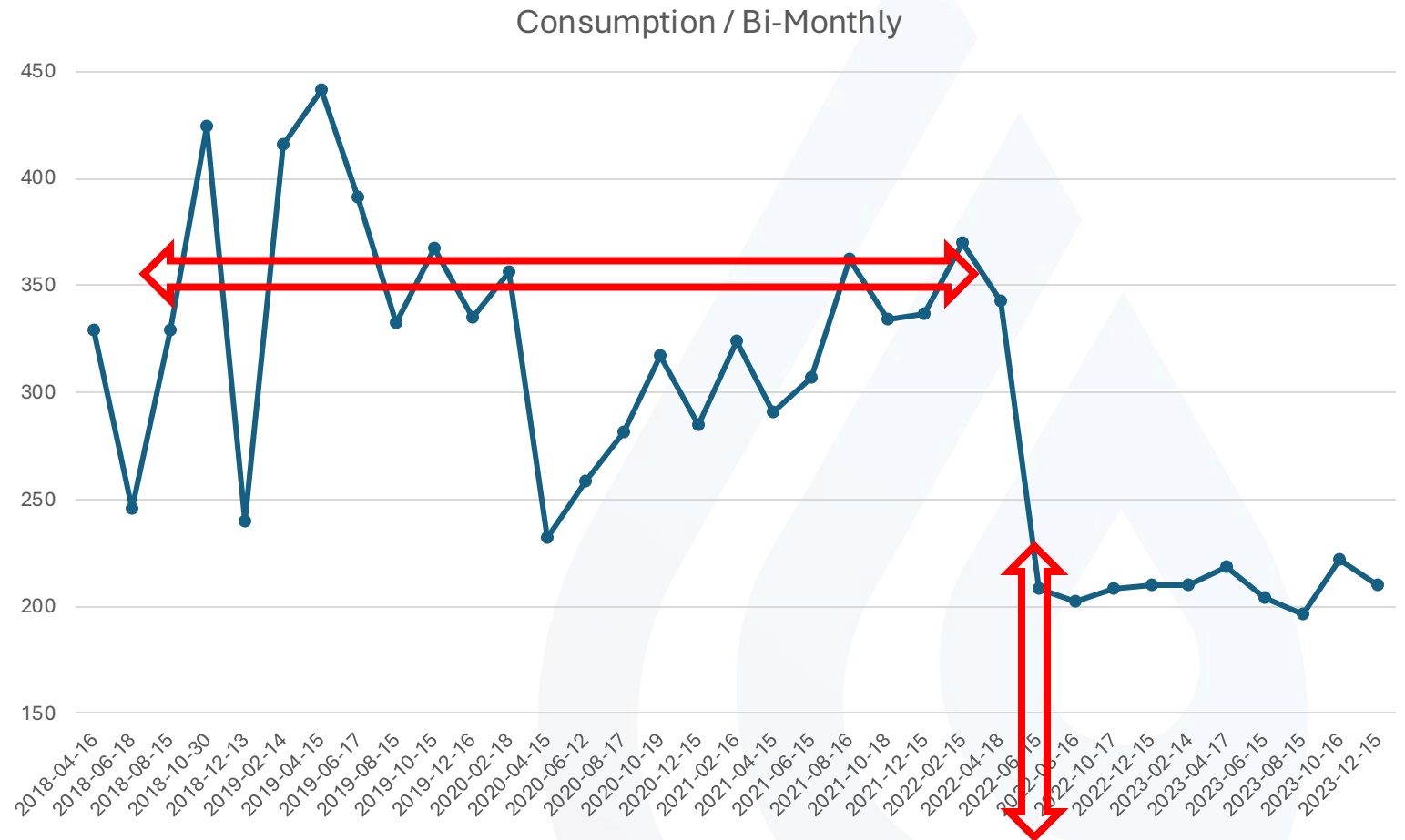
Install Date: 5/2022 - 95 PHET's

Year	Units Wasted	% Wasted
2018	632	33%
2019	1022	45%
2020	469	27%
2021	695	36%
2022	281	18%

5 Years....  
3,099 Units  
2,318,052 gallons

Indoor water for  
151 people for 1 year

Using 42 gallons/person/day



Install Date: 5/2022 - 95 PHET's

# I ♥ TT



GirlDeb 

# Questions? Discussion!

**Debby Dunn**

Senior Water Resources Specialist

San Diego County Water Authority

Ddunn@SDCWA.org

619-694-9747



# Audience Poll – SMARTEST PURCHASE



# If you had a dollar for every toilet rebate inspection you've completed, what is your smartest purchase?

Charizard PSA 10

0%

100 Shares in TOTO Ltd. (OTC: TOTDY)

0%

A lifetime supply of flappers

0%

Caramel Frappuccino, extra caramel on the wall, extra whip, extra caramel drizzle on top

0%

Early retirement

0%

# Questions, Answers, Opinions

## Panelists



**Anya Kamenskaya**

Water Conservation  
Representative  
East Bay  
Municipal Utility District



**Justin Burks**

Senior Water Conservation  
Specialist  
Santa Clara Valley  
Water District



**Debby Dunn**

Senior Water Resources  
Specialist  
San Diego County  
Water Authority

## Moderator



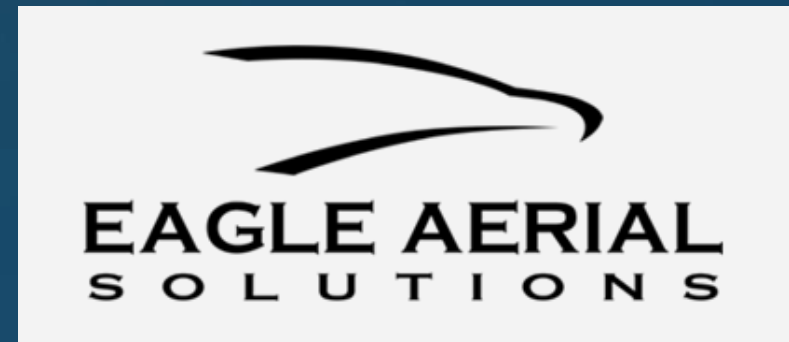
**Justin Finch**

Water Efficiency  
Manager  
Moulton Niguel  
Water District

Peer to Peer   
Connect. Collaborate. Grow.

# JOIN US FOR THE NETWORKING RECEPTION

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WATER RESOURCES



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