

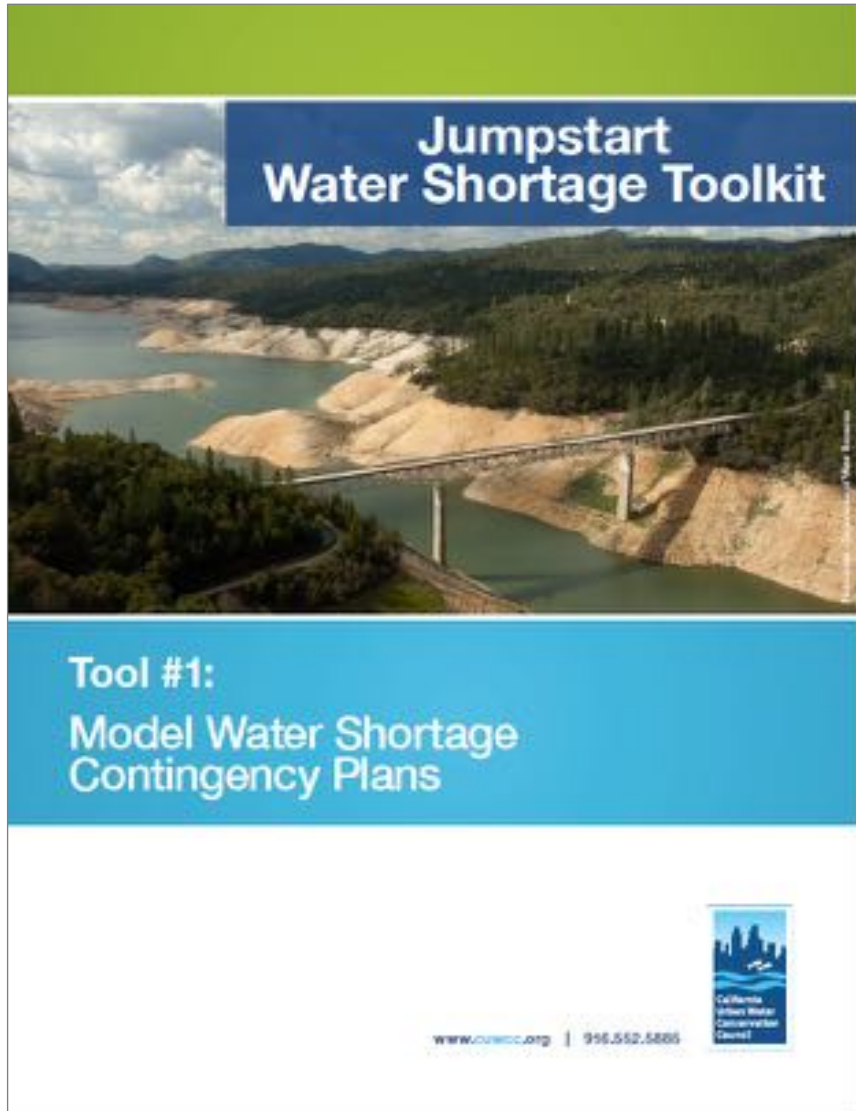


Jumpstart Water Shortage Toolkit Webinar Series

Tool #2: Water Waste Ordinances, Allocations, and Enforcement

Tool #4: Water Use and Waste Awareness Programs

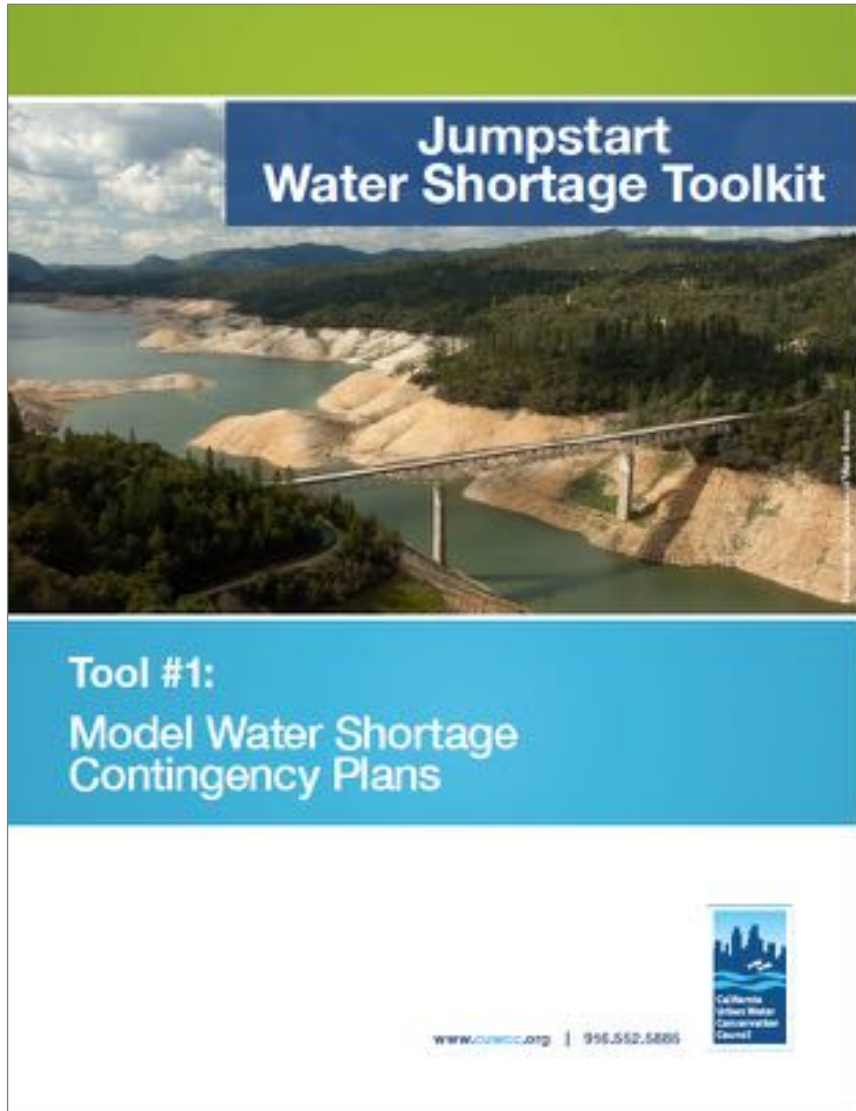
Jumpstart Water Shortage Toolkit (2015)



Funded by DWR and available for download on CalWEP.org

- Tool #1 – Model Water Shortage Contingency Plans**
- Tool #2 – Water Waste Ordinances and Enforcement Primer**
- Tool #3 – Water Shortage Pricing Primer**
- Tool #4 – Water Loss and Supply Alternatives Primer**
- Tool #5 – Customer Programs and Communication/Outreach Primer**
- Tool #6 – Local Water Supply Fact Sheet**
- Tool #7 – Water Use and Loss Awareness Resources**
- Tool #8 – Water School Curriculum**
- Tool #9 – Water Resource Funding Primer**

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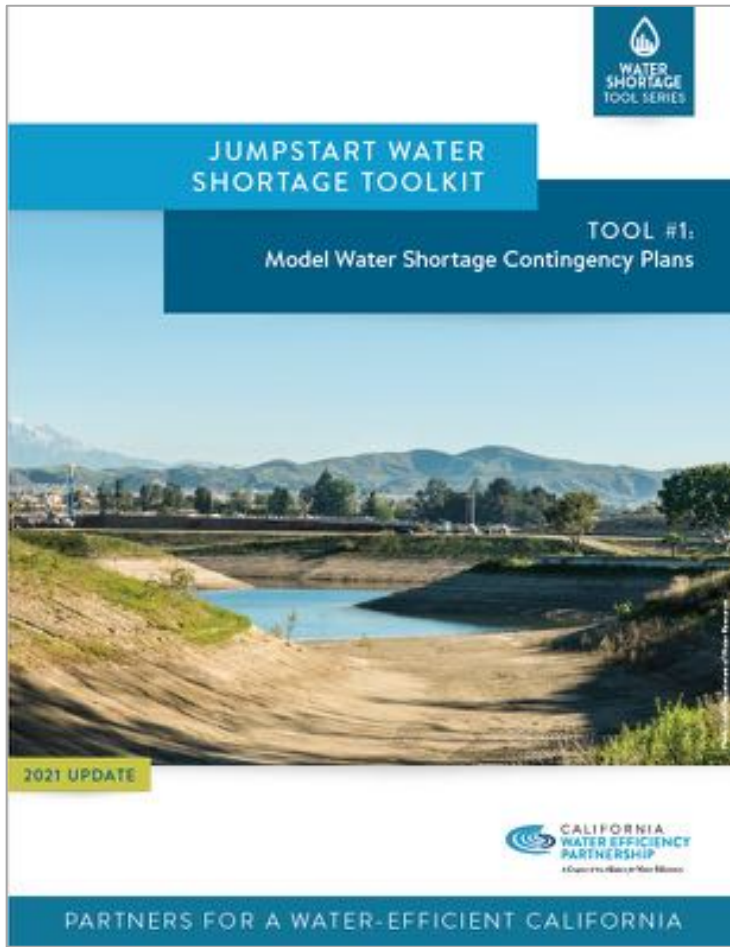
Tool #7 – Water Use and Loss Awareness Resources

Tool #8 – Water School Curriculum

Tool #9 – Water Resource Funding Primer

*Tool #5 and #6 were combined in the 2021 update

Jumpstart Water Shortage Toolkit (2021)



Funded by CalWEP and member-only benefit

The 2021 toolkit includes:

Tool #1: Model Water Shortage Contingency Plans

Tool #2: Water Waste Ordinances, Allocations, and Enforcement

Tool #3: Drought Communications

Tool #4: Water Use and Waste Awareness Programs

PLUS: Online JWST Resource Hub with member examples, links to additional resources, videos, member uploader and more!

CalWEP Drought Tools 2 & 4



Tool #2: Process

- Survey
- Water supplier interviews



Tool #2: In Their Words

“Allocate staff to this effort. Hire staff if needed.”

“Make sure City/agency follows own advice... No runoff/overwatering, etc!”

“Walk the talk by displaying outreach and signage of agency efforts to reduce its own water usage.”

“Water budget rates work and work in droughts.”

“Drought penalties were not well received by those charged. Most penalties were waived for customers who had a water use evaluation.”

“Compliance programs are as important as incentive programs.”

“The biggest motivator for reducing water use is hitting the pocketbook (i.e. higher tiered rates or penalties).”

Tool #2: Challenges

- Staffing
- Enforcement
- Effectively and fairly implementing water allotments
- Waivers
- Exemptions



Tool #2: Sections

- Legislative Rulemaking
- Highlighting lessons learned from last drought
- Case Study – Mesa's Water Ambassador Program
- Resources:
 - Templates: enforcement letters, job description, etc.
 - Examples: Patrol Schedules, door hanger, etc.



Tool #2: Supplier Stories



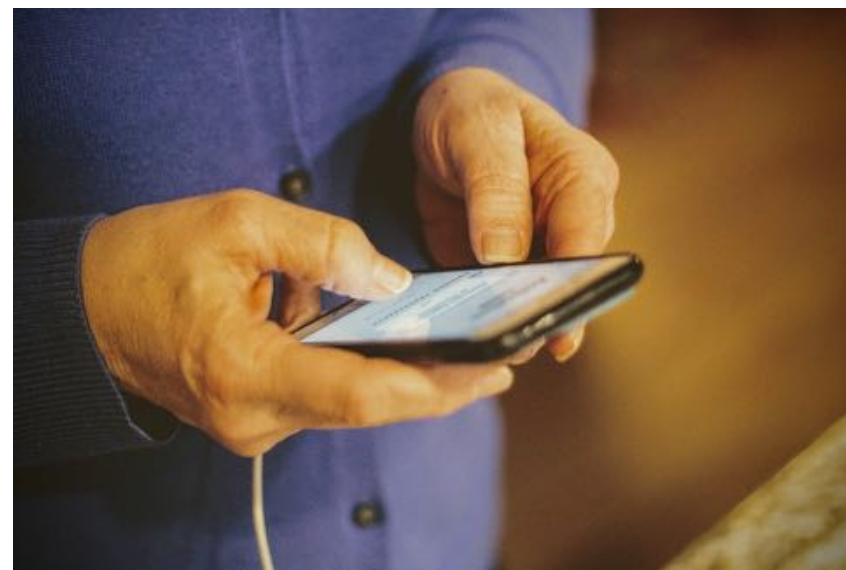
Tool #4: Supplier Approaches to Data

- I want it all so I can plan conservation and efficiency programs
- I want to see if we can meet our targets or challenge them
- I don't want to see it
- I want to backup our planning decisions



Tool #4: Water Use and Waste Awareness Programs

- Water Monitoring & Leak Sensor Technology
 - AMI
 - Customer-side Leak Monitors/Sensors (SF, MF, CII)
- Aerial Imagery & Water Budgets
- Leak Detection Studies
- Data Tools & Water Budgets
- Funding
- Resources



Tool #4: Supplier Stories



WATER WASTE ENFORCEMENT PATROLS: WATER CONSERVATION AMBASSADORS

Justin Finch, MPP

Senior Water Efficiency Specialist

Moulton Niguel Water District



MESA WATER DISTRICT

THE DISTRICT

- Formed 1960
- Successor agency of FOUR suppliers merging

THE COMMUNITY

- Costa Mesa
- Part of Newport Beach
- John Wayne Airport

THE SYSTEM

- 110,000 residents
- 25,000 connections
- 18 square miles

THE WATER

- Groundwater (92%)
- Imported Surface Water (1%)
- Recycled Water (7%)



SELECTING THE RIGHT STAFF

- ▶ Part-time temporary employees hired
 - ▶ Extension of the Customer Service team
 - ▶ Customer service experience, NOT code enforcement
- ▶ Hiring Process with Temp Agency
- ▶ Wages & Job Description

INTERNAL OPERATIONS

- ▶ Training provided by WUE Analyst and senior Field Customer Service Rep
- ▶ On-Call Duty



INTERNAL OPERATIONS

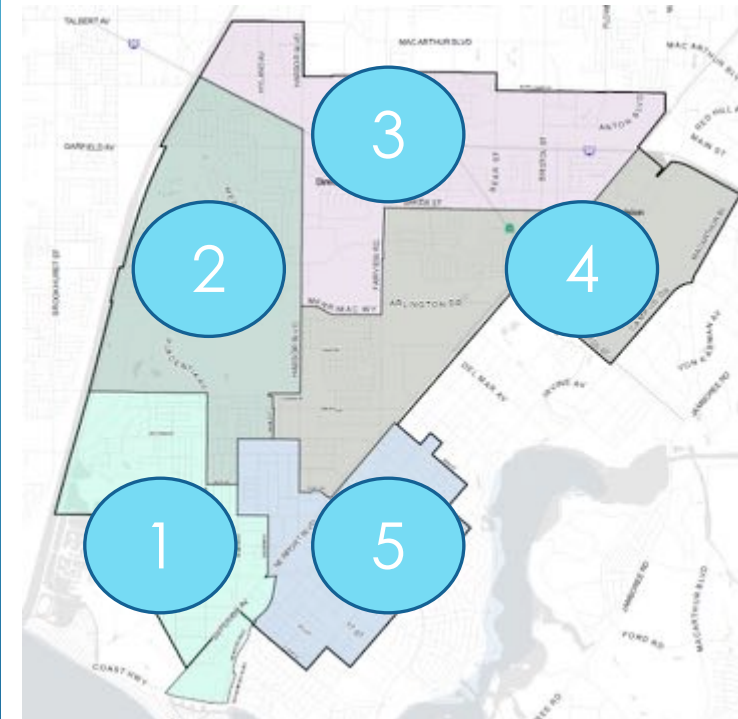
- ▶ Plug-in GPS Tracker
 - ▶ Reports each minute when vehicle is running
 - ▶ Improve Performance: view current address/location
 - ▶ Increase Driver Safety: view direction and speed; monitor unsafe behavior

“Trust, but Verify” – President Ronald Reagan



ENFORCEMENT TIPS

- ▶ Dataloggers and AMR/AMI
- ▶ Defined “monitoring” routes



ENFORCEMENT TIPS

- ▶ Tracking water conservation activity in the billing system as service orders:
 - ▶ Investigate Water Waste (report from customer)
 - ▶ Warning/Reminder (unofficial verbal warning)
 - ▶ Notice to Correct (breaks/malfunctions)
 - ▶ 1st Violation
 - ▶ 2nd Violation
 - ▶ 3rd Violation (\$\$)
 - ▶ 4th+ Violation (\$\$)
 - ▶ Dismiss Violation
 - ▶ “Waiver”
- ▶ Be courteous, consistent, and generous in waiving violations if warranted

“ The goal was to get the issue fixed and to meet and surpass our Conservation Mandate, not necessarily issue citations. So, when customers agreed to fix the problem – that was a win. ”

Justin Finch, MPP

Senior Water Efficiency Specialist

Moulton Niguel Water District

JFinch@MNWD.com

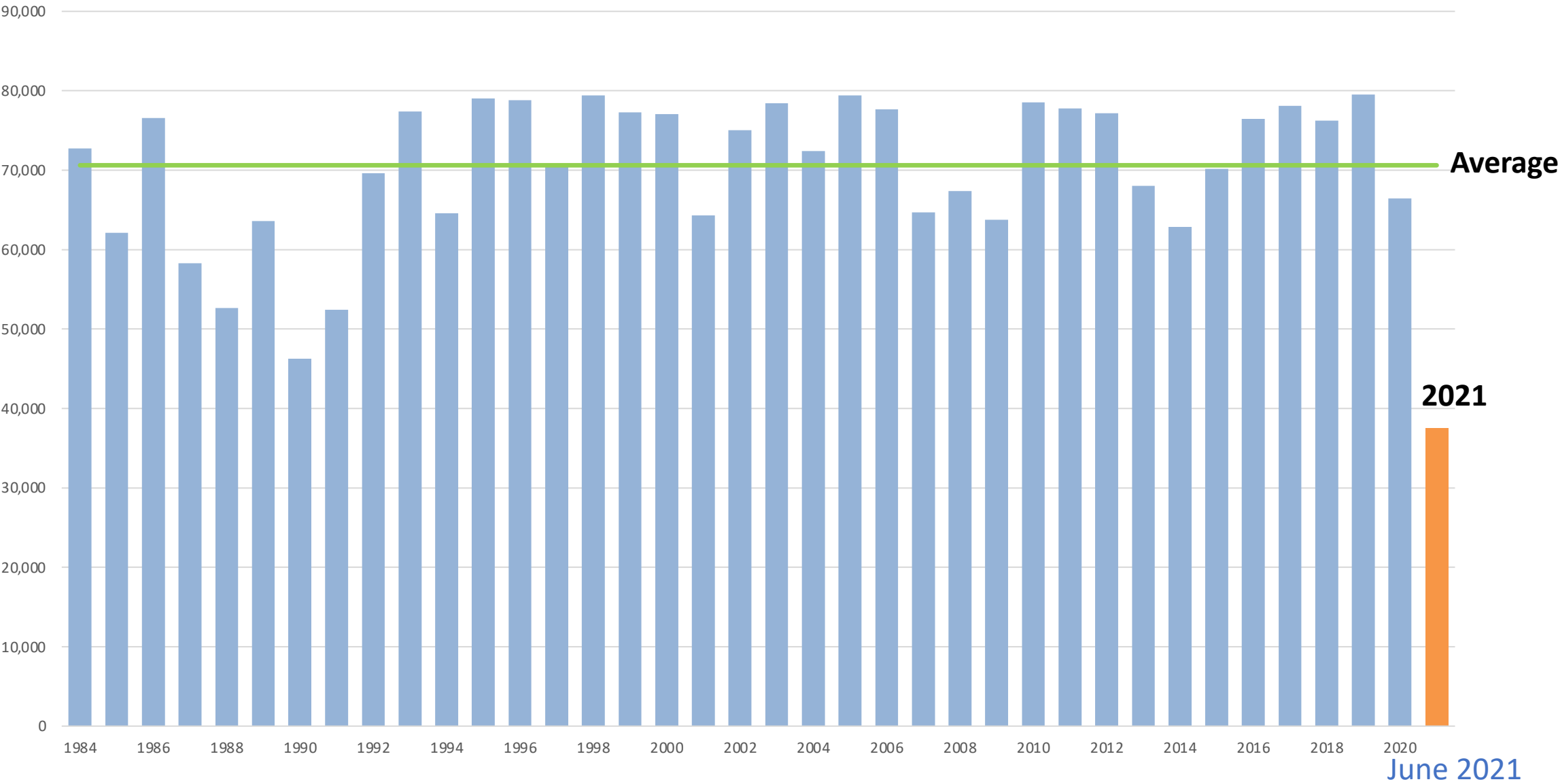


Using Technology to Track Compliance of Irrigation Restrictions

July 22, 2021



Historical Total Reservoir Storage



June 2021

Drought Actions

February 16: Declares a drought and asks all customers to **voluntarily** conserve

April 20: Marin Water declares a **water shortage emergency**

Staff Proposal of Mandatory Restrictions:

- 1 day/week spray irrigation with assigned days
- 2 days/week drip
- +Standard water waste prohibitions
- 40% District-wide Reduction Goal

Adopted Ordinance:

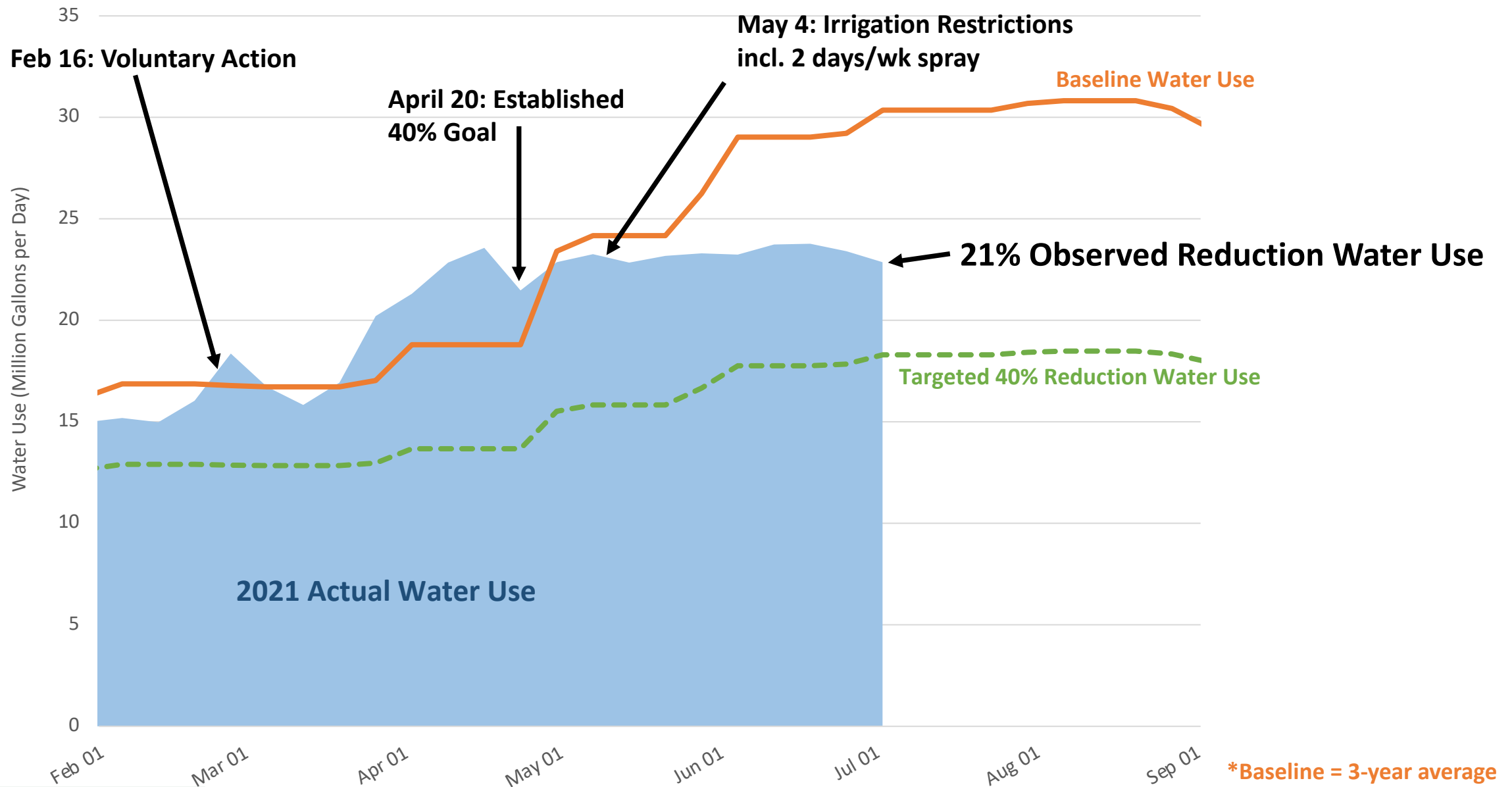
- 40% District-wide Reduction Goal
- +Standard water waste prohibitions

May 04: Marin Water requires irrigation restrictions

- 2 day/week spray irrigation
- 3 days/week drip irrigation



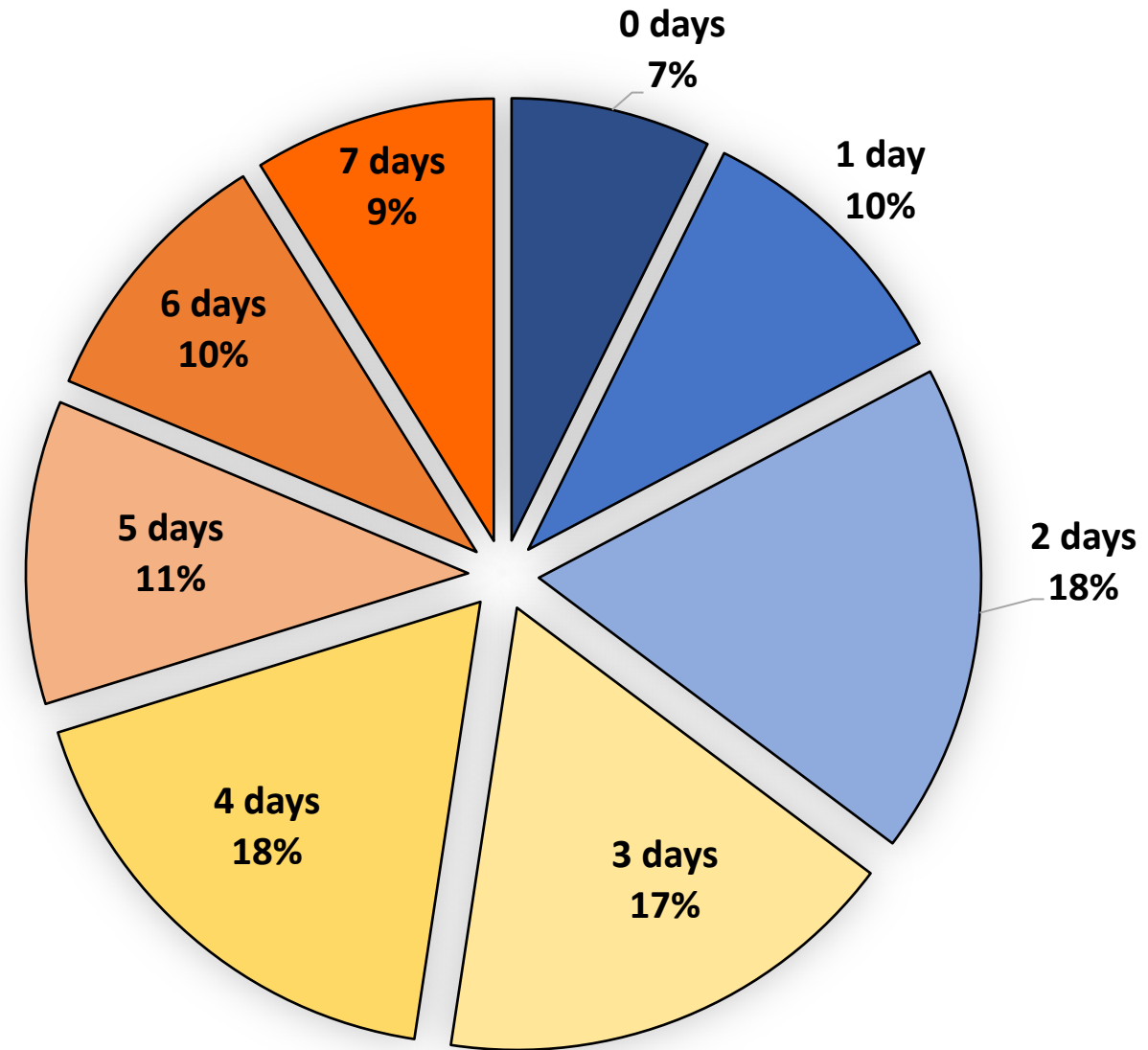
Actual vs. Targeted Water Use



Flume Data Analysis

Evaluated data for flow and duration.

- 35% irrigating 2 days or less per week - spray irrigation
 - 54% irrigating 3 days or less per week - drip irrigation
-
- Data used as a district-wide proxy
 - Demonstrated lack of compliance
 - Data provided the justification to take enforceable action



June - Overhead Sprinkler Spray Irrigation



Carrie Pollard

CaPollard@MarinWater.org

415.945.1522



Your Water Supply

July 06: Marin Water adopts tighter irrigation restrictions

- 1 day/week spray irrigation, assigned days;
- 2 days/ week drip



Palm Vista Toilet Sensor Project

Metropolitan Water District MAA Funded Project

Megan Schneider

City Of Oxnard Water Division

July 20, 2021



Why Focus on Toilets?



Leaking toilets are the #1 source of water waste for multi-unit property owners – easy to fix, hard to monitor



Billions of gallons of water are lost each year due to leaking toilets



A stuck open flapper valve can cause toilets to leak up to 5,000 gallons per day



Tenants / Guests do not report toilet leaks to property managers

What if Toilets Could Talk?



Solution: Sensor Industries Toilet Sensors, Network, and Dashboard



SI-Toilet and **SI-Flood** sensors are installed throughout the building and coded to specific locations via the mobile app.



SI-Repeaters are plugged in throughout the property to create wireless **SI-Mesh network**.



Devices are connected to the single internet **SI-Gateway** installed on the property.



Data is fed into **SI-Dash** software application and analyzed. Management is notified of leaky toilets in real-time.

6 Month Pilot Objective:

Cost effective solution to address water conservation in Low Income Multi-Unit Housing with ability to assess, monitor and address high water usage customer

Demonstrate consistent water savings and associated costs over a 6 month period

Demonstrate Cost Benefit Analysis to deploy Sensor Industries Water Saving Technology within Oxnard Housing Authority

Support new State mandates

PALM VISTA HOUSING

Location:
Oxnard Housing Authority
Low Income
Senior Living
100 Units
106 Bathrooms

Identified as a high water
usage customer within the
Oxnard Housing Authority
properties



What does success look like?

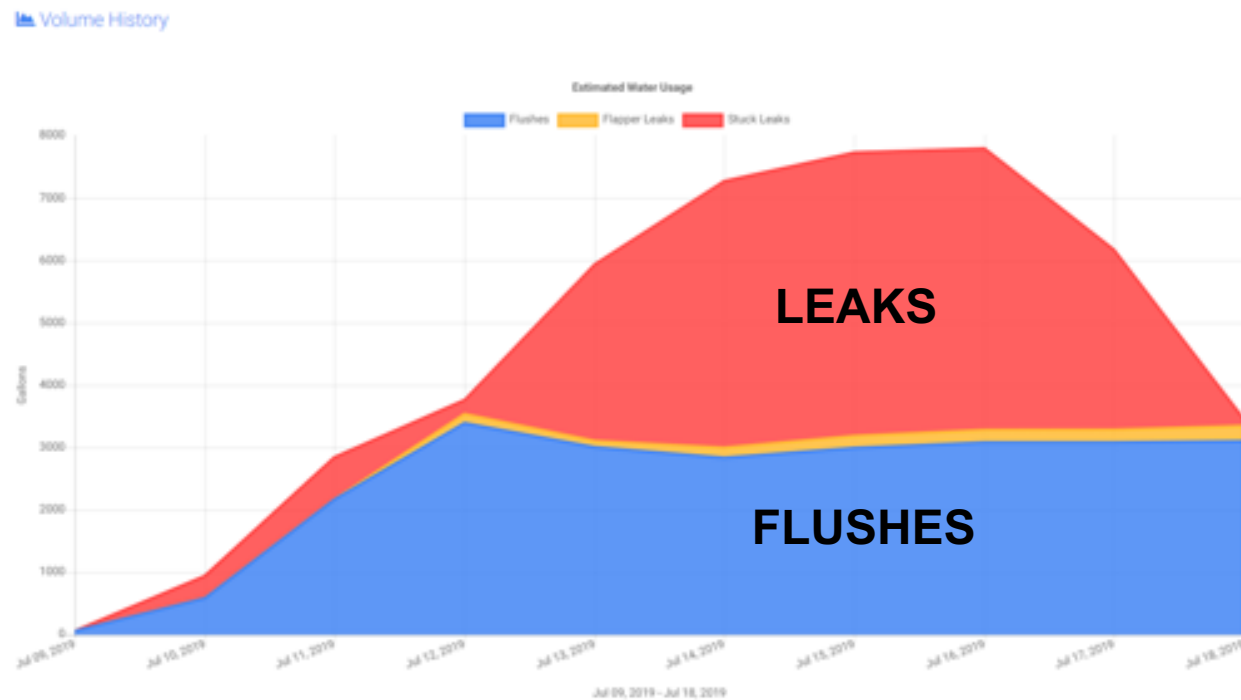
- Easy installation
- Easy data tracking system
- Provide compelling data to assess leakage and solution driven approach
- Demonstrate compelling water/cost savings
- Demonstrate ROI to the Water District
- Demonstrate cost benefit analysis to scale in MWD territory
- Support California DWR policy objectives

Outcome: Compelling Data on Water Losses

BEFORE

First 9 Days of collecting data at this property:

47% of all water used by toilets was due to leaks!



Stuck leaks: 20,404 gals

Flapper leaks: 1,253 gals

Flushes: 24,291 gals

Total Gallons of Leaks
Detected: 21,657 gals



Volume is determined with a flow-rate assumption of 3gpm on each toilet. In some cases this is an underestimate!

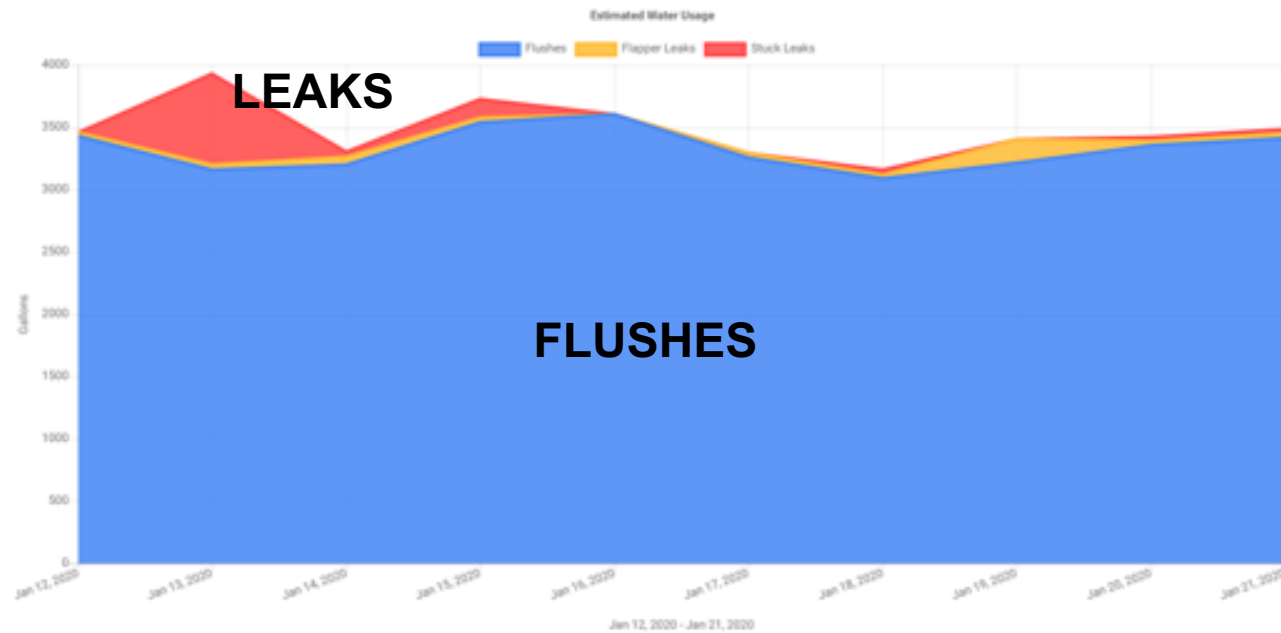
Outcome: Huge reduction in water lost to toilet leaks

AFTER implementing data driven maintenance program:

Only 4.4% of the water used by toilets is from leaks!

Example of weekly water usage report

Volume History



Stuck leaks: 1,022 gals

Flapper leaks: 502 gals

Flushes: 34,807 gals



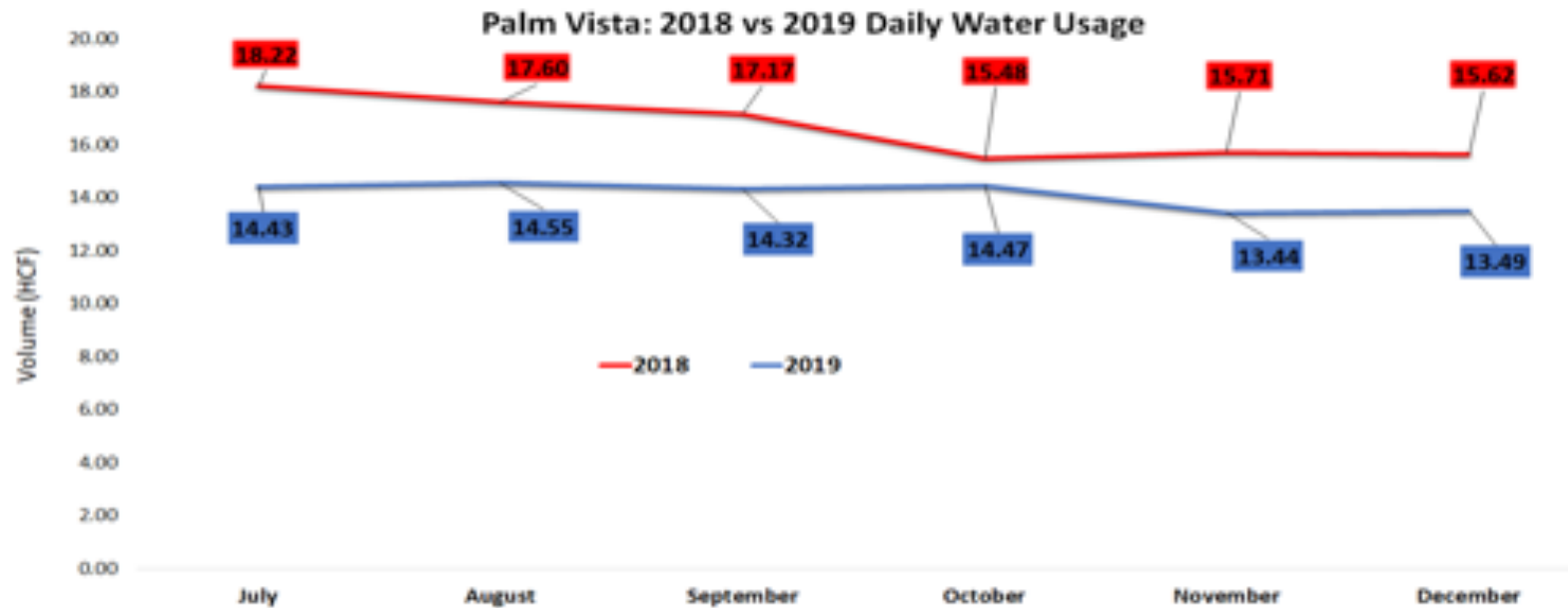
Palm Vista's Success

460 HCF reduction in use during this 6 month pilot over the same time period last year:

- Over 688,000 gallons a year, that's more water than an olympic swimming pool!
- Over \$7,700 projected annual water bill savings

Outcome: Substantial savings in water use and bills

Palm Vista Apartments, a 100 unit multi-family property, saves ~920 HCF per year with Sensor Industries



This 6 month pilot helped Palm Vista reduce their consumption by more than 460 HCF over last year's bills.

Given that their average water bill usage is 447 HCF, that's like cutting out an entire month of water use every 6 months!

Over 12 months \$7,700 in prevented water costs!



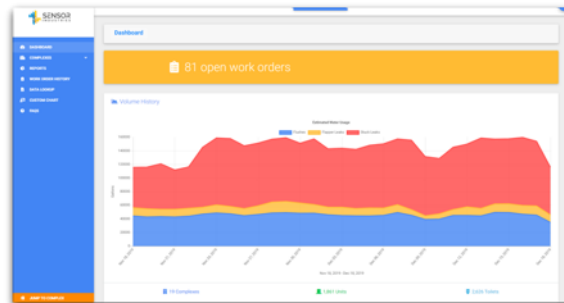
Data Driven to Address Different Users



Owner

Summarized Data, Property Ranking

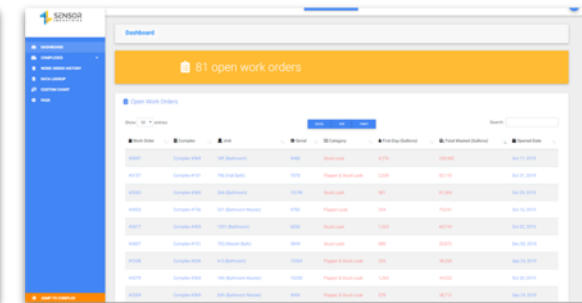
This is the 30,000 foot view for a property owner. This persona is for asking the question: "Which of my properties is performing the best? Which is performing the worst?"



Manager

Realtime Data, Work Orders, Management

This is a valuable management tool for individual complex managers. This helps managers answer the question: "How well is my maintenance team handling the leaky toilets at our property?"



Maintenance

Current Work Orders

This persona is tailored for the maintenance technician who is asking the questions: "What is an issue right now? What work orders do I need to complete today?"



2,901,973 gallons
Total Volume



2,330,673 flush gallons
Flush Volume (80.3% of total)



571,300 gallons
Leak Volume (19.7% of total)



507,628 gallons
Stuck Volume (88.9% of leaks)



63,672 gallons
Flapper Volume (11.1% of leaks)

Volume History

Volume History (Monthly)



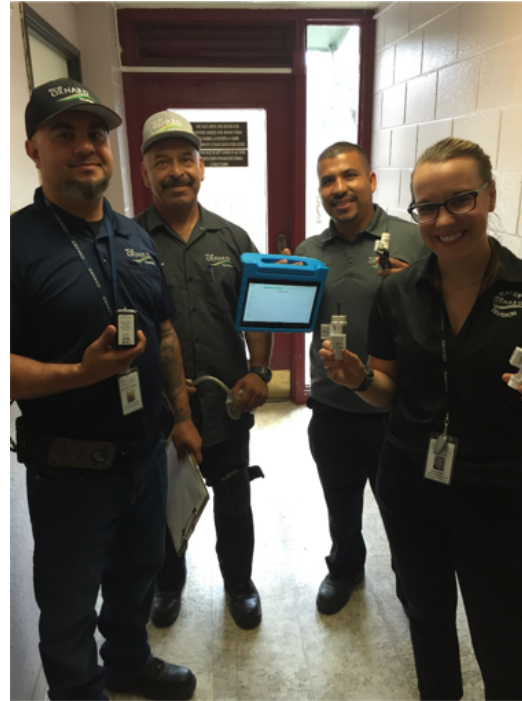
Palm Vista Apartments

Total Hardware Investment:
\$9528.33

MaaS Subscription Fee:
\$1000

Total Investment
\$10,528.33

Annual Volumetric Savings:
~920.5 HCF



 MyCalWEP^{plus}

Direct Distribution

 flumeTM

Flume 2

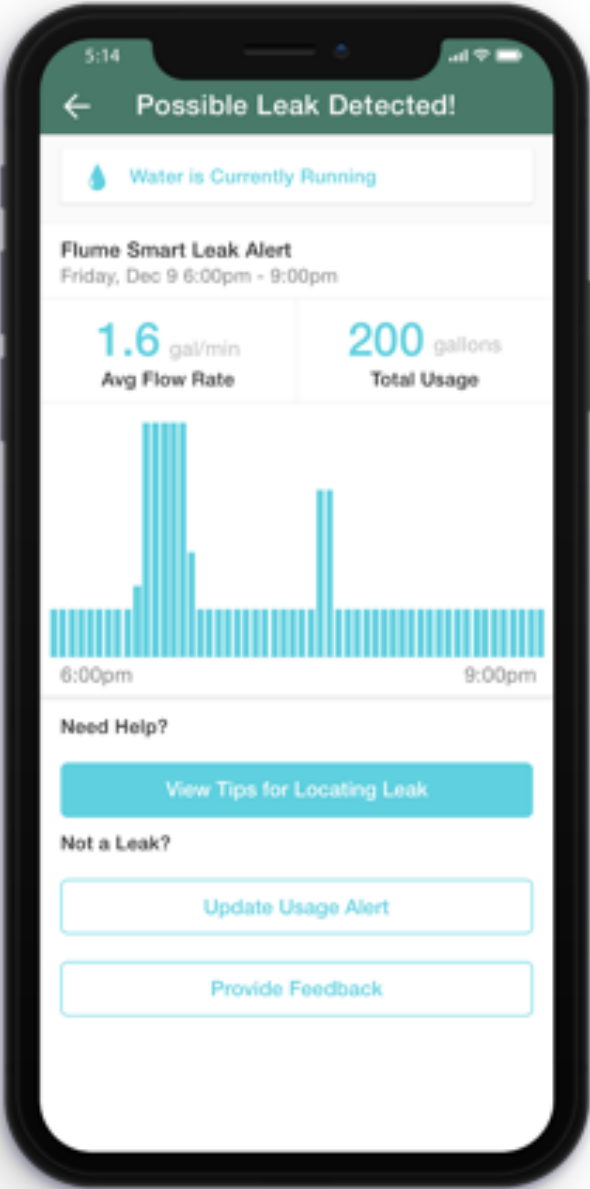
Your Existing
Water Meter



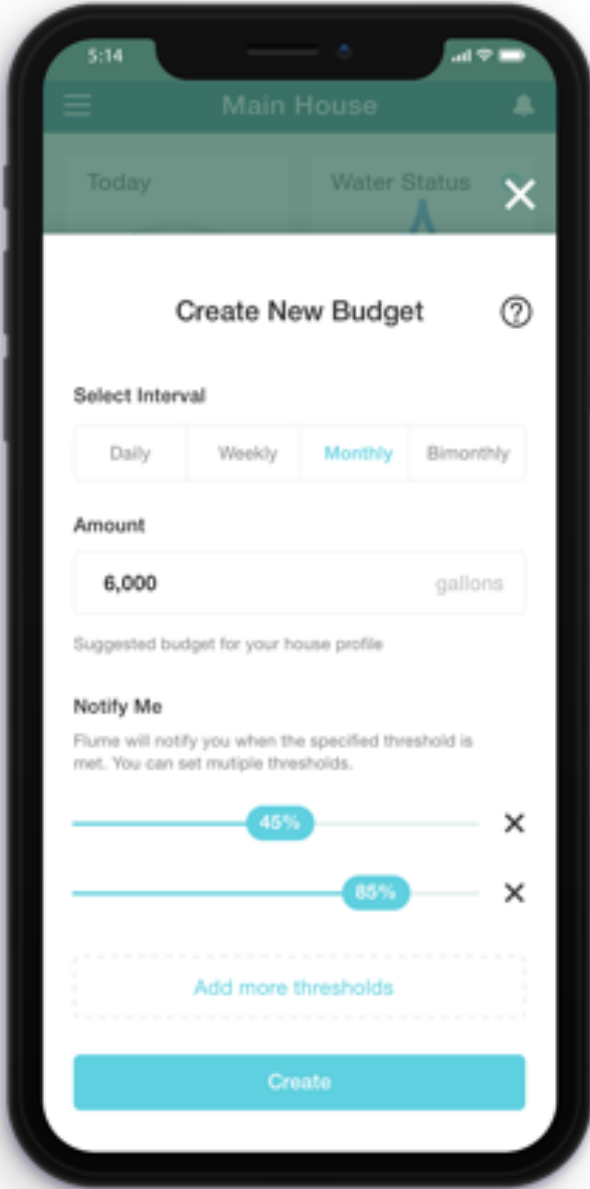
Real time monitoring



Leak Detection



Budgets





Overview

System Alerts

Top Water Users

Manage Users

Contact Info

Email Address joe@thefacem.com
Phone Number 8057952590
Address 1645 Sall Meadow Rd,
Solvang, CA
93463
Flume Activated Mar 27, 2018, 2:49 PM

Location Info

Location Type Single Family Home
Residents 2
Bathrooms 5+
Irrigation Sprinkler System
Irrigation Frequency 3 Times Per Week
Max Irrigation Frequency 120
Has a Pool? Yes

EXPORT

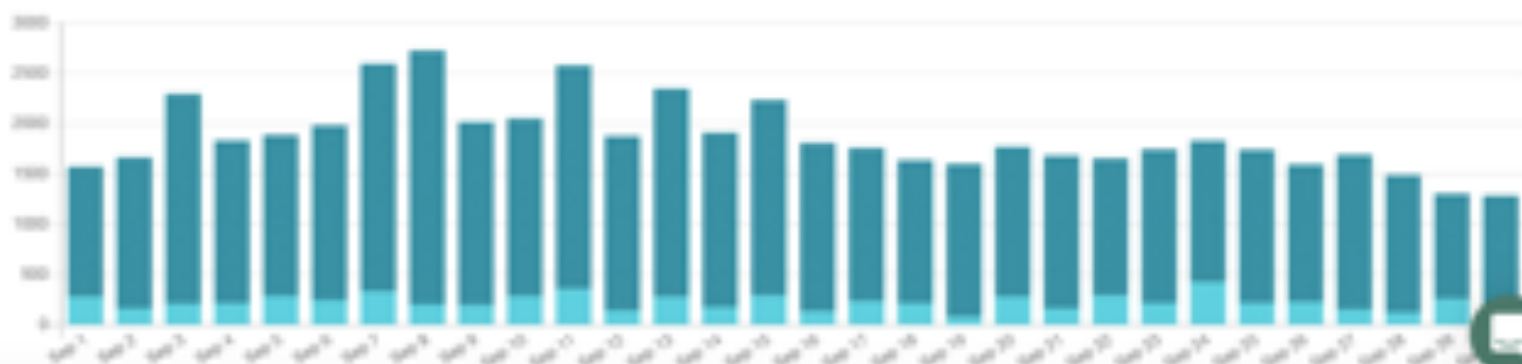
September 2020

TODAY

← BACK

→ FWD

NEXT →



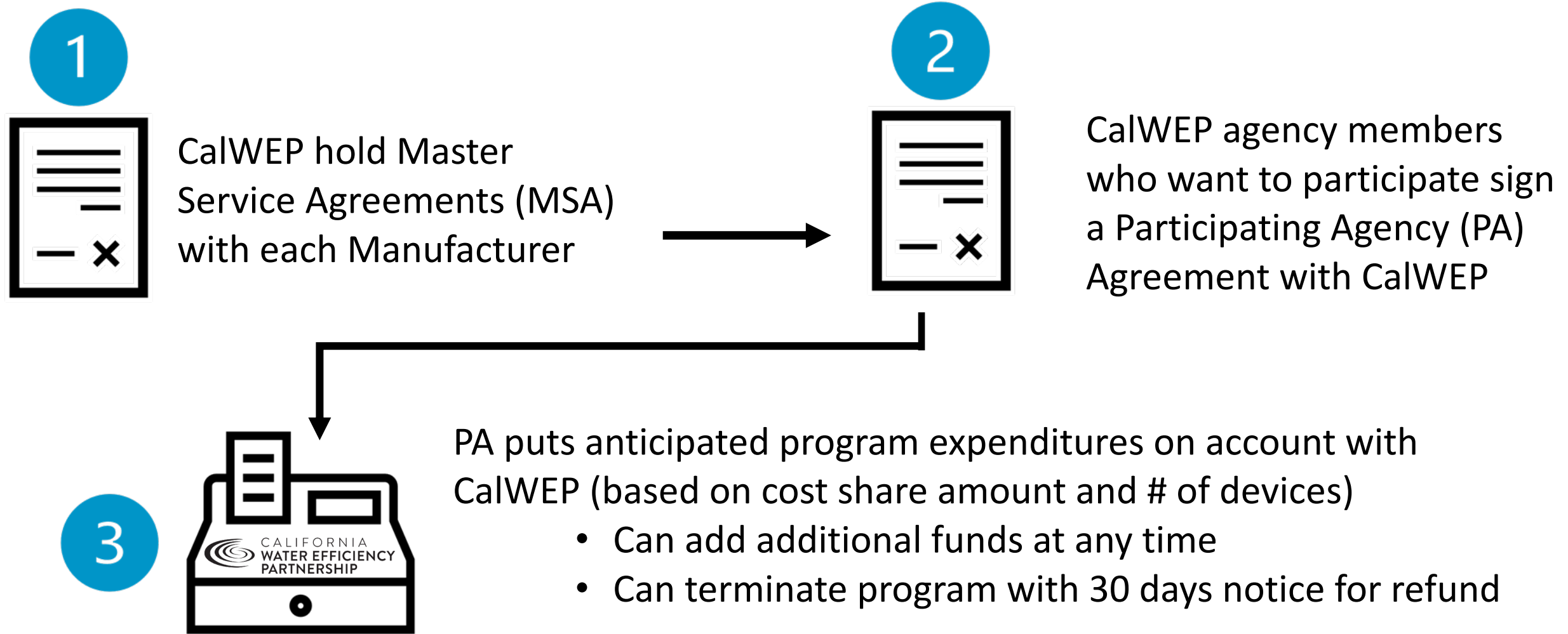
CalWEP's Program By The Numbers

March-June 2021

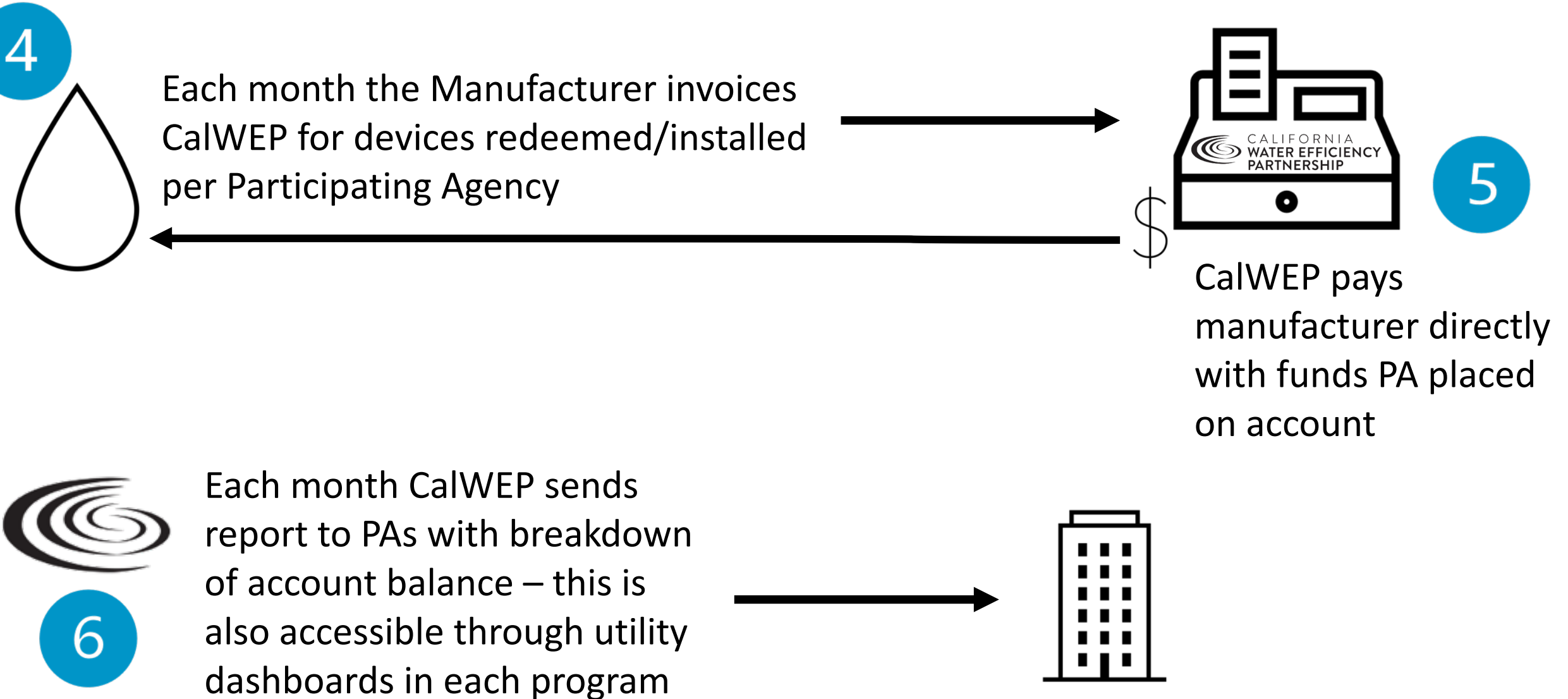
3,000 devices installed

8 agencies enrolled

Setting up the Program with CalWEP



Setting up the Program



Spotlight: City of Santa Barbara

500 devices installed

Using data received to **evaluate compliance and track progress** with potential SB 606/ AB 1668 indoor residential water use standard with Peter Mayer and Flume Team

Interest in evaluating irrigation season moving forward

“ Taking advantage of the CalWEP Direct Distribution was an **easy lift for staff**, since all the leg work was done - you pick your price. Flume provides customer service, promotional materials, and a website...Customers wanted this service, and we get great feedback with very few questions. It provides **added comfort and control** for our customers.”

-Madeline Wood, City of Santa Barbara

City of Santa Barbara Survey Results

92% of customers believed having a Flume made them more aware of where they use water

80% believe that the information provided through the Flume app has changed their water use behavior

50% of customers detected at least one leak within last month

65% of customers believe that using Flume has positively influenced their opinion about their water utility

“It's the best little device ever! It's really going to change the way we use water here to be able to see how much a shower uses, the irrigation, etc. And for my rentals it will help us know when we have a hose left on or toilet that's leaking.”

“

"Has stopped my daughter from taking 30/45 min. showers. Game Changer"

“SUPER easy to install and my install rebate came zooming in once the set up was completed. What a great experience! I highly recommend it to all your water customers. Now I can't wait until someone flushes a toilet.”

”

"It helped me figure out that I had my sprinkler programmed wrong!"