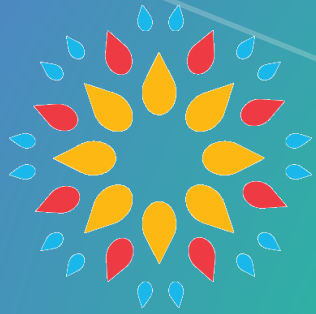


# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)





water**smart** | 2021  
INNOVATIONS

# The Future of Commercial Water Audits Using AMI and Leak Alerts to Get Savings!

**Michelle Maddaus**  
Maddaus Water Management

**Nicki Powell**  
Maddaus Water Management

October 6, 2021



MADDAUS  
WATER  
MANAGEMENT

- How are CII Audits Changing?
- The Power of AMI Data!
- CII Case Studies
- Resources
- Wrap-Up



# How are CII Audits Changing?



# Water Savings Potential

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## Water Use

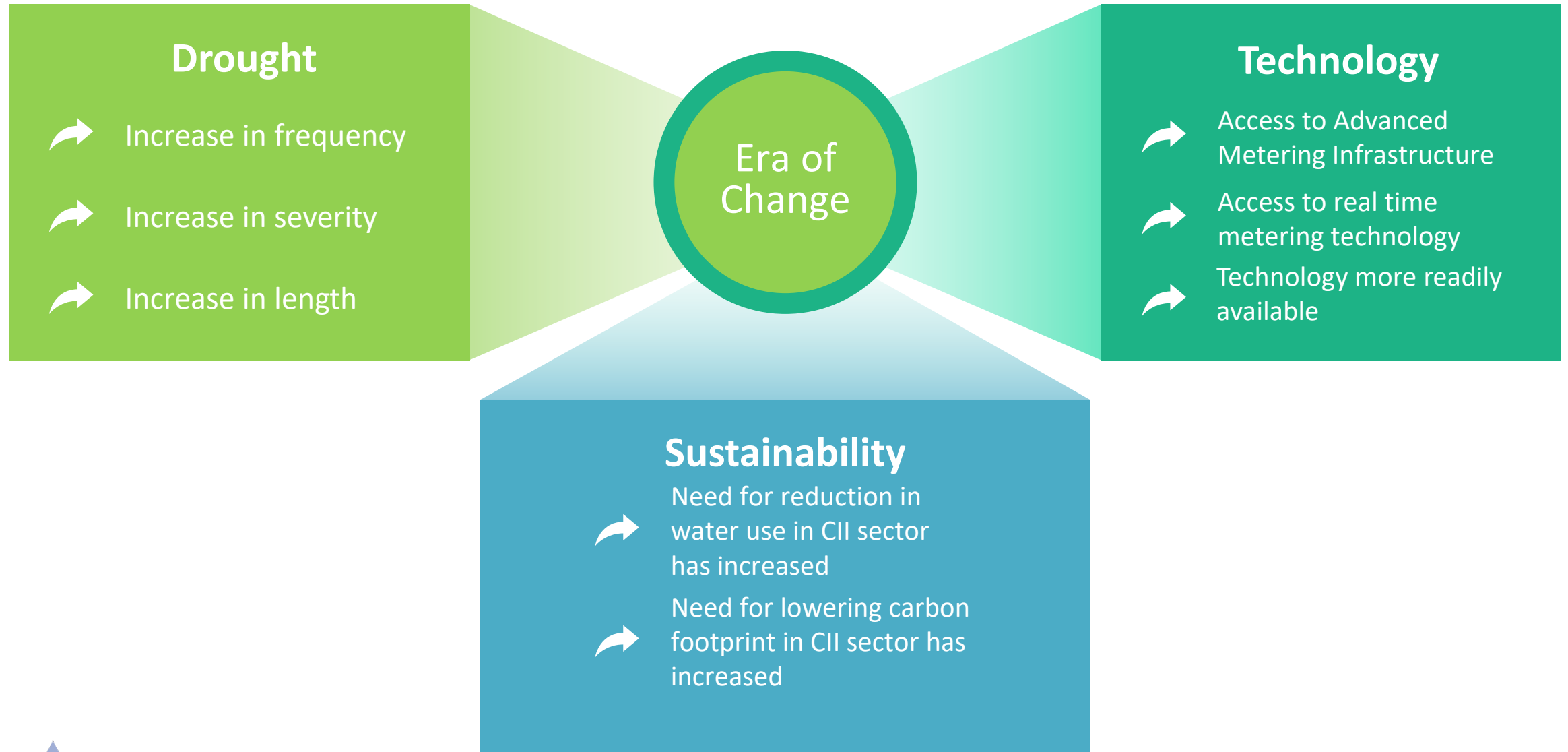
In the U.S., water use by the commercial, industrial, and institutional (CII) sector accounts for up to 30% of water revenue.



## Untapped Savings

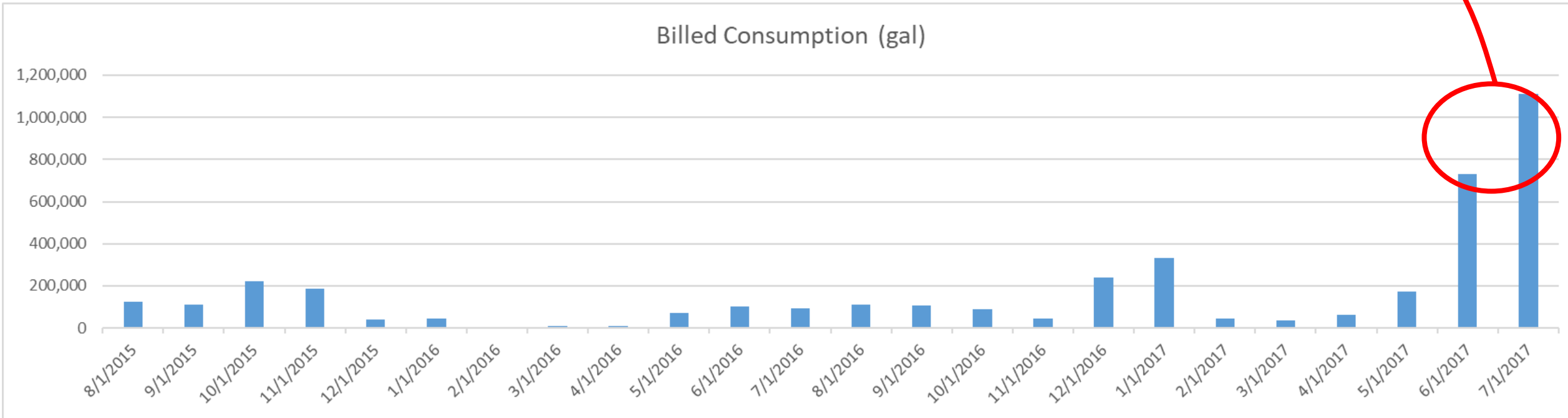
Few CII water efficiency programs exist and not many have AMI data yet, leaving a lot of room for improvement.





# Our Past – Manual Monthly Graphs in Excel

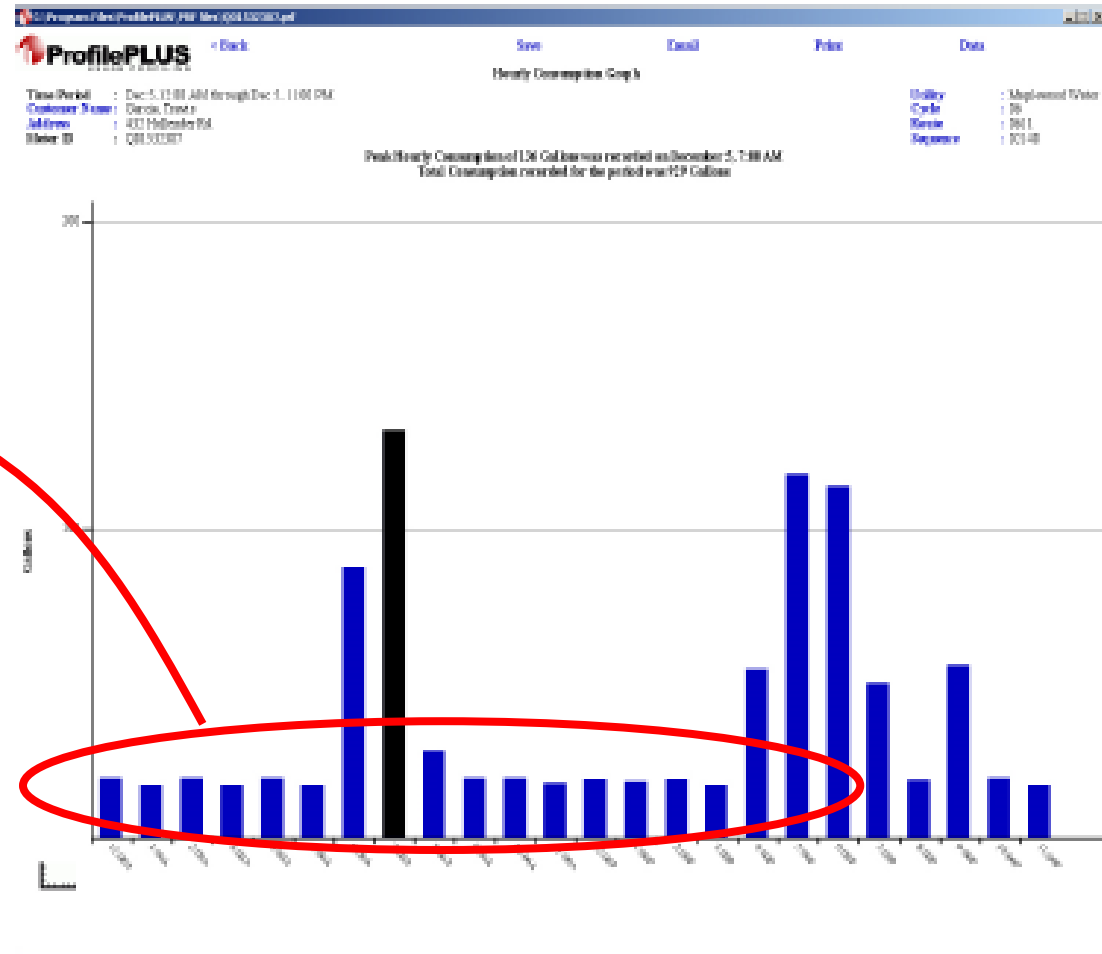
Water use is manually graphed to show evidence of a leak.



# Our Future – Daily Automatic Alerts via AMI Portals

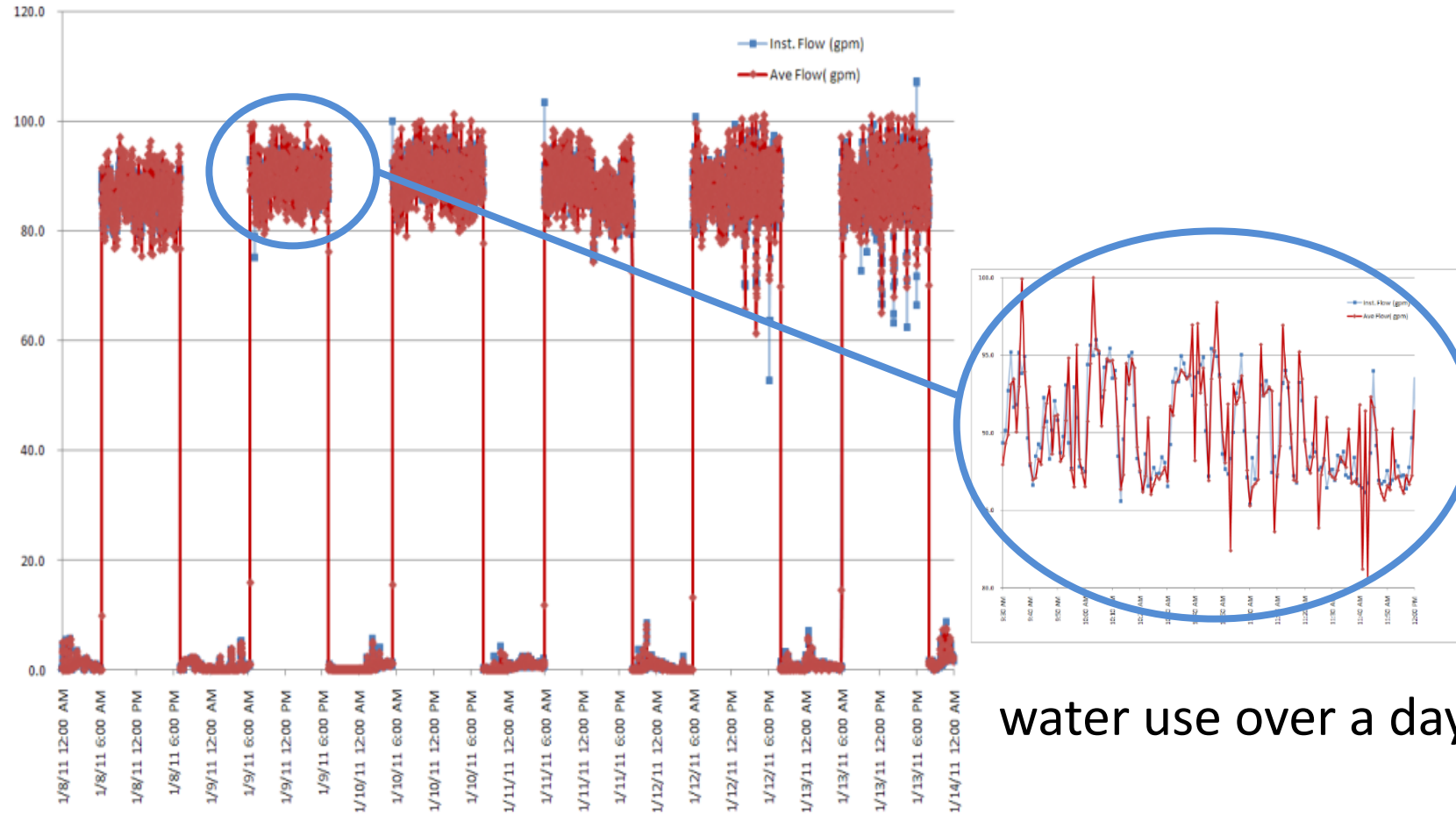
Continuous water use could be evidence of a leak.

**USE FOR DETERMINING CUSTOMER LEAKS**  
Leaks are likely to exist if water usage never goes to zero.





# Our Future – Real Time Flow Meter Data



water use over a day

water use over a week



Maddaus Water Management Inc.

# Consider the Branding

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## Replacing “Audit” with New Terms

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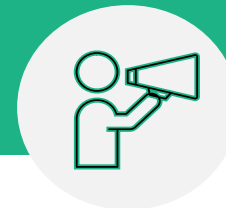
Inspection  
Survey  
Consultation  
Assessment  
Evaluation  
Checkup  
Walk through



## Innovative Marketing Approaches

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Classes  
Webinars  
Social Media  
Community Groups  
Online Data Portal



# The Power of AMI Data!



# AMI Power: Identifies Customer Water Use Trends

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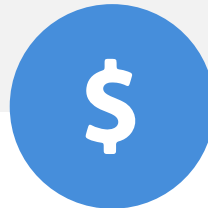
## Water Budget Graphs

Customers can use portal water budget graphs to show variance from typical use.



## Real-Time Data Tracking

Staff/conservation auditors use real-time data to track time of day watering and seasonal fluctuations, find meter issues or identify leaks.



## Analyze Water Trends

Utility staff analyze water trends and align with infrastructure (e.g., changes in use due to working at home during COVID-19).



# AMI Power: End Use Validation

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Hourly/daily use  
can validate  
equipment  
change-out at  
individual  
customer site



Tracks daily use to  
show customer  
trends before and  
after conservation  
measures are  
implemented

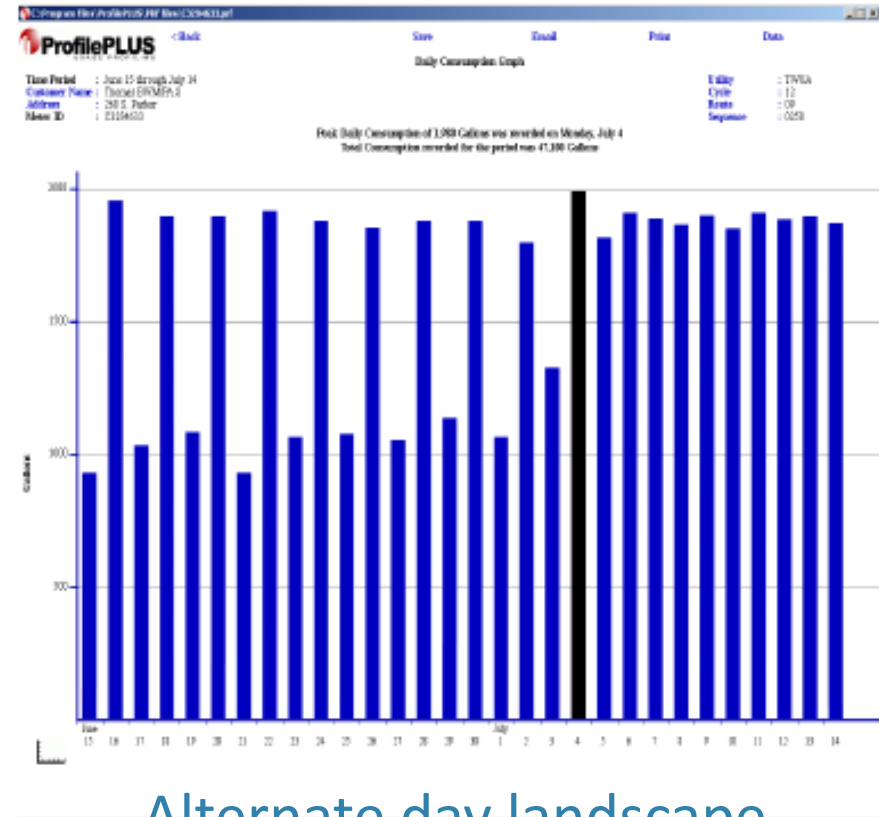


Data analysis  
shows detailed  
customer  
category water  
use

# AMI Power: Drought Enforcement Tool

- Tracks water use by day and hour.
- Compares use to water ordinance compliance.
- Can set alarms for non-compliance with agency water use rules.
- Assists in enforcement of fees (drought fines) with customers.

## USE IN WATER CONSERVATION PROGRAMS – EVEN/ODD DAY OUTDOOR WATERING VIOLATION



Alternate day landscape  
irrigation policy is violated here.



# CI Case Studies



# Case Studies Using AMI Data



**Fort Collins, CO**  
CII Landscape  
Water Budgets



**Sacramento, CA**  
Leak & Drought  
Notifications



**Santa Rosa, CA**  
Drought  
Communication  
with Customers



**Beverly Hills, CA**  
Leaking Site  
Identification

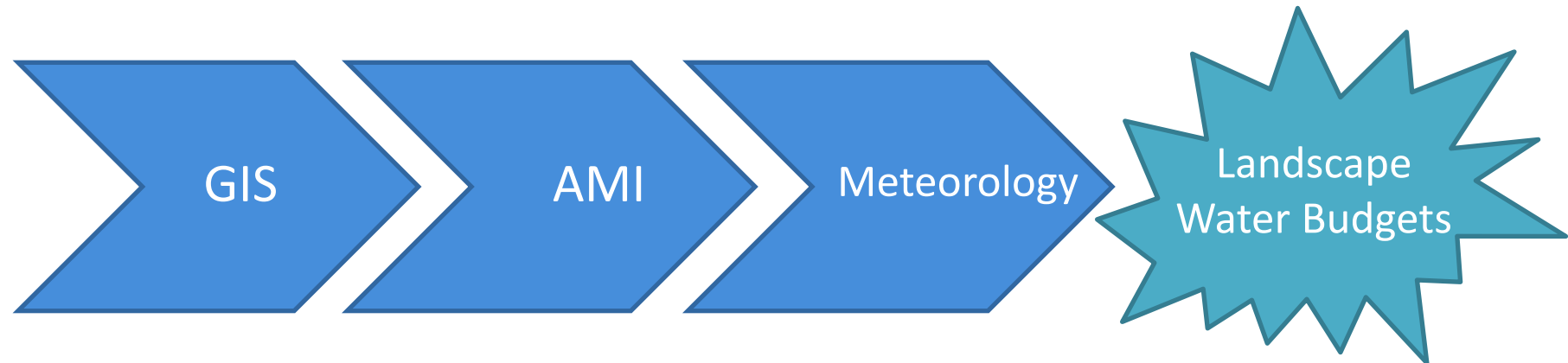


# Case Study: Fort Collins, CO



## Demographics

- 35,000 customers (3,000 commercial)
- Serves 45 MGD in the summer months
- Installation of meters between 2011-2014
- Water meter data read hourly
- Started Landscape Water Budgets in 2018

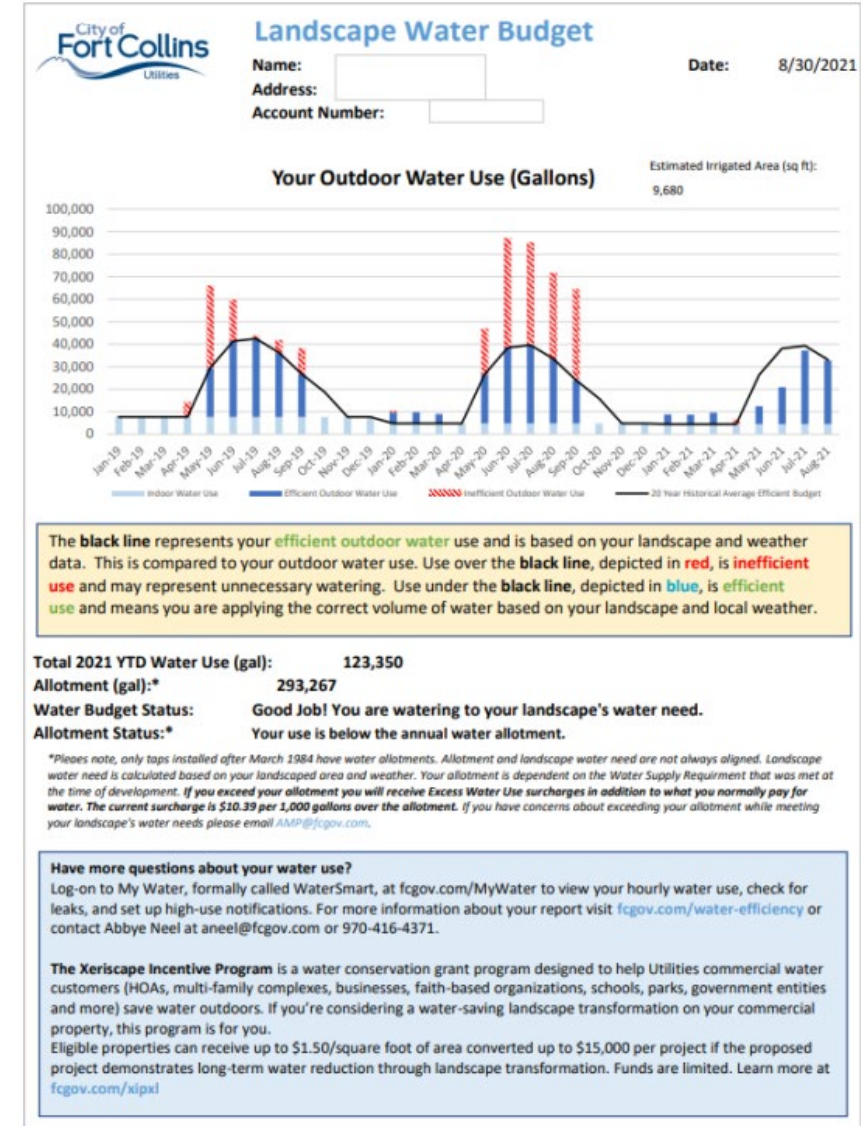


# Landscape Water Budget Program Using AMI & GIS

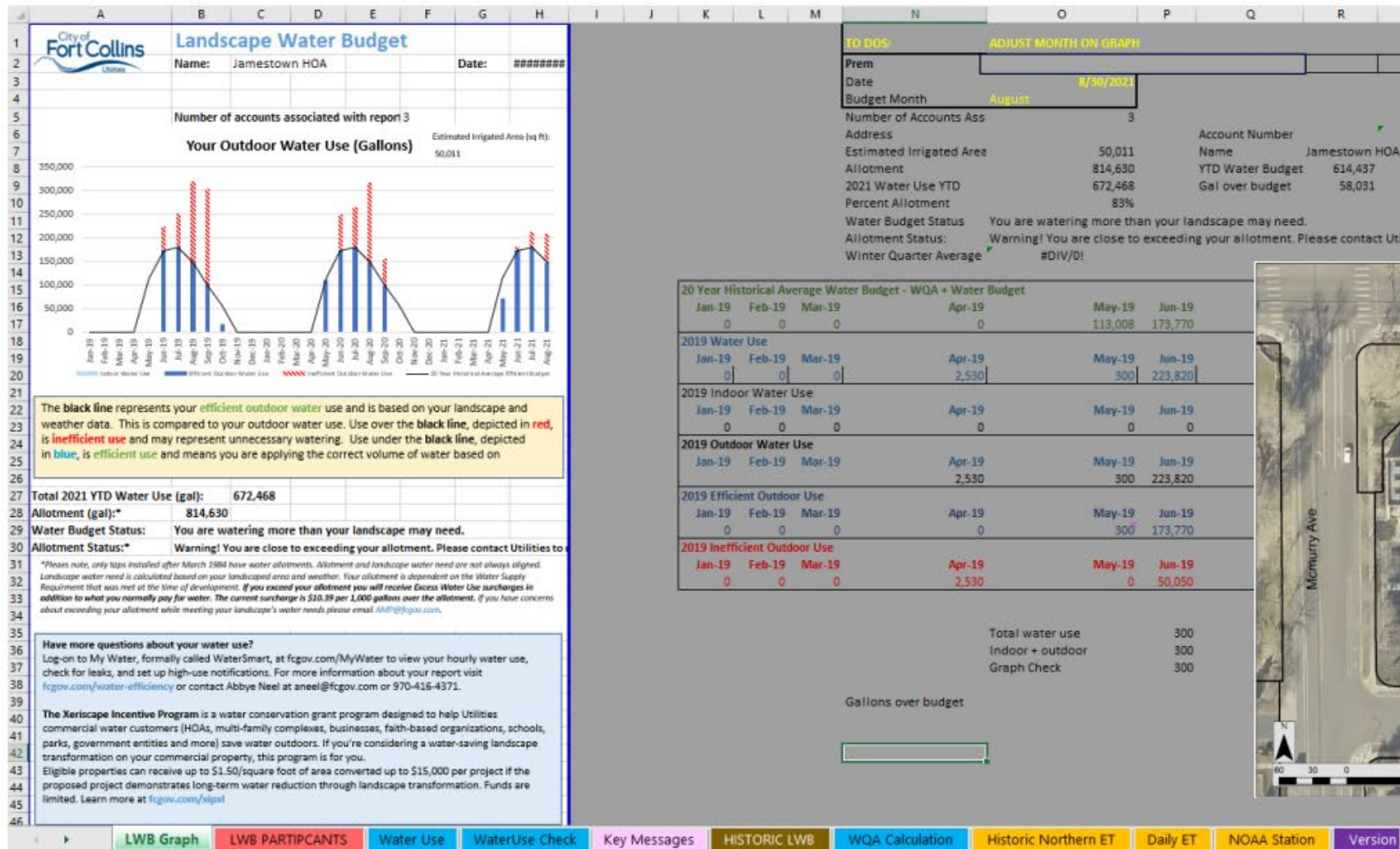
- 40 MG savings per year
- 80+ commercial-scale customers
- Monthly budget reports during irrigation season
- Supports programs (e.g., landscape conversions, irrigation equipment rebates) using data and clear targets



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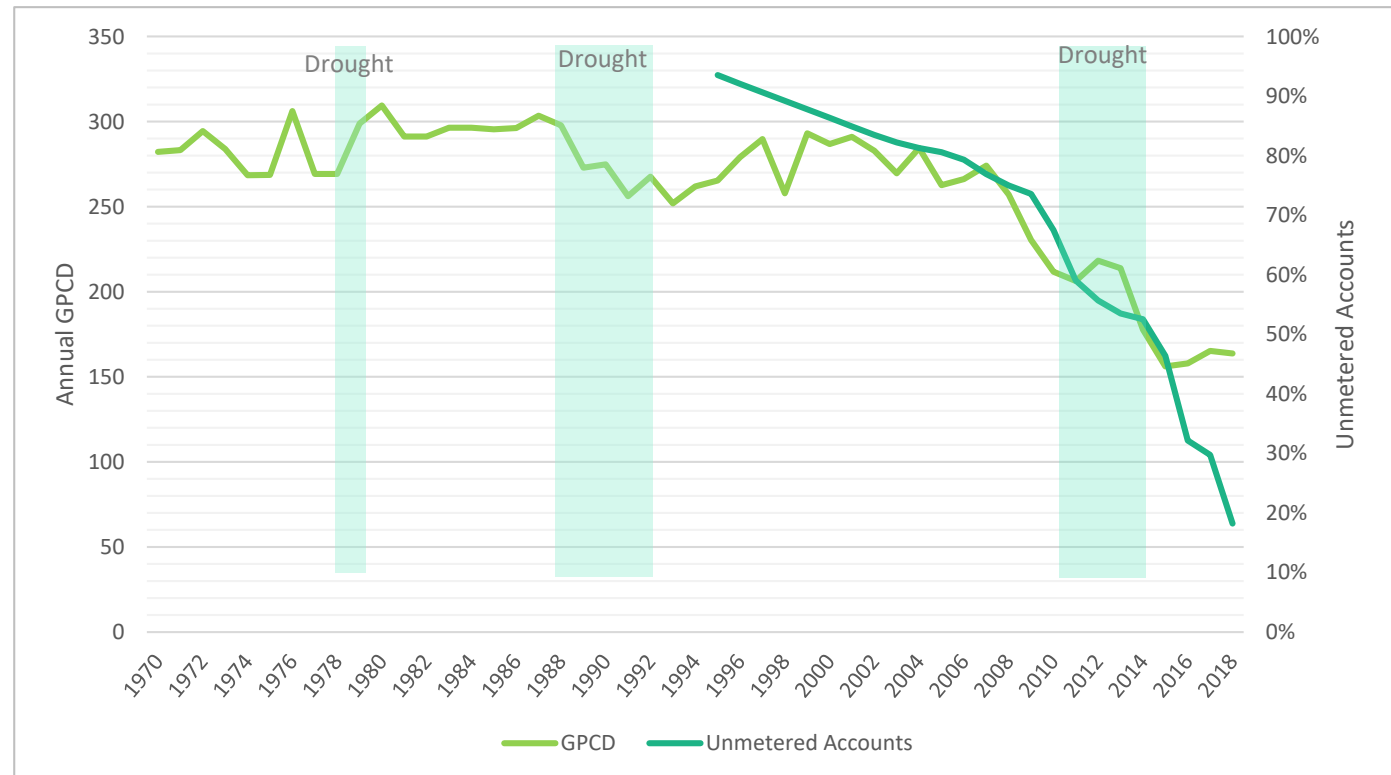
# Landscape Water Budget Program Using AMI & GIS



# Case Study: City of Sacramento, CA

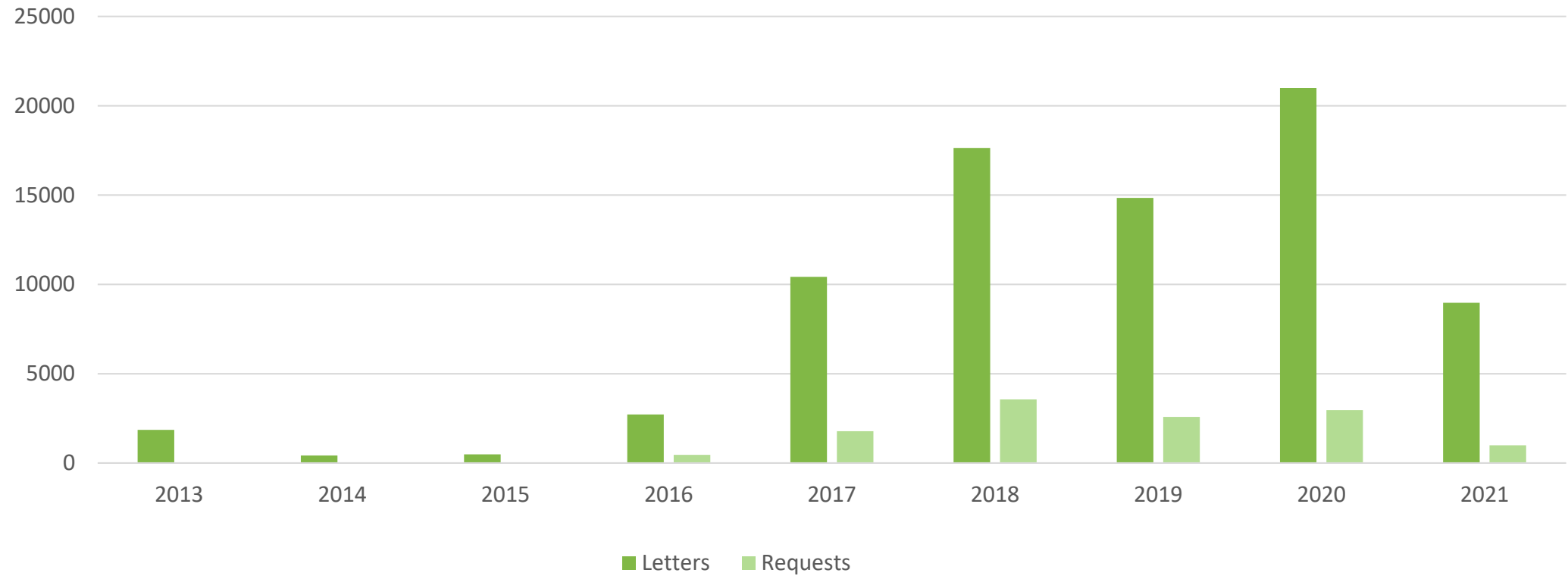
## 2014–2017 CA Drought

- Activated Stage 2 of Water Shortage Plan
- Conversion of flat-rate accounts to metered accounts
- Installation of meters allows City to identify customers with high use and leaks





# AMI Leak Letters 2013-2020



# CII Leak Letters

Total leak letters sent – CY 2020: 21,000+, CY 2021: 10,770 to-date

- Majority sent to single-family, duplexes, triplexes, fourplexes
- Some letters sent to CII accounts (breakdown below)

CII Accounts  
(non-irrigation,  
total accounts = 7,449)

- Churches: 91
- Office Buildings: 467
- Commercial Warehouses: 256
- Cemeteries/Mortuaries: 4

CII Irrigation Accounts  
(some may serve residential properties,  
total accounts = 1,623)

- Parks: 101
- Irrigation: 100
- Medians: 25



Maddaus Water Management Inc.

City of  
**SACRAMENTO**  
Department of Utilities

# Case Study: Santa Rosa Water, CA

## Targeting Continuous Use Customers Through AMI

- 4,400 CII accounts
- AMI installation began in Sept 2017 and fully deployed in January 2021
- Brand new Customer Portal just launched!





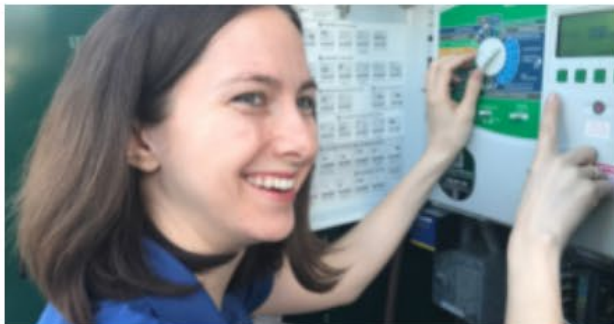
H2O Bill Assistance ▶

Delinquent Policy

Update Account Information

My Water Usage

## My Water Usage



## NEW water smart PORTAL

### A NEW drought-busting tool customized just for you!

Do you know how much water you use, when you use it, and the best ways for you to save? Santa Rosa Water's brand NEW WaterSmart Portal is here to help you track and analyze your water use online. To register your account, all you need is your customer and account number and last billed amount.

- Track Hourly, Daily, Weekly, and Monthly Water Use
- Create Customized Notifications for High Usage



# Leak Letter Development, Thresholds and Benefits

## Billing Department Collaboration

1. Billing pulls continuous use reports
2. Clears as many as they can
3. Sends letter to customer
4. Calls if over 100 gallons per hour
5. Forwards to WUE team after no response

Meter Group	Consecutive Hours	Gallons Per Hour
Commercial	48	50
Industrial	72	100
Institutional	24	30

## Benefits and Takeaways

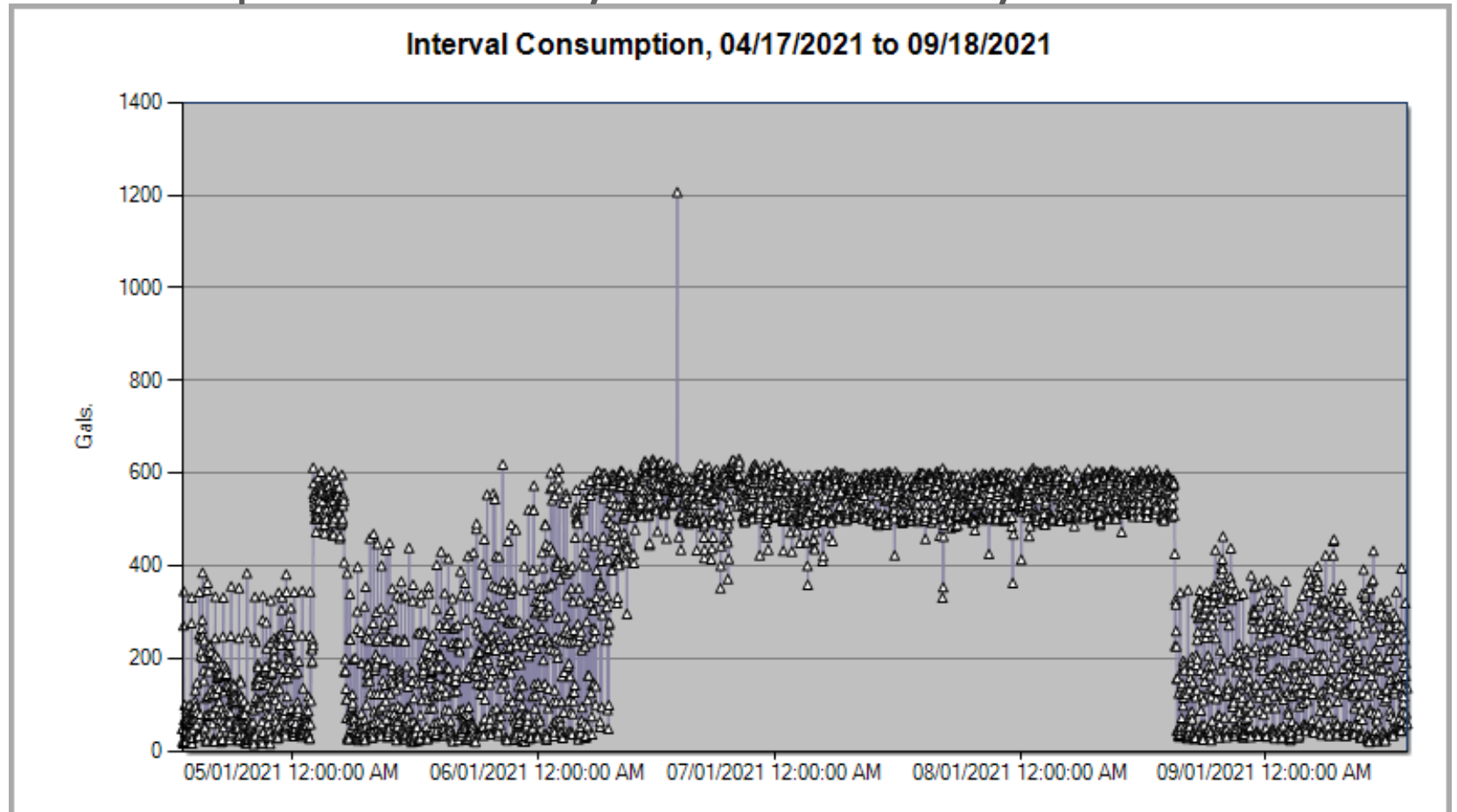
1. Inter-department collaboration
2. Increased audit participation

# Case Study: City of Beverly Hills, CA



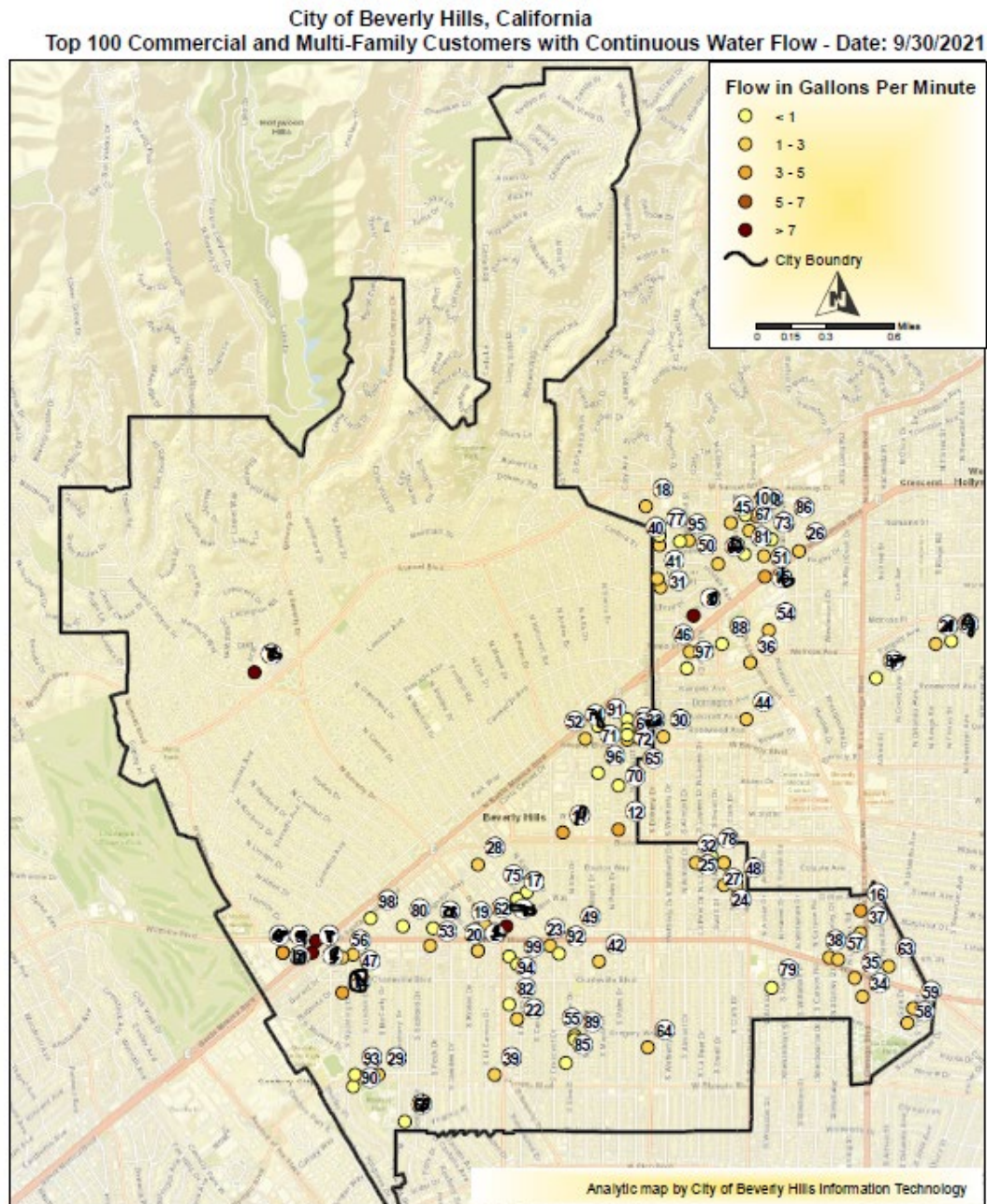
## Office Building AMI Data – Cooling Tower

- 12,000 customers (4,000 commercial)
- Aclara meter data read on 1 hr intervals.
- Data uploaded every 4 hrs to AMI system.



# Top 100 Water Flow List

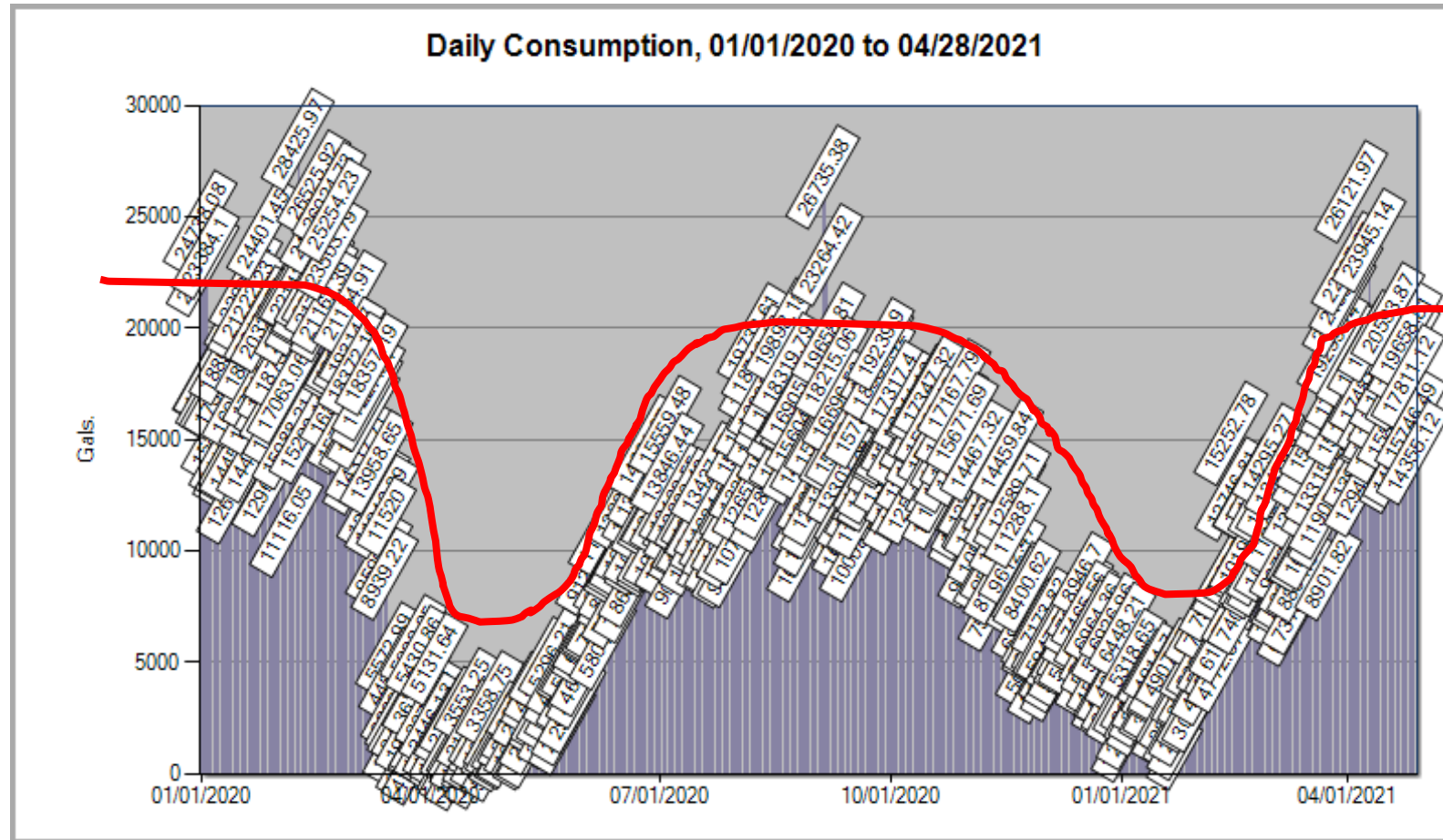
Priority	Name	Acct	Address	GPM	# of Days
1	Customer Name		Customer Address		
2	Customer Name		Customer Address		
3	Customer Name		Customer Address		
4	Customer Name		Customer Address		
5	Customer Name		Customer Address		
6	Customer Name		Customer Address		
7	Customer Name		Customer Address		
8	Customer Name		Customer Address		
9	Customer Name		Customer Address		
10	Customer Name		Customer Address		
11	Customer Name		Customer Address		
12	Customer Name		Customer Address		
13	Customer Name		Customer Address		
14	Customer Name		Customer Address		
15	Customer Name		Customer Address		
16	Customer Name		Customer Address		
17	Customer Name		Customer Address		
18	Customer Name		Customer Address		
19	Customer Name		Customer Address		
20	Customer Name		Customer Address		





# COVID-19 & Water Use

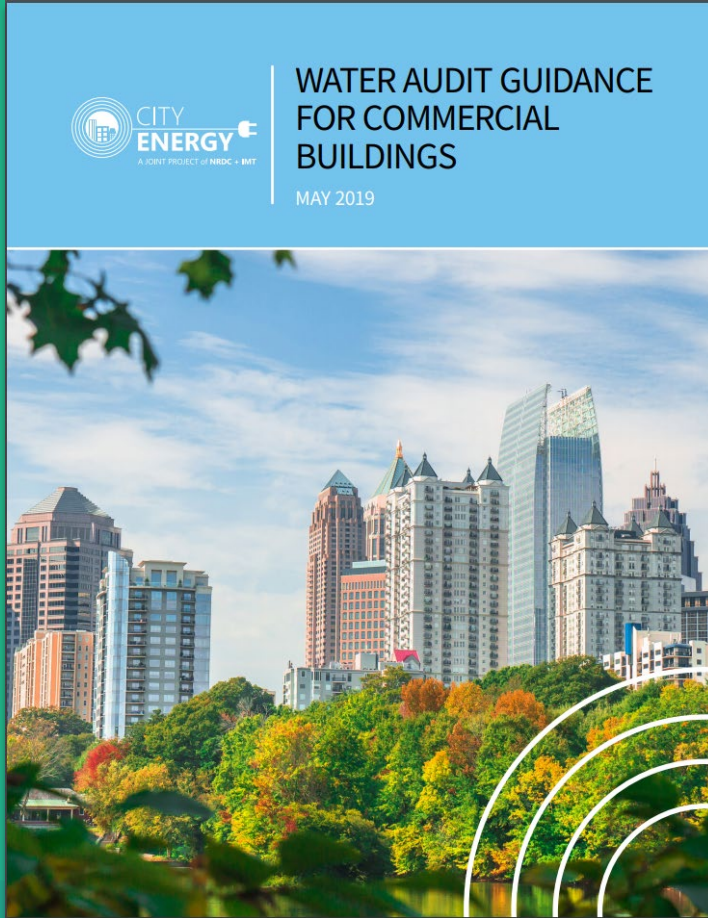
## Hotels



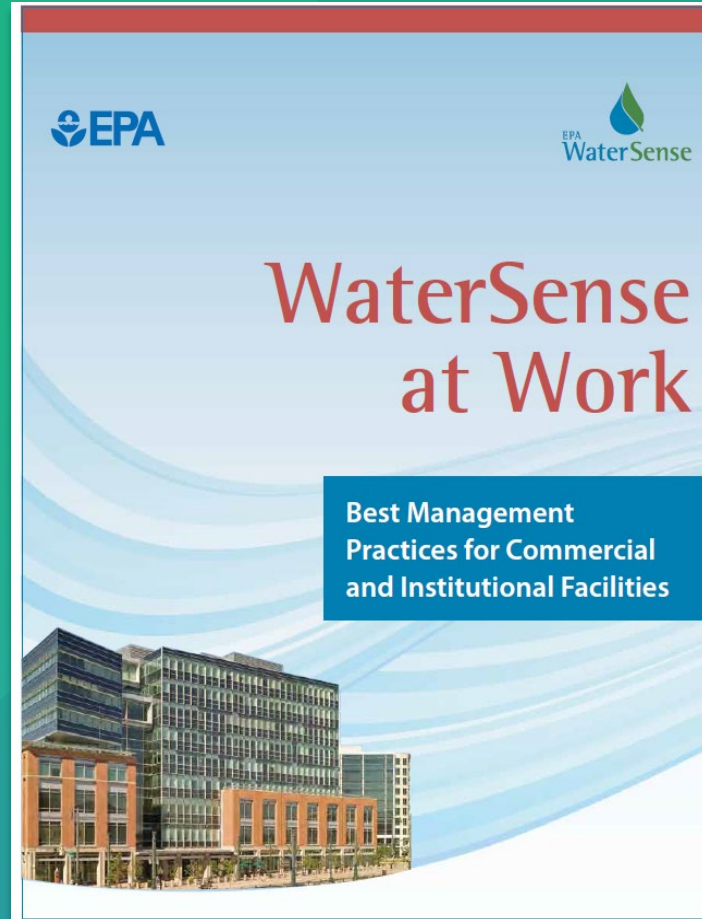
# Resources



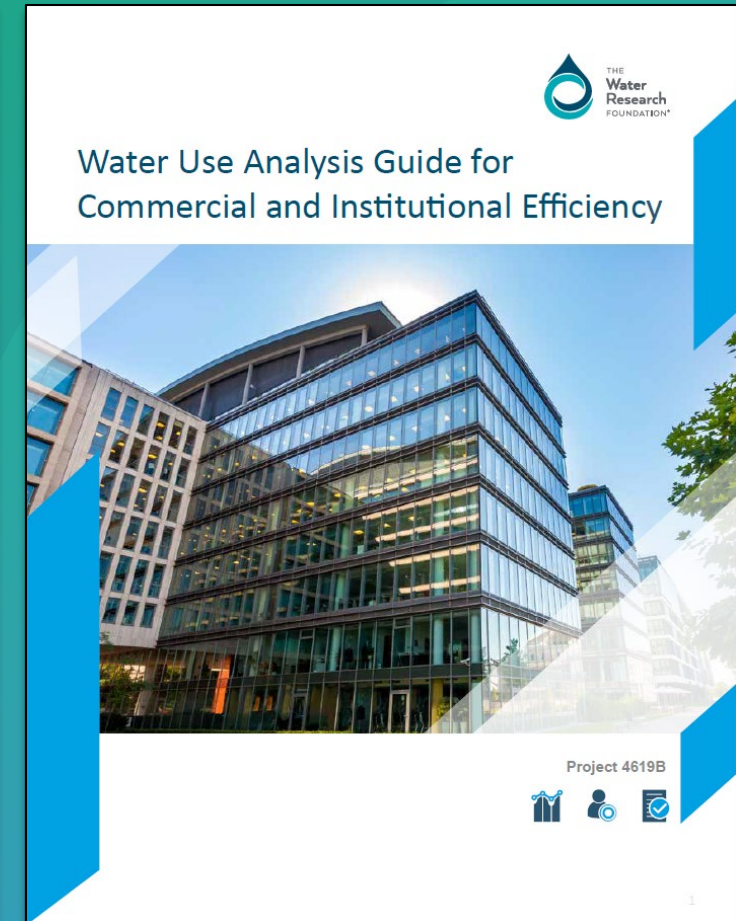
# CII Best Management Practice Resources



City Energy Water  
Audit Guidance for  
Commercial Buildings



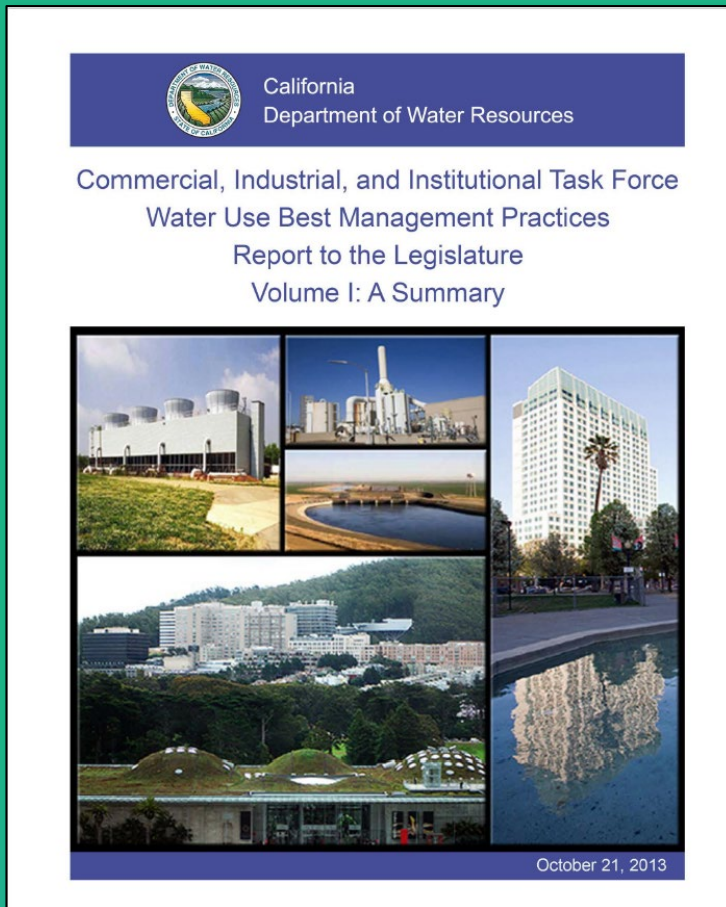
U.S. EPA WaterSense at  
Work



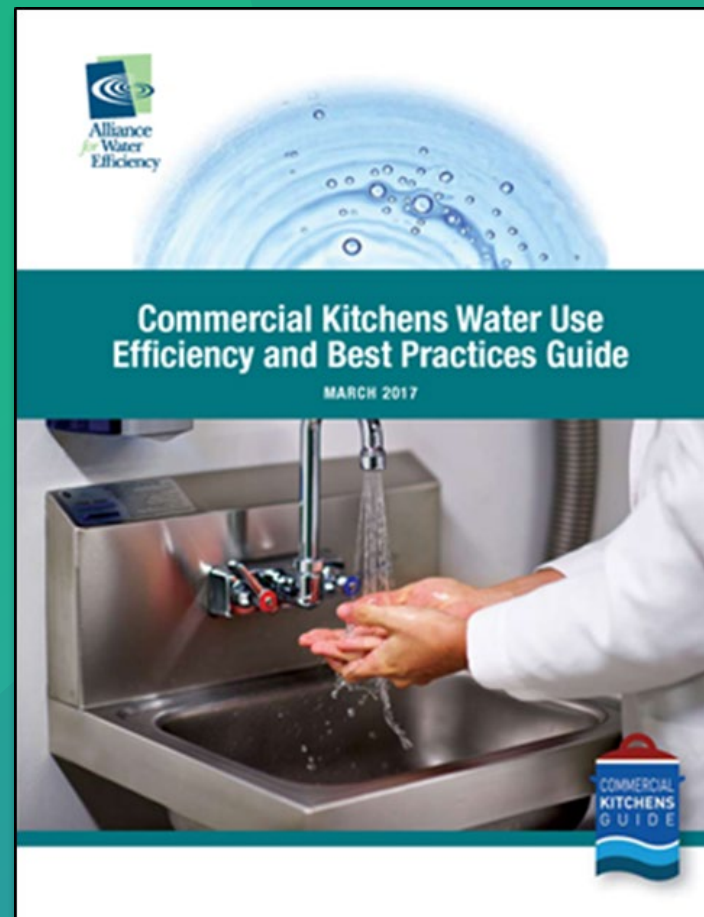
Water Use Analysis Guide  
for Commercial and  
Institutional Efficiency



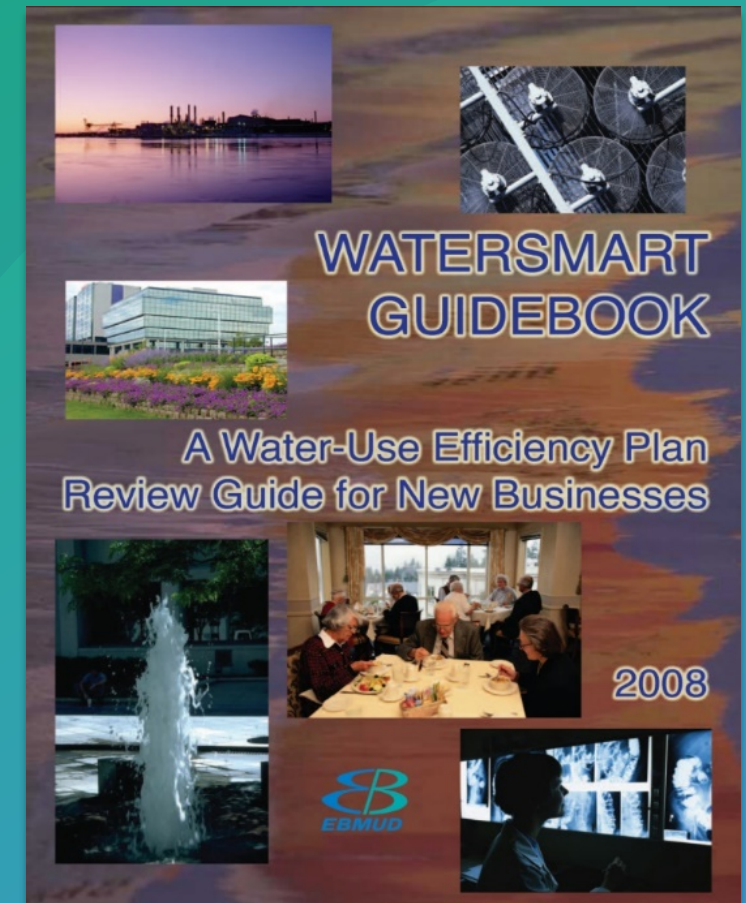
# CII Best Management Practice Resources



[Commercial, Industrial, and Institutional Task Force Best Management Practices Report to the Legislature Volume I](#)



[Commercial Kitchens Water Use Efficiency and Best Practices Guide](#)



[EBMUD WaterSmart Guidebook](#)



# **AWWA AMI Portal Best Management Plan Guidebook**

national study and utility survey focused  
on customer portal experiences







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WATER  
MANAGEMENT

**Thank You!**



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