### This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



### WATERNOW ALLIANCE PRESENTS











### How much water can household leak detection devices save?



### **ABOUT US**

WaterNow Alliance is a forum for local water leaders who want to champion sustainable, affordable and climate resilient water strategies.









### LEAK DETECTION

- On average, 13% of household water use is lost to leaks
- Often, the first sign of a problem is an abnormally high water bill



- Water bills often come once a month or bi -monthly
- Bills provided in units not typically understood by customers (e.g. ccfs)



### ACCESS TO INFO

## IN -LINE FLOW MONITORS

- Real time water use
- Disaggregating water use
- Units we all understand











## **CUSTOMER VIEW**

CA Election Data Archive www.csus.edu/isr/projects/ceda.html			• Home			
		I	Week	Month	Year	
<	TOD/ O.( gallor	AY D	000	THIS 22 ga	MONTH 8.1	
State	30-DAY SUMMARY Average daily usage 0.1 events per day Average event duration Average flow rate	on		13 galle	7.6 gallons 3m 2Os 5.7 ons / minute	
	MONTHLY SUMMAR May 3 events April 0 events March 0 events	Y		2	228.1 gallons 0.0 gallons 0.0 gallons	
19 Sun	20 Mon	21 Tue	22 Wed	23 Thu 24	Fri 25 Sat	



✓ -	Toilet	370.1
Image: Contract of the second seco	Washer	229.7
<b>2</b> (1)	Leak	228.1
<b>—</b>	Garden Hose	156.8
.**	Shower	112.5
	Sink	100.6
	Dishwasher	13.7
-	Bath	13.1
2?	Uncategorized	10.0

**Study Goals:** Characterize the typical water savings – both from leak detection and conservation – that a customer experiences following installation of one of these devices.

## FUNDERS





### 1 YEAR STUDY

## PARTNER CITIES









### 80 DEVICES IN SINGLE -FAMILY HOMES

### 80 CONTROL GROUP HOUSEHOLDS

RANDOM CONTROL TRIAL METHOD





Participate in a leak detection pilot study! Single-family homeowners living in Foster City, Burlingame, San Jose Municipal Water System, and Santa Clara are eligible to apply today.



Smart Apps Make a Smart Home Access real-time water use, receive leak alerts, and shut off the water to your home all from your phone using next generation technology.





### Smart Apps Make a Smart Home

WaterNow Alliance, together with its partners, is seeking participants for a study of next

generation leak detection devices. Single-family homeowners living in Foster City,

Burlingame, San Jose Municipal Water System, and Santa Clara are eligible to apply today!

Access real-time water use, receive leak alerts, and shut off the water to your home all from your phone.

### Save Water and Money

Use real-time water data and set conservation targets to identify water and money saving opportunities to lower your bill.



### Apply Today

Apply for your chance to participate in a leak detection pilot study and receive a free leak detection device with installation. If you are selected, the device is yours to keep!

### Visit: bit.ly/LeakDetectionPilotStudy















Apply for your chance to receive a free leak detection device with installation. If you are selected, the device is yours to keep!

### bit.ly/LeakDetectionPilotStudy

## RECRUITMENT

## RECRUITMENT

## HOW FAMILIAR ARE YOU WITH LEAK DETECTION DEVICES?

Very Familiar

1%

Unfamiliar 78%

### Somewhat Familiar 21%

## RECRUITMENT

### WHY ARE YOU INTERESTED IN APPLYING FOR THE PILOT STUDY?

I want to lower my water use 27%

I have had problems with leaks in the past 14% My neighbor/friend/HOA told me about the program 1%

> I want to lower my monthly bill 27%

I am interested in water -efficient technology 31%

## **INSIGHTS/LESSONS LEARNED**

### 1. DIRECT OUTREACH

WaterSmart messaging

2. FREE VS NOMINAL FEE

"Skin in the game"

**3**. INSTALLER NETWORK

Recognizing value add to their business accelerates installs



4. STREAMLINE **INSTALLATION** PROCESS

Verify installation compatibility

alliance

## **BASELINE WATER USE (2015 - 18)** 12,000 10,000 8,000 6,000 4,000 2,000



### AUG SEP OCT NOV DEC

## **STUDY PERIOD WATER USE**



## **STUDY PERIOD WATER USE**



Treatment group:  $\sim 8\%$  less water than control

Change from baseline: Treatment: 10% increase Control: 19% increase

### SEP NOV OCT DEC

- The most commonly detected leaks stemmed from:
  - Toilet leaks or repairs
  - Running sinks or open/loose faucets
  - Garden hose leaks or issues with an outdoor irrigation system
  - High water pressure
  - Long showers







How easy was it to learn how to use your device and to interact with the app?





	40%
	40%

30% 35% 40% 45%

On average, how often do you look at your water usage on the mobile app?





## **PARTICIPANT ATTITUDES**



## **PARTICIPANT ATTITUDES**

### Water Conservation Attitudes





## **PARTICIPANT BEHAVIORS**

Have you made any of the following changes since getting your leak detection







- Understanding household water use and patterns
- Peace of mind: remote and emergency shut -off capabilities

- systems)

All participants replied that they either **"would"** (~50%) or **"would maybe"** (~50%) recommend their device or a similar flow monitoring product to others.

### Challenges

• False alarms (esp. around irrigation

 Comfort with new mobile app technology

## **INSIGHTS/LESSONS LEARNED**



- Include training with device installation
- Time outreach to address common challenges (e.g., false positives from irrigation systems)
- Establish backup plans: participant attrition + product discontinuation
- Capture opportunities to connect participants with other conservation offerings



## **NEXT STEPS + FUTURE RESEARCH**

- How does the California context affect this study?
- How have the pandemic and shelter -in -place orders affected this study?
- What drives greater conservation during summer months?
- Do participants interact with the the devices differently, based on:
  - Household water use (e.g., high -, medium -, or low water users)?
  - Household income?
  - Household type (SF, MF, CII)?







## THANK YOU

# water leaders. resilient solutions.

### AMY WEINFURTER aw@waternow.org

## CUSTOMER -SIDE LEAK DETECTION DEVICES



### MOISTURE SENSORS

 Strategically placed around the home to sense moisture and send alerts



### METER FLOW SENSORS

- Attached to the existing water meter
- Monitors the meter register
- Transmits signal to smartphone app



### **IN - LINE FLOW MONITORS**

- Installed on the water supply line
- Monitors flow and water use behavior
- Remote and automatic shut - off capabilities

## RECRUITMENT





### WHAT ABOUT AMI?

- Real time water use vs 15 min to 1 hour delay
- AMI is cost prohibitive for many utilities
- AMI often only available to account holder
- Possible b ridge to AMI
  - o Early adopters/folks that
    - want to conserve/
    - interested in water tech