

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



**Yes,
Conservation Programs
do Save Water!
*Here's How Much...***

Water Smart Innovations 2016

October 5 , 2016

Kat Wuelfing

&

Andy Florendo



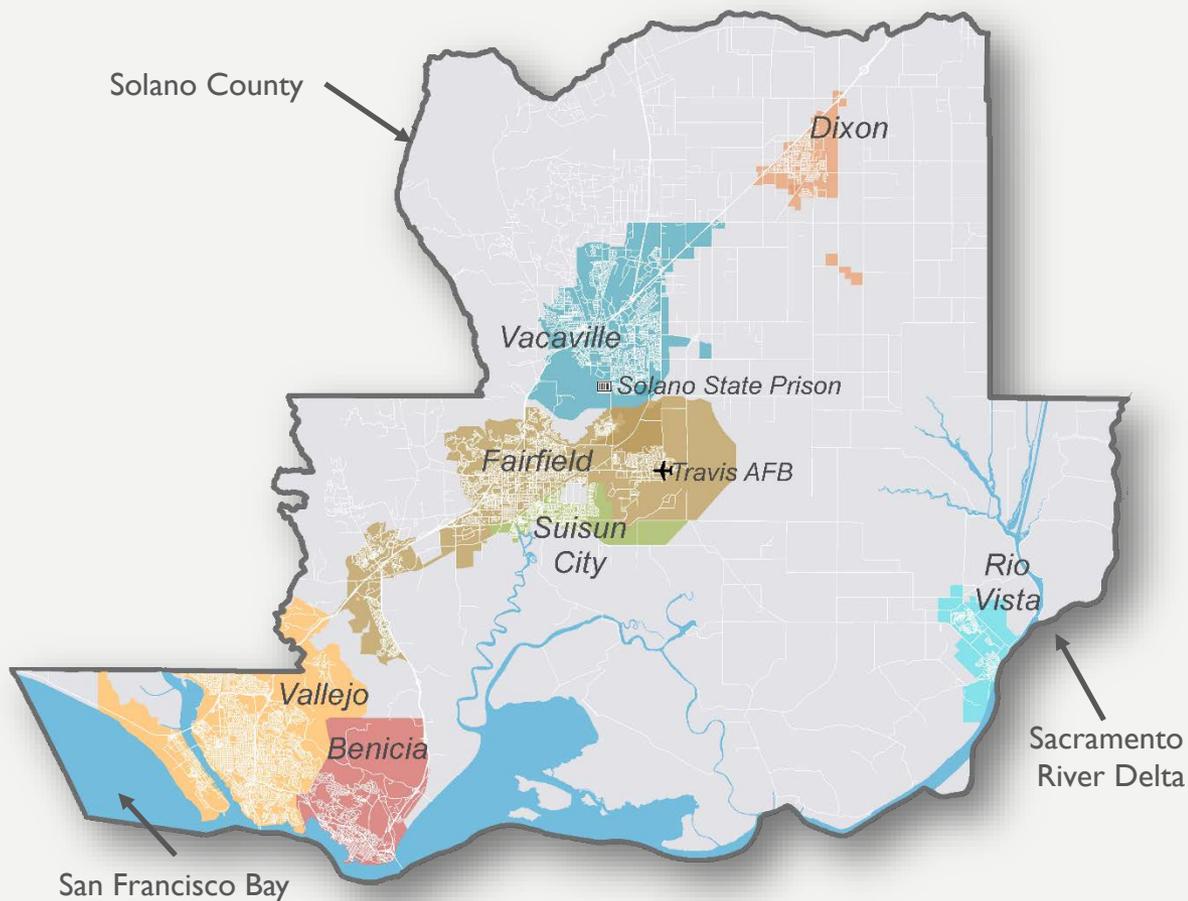
www.ekiconsult.com





SCWA SERVICE AREA





SCWA SERVICE AREA

- Solano County Population: 431,500
- Seven cities
- Three irrigation districts
- California State Prison, Solano
- Travis AFB





Lake Berryessa

SCWA WATER CONSERVATION

- Solano County Water Agency (SCWA) is a Wholesaler –
- ...Responsible for water supply, water conservation, flood protection, water quality, ecosystem and watershed health



SCWA IS IMPLEMENTING OVER A DOZEN CONSERVATION PROGRAMS

- Residential Programs
- Landscape Programs
- Commercial, Industrial, Institutional Programs
- Agricultural Programs
- Outreach/Education
- Environmental Restoration



OUTLINE

1) Project Objectives & Scope

2) Geographic Analyses

3) Water Savings

4) Relative Cost Effectiveness

5) Remaining Conservation Potential & Program Targeting

6) Conclusions & Next Steps

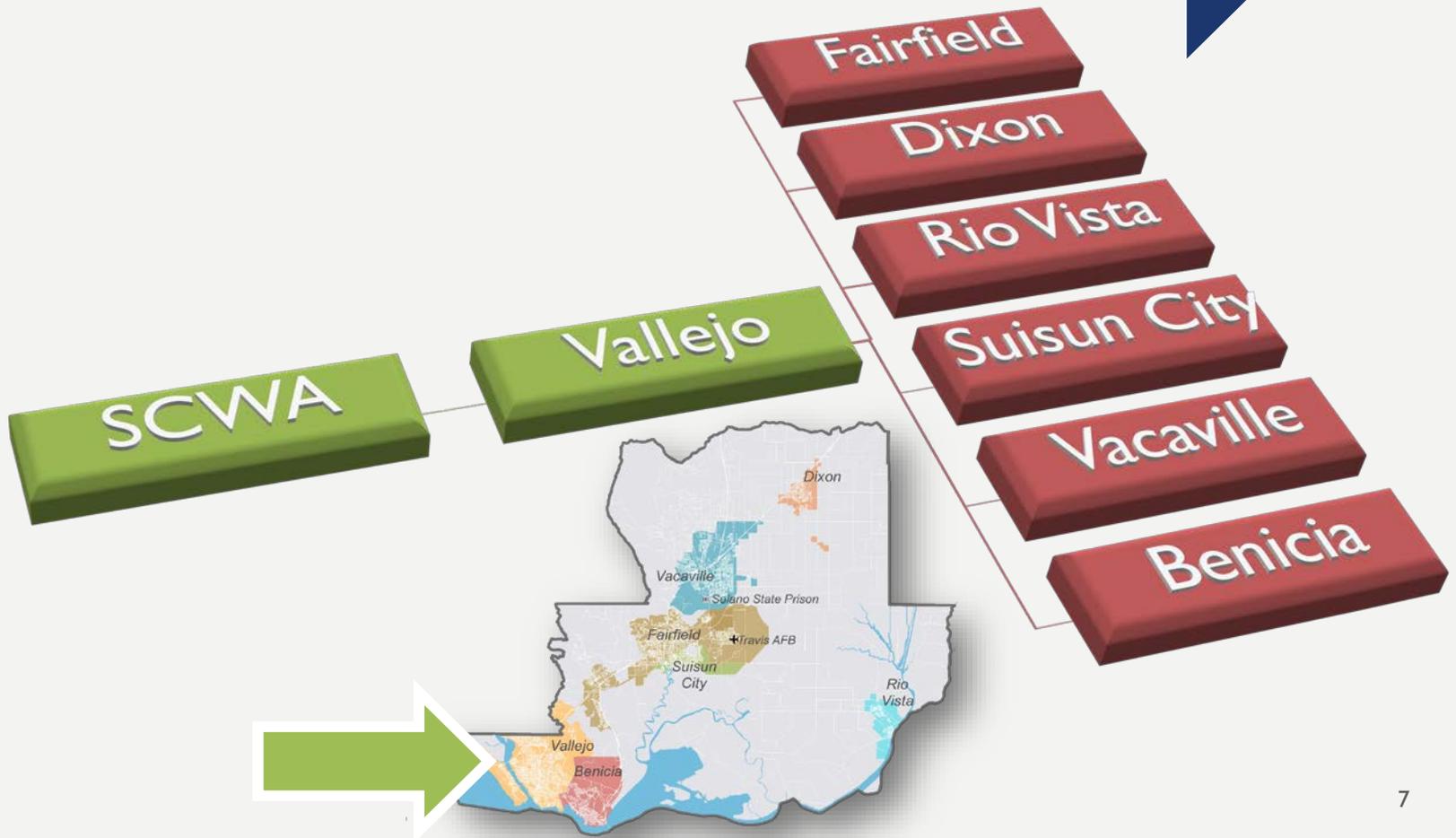


PILOT STUDY DESIGN



Pilot Study

Phase 2



PILOT STUDY OBJECTIVES



HE Toilet Rebate



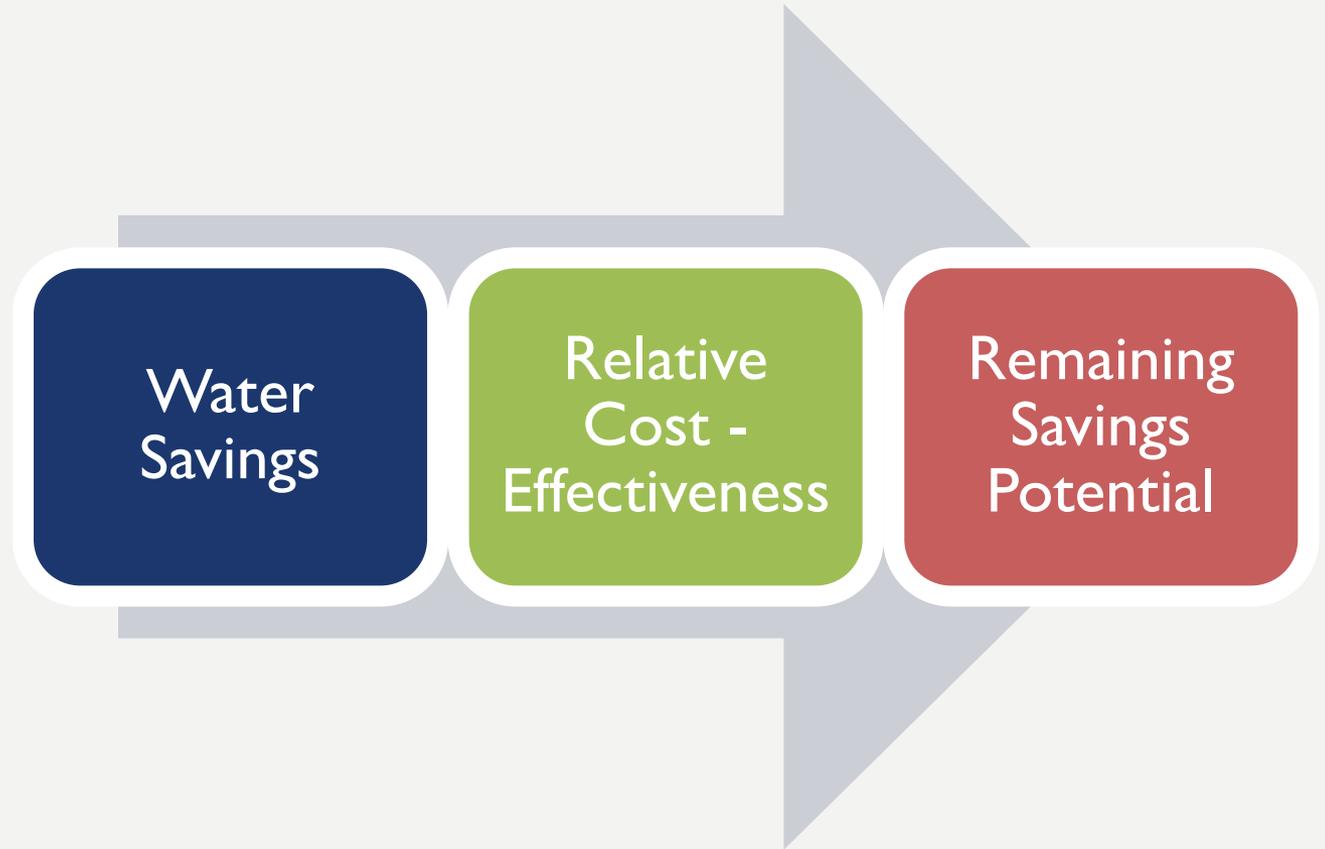
HE Washer Rebate



Turf Replacement Rebate



Home Water Use Survey



Major water conservation programs to SFR customers



HE Toilet Rebate



HE Washer Rebate



Turf Replacement Rebate



Home Water Use Survey

Vallejo account-level historical water use (2000-2015)

- 3,000,000+ records in Access

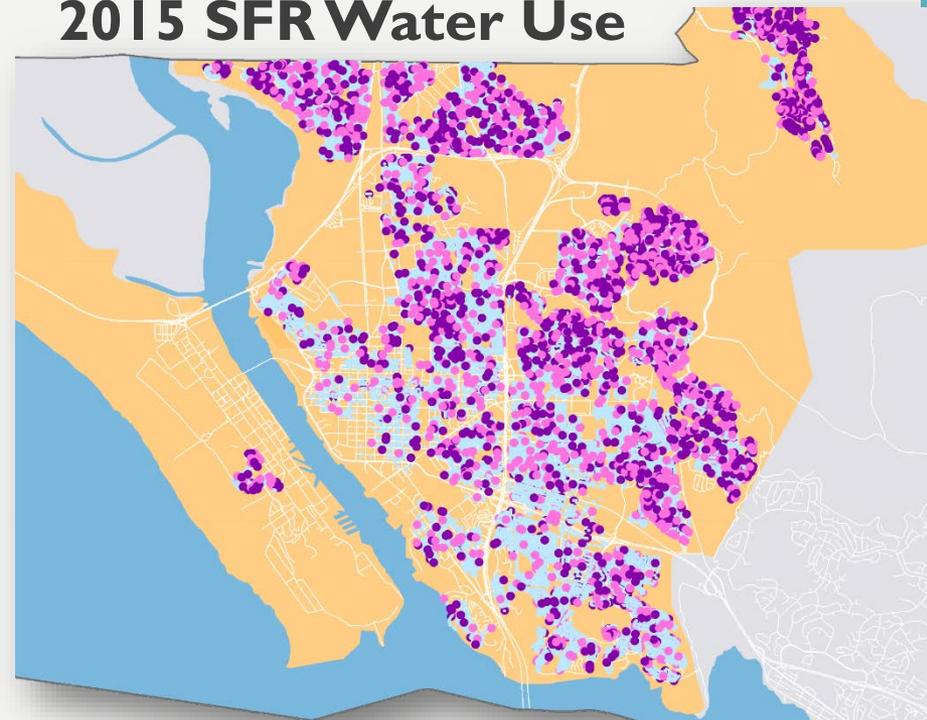
Parcel-level data from County Assessor

- 150,000+ record shapefile
- Year house built, lot size, sq. footage, lot type, etc.

SCWA Water conservation program history records

- Various Excel and Access files, organized by street address

Vallejo 2015 SFR Water Use



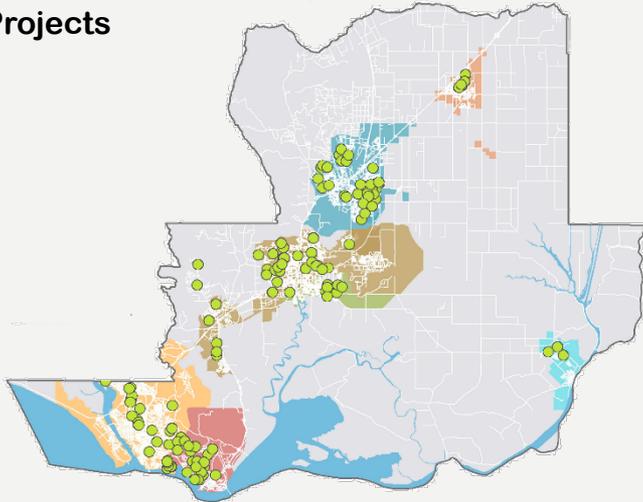
- Highest 5% of SFR Water Use
- Highest 10% to 5% of SFR Water Use
- Lower 90% of SFR Water Use

GEOSPATIAL ANALYSIS OF PROGRAM PARTICIPATION

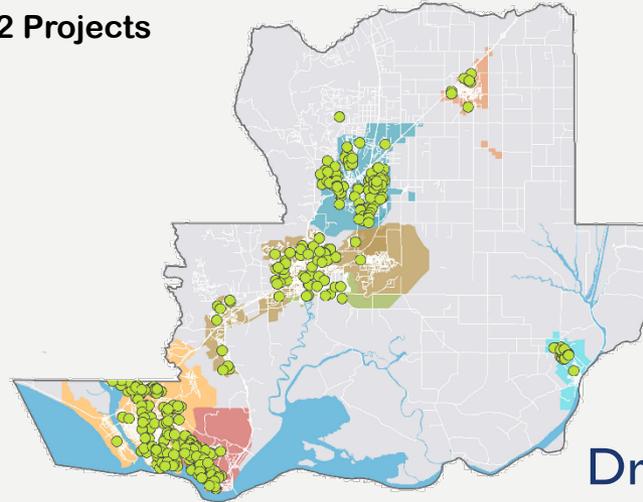


Turf Replacement Rebate Program Participation

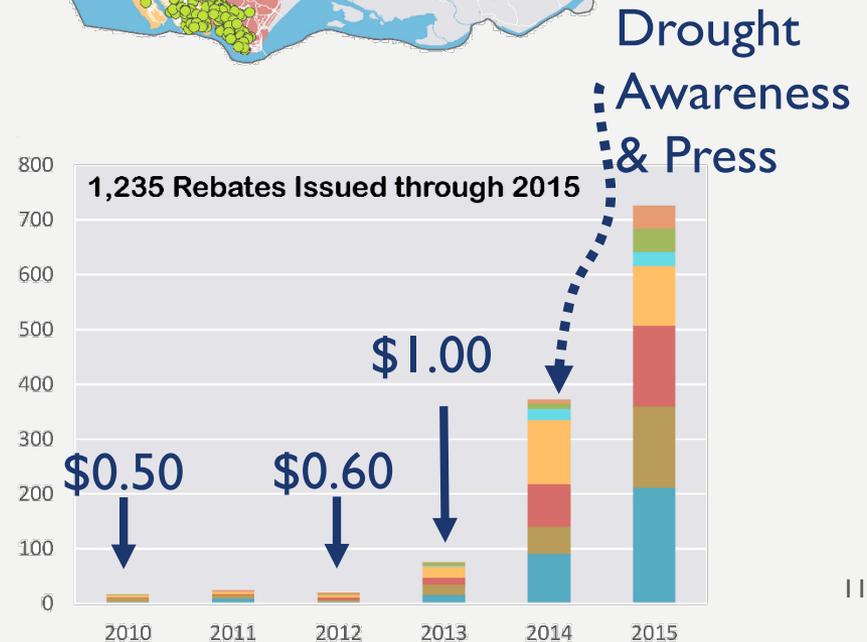
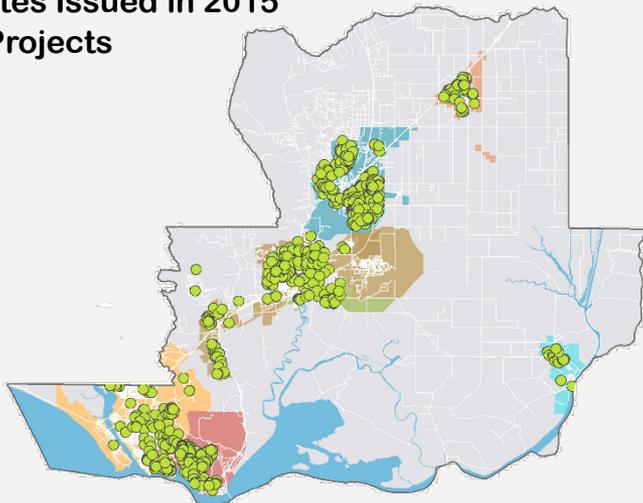
Rebates Issued from 2010 to 2013
137 Projects



Rebates Issued in 2014
372 Projects



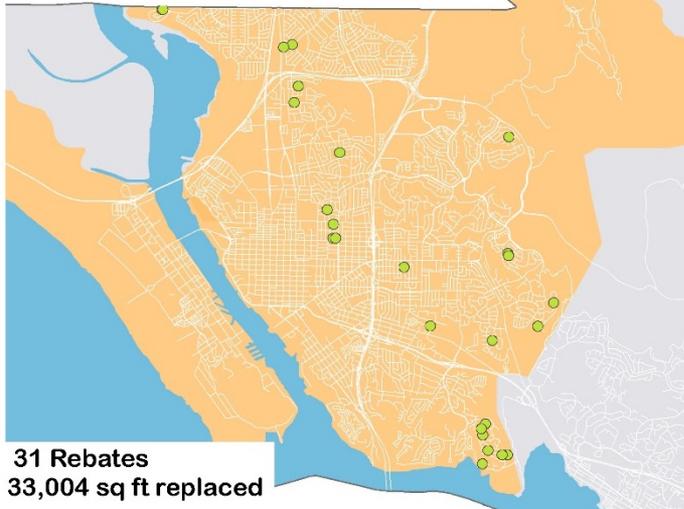
Rebates Issued in 2015
726 Projects



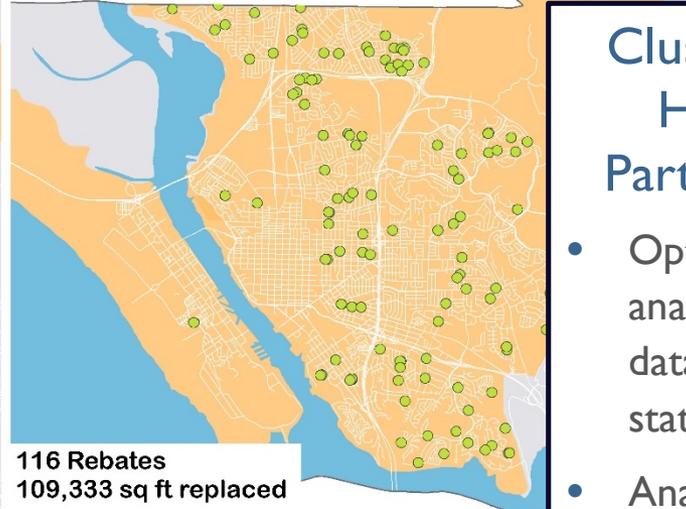
GEOSPATIAL ANALYSIS OF PROGRAM PARTICIPATION

Turf Replacement Rebate Program Participation

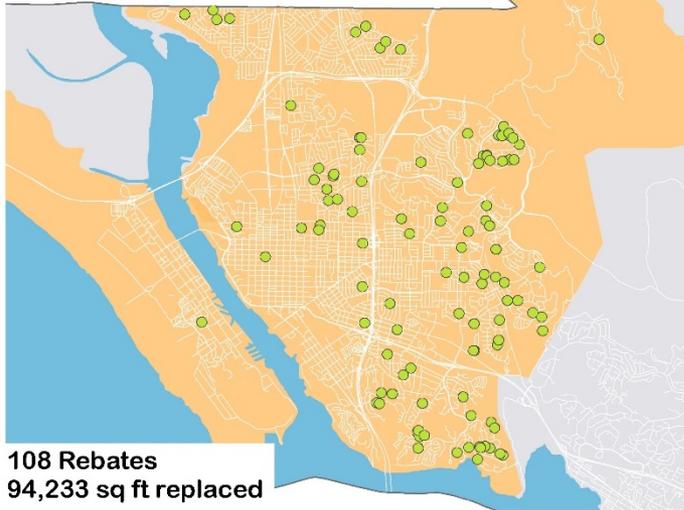
Rebates Issued in 2010 - 2013



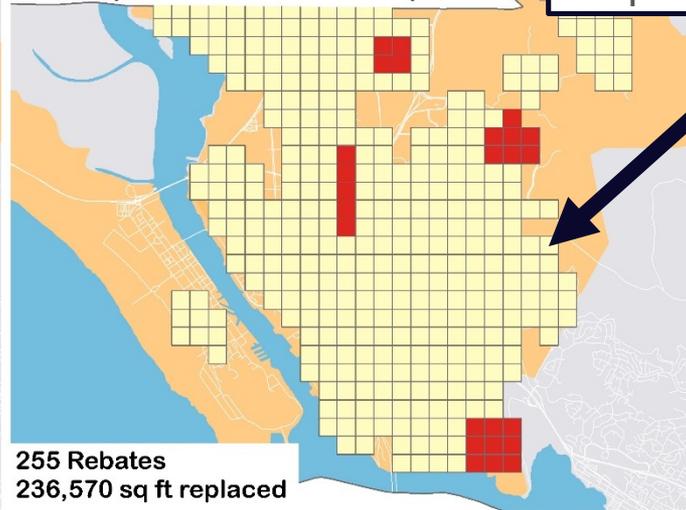
Rebates Issued in 2014



Rebates Issued in 2015



Participation Hot & Cold Spots



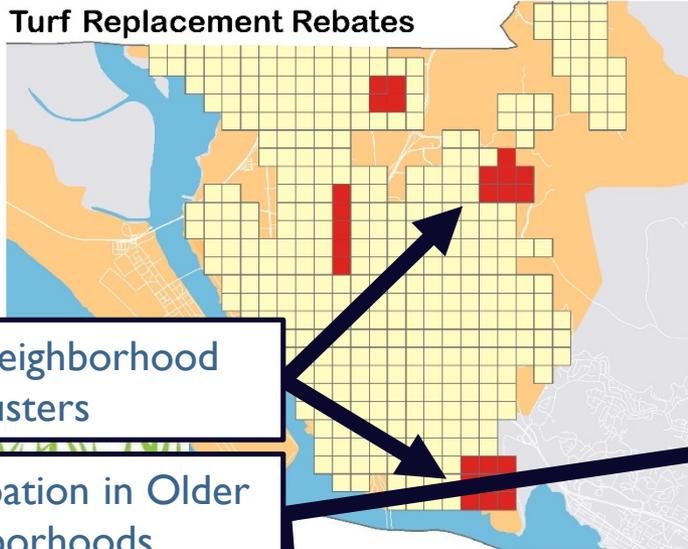
Cluster Analysis of High and Low Participation Areas

- Optimized Hot Spot analysis, using incident data and Getis Ord GI* statistic
- Analysis limited to SFR parcels

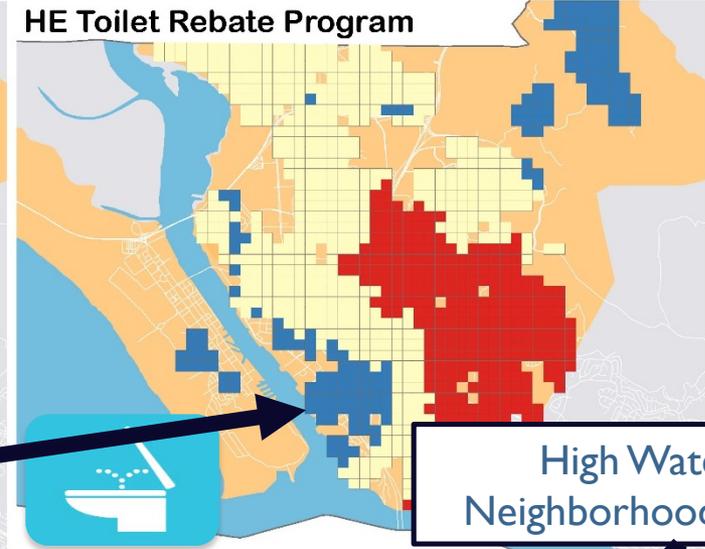
GEOSPATIAL ANALYSIS OF PROGRAM PARTICIPATION

Spatial Cluster Analyses

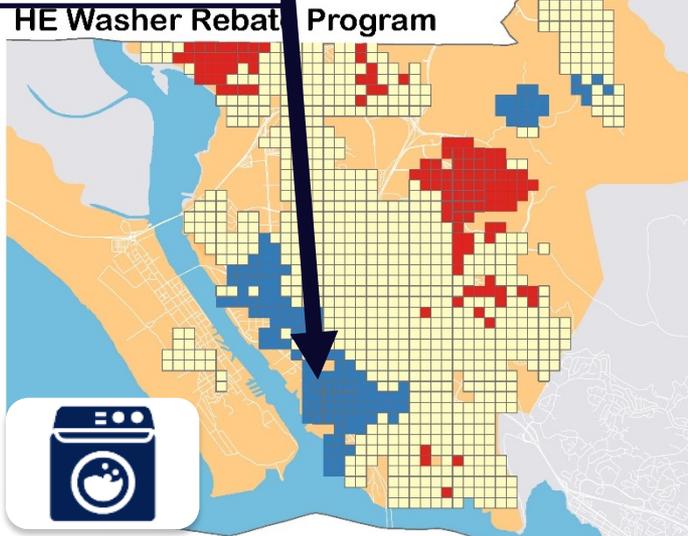
Turf Replacement Rebates



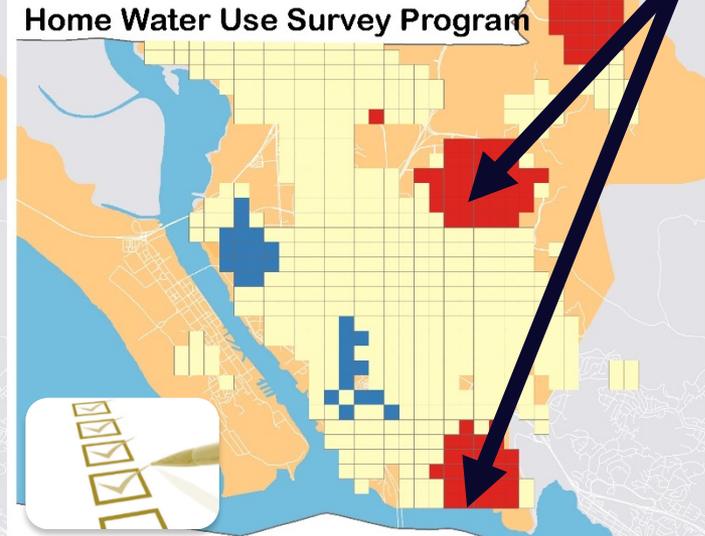
HE Toilet Rebate Program



HE Washer Rebate Program



Home Water Use Survey Program



Distinct Neighborhood Clusters

Low Participation in Older Neighborhoods

High Water Use Neighborhoods Targeted



HE Toilet Rebate



HE Washer Rebate



Turf Replacement Rebate



Home Water Use Survey

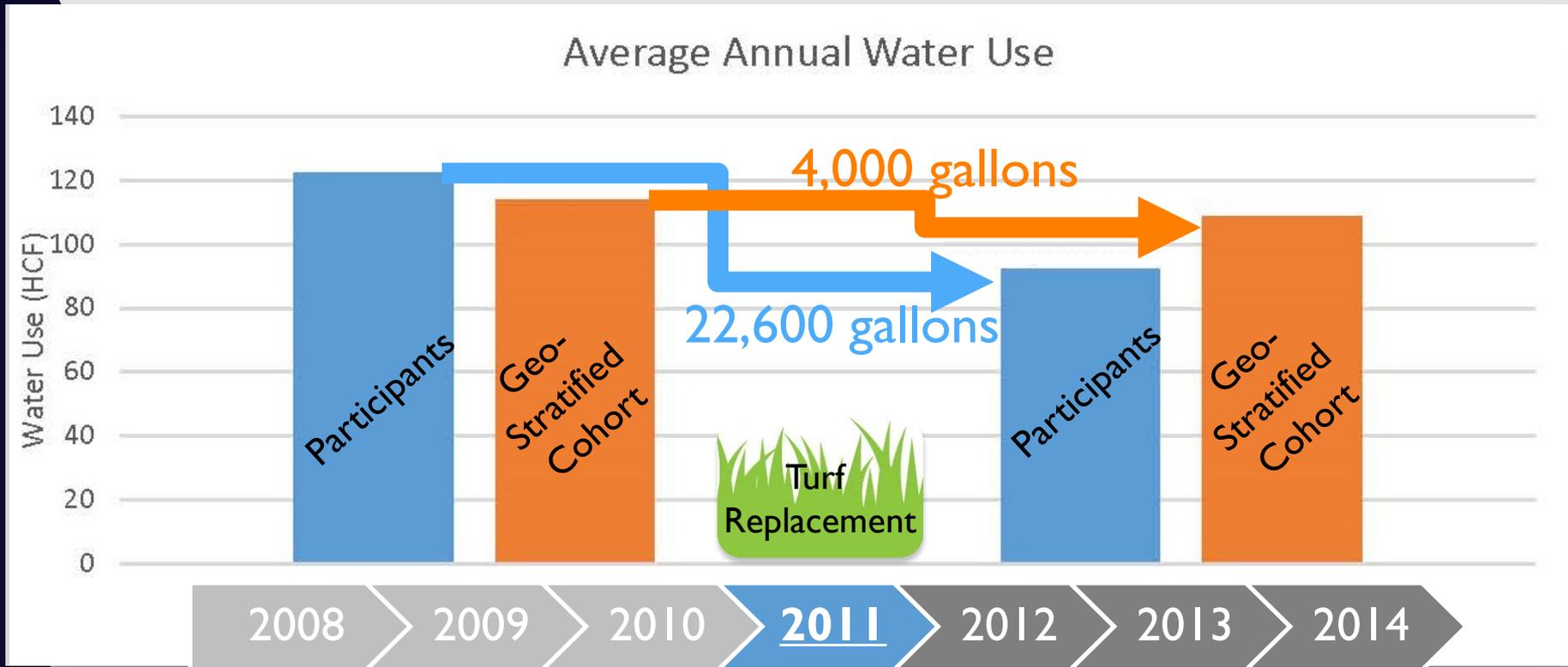
Water Savings

Relative Cost - Effectiveness

Remaining Savings Potential

DETERMINING AMOUNT OF WATER SAVED

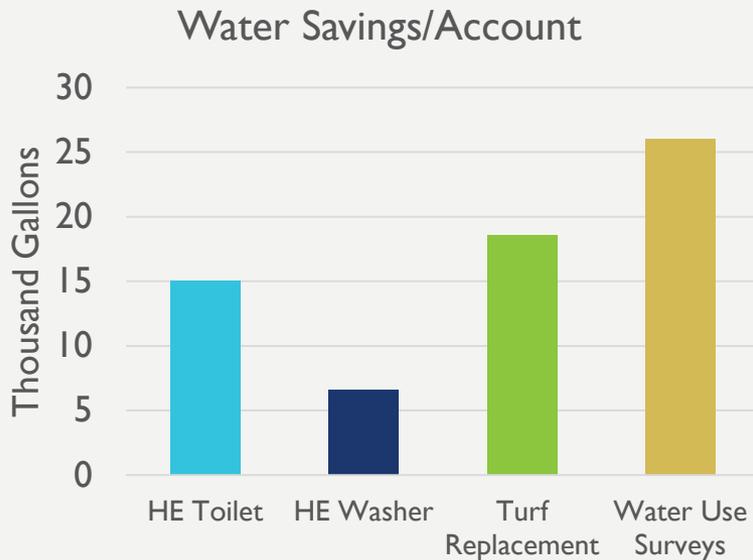
Turf Replacement Program Water Savings – 2011 Participation



22,600 gallons – **4,000 gallons** = approx. 18,600 gallons/year
Saved Due to Program

SIGNIFICANT AND MEASURABLE WATER SAVINGS OBSERVED

Annual Water Savings By Vallejo SFR Customers



Program	HE Toilet Rebates 	HE Washer Rebates 	Turf Replacement Rebates 	Residential Water Use Surveys 
Annual Savings/Account	15,000 gallons	8,600 gallons	18,600 gallons	26,000 gallons
# Participant Accounts in Vallejo	1,068	751	255	430

PILOT STUDY OBJECTIVES



HE Toilet Rebate



HE Washer Rebate



Turf Replacement Rebate



Home Water Use Survey



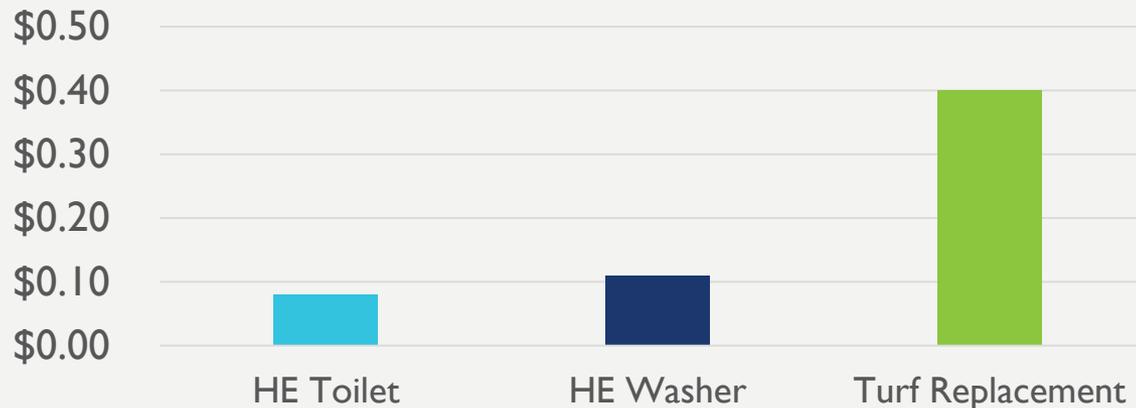
RELATIVE REBATE COST-EFFECTIVENESS



Average Savings and Costs by Account, Vallejo

Program	HE Toilet Rebates	HE Washer Rebates	Turf Replacement Rebates	Residential Water Use Surveys
Annual Savings/Account	15,000 gallons	8,600 gallons	18,600 gallons	26,000 gallons
\$/100-gal saved, over 10-year horizon	\$0.08	\$0.11	\$0.40	--

Rebate Cost per 100-gal Saved



PILOT STUDY OBJECTIVES



HE Toilet Rebate



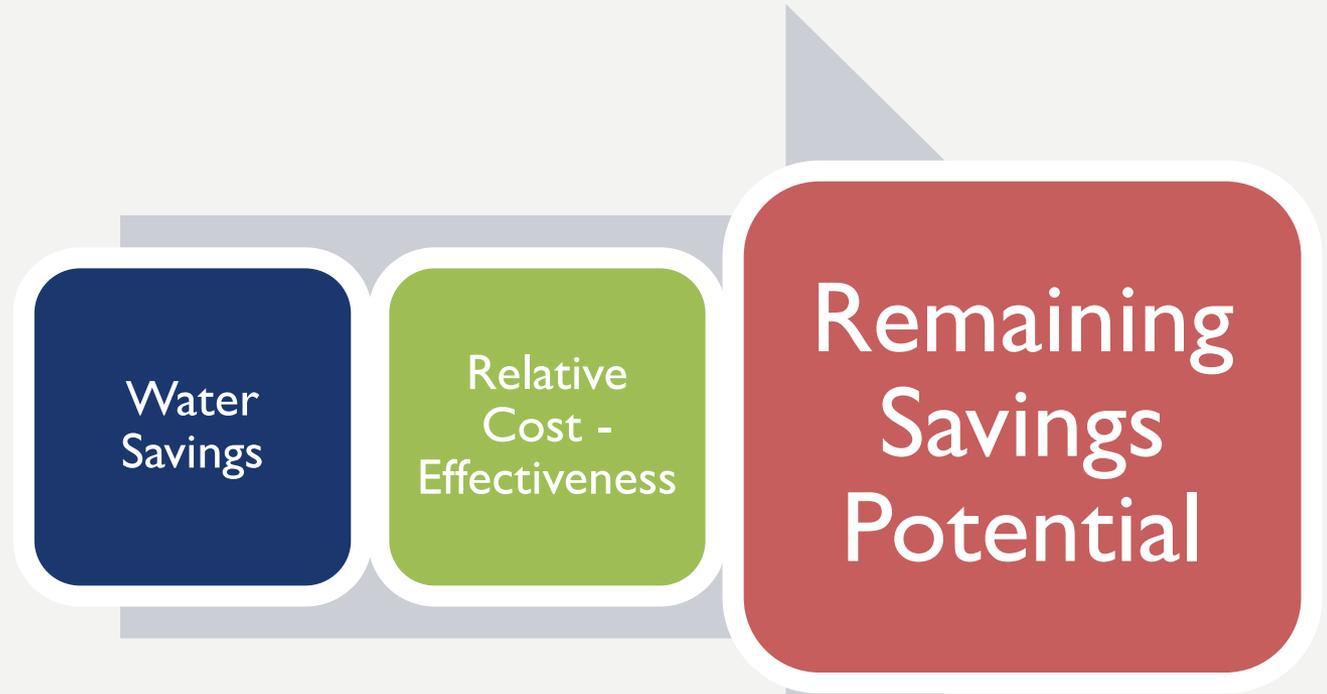
HE Washer Rebate



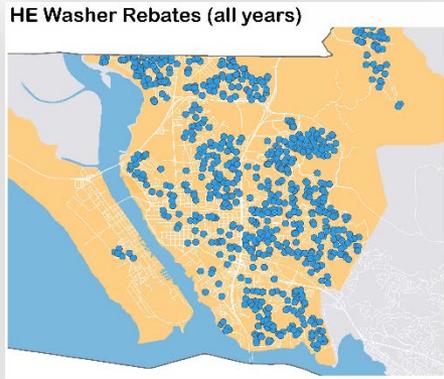
Turf Replacement Rebate



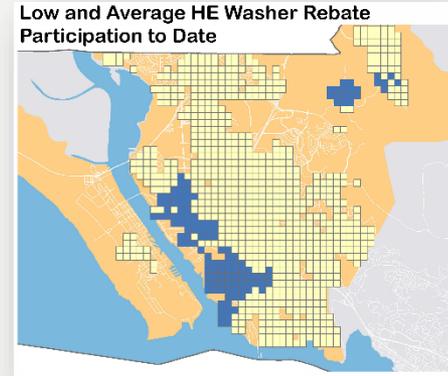
Home Water Use Survey



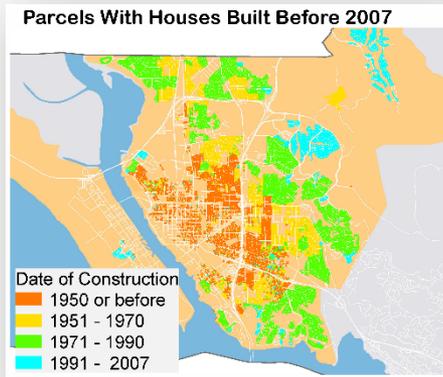
IDENTIFY OPPORTUNITIES FOR HE WASHER PROGRAM



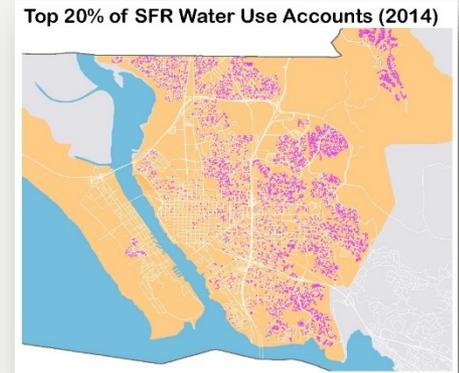
Have not Participated in HEW Program



Areas with Low Program Participation



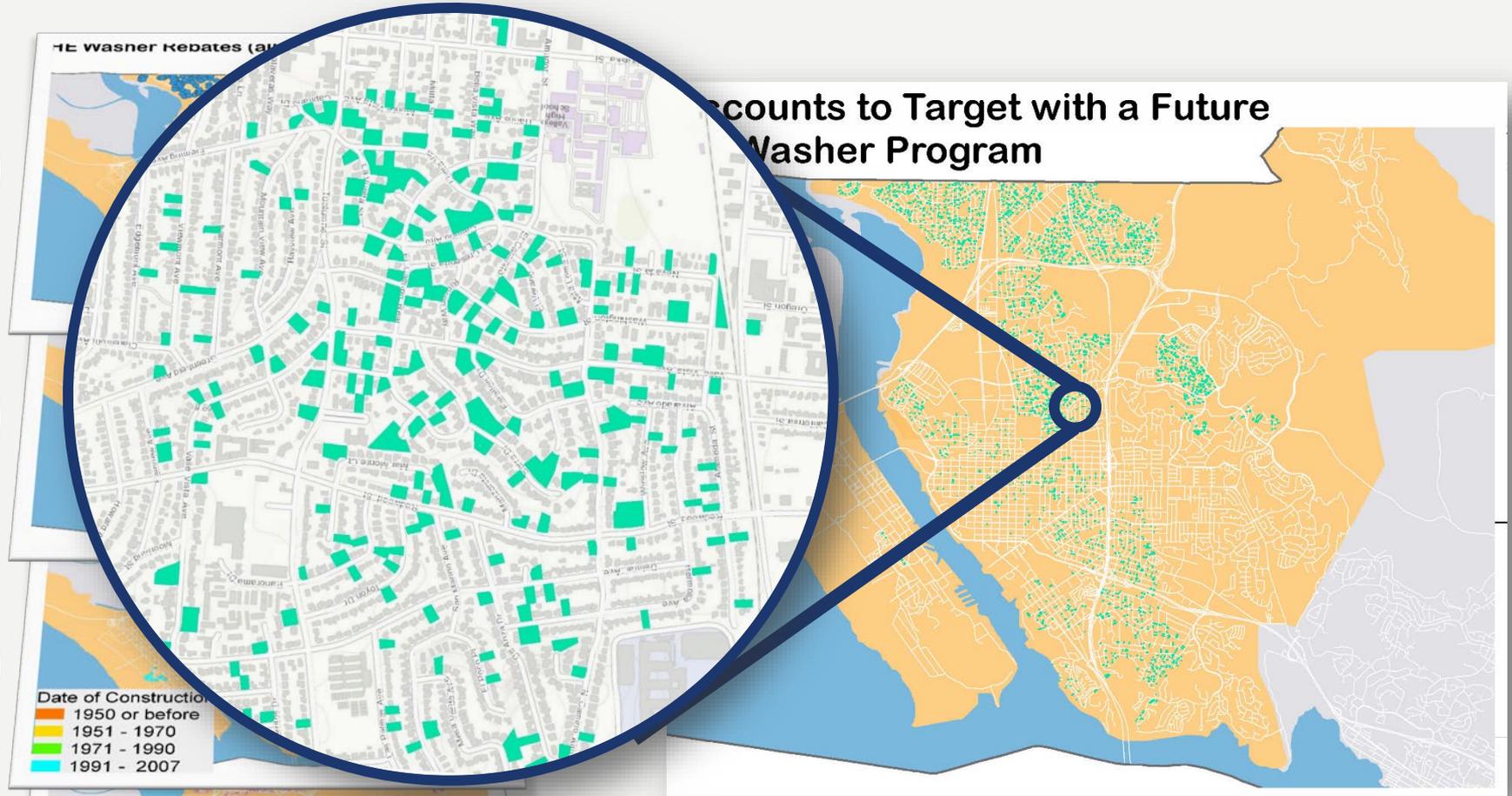
Homes built Before CA Appliance Efficiency Reg. (2007)



Top 20% of Water Users

Target Accounts

IDENTIFY OPPORTUNITIES FOR HE WASHER PROGRAM



~4,500 Accounts
~40 million gallons of potential water savings per year

SIGNIFICANT CONSERVATION POTENTIAL IN VALLEJO



Screening for Remaining Conservation Potential

HE Toilet Program	HE Washer Rebates	Turf Replacement Rebates	Residential Water Use Surveys
37 million gallons/year	40 million gallons/year	69 million gallons/year	60 million gallons/year

Significant remaining potential savings

CONCLUSIONS

- 1) Demonstrated significant and measurable water savings
- 2) Estimated remaining water conservation potential
- 3) Identified relative cost effectiveness of key water savings strategies
- 4) Develop a roadmap for future efforts
- 5) Lesson in the value of data visualization



NEXT STEPS

- SCWA is evaluating a Direct-Install pilot program for HE Toilets, targeting lower income & senior households
- Implementing a regional leak detection program
- Promoting turf replacement program
- Currently implementing Phase 2 study



QUESTIONS?

Download full pilot study report:

<http://www.ekiconsult.com/scwa-pilot-study/>

Kat Wuelfing

kwuelfing@ekiconsult.com

Andy Florendo

aflorendo@scwa2.com



www.ekiconsult.com

Burlingame, CA | Los Angeles, CA
Oakland, CA | Centennial, CO



Solano County
Water Agency

www.solanosaveswater.org