

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Home Water Reports:

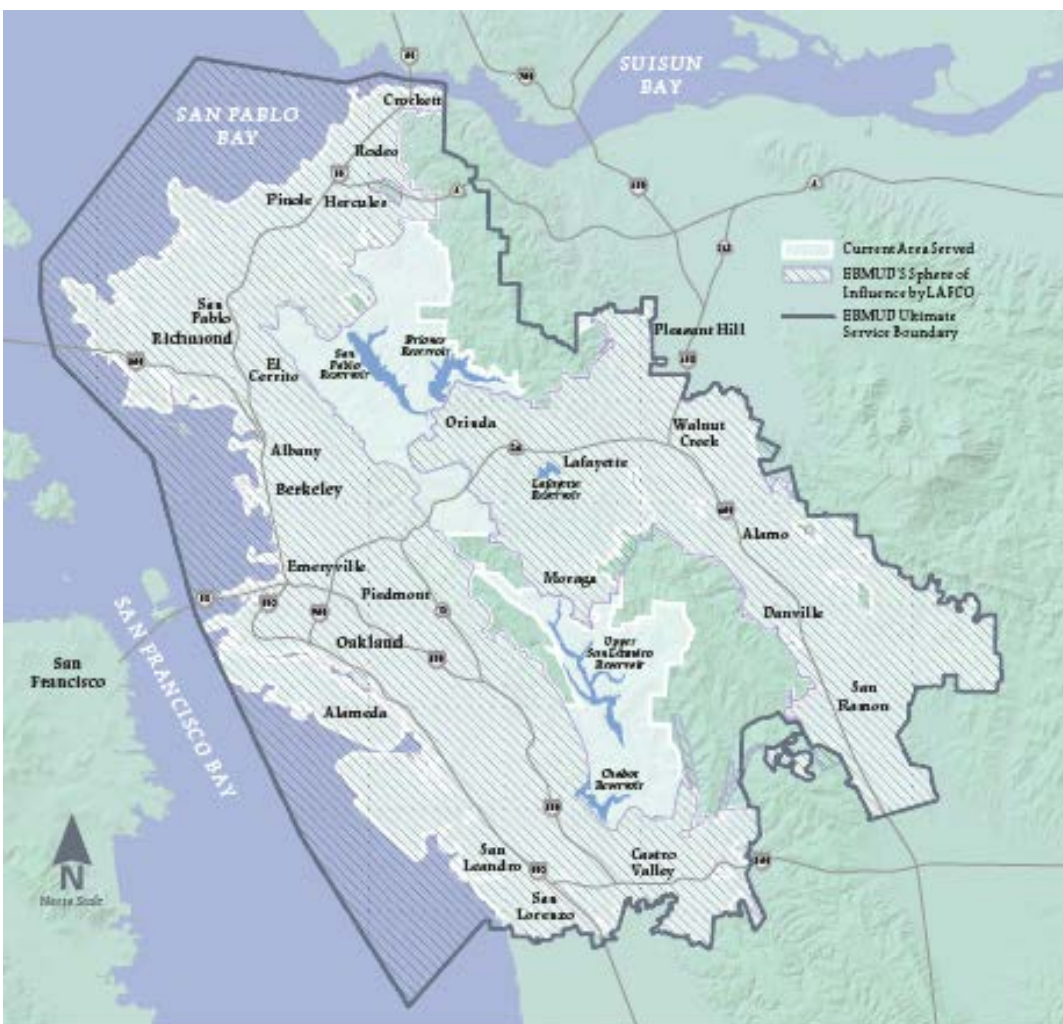
The Brains Behind Water Billing

Richard Harris, EBMUD

Peter Yolles, WaterSmart Software Inc.



Water and Wastewater Service Areas



- 1.34 million customers (W)
- 0.65 million customers (WW)
- 85 % residential
- ~ 210 mgd demand
 - 160 mgd
- 35 communities
- Distinct microclimates
- 330 sq.mi service area (W)
- 83 sq.mi service area (WW)
- >4,000 miles of pipe
- 400,000 meters
- 385,000 accounts

Project Drivers



- Energy utilities have pioneered conservation programs that provide customers with information on how their use compares to neighbors, past use, and efficient use.
- Based on research in behavioral sciences these programs have produced measurable direct reductions in energy use and served as entry to other conservation programs.

Project Drivers



- Need for new turnkey solutions for 325,000 residential accounts
- 20+ year outdated water bill format, little room for messaging, no charts
- New billing system launched in Sept. 2011 not yet capable for customization
- Conservation services moving away from standard fixture and appliance rebates toward water management tools/services

Water Management Services

Landscape Irrigation Water Budgets



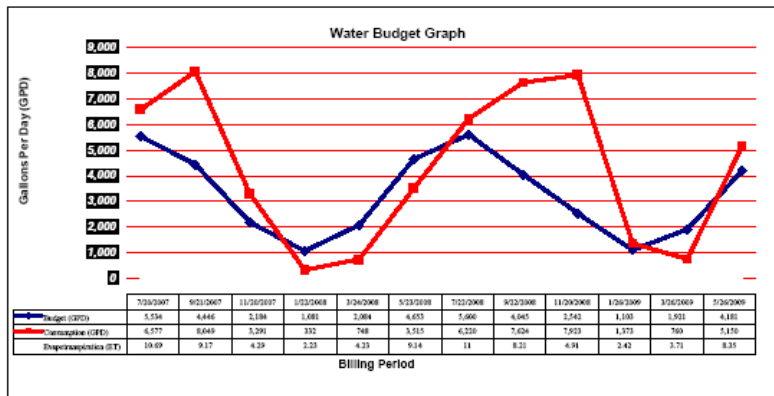
East Bay Municipal Utility District Water Conservation Division Maximum Allowable Water Budget

Thank you for participating in our Landscape Irrigation Water Budget Program. The following is your customized water usage profiles for the last two years. EBMUD records indicate that this account primarily serves landscape irrigation. The graphical description compares your measured water usage versus your budgeted water usage for each billing period.

Customer Name: [REDACTED]
Service Address: [REDACTED]
City: San Leandro
Account #: [REDACTED]
Meter #: [REDACTED]
Est. Irrigated Area (sq. ft.): 49,000



Water Budget Summary	Used	Budgeted
Gallons used last 12 months	1,743,000	1,178,973
Gallons used previous year	1,350,720	1,214,098
Percent of budget last 12 months		148%
Percent of budget for previous year		111%
2 year "irrigation season" estimated savings in dollars	\$ 3,342.76	
2 year "irrigation season" estimated savings in gallons	969,142	



* ET = Represents the estimated water need of cool season grass (in inches) for each billing period. The Water Budget Calculation does not use rain, typically irrigation systems can be turned off for the winter months of November, December, January, and February. The Maximum Allowable Water Budget is calculated using 100% of Reference Evapotranspiration (ET_o) of the irrigated area for each billing period. If you feel the irrigated area is not accurate or would like more information on this program, contact EBMUD at 510 986-7615.



Water Management Services: Customized Water Savings Reports



EAST BAY MUNICIPAL UTILITY DISTRICT



Success Story – Crow Canyon Heights

Common Interest
315 Diablo Rd. #221
Danville, CA 94526
Katie Graham, Property Manager
(925) 743-3080
kgraham@commoninterest.com

Clary Brothers Landscaping
P.O. Box 3577
Danville, CA 94526
Martin Clary, Owner
(925) 838-3551
mclary@clarybros.com



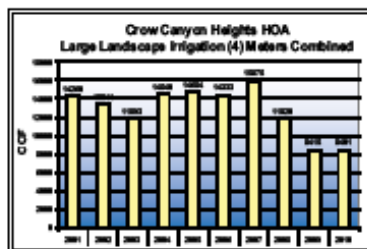
New high efficiency sprinklers and rotating nozzles

**Estimated Water Savings
for common area landscaping:**
11.9 million gallons used in 2007
6.3 million gallons used in 2010
Total savings compared to 2007 usage:
5.6 million gallons and over \$14,000

Crow Canyon Heights contacted the East Bay Municipal Water District (EBMUD) Water Conservation Division to request a free irrigation audit in 2006. The audit was completed and a report submitted to Common Interest Management. Clary Brothers Landscape then submitted an application for rebates from EBMUD. In 2008, Clary Brothers submitted proposals to the Crow Canyon Heights Board of Directors to install new high efficiency lawn sprinklers equipped with pressure regulation devices, check valves, and rotating nozzles to improve sprinkler uniformity and minimize low head drainage. In addition, self-adjusting irrigation controllers were installed in some areas.

By 2011, Clary Brothers submitted an upgrade application for the last irrigation only meter. Pending rebates total \$6,100 through the end of 2011. For each rebate, water consumption was tracked and checked against a landscape water budget based on local weather and the total irrigated area for a period of one year. The bar chart shows how improved irrigation equipment and management can reduce water consumption and costs.

EBMUD recognizes these businesses and customer for their water conservation effort at this site. However, EBMUD makes no representation regarding these businesses or that similar water savings will be achieved on other sites.



08/12/2011

www.ebmud.com/watersmart

We make it easy to conserve.



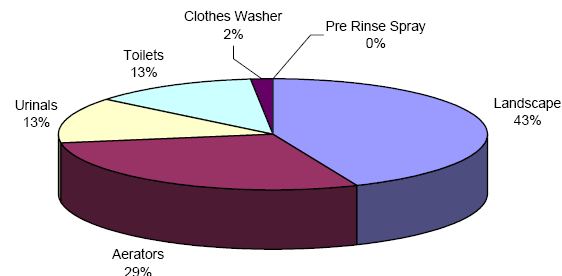
East Bay Municipal Utility District
WaterSmart Worksheets - Executive Summary

Water Savings Summary for Clif Bar & Company

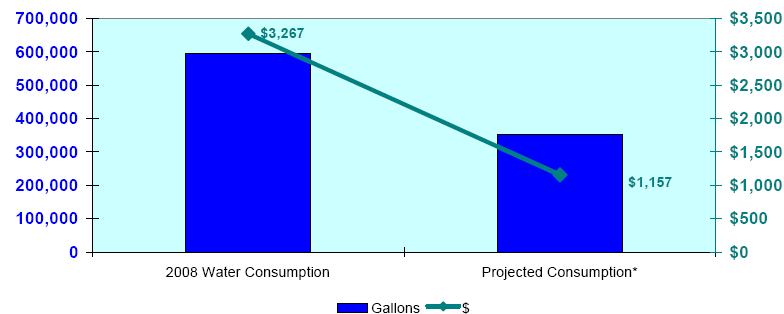
Estimated Annual Savings	
Water Savings (gallons)	241,849
Energy Savings (therms)	481
Total Dollar Savings	\$2,111

Return on Investment	
Estimated cost for water efficiencies:	\$14,100
EBMUD Rebates:	\$0
Payback (years):	6.7

Identified Water Savings by Device/Area



Current and Projected Consumption and Cost



Graph 1 notes: The dollar value for the water costs are based on a straight water and wastewater rate calculation and may not reflect actual costs. * Estimated consumption upon implementation of water savings identified.

Pilot Study Objectives



- Test new customer communication tools
- Benchmark water use and behaviors
- Ongoing customer surveys and feedback
- Evaluate water savings and future potential
- Inform future EBMUD bill redesign efforts
- Benefit water utility community in new water management services

Study Partners and Participants



EBMUD

- client
- in-kind services (Call Center, survey data entry)

WaterSmart Software, Inc. (WSS)

- vendor
- web-hosting

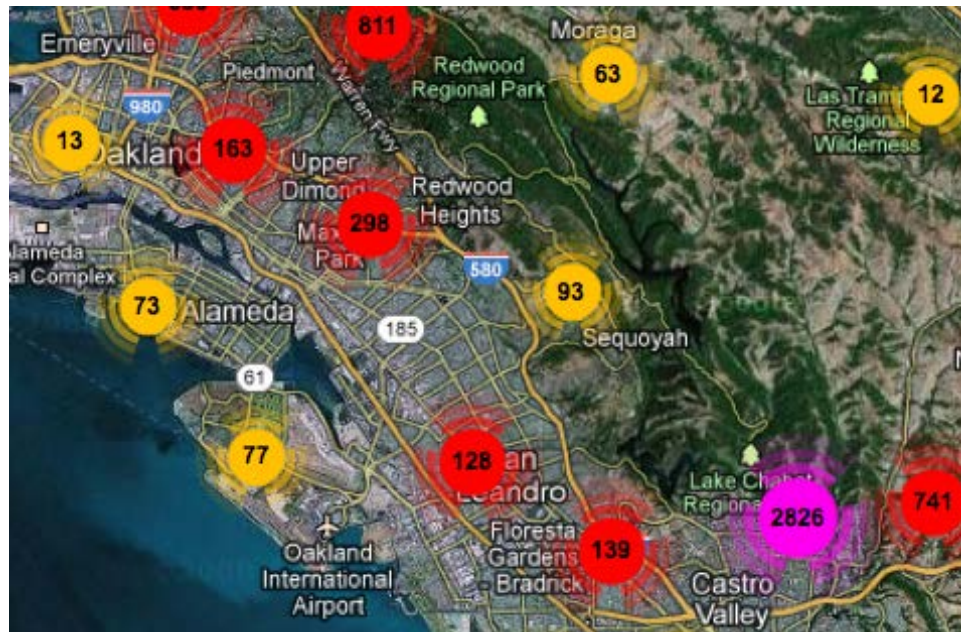
California Water Foundation (CWF)

- co-funder
- Independent evaluation and customer satisfaction

HWR Pilot Study Participants



City	No. of Participants	Control Group	Total
Castro Valley, CA	8,000	-	8,000
Oakland, CA	-	3,500	3,500
Random	1,500	1,500	3,000
Total	9,500	4,000	14,500



Project Schedule



- **Feb 2012** - Residential Water Use Survey
- **Jun 2012** - Home Water Reports mailed
- **Jun 2012** - Customer & utility analytics dashboards
launched
- **Jan 2013-14** - CWF/EBMUD 1-year evaluation period
- **2014 onward** – potential on-going deployment under
EBMUD Water Conservation Master Plan

WaterSmart Software—How It Works



Consumption and
Residence Data



Rebate & Incentive
Programs



Demographic &
Real Estate Data



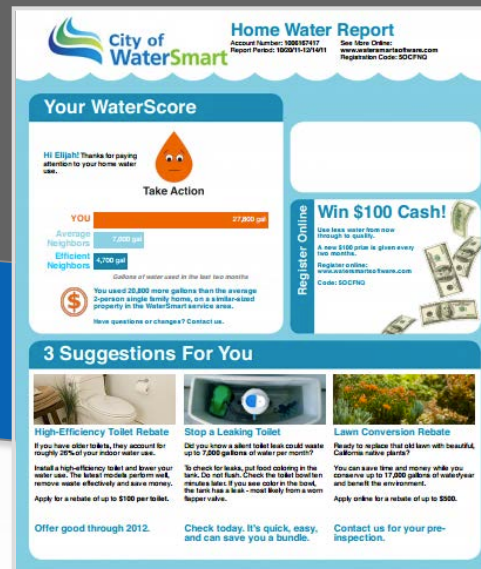
Survey Responses &
User Information



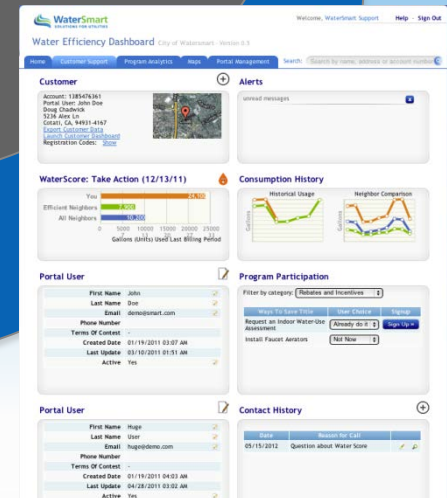
WaterSmart Recommendation Engine



Consumer Web Portal



Home Water Reports



Water Efficiency Dashboard

Survey, Consumption & Real Estate Data → Comparable Residences



- Occupancy Cohorts (1 – 5 pphh)
- Irrigable Area Cohort (sq. ft. <5K, 5k-10k, >10k)
- Cohort Size (# households, 100's – 1,000's)
- Households Used (35 – 187 per cohort)
- Median (Bi-monthly) Household Water Use (3,740 – 14,950 gal)
- Median Daily Per Capita Water Use (34 – 105)

Benchmarking Water Use



Hi, Louise! Thanks for paying attention to your home water use.

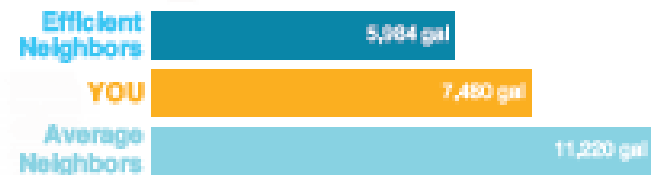
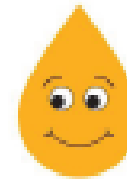


Great



Gallons of water used in the last two months

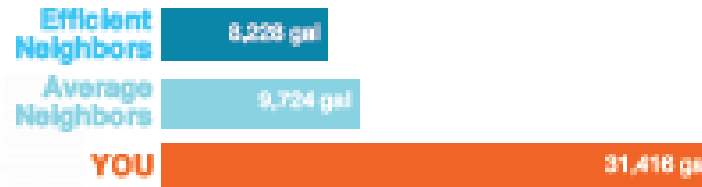
Hi, Betty! Thanks for paying attention to your home water use.



Hi, Christine D! Thanks for paying attention to your home water use.



Take Action



Gallons of water used in the last two months

Home Water Report Design Bi-monthly Mailings




Comparison to
similar
households



Personalized
savings/offers






Home Water Report

Account Number: !
Report Period: 03/08/12-05/08/12

See More Online: www.ebmud.com/mywater
Registration Code: CHEA33

Your WaterScore


Hi, Louise! Thanks for paying attention to your home water use.



Great

YOU	5,236 gal
Efficient Neighbors	5,984 gal
Average Neighbors	8,976 gal

Gallons of water used in the last two months

 Congratulations! Your household is one of the most water-efficient homes in the EBMUD service area. Keep up the great work.

Have questions or changes? Contact us.

Ask Us


Got water questions?

The East Bay Municipal Utility District can help.


CALL
1-866-40-EBMUD

EMAIL
wtcrsvr@ebmud.com

ONLINE
www.ebmud.com/mywater



3 Suggestions For You




WaterSmart Home Survey Kit

EBMUD's kit takes you step-by-step through your home and landscape:

1. Locate leaks (dye tablets included)
2. Measure flow rates (flow bag included),
3. Evaluate water use,
4. Achieve savings!

Receive **free** devices w/ returned survey.

Order your kit today:
Call 1-866-40-EBMUD




Stop a Leaking Toilet

Did you know a silent toilet leak could waste up to **7,000 gallons** of water per month?

To check for leaks, put food coloring in the tank. Do not flush. Check the toilet bowl ten minutes later. If you see color in the bowl, the tank has a leak - most likely from a worn flapper valve.

Check today. It's quick, easy, and can save you a bundle.



Take a WaterSmart Shower

Enjoy your shower the WaterSmart way.

Turn off the water while you shampoo or soap up. Turn it back on when you're ready to rinse.

Save about **11,000 gallons** of water per year when 2 people do this.

See more quick tips online.

Modified
messaging and
raffle prizes



Email Home Water Report (eHWR)



[See Full Report](#) | [Find Savings](#) | [Log In](#)

Home Water Report

Account:

Summary Period: 01/09/2012 - 03/08/2012

Your WaterScore



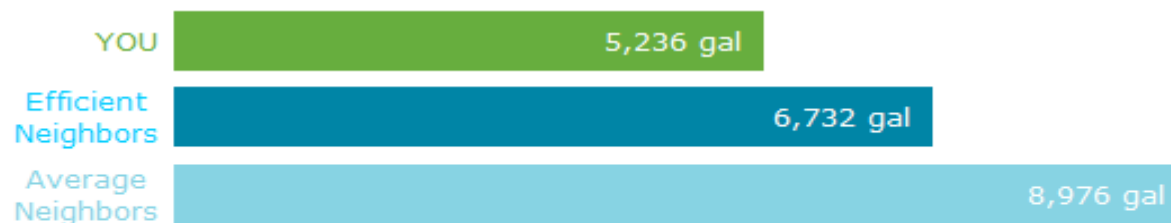
Louise, thanks for caring about your home water use.
Keep up the great work!



Congratulations! Your household is one of the most water efficient homes in the East Bay Municipal Utility District. [Tell us how.](#)

[See more details about your use](#) 

Compare with Neighbors Like You



Gallons of water used in the last two months

Online Customer Portal



- Historical Water Consumption
- Neighbor Water Use Comparisons
- Customer FAQ
- Ability to Change Residence Information
- Possible Integration with AMR



Online Customer Portal



- Conservation rebate offers
- Water savings tips
- Educational materials

The screenshot displays the EBMUD Online Customer Portal. At the top, the EBMUD logo is on the left, and user information 'Welcome, John • My Account • Logout' and 'Address: 11' is on the right. Below the header, there are tabs for 'Your Water Report', 'Your Offers', and 'FAQ'. The main content area is titled 'Your Offers and Other Ways to Save'. On the left, there are filters: 'by SAVINGS' (0 - 73000 gallons), 'by TYPE' (Appliances (3), Behavior (20), Fixtures (8), Irrigation (9), Other (7)), 'by COST' (Free (27), Under \$100 (12), \$100 and Up (8), Rebates and Incentives (5)), and 'by AREA' (Outdoor (21), Indoor (20)). A 'view all tips' link is at the bottom of the filters. The main list of offers includes: 'Upgrade to a High-Efficiency Dishwasher', 'Install Low-flow Showerheads', 'On-Site Water Surveys', 'High-Efficiency Residential Clothes Washer Rebates', 'High-Efficiency Toilet Rebates', 'Take a Water-Efficient Shower', 'Turn Off the Water When Brushing Your Teeth', 'Upgrade to Ultra-Low Flow Toilets', and 'Upgrade to a High-Efficiency Washing Machine'. Each offer has a small image, a title, a description, and a status bar with 'I'll do it', 'Already do it', and 'Not Now' options. At the bottom right, there is a 'Go to page:' section with a 'Previous' button, a numbered list (1, 2, 3, 4), and a 'Next' button.

Utility-Facing Water Efficiency Dashboard



WaterSmart
SOLUTIONS FOR UTILITIES

Welcome, David Wallenstein [Help](#) [Sign Out](#)

Water Efficiency Dashboard

East Bay Municipal Utility District - Version 9.3

[Home](#) [Customer Support](#) [Program Analytics](#) [Maps](#) [Portal Management](#) Search: Search by name, address or account number

Charts/Reports:

- District**
 - Lot Size v. Consumption
 - Total Water Usage (2 Years)
 - WaterSmart Conservation Gains
 - Leak Report
 - Reading Detail Report
 - Cohort Consumption
 - Cohort Details
 - Overall GPCD
 - Top 25 Consumers (Gallons)**
 - Top 25 Consumers (GPCD)
 - Top 25 Annual Users
 - Top 25 Annual Users (Experimental)
 - Suspect Data
 - Suspect Data Detail
- Portal**
 - User Registrations
 - User Engagement
 - User Registrations
 - User Login History
 - Water Conservation Call Report

[Suggest a Report or Chart](#)

Top 25 Consumers (Gallons)

Reading Year: Reading Period: Exclude Suspect Data ☐ [Go](#)

Displaying 1-15 of 25 result(s).

Account	Service Address	Occupant Name	Read Date	Consumption	GPCD
3132400001	5006 Highland Rd	Greg Brothers	06/04/2012	7,471,772	62365
31341300001	5706 Shadow Ridge Dr	Jan Richard	06/05/2012	7,462,796	30092
15217200001	2611 Mira Vista Dr	Acmet Goldschmidt	05/06/2012	744,260	6307
31336100001	5017 Badger Ct	George H Matige	06/04/2012	743,512	3098
51564300001	194 Chamblee Ln	John B Mooraduck	06/07/2012	321,640	1109
55197200001	206 Hawk Ct	Thomas Cheng	06/07/2012	113,696	450
55197000001	265 Eagle Ct	Dale Walsh	06/07/2012	109,956	443
25287000001	71 Crest Estates Dr	Georgia H Callahan	05/24/2012	100,900	571
49734900001	5729 Medillon Ct	Darryl Homer	06/05/2012	96,492	770
31913100001	3245 Judy Ln	John Leversett	06/05/2012	96,492	311
56120400001	2000 Calle Los Gallinos	Wade A Diehrer	06/04/2012	90,908	297
53501000001	2527 Alamo Country Cir	James E Freeman	06/06/2012	88,264	712
22675300001	17972 Center St	Barold Mitobe	05/30/2012	83,776	443
13054200001	7 Walford Ter	James Palin	05/07/2012	81,532	267
49737000001	5733 Medillon Ct	Hassan Saidan	06/05/2012	78,540	633

Go to page: [Previous](#) [1](#) [2](#) [Next](#)

[Print](#) [Export](#)

- Program Management
- Utility-Level and User-Level Data
- Water Use Analyses

Utility-Facing Water Efficiency Dashboard



Welcome, David Wallenstein [Help](#) [Sign Out](#)

Water Efficiency Dashboard East Bay Municipal Utility District - Version 8.5

[Home](#) [Customer Support](#) [Program Analytics](#) [Maps](#) [Portal Management](#) Search:

Charts/Reports:

District

- Lot Size v. Consumption
- Total Water Usage (2 Years)**
- WaterSmart Conservation Gains
- Leak Report
- Reading Detail Report
- Cohort Consumption
- Cohort Details
- Overall GPCD
- Top 25 Consumers (Gallons)
- Top 25 Consumers (GPCD)
- Top 25 Annual Users
- Top 25 Annual Users (Experimental)
- Suspect Data
- Suspect Data Detail

Portal

- User Registrations
- User Engagement
- User Registrations
- User Login History
- Water Conservation Call Report

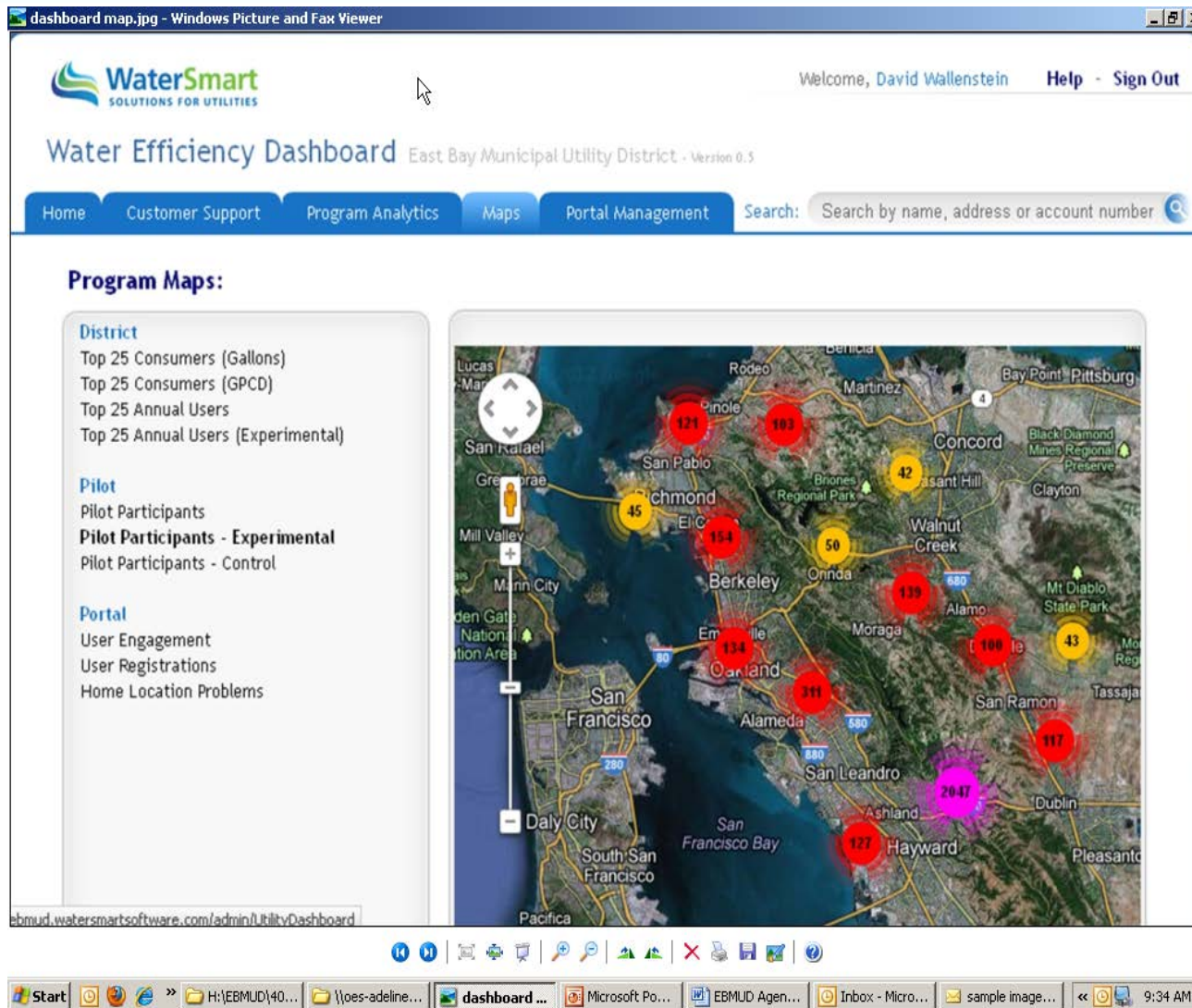
Suggest a Report or Chart



➤ Water Use Analyses

➤ Feedback & Tracking

Utility Dashboards: Training and Tools



➤ Mapping &
Data
Visualization

Utility Dashboards: Training and Tools



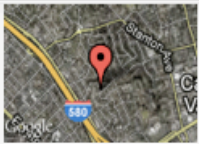
EBMUD logo

Welcome, Ora Chaiken Help Sign Out

Home Customer Support Program Analytics Maps Portal Management Search: Search by name, address or account number

Customer

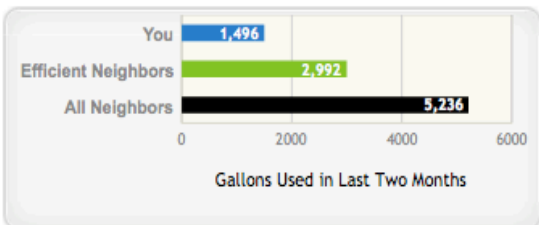
Account: 1811997
Nancy Altom
16830 President Dr
[Export Customer Data](#)
[Launch Customer Dashboard](#)
Registration Codes: [Show](#)



Alerts

Missing Number of Occupants

WaterScore: Great (Nov 01, 2011)

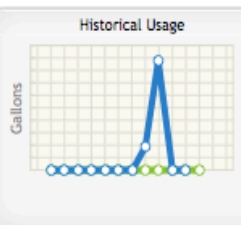


Category	Gallons Used
You	1,496
Efficient Neighbors	2,992
All Neighbors	5,236

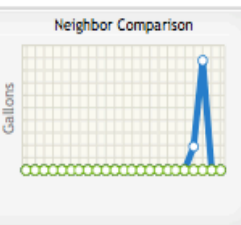
Gallons Used in Last Two Months

Consumption History

Historical Usage



Neighbor Comparison



Residence Profile

Customer	
Pilot	No
Address	16830 President Dr
Account Number	1811997
Last Bill Amount	\$0.00
Usage	1,496 Gallons
Number of Occupants	3

Program Participation

Filter by category: Rebates Available

Ways To Save Title	User Choice	Signup
Upgrade to a High-Efficiency Washing Machine	None	
\$50 Towards a High-Efficiency Dishwasher	None	

➤ Administrative Tools

➤ Call Center Training

➤ Customer Call Logging

Lessons and Results: Survey



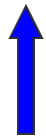
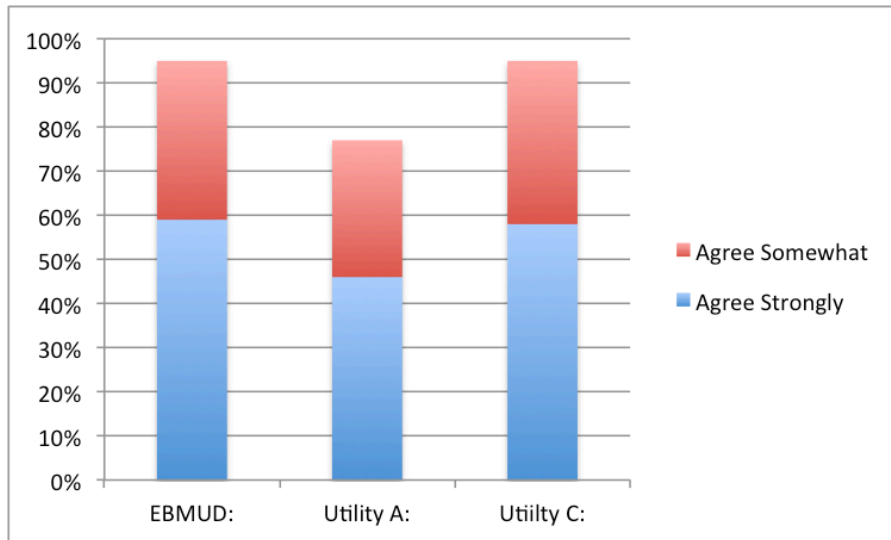
- >13,000 distributed online and via mail
- Responses: >2,600 (~21%) (\$100 cash prize a motivator)
- Confirmed how little people know about their water use

Do you agree or disagree with the following statements?		
	Agree Strongly	Agree Somewhat
I make an active commitment to use water efficiently indoors and outdoors.	<input type="checkbox"/>	<input type="checkbox"/>
It is important to me to reduce my water bill.	<input type="checkbox"/>	<input type="checkbox"/>
I believe that using water efficiently helps the environment.	<input type="checkbox"/>	<input type="checkbox"/>
I talk with others in my household about reducing our water use.	<input type="checkbox"/>	<input type="checkbox"/>
I talk with friends and/or neighbors about ways to use water more efficiently.	<input type="checkbox"/>	<input type="checkbox"/>

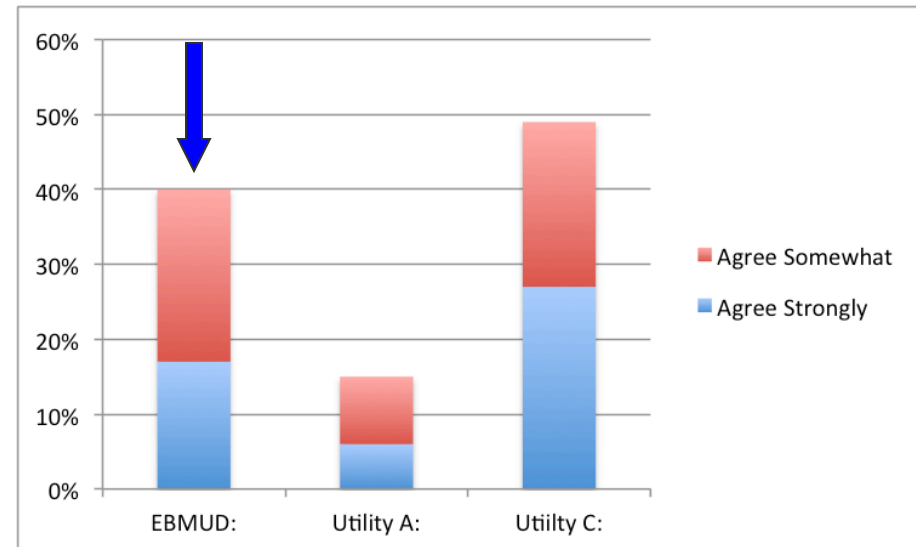
Survey Results: Attitudes and Awareness



I make an active commitment to use water efficiently indoors and outdoors.



I talk with friends and neighbors about ways to use water more efficiently.

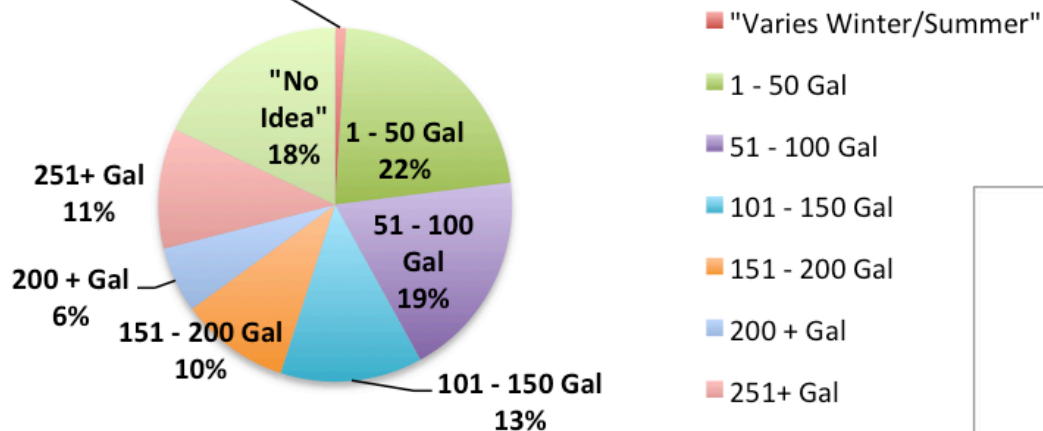


Survey Results: Attitudes and Awareness

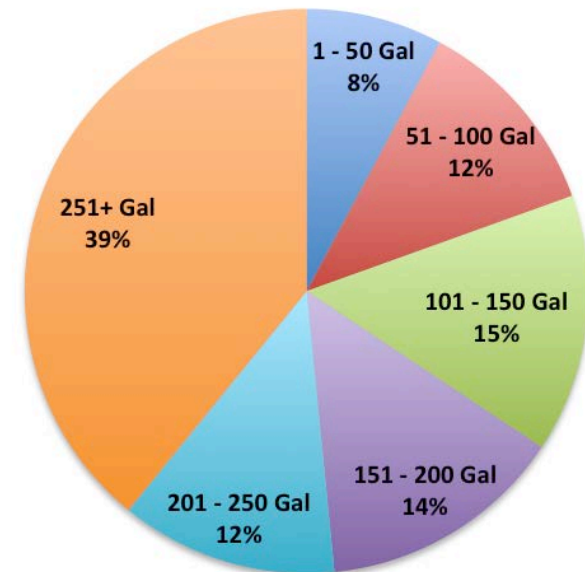


"Varies
Winter/
Summer"
1%

How Much Water Does Your Household Use Per Day, on Average?



Actual Household Use



Survey Results: Fixtures, Appliances, Behaviors



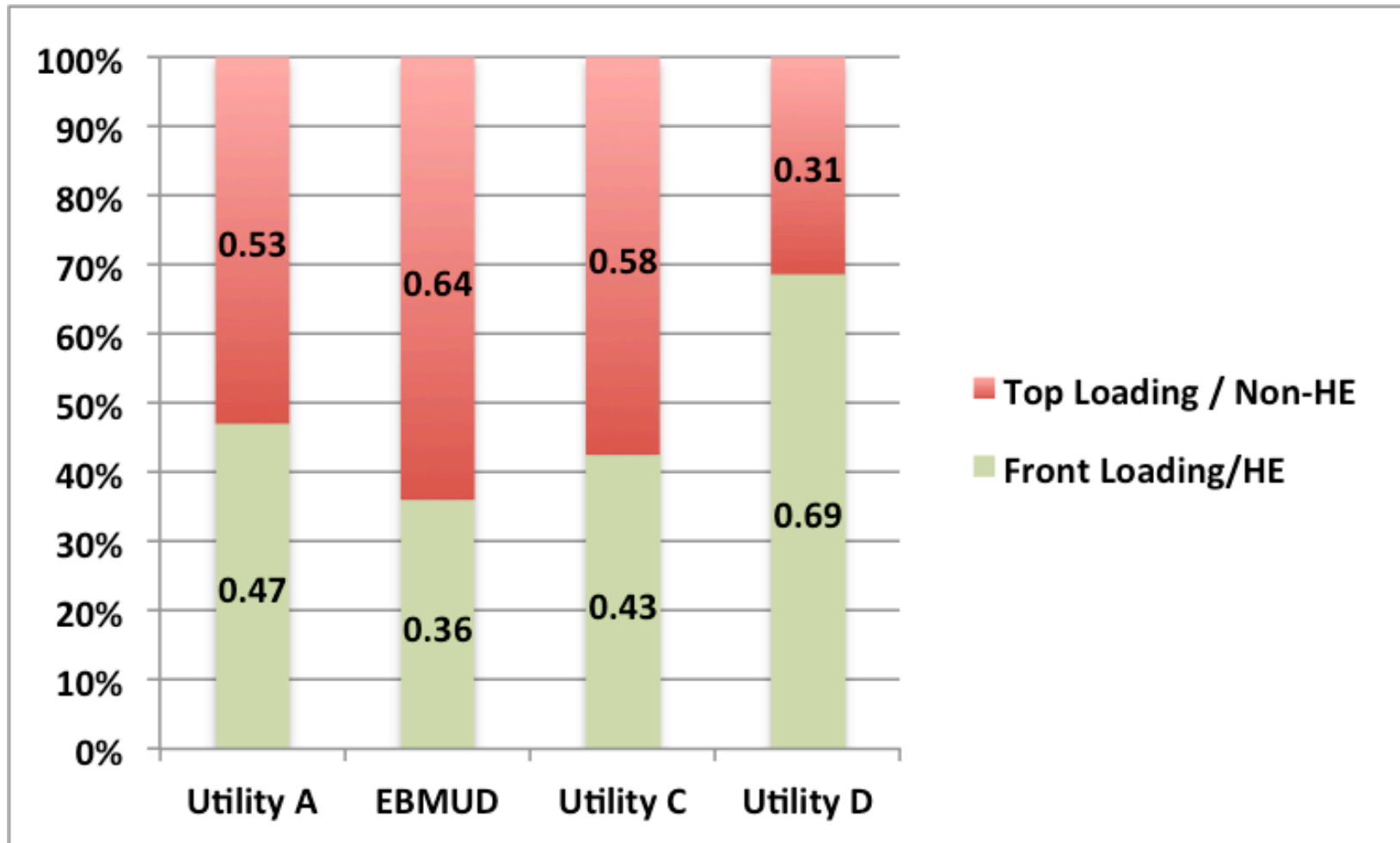
Toilets

		Number of High Efficiency Toilets							
# of Toilets	# / % of Responses	Don't Know	0	1	2	3	4	5	6+
1	51 / 4%	14%	24%	61%					
2	371 / 26%	9%	17%	14%	60%				
3	562 / 40%	5%	8%	9%	14%	63%			
4	241 / 17%	6%	5%	4%	10%	10%	64%		
5	112 / 8%	7%	5%	2%	7%	7%	7%	64%	
6+	69 / 5%	10%	6%	3%	1%	1%	8%	1%	71%

Survey Results: Fixtures, Appliances, Behaviors



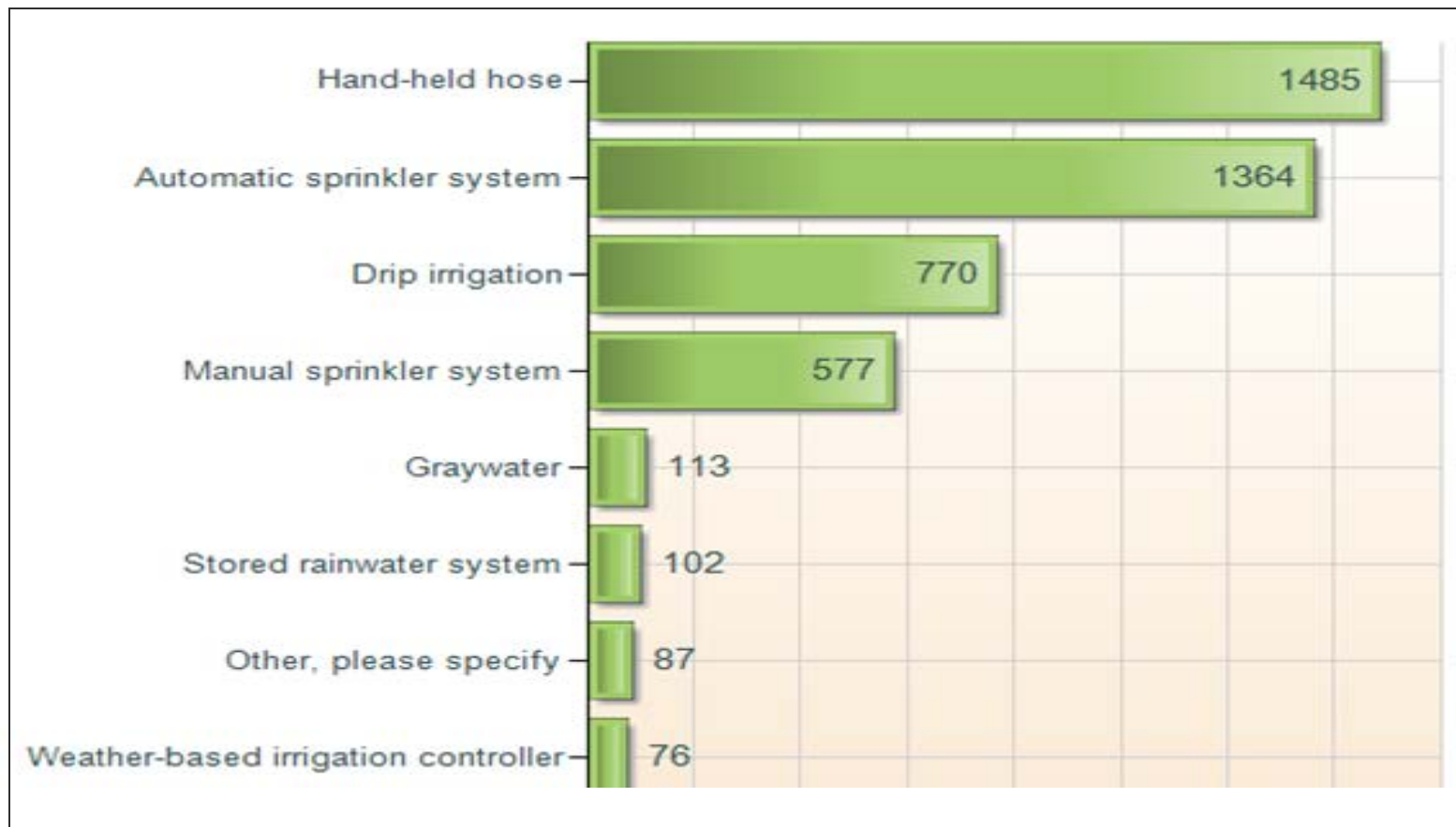
Washing Machine



Survey Results: Fixtures, Appliances, Behaviors



Irrigation




Survey (& Consumption & Real Estate) Data

→ Personalization



Individual Results → Personalized Recommendations

Aggregate Results → Awareness, Saturation, Program Priorities

OUTDOOR INVESTMENTS					
	Replace sprinkler heads	Upgrade to a weather-based controller	Use Drip Irrigation for Shrubs	Replace Lawn with Drought-Tolerant plants	
	Definitely Would	23%	18%	16%	16%
	Might Do It	30%	29%	28%	25%
	Probably Would Not	10%	18%	18%	24%
Definitely Would Not					
Already Did It					

21. If you do not regularly adjust your timer-based irrigation controller, what are the reasons why?

Too complicated / don't know how



Don't have the time



Not sure of how much or how often to water



Lessons and Results: Home Water Reports

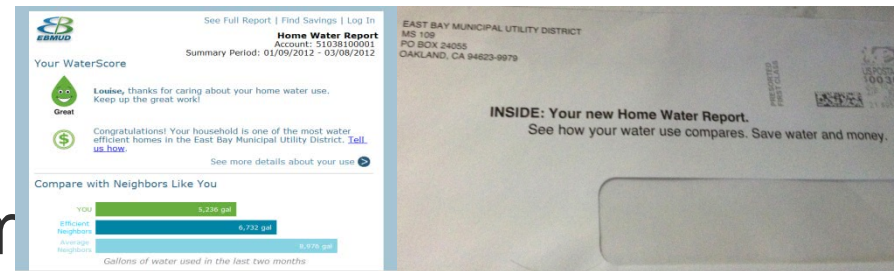


- Overall customers happy, liked the neighborhood comparison
- 4.6% of customers have called or gone online
- Increase in requests for conservation services (+3 audits/day)
- Power of social norms - water use comparison v. \$ on bill
- Effective prompt/nudge for people who were complacent
- Graphics v. text-heavy bill – simple communication effective
- Some people pay close attention – pull out old bills to check use
- *Targeting 2% annual water savings overall*

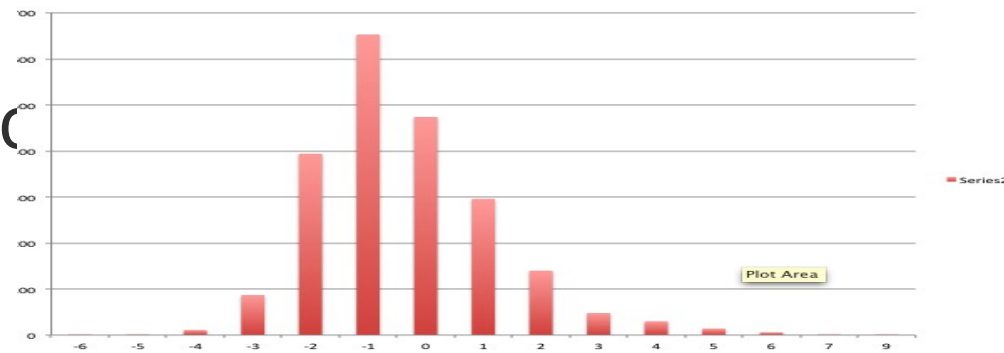
Lessons and Results: Home Water Reports



- Email as effective as m



- Accuracy of actual occ (% upgraded)



- iPad trumps cash offer



Independent Evaluation:



- Funded/managed by California Water Foundation
- Questions to be addressed:
 - weigh the costs of the program against expected benefits;
 - improve program design to potentially realize greater savings at lower costs; and
 - understand under what conditions the program is likely to be more, or less, effective.

Independent Evaluation: EBMUD-Specific

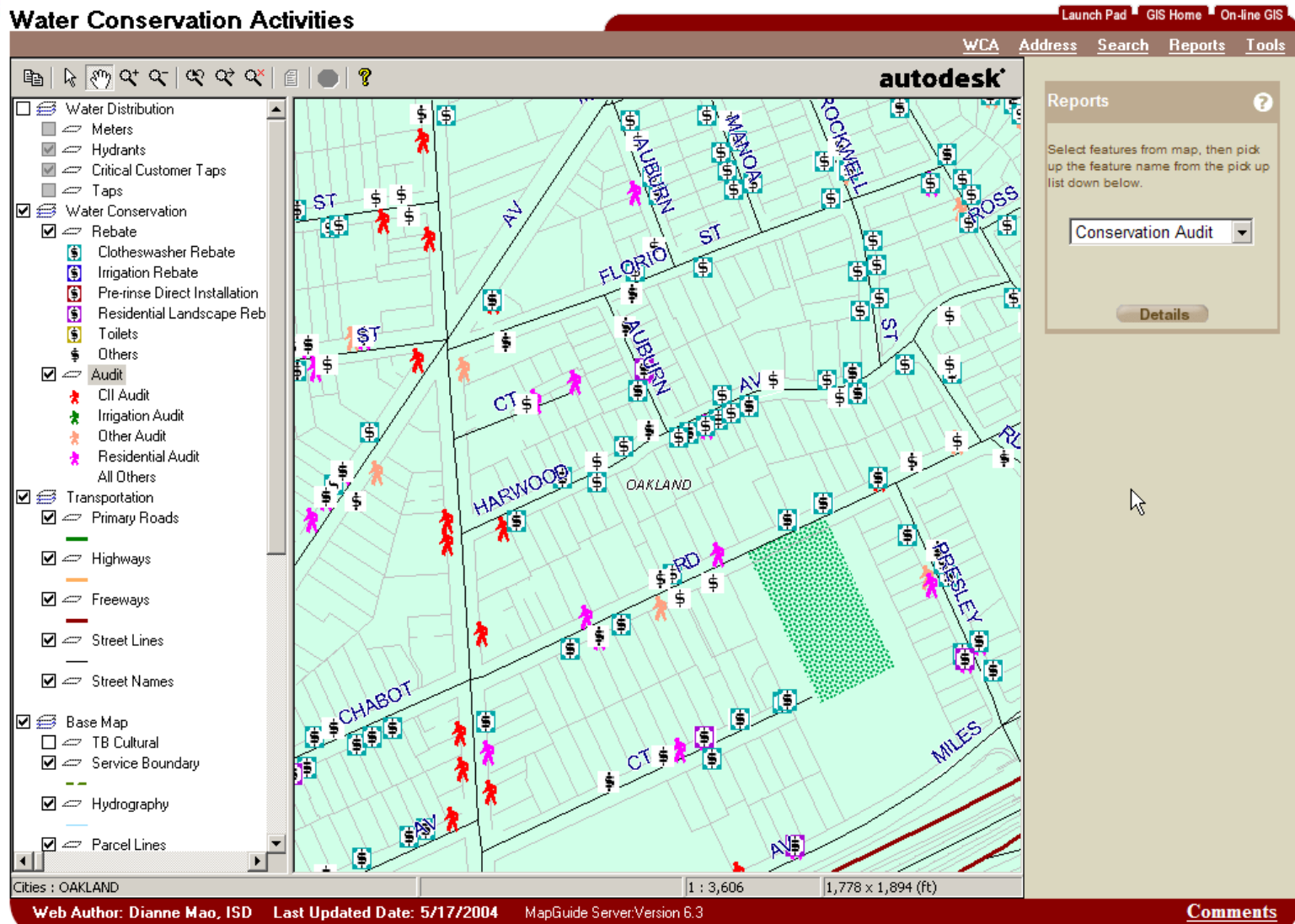


- How HWRs fit into overall conservation program goals and objectives
- How HWR data may be integrated with existing customer billing and conservation programs and tracking systems
- Potential role HWRs may have in a water shortage

Future Applications: Targeted Conservation Services



Water Conservation Activities





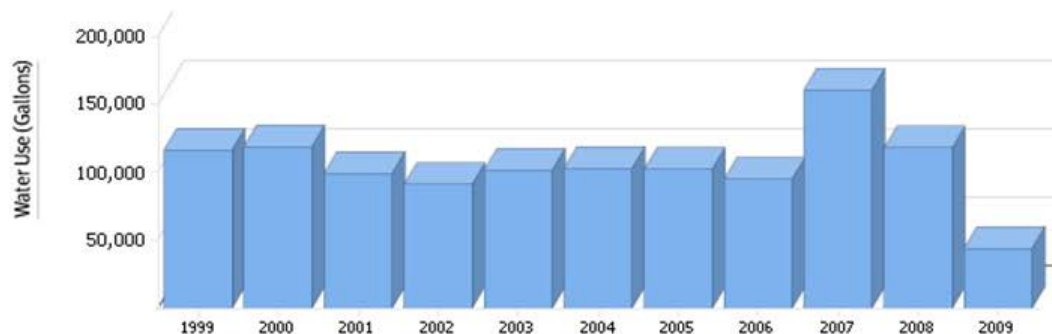
WATER USAGE

SETTINGS

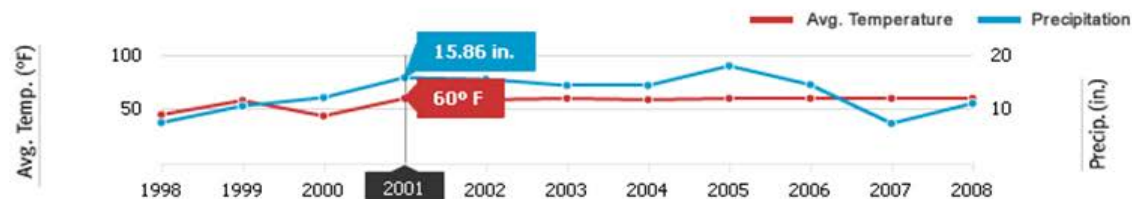
 Account
#123451[Sign Out](#)ALERT - Your meter is showing continuous usage which may indicate a leak. [More info...](#) [Reset](#) Close

Yearly Water Usage

Last 10 years







Climate



Quick View

 [Table View](#)

Climate

- ☒  Temperature 
- ☒  Precipitation 

[Edit](#)

Settings

Chart Units: Gallons

Daily Limit: ON

Alert sent at 780 Gallons

Leak Detection: ON

Threshold set at 1 Gallons

Download Report

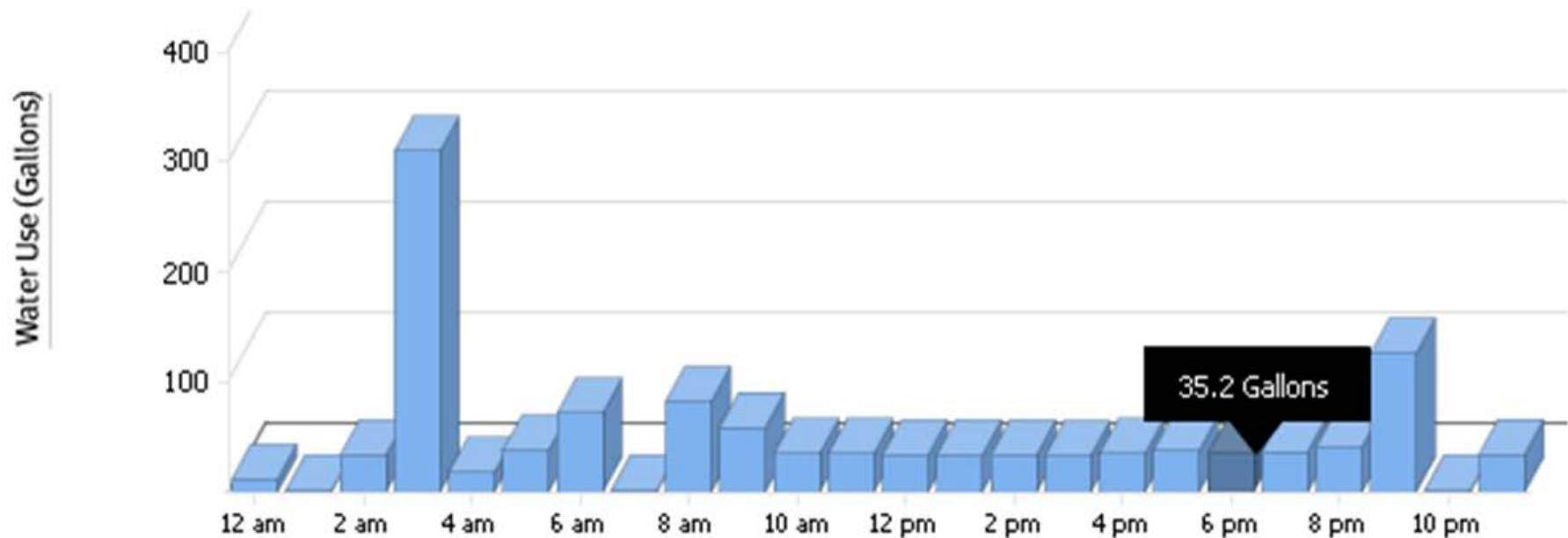
 Enter timeframe 

Water Use:

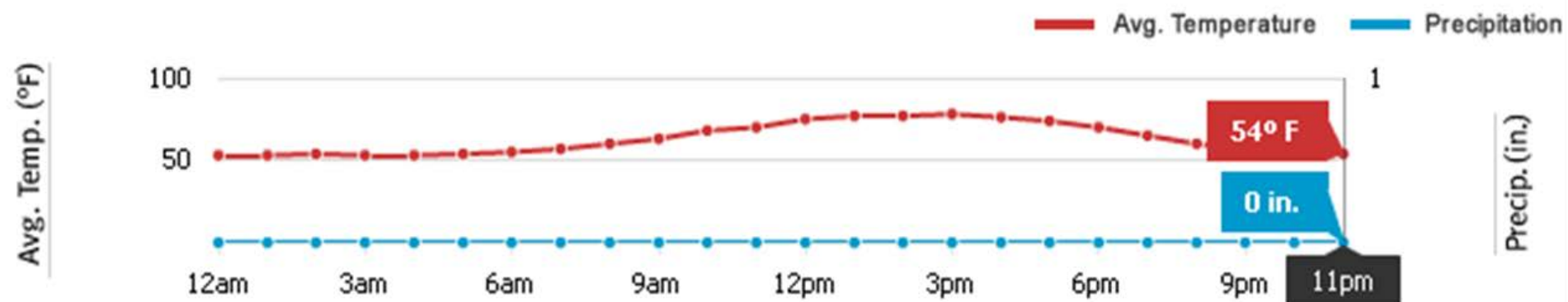


Hourly Water Usage

Hourly usage for 2009-07-06



Climate



Future Applications: Net-Zero Demand Annexations



- 1,400 homes, phased construction
- 4 developers –
 - Shapell, KB, Ponderosa, Lennar
 - Meter sizing 5/8- to 2-inch
 - Lots = 4,000 - 15,000 sq. ft.
- Each of the four developments has its own water budget



Questions



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