

OVERVIEW

Rising peak summer demand stemming from residential irrigation practices drove Del-Co Water Company to explore opportunities for enhancing system capacity. To help address this issue, Del-Co teamed with AIQUEOUS, Skydrop, and Symbiotic Technologies & Programs to develop and implement a smart controller pilot project.

The project's primary objectives were to evaluate the savings potential of smart irrigation controllers and determine whether this technology represented a viable solution for managing peak summer demand. If proven to be cost-effective, this demand management strategy could help offset the need for costly infrastructure upgrades to the Del-Co water system.

As part of the pilot project, 30 smaller irrigation controllers were installed in an neighborhood where a high penetration of in-ground irrigation systems had been observed. The project team evaluated billing data and watering schedules over a 4-month period (June, July, August, and September).

DELPCO AIQUEOUS skydrop Symbiotic

METHODOLOGY

Control Group – used as a proxy for measuring accuracy of savings analysis. 100 households were identified based on:

- Proximity to pilot group
- Historical summer usage patterns

Data Analysis – billing/usage and weather data analyzed on a monthly basis to determine:

- Average daily consumption per household (2010 to 2016)
- Hourly and daily watering schedules (i.e., daily and hourly
- coincidence peaks) • Average rainfall and temperature

Savings Analysis – regression analysis used to predict water consumption:

- Independent variables: precipitation and temperature
- Pilot and control groups divided into three cohorts (low, medium, and high)
- Individual regression models developed for each household



A Smart Approach to Smart Controllers

IMPLEMENTATION

Coordination – partnered with a smart controller manufacturer (Skydrop) to facilitate project delivery:

- Proper installation
- Communication tools
- Technical support
- Data analytic tools

Recruitment – targeted 72 households:

- Initial outreach consisted of sending a mailer (10 responses / 14% conversion rate)
- Second round consisted of sending an email and also going door-to-door speaking with residents or leaving flyers for those not home.

Timeline – April through October 2016:

	PLANN	NING	OUTREACH INSTALL	/ MO	NITORING / D	OATA ANALYSIS		FIN/ ANAL	AL YSIS
				•					
AP	RIL	N	IAY J	UNE	JULY	AUG.	SE	PT.	OCT.

RESULTS

Conservation Savings									
Cohort	Low	Medium	High						
% Water Savings	-10%	2%	23%						
Total Savings (all cohorts)	123,931 gallons								
% Total Water Savings	9%								
Price per Gallon Saved*	\$0.05								
Household Financial Savings									
Cohort	Low	Medium	High						
% Savings	-10%	1%	27%						
# of summers until payback*	Not beneficial	54	2						

*Based on \$300 smart controller

MANAGEMENT

Administration Dashboard – monitored water usage and weather/soil conditions right from the portal.



LONG-TERM GOALS

Persistence of savings – continue analyzing water usage of the pilot and control groups to determine persistence of savings over time.

Peak demand reduction analysis – use controller settings to spread out daily watering times and reduce hourly coincident peak.



Seasonal Adjustments Recent Messages \odot \odot



