

Conservation and Local Resources Committee

Item #4a

Subject: Update on Conservation Program

Purpose: Update the Board on Conservation Activities

Conservation and Local Resources Committee

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Summary

Update the Board on Conservation Activities



Update on Conservation Program

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January 9, 2018

Conservation Expenditures

FY16/17 – FY17/18

	Paid*	Approved
Devices	\$18.9M	\$3.3M
Member Agency	\$4.0M	\$5.3M
Turf Removal**	\$22.8M	N/A
Other	\$1.7M	\$1.6M
TOTAL	\$47.4M	\$10.2M

*Modified Accrual as of November 30, 2017. Totals include admin fees when appropriate

**Includes Turf Removal Waiting List

Approved biennial budget is \$135.7M

2015 Innovative Conservation Program

Highlight: Unmanned Aerial Systems



Unmanned Aerial Systems

- Second study completed under the 2015 ICP
- Use of Drones to collect information for irrigation management decisions



EYEON18

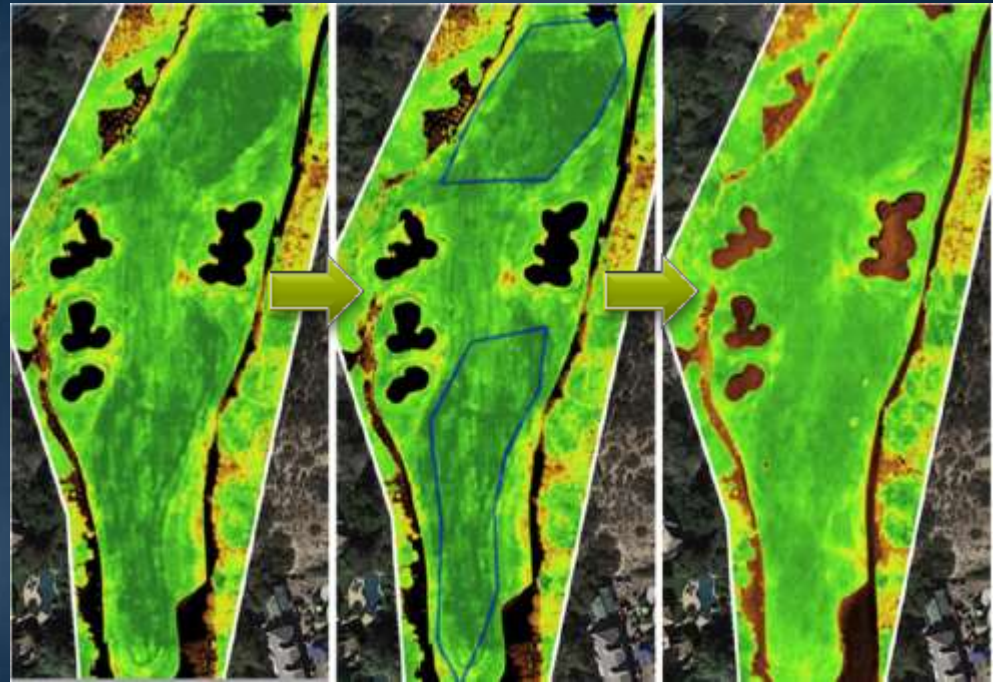
GOLF MANAGEMENT FROM A NEW PERSPECTIVE

Unmanned Aerial Systems

- Validate use of UAS technology for providing water managers valuable information for irrigation scheduling
- 2 Image types obtained with drones
 - High-resolution visible light images
 - Near Infra-red images

Normalized Difference Vegetation Index (NDVI)

- NDVI = measure of plant density & vigor
- Darker areas may correlate with excess irrigation
- More consistent coloration suggests higher irrigation uniformity
- NDVI can also indicate stress from under-irrigating
- Flight missions compared to soil moisture sampling



Investigation

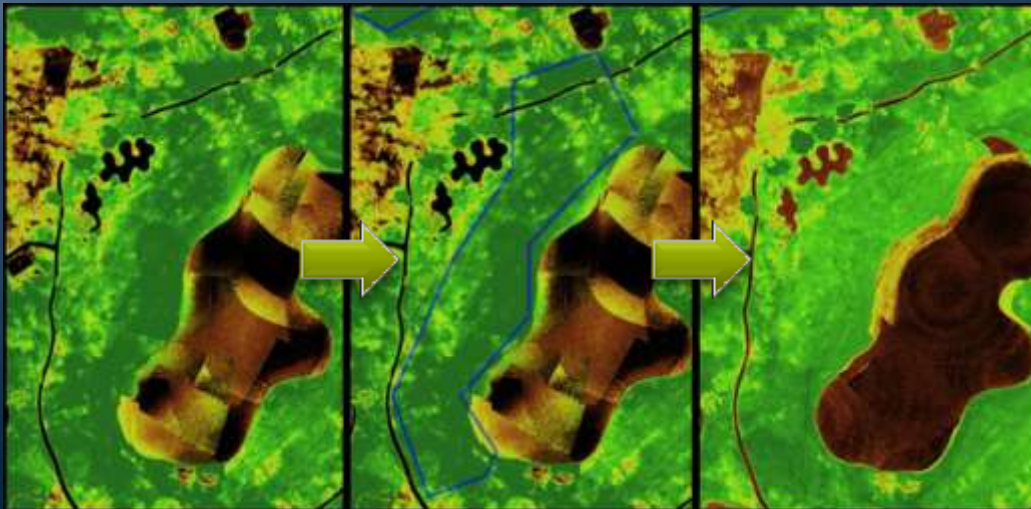
- 34 Missions over 4 sites:
 - Turfgrass Research Facility at UC Riverside
 - 3 So. Cal golf courses
- Each mission conducted by an FAA Part 107 Certified Pilot
- Collected soil moisture samples
- Collected visible light and NDVI images
- GIS software to analyze data & calculate savings

Realizing Water Savings

- Establish ETo for all sites
 - Separate daily ET-driven irrigation adjustments from NDVI-suggested irrigation actions
- NDVI data given to irrigation managers
 - Managers used their discretion to make runtime/flow adjustments at individual stations or heads
- Analyze daily ET variation and irrigation log data to identify flow reductions
- Compare flow reductions with changes observed in NDVI imagery from post-change drone flights

Findings

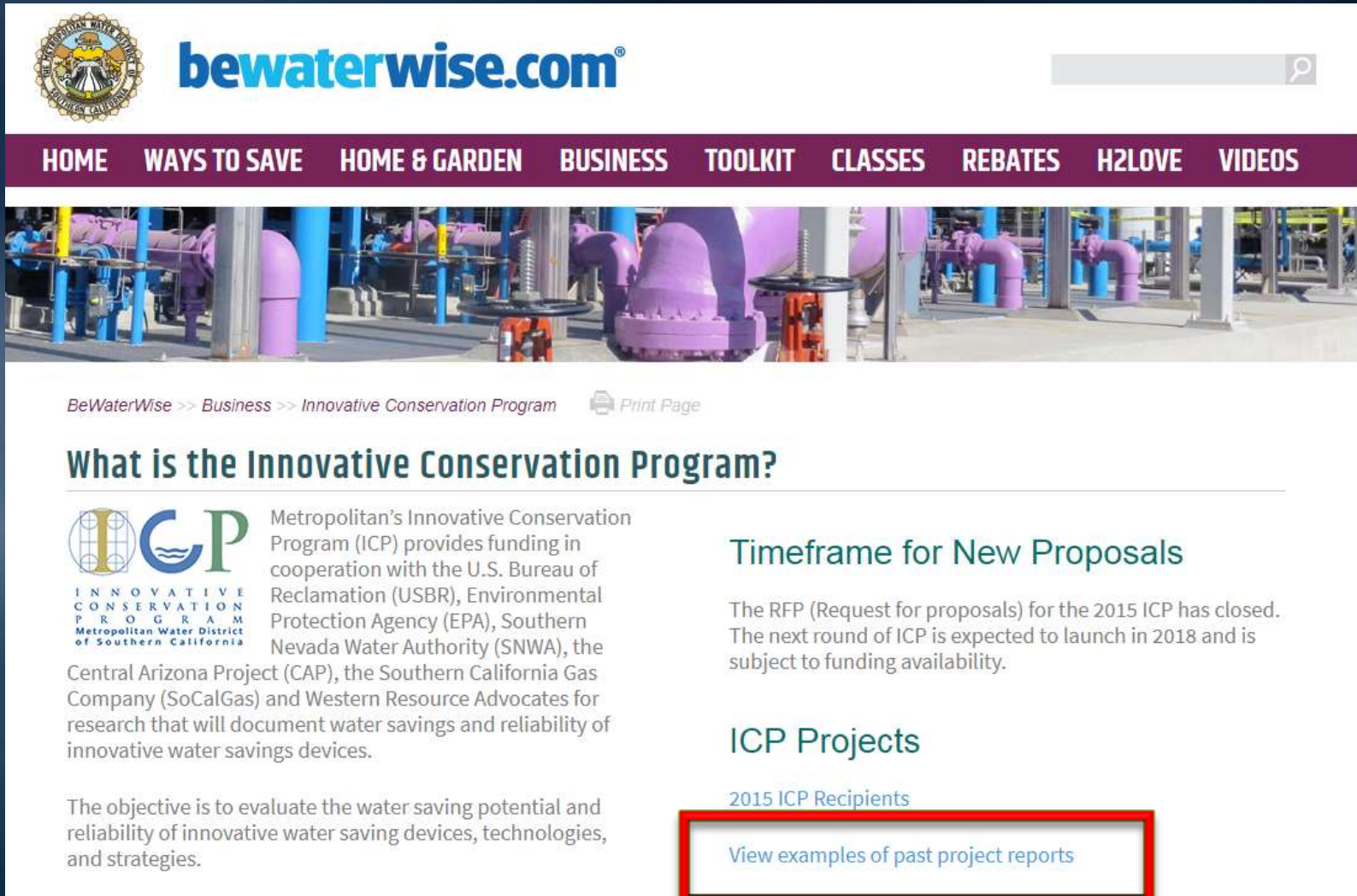
- Using UAS imagery can lead to irrigation savings
- Investigation at UCR showed irrigation savings of 21% (79% of standard ETo irrigation)
- Actual savings at golf courses was less (typical irrigation already at 80% ETo)
- Methods applicable to other sites (ag, parks, etc)



NDVI imagery shows more even distribution of plant health indicators over time

ICP Reports are publicly available

<http://www.bewaterwise.com/ICP.shtml>



The screenshot shows the beWaterwise.com website. At the top left is the Metropolitan Water District of Southern California logo. Next to it is the beWaterwise.com logo. A search bar is on the right. A dark blue navigation bar contains the following links: HOME, WAYS TO SAVE, HOME & GARDEN, BUSINESS, TOOLKIT, CLASSES, REBATES, H2LOVE, and VIDEOS. Below this is a large image of a water treatment facility with blue pipes and machinery. Under the image, there is a breadcrumb trail: BeWaterWise >> Business >> Innovative Conservation Program, followed by a Print Page icon. The main heading is "What is the Innovative Conservation Program?". To the left of the text is the ICP logo, which consists of the letters "ICP" in a stylized font with a globe and water waves. Below the logo is the text: "INNOVATIVE CONSERVATION PROGRAM Metropolitan Water District of Southern California". The main text describes the program as providing funding in cooperation with the U.S. Bureau of Reclamation (USBR), Environmental Protection Agency (EPA), Southern Nevada Water Authority (SNWA), the Central Arizona Project (CAP), the Southern California Gas Company (SoCalGas) and Western Resource Advocates for research that will document water savings and reliability of innovative water saving devices. Below this text is a paragraph stating the objective: "The objective is to evaluate the water saving potential and reliability of innovative water saving devices, technologies, and strategies." To the right of the main text is a section titled "Timeframe for New Proposals" which states: "The RFP (Request for proposals) for the 2015 ICP has closed. The next round of ICP is expected to launch in 2018 and is subject to funding availability." Below this is another section titled "ICP Projects" with a sub-link "2015 ICP Recipients". A red rectangular box highlights a link that says "View examples of past project reports".

