This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





Water Savings from Turf Removal

Michael Hollis, Ph.D mhollis@mwdh2o.com Metropolitan Water District of Southern California October 2, 2019

Regional Turf Removal Program: 2014-2015

All 26 member agencies participated in turf programs
Data from 19 member agencies in study
64,500 turf removal projects in program
80% single-family residential dwellings in sample
170 million square feet of turf removed in program
Research study occurred over a three year period

Regional Turf Removal Water Savings Study Objectives

- Estimate water savings from turf removal
- Examine savings persistence



Study Methodology

- Drew a random sample of 883 program participants from 19 member agencies with "matched" nonparticipants
- Collected billing histories of participants
- Anonymized to protect confidentiality
- Analyzed residential properties:
 - Single-family
 - Multi-family (Included HOA common areas)
- Separately analyzed two groups:
 - Top 20% in terms of total turf replaced
 - Lower 80%

Used regression models to estimate water savings, 2019





Conceptual Model

Turf Removal

10 Years

Water use before replacement



"Blackout" period



Water use after replacement



Oct. 2, 2019

Main Factors in Regression Model

- When turf was replaced
 Mandatory conservation
- Temperature
- Precipitation
- Season







Total Water Savings Estimates (g/sf/y)



Water Savings Varied Across Region Single Family, g/sf/y



Efficiency Gains Varied by Project Size Single Family Homes, g/sf/y



Smaller projects (lower 80%) Larger projects (upper 20%)

Savings Persisted During Study Period

Single Family

Multi Family



Areas for Future Research

- Verify water savings estimates and group differences
- Extend work on the multiplier/spillover/ neighborhood effect
- Track savings persistence
- Estimate reversion—the extent to which program participants revert to turf over time





For copies of the research report, contact Michael Hollis, Ph.D, mhollis@mwdh2o.com