

Alliance for Water Efficiency

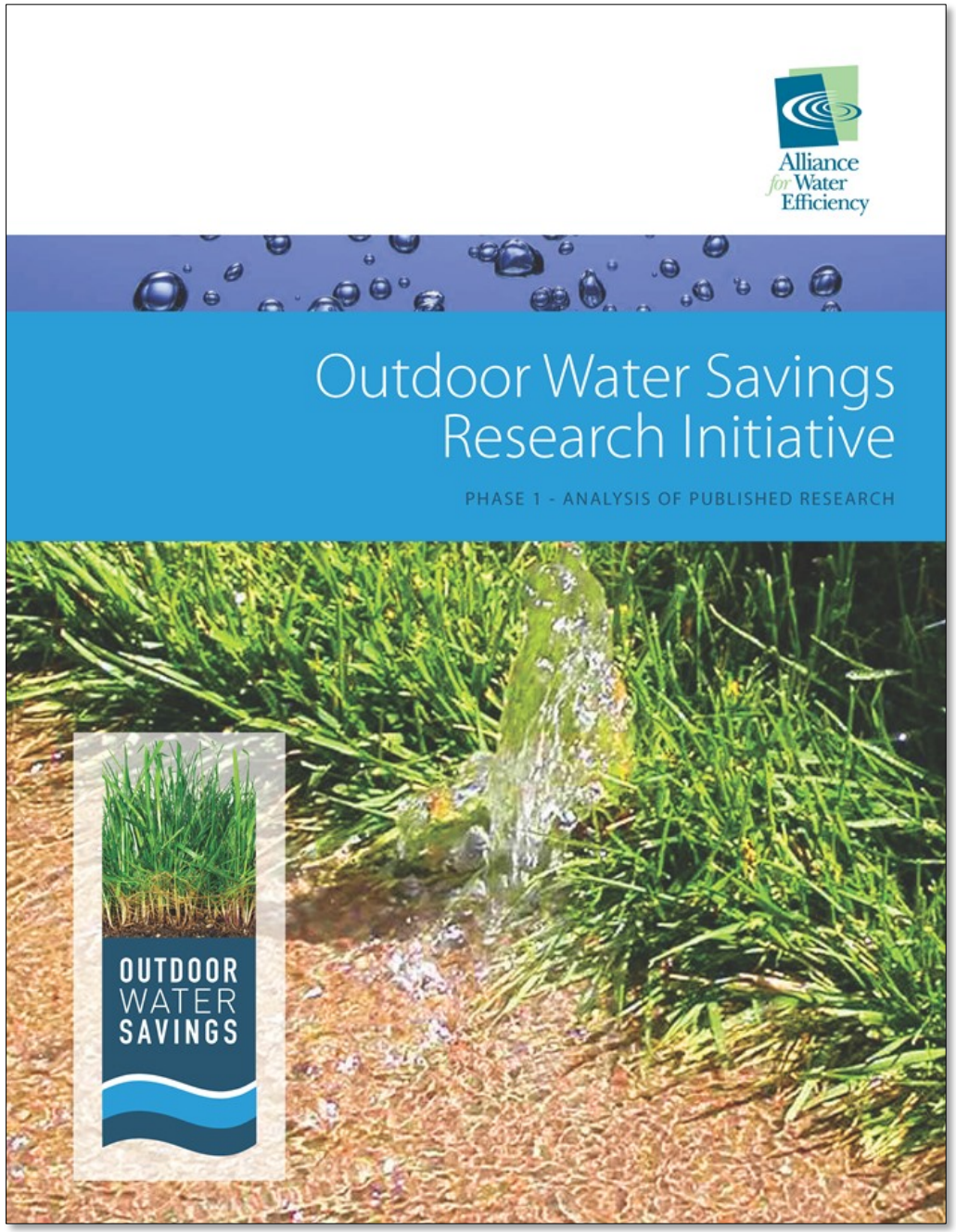
AWE Outdoor Water Savings Research Initiative

3 Landscape Studies

OUTDOOR WATER SAVINGS

Photo credit: Vicki Anderson


“A main conservation priority has to be reducing outdoor water use, which remains poorly understood, largely unregulated, and ripe for innovation and improvement at the consumer, landscape contractor and designer levels.”

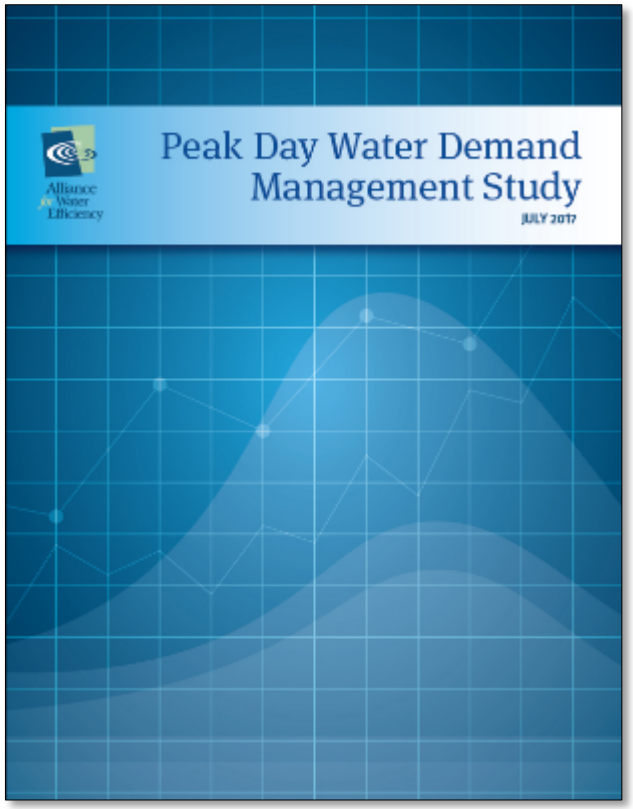


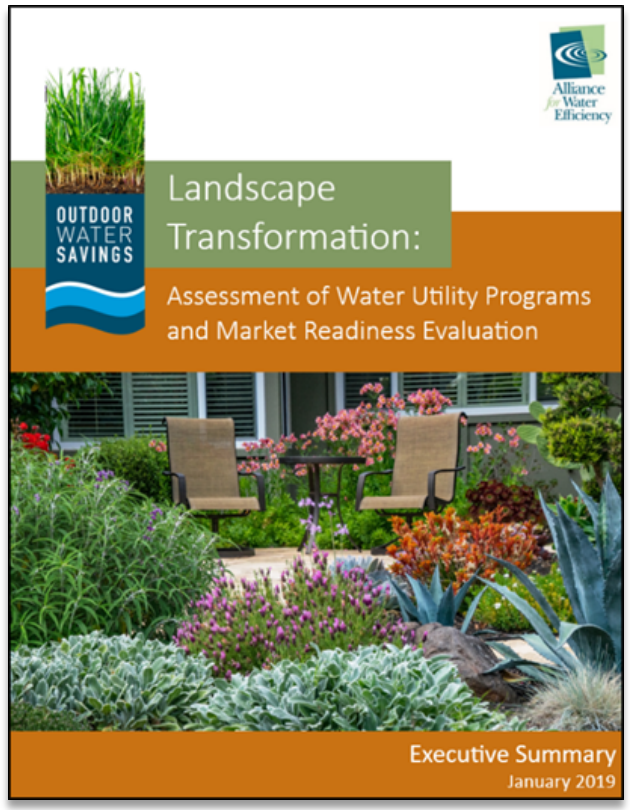
Phase 1

- Analyzed Published Research

Phase 2

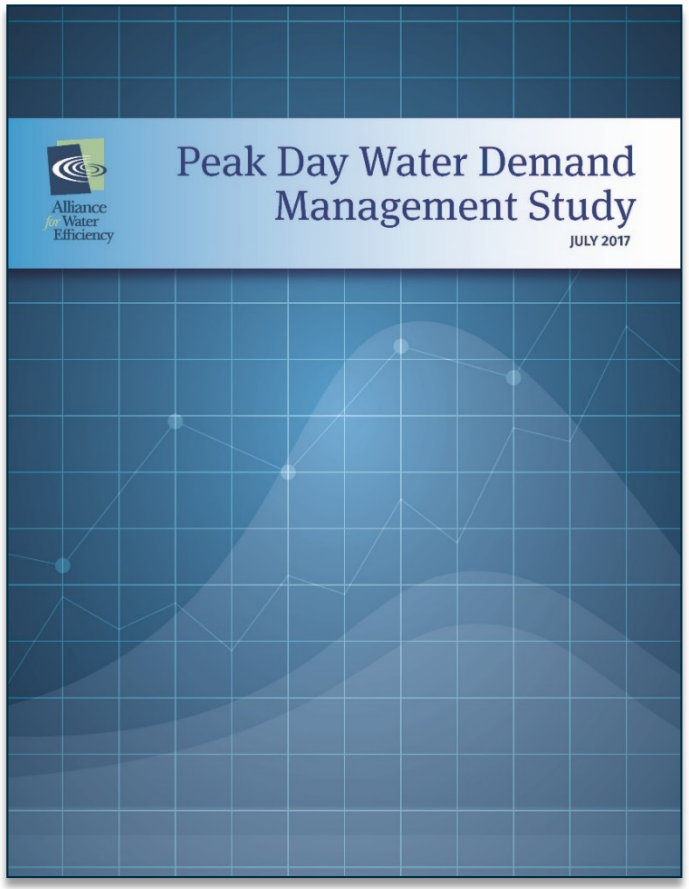
- Peak Day Water Demand Management
- Landscape Transformation Study
- Drought Restrictions Study – Q4 2019





Peak Day Water Demand Management Study

- Tested remote control of irrigation systems to manage peak demand
- Rachio Controllers used
- Peak shaving experiments conducted in July and August
- 15 residential study sites in Bruce Springsteen's neighborhood
- Remote shifting was found to successfully occur in 14 of the 15 sites (the 15th owner manually overrode the settings)
- Additional sites neeed!



Drought Restrictions Study

- 14 participating and funding agencies
- Expected final launch: October, 2019

Research questions:

1) What are the different forms of mandatory and voluntary irrigation restrictions typically implemented by North American water providers?
2) How do mandatory and voluntary irrigation restrictions vary across water providers?
3) What demand reduction impacts can be achieved through different levels of mandatory and voluntary irrigation restrictions?
4) During times of drought, what can water providers to do maximize outdoor irrigation demand reductions?
5) How does media coverage impact drought response, and what are the comparative impacts of local vs. state and regional drought messaging?
6) What is the longevity of demand reductions during and after a drought?

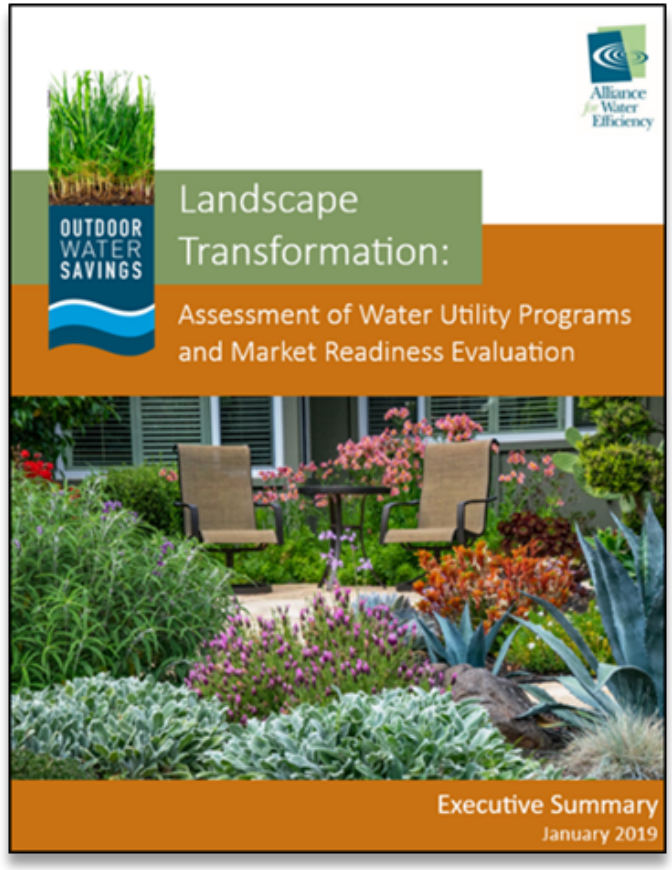
Landscape Transformation Study

Landscape Program Water Savings

- What **range of water savings** can be expected from reducing landscape water requirements?

Customer Motivations & Market Readiness

- What **motivates people** to change their landscape and irrigation practices to reduce the overall water requirement and usage?
- What are the **reasons and rationale** for their landscape choices?
- What **barriers exist** to landscape transformation and to utility-sponsored programs?



Landscape Transformation Study

Research Team:

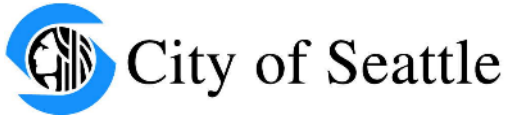
- A&N Technical Services, Inc.
- Maureen Erbeznik & Associates
- Sligo Creek Resources

Project Manager:

Peter Mayer, AWE Technical Advisor and Principal, Water DM

Additional support from AWE Staff and Project Advisory Committee

Partners and Participants



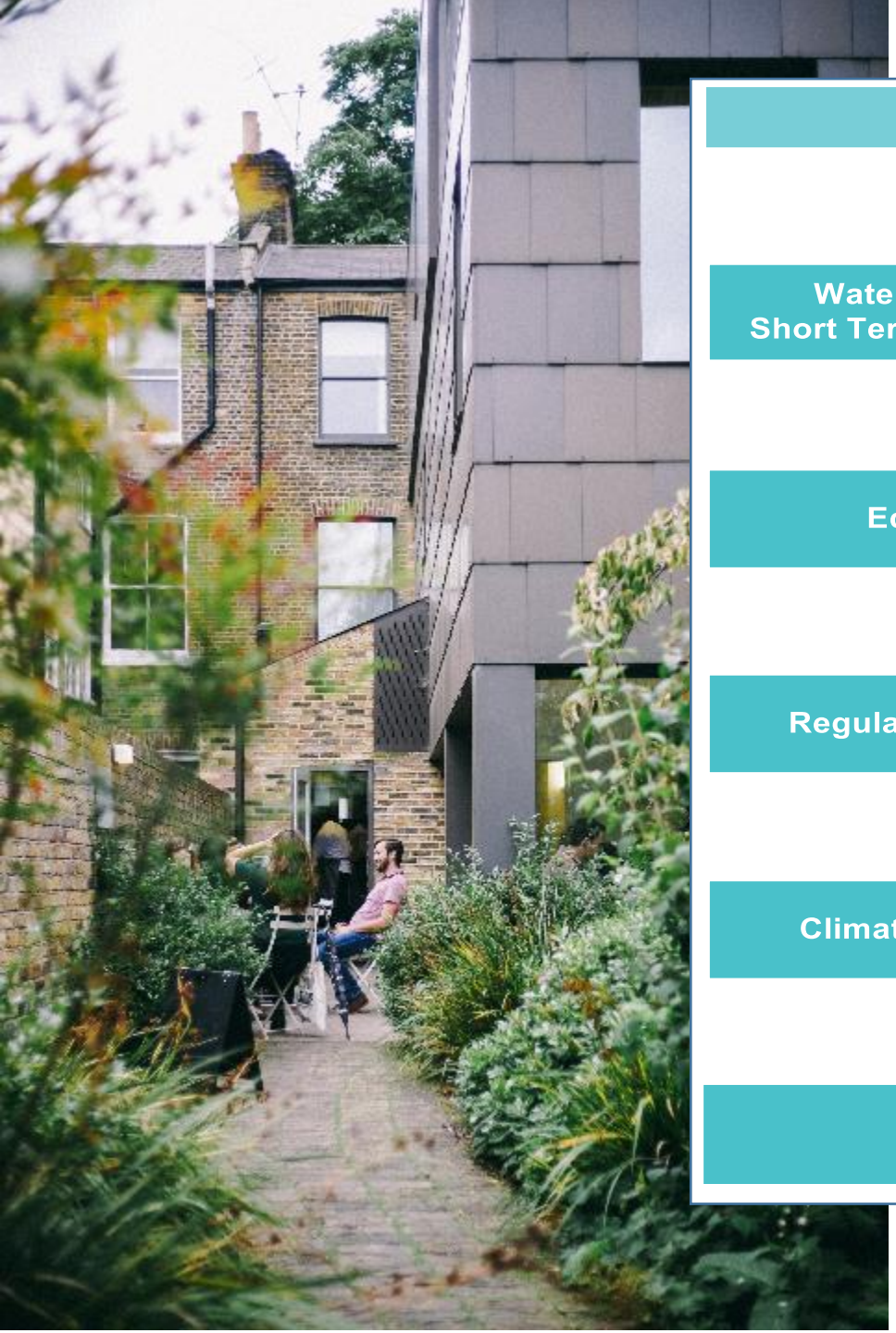
LANDSCAPE TRANSFORMATION

Landscape transformation is the act of customers transitioning from traditional high-water use landscape designs and products to water-efficient and sustainable landscapes, reducing the irrigation water requirement and outdoor water use.

SUSTAINABLE LANDSCAPES

- Feature climate-appropriate landscape designs and efficient technologies
- Are maintained through efficient irrigation practices
- Support homeowner goals, community water objectives, and healthy watersheds

Photo credit: Vicki Anderson



Motivations for Landscape Transformation Programs

01 Water Supply Issues – Long Term Goals Sufficiency and Sustainability

Water Supply Reliability-- Short Term Drought Management 02

03 Water Supply as Growth Inducer (good or bad)

Economic Cost of Water 04

05 Stormwater Runoff/Water Quality

Regulatory Mandate/Legal Requirement 06

07 Energy Use reduction

Climate Change/ Greenhouse gas emissions 08

09 Public Perception

Customer Benefits/Customer Demand 10

Impact Analysis

Evaluated savings of nine landscape transformation programs from diverse geographies and climates; described fourteen diverse programs

Rebates for efficient irrigation technology

Free distribution of mulch

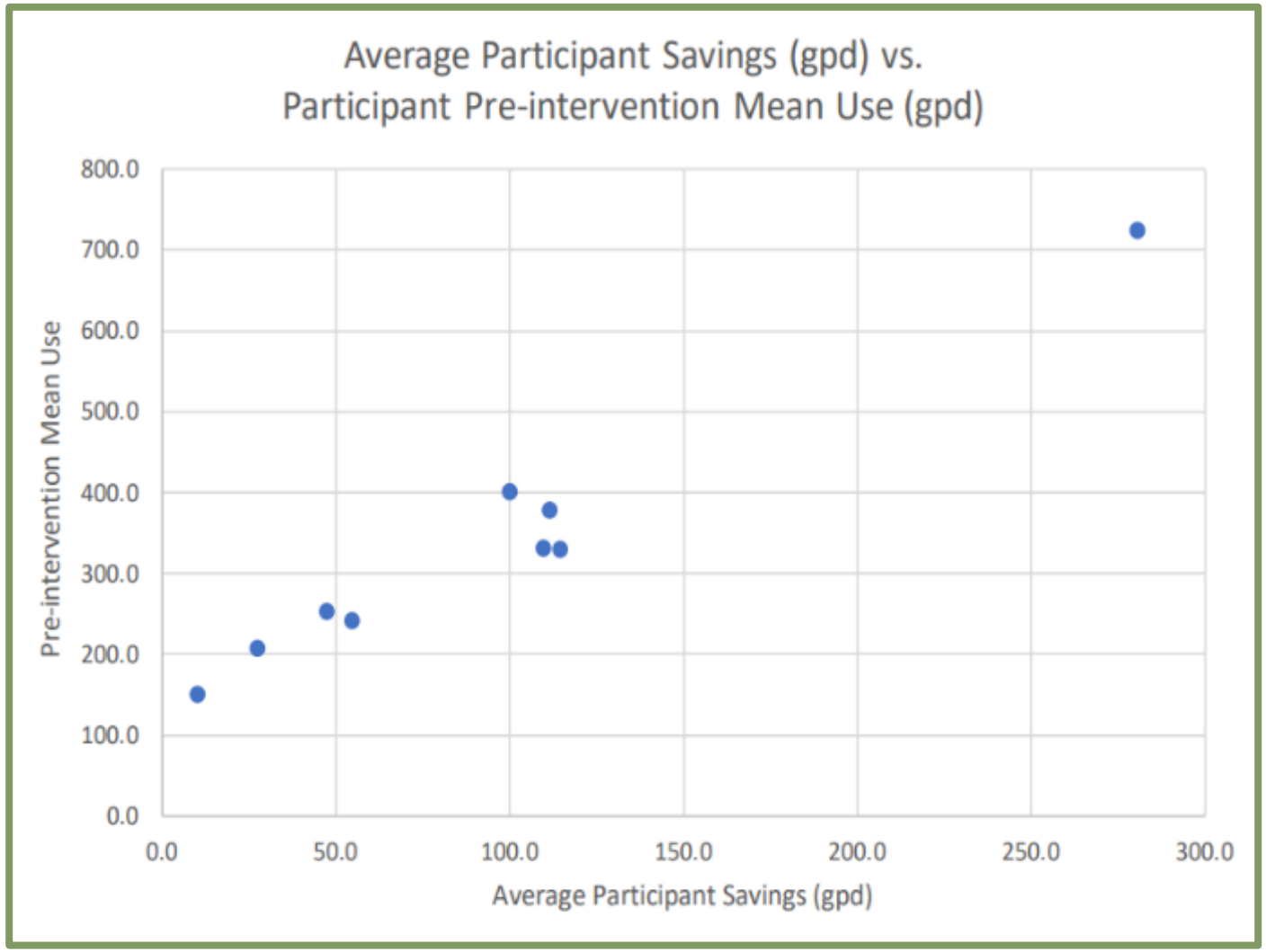
Customer site audits and education

Turf removal and re-landscaping

All programs, of every type, generated meaningful water savings

Average participant water savings ranged from **7%** (Outreach & Support) to **39%** (Cash for Grass)

Higher pre-intervention water use was associated with higher savings



Austin WATER

Population served: 928,000

Average annual precipitation: 32.1 in.

Program type: Turf removal and replacement

Average participant savings: 18.9%

PETALUMA 1858

Population served: 60,200

Average annual precipitation: 25.0 in.

Program type: Free distribution of mulch

Average participant savings: 13.3%

San Diego County Water Authority

Population served: 3,200,000

Average annual precipitation: 10.0 in.

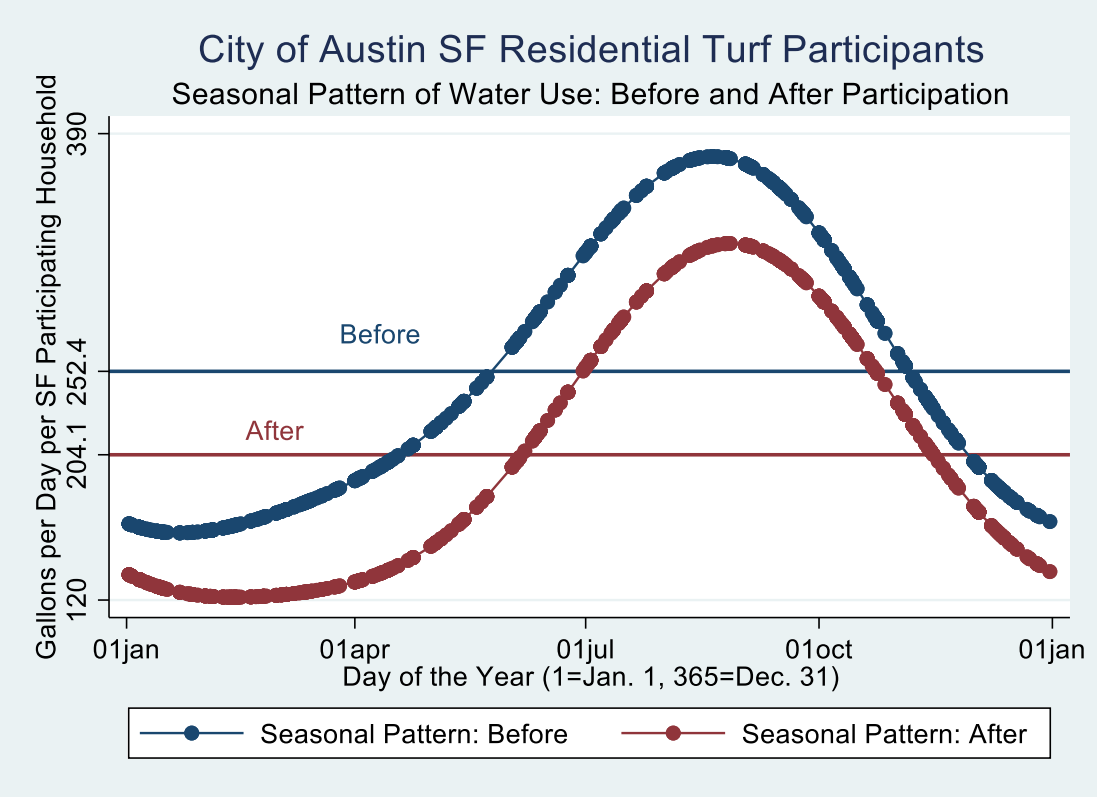
Program type: Education, technology rebates, technical assistance

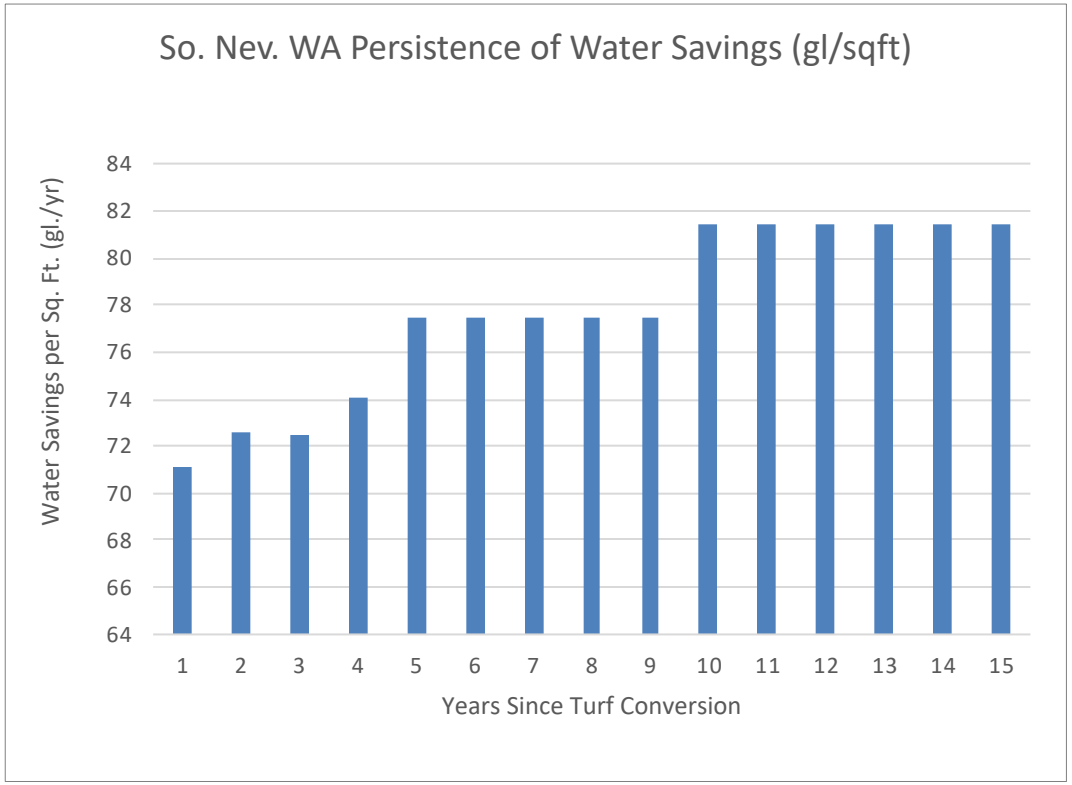
Average participant savings: 34.8%

42,000 gallons annually per participant

Meets the needs of a **four-person SD household for nearly 100 days**

Landscape programs effectively reduced peak demand





Water savings were observed to persist and increase over time

Market Analysis

AWE surveyed 3,390 water customers across the United States and Canada.

1,655 participated in a landscape transformation program.

We also conducted interviews with supply chain participants and analyzed industry reports.

TIME TO EDUCATE CONSUMERS

Consumers are generally disconnected from their outdoor water use

53%

believe they use **10-30 percent** of their water outdoors. (Truth: Most use **30 to 60 percent**)

41%

believe they own water-efficient sprinklers (Truth: **less than 20%** of equipment sold is efficient)

56%

believe they have a smart controller (**31%** are interested in getting one)

92%

state they have a timer on their system; about **25%** say they adjust based on season and weather; **89%** say they check regularly for leaks

Beauty is important, but nearly half of respondents also wanted their landscapes to be water-conscious – indicating awareness is growing.

55%

of respondents identified **beauty and appearance** as one of their top three landscape aspects.

48%

of respondents identified **easy care** as one of their top three landscape aspects.

42%

of respondents identified **low water use** as one of their top three landscape aspects.

87% would like trees and shrubs

79% would like flowers

73% would like an entertaining space

69% would like lawn

Are you satisfied with your landscape?

- 21% **Very Satisfied**
- 54% **Somewhat Satisfied**
- 19% **Somewhat Dissatisfied**
- 5% **Very Dissatisfied**

NEARLY ALL CUSTOMERS NEED SOME ASSISTANCE

THEY ARE LOOKING TO THEIR WATER PROVIDERS TO HELP THEM MAKE CHANGES

85%
believe they need moderate to full assistance to change out their landscape

45%
will need a financial incentive

22%
want help with plant selection and layout

They have concerns about landscape transformation programs that must be addressed.

52%

Cost of changing out some or all of their lawn

30%

Final look of the landscape

21%

Difficulty of making changes

39%

Landscape design

24%

Implementation, such as lawn removal

10%

Installing irrigation

They believe they will need help with a variety of landscape aspects

When they do transform their landscapes, they're pleased with the results

91% Were satisfied or very satisfied with new landscape

85% Thought the conversion was worth the investment

63% Would not do anything differently

Photo credit: Vicki Anderson

Barriers

Customers

- High costs
- Lack of knowledge
- Misperceptions of outdoor use
- Worries about new look
- Ease of lawn maintenance
- Lack ability to DIY
- Indifference to the offer

Programs

- Numerous or complicated requirements
- Complex process
- Low financial incentives compared to total project cost
- Low customer response

Supply Chain

- Efficient products hard to identify
- Limited testing, certifications, labeling
- Product performance issues
- Plant availability

Contractors

- Specific knowledge base needed to support sustainable landscapes
- Unclear business case to drive service for small residential clients

Photo credit: Vicki Anderson

Recommendations

Programs

- Correct misperceptions about water use
- Educate customer from the start and address emotions
- Find the optimal design balance
- Balance program requirements
- Expand, segment, and tailor program messaging

Photo credit: Vicki Anderson

Supply Chain

- Connect better with the water efficiency industry (and vice versa)
- Create additional testing and certification standards beyond smart controllers
- Improve plant availability at nurseries and stores

Contractors

- Lead with technology – data driven insights and better customer engagement
- Consider industry initiative to produce an on-line landscape design software tool
- Make the shift to Big Data and Predictive Analytics to personalize customer experience

Landscape Transformation: The Long Game

Signs of Success

1. No Incentives Required
2. Water/Energy Savings Are Observable and Significant
3. Customers Accept and Prefer Efficiency
4. Manufacturer / Supplier / Distributor Satisfaction and Innovation

Priorities for Future Research

- ✓ Market Segmentation Analysis for Improved Customer Engagement
- ✓ Customer Outreach and Messaging: A/B Testing of Modes/Messages
- ✓ Impact Evaluation in Real Time
- ✓ Supply Chain Research
- ✓ Landscape Design Standards
- ✓ Program Design for Outdoor Water Use of Disadvantaged Communities
- ✓ Drought Management and Outdoor Water Use

Learn More

Visit www.allianceforwaterefficiency.org to access:

- Executive Summary
- Impact Analysis Report
  - **Member Version** with Expanded Program Descriptions
- Process Evaluation Report
  - **Member Version** with Expanded Program Descriptions
- Fact Sheet: Making the Case for Landscape Transformation (Member-Only)
- Infographic
- More to come!