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Advancing Sustainable Landscapes on Commercial and Industrial Properties in the *Santa Ana River Watershed*

Heather Cooley, Director of Research, Pacific Institute

WaterSmart Innovations, Las Vegas, Nevada
October 3, 2019

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About the Pacific Institute

Mission

The Pacific Institute creates and advances solutions to the world's most pressing water challenges.

Vision

We envision a world in which society, the economy, and the environment have the water they need to thrive now and in the future.

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Pacific Institute & CEO Water Mandate

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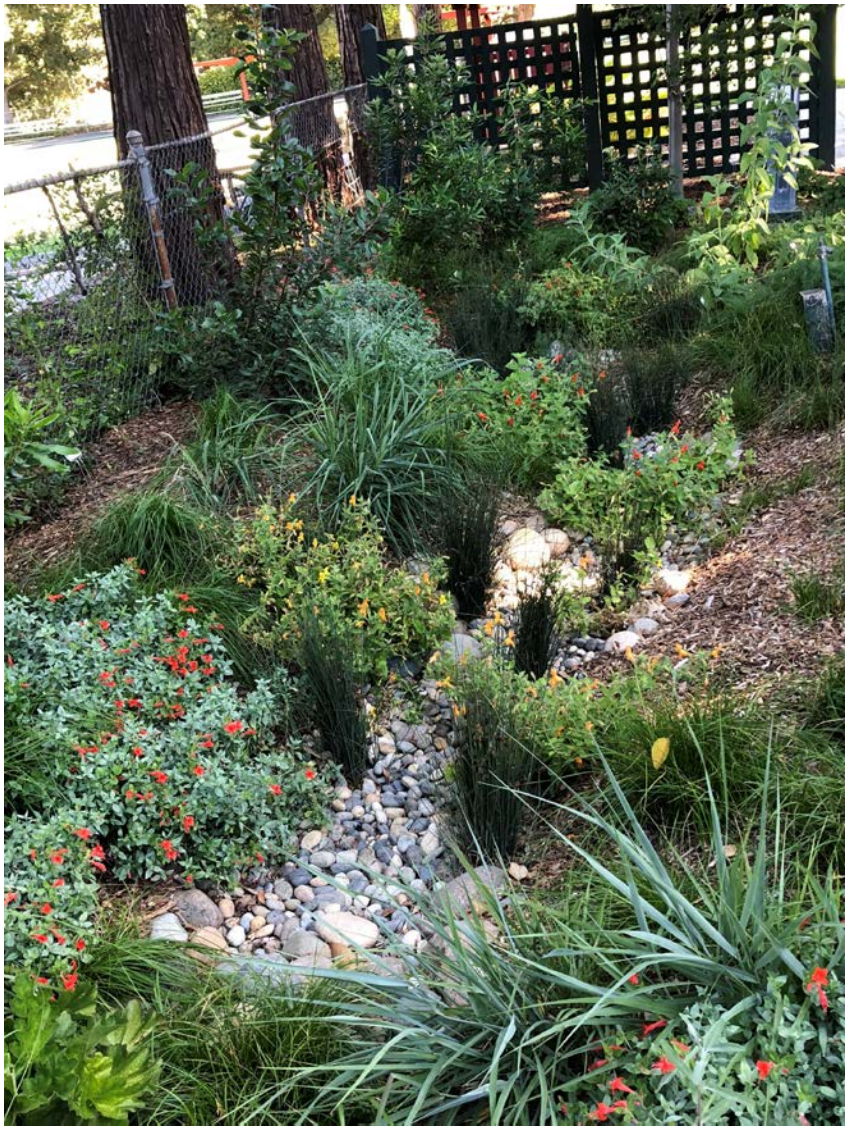
Presentation Overview

- Project Overview
- Phase 1 Results
- Phase 2 Activities



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Project Overview

Objective: Implement sustainable landscape practices on commercial and industrial properties across the Santa Ana River Watershed.

Phase 1 (complete): Identify potential water-related benefits across the watershed, as well as motivations and barriers for greater uptake.

Phase 2 (current): Work with business to provide tools and resources - such as information on project benefits, incentive programs, and financing options - to advance adoption of sustainable landscape practices.

Project Team

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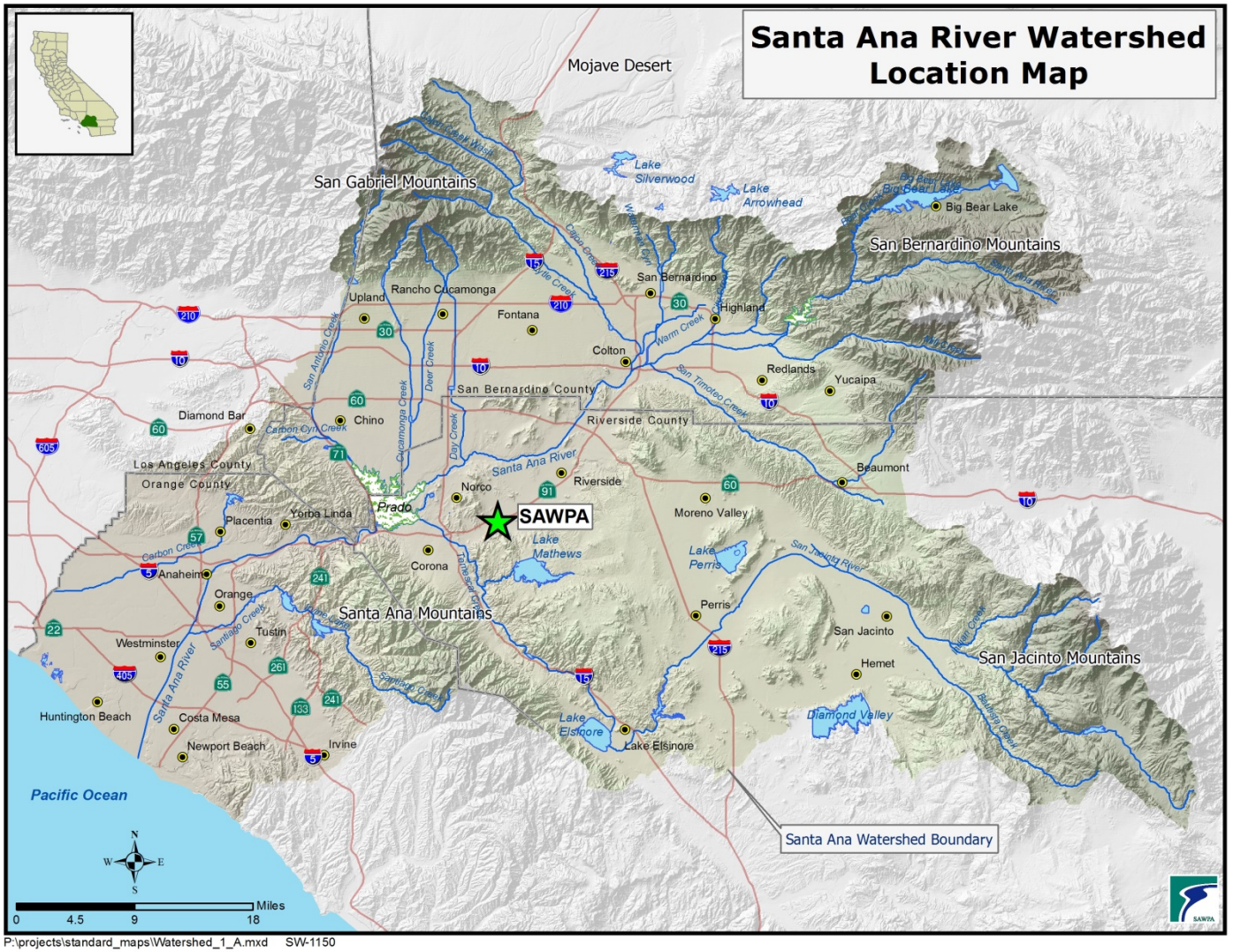
UN GLOBAL COMPACT The CEO Water Mandate

SAWPA

CA FWD:

G3 green gardens group
www.greengardensgroup.com

Study Area



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Sustainable Landscapes Defined

Key elements of sustainable landscapes include:

- Healthy, living soils
- Climate-appropriate plants
- Rain as a resource
- Efficient irrigation

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Benefits of Sustainable Landscapes

Sustainable landscapes provide multiple benefits, to the site and the surrounding community.

- Save water
- Reduce water pollution
- Reduce flooding
- Recharge groundwater
- Save energy and reduce GHGs
- Improve employee productivity and satisfaction
- Enhance site/community aesthetics
- Create urban habitat

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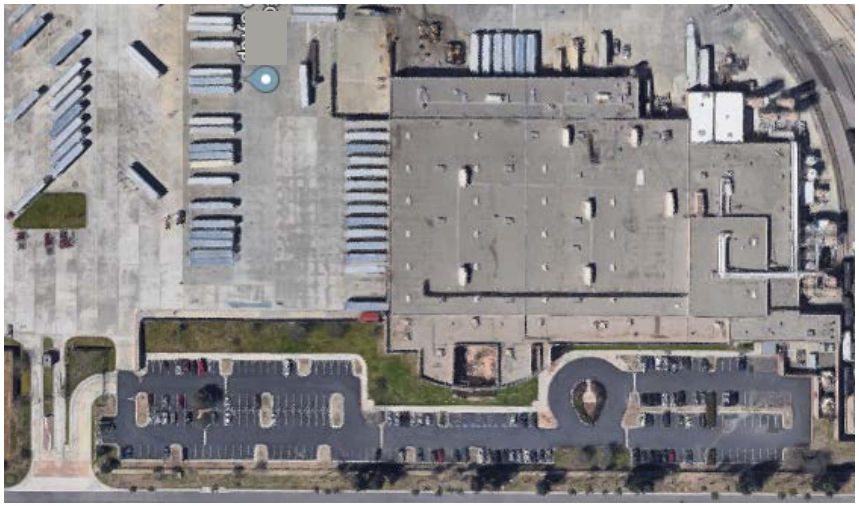
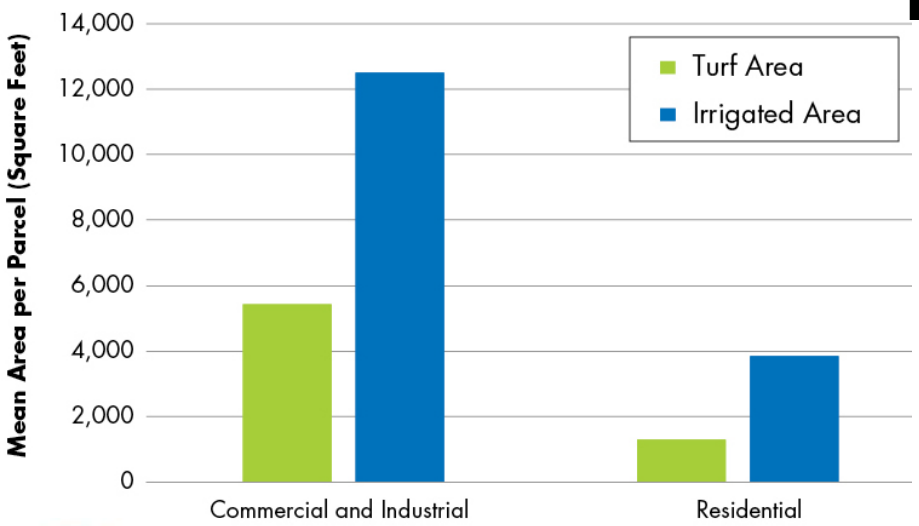
Why CI Properties?





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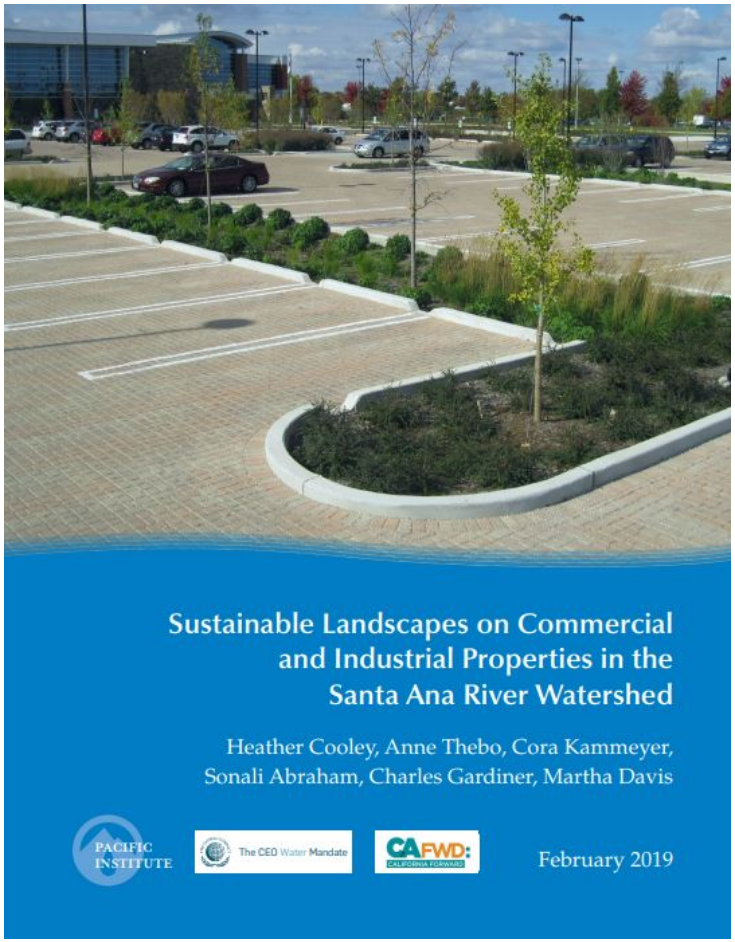
Phase 1: Research Questions

1. What is the opportunity in the Santa Ana River Watershed?
2. What motivates the business community?
3. What are barriers to widespread adoption, and how do we overcome them?



https://pacinst.org/publication/sustainable-landscapes-santa-ana-river/

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Magnitude of Opportunity

Commercial and Industrial Parcels and Area by Benefit Category

Benefit Category	Number of CI Parcels	CI Area (million ft²)	% of CI Area
Water Supply, Water Quality, and Flood Risk Management	15,056	1,789	20
Water Quality and Flood Risk Management	373	30	<1
Water Supply and Flood Risk Management	7,145	1,038	12
Water Supply and Water Quality	35,854	3,436	38
Water Supply	12,364	1,705	19
Flood Risk Management	228	20	<1
Water Quality	2,410	181	2
TOTAL (CI Parcels)	**78,196**	**8,928**	**91**

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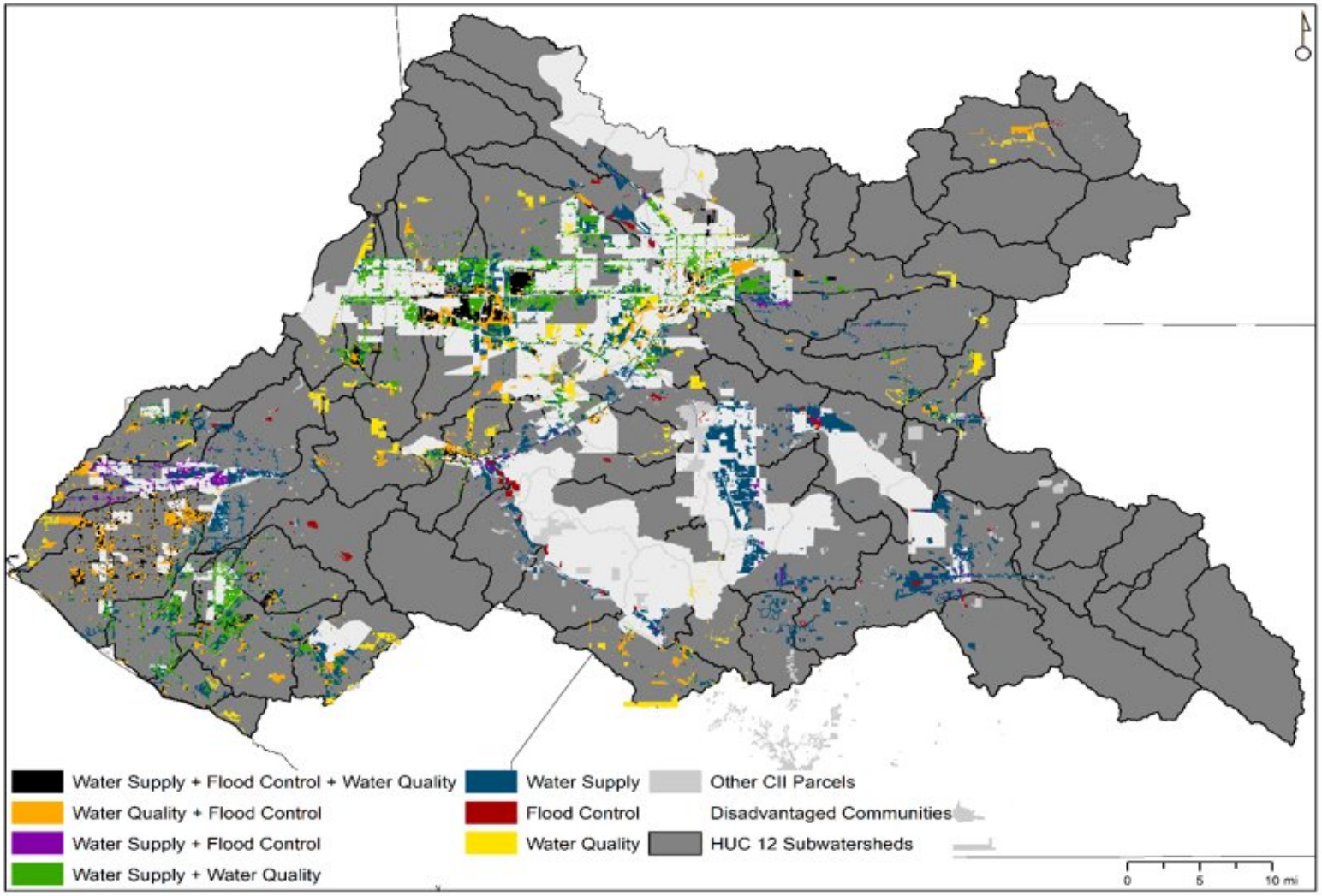
Opportunity Mapping



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Business Motivations

Businesses have varied motivations for transforming their landscapes:

- Financial savings
- Corporate sustainability goals
- Reputation and public perception
- Social responsibility

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Barriers to Adoption

- Project benefits not fully understood and are distributed among multiple parties.
- Few financial incentives for benefits.
- Business community often unaware of available rebates.
- Lack of established relationships between water utilities and businesses.
- Decision-making processes complex and varied.
- Specialized knowledge to properly install and maintain landscapes.

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Recommendations to Overcome Barriers

- Develop resources for businesses, using language and examples that resonate with them.
- Foster long-term relationships between water managers and businesses.
- Coordinate policies and programs across the watershed.
- Develop appropriate and targeted incentive programs and policies.

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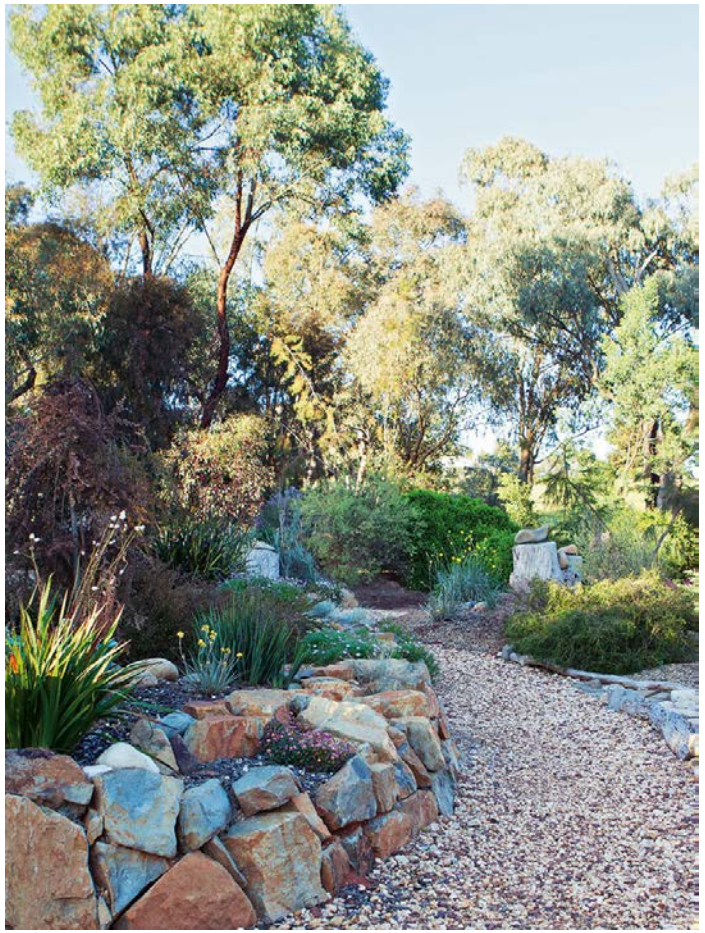
Phase 2: Activities

1. Recruit businesses.
2. Conduct site assessments.



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Phase 2: Site Assessments

SITE PHOTOS

AREA 1B

AREA 1A

SITE CONDITIONS

AREA 1

DRAINAGE & GRADING		key
Schematic provided? (Y/N)	N	
Where does stormwater flow?		
Visible stormdrains (catch basin)		
Planter drains		
Swale, concrete		
Swale, vegetated		
Swale, cobble		
Hidden / built-in gutters to stormdrain		
Building gutters to impermeable surface		
Building gutters to planted area		
Area drains in hardscape		
Soil compacted? (Y/N)	N	
HARDSCAPE		
Continuous concrete or asphalt	X	
Gravel, DG, cobblestone, other		
IRRIGATION		
Schematic provided? (Y/N)	N	
Spray	X	
Drip		
Rotors		
Recycled water? (Y/N)	Y	
Visible breakage? (Y/N)	N	
Overwatering (soggy underfoot)? (Y/N)	N	
Visible ponding? (Y/N)	N	
Dry spots? (Y/N)	N	

PLANTING		key
Plant type		
Turf	X	A
High water-use plants	X	
Medium water-use plants		
Low water-use plants	X	
California native plants		
Trees	X	
Visual appearance		
Overgrowth		
Healthy growth	X	
Wilted	X	
Yellowing		
Dead		
Brown patches	X	
Moss		
MAINTENANCE		
Use of pesticides? (Y/N)	Y	
Use of herbicides? (Y/N)	Y	
Regular manicuring required? (Y/N)	Y	B
Mulch present? (Y/N)	X	C
Man-hours spent per week on maintenance (per owner)		
NOTES		
Red Apple (Apetinia cordifolia) is		D
invasive in neighboring Los Angeles		
County. Use with caution.		
No shade trees present over benches.		

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Phase 2: Site Assessments

WATER CALCULATIONS

PROPERTY ADDRESS

	Area (square feet)	Annual Water Use (gallons)	Annual Water Savings (gallons)
AREA 1A: Entry Island 1			
Existing landscape	5530	190,630	
Convert spray to drip, decrease runtime	5530	71,486	119,144
Convert spray to MP rotators	5530	127,087	63,543
AREA 1B: Entry Island 2			
Existing landscape	7500	413,664	
Convert turf & high water use plants & install drip	7500	96,953	316,712
Replace with rotary nozzles	7500	275,776	137,888
AREA 2: Main Building Plaza			
Existing landscape	5000	206,832	
Convert spray to drip	5000	129,270	77,562
Convert annuals & high water use plants & install drip	5000	64,635	142,197
AREA 3: Interior Courtyard			
Existing landscape	4000	220,621	
Convert high water-use plants & install drip	4000	51,708	168,913

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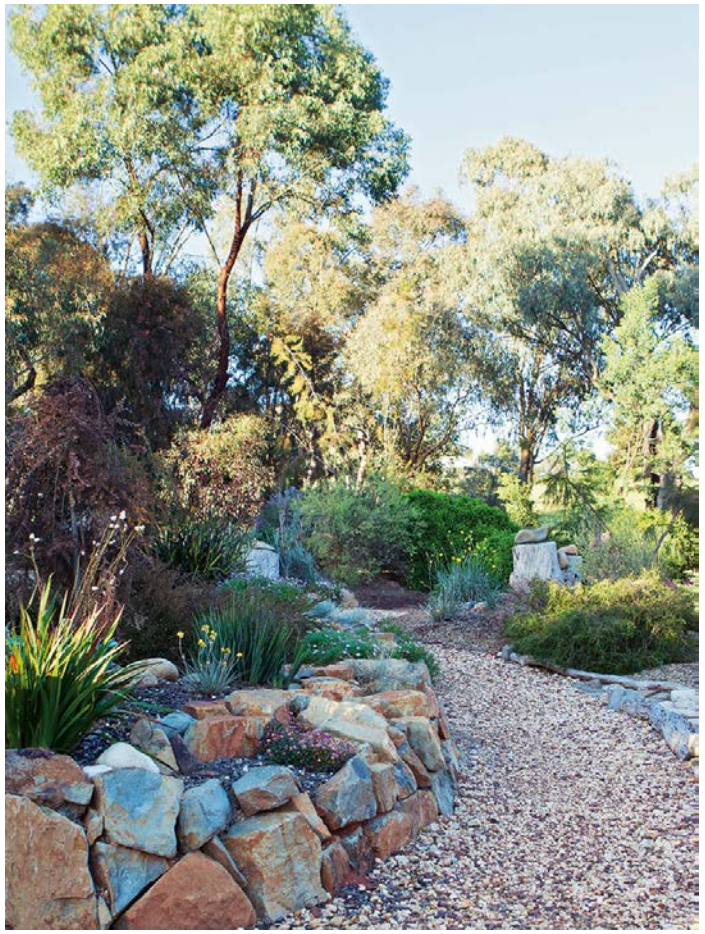
Phase 2: Activities

1. Recruit businesses through sustainability staff.
2. Conduct site assessments.
3. Provide tools and resources to inform business decision-making process.



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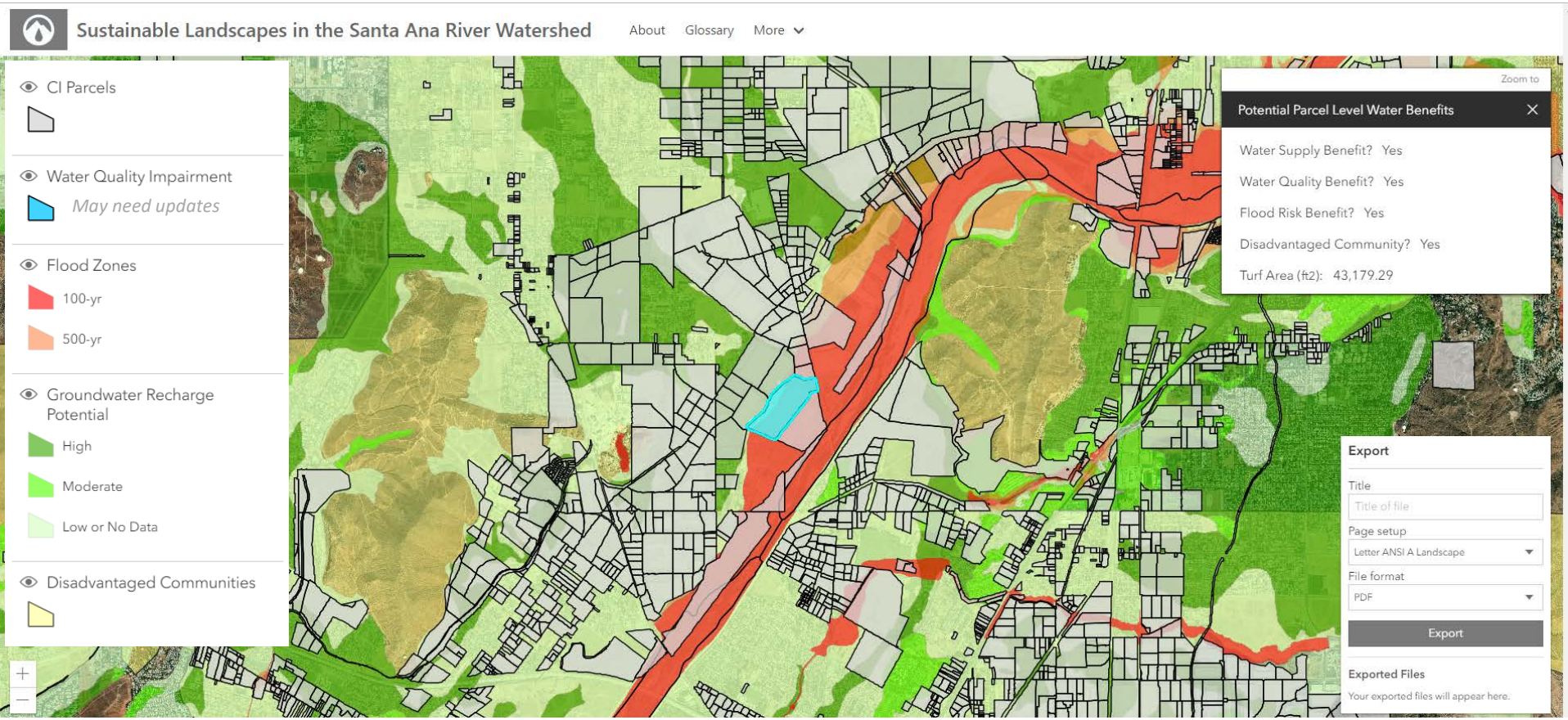
Online Mapping Tool



www.pacinst.org/santa-ana-benefits-map

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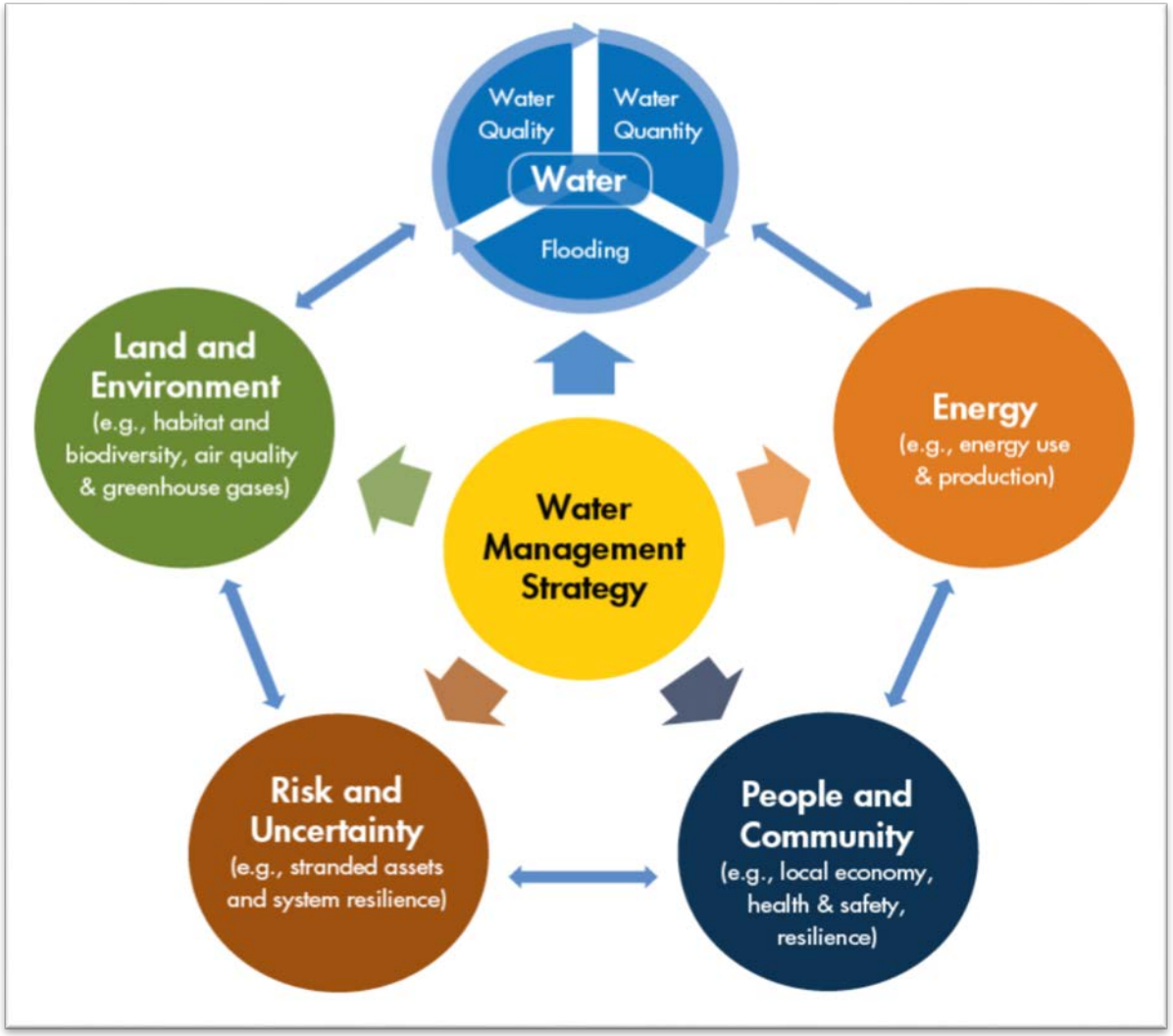
Phase 2: Co-Benefit Analysis



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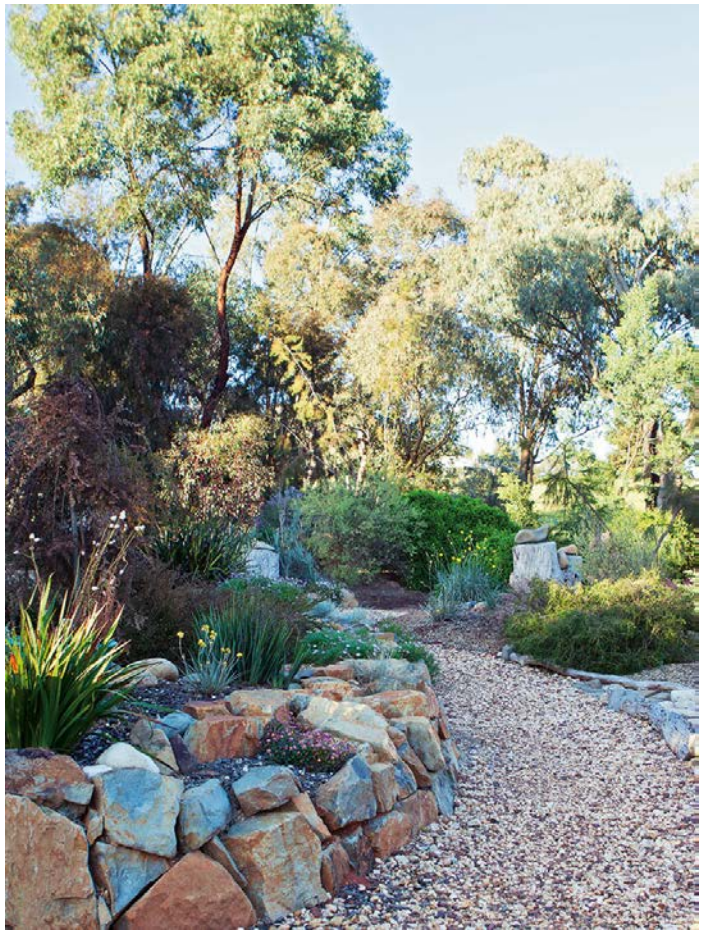
Phase 2: Activities

1. Recruit businesses through sustainability staff.
2. Conduct site assessments.
3. Provide tools and resources to inform business decision-making process.
4. Develop business-oriented case studies.



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Thank you!

Questions?

Heather Cooley, Director of Research
Pacific Institute
hcooley@pacinst.org

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