



STORMWATER DATA PROJECT & 2018 WHITEPAPER

SOUTHERN CALIFORNIA WATER COALITION

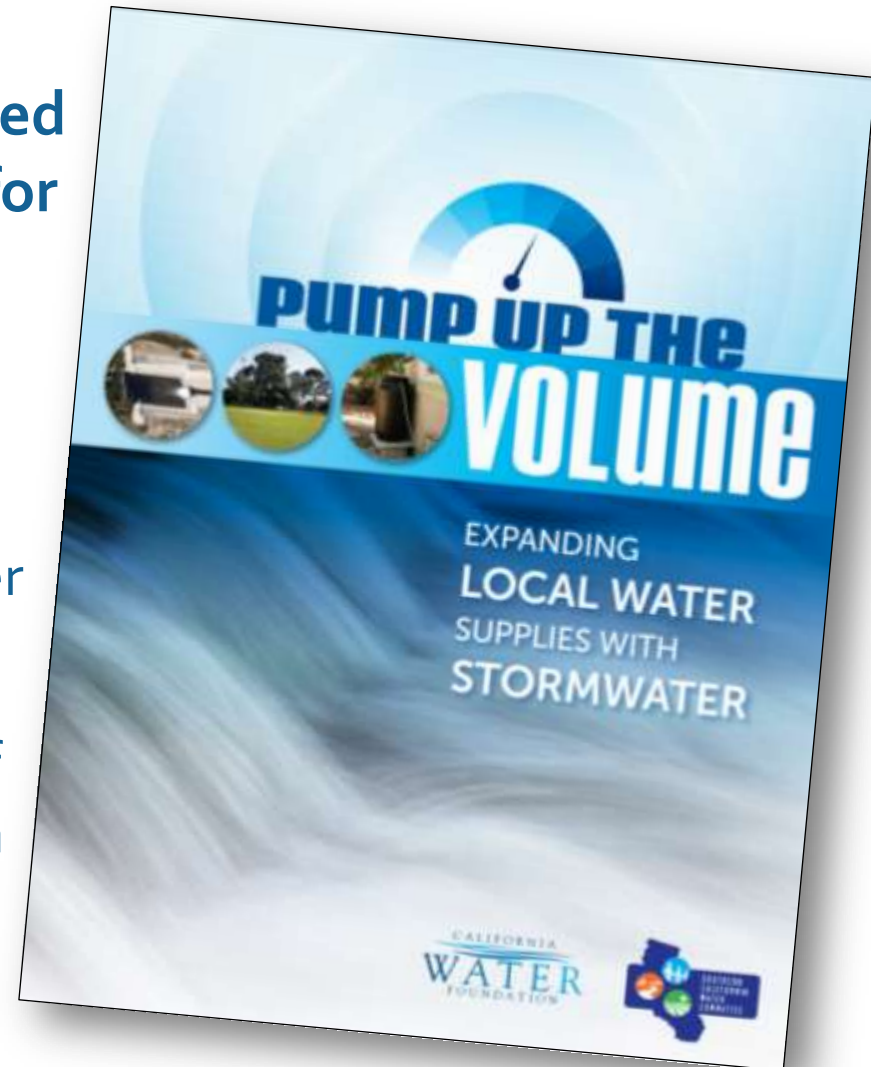
OVERVIEW



"Through measured advocacy, SCWC works to ensure the health and reliability of Southern California's water supply."

SCWC | STORMWATER TASK FORCE

- ▶ **Develop regional consensus-based strategies & recommendations for utilizing stormwater effectively**
 - ▶ Identify potential issues
 - ▶ Recognize opportunities and constraints related to stormwater management
 - ▶ Provide a forum for discussion of challenges for watersheds within SoCal

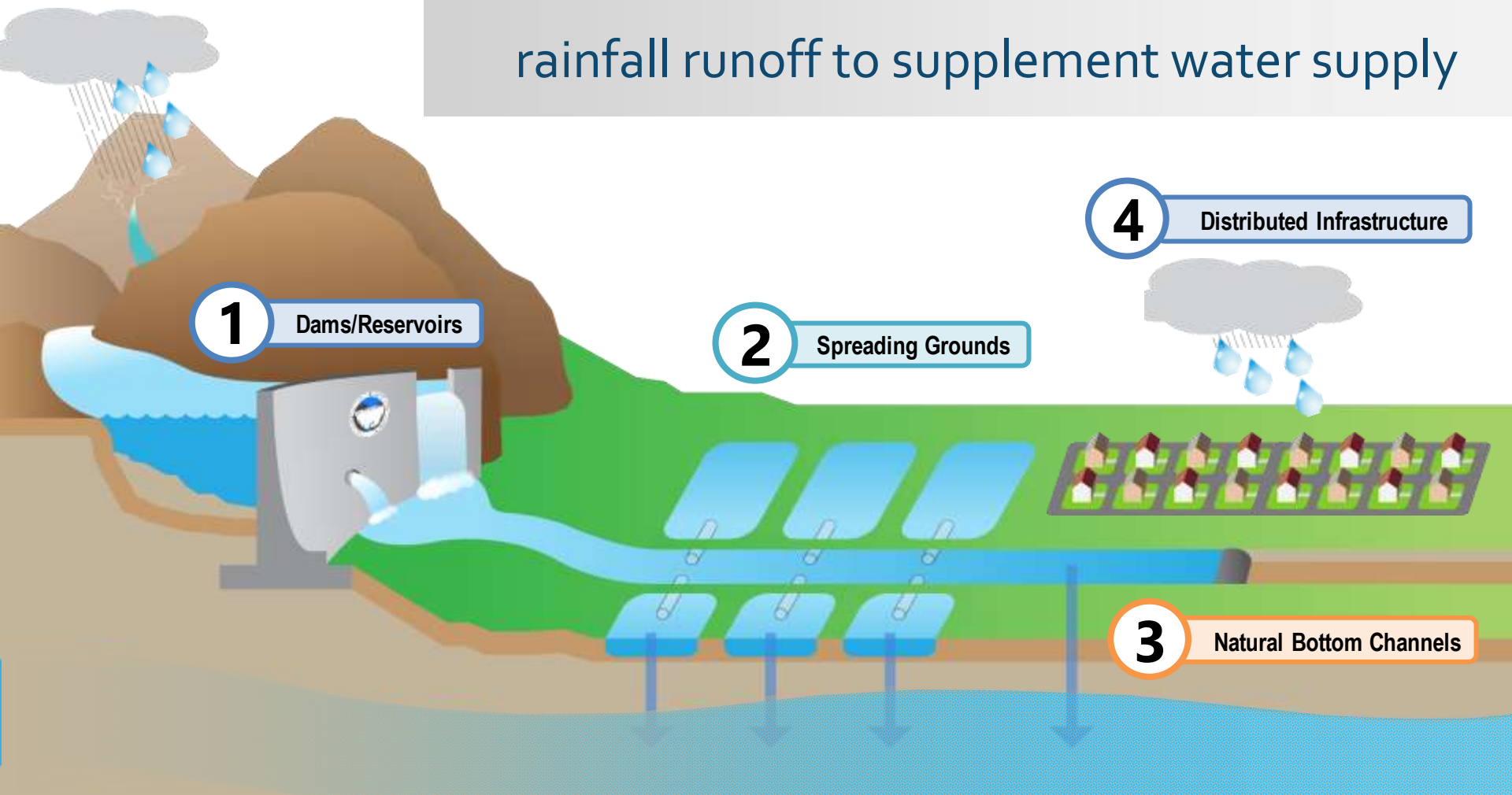


SCWC | PUMP UP THE VOLUME

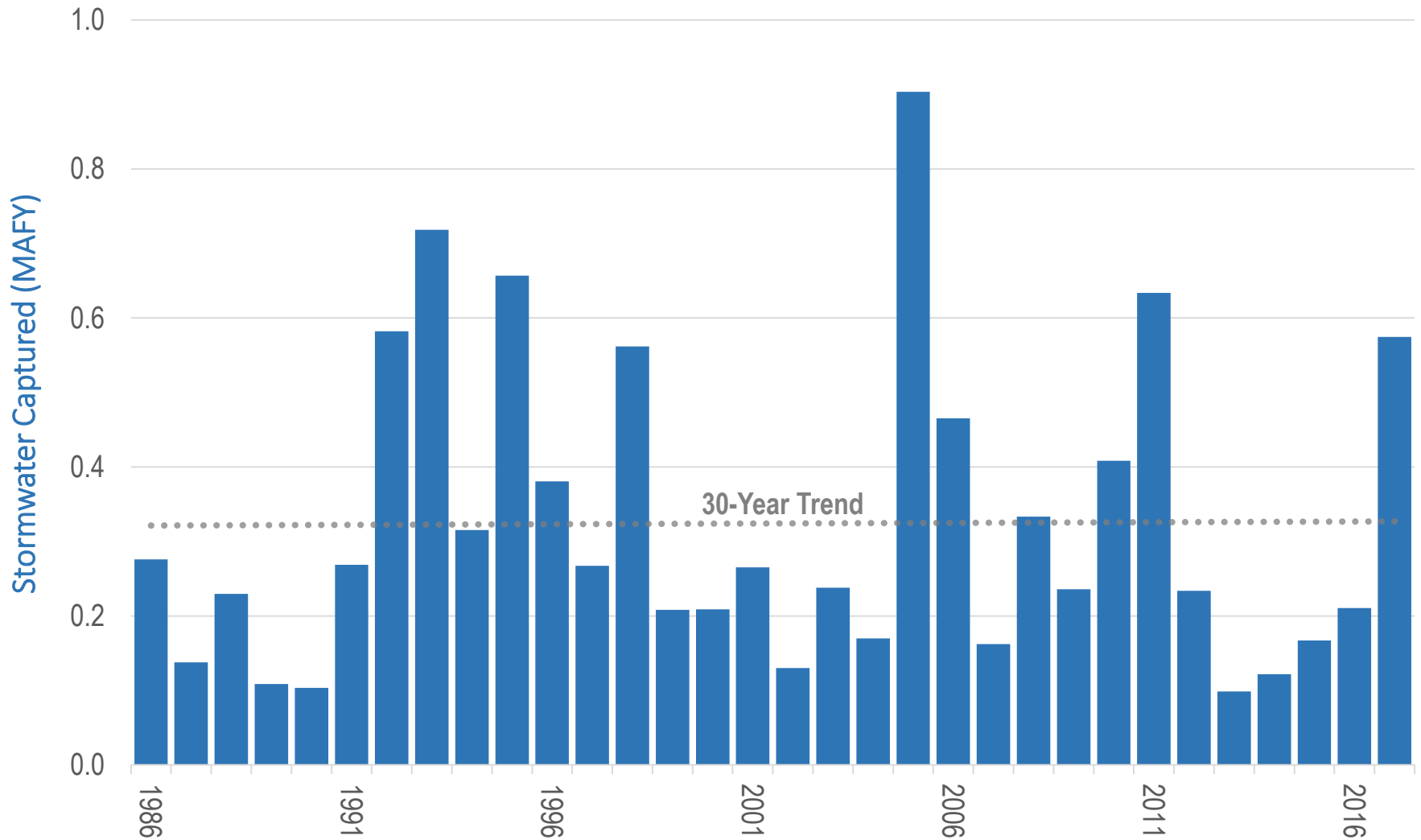


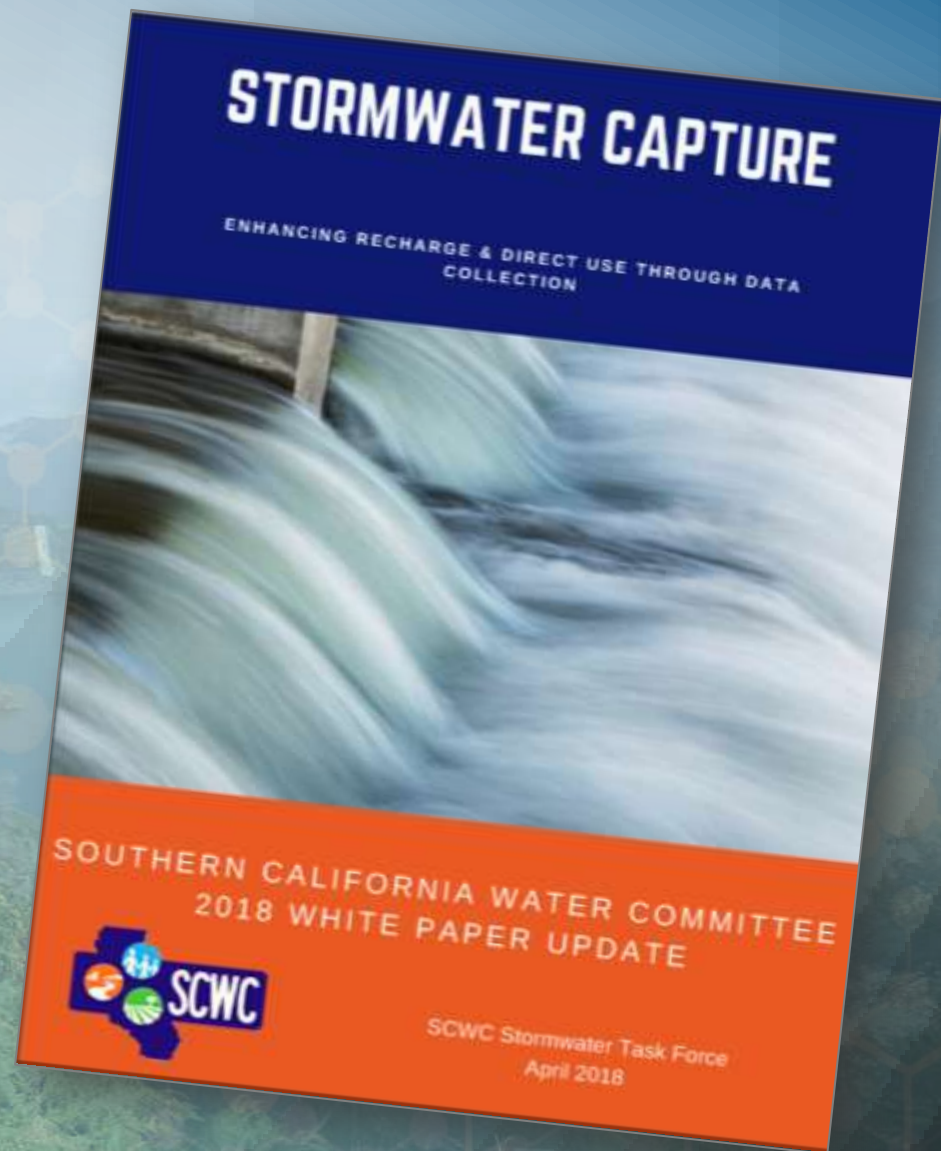
STORMWATER | CAPTURE DEFINED

- **Stormwater Capture** is the collection of rainfall runoff to supplement water supply



STORMWATER | HISTORIC CAPTURE TREND

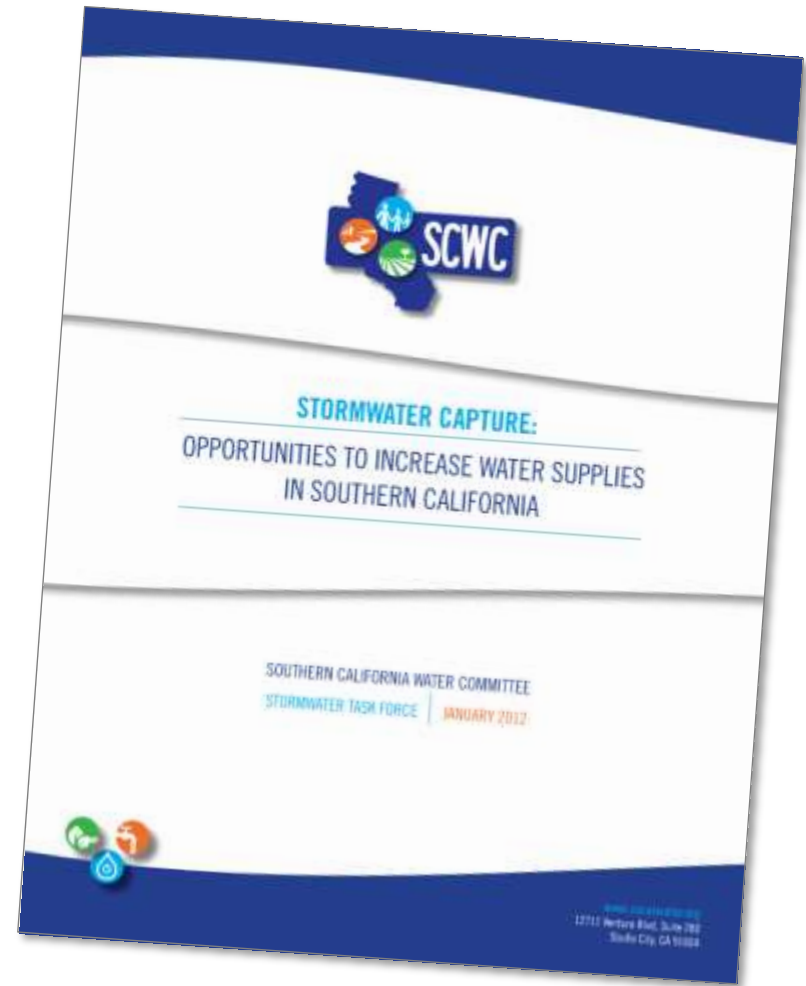




2018 WHITEPAPER

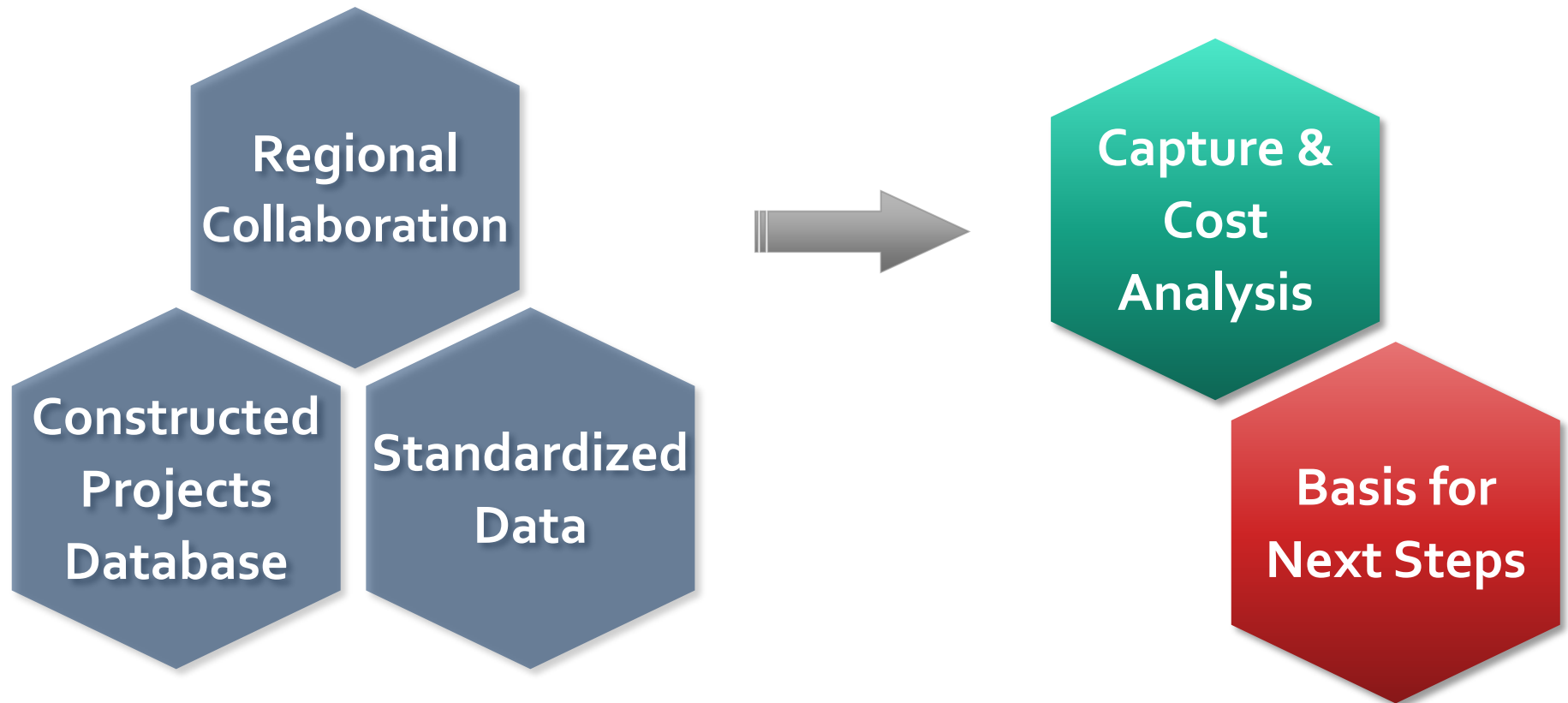
BACKGROUND | 2012 WHITEPAPER

- ▶ Initial understanding of stormwater cost per AF
- ▶ Consisted mainly of conceptual stormwater projects
- ▶ Findings presented to water and regulatory agencies

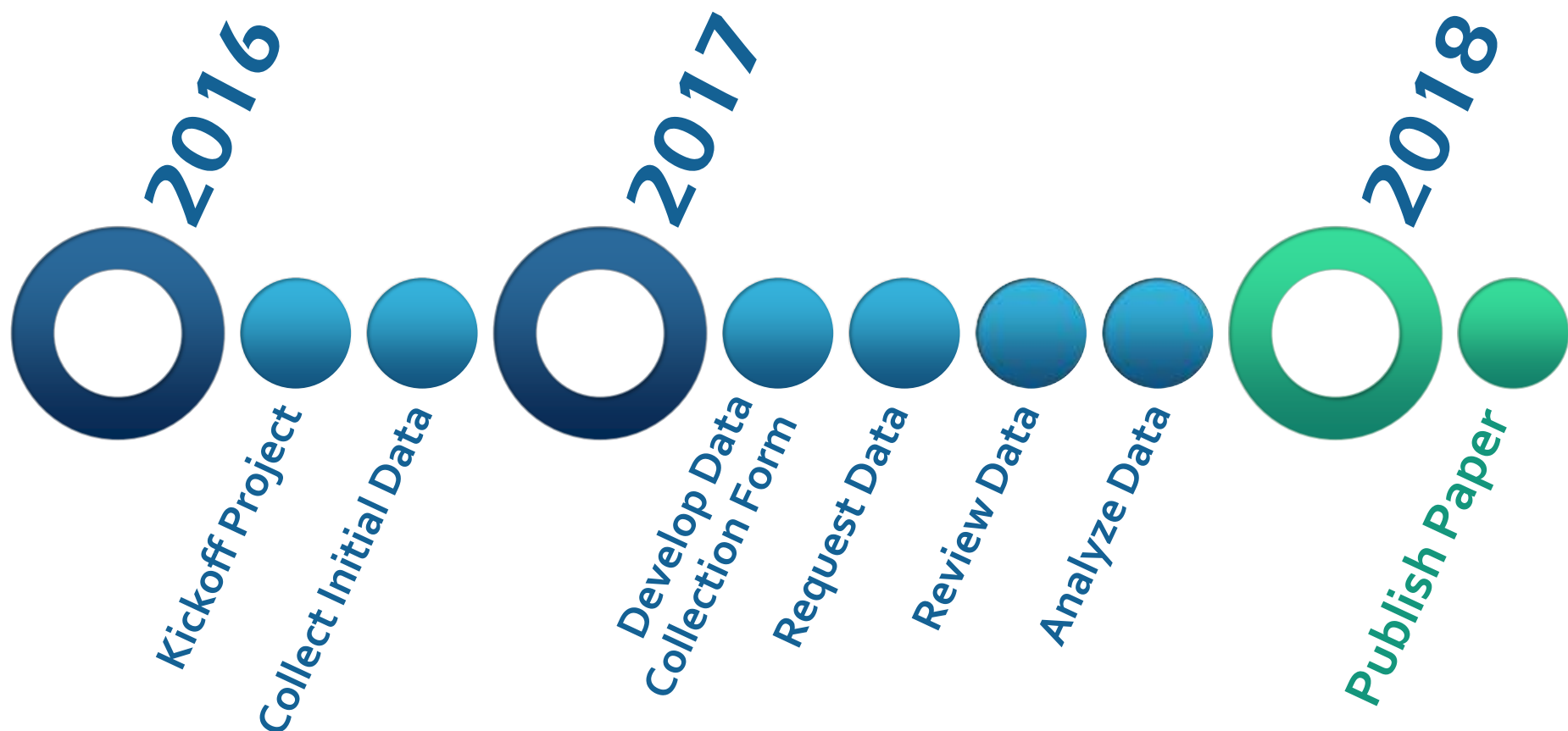


PURPOSE | 2018 WHITEPAPER

- Improve understanding of actual stormwater capture volumes, costs, benefits, and performance across the region to inform future discussions



APPROACH | WHITEPAPER DEVELOPMENT



DATA COLLECTION | AGENCIES CONTACTED

- ▶ Outreach to 30 agencies
- ▶ Received over 50 projects across the region
- ▶ Collaborated extensively
- ▶ Identified data collection challenges

Southern California Water Committee
Stormwater Task Force - Data Project
10/5/2017

pull down menu

1. Project Information (existing stormwater projects constructed/built as of December 2017)

1.1 Project Title
1.2 Project ID (if applicable)
1.3 Stormwater Type Project (e.g., centralized, etc.)
1.4 Type of Project (e.g., new, expansion, etc.)
1.5 Primary Project Purpose
1.6 Project Benefits (Check all that apply)

☐ Water Supply Augmentation
☐ Water Quality Improvement
☐ Open Space Recreation
☐ Habitat Restoration
☐ Flood Risk Mitigation
☐ Other (please describe in Project Description and Benefits section [1.20])

1.7 Leading Organization
1.8 Other Partnering Agency/Organization(s)
1.9 Contact Person
1.10 Contact Information

First: _____ Last: _____
Email: _____ Phone: _____
Organization: _____

1.11 Location (address or T3 page/grid)
1.12 Latitude (decimal: e.g., 34.05)
1.13 Longitude (decimal: e.g., -118.05)
1.14 RWM Region
1.15 Project Watershed
1.16 Construction Completion Date (M/D/YYYY)
1.17 Tributary drainage area (Acre)
1.18 Groundwater Basin
1.19 Design Rain Gauge
1.20 Project Description and Benefits
1.21 Project website (if available)

2. Project Runoff Capture/Storage Performance (Calendar Year)

2.1 Planned Annual Avg Stormwater Capture (AFY)
2.2 Actual Measured Stormwater Capture ⁽¹⁾
2.3 Recharge (AFY)
2.4 On/off-site Use (AFY)
2.5 Other (AFY), please describe in notes
Available Data (Please send with email, include units)
2.5 Notes

⁽¹⁾ If estimating annual capture (e.g., monitoring issues), please describe in Notes (Section 2.5)

3. Project Costs and Observed Project Performances (Calendar Year)

Project Benefit

	Overall	Water Supply	Water Quality	Open Space/ Recreation	Habitat	Flood Protection	Education
3.1 Project BMP Component(s)							
3.2 Project Capital and BMP Component Cost ⁽²⁾							
3.3 Planning/Design Cost (in \$)							
3.4 Construction Cost (in \$)							
3.5 Other Cost (in \$)							
Total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3.6 Annual O&M Cost (in \$)							
Funding Received (\$)							
3.7 External Funding Received (\$)							
3.8 Funding agencies, partners, or grants (name)							
3.9 Notes							

⁽²⁾ Cost components do not need to add up to total overall cost.

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DATA COLLECTION | PROJECT TYPES

Centralized
for Recharge

Large projects that capture runoff for
groundwater recharge

Distributed
for Recharge

Small projects that capture on-site runoff for
groundwater recharge

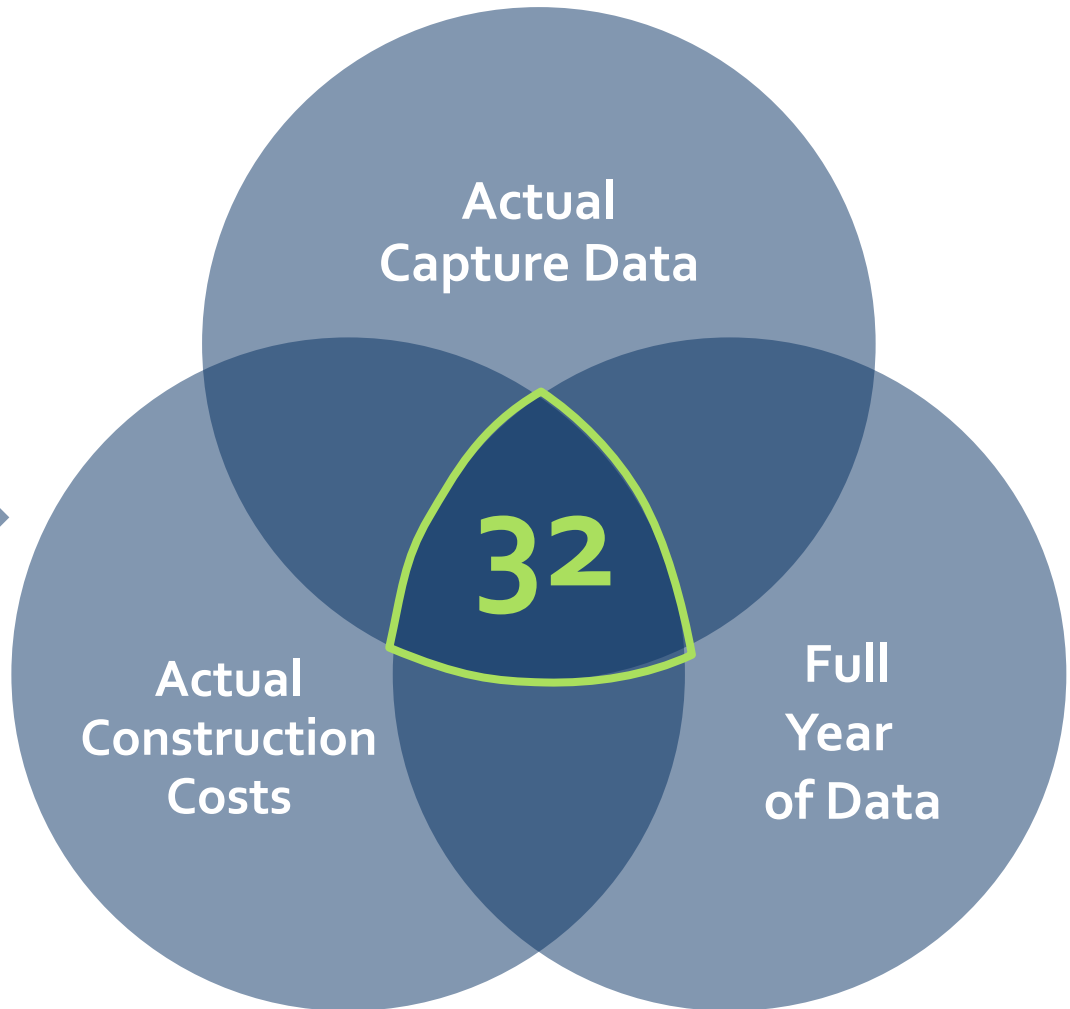
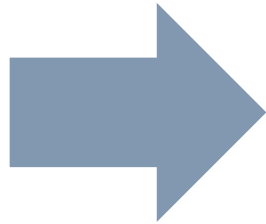
Distributed
for Direct Use

Small projects that capture on-site runoff for
non-potable uses

DATA REVIEW | ASSESSED DATA

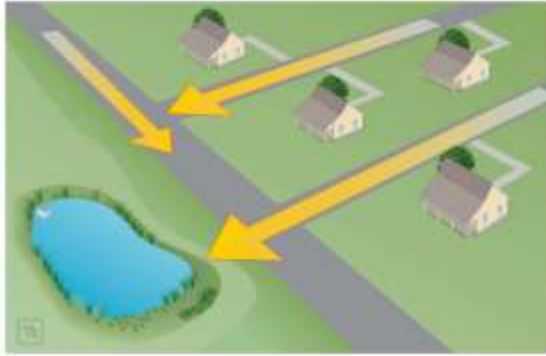
32 Projects with Complete Data

54 Projects
Received



DATA SET | 32 PROJECTS ANALYZED

29 Centralized



3 Distributed



25 Retrofit/Rehabilitation

4 New

3 New



DATA SET | PRIMARY PROJECT BENEFITS



Water Supply
27 projects



Water Quality
3 projects



Flood Risk Mitigation
2 projects



DATA SET | SUMMARY OF PROJECTS

Total
Construction Cost

\$132 million



In 2017\$

Average
Rainfall

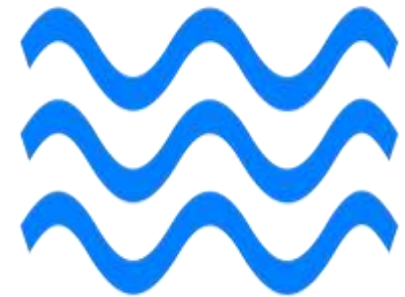
10.0"



WY 2006-16 below
Long-term Average of 15.2"

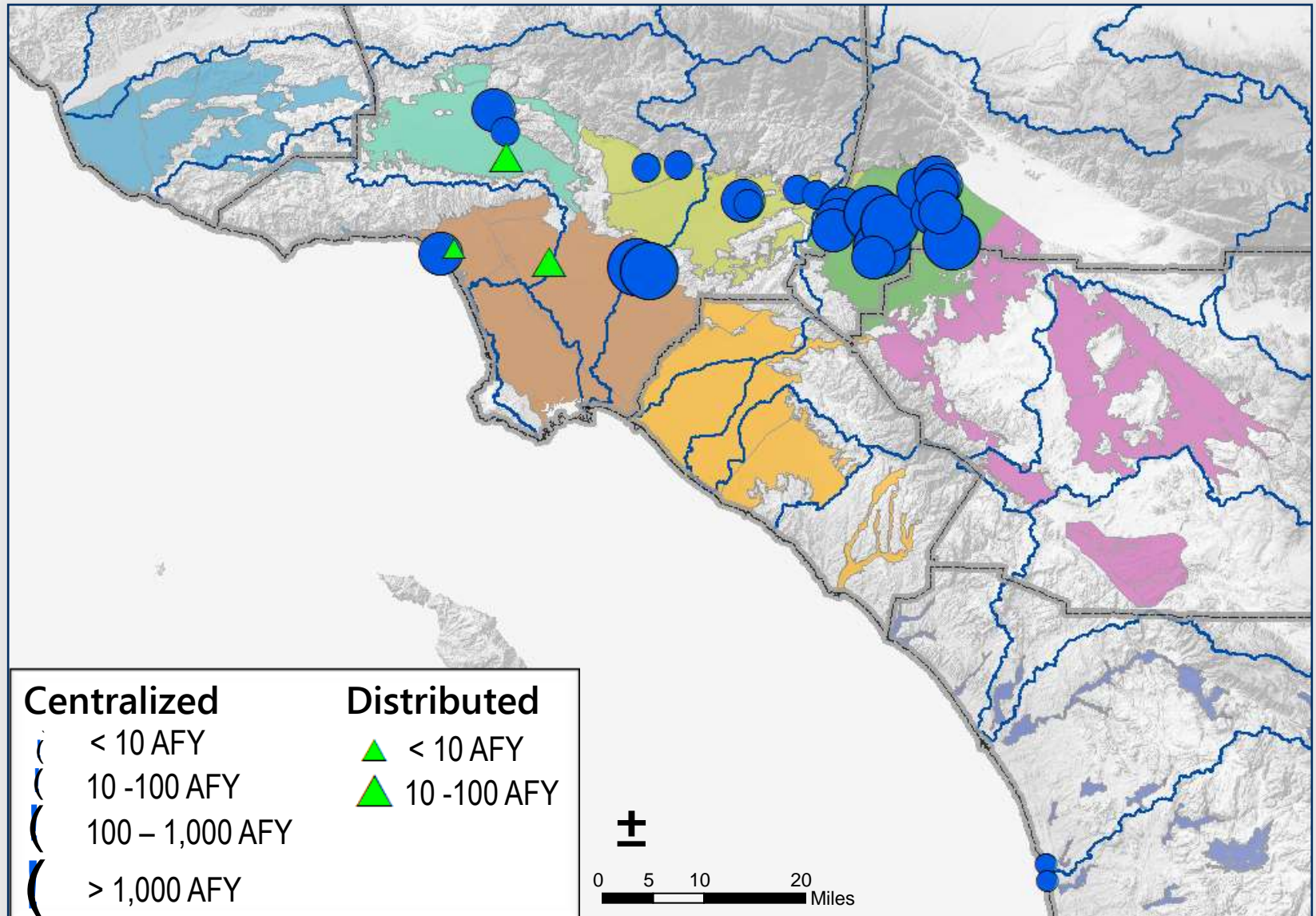
Average
Stormwater Captured

13,400 AFY

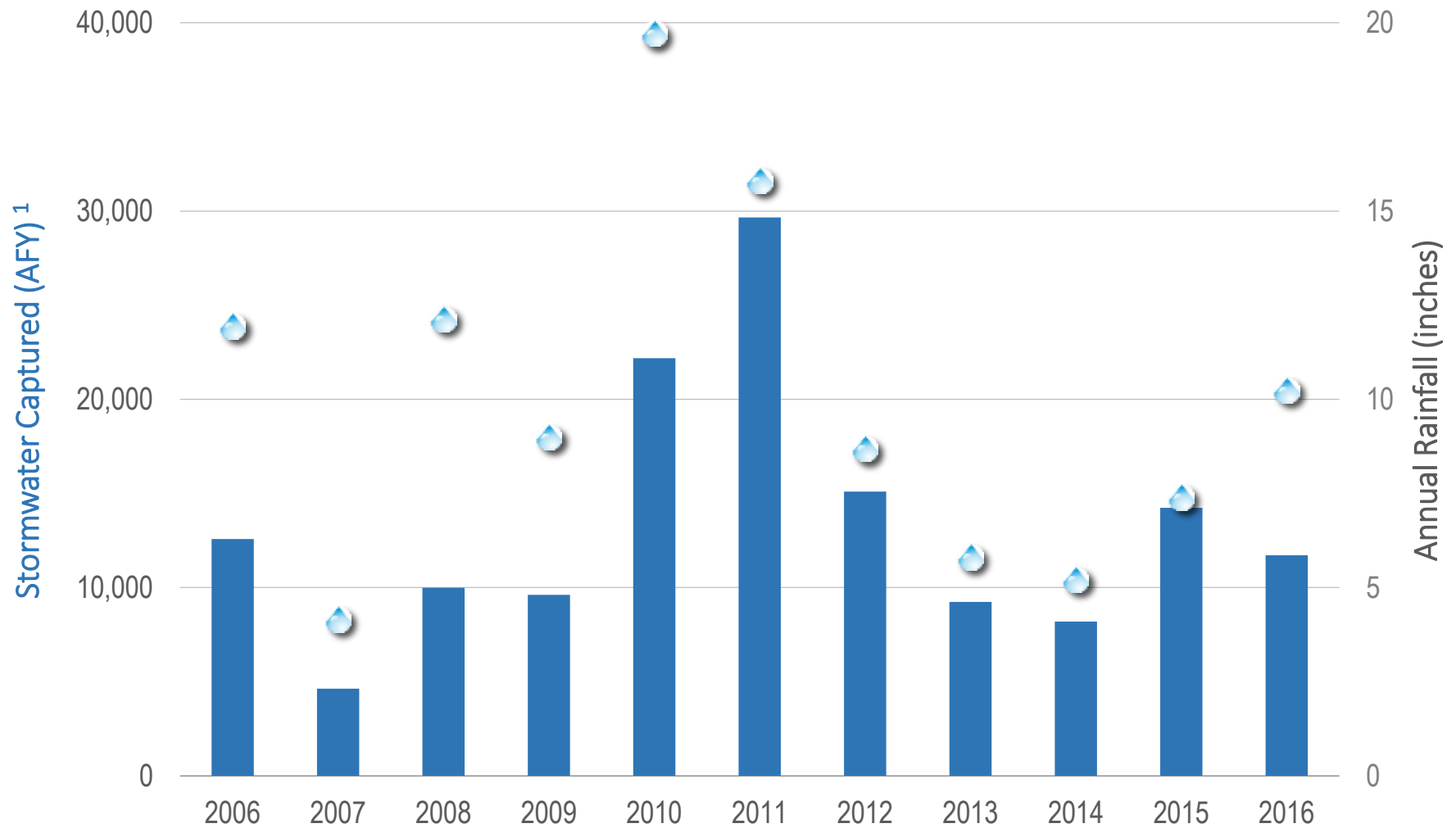


WY 2006-16
From 32 Projects

LOCATION | ACROSS SOUTHERN CALIFORNIA

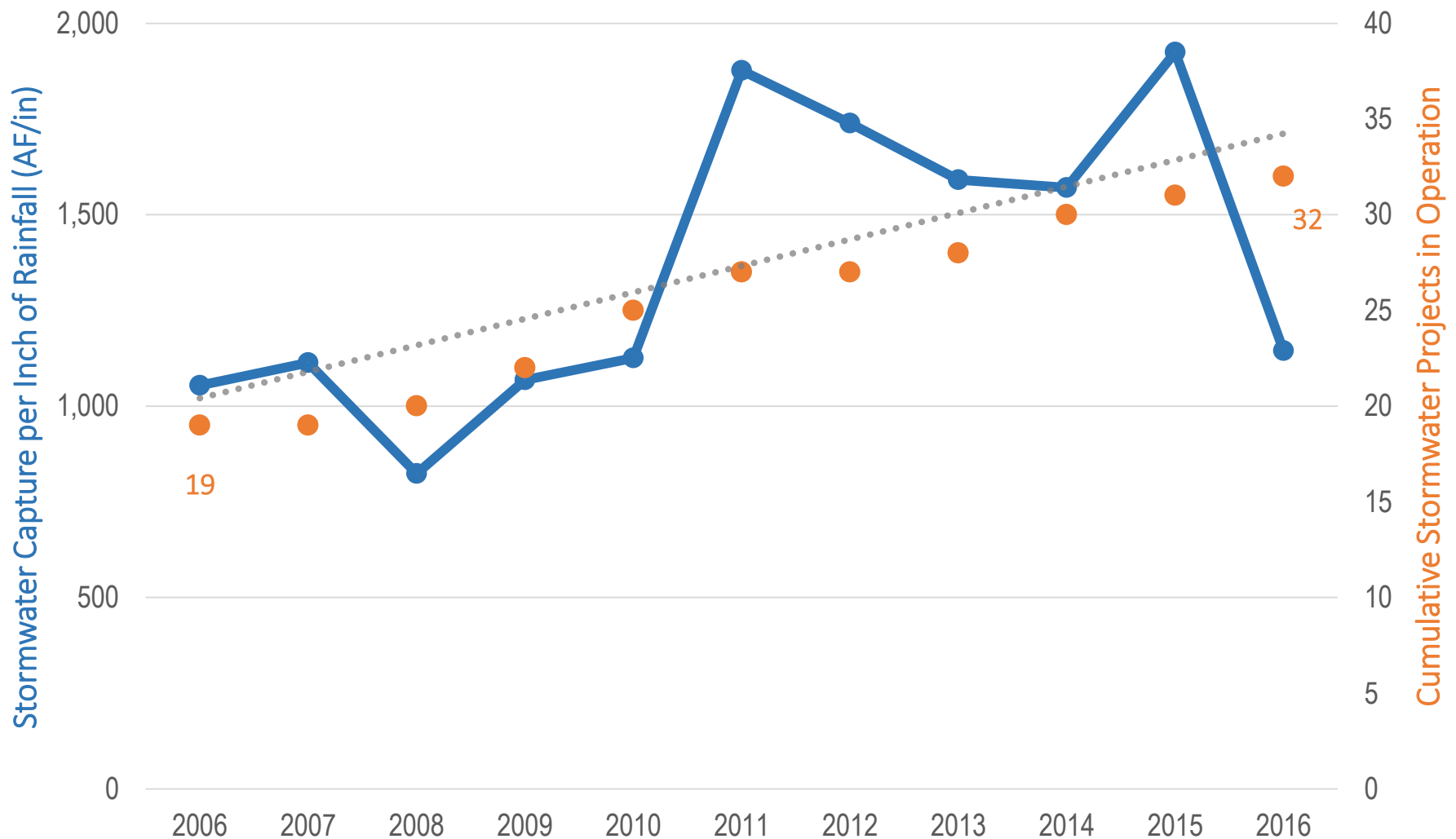


ANALYSIS | ANNUAL CAPTURE & RAINFALL

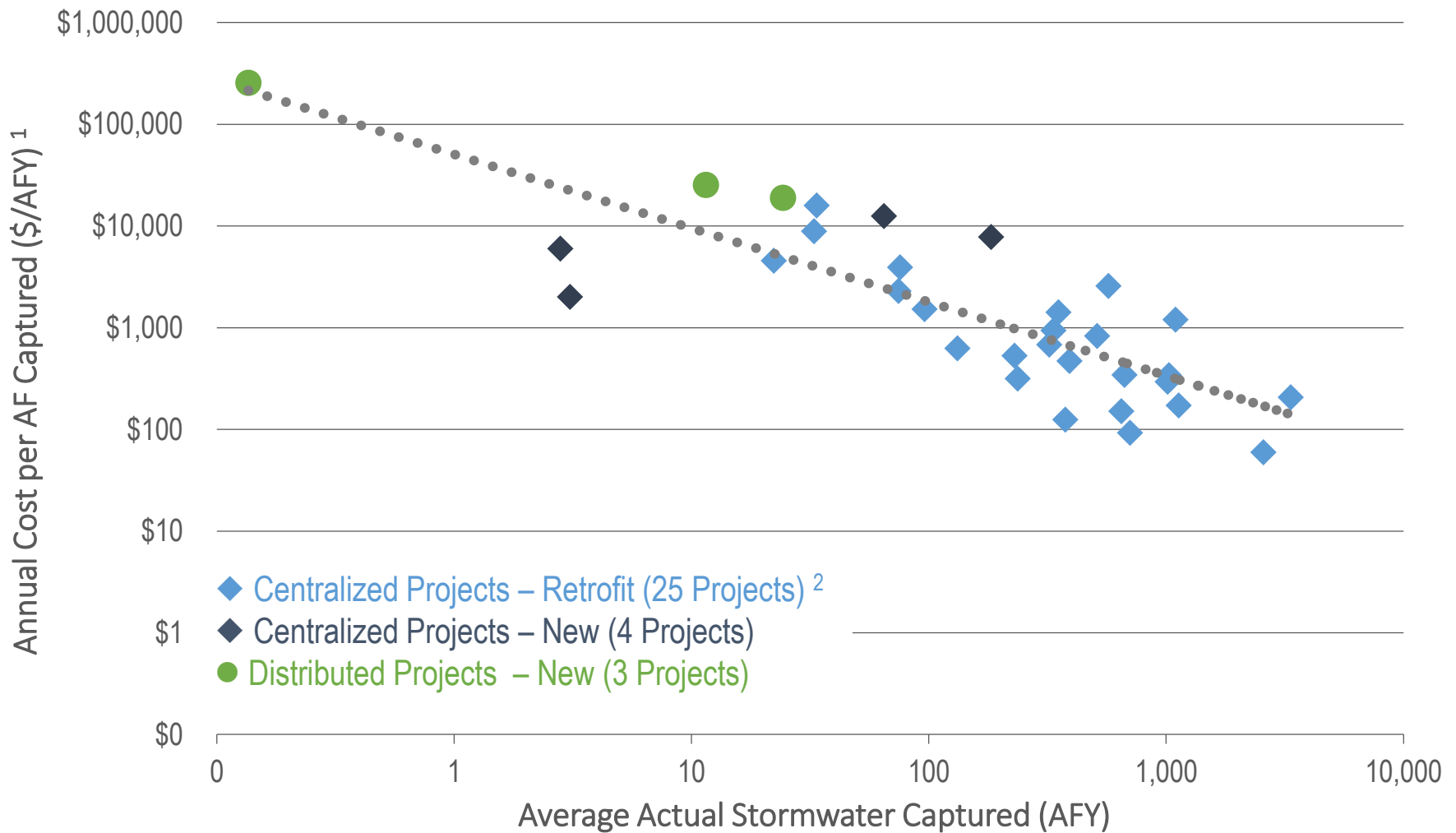


¹Total annual stormwater captured by the 32 projects.

ANALYSIS | INCREASING CAPTURE ABILITY



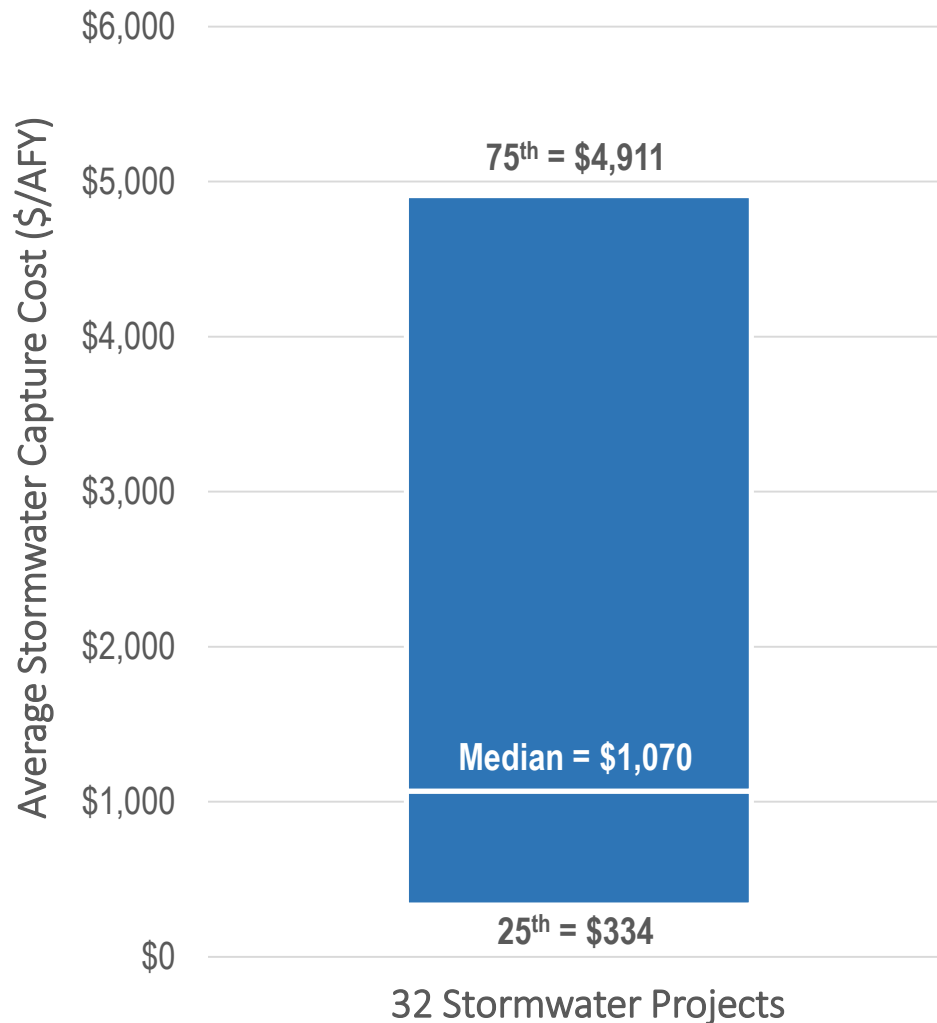
ANALYSIS | STORMWATER UNIT COST



¹Capital costs amortized over 30 years

²Includes capture by the entire spreading grounds (does not isolate the marginal capture of the retrofit)

ANALYSIS | RANGE OF CAPTURE COSTS



Median Unit Stormwater Cost

Centralized Retrofit = \$600/AF

Centralized New = \$6,900/AF

Distributed = \$25,000/AF

SUMMARY | KEY INSIGHTS & FINDINGS

- ▶ **Retrofit Projects** tend to be more cost effective than new projects
- ▶ **Distributed Projects** are usually designed for multiple benefits, a key one being water supply
- ▶ **Good Monitoring** is essential

DATA CHALLENGES | COMMON PROBLEMS

Actual Flow Data

- No monitoring
- Technical difficulties
- Difficult to isolate benefits from retrofit projects

Actual Cost Data

- Difficult to isolate stormwater costs
- O&M costs are averaged over time
- Historical costs difficult to obtain

NEXT STEPS | FUTURE OPPORTUNITIES

- ▶ SCWC Whitepaper on **stormwater project implementation and funding** challenges
- ▶ Study the **relationship between stormwater capture and water supply** yield
- ▶ Explore **opportunities for multiple agencies to partner** on stormwater projects
- ▶ Continue regional **collaboration on stormwater data and monitoring**

ACKNOWLEDGEMENTS | THANK YOU

► Data Submission

- IEUA, OCFCD, EMWD, LACFCD, LADWP, LASAN, San Elijo JPA, Cities of Santa Monica and Torrance, County of Ventura

► Working Group

- HATCH – Pavitra Rammohan
- IEUA – Andy Campbell
- MWD – Matthew Hacker and Miluska Propersi
- SCWC – Rich Atwater

Questions?



socalwater.org/stormwater



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