



Implementing One Water Management: Workshop and Blueprint

Water Research Foundation Project #4660

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Acknowledgements

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Special thanks:

- Katie Henderson, Research Manager
- Project Advisory Committee
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 - Katy Lackey, Water Environment & Reuse Foundation



Today's Outline

- What we mean by One Water?
- Driving forces for reliability/resiliency
- Blueprint phases, steps, and examples
 - Setting the Foundation
 - Establishing Direction
 - Engaging Stakeholders
 - Developing the Framework
 - Implementation and Feedback

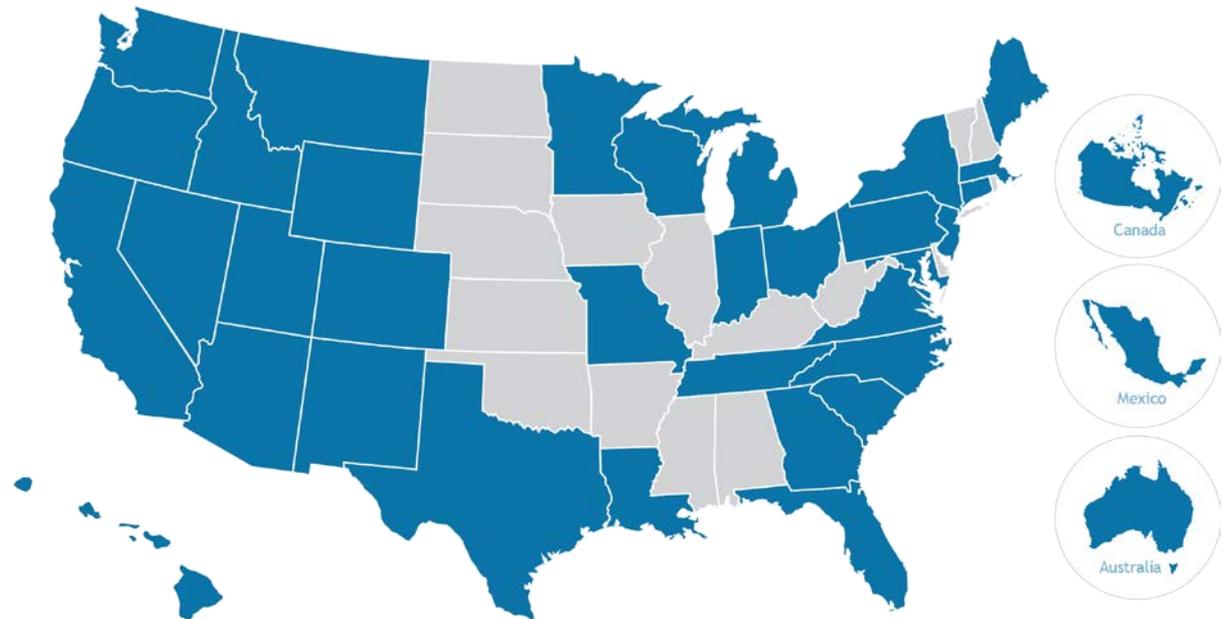
“ The One Water approach is gaining prominence for its ability to move communities toward reliable and resilient water systems, but many utilities have expressed the need for tactical steps or guidance to develop a One Water framework. Our goal with this blueprint is to give agencies the tools they need to get started, which we hope will lead to more widespread adoption and implementation. ”

Robert C. Renner, PE, BCEE

Chief Executive Officer | Water Research Foundation

Blueprint reflects input from Utilities and Water Professionals Worldwide

- International survey completed by more than 800 water professionals
- More than 10 one-on-one interviews
- 2-day workshop with more than 35 water professionals





ONE WATER

One Water defined

One Water is an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs.

Definition of One Water is Site-specific

**Matching the right resource
the right use**

- *San Francisco Public Utilities
Commission*

**Integrating source water
protection and watershed
protection**

- *Greater Cincinnati Water Works*

**Becoming energy-
neutral**

- *New York City*

**Integrated approach to
urban water management**

- *Denver Water*

**Holistic approach to
pollutant reduction**

- *Philadelphia Water*

Stormwater as a resource

- *City of Tucson*

**Gain resiliency looking
100 years into the future**

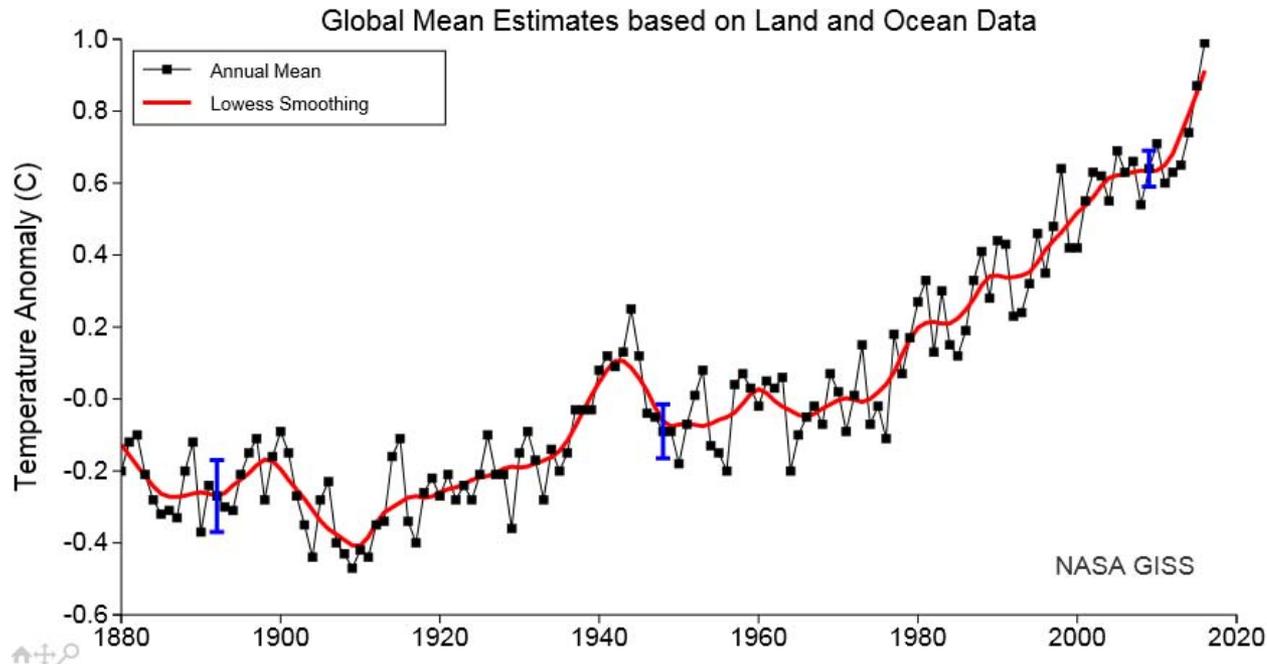
- *Austin Water*

Driving Forces Toward One Water - Steadily Rising Temperatures

The Washington Post

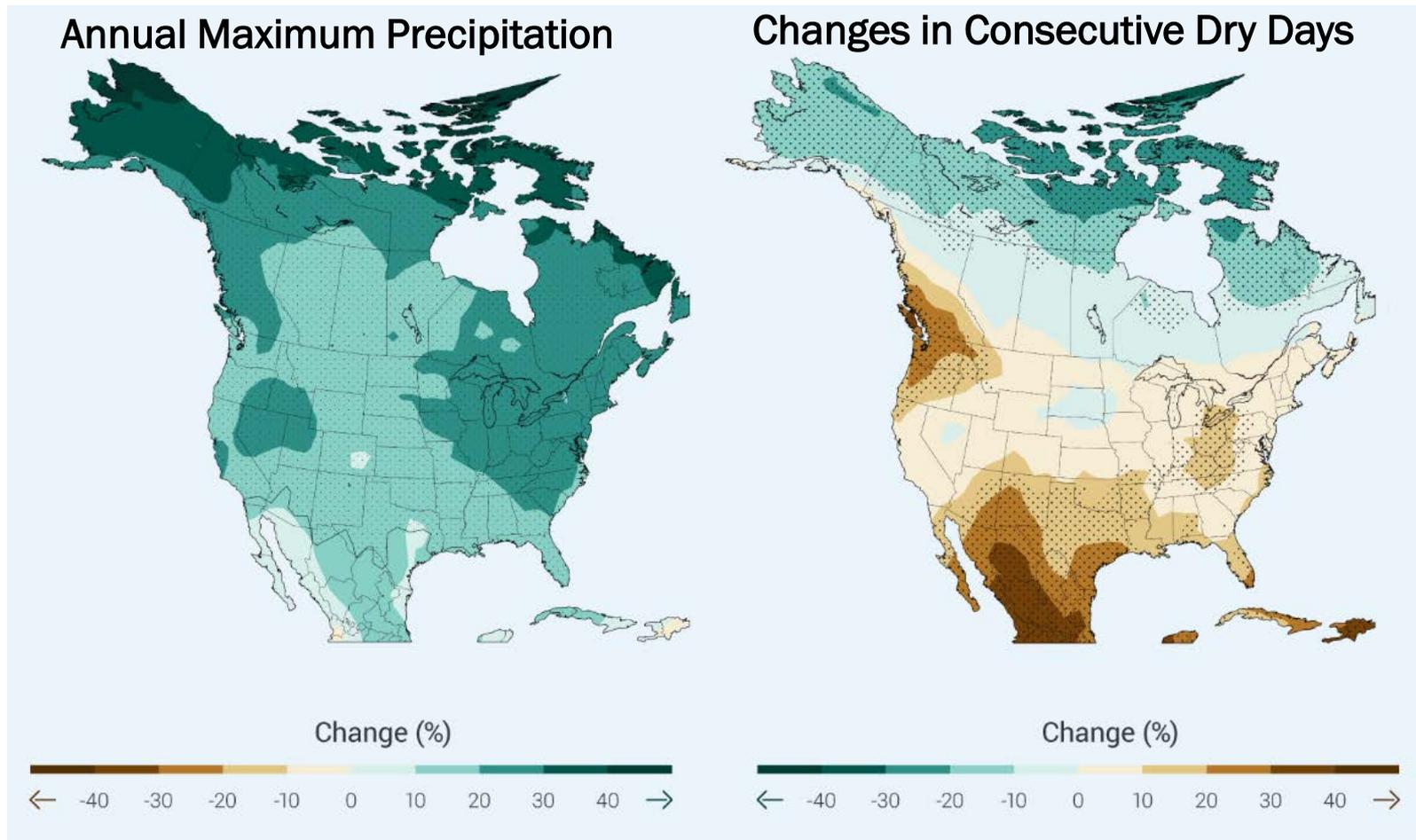
U.S. scientists officially declare 2016 the hottest year on record. That makes three in a row.

By Chris Mooney January 18 at 1:30 PM



Source: Hansen et al. 2010. Global surface temperature change. *Rev. Geophys.*, 48. RG4004, doi:10.1029/2010RG000451

Extreme Precipitation Events and Longer Droughts Expected

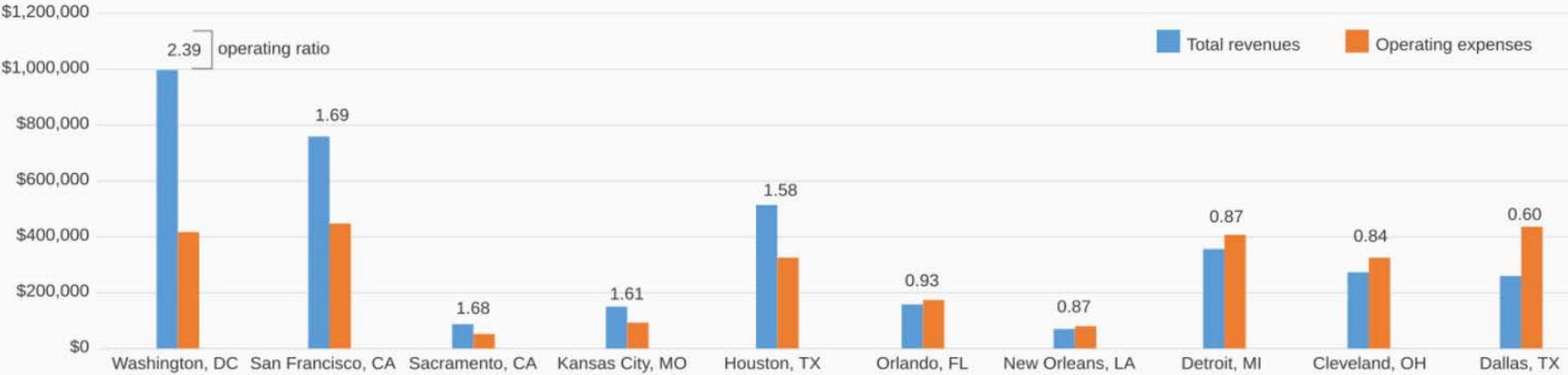


2070-2099 predictions

Source: NOAA NCDC/CICS-NC, 2014 National Climate Assessment

Challenges to Financial Sustainability

Operating ratios for selected drinking water utilities, by primary city served, 2015 (\$ thousands)



Source: Brookings analysis of AWWA data and Census data.



Source: Brookings Institute, Dec. 2016



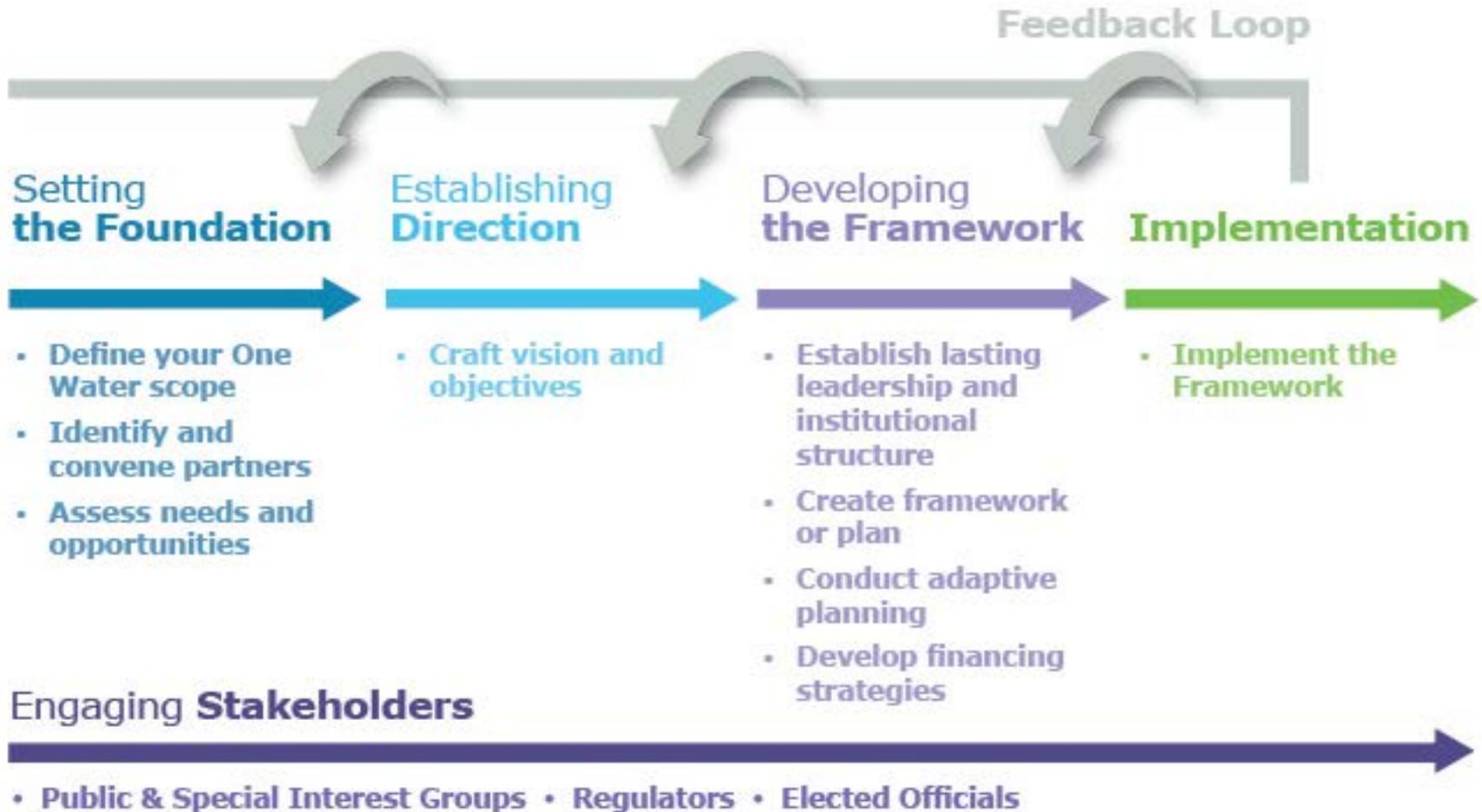
To Meet Current Challenges - One Water Shifts How We Manage Our Water Resources

Blueprint
for **One Water**

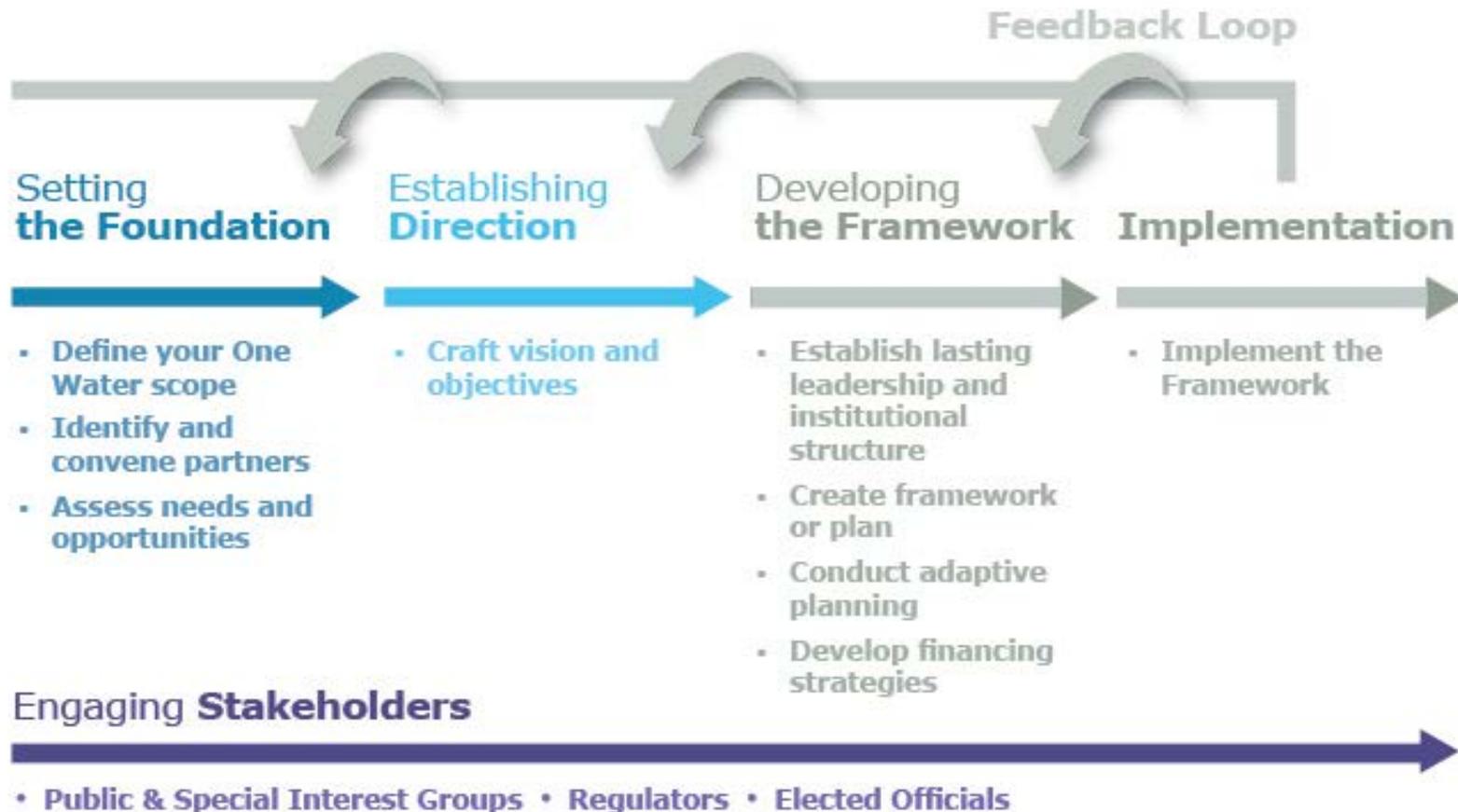
WRF PROJECT 4660



The Blueprint Provides Step-by-step Guidance



First, Getting Started on the Path to One Water



Each Blueprint Step Highlights Tangible Actions, Outcomes, Challenges

Define Your One Water Scope

One Water can look very different from one place to the next depending on your climate and geography, water resources, and environmental stressors. Developing a One Water framework begins with defining what One Water is or could be for your entity.

IMPORTANT ACTIONS

- ✓ Determine the challenges that your entity, community, and region are facing that may impact long-term water supply reliability, water resource resilience, or water quality needs.
- ✓ Reach out to other cities and utilities of similar size and with similar attributes that have implemented a One Water approach for insights to seed internal dialogue.
- ✓ Consider using a “re-imagining” exercise to explore how you might do things differently if you were creating your system from scratch.
- ✓ Consider what your organization is already doing or planning for to enhance sustainability and determine how best to leverage these existing activities.
- ✓ Decide what issues you want to address with an integrated One Water approach and what form it will take. Will this be a simple framework or a comprehensive plan?
- ✓ Begin to identify internal and external partners to include in the development of your One Water approach.

KEY OUTCOMES

- A rough definition of One Water for your entity including what will and won't be included

POTENTIAL CHALLENGES

- Identifying innovative approaches to water management
- Thinking big
- Defining a workable scale and scope

Identify and Convene Partners

- Focuses on identifying potential partners with similar interests that can help accomplish goals



KEY OUTCOME

An agreement or statement of support to jointly pursue One Water

Assess Needs and Opportunities

- Evaluate opportunities for collaboration and integration

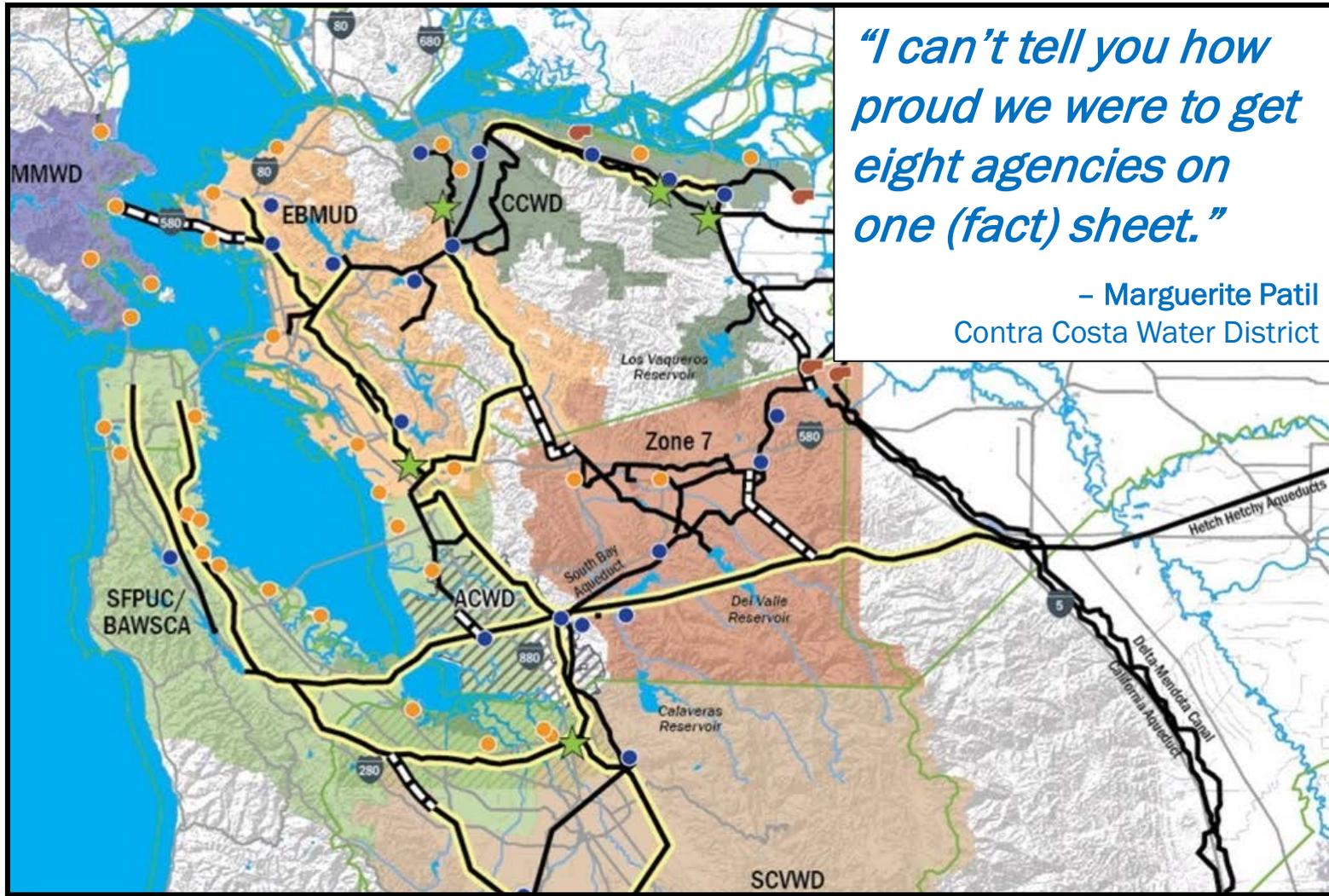


KEY OUTCOMES

Understanding of needs that will serve as the basis for goals and solutions

List of potential opportunities and synergies between partners

Bay Area Regional Reliability Partnership Established Early Foundation for Success



“I can’t tell you how proud we were to get eight agencies on one (fact) sheet.”

– Marguerite Patil
Contra Costa Water District

Keys to BARR Success – Memorandum of Understanding

balanced
regional
transparent
inclusive
share information
work cooperatively
commit staff time
equitable

For more information:

Bay Area Integrated Regional Water Plan

<http://tinyurl.com/BayAreaWaterPlan>

Craft Vision and Objectives

- Establishes an overarching vision and develops objectives



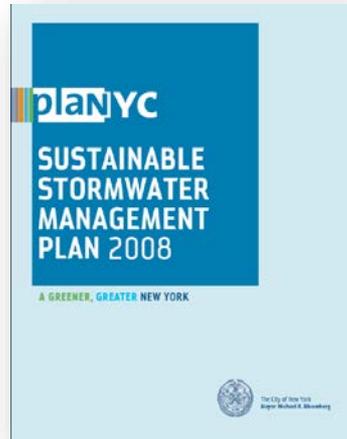
**KEY
OUTCOME**

High-level document summarizing the vision and objectives for your framework

NYC DEP - One Water As a Unifying Framework for Multi-faceted Initiatives



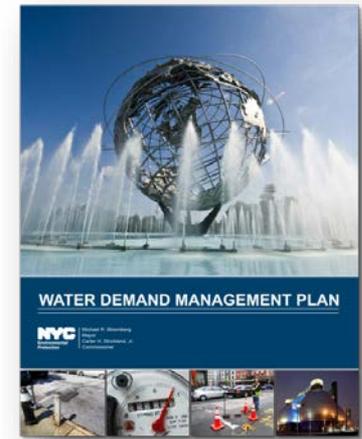
2007



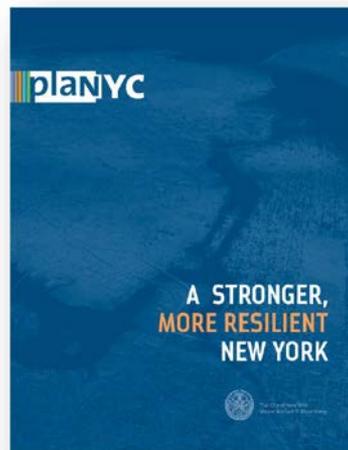
2008



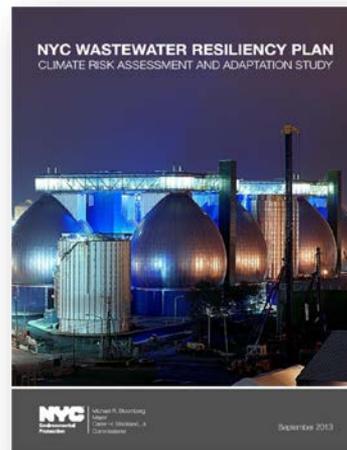
2010



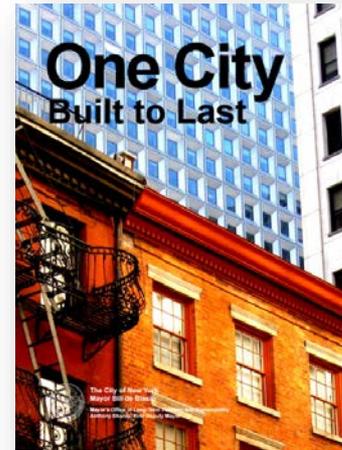
2013



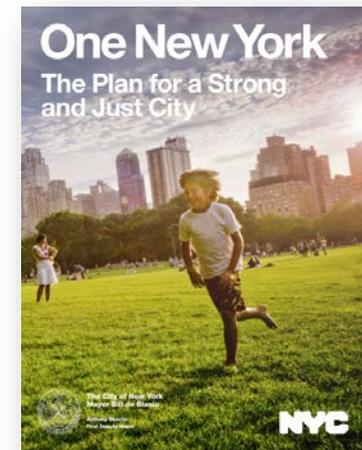
2013



2013



2014



2015

New NYC Citywide Vision and Guiding Principles Sets Direction for Integrated Water Management

Guiding Principles:

- Integrate management of water resources and policies
- Cultivate climate resilience
- Contribute to a livable city
- Improve the health of local watersheds
- Provide flood protection
- Provide reliable, secure, and clean water supply
- Implement, monitor, and maintain a reliable and resilient wastewater system

Engage Stakeholders

- Engagement needs to occur externally with elected officials, regulating bodies, special interest groups, technical advisors, and the community

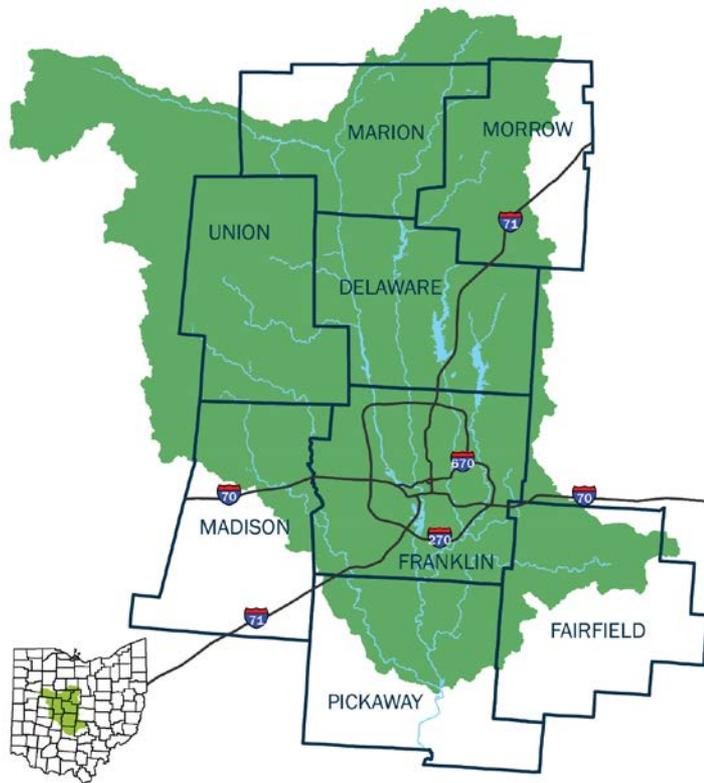


KEY OUTCOMES

- Establishment of trust and working relationships
- Active interest and support for One Water approach

MORPC: Watershed-based Assessment of Climate Change Adaptation Across 6 Utilities

Scioto Watershed

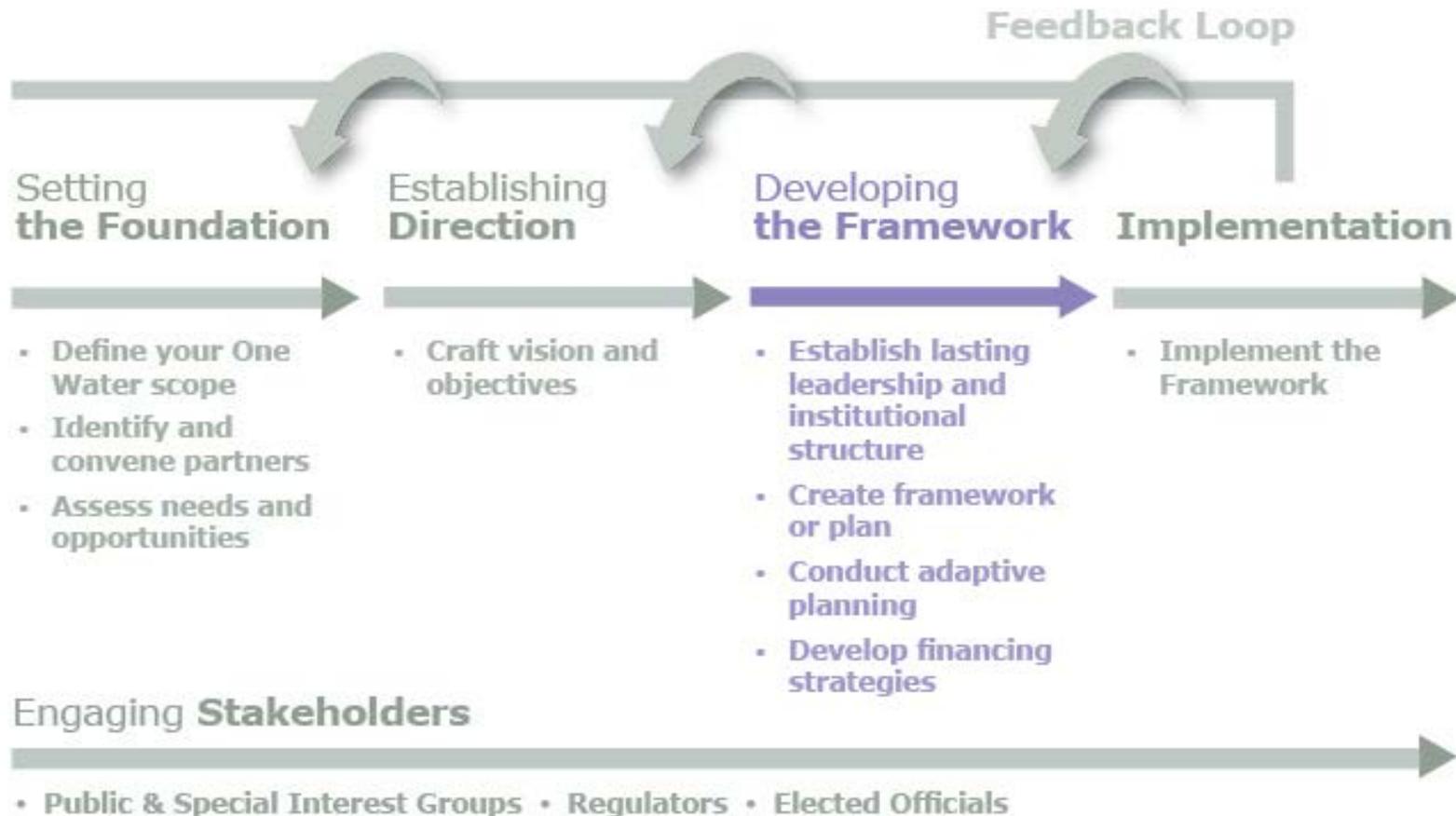


Risk Assessment Service Sectors

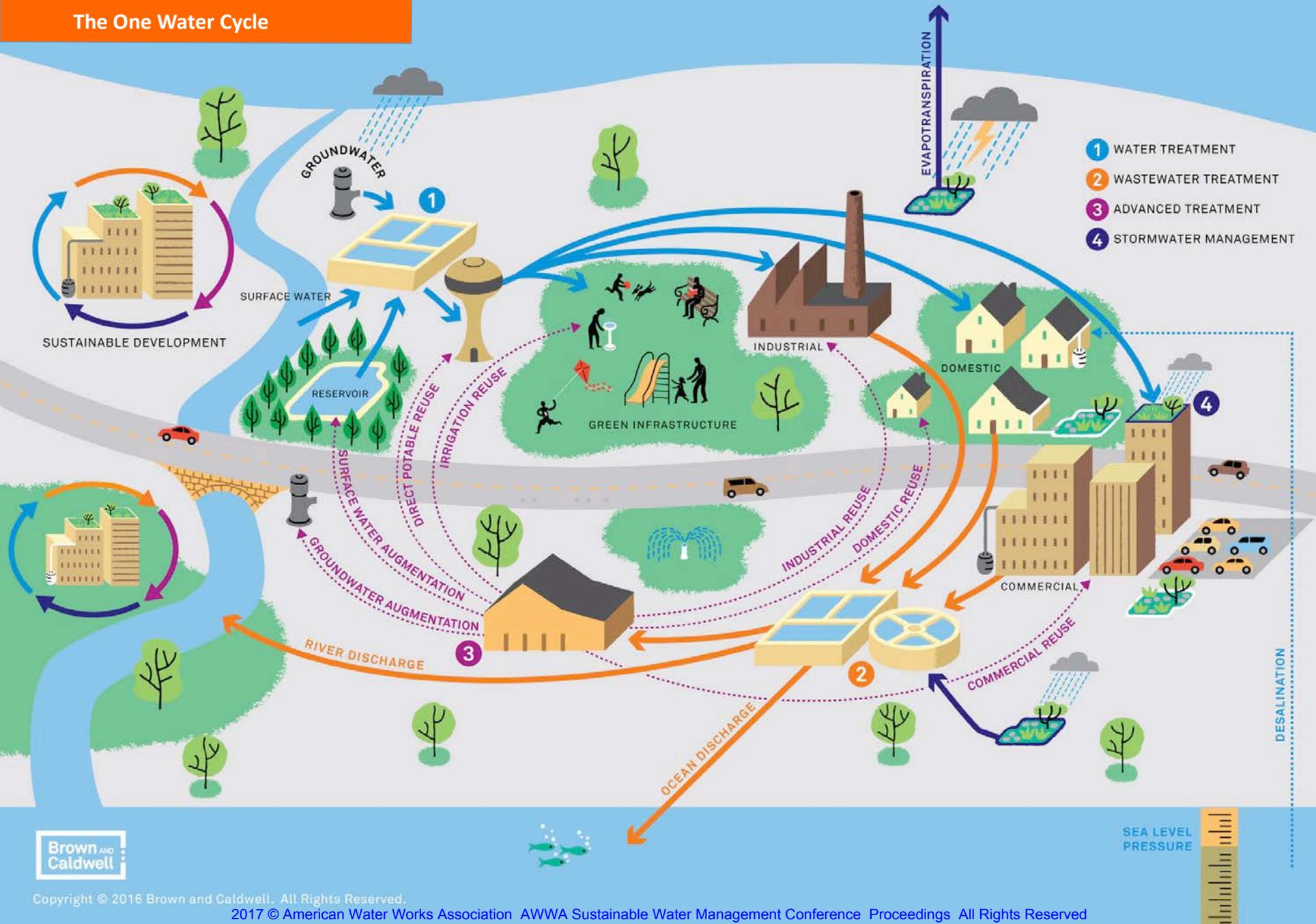


For more information:
<http://tinyurl.com/SustainingScioto>

Next, Developing the Framework, Plan, or Program



The One Water Cycle

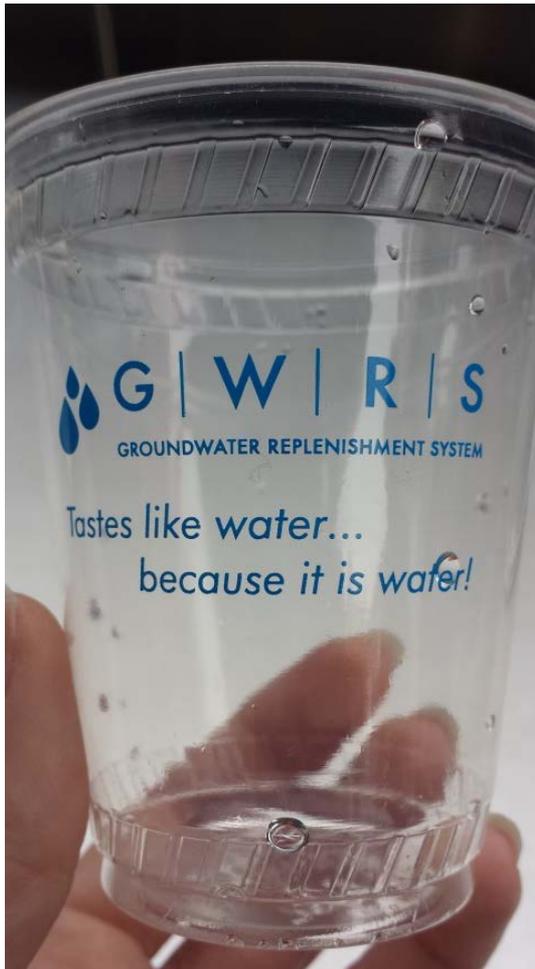


One Water Efforts Can Range From Simple Unifying Frameworks to Comprehensive Detailed Plans

Resource Guidance

		
1–5 years	3–7 staff	\$500k–\$10M using consulting services

Orange County, CA - Lasting Institutional Structure Enables Continuity and Momentum



OCWD and OCSD Partnership

- Guided by Joint GWRS Steering Committee
- Enables cost-sharing to design and construct the award winning Groundwater Replenishment System (GWRS).



For more information:

Orange County's Groundwater Replenishment System

<http://www.ocwd.com/gwrs/>

PWD – Multi-faceted Financing Strategies prove effective for Implementation & Measurable Outcomes

Philadelphia Water Department developed a 25-year plan (Green City, Clean Waters Program) to transform the landscape of Philadelphia's urban environment

- Multiple funding mechanisms
- Stormwater fee
- Stormwater credit for developers
- Grant program



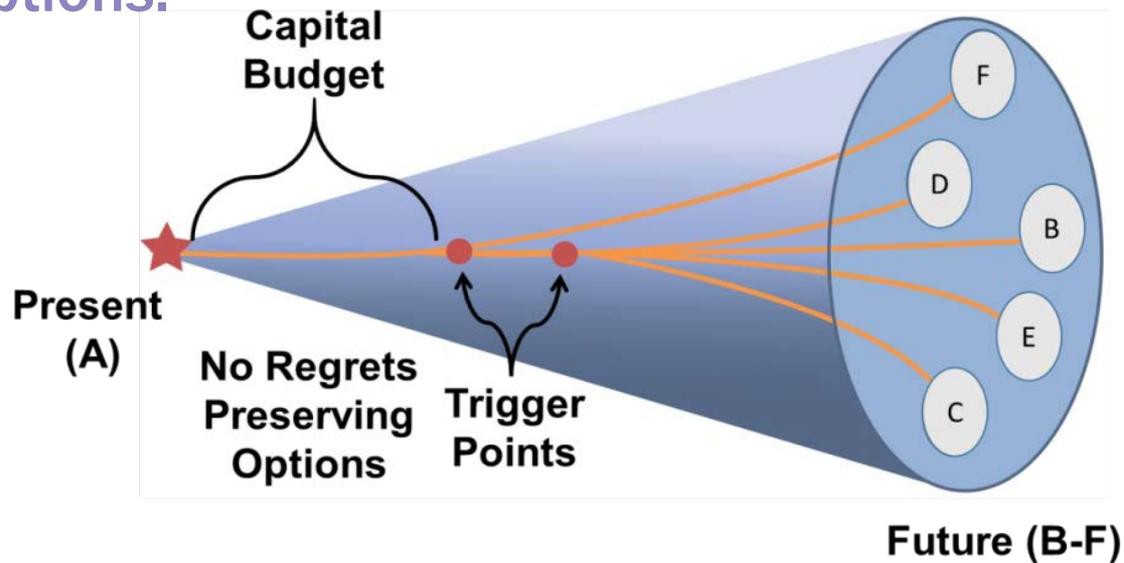
For more information:

Green City, Clean Waters Program

<http://tinyurl.com/PhillyWaterShed>

Denver Water - Adaptive Planning Provides Ongoing Relevance and Effectiveness, Despite Uncertainties

Denver Water's Integrated Resource Plan considers water-demand projections, demand-management alternatives, and water supply options to discover true deficiencies and viable future options.



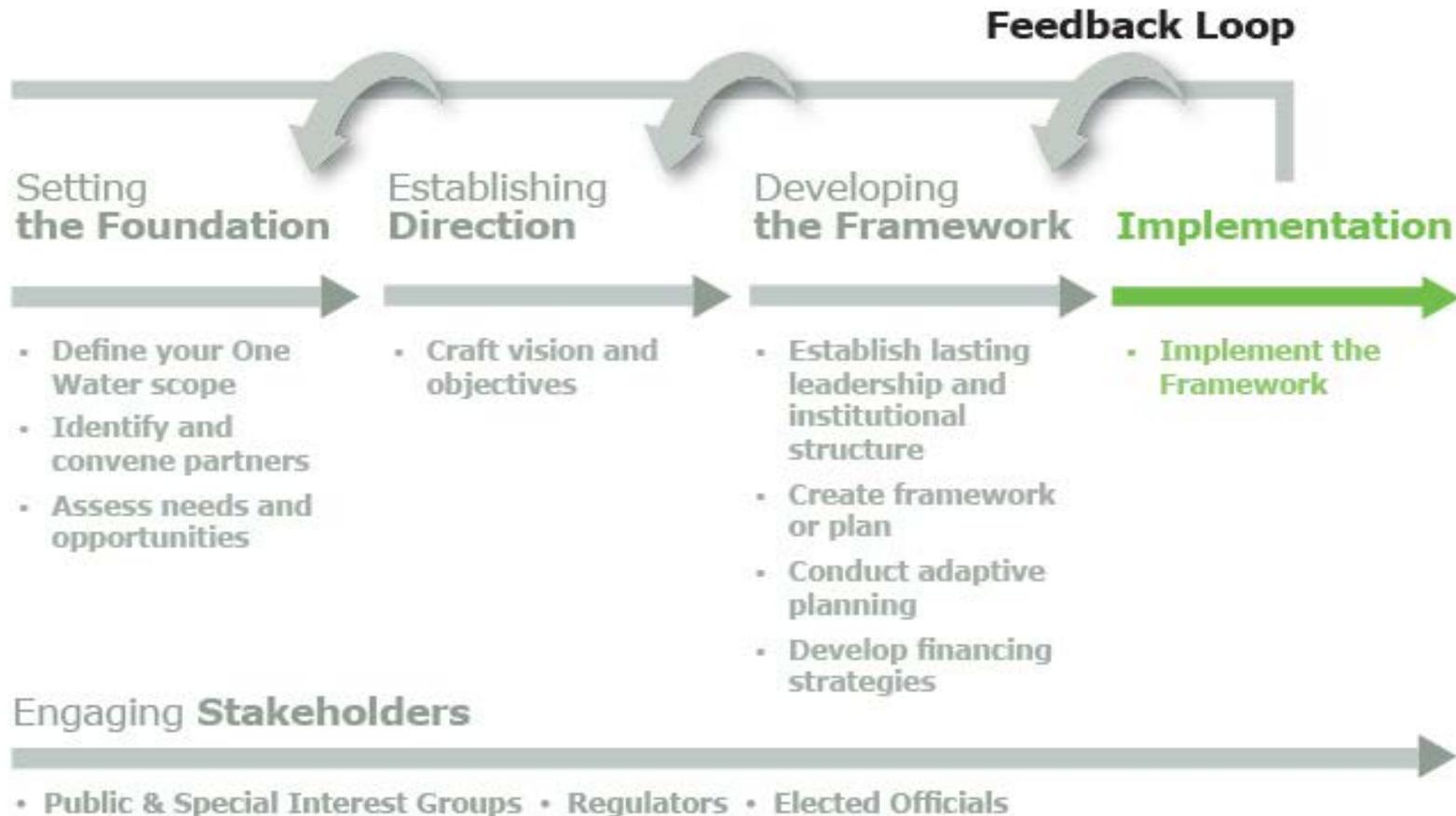
For more information:

Denver Water's Climate Change Program

<http://tinyurl.com/DWClimateChange>

Finally, Implementation – Iterative Process

Take Early Action, Start Small, Build on Successes



OCWD - Tracking and Reporting on Key Metrics Can Provide Critical Feedback and Highlight Success



G | W | R | S

Groundwater
Replenishment System –
new water you can count
on

Source: www.ocwd.com
(as of January 23, 2017 at 9:30 am)

Questions and Discussion

Blueprint
for **One Water**
WRF PROJECT 4660



Download a copy of the Blueprint for One Water:

<http://www.waterrf.org/Pages/Projects.aspx?PID=4660>