



National Water Reuse Action Plan

Improving the Security, Sustainability, and Resilience of
Our Nation's Water Resources

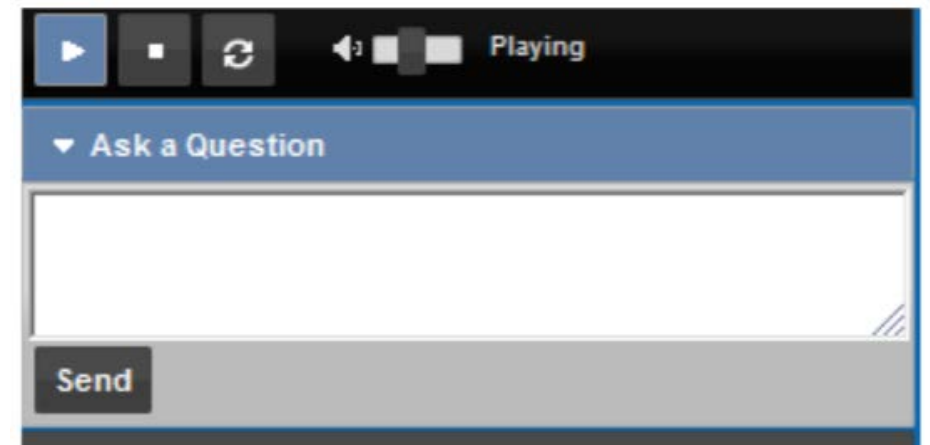
WaterReuse Association Webcast

March 4, 2020



A Few Notes Before We Start...

- **Today's webcast will be 60 minutes**
- **A PDF of today's presentation will be shared in a follow-up email.**
- **Please type your questions for the presenters into the Q&A box located on the left side of your screen.**



Today's Presenters



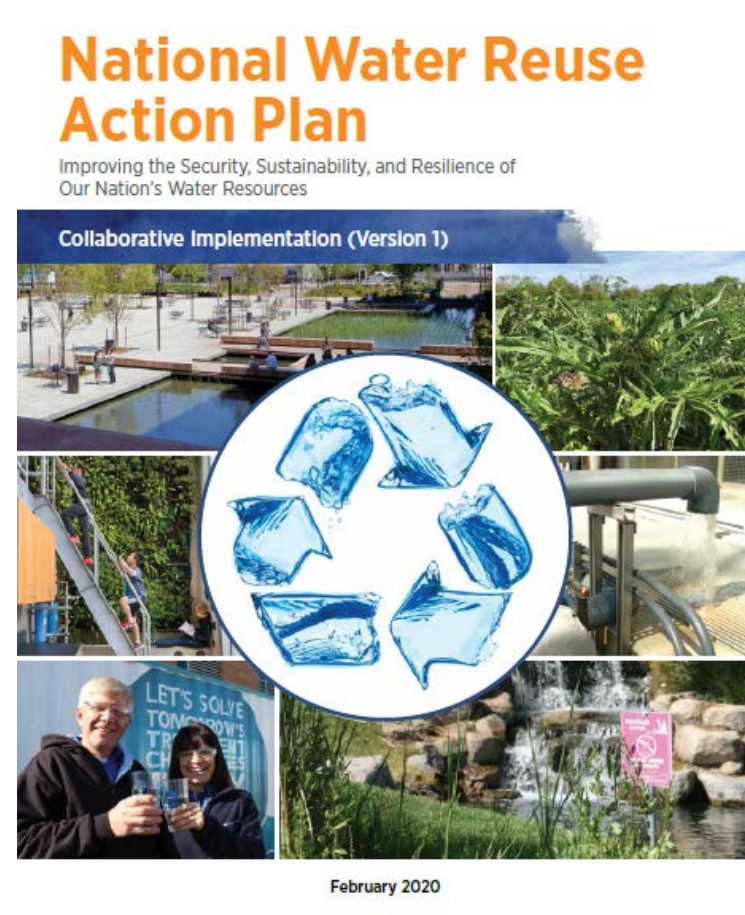
Jeffrey L. Lape
National Program Leader for Water Reuse
Office of Water, US EPA



Greg Fogel
Policy Director
WaterReuse Association

Agenda

1. Overview & background
2. Public comment period
3. Strategic themes & actions
4. Implementation



The Vision



“ Our goal is to issue a[n]...Action Plan that includes clear commitments and accountability for actions that will further water reuse and help [ensure] the sustainability, security, and resilience of the nation’s water resources. Water quantity, supply, and quality decision-makers have historically worked through independent management regimes. Addressing future water resource challenges will require more holistic thinking that embraces the ‘convergence of water’ through more integrated action.!”

–David Ross, Assistant Administrator for Water,
U.S. EPA

Opportunities and Key Terms

Water Reuse Objectives:

- **Water security:** The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socioeconomic development.
- **Water sustainability:** Ensuring an adequate, reliable, and continual supply of clean water for human uses and ecosystems.
- **Water resilience:** The ability of a water supply (e.g., a community water system or an asset of a community water system) to adapt to or withstand the effects of rapid hydrologic change or a natural disaster.

Opportunities and Key Terms

Inset 5. Water Reuse—Broadly Framed

Discussions of **water reuse** commonly include terms such as “recycled water,” “reclaimed water,” “purified water,” “alternative water supplies,” “improved water reliability,” and “water resource recovery.”

Sources of water for potential reuse can include municipal wastewater, industry process and cooling water, stormwater (including captured rainwater), agriculture runoff and return flows, and oil and gas produced wastewater.

These sources are considered “reused” after they are assessed for a new use and treated and verified to meet the appropriate and applicable fit-for-purpose specifications (e.g., protection of public health) for the end use application. These fit-for-purpose specifications may be established by a regulatory or management entity (e.g., a state) or by the end user.

Examples of **reuse applications** include agriculture and irrigation, potable water supplies, groundwater storage and recharge, industrial process and cooling, onsite non-potable use, saltwater intrusion barriers, and environmental restoration.

Note: While Action Plan (Version 1) considers treatment and use of brackish groundwater and other sources, seawater/ocean desalination and atmospheric water generation technologies are outside its scope.

Inset 6. Fit-for-Purpose Treatment Specifications

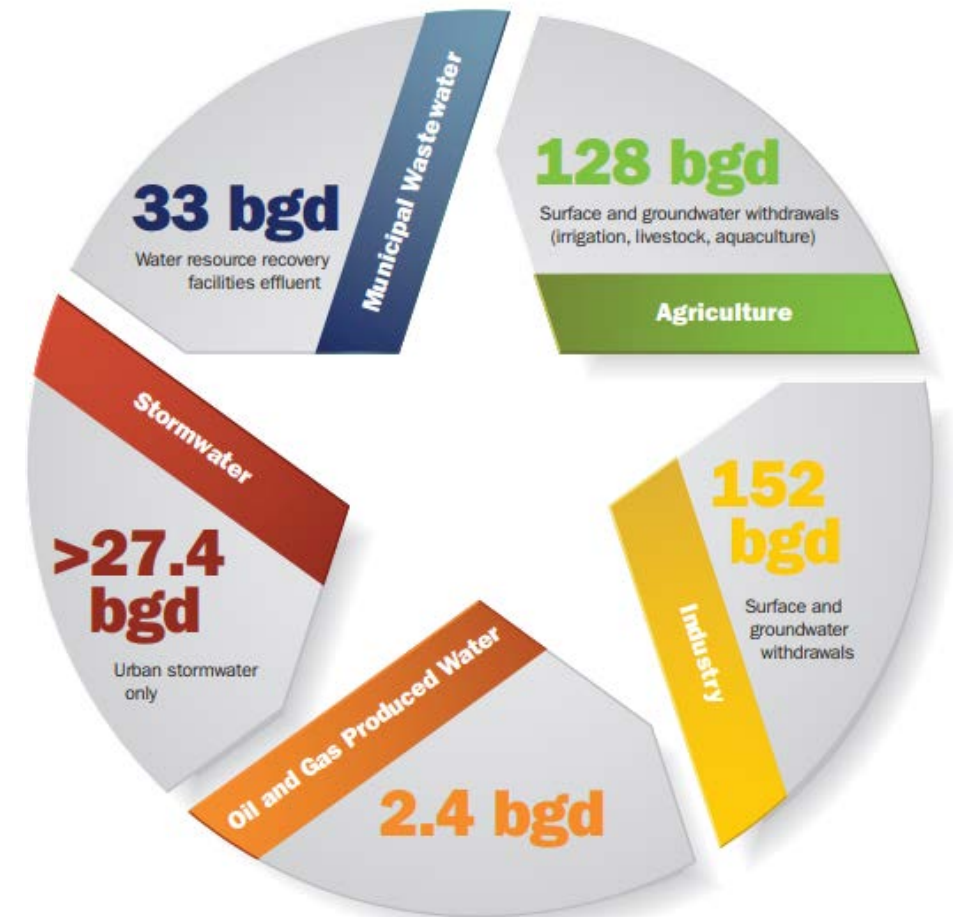
Fit-for-purpose treatment specifications describe and quantify the water quality characteristics necessary to meet end use needs, including public health protection and environment/ecosystem protection. Appropriate monitoring (e.g., using applicable methods, happening at the right frequency) will verify whether fit-for-purpose specifications are being met.

Sources of Waters and Potential for Reuse

Clear potential to reclaim more of the nation's water

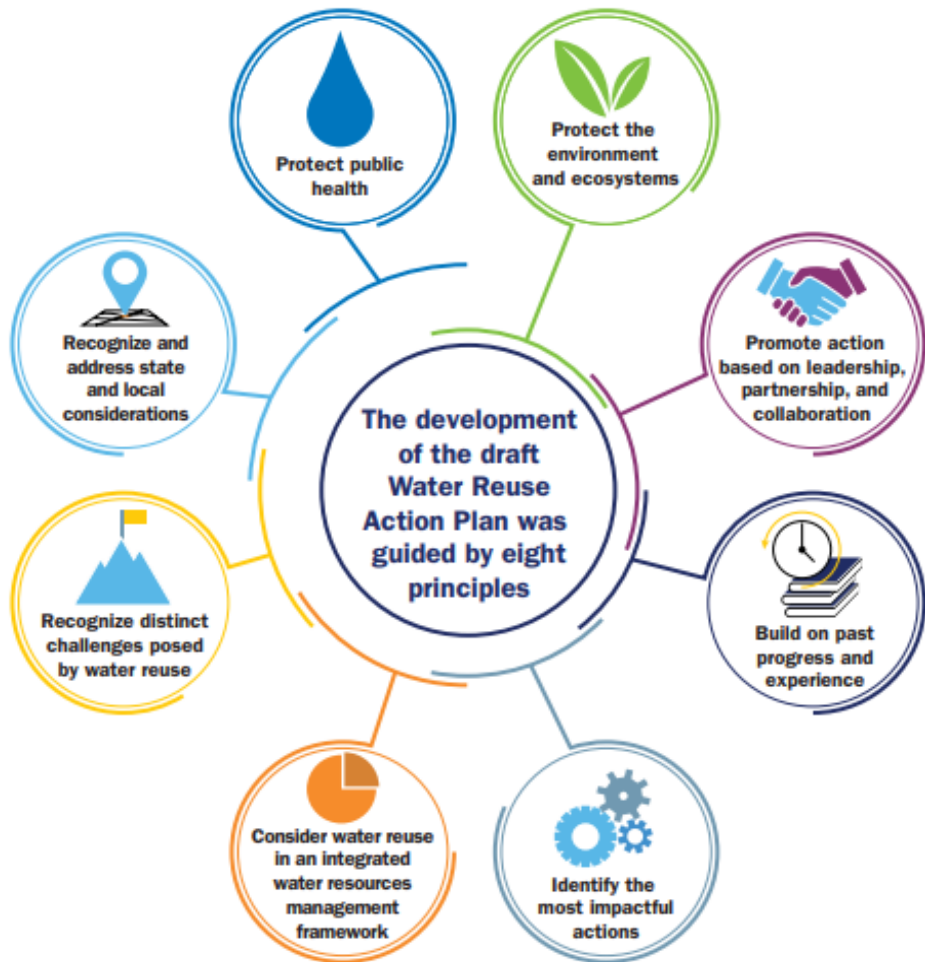
- Nearly 350 BGD from various sources of water discharged
- Over 280 BGD potentially available for reuse

* Estimates from draft Action Plan, page 6



Source: www.epa.gov/sites/production/files/2019-09/documents/water-reuse-action-plan-draft-2019.pdf. Figure imagery by naihei/Shutterstock.com.

WRAP Guiding Principles



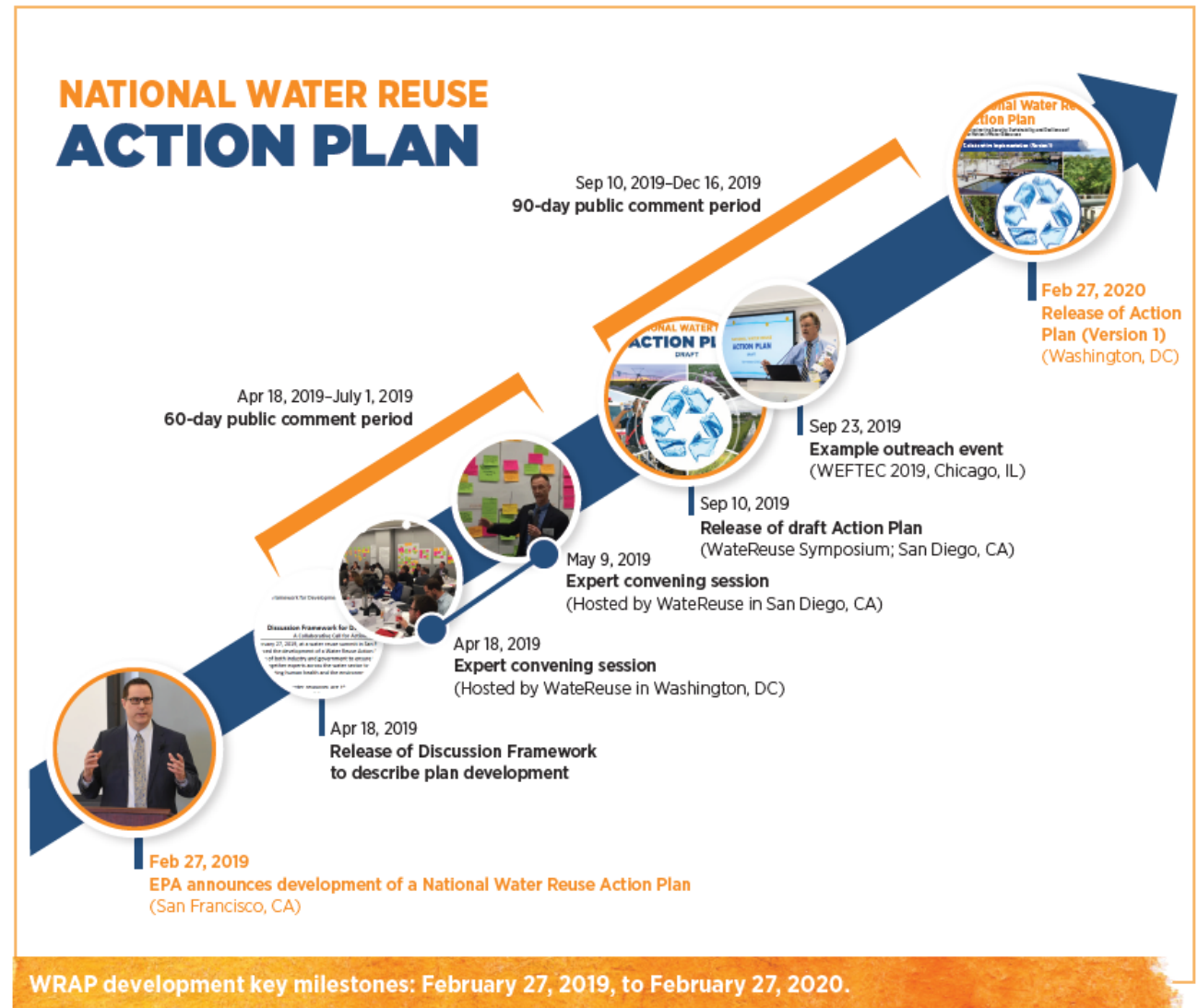
The guiding principles from the draft Action Plan were expanded from based on public comment. Three new principles:

- Commit to implementation through transparency and shared accountability.
- Communicate effectively.
- Apply adaptive management and governance.

Building the WRAP: Timeline & Features

Key Features

- Ongoing stakeholder outreach and communication
- Weekly progress updates
- Regular federal partner meetings
- Adaptive management
- Collaborative development and implementation



90-Day Public Comment Period

Commenters were encouraged to:

1. Identify the most important proposed actions they feel should be taken in the near term
2. Identify the specific attributes and outcomes of proposed actions that will achieve success
3. Identify implementation steps and milestones necessary to implement the proposed actions
4. Commit to lead or collaborate with others on implementing any of the proposed actions
5. Inform revisions and recommendations to the proposed 46 actions

101 comments were received, averaging 5 pages in length.

90-Day Public Comment Period

Thematic Highlights of the Public Docket Comments:

- Widespread Support for the WRAP and Water Reuse as a Tool for Water Security, Sustainability, and Resilience
- Affirmation That Water Reuse Is One Tool in the Water Resource Toolbox
- Acknowledgement of Incorporating Prior Public Comments
- Defining and Reconciling Key Terms
- Emphasis on and Identification of Priority Actions
- Spectrum of Perspectives on the Potential for Reuse of Oil and Gas Produced Wastewater
- Recognition of Barriers/Challenges to Water Reuse
- Public Commitments to Lead or Support Actions
- Identification of New Proposed Actions
- Not Setting Goals for Water Reuse at This Time

National Water Reuse Action Plan: **Collaborative Implementation (Version 1)**

- Section 1. Building the National Water Reuse Action Plan (WRAP)
- Section 2. Water Reuse: Collaborative Action Implementation
 - **11 strategic themes**
 - **37 developed actions**
- Section 3. Communicating Progress and Managing Forward
 - Launch of the WRAP Online Platform
 - Collaborative Implementation (Version 1)
 - Imagining Version 2...
 - Legacy of Watershed-based Action
- **Print** and **online** versions released on 2/27/20
 - ~40 pages
 - 3 appendices

“ ...the EPA’s extensive and ongoing outreach to a wide range of stakeholders will be critical to ensuring the final WRAP is comprehensive and implementable. ”

—Western Resource Advocates

WRAP Online Platform

- Repository for all actions (developed and undeveloped)
- Provides background and opportunities to be gained
- Identifies leaders, partners, interested collaborators
- Captures milestones and progress
- Helps form the pipeline of new actions and collaboration

Support Water Reuse Through DOE's Water Security Grand Challenge

Support Water Reuse Through the U.S. Department of Energy's Water Security Grand Challenge (Action: 2.4.3)

Action Attributes | Action Team | Implementation Milestones | Outputs and References

Action Attributes

Status: Developed


Action Leaders and Key Contact:
U.S. Department of Energy (DOE)
Diana Bauer
diana.bauer@ee.doe.gov

Description: The Water Security Grand Challenge is a White House initiated, U.S. Department of Energy (DOE) led framework to advance transformational technology and innovation to meet the global need for safe, secure, and affordable water. Using a coordinated suite of prizes, competitions, early-stage research and development, and other programs, the Grand Challenge has set five goals for the United States to reach by 2030. DOE is supporting several prize competitions related to water reuse.

Background: To help address the array of water resource challenges and opportunities, U.S. DOE Secretary Rick Perry, on October 25, 2018, announced the Water Security Grand Challenge. The Water Security Grand Challenge is a White House-initiated, DOE-led framework to advance transformational technology and innovation to meet the global need for safe, secure, and affordable water.

Opportunities: Advance transformational technology and innovation to meet the global need for safe, secure, and affordable water. The Grand Challenge has set the following goals for the United States to reach by 2030:

- Launch desalination technologies that deliver cost-competitive clean water.
- Transform the energy sector's produced water from a waste to a resource.
- Achieve near-zero water impact for new thermoelectric power plants, and significantly lower freshwater use intensity within the existing fleet.
- Double resource recovery from municipal wastewater.
- Develop small, modular energy-water systems for urban, rural, tribal, national security, and disaster response settings.



WATER SECURITY GRAND CHALLENGE
Abundance Through Innovation

DOE's Water Security Grand Challenge consists of five challenges that aim to advance technology and innovation to meet the global need for safe, secure, and affordable water.

Use the arrows to navigate between actions.

← Previous Action | Next Action →

Action 2.4.3 in the WRAP Online Platform

Section 2

Water Reuse Collaborative Action Implementation

The WRAP features 11 strategic themes:

- 2.1 Integrated Watershed Action
- 2.2 Policy Coordination
- 2.3 Science and Specifications
- 2.4 Technology Development and Validation
- 2.5 Water Information Availability
- 2.6 Finance Support
- 2.7 Integrated Research
- 2.8 Outreach and Communications
- 2.9 Workforce Development
- 2.10 Metrics for Success
- 2.11 International Collaboration



Public landscapes throughout Northern California's City of Roseville are irrigated with recycled water.

2.1

Integrated Watershed Action

“We support this plan because it integrates water reuse opportunities across multiple sectors including drinking water, agriculture, industry, recreation, and environmental protection.”

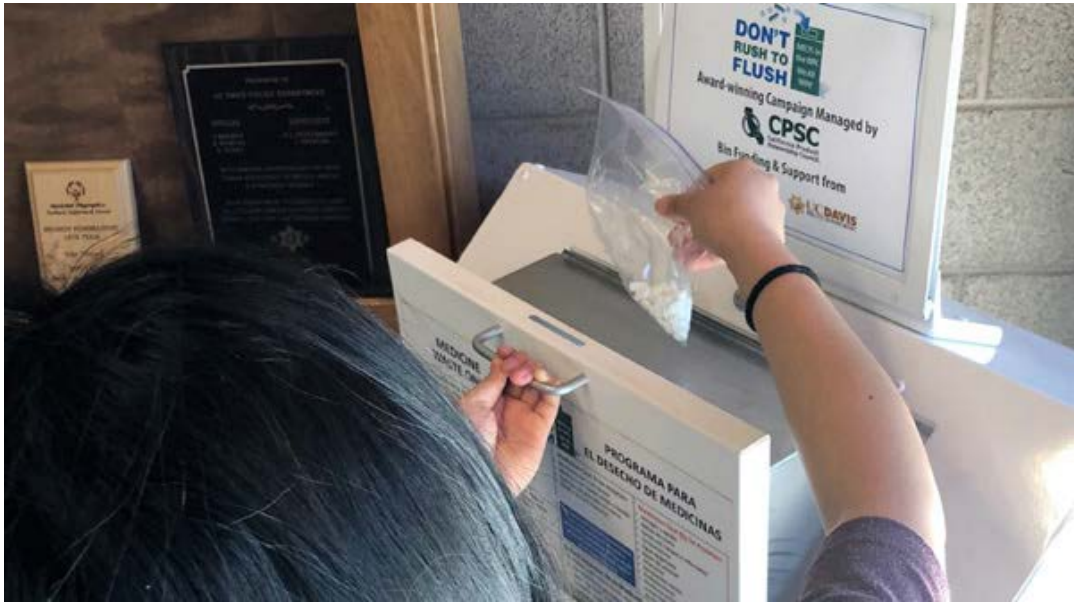
–State of Oklahoma, Office of the Secretary of Energy & Environment



Rainwater catchment project near Pennington Creek, California, installed in partnership with the Morro Bay National Estuary Program, stores up to 296,000 gallons of rainwater for cattle troughs in the dry season.

2.2

Policy Coordination



As part of the “Don’t Rush to Flush” campaign, pills are collected in a pharmaceutical drop box and properly disposed instead of entering the wastewater system.

“Exploring why resources, policies, and approaches vary (for example, across states or between federal programs), or how differences in seemingly-similar scenarios came to be (for example, what are the scientific bases of different fit for purpose specifications among similar types of reuse?), provide important contexts for end-users.”

—ASDWA and ACWA

2.3

Science and Specifications

“ Governments at all levels and non-governmental organizations should draw on the sound science and long history of water reuse in different parts of the country that can provide the basis for greater acceptance of this water management approach. ”

–National Groundwater Association



The San Francisco Public Utilities Commission building irrigates exterior vegetation using onsite water reuse.

2.4

Technology Development and Validation

“Technology validation processes can be complicated and variable between individual states; this issue presents an opportunity for EPA to assist in streamlining and standardizing technology validation processes to enable faster adoption of new technologies.”

–Denver Water



GlaxoSmithKline (Upper Providence, Pennsylvania) air handler condensate is reused by their cooling towers, resulting in 9 million gallons water savings in 2019, equivalent to \$140,000 in cost savings and a 14.3 percent reduction in water use.

2.5

Water Information Availability

“Using data to target watersheds with reuse potential could provide for more efficient use of state resources.”

–New Mexico Environment Department



Terraces, buffers, and conservation tillage are among the practices being used by Shelby County, Iowa, farmers in a water quality improvement project to benefit a nearby lake.

2.6

Finance Support



Acting EPA Administrator Andrew Wheeler signs a \$614 million WIFIA loan to the City of San Diego alongside Mayor Kevin Faulconer.

“Technology validation processes can be complicated and variable between individual states; this issue presents an opportunity for EPA to assist in streamlining and standardizing technology validation processes to enable faster adoption of new technologies.”

–Denver Water

2.7 Integrated Research

“Developing a coordinated research strategy on water use and reuse could provide a starting point from which future efforts to expand water reuse could be compared. A common research strategy could also help to inform potential water reuse approaches at the state and municipal levels.”

–National Association of Home Builders



The Brackish Groundwater National Desalination Research Facility develops technologies for the desalination of brackish and impaired groundwater found in the inland states.

2.8

Outreach and Communications



El Paso's Tech20 Learning Center hosts thousands of students for field trips every year, helping next generation water customers appreciate the value of water.

“More messaging on a national level of the benefits and successes [of water reuse] in tandem with discussion of the public health and environmental protection safeguards and benefits is necessary.”

—NACWA

2.9

Workforce Development

“With increasingly complex systems, particularly in the case of direct potable reuse, there are skills, knowledge and abilities that go beyond traditional operator certification requirements. ACWA and ASDWA recognize and respect the States’ autonomy in implementing their operator certification programs, however water reuse represents a unique opportunity for EPA to partner with states to identify key knowledge and skills needed by water system operators who are presiding over these water reuse projects.”

—ACWA and ASDWA



Denver Water contractors install a purple pipe used to deliver recycled water in northeast Denver, Colorado

2.10

Metrics for Success



Breakout session at one of the WaterReuse expert convenings on water reuse during development of the draft Action Plan.

“According to the 2017 Reuse Inventory Report, Florida reused approximately 813 MGD (over 161 billion gallons per year) of potable quality water while serving to add 252 MGD (approximately 92 billion gallons per year) back to available water supplies.”

—Florida DEP

2.11

International Collaboration

“The Chamber recommends that EPA continue to cooperate with leading organizations and countries (e.g., Israel) to ensure implementation of the most effective reuse solutions and associated funding options.”

–U.S. Chamber of Commerce Business Task Force on Water Policy



The 2019 water management project in Kyrgyzstan is part of the Ambassador's Water Experts Program, which supports the U.S. Government's Global Water Strategy priorities.

Action Implementation Plans

Version 1 fostered the development of “action implementation plans” to:

- Demonstrate leadership for action.
- Promote partnerships and collaborative actions that leverage the resources and expertise of many stakeholders.
- Implement a means of demonstrating progress and accountability for the integrated actions.
- Begin to create an enduring, dynamic, and iterative approach that will lead to subsequent versions of the WRAP.



Action Leader Roles

- Coordinating among the action team.
- Facilitating implementation of the milestones.
- Seeking and including new partners to collaborate with, where appropriate.
- Providing updates on progress and outputs.
- Validating action leader responsibilities with subsequent versions of the WRAP.

Federal Policy Statement on Water Reuse

Water is critical to our nation's health, strength, security, and resilience, but the solutions available to manage water and its availability are often complex. When incorporated into an integrated water management plan, water reuse can be a valuable tool to enhance the availability and effective use of water resources. The federal government recognizes, acknowledges, and respects the primacy of states in the management of water resources within their borders.

The federal government supports the consideration of water reuse to increase water security, sustainability, and resilience, especially when considered through integrated and collaborative water resource planning approaches, typically at the watershed or basin-scale.

This policy statement is intended to guide federal agencies to:

- Encourage consideration of water reuse and integrated watershed-scale planning approaches;
- Communicate the value and benefits of water reuse; and
- Leverage existing programmatic, funding, and technical resources.

Examples of Developed Actions

Prepare Case Studies of Successful Water Reuse Applications Within an Integrated Water Resources Management (IRWM) Framework (Action 2.1.2)

DESCRIPTION:

Efforts will initially focus on compilation and dissemination of pertinent projects, taking advantage of existing information. This may be followed by development of new case studies to fill gaps in geography, reuse application, and/or source water.

ACTION LEADER(S):

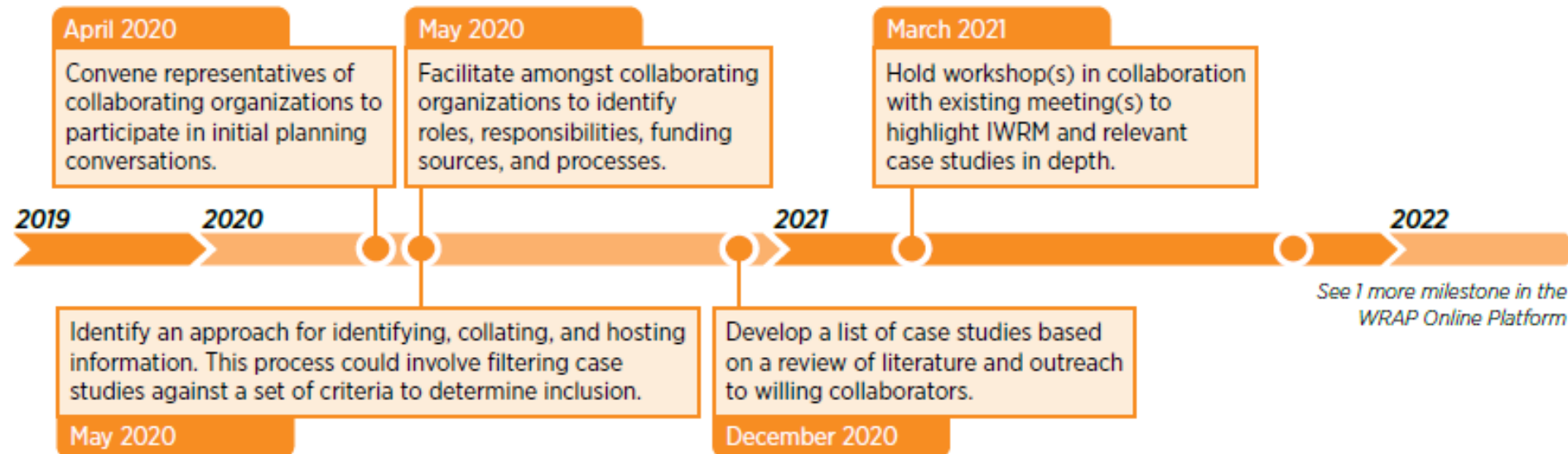
WateReuse—Greg Fogel

PARTNER(S):

NGWA, ACWA, AWWA

“ Clearly documented case study examples can play a critical role in furthering integrated water management. ”

—National Wildlife Federation



Examples of Developed Actions

Compile Existing State Policies and Approaches to Water Reuse (Action 2.2.1)

DESCRIPTION:

This compilation will build on prior efforts by Western Resource Advocates, Western States Water Council, EPA, WateReuse Association, and others.

ACTION LEADER(S):

- EPA—Jeff Lape
- WateReuse—Greg Fogel
- ACWA—Jake Adler
- ASDWA—Wendi Wilkes

PARTNER(S):

ASTHO, ECOS, WSWC, GWPC

“ Exploring why resources, policies, and approaches vary (for example, across states or between federal programs), or how differences in seemingly-similar scenarios came to be (for example, what are the scientific bases of different fit for purpose specifications among similar types of reuse?), provide important contexts for end-users. ”

–ASDWA and ACWA



Examples of Developed Actions

Enhance State Collaboration on Water Reuse (Action 2.2.2)

DESCRIPTION:

Provide forums and opportunities for states to discuss and share information and experiences on programs and approaches for the management of water reuse.

ACTION LEADER(S):

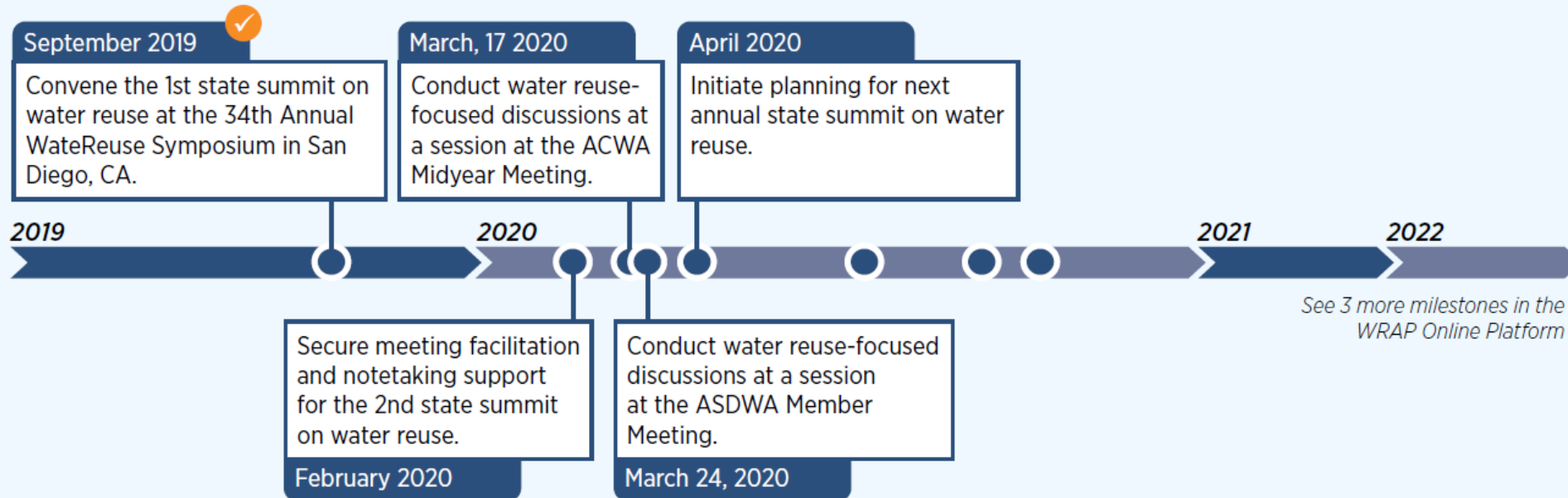
- EPA—Jeff Lape
- ACWA—Jake Adler
- ASDWA—Wendi Wilkes

PARTNER(S):

ASTHO, ECOS, GWPC, WateReuse

“ Water reuse is an emerging topic in the Northeast and our member states will benefit from the information generated and collected and from the relationships developed among our regional partners and with states across the country that result from implementation. ”

–New England Interstate Water Pollution Control Commission



See 3 more milestones in the WRAP Online Platform

Examples of Developed Actions

Compile Existing Fit-for-Purpose Specifications (Action 2.3.1)

DESCRIPTION:

Compile existing fit-for-purpose specifications (e.g., chemical and microbial) for different sources of water for potential reuse and end-use applications. The compilation will rely on federal, state, and international sources to inform water reuse best practices and facilitate broader implementation of reuse projects.

ACTION LEADER(S):

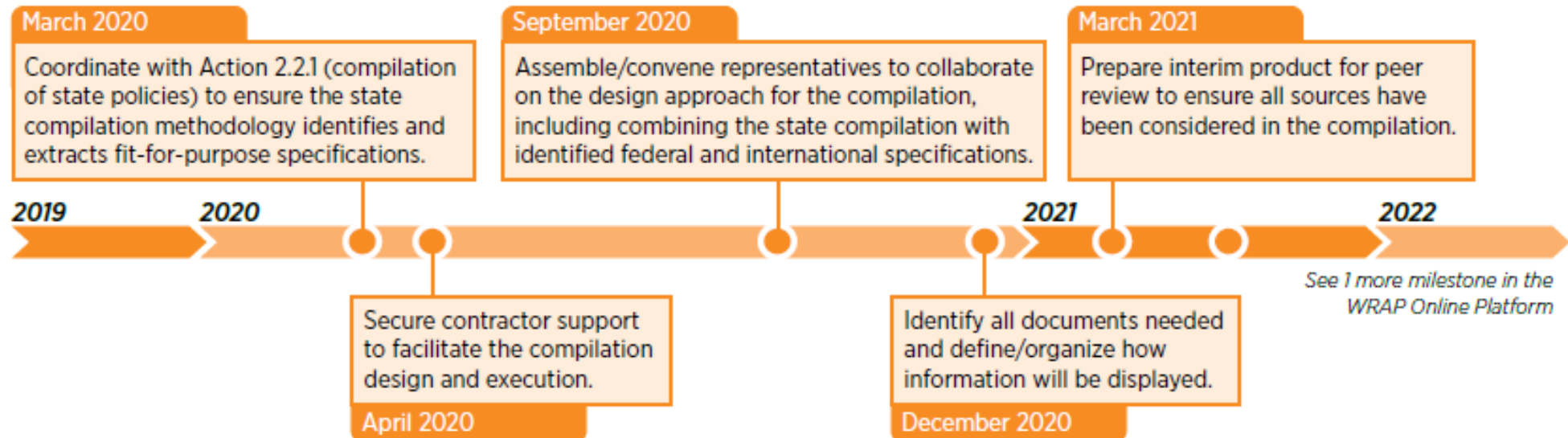
EPA—Sharon Nappier

PARTNER(S):

ACWA, AMWA, ASDWA, WRF, WaterReuse

“ States agree that any water reuse aspiration or action must be evaluated with risks to public health, which states and EPA are charged to protect, as the central consideration... ”

—ASDWA and ACWA



Examples of Developed Actions

Convene Experts to Address Opportunities and Challenges Related to Urban Stormwater Capture and Use (Action 2.3.3)

DESCRIPTION:

Convene a small group of approximately 25 national experts to review potential for urban stormwater capture for use; assess institutional, legal, financial, and technical barriers to advancing stormwater capture for use; and recommend key actions to address these challenges. The convening will involve representatives from states, local stormwater programs, NGOs, and other expert organizations.

ACTION LEADER(S):

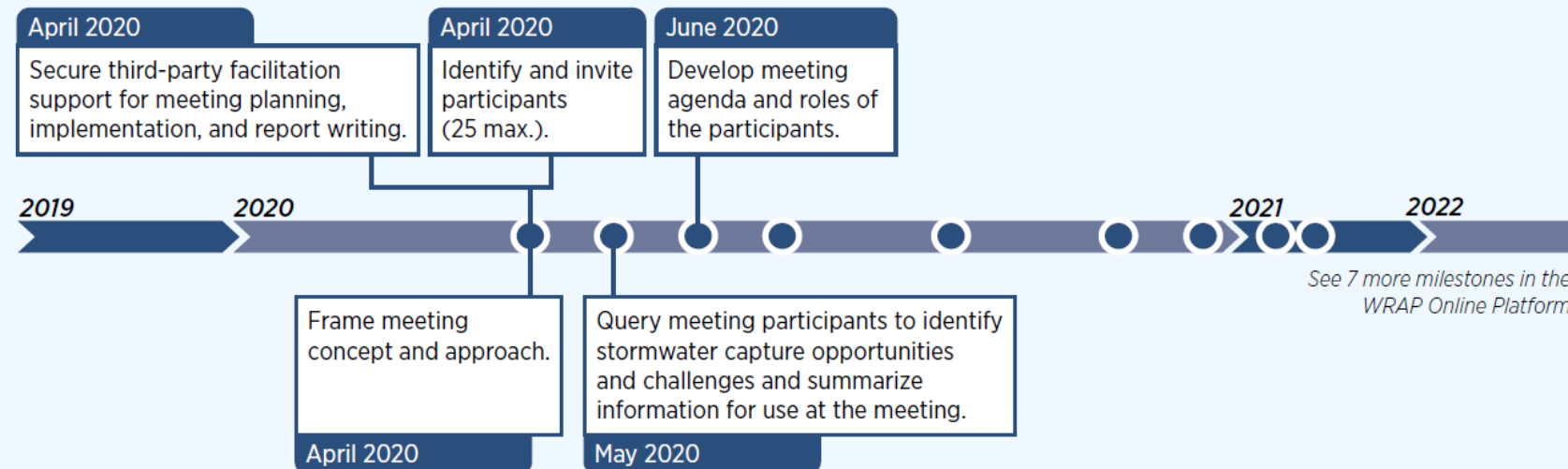
- EPA—David Smith and Chris Kloss
- JFW—Danielle Johnson
- NMSA—Seth Brown
- ReNUWit—Dr. Richard Luthy
- WateReuse—Greg Fogel
- WEF—Claudio Ternieden

PARTNER(S):

ACWA, AMWA



Landscape view of the Johnson Foundation's conference center, Wingspread, which will host the stormwater capture and use convening.



Examples of Developed Actions

Establish a Water Reuse Champion Award Program for Private Sector Companies (Action 2.8.4)

DESCRIPTION:

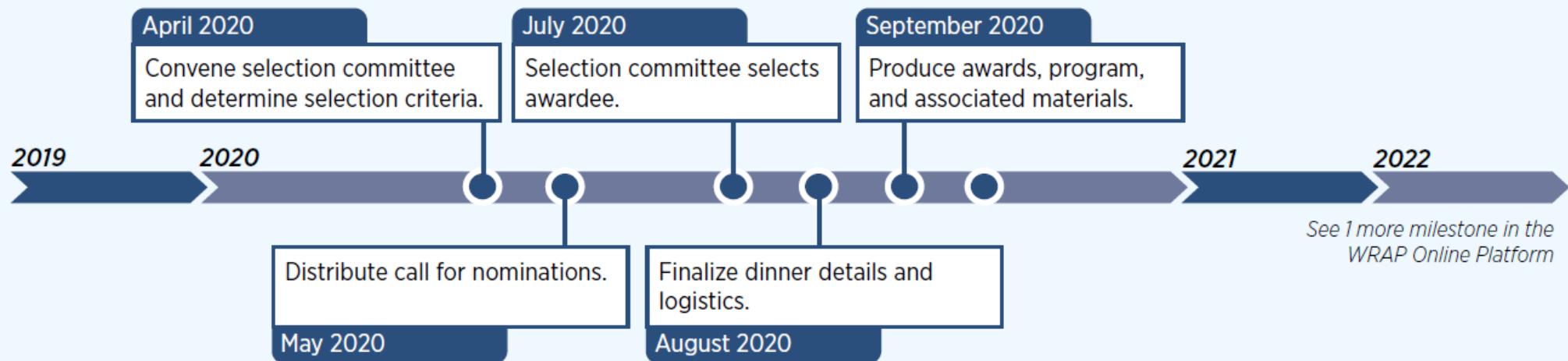
GreenBiz and the WaterReuse Association will partner to develop and present an awards program at VERGE 20, a conference and expo dedicated to advancing the clean economy. The Water Reuse Champion award will be provided by peers to peers among American corporations to showcase that water recycling is helping companies achieve their stewardship values and water management goals.

ACTION LEADER(S):

- GreenBiz Group—Pete May
- WaterReuse—Greg Fogel

PARTNER(S):

None identified at this time



Communicating Progress and Managing Forward

- Print Product and Launch of the WRAP Online Platform
- Identification of New Ideas for Actions
- Adaptive and Iterative Management—Imagining Version 2
 - **September 2020:**
 - Annual WaterReuse Symposium (Denver, Colorado) to report on action implementation progress
 - Initiate development of Action Plan (Version 2)
 - Start of next public comment period?
 - **April 2021:** Release Version 2 during Water Week
- Building an Enduring Legacy of Watershed-Based Action

Thank You!

Jeff Lape, National Program Leader for Water Reuse

EPA Office of Water

lape.jeff@epa.gov



<https://www.epa.gov/waterreuse/water-reuse-action-plan>

Together, we can ensure the sustainability, security, and resilience of our Nation's water resources.

Questions?

Please type your questions in the Q&A box

