

# National Water Reuse Action Plan

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

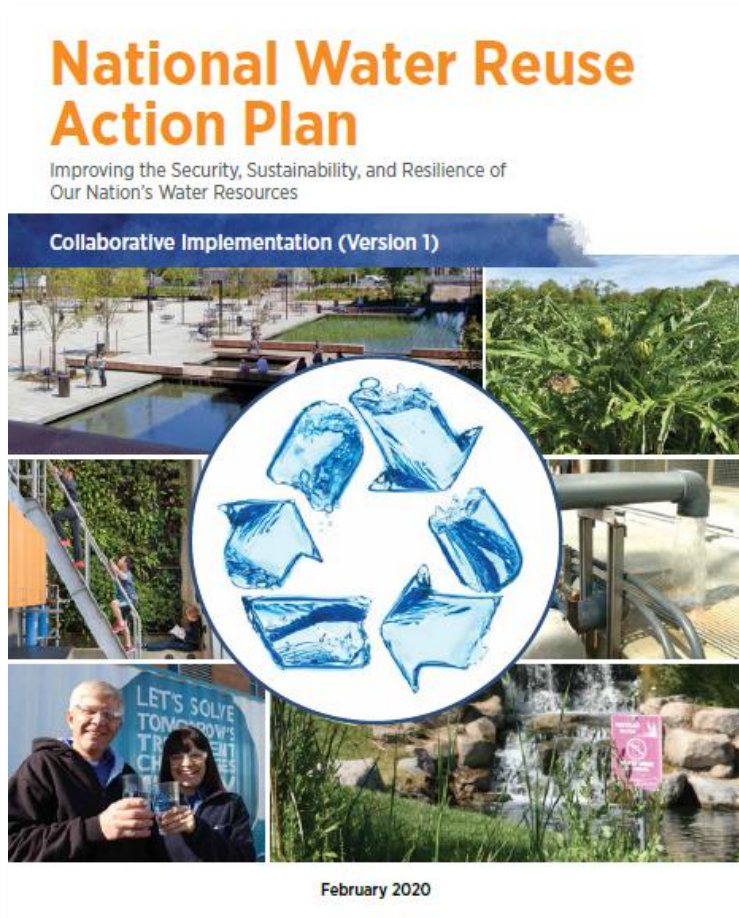
Farm, Ranch, and Rural Communities  
Committee Meeting

November 12, 2020

[waterreuse@epa.gov](mailto:waterreuse@epa.gov)



# Session Overview



- WRAP Overview
- WRAP Online Platform & Implementation Update
- Action Highlights
- Getting Involved
- Looking Ahead

# The Vision



*Launch of the draft WRAP at the WaterReuse Symposium in San Diego on September 10, 2019 with federal representatives. Pictured, top row, left to right: Paul Jones (WaterReuse Association Representative), Aubrey Bettencourt (DoI), Tim Petty (DoI), Brenda Burman (BoR), Pat Sinicropi (WaterReuse Association). Pictured, bottom row, left to right: Ryan Fisher (ACoE), David Ross (EPA), Mary Neumayr (CEQ), William Northey (USDA), Daniel Simmons (DoE).*

“ 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. ”

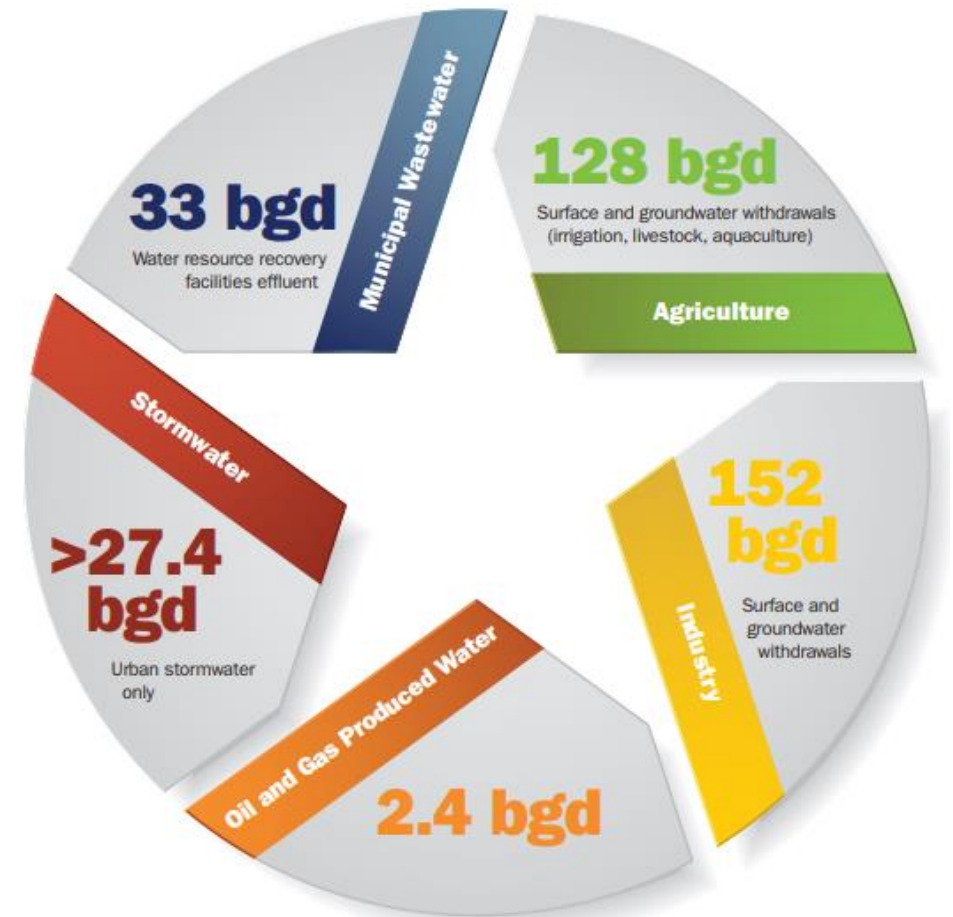
–David Ross, Assistant Administrator for Water,  
U.S. EPA

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

Image source: <https://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/awwa.1426>

# WRAP Guiding Principles

1. Protect public health
2. Protect the environment and ecosystem health
3. Promote action based on leadership, partnership, and collaboration
4. Build on past experiences
5. Identify the most impactful actions
6. Recognize distinct challenges posed by water reuse
7. Consider water reuse in an integrated water resources management framework
8. Defer to state (cooperative federalism) and local issues and considerations
9. Commit to implementation through transparency and shared accountability
10. Communicate effectively
11. Apply adaptive management and governance



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



- Available in two forms:

- Printed publication
- Online Platform

- Key outcomes:

- Includes 37 specific actions and over 200 implementation milestones
- Actions led by nearly 30 different organizations and supported by more than 80 collaborating partners

# WRAP Online Platform

- Repository for all active actions
- 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

**National Water Reuse Action Plan: Online Platform**

Instructions: Click on an action in the table to display detailed information.

Strategic Theme Area:

Show 10 entries

| Strategic Theme Area        |  |
|-----------------------------|--|
| Integrated Watershed Action | Develop a Federal Policy State Consideration of Water Reuse                |
| Integrated Watershed Action | Prepare Case Studies of Successful Integrated Water Resources Management   |
| Integrated Action           | Incorporate Water Reuse and Planning Efforts at the Local Level            |
| Integrated Watershed Action | Leverage EPA's Water Partners in the Context of Integrated Watershed Scale |
| Policy Coordination         | Complete Existing State Policies   |
| Policy Coordination         | Enhance State Collaboration on Water Reuse                                 |
| Policy Coordination         | Complete the EPA Study of Oil Management                                   |
| Policy Coordination         | Enhance Wastewater Source Control Programs to Support Water Reuse          |
| Policy Coordination         | Compile and Develop Potential Waters for Potential Reuse                   |
| Policy Coordination         | Develop Informational Materials to Facilitate Water Reuse                  |

Showing 1 to 10 of 58 entries

### Enhance State Collaboration on Water Reuse

Enhance State Collaboration on Water Reuse (Action 2.2.2)

[Action Attributes](#) | [Action Team](#) | [Implementation Milestones](#) | [Outputs and References](#)

#### Action Attributes

Status: Developed

**Action Leaders and Key Contact:**  
U.S. Environmental Protection Agency (EPA)  
Jeff Lape  
jlape.jl@epa.gov

Association of Clean Water Administrators (ACWA)  
Jake Adler  
jadler@acwa-us.org

Association of State Drinking Water Administrators (ASDWA)  
Wend Wilkes  
wwilkes@asdwa.org

**Description:** Provide forums and opportunities for states to discuss water reuse issues, share experiences, and identify common needs to advance water reuse.

**Background:** Some states, particularly in arid areas, have well-established opportunities to exchange ideas, experiences, successes, and challenges to learn from each other; (2) identify common needs to advance water reuse.

The Annual WaterReuse Pacific Northwest Conference, organized by the policies and strategies. This conference provides a useful model and a coordinated state-focused forum to encourage states to come together in September 2018, ACWA and ASDWA co-organized and facilitated the representatives from 28 state water programs participate in this event engagement of additional state associations to engage in future state.

**Opportunities:**

- Increase state collaboration on water reuse across the spectrum of water reuse.
- Share experiences across state organizations.
- Enable water reuse discussions and networking opportunities.

### Enhance State Collaboration on Water Reuse

Enhance State Collaboration on Water Reuse (Action 2.2.2)

[Action Attributes](#) | [Action Team](#) | [Implementation Milestones](#) | [Outputs and References](#)

#### Implementation Milestones

Expand all

1. Convene the 2nd state summit on water reuse at the 54th Annual WaterReuse Symposium in San Diego, CA.  
**Lead:** ACWA (Jake Anastasio, janastasio@acwa-us.org), ASDWA (Wend Wilkes, wwilkes@asdwa.org)  
**Partners:** EPA, WaterReuse  
**Target Completion Date:** September 2018  
**Actual Completion Date:** September 2018  
**Milestone Complete:** Yes  
**Status/Updates:** Completed (28 representatives from 18 states attended)
2. Secure meeting facilitation and networking support for the 2nd state summit on water reuse.
3. Conduct water reuse-focused discussions at a session at the ASDWA Member Meeting.
4. Conduct water reuse-focused discussions at a session at the ACWA Midyear Meeting.
5. Initiate planning for next annual state summit on water reuse.
6. Compile a list of state water reuse contacts and roles and post in an accessible location online.
7. Convene the 2nd state summit on water reuse at the 2018 WaterReuse Symposium in Denver, CO.
8. Prepare state summit on water reuse meeting summary for state representatives.
9. Additional milestones to be determined.

Use the arrows to navigate between actions.

[← Previous Action](#) | [Next Action →](#)

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



# Action Highlights Summary

- **Action 2.2.12:** Leverage Existing USDA Programs for Consideration of Agricultural Water Reuse
- **Action 2.3.1:** Compile Existing Fit-for-Purpose Specifications
- **Action 2.3.5:** Assess Specifications of Wastewater in Food Animal Protein Processing Facilities
- **Action 2.4.2:** Implement New Mexico Produced Water Research Consortium
- **Action 2.6.1:** Compile Federal Funding Sources and Develop Interagency Decision Tool
- **Action 2.6.4:** Compile and Promote Existing USDA Resources for Rural Communities

# Action 2.2.12: Leverage Existing USDA Programs for Consideration of Agricultural Water Reuse

## Action Team

### Action Leaders and Key Contact











U.S. Department of Agriculture (USDA)  
Alan Gillespie  
[alan.gillespie@usda.gov](mailto:alan.gillespie@usda.gov)

### Partners

- None identified at this time.

## Implementation Milestones

Expand All 

1. Consider inclusion of water reuse strategies in the USDA/NRCS Conservation Innovation Grants (CIG) Program. 
2. Consider inclusion of water reuse strategies in the USDA/NRCS Regional Conservation Partnership Program (RCP). 
3. Consider inclusion of water reuse strategies in the USDA/NRCS Conservation Stewardship Program (CSP). 
4. Consider inclusion of water reuse strategies in the USDA/NRCS Watershed and Flood Prevention Operations Program (WFPO). 
5. Consider expanding water reuse strategies in the USDA/NRCS Environmental Quality Incentives Program (EQIP). 
6. Consider inclusion of water reuse strategies in the USDA/NRCS Agricultural Conservation Easement Program (ACEP). 
7. Review applicants for the WaterSMART Landscape Conservation Initiative. 
8. Promote Advanced Tailwater Recovery above the minimum requirements under the NRCS Conservation Practice Standard 447 to enhance water reuse. 
9. Promote Groundwater Recharge Basin or Trench to help mitigate water scarcity concerns under the Conservation Practice Standards (CPS). 
10. Promote On-Farm Groundwater Recharge System to help mitigate water scarcity concerns under the Conservation Practice Standards (CPS). 

# Action 2.3.1: Fit-for-Purpose Specifications

## Action Team

### Action Leaders and Key Contact


U.S. Environmental Protection Agency (EPA)  
Sharon Nappier  
[nappier.sharon@epa.gov](mailto:nappier.sharon@epa.gov)


### Partners


- Association of Clean Water Administrators (ACWA)
  - Jake Adler [jadler@acwa-us.org](mailto:jadler@acwa-us.org)
- Association of Metropolitan Water Agencies (AMWA)
  - Erica Brown [brown@amwa.net](mailto:brown@amwa.net)
- Association of State Drinking Water Administrators (ASDWA)
  - Wendi Wilkes [wwilkes@asdwa.org](mailto:wwilkes@asdwa.org)
- Association of State and Territorial Health Officials (ASTHO)
  - Nicholas Porter [nporter@astho.org](mailto:nporter@astho.org)
- Colorado Department of Public Health and Environment (CDPHE)
  - Emily Wong [emily.wong@state.co.us](mailto:emily.wong@state.co.us)
  - Brandi Honeycutt [brandi.honeycutt@state.co.us](mailto:brandi.honeycutt@state.co.us)
- Water Research Foundation (WRF)
  - Julie Minton [jminton@waterrf.org](mailto:jminton@waterrf.org)
- WaterReuse Association (WaterReuse)
  - Aliza Furneaux [AFurneaux@watereuse.org](mailto:AFurneaux@watereuse.org)

## Implementation Milestones

Expand All 

1. Coordinate with Action 2.2.1 (compilation of state policies) to ensure the state compilation methodology identifies and extracts fit-for-purpose specifications. 

2. Secure contractor support to facilitate the compilation design and execution. 

3. Assemble/convene representatives to collaborate on the design approach for the compilation, including combining the state compilation with identified federal and international specifications. 

4. Identify all documents needed and define/organize how information will be displayed. 


5. Evaluate available information on technical basis for existing fit-for-purpose specifications. 


6. Prepare interim product for peer review to ensure all sources have been considered in the compilation. 

7. Complete the compilation of fit-for-purpose specifications and make available in an online location. 

# Action 2.3.5: Assess Specifications of Wastewater in Food Animal Protein Processing Facilities

## Implementation Milestones

Expand All 

1. Establish CRADA to enable collaboration 

2. Characterize the quality of animal protein processing wastewater with a focus on the occurrence and density of zoonotic pathogens and relevant chemicals of concern. 

3. Determine the fit-for-purpose specifications for this source of water and potential use applications. 

4. Identify potential treatment train configurations to meet treatment targets to be made available via reports and journal articles. 

### Action Team

#### Action Leaders and Key Contact

U.S. Environmental Protection Agency (EPA)

Jay Garland

[garland.jay@epa.gov](mailto:garland.jay@epa.gov)

# Action 2.4.2: Implement New Mexico Produced Water Research Consortium

## Action Leaders and Key Contact

New Mexico Environment Department (NMED)

Rebecca Roose

[rebecca.roose@state.nm.us](mailto:rebecca.roose@state.nm.us)

## Partners

- New Mexico Environment Department (NMED)
  - NMED Cabinet Secretary - James Kenney
  - Water Protection Division Director - Rebecca Roose
  - NMSU Embedded Fellows - Dr. Jeri Sullivan Graham and Deborah Dixon, P.E.
- New Mexico State University Department of Engineering
  - Dr. Patricia Sullivan
  - Dr. Pei Xu [pxu@nmsu.edu](mailto:pxu@nmsu.edu)
- New Mexico Produced Water Research Consortium (NW-PWRC)
  - Program Director, Mike Hightower [mmhightower@q.com](mailto:mmhightower@q.com)
  - Technical Director, Dr. Pei Xu [pxu@nmsu](mailto:pxu@nmsu)
  - Technical Steering Committee (TSC)
  - Government Advisory Board (GAB)

## Implementation Milestones

Expand All 

1. Sign NMED-NMSU Memorandum of Understanding to establish and manage a public-private Produced Water Research Consortium to advance produced water research and policy development for reuse of produced water outside the oil and gas industry. 
2. Kick-off Event at NMSU to announce the formation of the New Mexico Produced Water Research Consortium. 
3. Open call for Consortium sponsorship funding from industry and NGOs and government funding opportunities. 
4. State-wide public engagement on produced water management in New Mexico, including information about the Consortium. 
5. Solicit members for the Technical Steering Committee (TSC) of the Consortium to represent five primary sectors: academia, oil and gas industry, water midstream, NGOs and trade associations, and state and federal agencies. 
6. Identify and confirm TSC members with technical expertise to support six major science and technology focus areas: applications, treatment, support infrastructure, water characterization, water quantification, and public health and toxicology. 
7. Create a Government Advisory Board (GAB) 
8. Conduct Consortium Membership, Technical Steering Committee, and Government Advisory Board kick-off meetings to discuss Consortium goals and objectives, timelines and a general overview of current science, data, technical, and toxicology gaps for reuse of produced water outside the oil and gas industry. 
9. Establish Consortium TSC working groups to identify, select, and monitor the research and development priorities and projects selected for each of the six technical focus areas. 

# Action 2.6.4: Compile and Promote Existing USDA Resources for Rural Communities

## Action Team

### Action Leaders and Key Contact

U.S. Department of Agriculture (USDA)  
Edna Primrose, Rural Utilities Service (RUS)  
[Edna.Primrose@usda.gov](mailto:Edna.Primrose@usda.gov)


### Partners

- U.S. Environmental Protection Agency (EPA)
- National Rural Water Association (NRWA)
- Rural Community Assistance Partnership (RCAP)

## Implementation Milestones

Expand All 

1. Consider inclusion of water reuse strategies in the USDA/Rural Development Water and Waste Disposal Loan and Grant Programs. 

2. Consider inclusion of water reuse strategies in the USDA/Rural Development Water and Waste Disposal Technical Assistance and Training Grant Programs. 

# Onboarding New Proposed Actions

- New proposed actions are introduced in the WRAP quarterly updates and Online Platform as frequently as once a quarter
- Four proposed actions were developed by potential action leaders this past quarter (July-September)
- Feedback on proposed actions is being accepted until November 30 and can be sent through [waterreuse@epa.gov](mailto:waterreuse@epa.gov)

# New Proposed Actions

- Action 2.2.18: Engagement with Disadvantaged and Small Communities on Water Reuse
- Action 2.3.6: Viral Pathogen and Surrogate Approaches for Assessing Treatment Performance in Water Reuse
- Action 2.4.6: Implement and Manage the National Alliance for Water Innovation (NAWI) Energy-Water Desalination Hub
- Action 2.5.2: Identify Monitoring Practices for Reuse Applications



# New Action 2.2.18: Engagement with Disadvantaged and Small Communities

## Action Attributes

**Strategic Theme Area:** Policy Coordination

**Status:** Proposed

**Action Leaders and Key Contact:**

U.S. Environmental Protection Agency (EPA)

David Smith

[smith.davidw@epa.gov](mailto:smith.davidw@epa.gov)

**Description:** Engage disadvantaged and small communities to evaluate needs and opportunities to improve water security, sustainability, and resilience through water reuse. Develop and deliver initial training tailored to the unique challenges of disadvantaged and small communities. Based on the initial outreach and training, consider the need for additional opportunities for engagement with individual communities.

**Opportunities:**

- Characterize the unique challenges faced by disadvantaged and small communities in the context of water recycling.
- Improve understanding of the needs of disadvantaged and small communities to effectively pursue water recycling and improve water system reliability.
- Develop water reuse training materials to build capacity for disadvantaged and small communities to consider, evaluate, and implement safe water reuse projects.

# Communicating Progress

## Water Reuse

[Water Reuse Home](#)

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[Basic Information](#)

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[Water Reuse Action Plan](#)

[WRAP Online Platform](#)

[Latest Quarterly Update](#)

[WRAP Activities and Highlights](#)

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[Water Reuse Activities and Resources](#)

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[State Resources](#)

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[Federal and Non-governmental Resources](#)

- **Action Implementation**
  - 121 implementation milestones out of 270 completed
  - More than 30 new milestones added since February
- **Online Platform**
  - Weekly updates on implementation progress
  - Nearly 700 total updates across 35 actions
- **Regular Outreach and Engagement**
  - Quarterly updates – next release: January
  - Action leader meetings
  - Ongoing discussions with federal, state, tribal, and local stakeholders
  - WRAP Action Activities and Highlights web page

# What's Next for the WRAP: Looking Forward

## ● Action implementation and development

- Action teams focused on implementation of the 37 developed actions
- New actions onboarded quarterly

## ● Spring 2021 Update

- Highlight progress across the 37 active actions
- Demonstrate collective impact
- Showcase new actions



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

# Federal Commitment to Reuse

## ● Executive Order

- Issued on 10/13
- "Modernizing America's Water Resource Management and Water Infrastructure"
- Established the Interagency Water Subcabinet
- Includes WRAP implementation as a priority activity



Image source: <https://www.whitehouse.gov/presidential-actions/executive-order-modernizing-americas-water-resource-management-water-infrastructure/>

# Get Involved!

## Propose or provide input on a new proposed action

- Share your idea with EPA's Water Reuse Team
- Quarterly action onboarding

## Support an existing action

- Reach out to action leader(s) about possible roles

## Stay in the loop

- Follow action implementation progress in the WRAP Online Platform:  
<https://www.epa.gov/waterreuse/national-water-reuse-action-plan-online-platform>
- Email [waterreuse@epa.gov](mailto:waterreuse@epa.gov) to join our listserv for periodic updates

### Undeveloped WRAP Actions and Ideas

On this page:

- [Undeveloped Actions](#)
- [Action Ideas](#)

#### Undeveloped Actions

The [National Water Reuse Action Plan \(WRAP\)](#) is a coordinated and collaborative effort across the water user community to advance the consideration of water reuse to improve the security, sustainability, and resilience of our nation's water resources.

The [WRAP Online Platform](#) maintains information on proposed, active, and completed actions being undertaken at the federal, state, tribal and local levels to implement the WRAP. This page contains undeveloped actions and ideas. Undeveloped actions were proposed in the [draft Action Plan](#) (September 2019) and currently lack clear leaders, partners, implementation milestones, and target completion dates. Additional action ideas are suggestions from a public docket which closed in December 2019; these ideas are also portrayed in Table 3 of the [Action Plan Revision 1](#) (February 2020). Undeveloped actions, action ideas from the public docket, and new proposed actions represent potential for development and will help to facilitate continued progress.

#### Water Reuse Related Links

- [National Water Reuse Action Plan](#)
- [Water Reuse Home](#)
- [WRAP Action Development Cycle](#)

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# Opportunities for Ag and Water Reuse

- Identify notable or unique examples of water reuse in the Ag Sector:
  - Ag runoff or irrigation return flows used as a source water for reuse
  - Reused water for ag purposes (e.g. crop irrigation)
  - Aquifer recharge and recovery
- Identify existing policies and practices for agriculture water reuse
- Identify notable potential contacts/experts in agriculture water reuse
  - Ag groups (e.g. American Farm Bureau Federation)
  - National Association of Conservation Districts
  - National Association for State Departments of Agriculture
  - USDA



# Thank You!

**Sharon Nappier**, National Program Leader for Water Reuse

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

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