PFAS in Drinking Water: ADEQ's Sampling Project and Funding Opportunities

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Environmental Professionals of Arizona
Annual Conference
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ADEQ Arizona Department of Environmental Quality

Clean Air, Safe Water, Healthy Land for Everyone

ADEQ PFAS Approach

Healthy Drinking Water

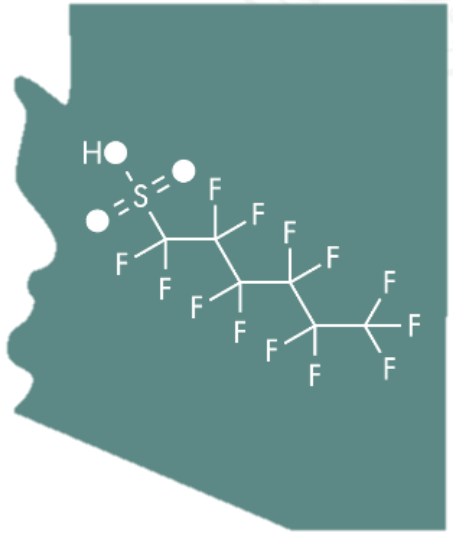
- Gather and analyze data
- Advocate for additional resources
- Assist drinking water systems

Balanced Resources

- Maximize the benefit of PFAS funding

Community Engagement

- Community outreach
- Web resource development



Timeline of Proposed PFAS Drinking Water Rule

March 14, 2023: EPA announced the proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS:

EPA's Proposed Action for the PFAS NPDWR

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	0 ppt*	4.0 ppt*
PFOS	0 ppt*	4.0 ppt*
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

The Hazard Index is a tool used to evaluate potential health risks from exposure to chemical mixtures.

*ppt = parts per trillion (also expressed as ng/L)

December 15, 2023: EPA sent the PFAS NPDWR to the White House Office of Management & Budget (OMB)

Early 2024: EPA expects to finalize rule

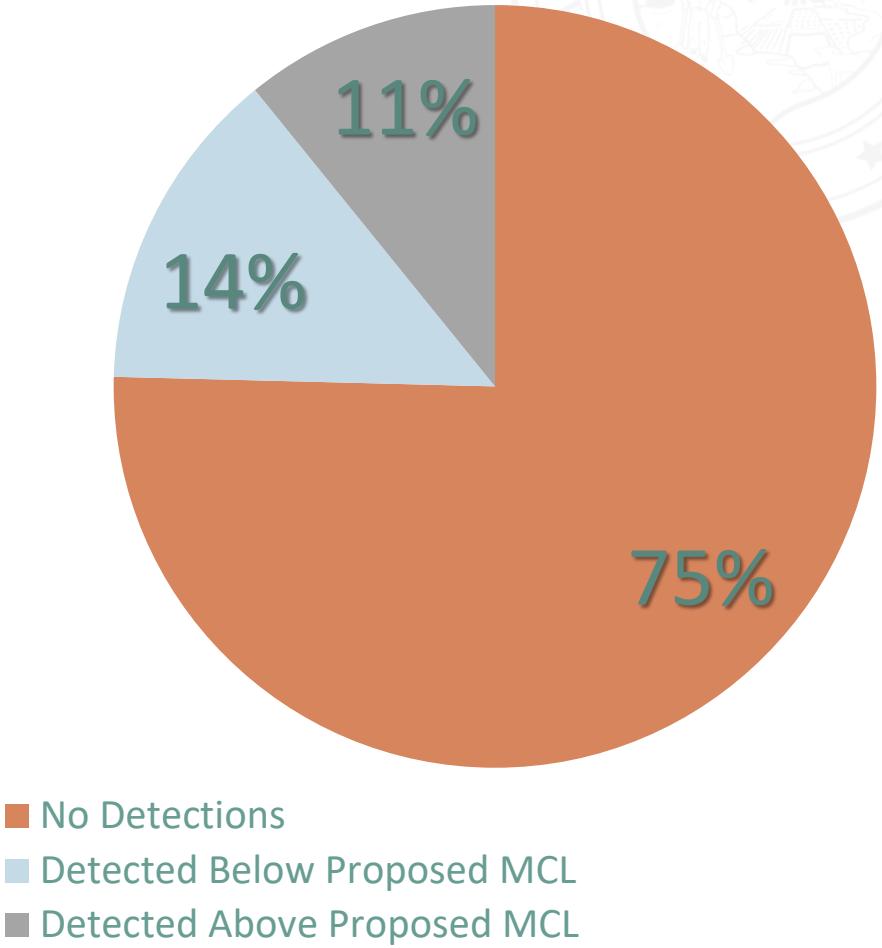
PFAS Sampling in Arizona

- EPA's UCMR 5 requires PFAS sampling for systems serving 3,300 people or more
- ADEQ is sampling more than 700 smaller systems not included in UCMR 5
  - Free testing
  - Early notification
  - Head-start planning for:
    - Expanded testing
    - Potential solutions
    - Available funding
- Both testing for 29 unique PFAS using EPA methods 537.1 and 533

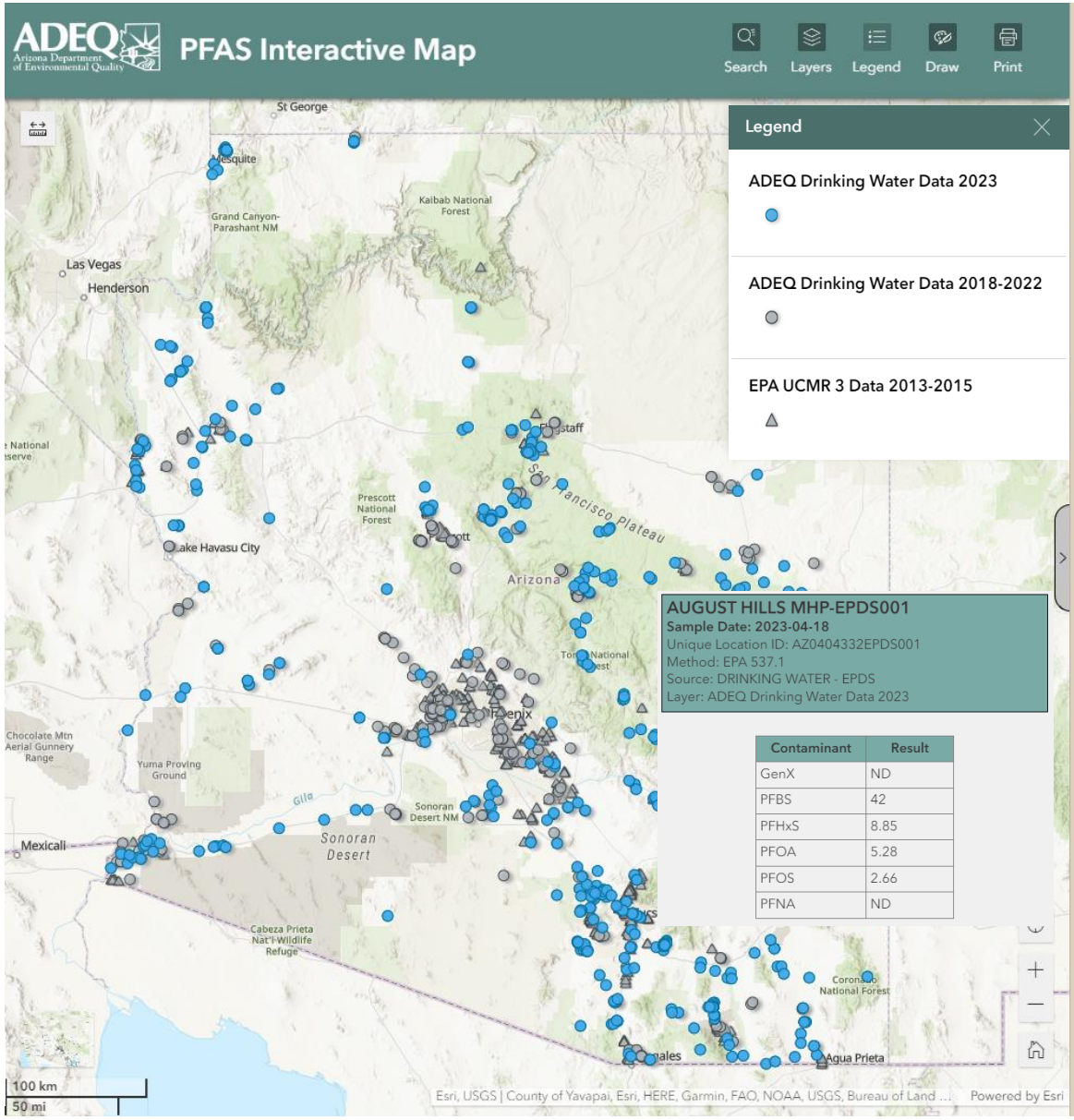
bit.ly/AZSampling-PFAS

Current ADEQ Sampling Status

- Sampling ≈730 PWSs for PFAS compounds
- As of 2/13/24
  - **90% complete**
  - Completing first round of testing
  - Beginning second round of testing



PFAS Interactive Map



Instructions >

What are PFAS?
Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals with fire-retardant properties that have been manufactured and used by a variety of industries since 1940. PFAS have been used commercially in the United States to make products like stain and water resistant carpet and textiles, food packaging, firefighting foam, as well as in other industrial processes. | EPA PFAS Webpage > | ATSDR PFAS Webpage >

On March 14, 2023, the U.S. EPA proposed a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water; PFOA and PFOS as individual contaminants, and PFHxS, PFNA, PFBS, and HFPO-DA (commonly referred to as GenX Chemicals) as a mixture. **ADEQ will be updating this map in light of the proposed NPDWR.** | EPA Draft MCLs >

Why are we mapping PFAS data?
Regulation of PFAS is increasing at federal and state levels in the United States. New regulations are focusing on lowering the limits for acceptable levels of PFAS in groundwater and soil, as well as requiring remediation projects to address PFAS contamination. As developments continue to occur, it is increasingly important to understand the prevalence of PFAS in Arizona so that steps can be taken to reduce people's exposure to PFAS.

On March 14, 2023, the U.S. EPA proposed a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water. **EPA has proposed MCLs for PFOA and PFOS to be 4 parts per trillion (ppt) each. PFHxS, PFNA, PFBS, and GenX Chemicals are proposed to be regulated using a Hazard Index (HI).** The HI is calculated using the concentration of each contaminant in ppt as follows:

HI = (PFHxS/9) + (PFNA/10) + (PFBS/2000) + (GenX/10)

An HI greater than 1.0 would represent an exceedance of the MCL.

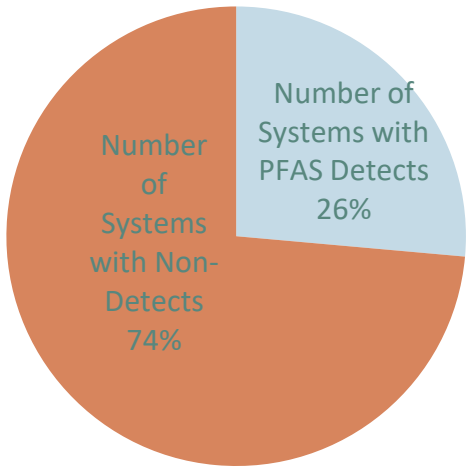
What is included on the map?
The map displays the results of testing conducted by ADEQ

bit.ly/myPFASmap

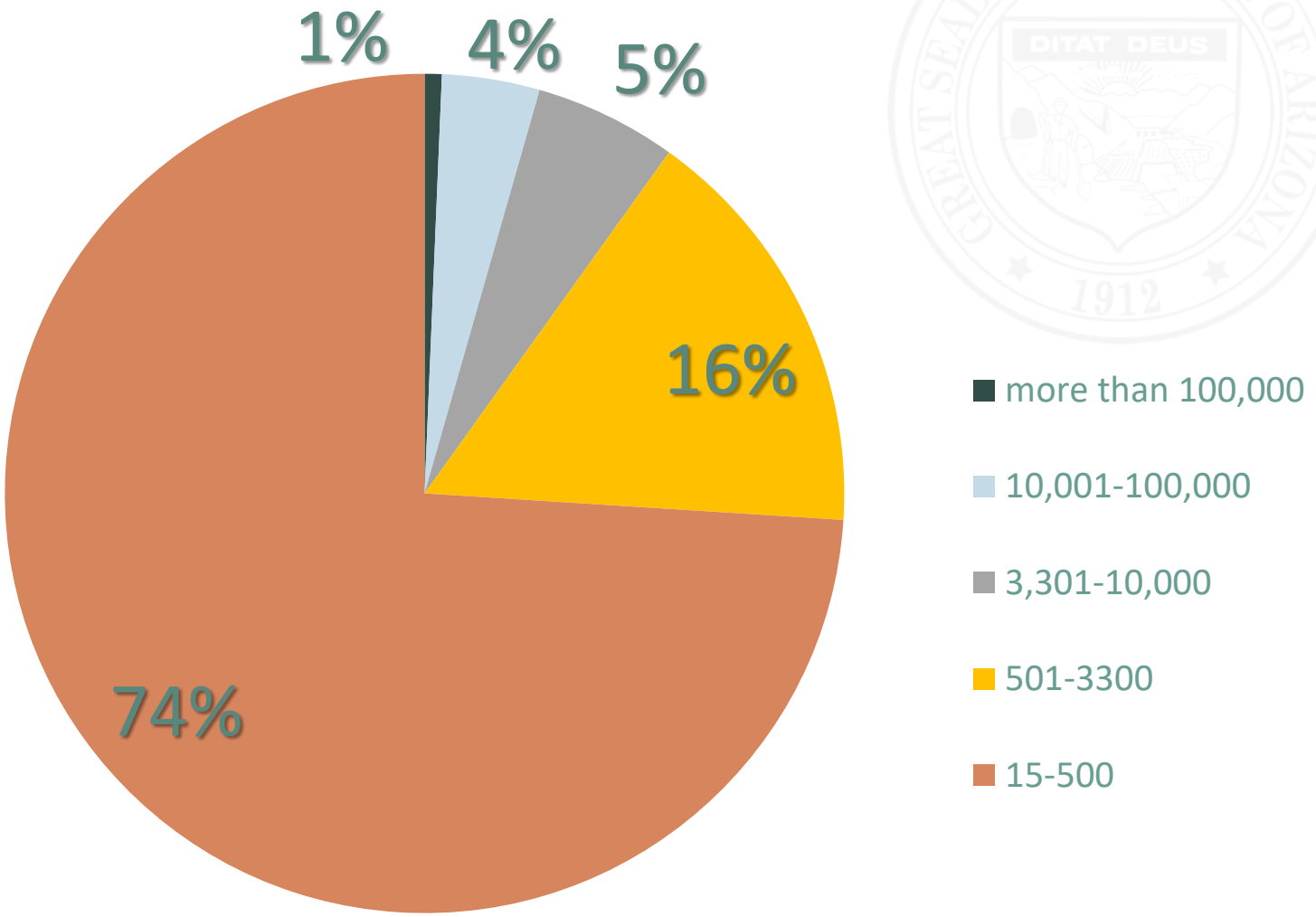
EPA UCMR 5 Sampling

- Unregulated Contaminant Monitoring Rule (UCMR)
  - Established in 1996 to monitor drinking water for contaminants that are not yet regulated under the Safe Drinking Water Act (priority unregulated contaminants)
- UCMR 5
  - Applies to public water systems (PWS) serving 3,300 people or more
  - Between 2023 and 2025
  - Requires sample collection for 29 PFAS compounds
    - EPA Method 533 and EPA Method 537.1

Arizona UCMR 5 Results to date
(53 systems sampled)



Arizona PWS Size, by Population Served



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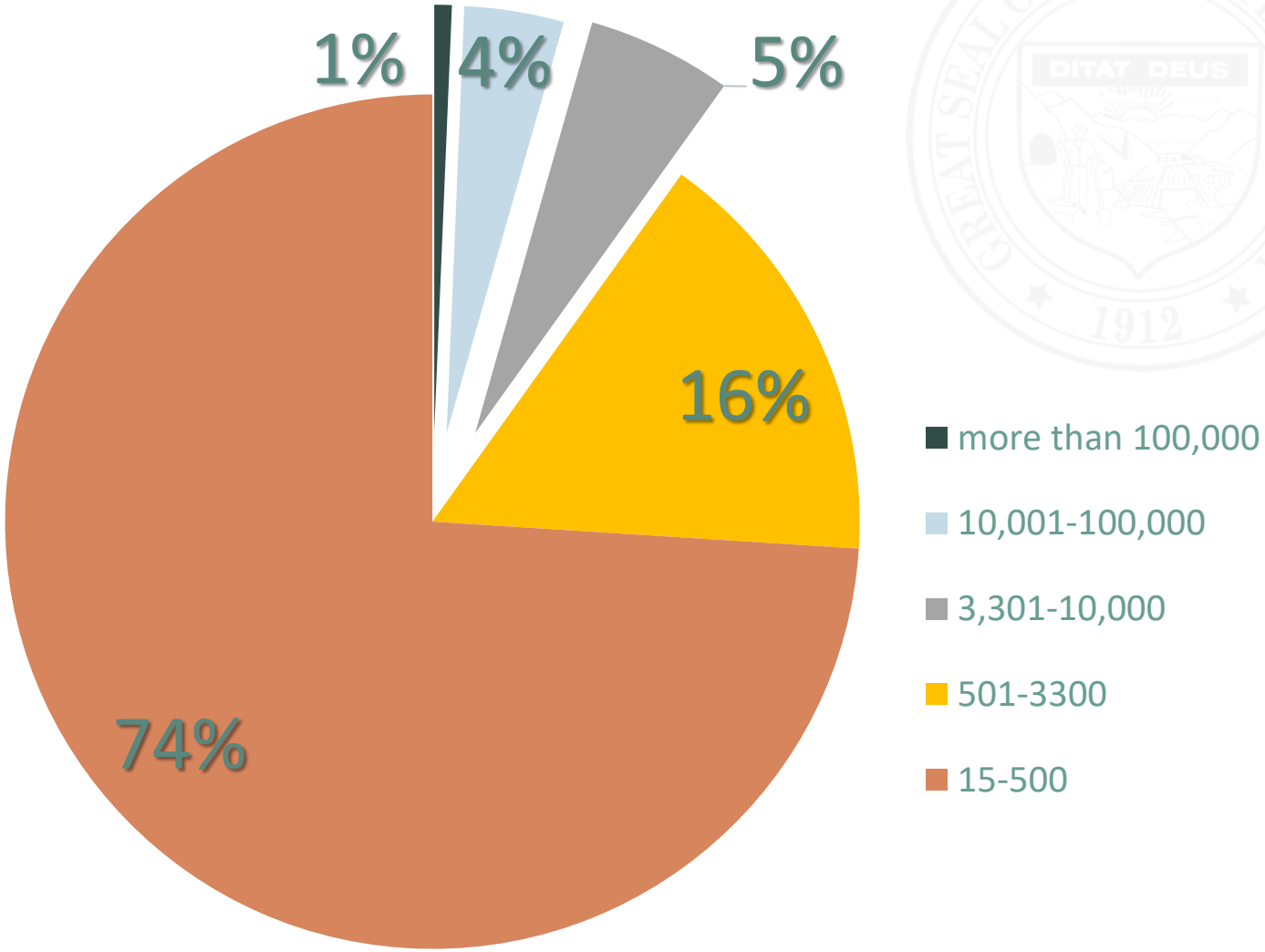

www.azdeq.gov/pfas-resources

— PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

PFAS Resources

Revised on: August 19, 2023 - 12:01 a.m.

ADEQ is monitoring scientific, regulatory and legal developments related to PFAS (per- and polyfluoroalkyl substances) and participating in related discussions with federal, state and local agency partners. PFAS exposure is linked to potential adverse human health outcomes and is the subject of increasing regulation and litigation. To keep the public and other stakeholders informed, ADEQ will update this PFAS Resources webpage with new information as it becomes available.

What are PFAS?

PFAS are a group of man-made chemicals with fire-retardant properties manufactured and used by various industries since the 1940s. PFAS have been used commercially in the United States to make products like stain and water-resistant carpets and textiles, food packaging, firefighting foam, and other industrial processes. The most studied PFAS compounds in the environment are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). Since 2000, many industries have phased out the use of some PFAS | Learn More ATSDR PFAS >

- PFAS 101 Fact Sheet | View/Download >

What PFAS regulations are there?

PFAS regulations are increasing at federal and state levels in the United States. New regulations are focusing on decreasing their use in manufacturing, lowering the limits for acceptable levels of PFAS in groundwater and soil, and requiring remediation projects to address PFAS contamination.

What is the Environmental Protection Agency (EPA) doing?

In March 2023, EPA proposed a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking

— INTRODUCTION TO PFAS IN ARIZONA

Watch a Video

CONTACT

SEE MORE

AFFF Resources >
AFFF Pilot Program Map >
Industry & PWS Screening >
PFAS 101 >
PFAS Map >
PFAS & You >
Protecting Tucson's Water >
Luke AFB Area PWS Data >

ADDITIONAL RESOURCES

www.azdeq.gov/pfas-resources

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Additional information on EPAs website:

- PFAS | View >
- EPA Actions | View >
- EPA Draft MCLs | View >

What is Arizona doing?

- Industry & Public Water System Screening | Learn More >
- Public Water System PFAS Data (Luke Air Force Base Area) | Learn More >
- Protecting Tucson's Drinking Water Supply | Learn More >

ADDITIONAL RESOURCES

Agency for Toxic Substances and Disease Registry

- PFAS & Your Health >
- Toxicological Profile for Perfluoroalkyls >

Advisory Panel on Emerging Contaminants

- About APEC >
- Final Report 2016 >

ADEQ

- AZ Public Water System PFAS Toolkit >
- Guidance for the Public >
- Guidance for Utilities >
- How to Sample Your Tap for PFAS >
- Letter to Health and Vector Control >
- Screening for PFOA/PFOS Report 2018 >

Arizona Department of Health Services

- PFAS Information Webpage >
- PFAS Infographic >
- Well Water Quality >

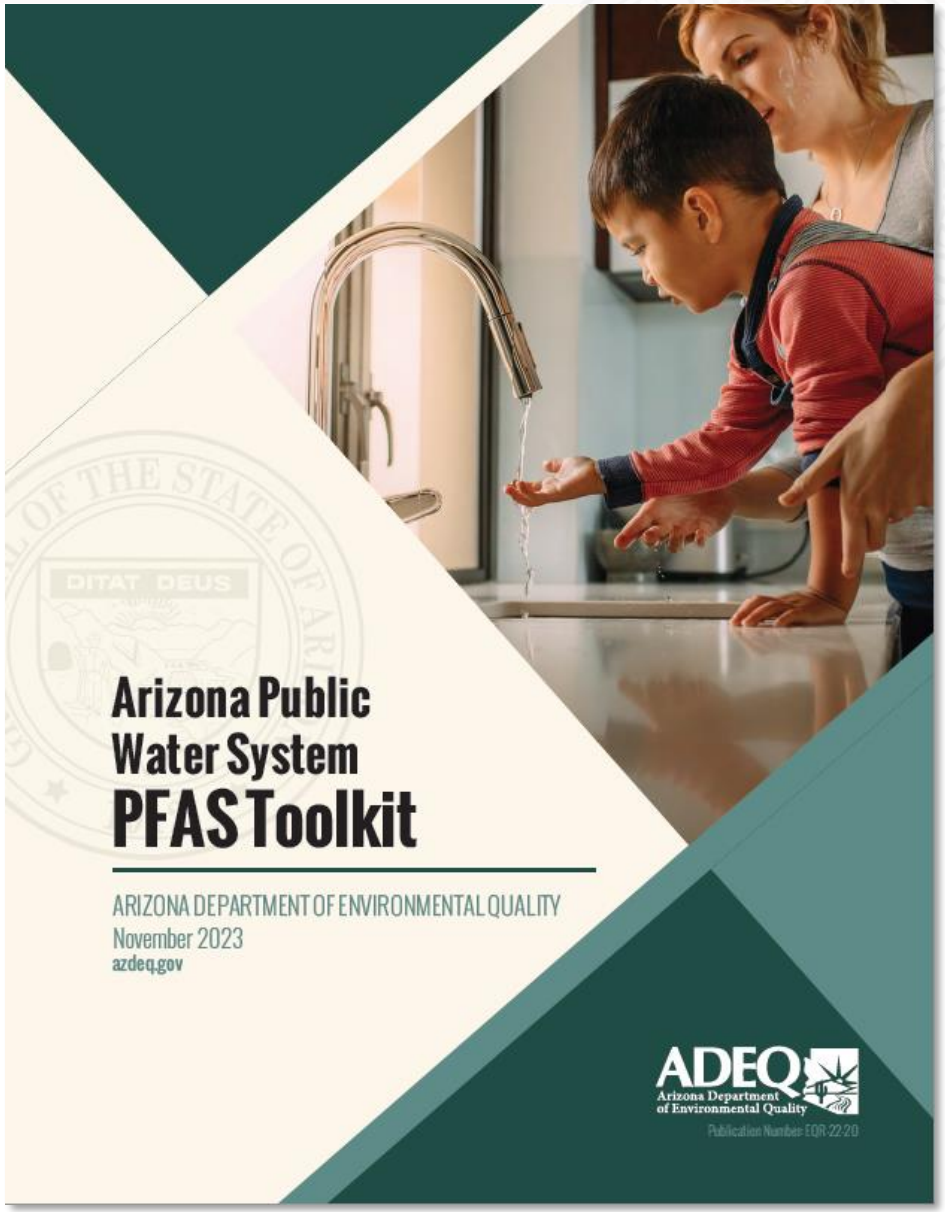
EPA

- PFAS >
- PFAS Action Plan & Updates >
- Drinking Water Health Advisories >

Arizona Public Water System PFAS Toolkit

- What are PFAS?
- Where do PFAS come from?
- Health Advisory Levels
- Test Methods
- Where to Sample
- What to do if you have PFAS
- Funding
- Non-Treatment Options
- Treatment Options
- Additional Resources

bit.ly/pfas-toolkit



Available PFAS Trainings

PFAS Drinking Water Treatment Webinar

- Audience: engineering firms (technical content)
- Recording available on ADEQ's YouTube channel:
- https://rb.gy/vfpzvp

PFAS 101 Workshop

- Audience: water system owners and operators
- Recording available on ADEQ's YouTube channel:
- https://rb.gy/vfpzvp

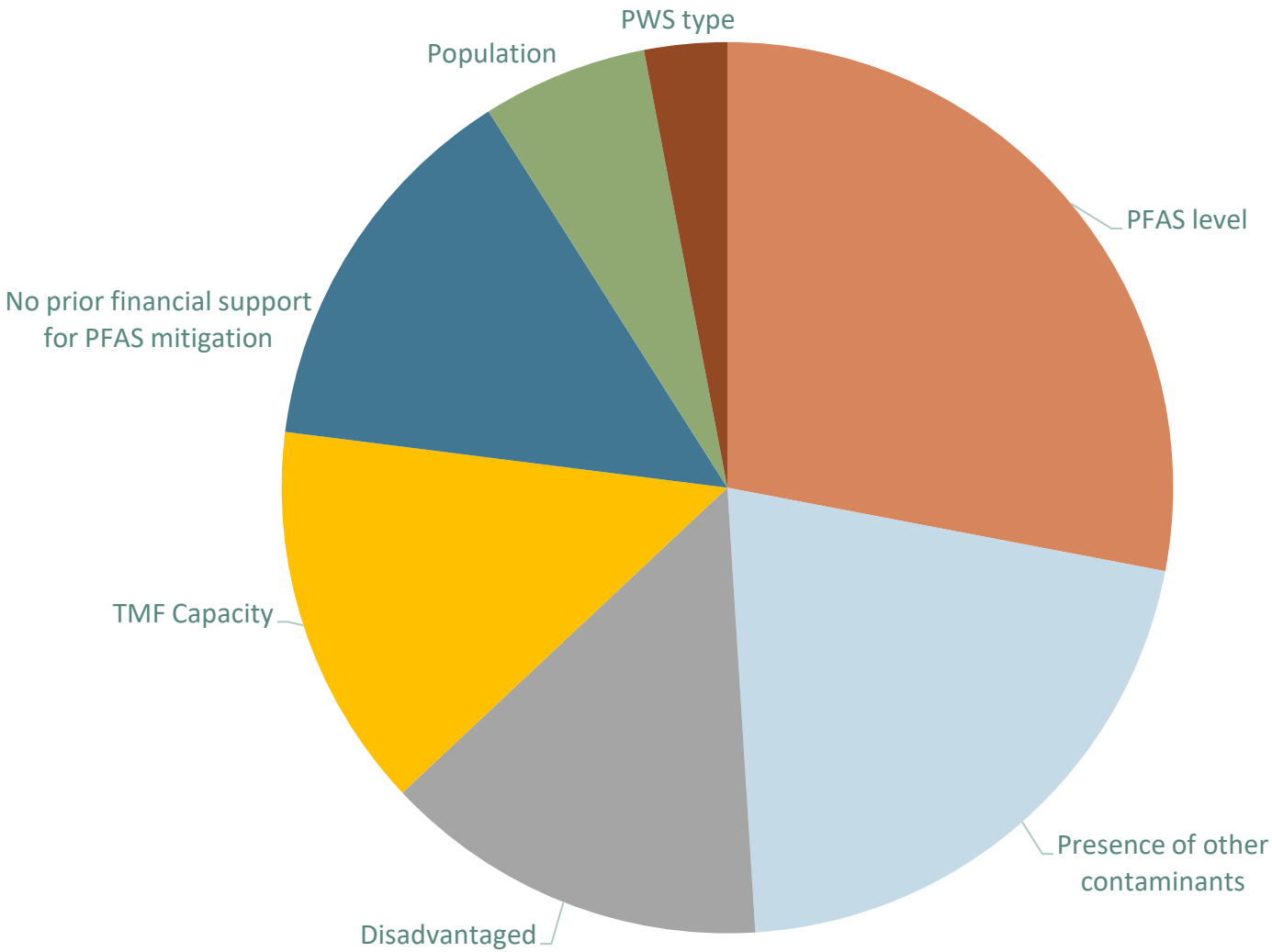
Funding Resources

PFAS Funding	
Amount	$47,000,000
Restrictions	• Emerging contaminants • Public water systems that serve <10,000 people or serve a disadvantaged community
Uses	• Projects for public water systems ($45M) • Hydrogeologic Studies ($1M) • Outreach, training, reference materials ($1M)
Timeframe	October 1, 2023 – September 30, 2028

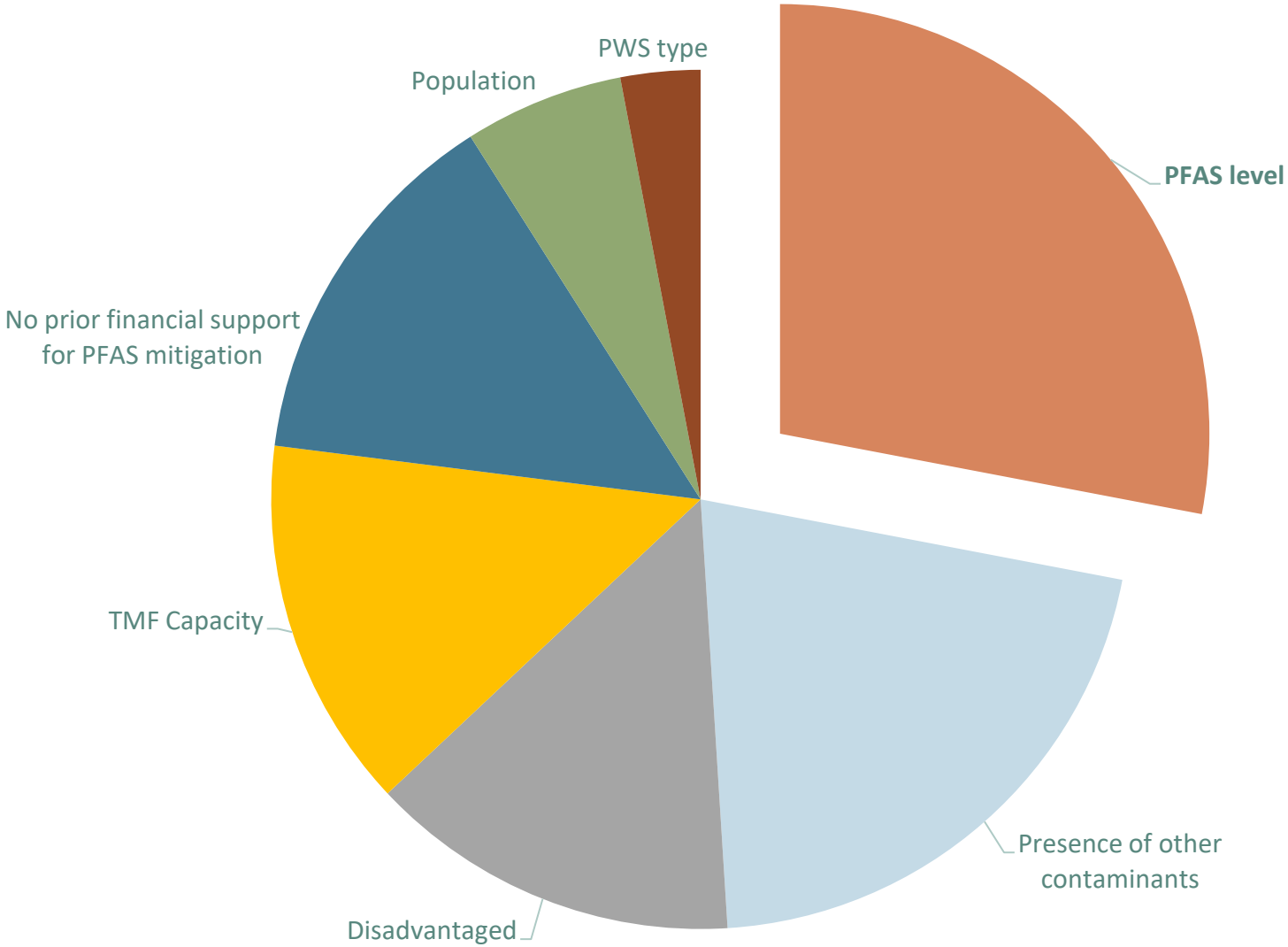
Hydrogeologic Studies

- Conduct hydrogeologic studies to evaluate potential treatment alternatives
  - Evaluate all existing hydrogeologic information and PFAS sampling data
  - Fill data gaps by conducting fieldwork (e.g., sampling, monitoring well installation, etc.)
  - Create a conceptual site model for targeted counties
- Ultimate goal: help water providers assess alternatives
- Targeted areas:
  - Prescott/Prescott Valley/Chino Valley vicinity, Yavapai County
  - Globe/Payson, Gila County
  - Santa Cruz River Vicinity, Santa Cruz County/Southern Pima County

Prioritization of Public Water Systems



Prioritization of Public Water Systems

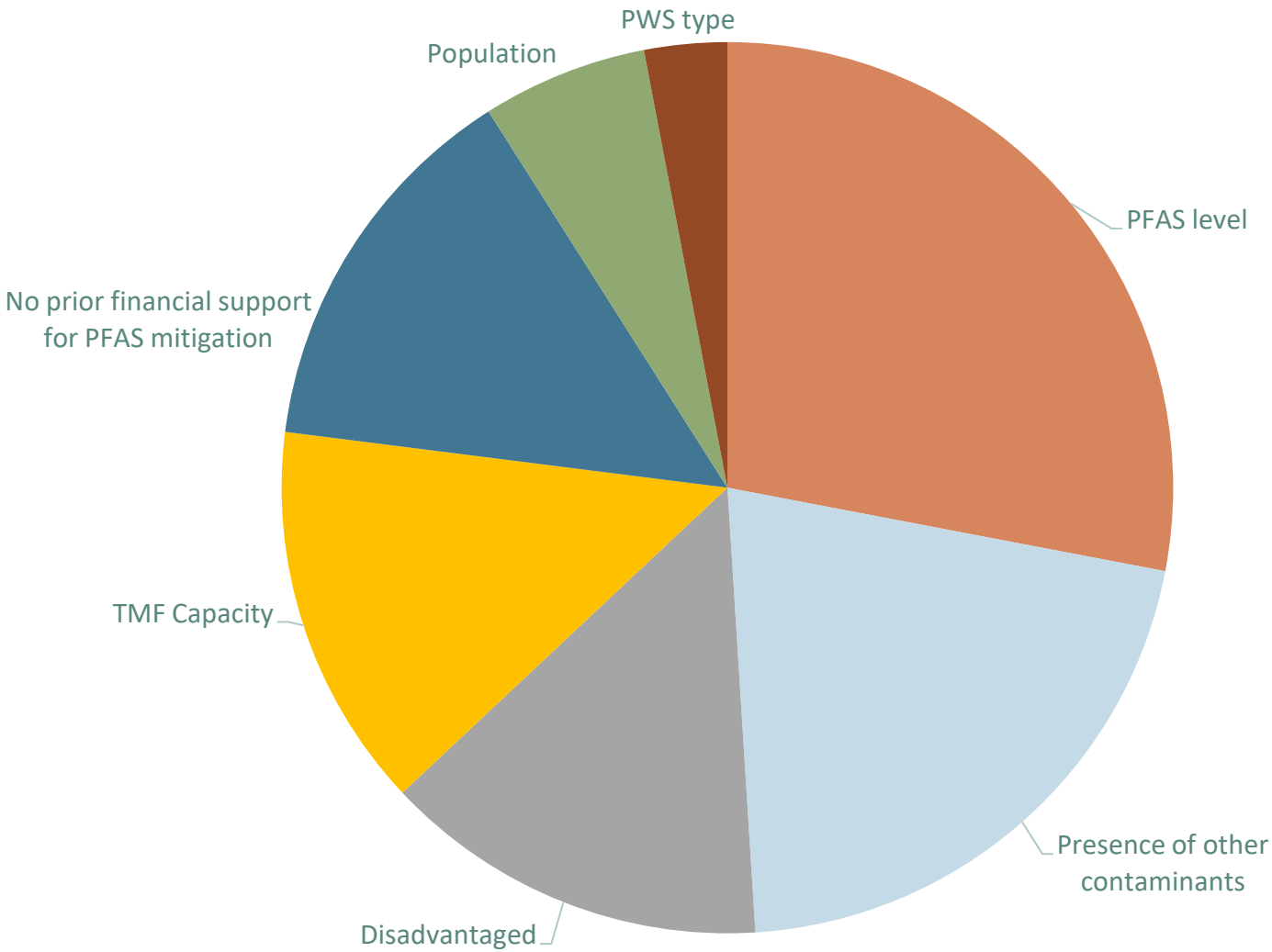


Prioritization of Public Water Systems

1. Greatest public health impact: high concentrations of PFAS
   - 4x above proposed maximum contaminant level (MCL)/Hazard Index (HI)
   - above proposed MCL/HI
   - at least 75% of proposed MCL/HI

   - *Data sources: ADEQ PFAS sampling project and Unregulated Contaminant Monitoring Rule (UCMR) 5*

Prioritization of Public Water Systems



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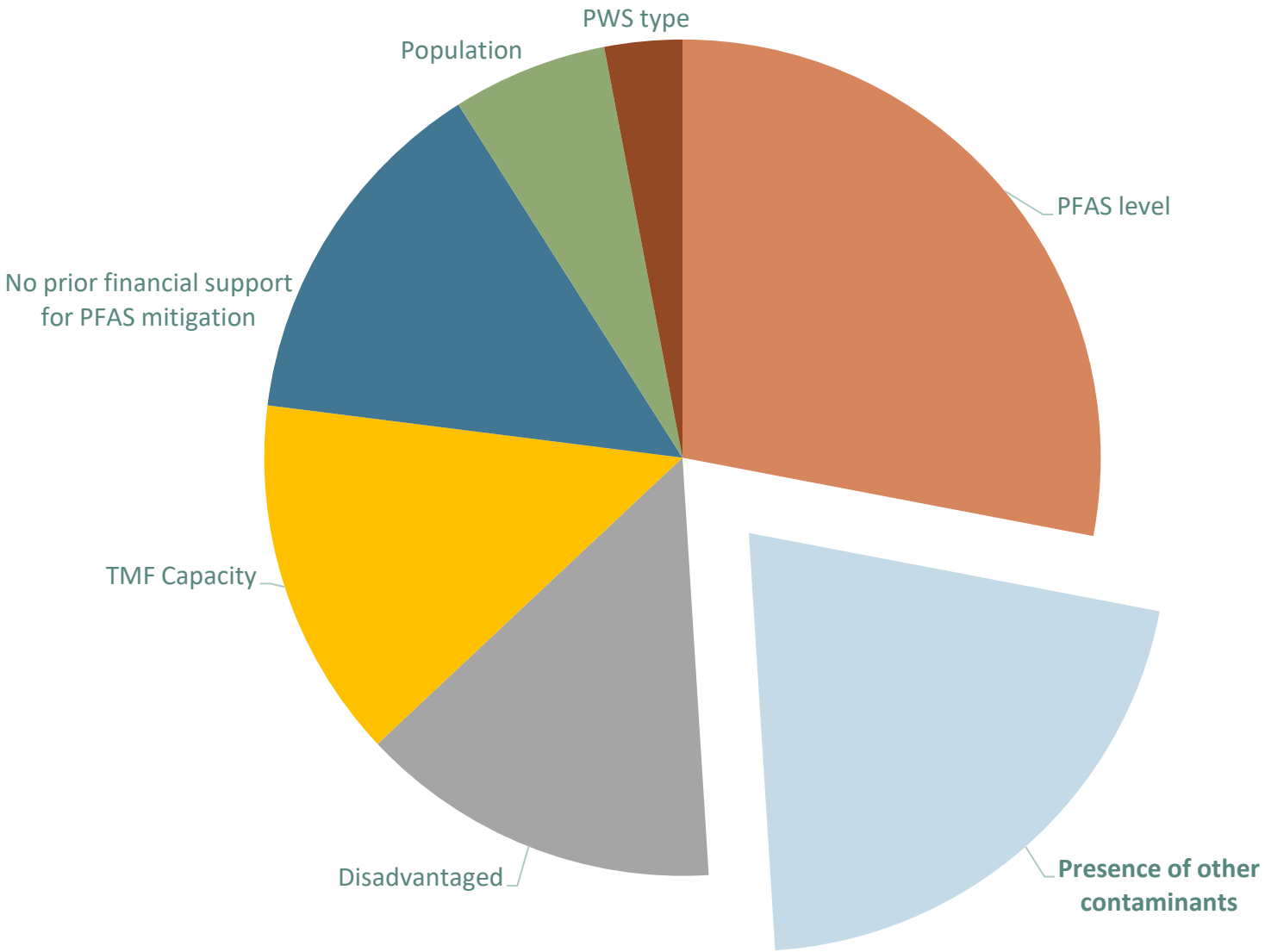
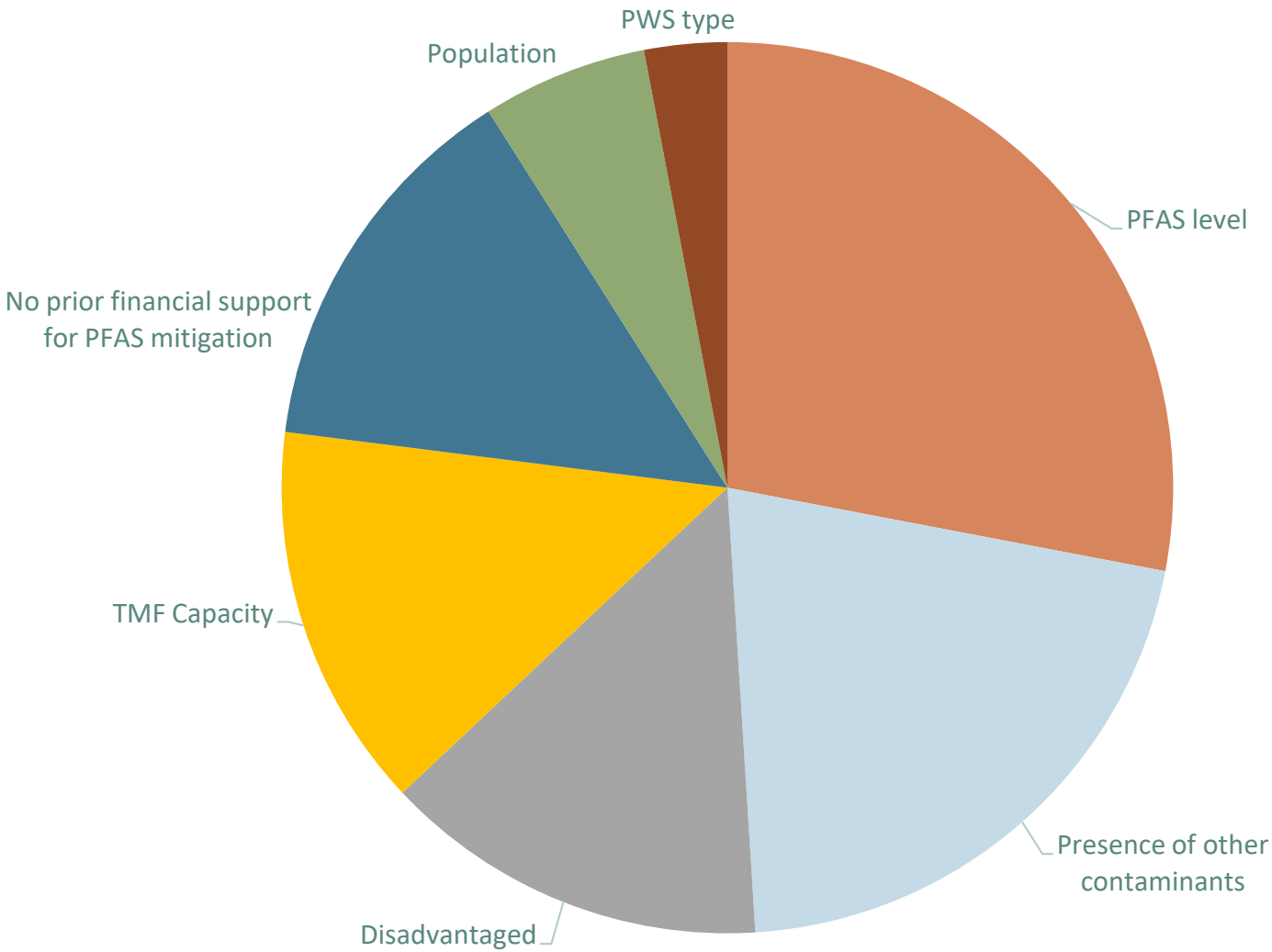


Prioritization of Public Water Systems

2. Presence of other contaminants
   - nitrates
   - arsenic
   - fluoride
   - radionuclides
   - lead/copper
   - disinfection byproducts

Prioritization of Public Water Systems



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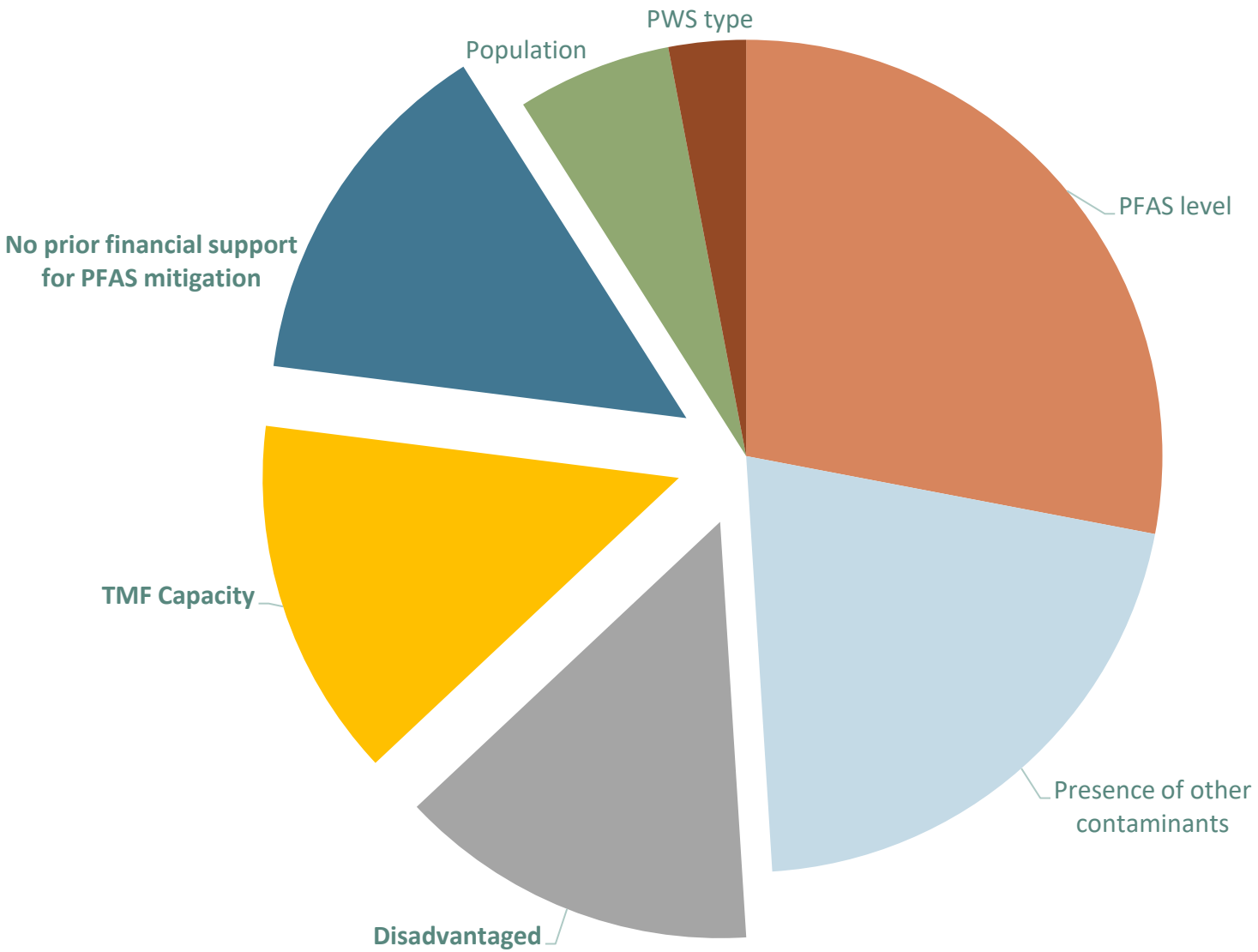


Prioritization of Public Water Systems

Equally weighted criteria:

3a. Disadvantaged community

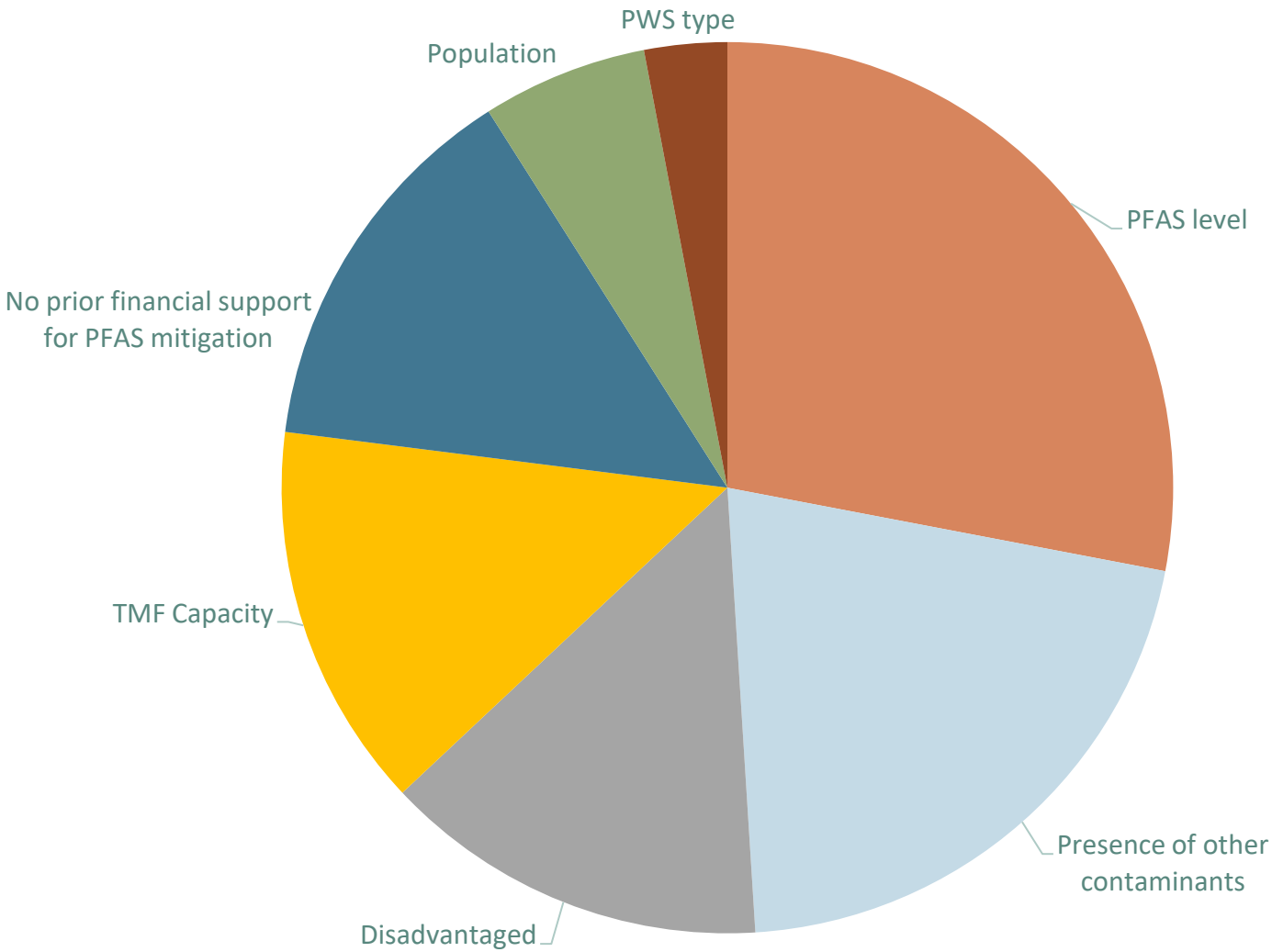
- 90% or less than the state median household income
- Federally designated colonia – a rural community within the US-Mexico border region that lacks adequate water, sewer, or decent housing

3b. Technical, managerial, financial capacity

- Ability to manage, operate and maintain system

3c. No prior financial support for PFAS mitigation

Prioritization of Public Water Systems



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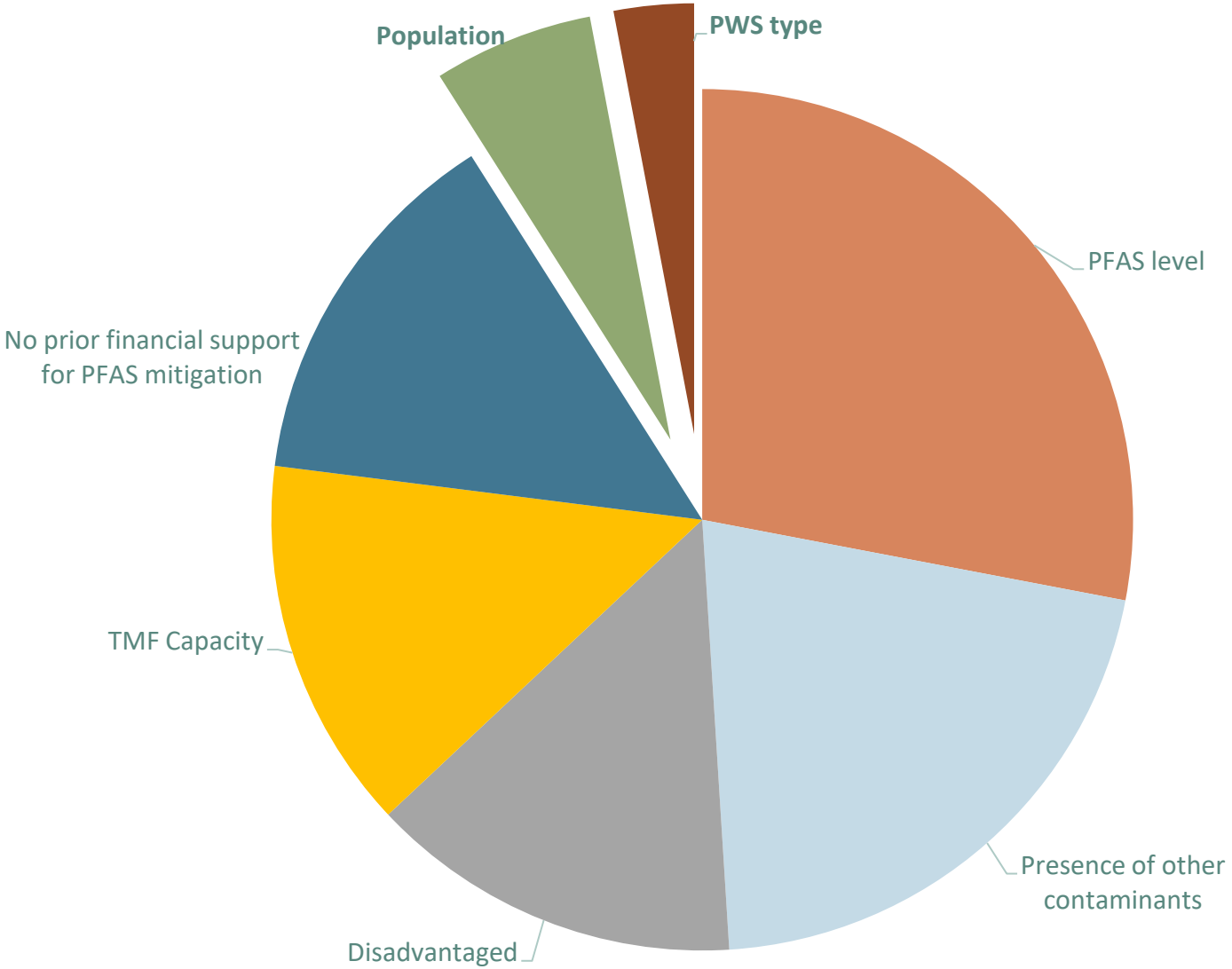


Prioritization of Public Water Systems

4. Population served
   - Smaller systems receive more points

5. PWS type
   - Community or Non-Transient Non-Community

PFAS Mitigation Strategies

- ADEQ will select public water systems most in need
  - Highest levels of PFAS
  - Small or disadvantaged
  - Non-competitive
  - Appropriate solutions
  - System must agree to participate
- ADEQ will contract directly with design engineers and construction contractors
  - ADEQ will handle all payments

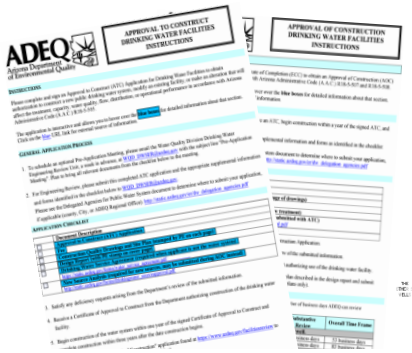
PFAS Mitigation Strategies

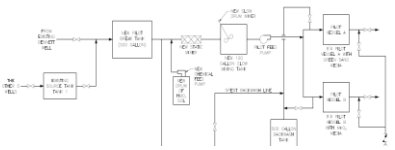
Appropriate solutions for small or disadvantaged systems:

- Treatment not always best approach
- Cost must be commensurate with benefit
- Non-treatment alternates such as consolidation, interconnection, deeper wells may be better approach
  - Fast, cost-effective, sustainable
  - Long-term O&M of treatment system
    - Cost of media
    - Change out of media
    - Disposal of spent media
  - Technical, managerial, financial capability
    - Ease of operation
    - Level of operator certification

Eligible Uses of Funds

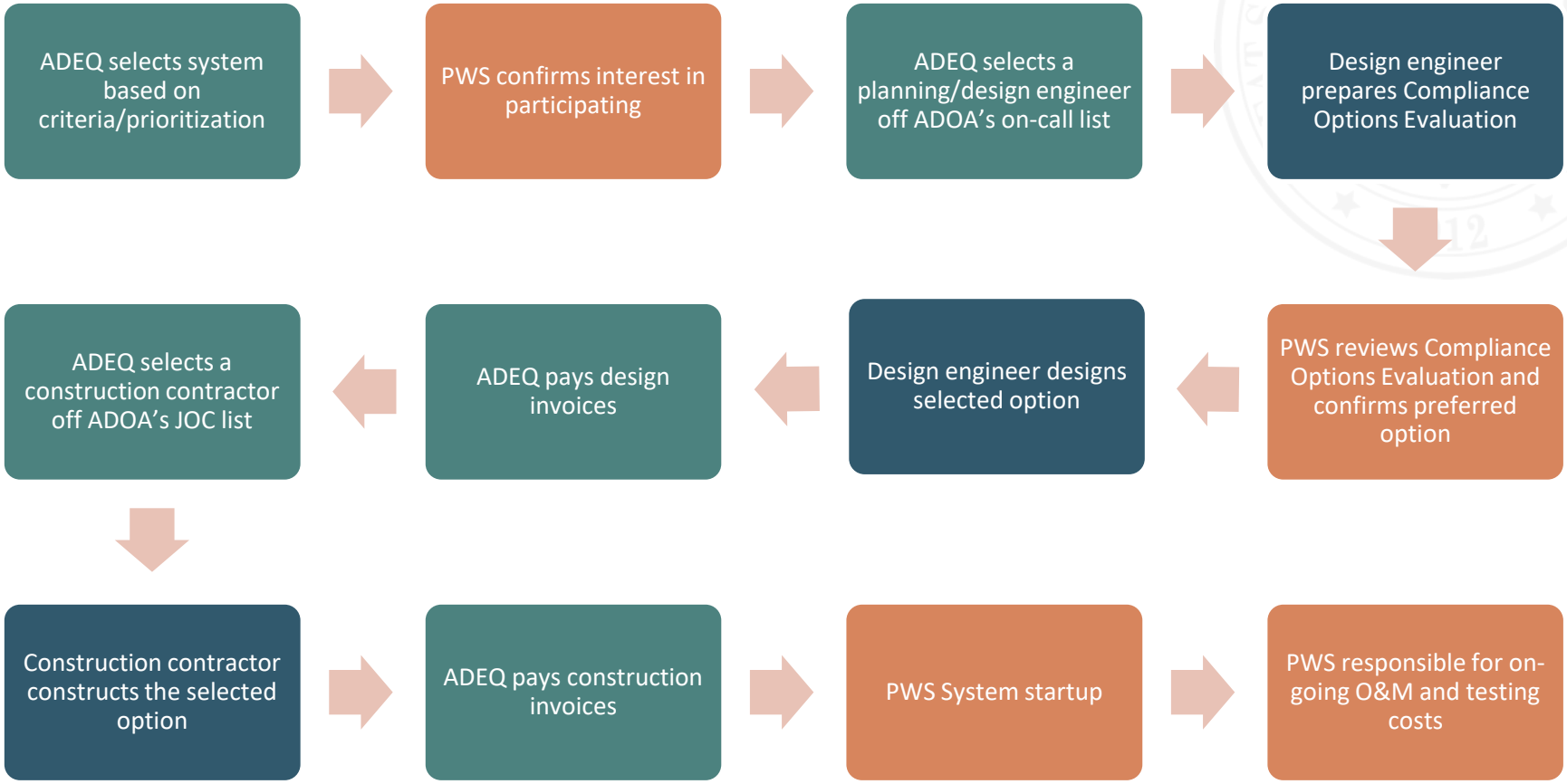
- Confirmation sampling and water quality parameter sampling
- Compliance Option Evaluation
- Design
- Permitting fees
- Project management
- Cost overruns
- PFAS mitigation
  - Treatment
  - New well
  - Restructuring
  - Consolidation





- *Can address other contaminants but must be primarily for PFAS / emerging contaminants*

Process


ADEQ selects system based on criteria/prioritization
PWS confirms interest in participating
ADEQ selects a planning/design engineer off ADOA's on-call list
Design engineer prepares Compliance Options Evaluation
PWS reviews Compliance Options Evaluation and confirms preferred option
Design engineer designs selected option
ADEQ pays design invoices
ADEQ selects a construction contractor off ADOA's JOC list
Construction contractor constructs the selected option
ADEQ pays construction invoices
PWS System startup
PWS responsible for on-going O&M and testing costs

In the News

AZCentral | The Arizona Republic

Globe will receive state support to deal with PFAS-contaminated water

Clara Migoya, Arizona Republic

Tue, January 23, 2024 at 5:00 AM PST · 6 min read

Two mobile home parks outside Globe's city limits will be connected to the municipal water system due to concerns over PFAS water contamination.

The Arizona Department of Environmental Quality detected some chemicals in private wells that supply residents in HAV Properties and August Hills. A partnership between the agency and the city will help connect those residents to the city supply, which is PFAS free, said Globe City Manager Paul Jepson.

PFAS, short for perfluoroalkyl and polyfluoroalkyl substances, are chemicals of increasing concern worldwide.

Industries have manufactured and used PFAS chemicals in a wide variety of products for decades, and traces of them can now be found globally in water and soil. Many of them don't break down easily and are difficult to get rid of, they've been dubbed "forever chemicals."

Scientific evidence shows that long term exposure to some of these chemicals can cause severe health issues that include cancer, developmental effects and reproductive disorders. Exposure to PFAS through drinking water is a main concern, but currently, there are no rules enforcing limits on public water systems.

A water storage tank on the outskirts of Sierra Vista in southern Arizona. Water tests in February 2023 showed levels of PFAS above the proposed EPA limit in distribution systems that serve about 450 residents. Tests revealed levels below the limit in May.

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Globe, 2 other Arizona water systems to receive funding to combat PFAS

Jan 31, 2024, 12:30 PM

(Google Maps screenshot)

BY TOM KUEBEL

KTAR.com

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PHOENIX — Three public water systems will receive funding to help ensure drinking water is not contaminated by perfluoroalkyl and polyfluoroalkyl substances (PFAS).

Governor Katie Hobbs and the Arizona legislature allocated $5 million to the Arizona Department of Environmental Quality to determine what water sources were vulnerable to PFAS chemicals.

"The City of Globe, HAV Properties and August Hills Mobile Home Park are the first three public water systems in the state to benefit from this important PFAS funding," ADEQ cabinet executive officer Karen Peters said in a release.

Projects Underway

City of Globe	1 well impacted by PFAS
August Hills Mobile Home Park	Connect to City of Globe
HAV Properties	Connect to City of Globe

Town of Payson	Multiple wells with PFAS, need to prioritize/phase
Twin Lakes Mobile Home Park	Connect to Town of Payson

Town of Star Valley	3 wells with PFAS inactivated. 2 other wells may require large booster station
Lil W Ranch	Nitrate violation would be mitigated by connecting to the Town of Star Valley
Houston Creek Park	Connect to Town of Star Valley

What's Next

Where we are now

- Sampling almost complete
- Prioritization of systems on-going

Next steps

- ADEQ will contact selected systems

Looking Forward…

- Continue to focus on healthy drinking water through outreach, technical assistance, and mitigation for water providers
- Plan for the incorporation of final federal regulations within existing ADEQ programs
- Re-evaluate the approach as new federal regulations are proposed/finalized

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ADEQ Arizona Department of Environmental Quality

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