

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. Housekeeping

5:30 pm - 5:35 pm

2. Convene the Hearing

Mayor's Welcome

5:35pm - 5:45 pm

3. Recess Presentations

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. Resume Hearing – Formal Testimony

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. Hearing Adjourned



Maryland
Department of
the Environment

PUBLIC HEARING

Tentative Determination for

Westminster Water Reclamation Facility

Surface Discharge Permit Renewal

*State Application No. 21-DP-0837,
NPDES No. MD0021831*

&

Indirect Potable Water Reuse (IPR)

*State Application No. 24-IPR-01,
NPDES No. MDIPR01*

Thursday, June 18, 2026, at 5:30 PM

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. **Housekeeping**

5:30 pm - 5:35 pm

2. **Convene the Hearing**

Mayor's Welcome

5:35pm - 5:45 pm

3. **Recess Presentations**

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. **Resume Hearing – Formal Testimony**

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. **Hearing Adjourned**

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. Housekeeping

5:30 pm - 5:35 pm

2. Convene the Hearing

Mayor's Welcome

5:35pm - 5:45 pm

3. Recess Presentations

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. Resume Hearing – Formal Testimony

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. Hearing Adjourned

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. Housekeeping

5:30 pm - 5:35 pm

2. Convene the Hearing

Mayor's Welcome

5:35pm - 5:45 pm

3. Recess Presentations

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. Resume Hearing – Formal Testimony

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. Hearing Adjourned

PRESENTATIONS

***Maryland Department of the Environment
(MDE)***

Westminster Indirect Potable Reuse Project

History & Purpose

June 18, 2026

Greg Busch



Maryland
Department of
the Environment



Outline

- Westminster water supply challenges
- Potable reuse definitions
- Laws and regulations



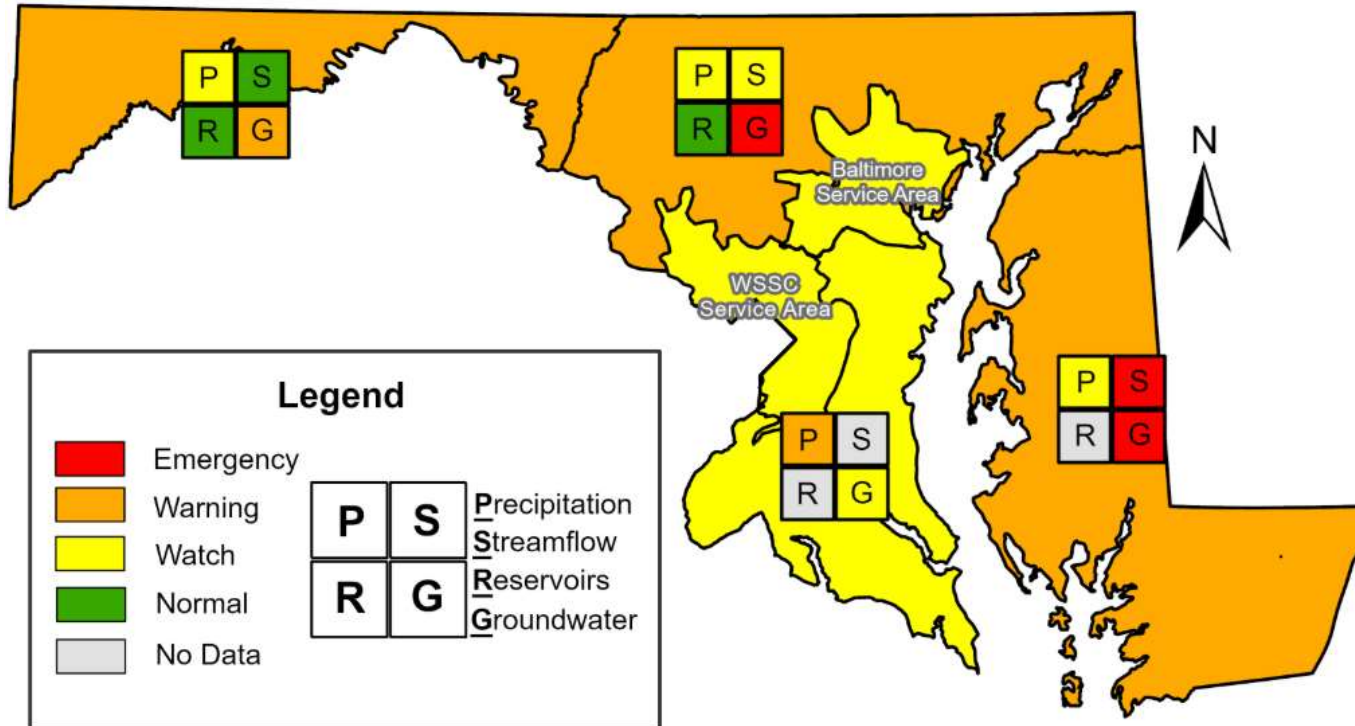
History

- 2002 ● **Drought**
 - ◆ State Drought Emergency
 - ◆ City issued mandatory water restrictions
 - ◆ City trucked in water to Cranberry Reservoir serve existing users
- 2007 ● **Consent Order**
 - ◆ Complete Medford Quarry
 - ◆ Develop a plan and schedule to ensure the water system has sufficient capacity
- 2009 ● **Medford Quarry placed in service**
- 2018 ● **Final Westminster Water Supply Capacity Management Plan**
- 2019 ● **Initial concept for IPR facility**
- 2020 ● **Bench Scale Study**
- 2021 ● **Pilot study begins**
- 2022 ● **Pilot study ends**
- 2023 ● **SB 407 - IPR Pilot Program**
- 2024 ● **Notice of Application Received**
- 2026 ● **Notice of Tentative Determination**



Drought Status in Maryland

June 7, 2026





Regulatory Basis for the Permit

Senate Bill 407 of 2023

- Authorized MDE to issue an Indirect Potable Reuse Permit
- Requirements based on California regulations for Surface Water Augmentation
 - Reverse Osmosis
 - Primary and Secondary Safe Drinking Water Act Standards
 - Ultraviolet disinfection
 - Storage time and mixing requirements for reservoir

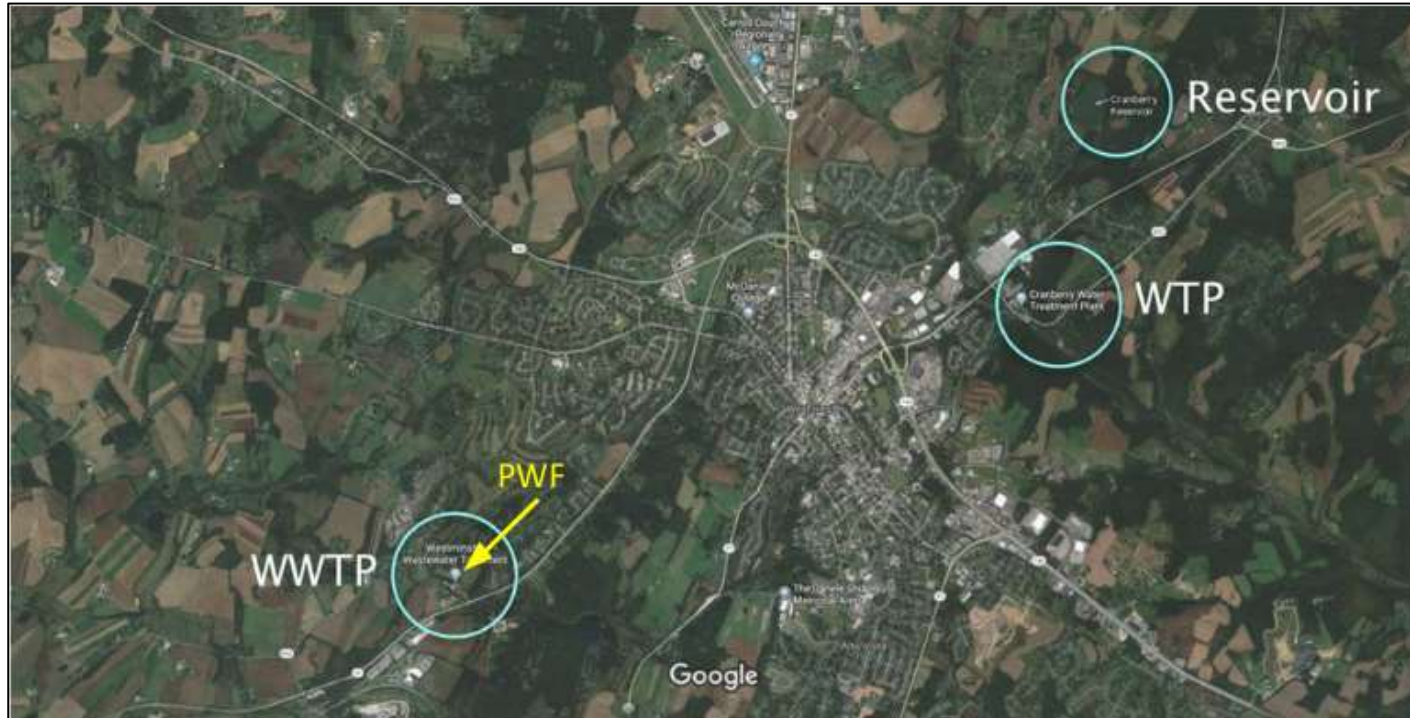


Definitions

- **Potable Water** is drinking water that meets or exceeds state and federal drinking water standards.
- **Potable Reuse** refers to recycled water you can drink. The reclaimed water is purified sufficiently to meet or exceed federal and state drinking water standards and is safe for human consumption.
- **Reclaimed Water** is used water that has been treated to be fit-for-purpose for reusing or recycling.
- **Indirect Potable Reuse (IPR)** water is blended with other environmental systems such as a river, reservoir, or groundwater basin, before the water is reused.
- **Direct Potable Reuse (DPR)** water is distributed directly into a potable water supply distribution system downstream of a water treatment plant or into the source water supply immediately upstream of the water treatment plant.
- **Surface Water Augmentation** is the process of adding reclaimed water into an existing raw surface water supply.



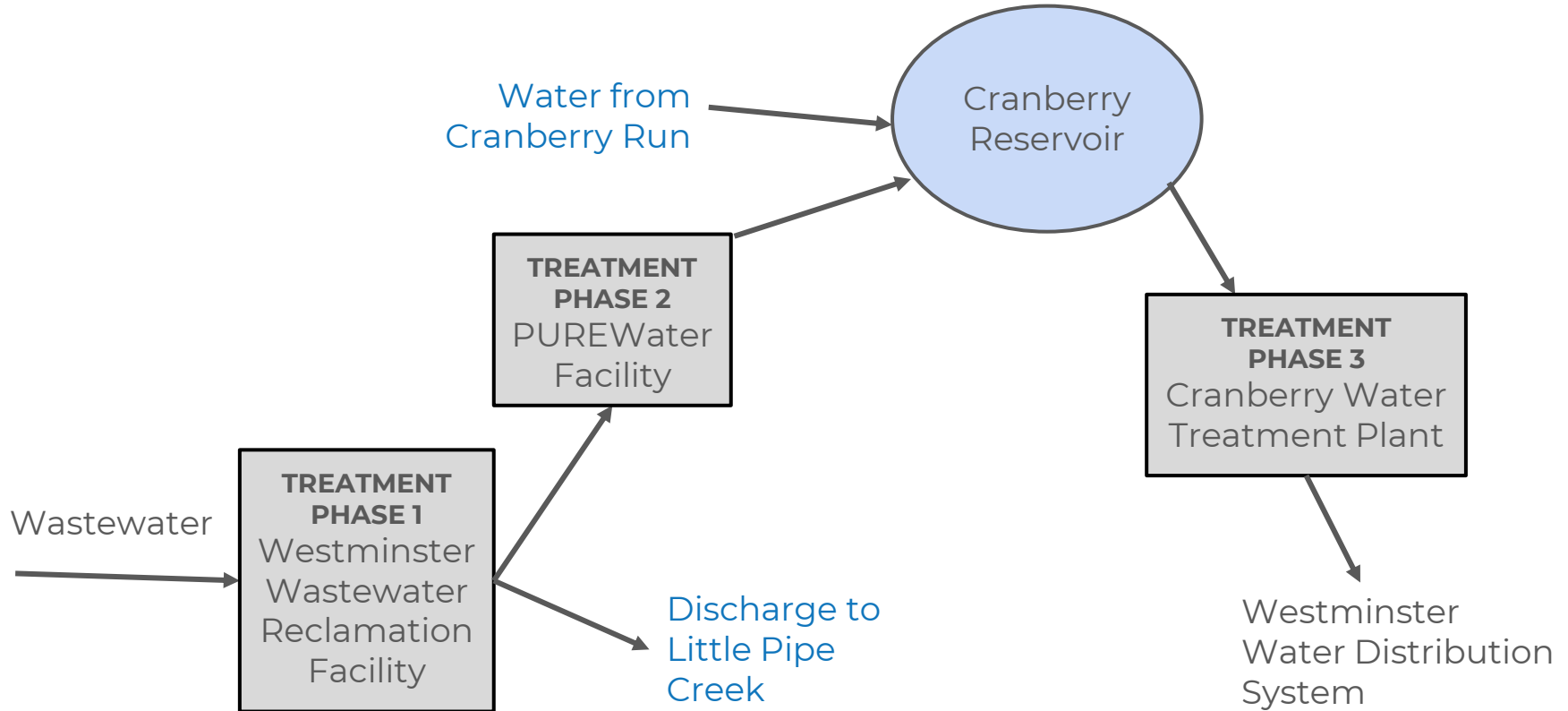
Facility Locations



WTP: Cranberry Run Water Treatment Plant, WWTP: Wastewater Treatment Plant
PWF: PureWater Facility

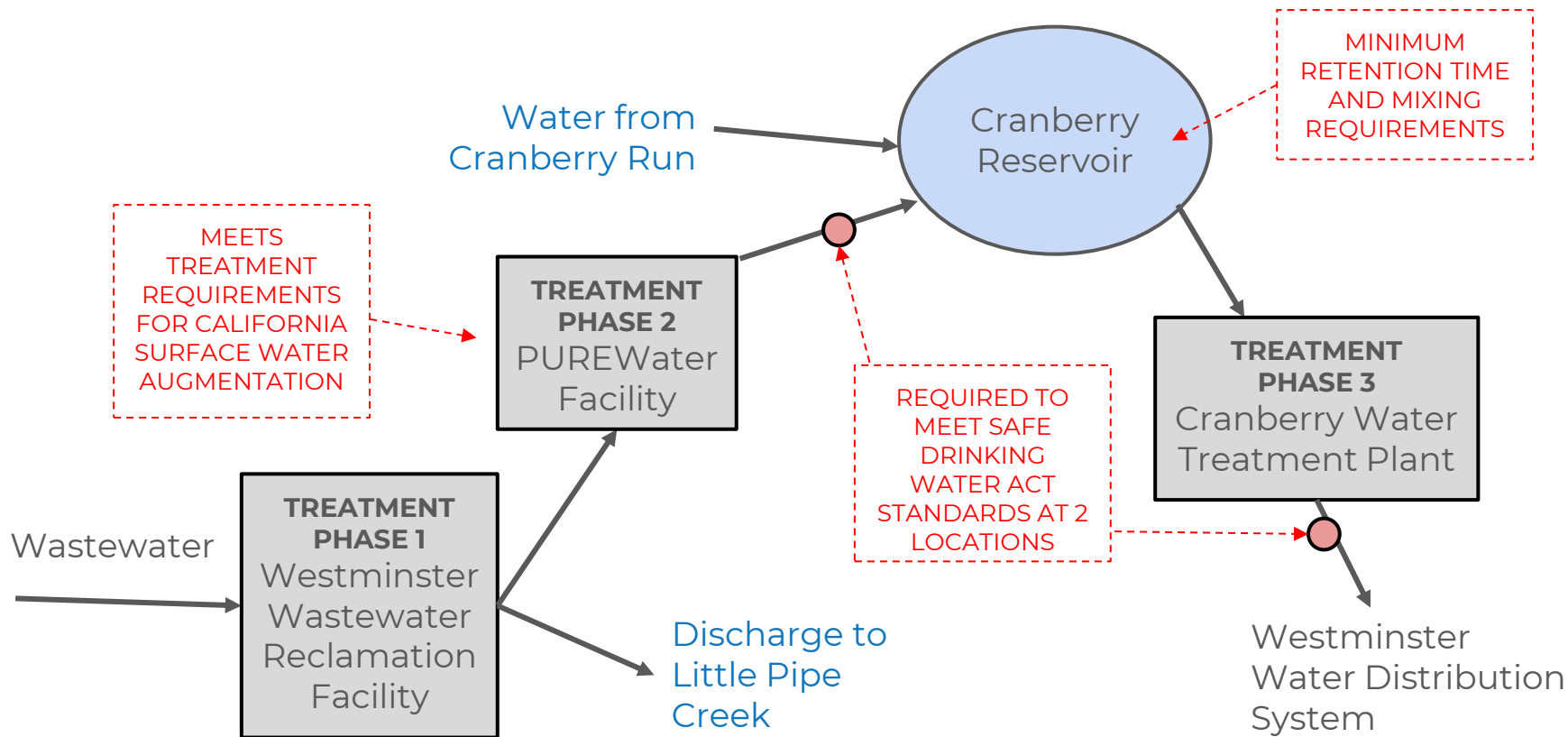


Schematic



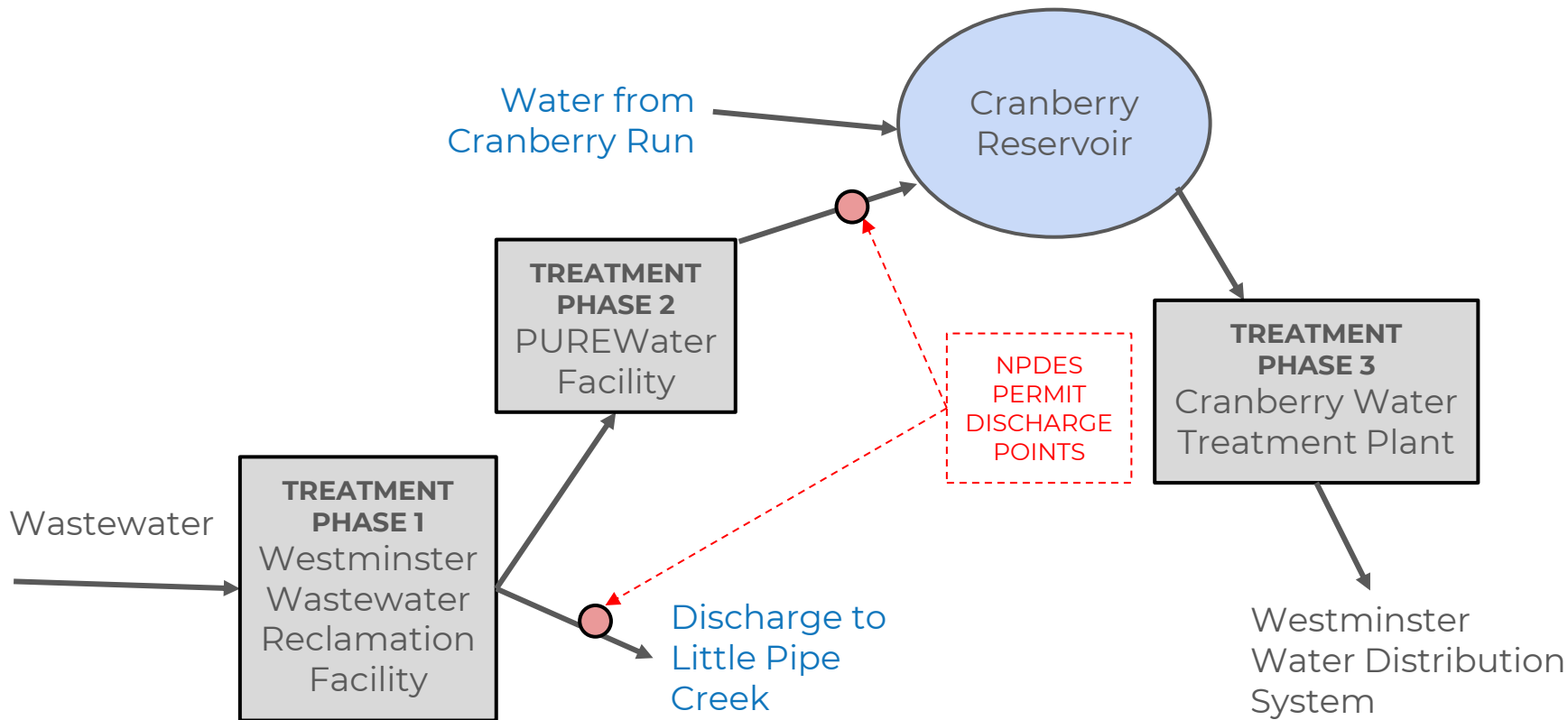


Schematic: IPR Permit





Schematic: NPDES Permit



Westminster WRF Discharge Permit Renewal

State No. 21-DP-0837; NPDES No. MD0021831

June 18, 2026

Yen-Der Cheng



Maryland
Department of
the Environment



Permit Renewal Timeline (21-DP-0837)

- **05/06/2021** Permit renewal application received by MDE
- **12/21/2021 & 12/28/2021** Notice of Application Received published in *The Carroll Times*
- **03/17/2025** Draft discharge permit sent to the City & EPA for review
- **05/12/2026 & 05/19/2026** Notice of Tentative Determination published in *The Carroll Times*
- **06/18/2026** Public Hearing held

Next Step:

Scenario A: Permit will be Issued if no substantive comment is received.

Scenario B: Substantive comments are received; Final Determination will be published + Permit Issuance.

Note: A Judicial Review may be requested to challenge the Final Determination



Westminster WRF Overview



PROCESS: **Enhanced Nutrient Removal**

(Operational since 07/2023)

DESIGN CAPACITY: **5.0 MGD**

AVG DISCHARGE: **3.9 MGD**

POPULATION SERVED: ~ **39,000**

RECEIVING WATERS: **Little Pipe Creek,
Cranberry Reservoir**
(proposed)

FACILITY COMPONENTS

1. Influent Chamber
2. Mechanical Screen & Grit Removal
3. Biological Reactors
4. Secondary Clarifiers
5. Denitrification Filters
6. Chlorination Tank
7. Post Aeration
8. Outfall 001A
9. Septage Treatment Facility
10. Solid Processing
11. Control Building
12. Pure Water Facility Site



Applied Discharges



Outfall 001

Up to 5.0 MGD



Little Pipe Creek



Outfall 002

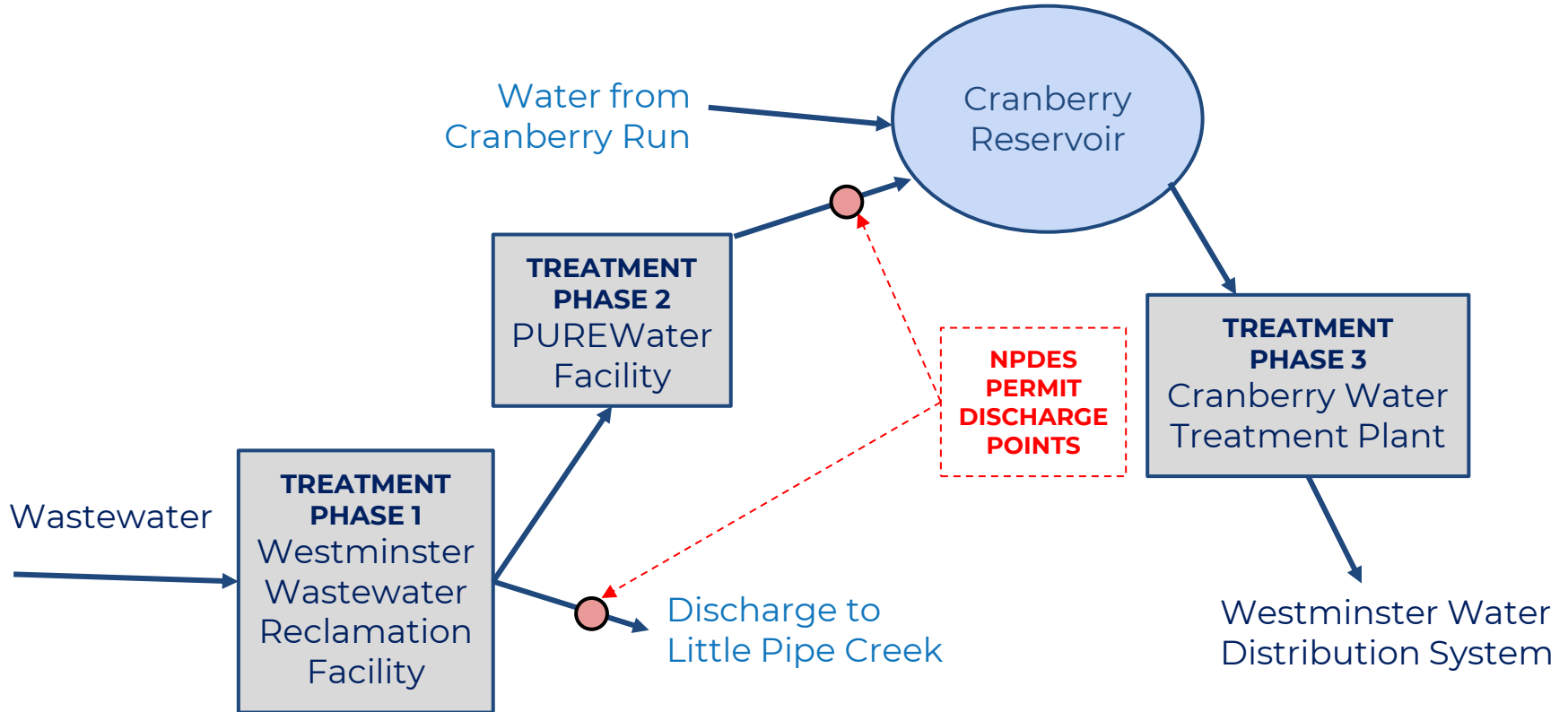
Up to 0.5 MGD



Cranberry Reservoir



Schematic: NPDES Permit





Facility/Outfalls Locations





Permit Coverages

Outfall 001 (Little Pipe Creek)

NPDES Permit (21-DP-0837)

Regulatory Framework: CWA/COMAR

Goal: Protect Receiving Water
Designated Use

Metrics: Surface Water Quality-Based
Effluent Limit (WQBEL), Monitoring &
Compliance reporting

Outfall 002 (Cranberry Reservoir)

IPR Permit (24-IPR-01)

Regulatory Framework: SDWA, Environment
Article § 9-303.2

Goal: Protect public health at the tap

Metrics: Primary and Secondary Maximum
Contaminant Levels (MCLs), advanced
monitoring for emerging contaminants, and
stringent pathogen log removal values

NPDES Permit (21-DP-0837)

The Regulatory Framework, Goal and Metrics will be the similar to Outfall 001, with a focus on anti-degradation.



Proposed Effluent Limits (Outfall 001)

<i>Parameter</i>	<i>Effluent Limits (Monthly Avg.)</i>	<i>Effluent Quality (Monthly Avg.)***</i>	<i>Regulation</i>
BOD ₅	30 mg/L (max)	3.0 mg/L	COMAR 26.08.02.03-3
TSS	30 mg/L (max)	3.0 mg/L	COMAR 26.08.02.03-3
E. coli	126 MPN/100mL	24 MPN/100mL	COMAR 26.08.02.03-3
TRC	0.012 mg/L	Non-detect	COMAR 26.08.02.03-3
pH	6.5 – 8.5 (SU)	6.8 – 7.4 (SU)	COMAR 26.08.02.03-3
DO	5.0 mg/L (min)	6.6 mg/L	COMAR 26.08.02.03-3
Total Nitrogen	60,911 lbs./yr (max)	42,637 lbs./yr	Chesapeake Bay TMDL
Total Phosphorus	4,568 lbs./yr (max)	1,914 lbs./yr	Chesapeake Bay TMDL
Ammonia-N	2.7 mg/L* / 1.4 mg/L** (summer) 4.4 mg/L* / 2.0 mg/L** (winter)	0.1 mg/L (summer) 0.3 mg/L (winter)	COMAR 26.08.02.03-2G
BOD ₅ /TSS	85% Removal (minimum)	New Requirement	40 CFR § 133.102:

*Interim limits. ** Final Limits. *** Based on DMR after the ENR upgrade completion



Proposed Effluent Limits (Outfall 002)

Parameter	Proposed Limit*	Regulatory Basis & Rationale
Total Phosphorus (TP)	0.02 mg/L	Matches localized water quality baseline. Satisfies anti-degradation and protects against eutrophication.
Total Nitrogen (TN)	Monitor & Report	Due to the combined treatment processes of the ENR WRF and the Pure Water facility, TN levels discharged at Outfall 002 are expected to drop below the ambient reservoir baseline (6–8 mg/L).
BOD ₅	2 mg/L	Matches localized water quality baseline. Satisfies anti-degradation criteria. More stringent than COMAR 26.08.02.03-3
pH, DO, TRC, E.coli	Designate Use I-P WQ Criteria	COMAR 26.08.02.03-3
Turbidity	0.3 NTU	Matches the IPR permit requirement.
Ammonia Nitrogen	0.4 mg/L (summer) 0.6 mg/L (winter)	COMAR 26.08.02.03-2G

* monthly maximum average



Proposed New Special Requirements

Requirements	Objective
PFAS Monitoring, Source, Tracking & Mitigation	Characterize PFAS baseline in the treatment works and identify upstream contributors to facilitate potential source reduction and elimination.
ENR Operations and Maintenance (O&M) Checklist	Proactively manage ENR facilities, protect public investments, and optimize performance to ensure consistent compliance.
Climate Change Resiliency Preparation	Ensure operational continuity during extreme weather to prevent climate-driven noncompliance events.
Monitoring requirements for Conductivity, Total Dissolved Solid (TDS)	To evaluate and prevent the potential impact on receiving water from the wastewater generated by the water purification facility.
Monitoring requirements for priority pollutants with updated human health criteria in COMAR (2023)	Monitor priority pollutants against updated human health criteria to protect downstream water uses and support future reasonable potential analyses.
Fat, Oil and Grease (FOG) Mitigation Plan	Mitigate FOG accumulation in the collection system to prevent sanitary sewer overflows, protect pumping infrastructure, and ensure uninterrupted biological treatment.



<https://echo.epa.gov/facilities/facility-search?mediaSelected=cwa>

NPDES Number: **MD0021831**

Facility Name: **Westminster WRF**

[illegible]



MDE Wastewater Permits Search Portal

Access the Portal at:

<https://mdewwp.page.link/WWPPortal>

To query the records, please use the following:

NPDES Number: **MD0021831**

State Number: **21DP0837**

Wastewater Permits Interactive Search Portal

Enter or select search values in one or more text box or dropdown search fields below

Please note: Wild card characters are not supported in your search values but partial values are. It may take around 30 seconds to return results.

Facility Name: Address: City:

Zip Code: State Num: NPDES Number:

County: Watershed:

Type: Status:

Search



Contact Information

Yen-Der Cheng, Chief

Municipal Surface Discharge Permits Division

Wastewater Pollution Prevention &
Reclamation Program

Water and Science Administration

Maryland Department of the Environment

Email: yen-der.cheng@maryland.gov

Phone: 410-537-3363

Rabeya Noor, Project Engineer

Municipal Surface Discharge Permits Division

Wastewater Pollution Prevention &
Reclamation Program

Water and Science Administration

Maryland Department of the Environment

Email: rabeya.noor@maryland.gov

Phone: 410-537-3015

Westminster Indirect Potable Reuse (IPR) Permit Overview

State No. 24-IPR-01; NPDES No. MDIPR01

June 18, 2026

C.T. Tien, Ph.D., P.E.



Maryland
Department of
the Environment



Introduction – Westminster IPR Permit Application

- The Westminster IPR Permit Application submitted by the City of Westminster was received by MDE on 1/5/2024.
- The application is for the treatment of 500,000 gal/day (annual average) effluent from the existing Westminster Wastewater Treatment Plant (WWTP).
- The effluent from the WWTP will be treated at the proposed Pure Water Facility (PWF) and then discharged to the Cranberry Reservoir as source water for the Cranberry Run Water Treatment Plant. After further treatment it will be available for consumer use.



Proposed Treatment Processes at the PureWater Facility

1. **Ultrafiltration** – to remove bacteria, some viruses and suspended solids
2. **Reverse Osmosis** – to remove all organic compounds (such as PFAS, pesticides), all viruses, metal ions, and dissolved salt
3. **UV (ultraviolet light)/advanced oxidation process (UV/AOP)** – to remove disinfection byproduct (NDMA), PFAS and trace organic compounds
4. **Granular Activated Carbon** – to adsorb pollutants
5. **Chlorination / pH Adjustment**
6. **Dechlorination**
7. **Cranberry Reservoir** – storage and natural decay of pollutants



IPR Permit Summary – Water Quality Limitations

To comply with approved **2023 Senate Bill 407** (Drinking Water – Indirect Potable Reuse Pilot Program Establishment), the following water quality requirements are included in the draft permit:

1. **Monitor 98 water quality parameters quarterly** (including **4 PFAS** compounds and Mixture Hazard Index) to meet the National Primary and Secondary Drinking Water Standards
2. Require the proposed treatment processes to meet the **pathogen removal efficiency: 12-log reduction value (LRV) for enteric virus, 10-LRV* for giardia cyst and 10-LRV cryptosporidium oocyst**

** 10-log removal is to reduce 10,000,000,000 pathogens to one*



IPR Permit Summary – Water Quality Reporting Requirements

- The Permittee shall summarize and submit the testing results for the monitoring parameters electronically to the Department using NetDMR (Net Discharge Monitoring Report).
- Results shall be submitted to the Department via NetDMR quarterly.



IPR Permit Summary – Treatment Process Performance Requirements

1. The Reverse Osmosis (RO) process shall meet the performance standards to remove 99% sodium chloride (salt) and 95% total organic carbon (TOC) (including trace organic carbon such as PFAS, disinfection byproducts, pesticides, and pharmaceutical products).
2. The performance of the UV/AOP process shall reduce 1,4-dioxane (a surrogate used to measure the performance) to meet a minimum 69% efficiency.



IPR Permit Summary – Reservoir Capacity and Mixing Requirements

1. The purified water retention time in the Cranberry Reservoir shall be greater than 180 days.
2. The Permittee shall submit a tracer study plan to the Department for review and approval. The study is to investigate the equal distribution of purified water in the reservoir.
3. The Permittee shall maintain at least two mechanical mixers in the Cranberry Reservoir to uniformly mix the purified water within the reservoir.



Existing Solar Bee Mixer SB 5000PW in the Reservoir



IPR Permit Summary – Facility Operational and Maintenance Requirements (1)

1. The PureWater Facility and the Cranberry WTP Shall be operated by operators certified by the State of Maryland.
2. The Permittee shall develop a Manual of Operation and Maintenance (MOM). The MOM shall clearly state how the Facility, the Cranberry Reservoir, and the Cranberry WTP shall be managed to ensure satisfactory treatment and operation.



IPR Permit Summary – Facility Operational and Maintenance Requirements (2)

1. Require to immediately shut down the plant operation when there is a treatment process malfunctioning or a water quality violation.
2. Require to develop an Emergency Operation Plan (EOP) to include information for timely resolving problems encountered in the daily operation and continue to provide safe drinking water.



Draft Permit is available at the following web link:

[IPR Permit- Westminster – DRAFT.pdf](#)

Thank You!



Maryland
Department of
the Environment

PRESENTATION

WATEK ENGINEERING LLC



PUREWater

WESTMINSTER

Water for Our Future



Maryland

Department of
the Environment

WATEK[®]
ENGINEERING LLC
AN NCS ENGINEERS COMPANY

PUREWater Facility

Carefully Planned Phased Approach

- **Phase 0:** Project Planning and Guidance from MDE
- **Phase 1:** Bench Scale Study
- **Phase 2:** Pilot Phase Studies
- **Phase 3:** Design and Permitting of the PUREWater Facility
- **Phase 4:** Construction of 0.5 MGD PUREWater Facility

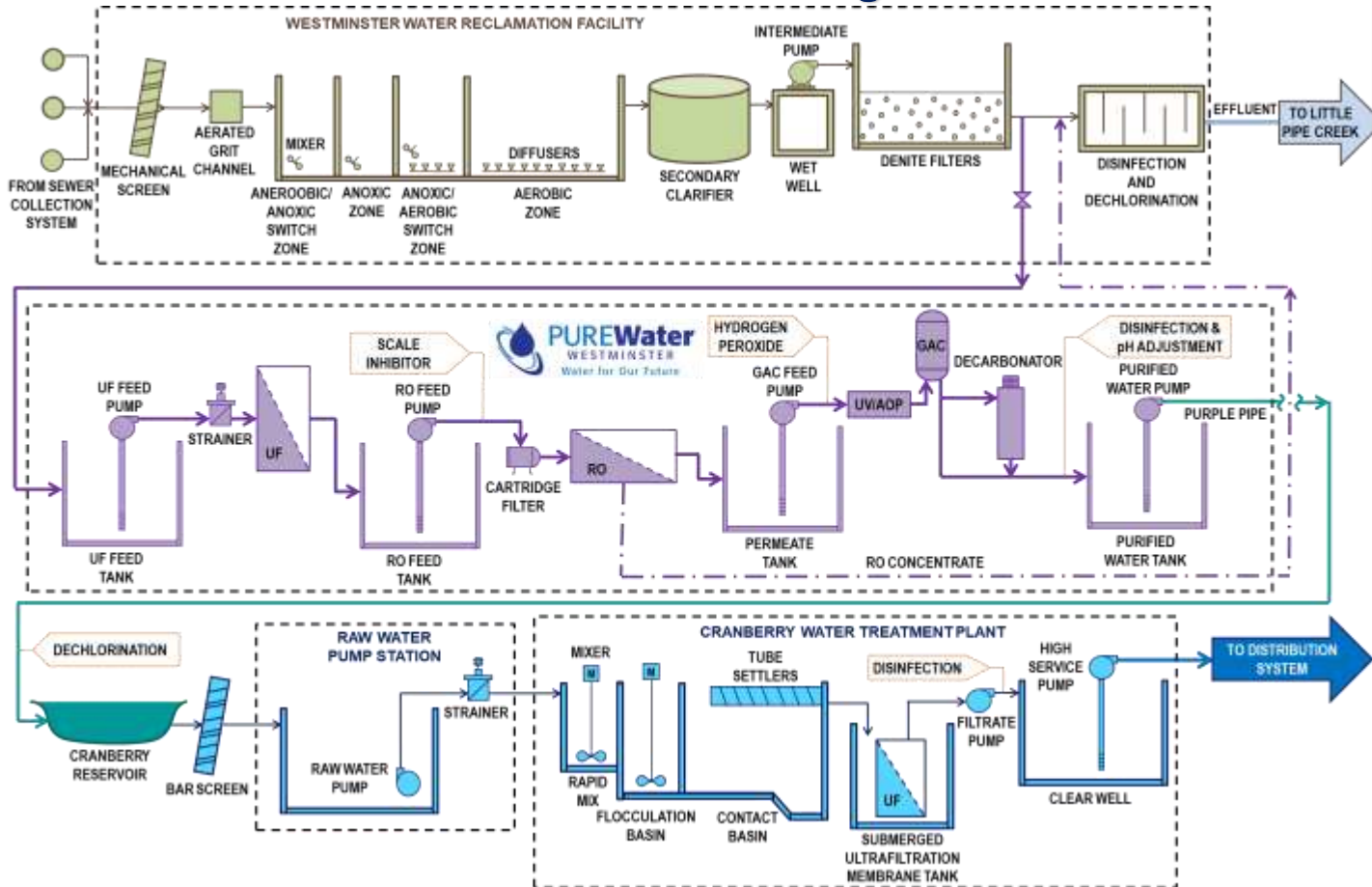
Extensive coordination with Maryland Department of the Environment (MDE) since project planning phase.



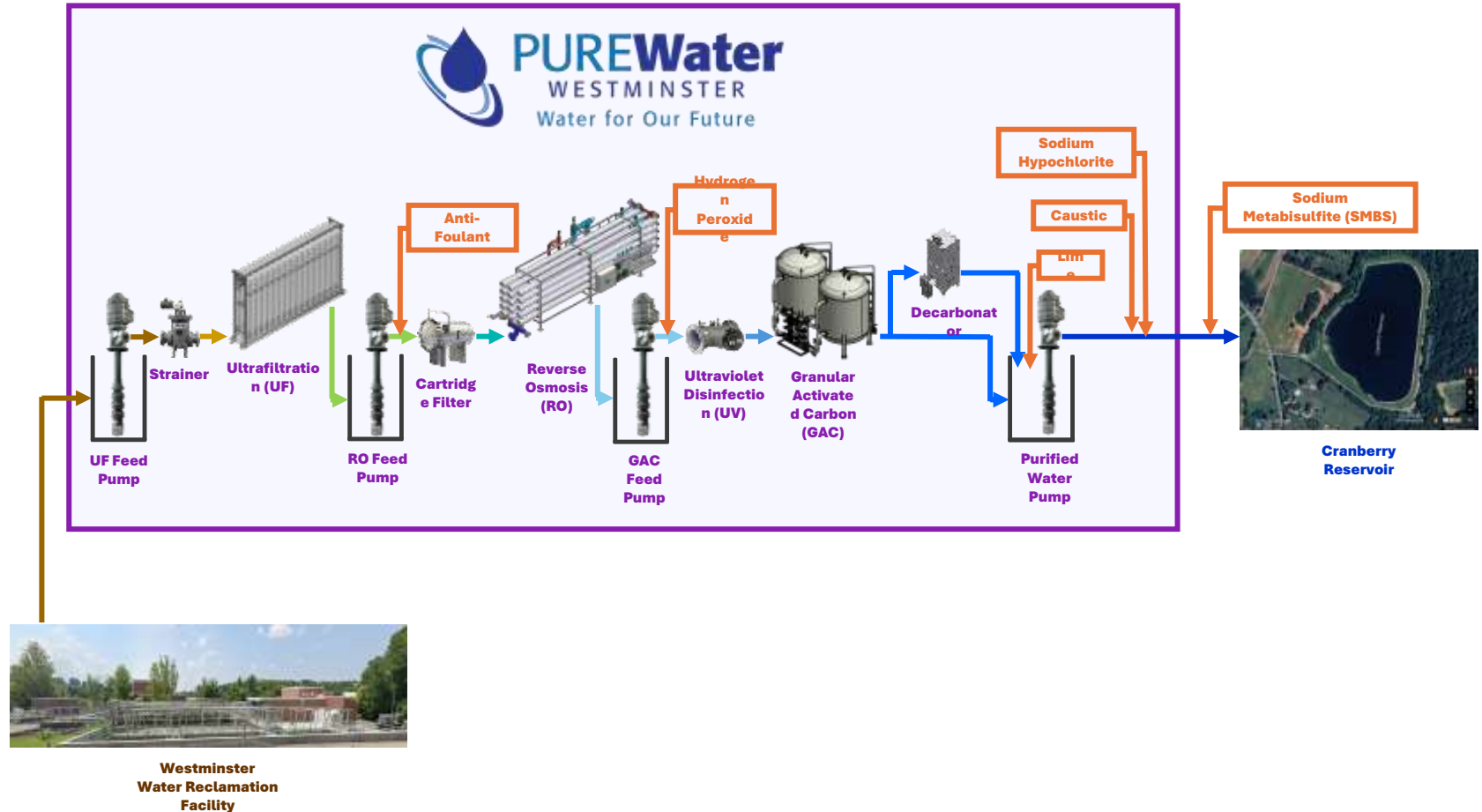
Current Construction Progress
(expected completion in Feb. 2027)

City of Westminster Water and Sewerage Systems

Schematic Flow Diagram



City of Westminster PUREWater Westminster Process Flow Diagram



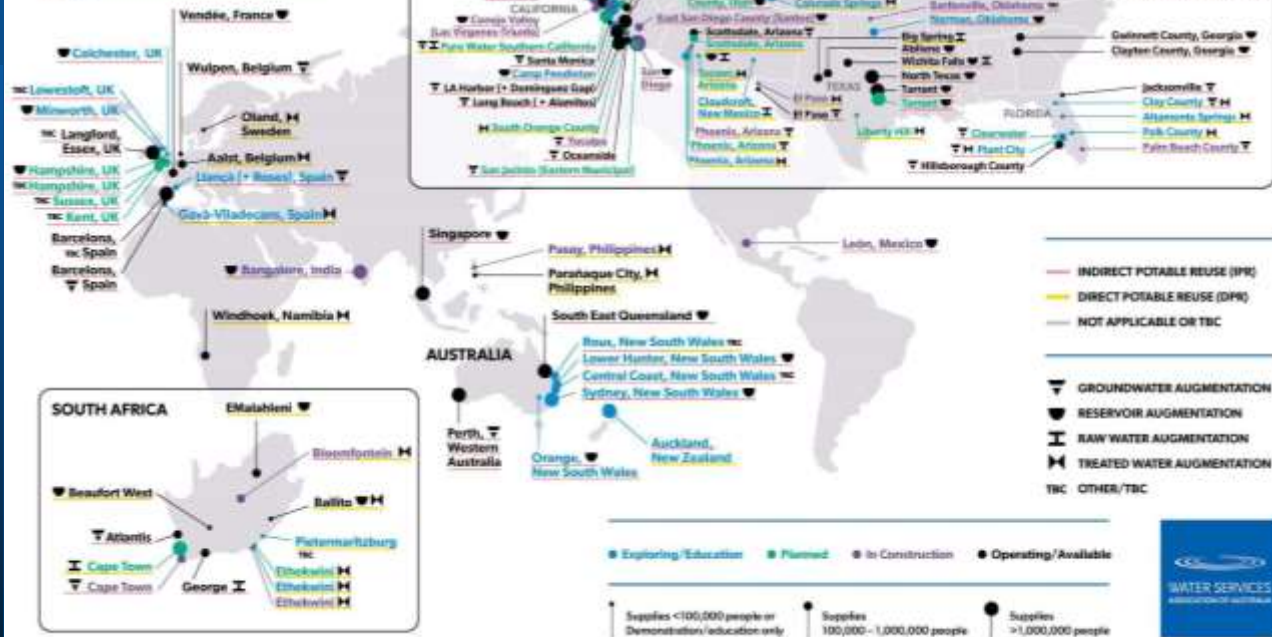
Potable Reuse is a Sustainable, Global Water Source

www.water360.com.au

Global purified recycled water locations

Master

March 2020



Potable Reuse in the USA

www.water360.com.au

Global purified recycled water locations

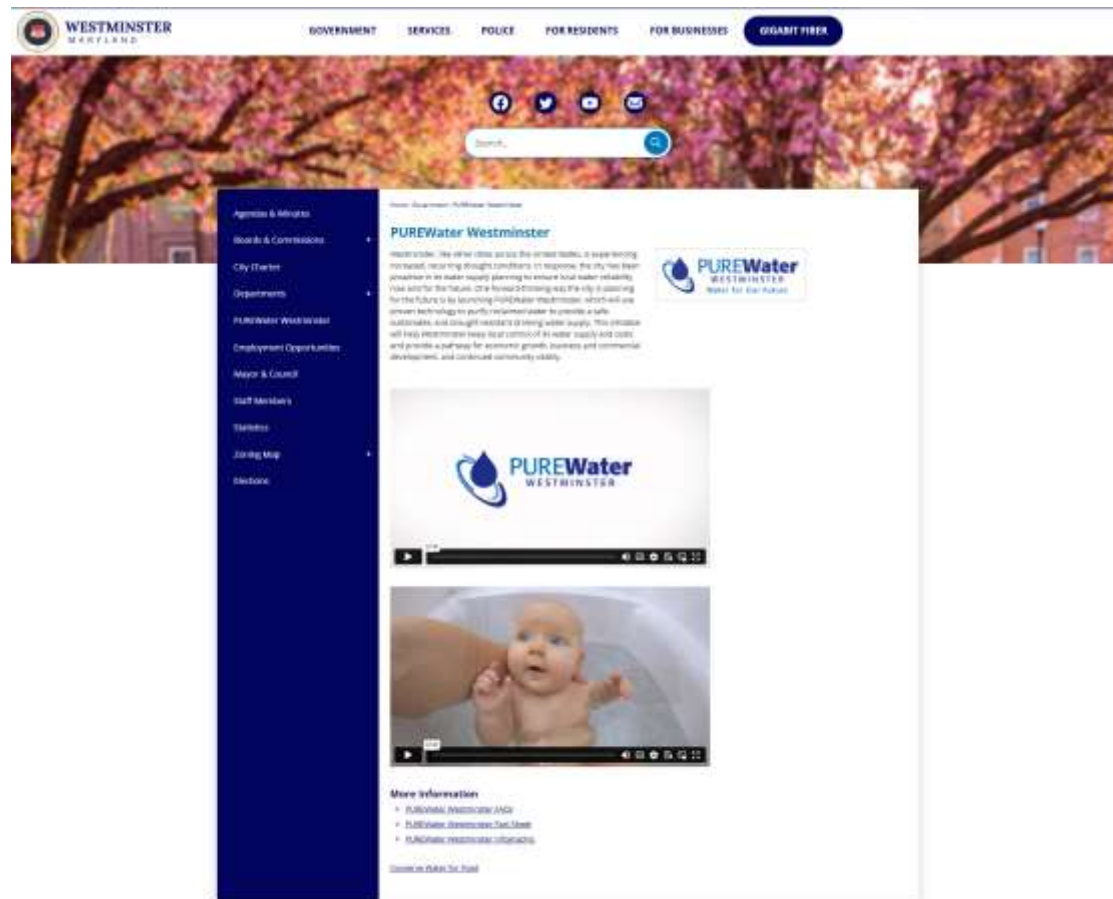
USA only

March 2020



To Learn More:

<https://www.westminstermd.gov/purewater>



Special Thanks to Our Team!

Owner



Public Outreach



Design Team



Regulatory Agency



Maryland
Department of
the Environment

Technical Support



SCHOOL OF
PUBLIC HEALTH



A. JAMES CLARK
SCHOOL OF ENGINEERING



JOHNS HOPKINS
ENVIRONMENTAL HEALTH
& ENGINEERING

Pilot Funding



— BUREAU OF —
RECLAMATION



Questions / Comments



Virtual Participants: Please click  on the controls bar to raise your hand.

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. Housekeeping

5:30 pm - 5:35 pm

2. Convene the Hearing

Mayor's Welcome

5:35pm - 5:45 pm

3. Recess Presentations

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. Resume Hearing – Formal Testimony

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. Hearing Adjourned



Formal Testimony Session

All testimonies will be part of the public record and considered for the final determination by the Department.

Attendees will be called upon to provide testimony in the following order:

- ☐ Elected officials
- ☐ Representatives of any government agencies
- ☐ Members of the public

Virtual Participants: Upon announcement, please click



on the controls bar to raise your hand.

AGENDA

Westminster WRF Discharge Permit Renewal & IPR Application

Public Hearing • June 18, 2026

1. Housekeeping

5:30 pm - 5:35 pm

2. Convene the Hearing

Mayor's Welcome

5:35pm - 5:45 pm

3. Recess Presentations

5:45 pm - 6:45 pm

- MDE IPR Policy
- WM WRF NPDES Discharge Permit
- WM WRF IPR Permit
- Pure Water Facility Introduction

4. Resume Hearing – Formal Testimony

6:45 pm - 7:30 pm

- Elected Officials
- Government Officials
- General Public

5. Hearing Adjourned