Anne Arundel County Clean Water Program

Our wAAter
Public Advisory Group Meeting

May 27, 2025

1 Introductions & Agenda

Agenda

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2 MAR Legislation

3 Septic Policy

Break

4 Management Alternatives update

5 CIP Program

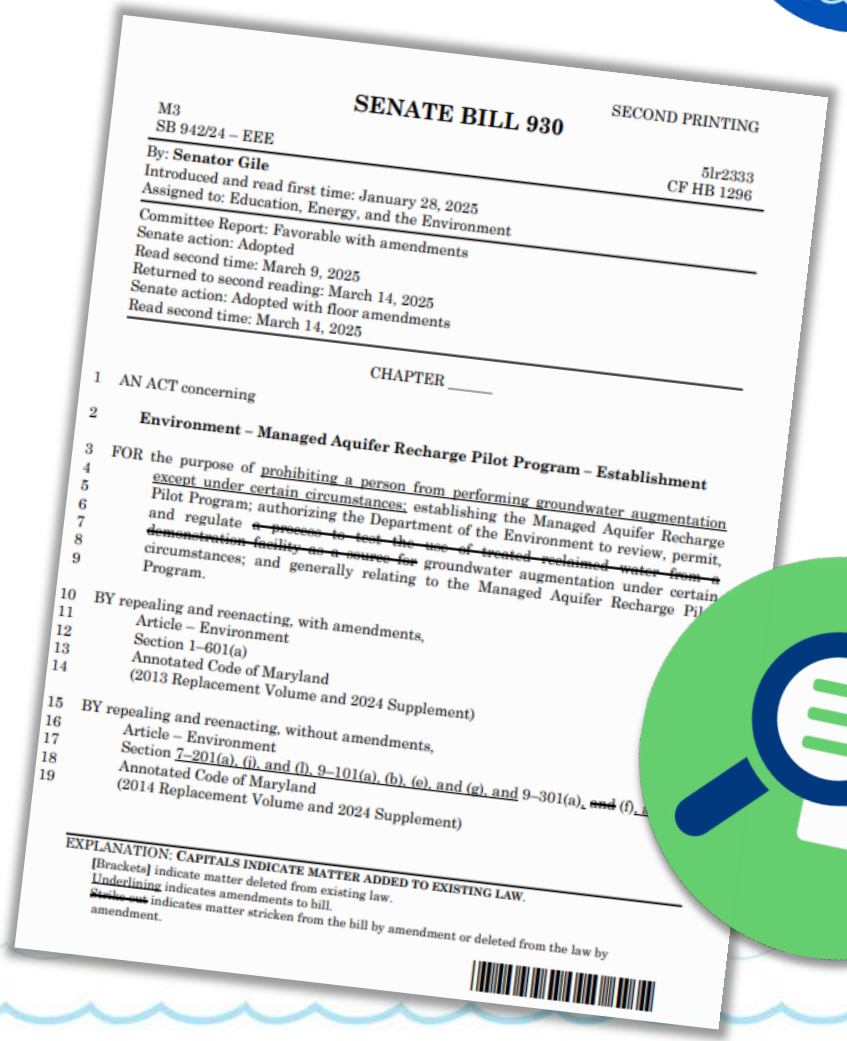
6 Closing Remarks

2 MAR Legislation

Maryland General Assembly

Managed Aquifer Recharge Pilot Program

- Prior to this year's MD General Assembly, injection of reclaimed water not authorized under MD law
- **SB930** and **HB1296** authorizing MAR approved with amendments
  - Reverse Osmosis is required for approval, much higher cost
  - Current County's demonstration facility uses activated carbon removal technology



M3 SB 942/24 – EEE

SENATE BILL 930

SECOND PRINTING

By: **Senator Gile**

5lr2333
CF HB 1296

Introduced and read first time: January 28, 2025
Assigned to: Education, Energy, and the Environment

Committee Report: Favorable with amendments
Senate action: Adopted
Read second time: March 9, 2025
Returned to second reading: March 14, 2025
Senate action: Adopted with floor amendments
Read second time: March 14, 2025

CHAPTER ____

AN ACT concerning

Environment – Managed Aquifer Recharge Pilot Program – Establishment

FOR the purpose of prohibiting a person from performing groundwater augmentation except under certain circumstances; establishing the Managed Aquifer Recharge Pilot Program; authorizing the Department of the Environment to review, permit, and regulate ~~a process to test the use of treated reclaimed water from a demonstration facility as a source for~~ groundwater augmentation under certain circumstances; and generally relating to the Managed Aquifer Recharge Pilot Program.

BY repealing and reenacting, with amendments,
Article – Environment
Section 1–601(a)
Annotated Code of Maryland
(2013 Replacement Volume and 2024 Supplement)

BY repealing and reenacting, without amendments,
Article – Environment
Section 7–201(a), (i), and (l), 9–101(a), (b), (e), and (g), and 9–301(a), ~~and~~ (f),
Annotated Code of Maryland
(2014 Replacement Volume and 2024 Supplement)

EXPLANATION: **CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.**
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
~~Strike-out~~ indicates matter stricken from the bill by amendment or deleted from the law by amendment.

Establishment of MAR Pilot Program

Purpose and Need:

- Establishes a Managed Aquifer Recharge Pilot Program to authorize and evaluate the use of treated reclaimed water as a source for groundwater augmentation
- Limited to one permit overall
- Requires that the program address a groundwater supply or water quality problem that is reasonably expected to occur within the next 25 years, including
  - Land subsidence
  - Saltwater intrusion

Permit Application Requirements Summary

- Alternative analyses supporting MAR
- Mitigation plan in response to off-spec water
- Hydrogeologic Studies
  - Identify all wells within 2-year travel time of injection
  - Detailed hydrogeologic investigation
  - Tracer Study within 3 months of start of injection

Permit Period

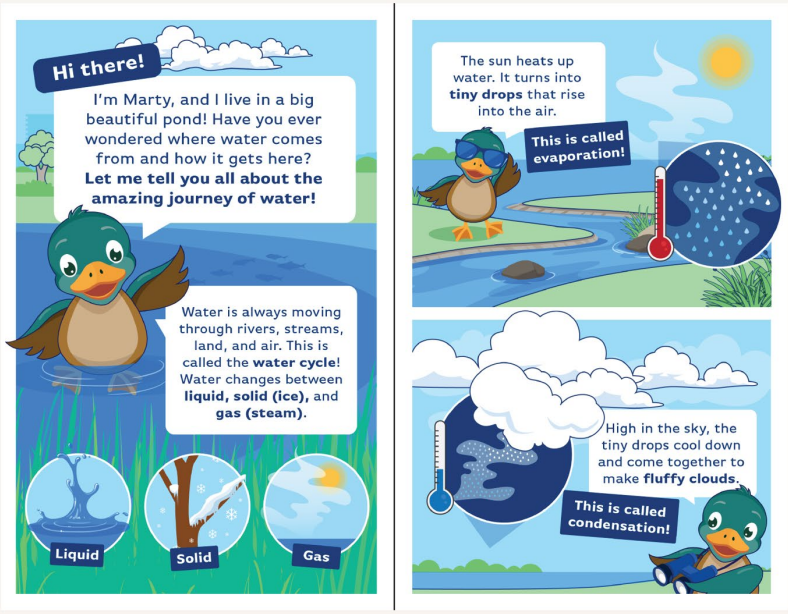
- Permit is effective for **5 years** from date of issuance
- Permit may be renewed another **5 years**

Application period open
Jan 2, 2026 - Jan 3, 2028

Dec 31, 2028, and each year thereafter, MDE submits to the Governor

Sept 1, 2028, and each year thereafter, submit a report to MDE

MAR Outreach



MAR Outreach Workshop Tactics

Easy win or low-hanging fruit

Big-ticket item

- Conferences
- HoA / Neighborhood Meetings
- Community Survey
- Billboards
- Mobile Outreach Unit
- Community Panel
- Speaker Series

- Office Hours
- Service Projects
- Photo / Art Contest
- Scale Models
- Art Installation
- School Lesson Plan Kits
- Website
- Direct Mail

- Social Media
- Videos
- Activity Books
- Fact Sheets
- Program Newsletter
- Bill Inserts
- Virtual Tours
- Media Outreach

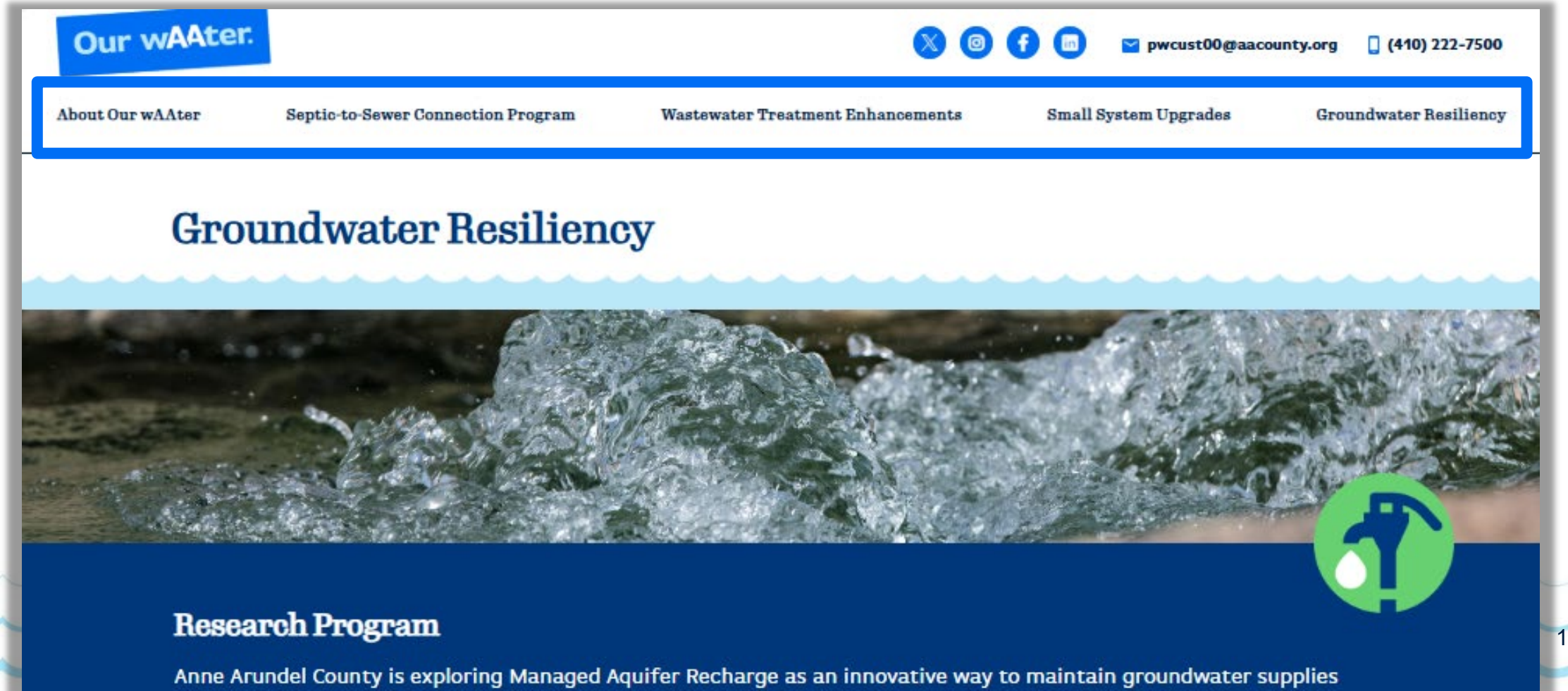
- Council Nominees to PAG
- Internal Communications Campaign
- Educational Webinars / Lunch & Learns

MAR Outreach Tactics – Post Workshop

NEAR TERM *(present – June 2025)*	MID TERM *(June 2025 – Dec 2025)*	LONG TERM *(2026 – 2027)*
Our wAAter Website Updates**	Social Media Support	Mobile Outreach Unit
MAR Video (1 Of 2)**	Outreach Events/School Lesson Kits	Scale Model
Social Media Support**	Newsletter	Business Partnerships
MAR Presentations**	Bill Inserts	Paid Advertising
Speaker Series	Community Survey	Educational Webinars
Fact Sheets/Brochures/Activity Book	MAR Presentations	Community Panels
Video Tour/Virtual Tour *(Informal)*	Media Pitches/Editorial Board Meetings	Photo/Art Installation Contest
Neighborhood/HoA Meetings	Direct Mail	MAR Videos
PAG Meeting #11	MAR Video (2 of 2)	Newsletter
Elected Officials Outreach	Elected Officials Outreach	Elected Officials Outreach

Our wAAter Website

ourwaater.aacounty.org



3 Septic Policy

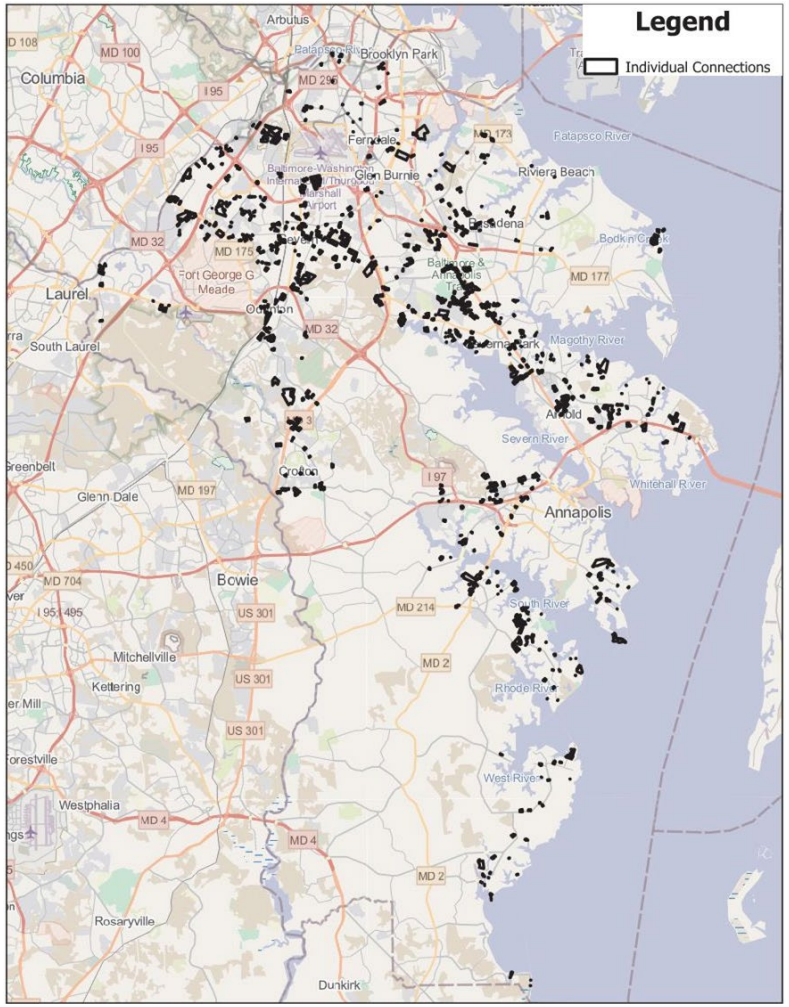
Septic Policy Changes

Potential Changes under consideration

- Increase County contribution to 50%
- Utility Fund Subsidy vs. County Subsidy
- Modify the subsidy calculation
- Have partial deferment match elderly deferment
- Allow BWPR funds for individual connections

Net effect would be to enable more funding to be offered to residents and simply components of the program

Alternatives: Septic Conversions
Individual Connections



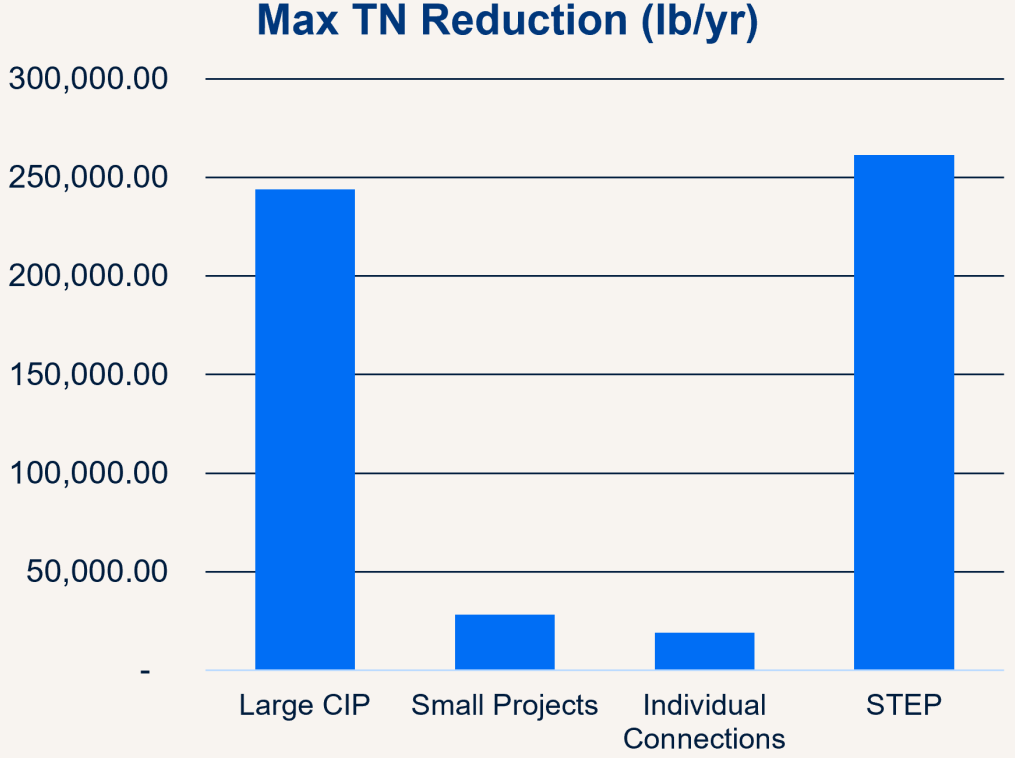
- **Properties fronting an existing County sewer**
  - May require addition of clean out or ejector pump for connection
- **Gravity**
  - 1,320 potential connections (16,100 lb TN)
  - Capital cost: $27,600 per connection
- **Low Pressure**
  - 240 potential connections (3,000 lb TN)
  - Capital cost: $51,900 per connection
- **Most cost effective of septic conversion alternatives**
- **No growth concern**

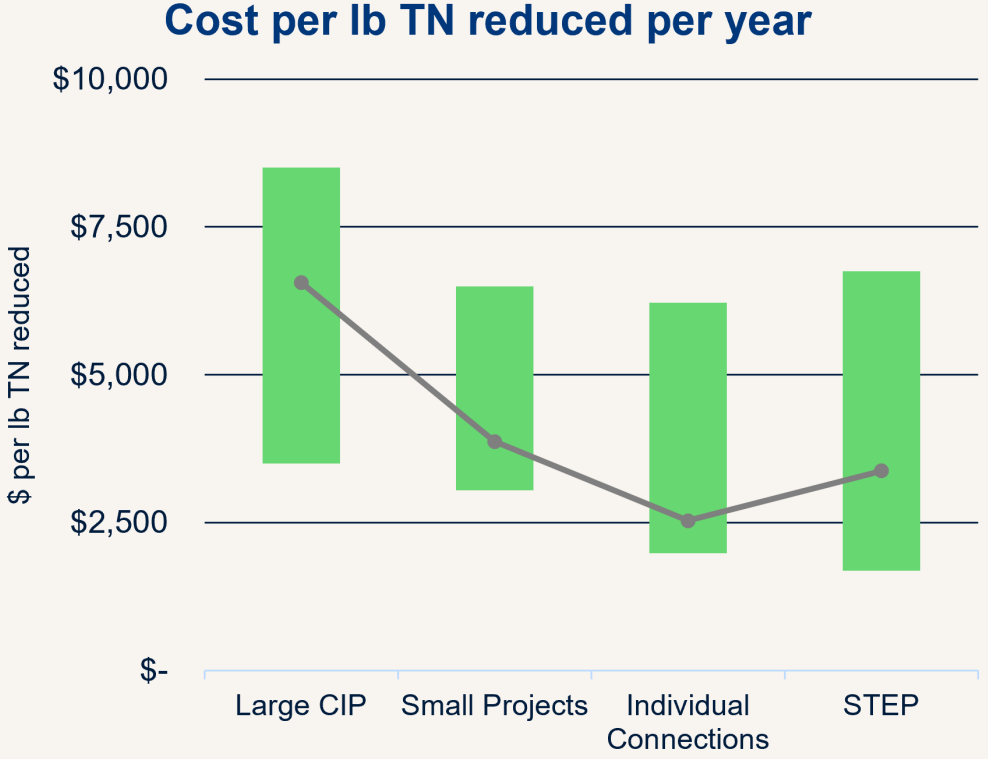
Alternatives: Septic Conversions
Small Projects

Figure 3-2: Small Connection Example 2: Prairie Ct and Ponderosa Dr

- Characterized by single streets, small amount of infrastructure needed, and does not require a pump station
- **Gravity**
  - 880 potential connections
  - Capital cost: ~$45,000 per connection
- **Low Pressure**
  - 1,430 potential connections
  - Capital cost: ~$80,000 per connection
  - Increased O&M costs
- **Similar challenges to large CIP**

Summary of Septic Options





Minor Systems Update

- Discussion with administration at the beginning on the year.
- Supportive in principal with funding from outside the Utility Fund being used to support cost of operations due to unique circumstances.
- **Next Steps**
  - Law Office developing framework for agreement with owners.
  - Meet with owners to discuss key items.
  - Meet with MDE to discuss details of transfer of responsibility, load allocations, and funding support.

4 Management Alternatives Update

Management Alternatives Review

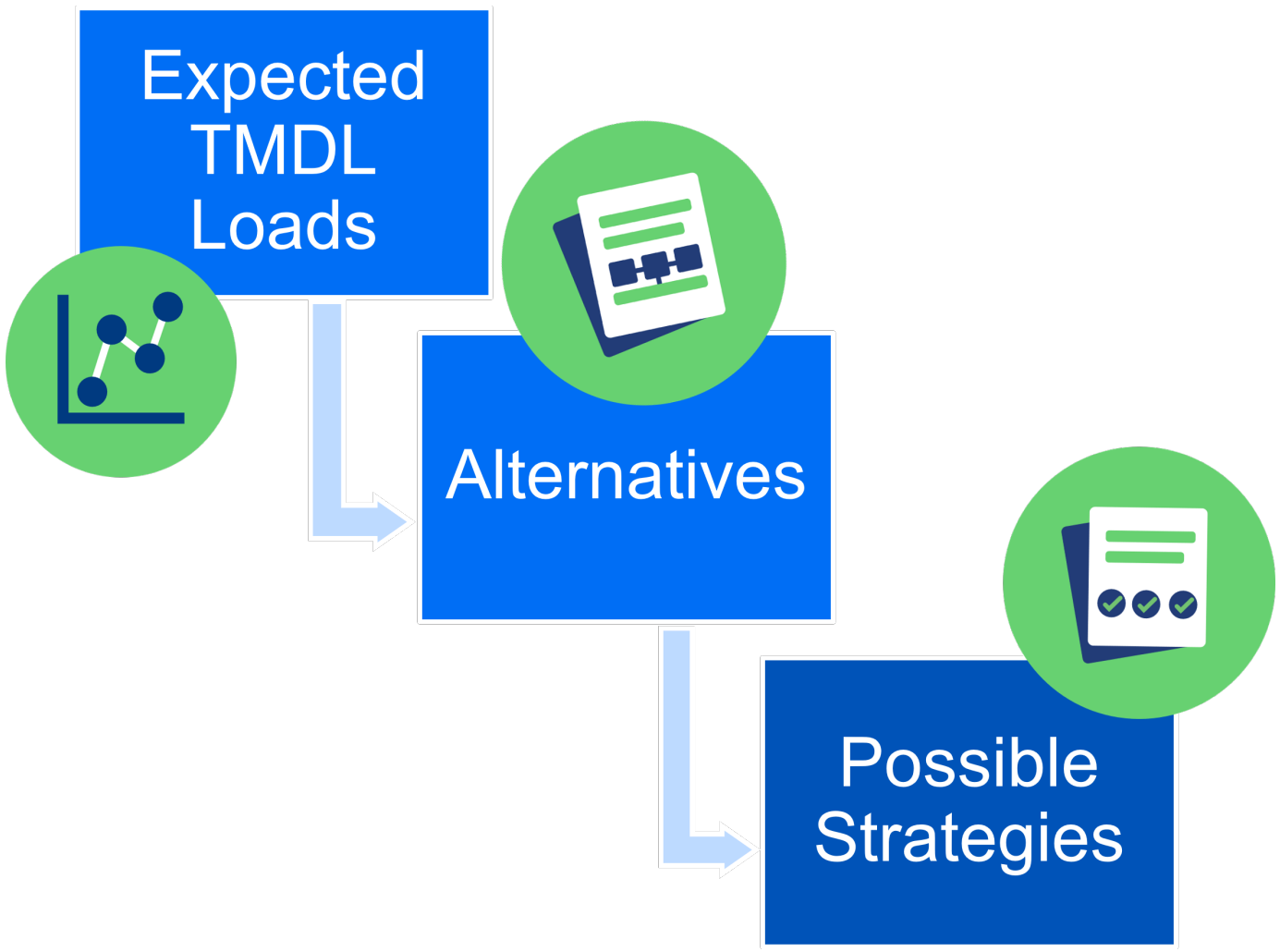
New Task Started

- Reevaluate nutrient management strategy as foundation of Our wAAter program
- Develop strategic roadmap for future program navigation

Scope

- Our wAAter Program Review
- Nutrient Management Strategy Development
- Our wAAter Strategic Roadmap
- Grant Funding Support

Developing the Strategy



Updates and adjustments made to the assumed load reductions

Adjustments made to the alternatives

New alternatives added

Bay Model Updates

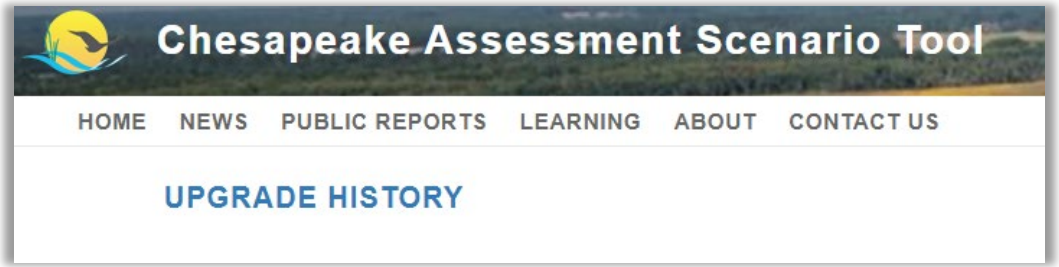
Update released on May 21, 2024

- More than 17 load changes identified.

- *"This release is of CAST-23, the new version of CAST. Updates change the loads in all scenarios in all years."*

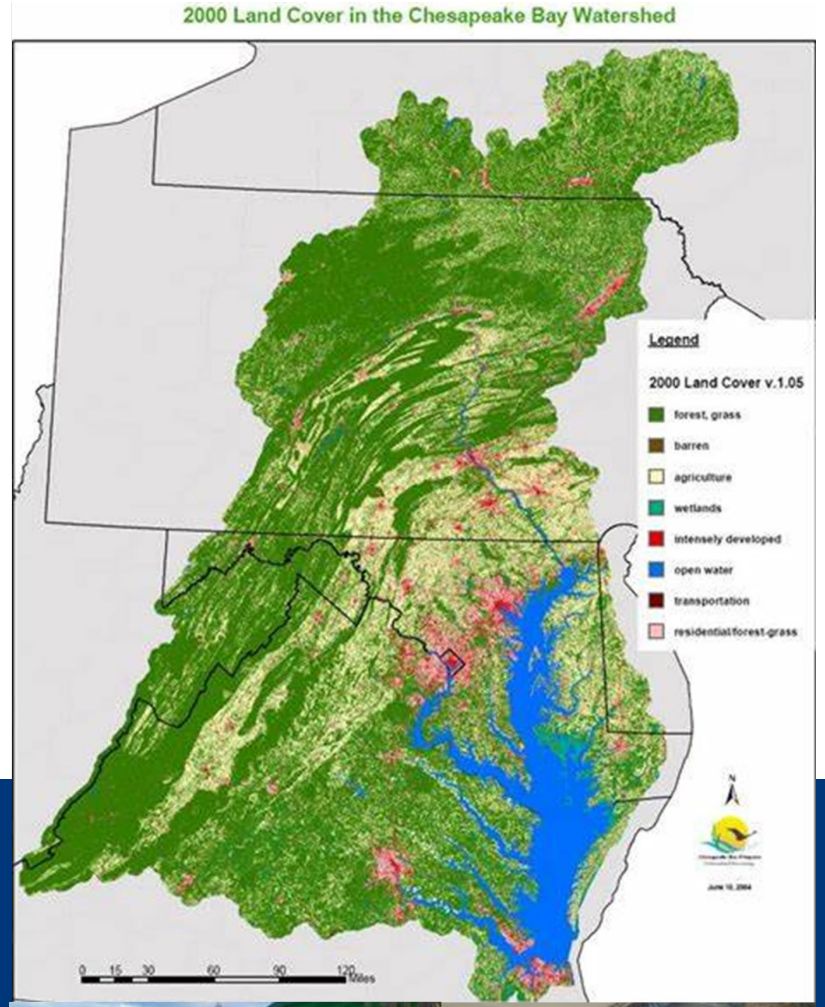
- *"The official Phase III WIPs are those that are in the CAST version in which they were developed. The loads change in all scenarios, including the WIPs, in this new version."*

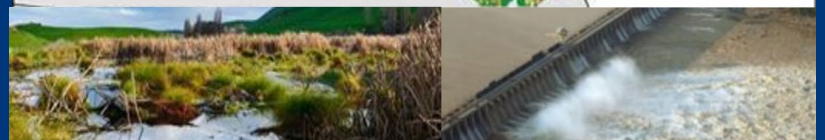
- *"The unaccounted additional loads are not in the CAST scenario results and are loads that EPA will not hold jurisdictions accountable for in 2025."*



https://cast.chesapeakebay.net/about/upgradehistory

Bay Model Adjustments





- Non-point source and Agricultural adjustments
- Conowingo Dam updated modeling impact
- Updates to wastewater data
- Septic system updates
- Climate Change (DO) model impact
- SCOTUS ruling on Wetlands impact
- WV Fertilizer App Rate Error in model

Expectation is that WIP IV, when issued, will require more nutrient reductions

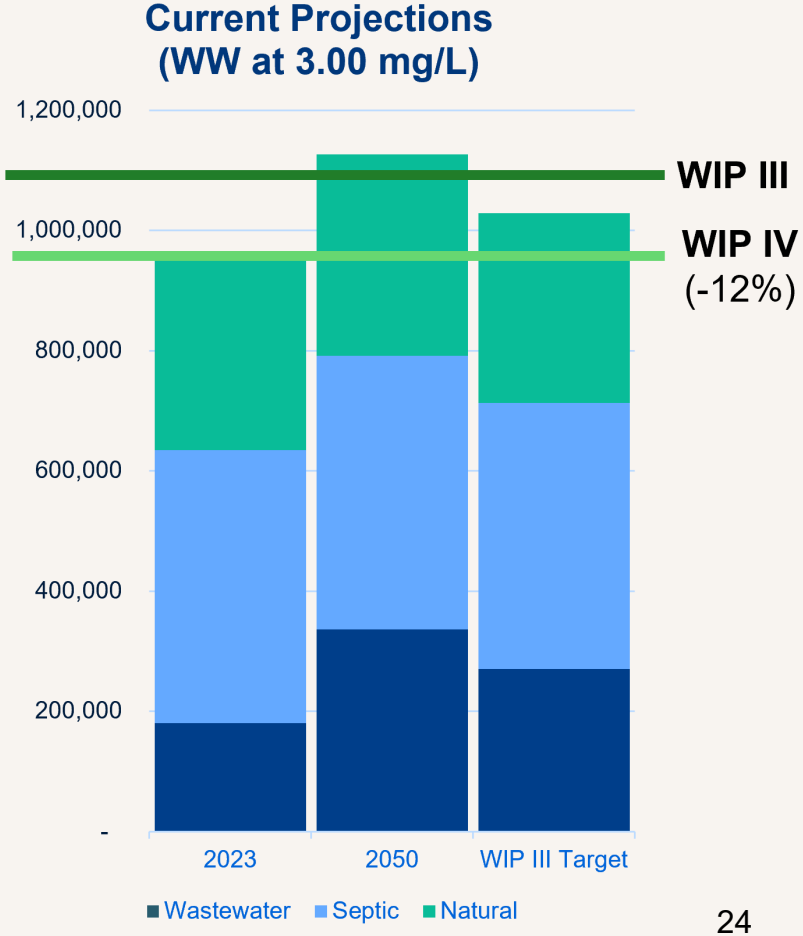
Projected Nutrient Reduction Target

Anticipated WIP IV

- 12% further TN reduction beyond WIP III loads
- Assume WRFs 3 mg/L TN*
- Target completion date unknown
- Plan for 222,000 lbs TN per year reduction by 2050

Assuming 54,000 lbs of TN reduced from planned stormwater improvements, need additional:

- 46,000 lbs TN/yr to meet WIP III target
- **168,000 lbs TN/yr to meet expected WIP IV projection**



Recent Alternatives Workshop

Overall objective *– Considering newly available information, review nutrient reduction tactics that can be feasibly implemented to achieve long-term targets.*

- Discuss benefits and risks of nutrient reduction alternatives
- Determine level of implementation for selected alternatives
- Develop Management Strategy to carry forward in Strategic Roadmap

Current Strategy

Maintain Current Progress

- Stormwater - No net gain after MS4 permit compliance
- Wastewater – Performance at 3.25 mg/L total nitrogen (TN)

New Initiatives

- Septic Systems
- Minor Systems
- Managed Aquifer Recharge

Progress vs. Goals

TAKEAWAY

- Program elements where DPW has direct control have been successful
- Program elements where DPW does not have control have been less successful or not successful

More Successful

- Stormwater
- Wastewater
- *Public Outreach*

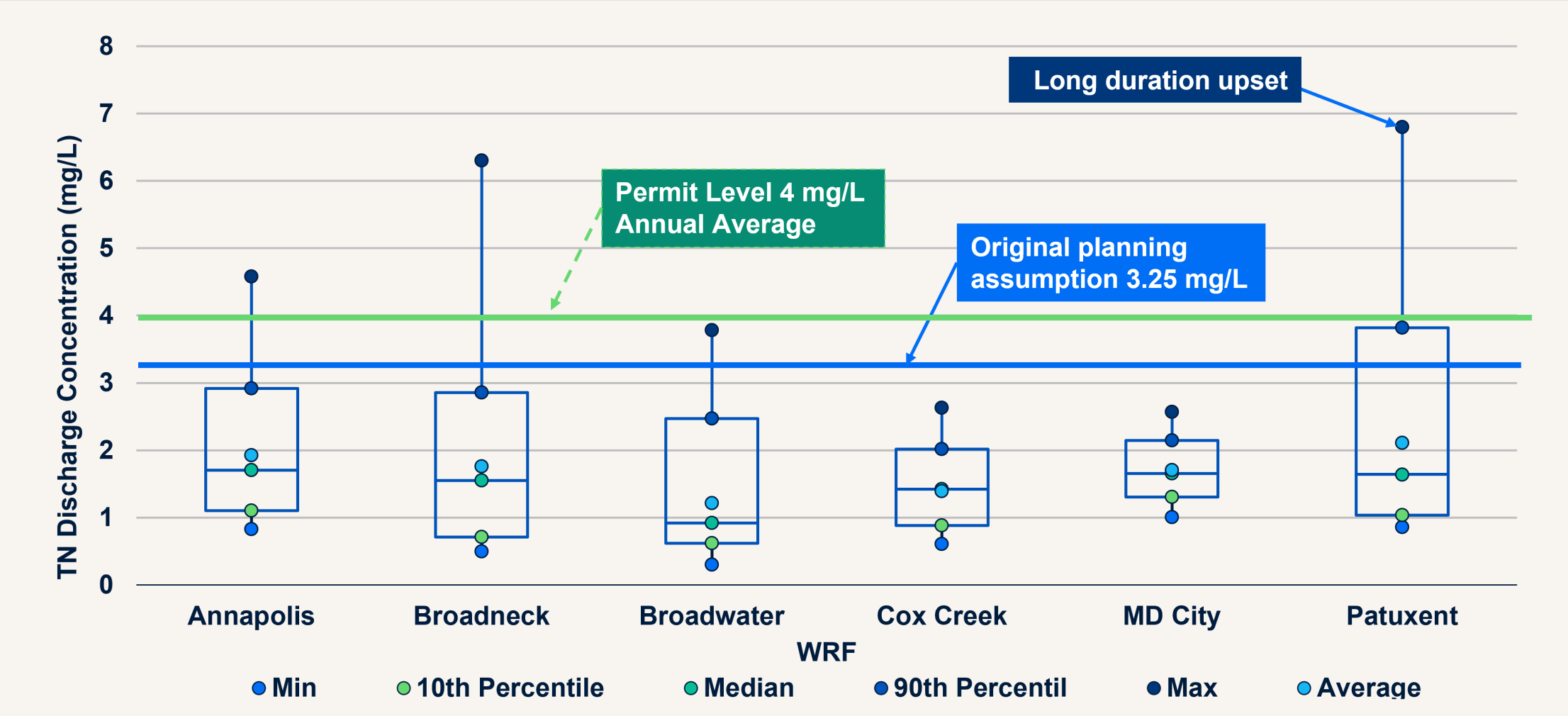
Less Successful

- MAR
- Septic Systems
- Minor Systems

Bureau of Watershed Protection & Restoration

- Met and exceeded permit requirements
- Projects generally been less expensive than anticipated
- Future projects have been identified that can continue progress

TN Discharge Concentration Statistical Analysis (July 2019 – June 2024 monthly DMR)



Changes to Alternatives

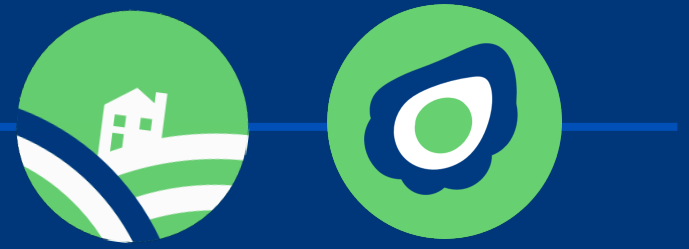
Stormwater
- Adjust costs
- Assume future credits

Wastewater
- Flows lower
- Performance adjustment (?)

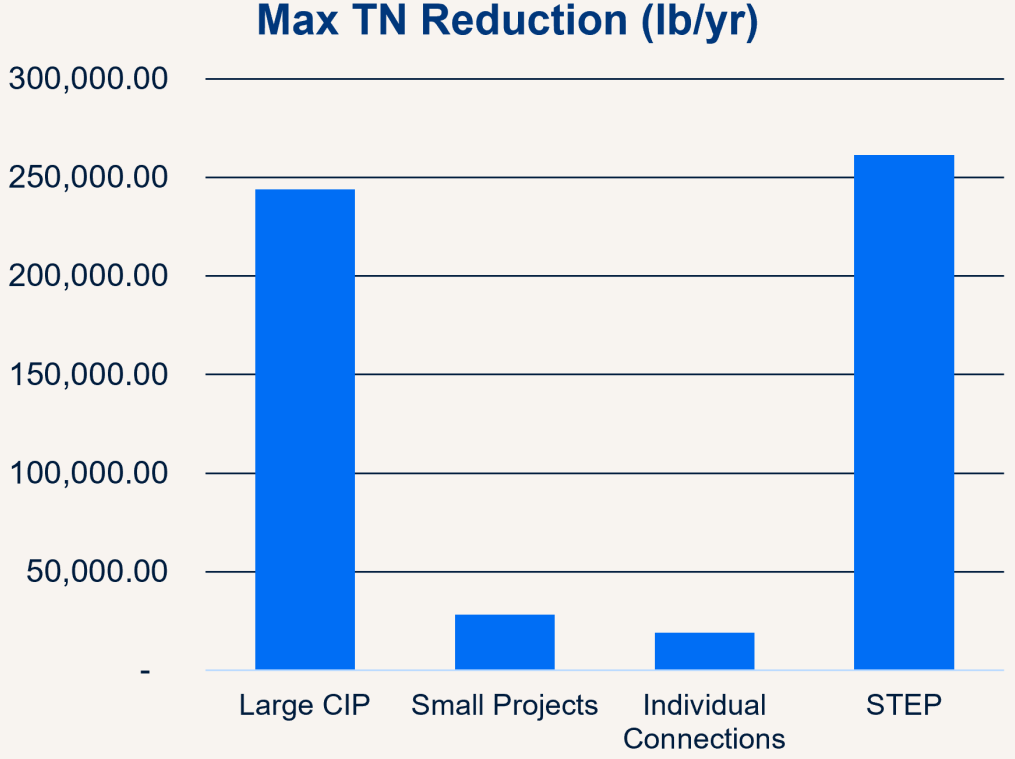
MAR
- Adjust costs higher

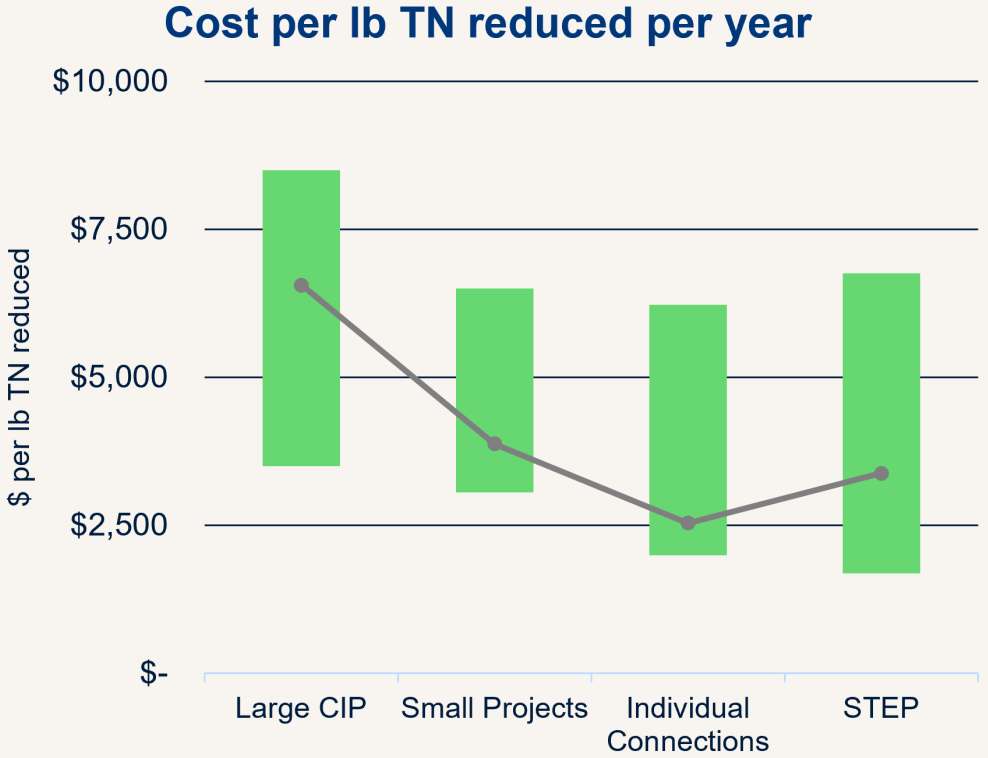
Septic systems
- Update costs
- Update County contribution

New Alternatives
- Additional WRF upgrades
- Aquaculture



Summary of Septic Options





Additional WRF Upgrades

1. Sand Filtration and Granular Activated Carbon (GAC) Adsorption

- Additional upstream filtration needed to avoid clogging GAC
- Targeted to reduce organics, DON and PFAS
- Requires upstream media filtration
- Assume 0.4 mg/L additional TN reduction

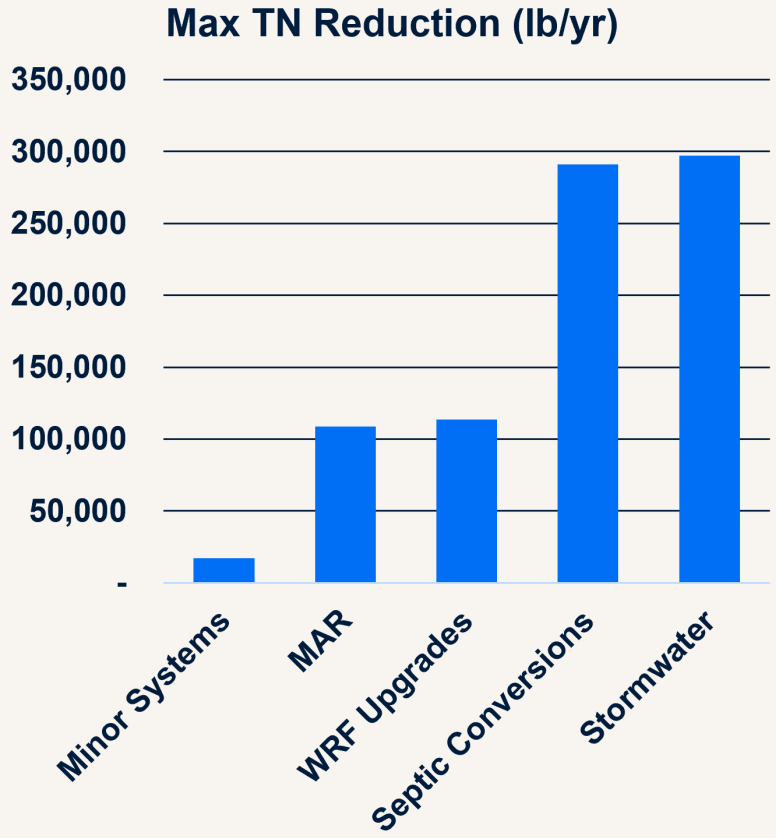
2. Ultrafiltration – Reverse Osmosis (UF-RO)

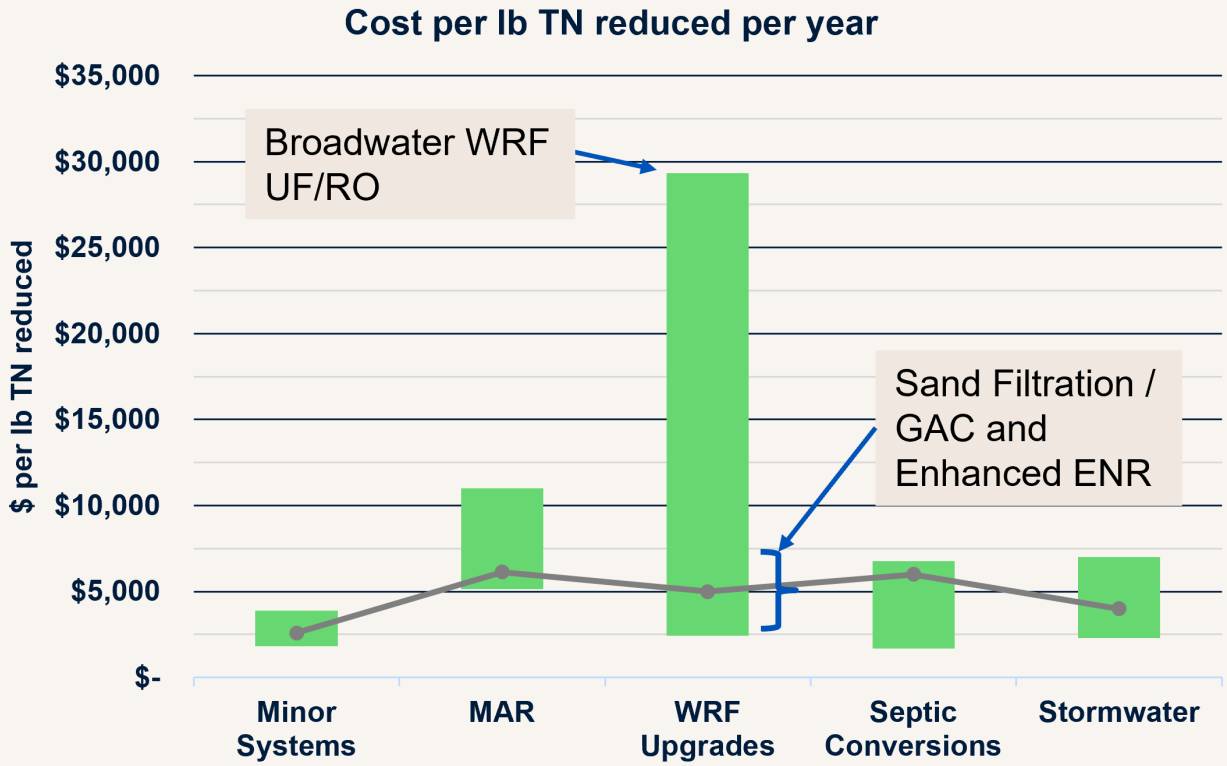
- Targeted to remove organics, DON and PFAS
- Requires concentrate management/treatment
- Assume 1.35 mg/L additional TN reduction (90% of current)

3. Expanded ENR

- Maintain status quo as loads increase over time

Comparison of Alternatives

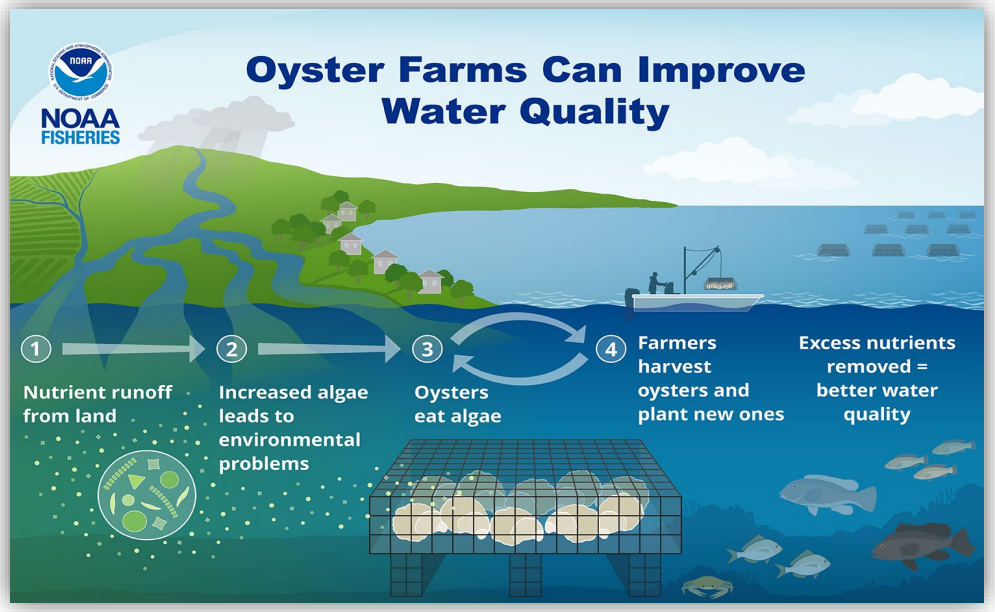


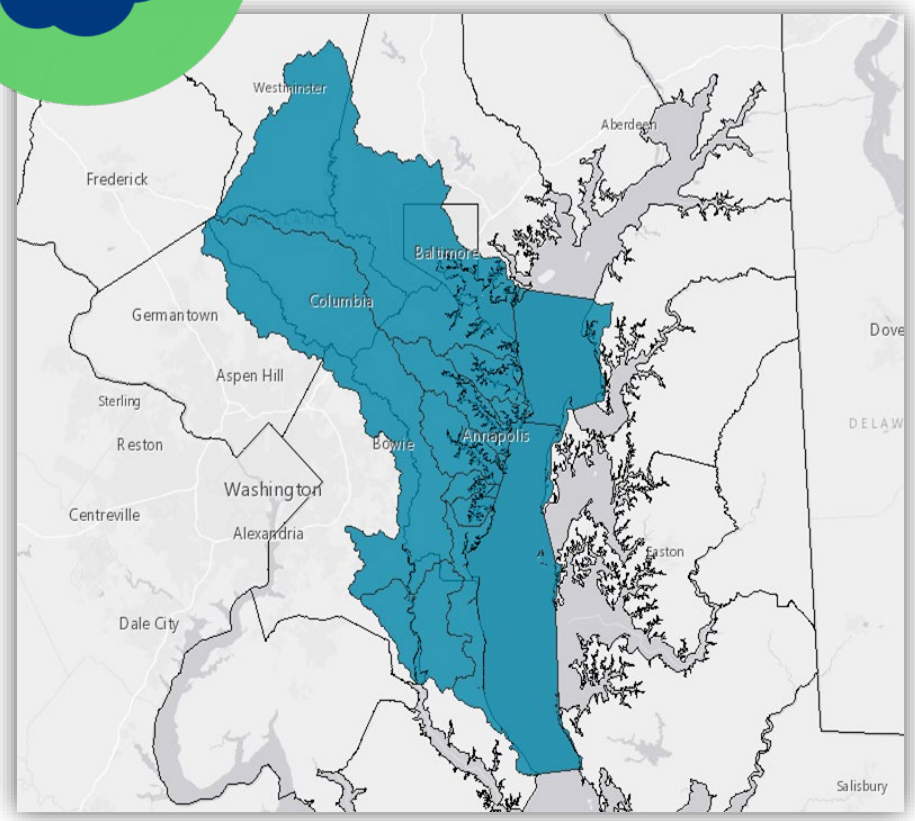


Oyster Aquaculture

WQT Program Nutrient Reductions

- Since 2019, MDE's Water Quality Trading Program has allowed certified credits from oysters (aquaculture, public fisheries, and restoration).
- $3,500/lb per year effective cost for a 20-year lifecycle basis
  - Annual re-investment required to maintain credits
- Additional social and environmental benefits



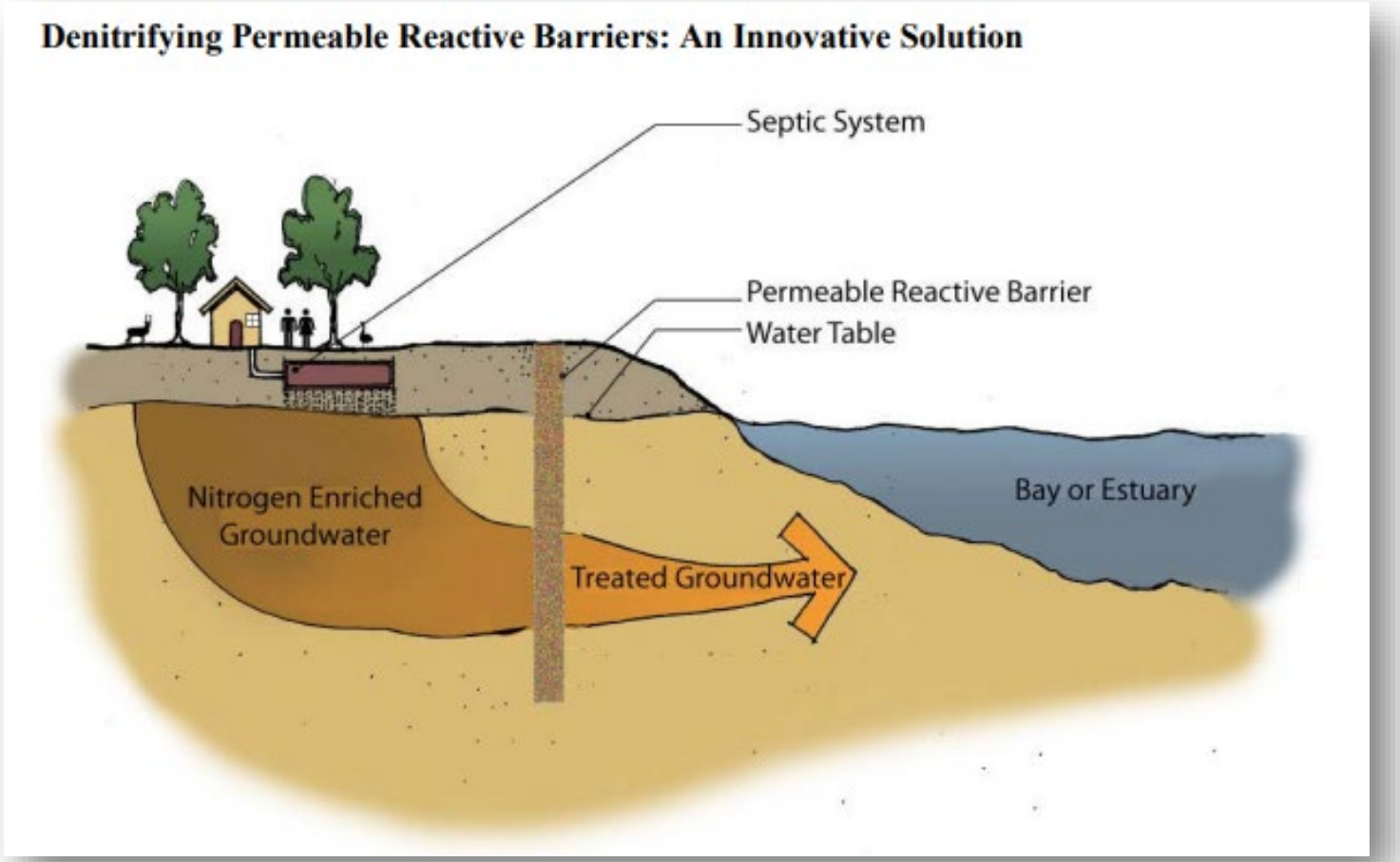


AACO WQT Credit Purchasing Area (AACo is eligible to receive MD Nitrogen credits from oysters harvested in blue area)

Permeable Reactive Barriers

BMP in development by Severn River Association

- Low-cost approach to reducing TN from septic effluent pathways in groundwater
- Comprised of wood chips
- Cost estimate not yet available, but may be significantly lower than cost for traditional approaches



https://www.stonybrook.edu/commcms/cleanwater/research/PRB%20white%20paper_FINAL.pdf

6 Closing Remarks

Our wAAter.

THE ANNE ARUNDEL CLEAN WATER PROGRAM

Thank you!