

# Our wAAter Public Advisory Group Meeting

October 19, 2022

Our wAAter.



# Agenda

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**01** Purpose and Objectives

**02** Introductions

**03** Our wAAter

**04** Integrated Management Plan

**05** Next Steps





**01**

# Purpose and Objectives



# Our wAAter Public Advisory Group

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- **Purpose**

- To provide input on each of the Our wAAter program components
- To provide input on the Integrated Management Plan
- To help inform the public about DPW initiatives





02

Introductions

# Introductions

**George  
Heiner**

Anne Arundel County  
Department of Public Works

**Chris  
Murphy**

Anne Arundel County  
Department of Public Works

**Chris  
Phipps**

Anne Arundel County  
Department of Public Works

**Karen  
Henry**

Anne Arundel County  
Department of Public Works

**Beth  
O'Connell**

Anne Arundel County  
Department of Public Works

**Ed  
Shea**

HDR

**Hannah  
Billian**

HDR

**Rahkia  
Nance**

HDR

**Meghan  
Robinson**

HDR

# Public Advisory Group Introductions

**Tammy  
Domanski**

Environmental Center at Anne  
Arundel County Community  
College

**Sally  
Hornor**

Magothy River Association

**Erik  
Kreifeldt**

Severn River Association

**Lloyd  
Lewis**

Chesapeake Environmental  
Protection Association

**Patricia  
Lynch**

Broadneck Federation

**Doug  
Nichols**

Greater Severna Park  
Council

**Jerry  
Pesterfield**

Anne Arundel County Septic  
Task Force

**Tim  
Williams**

Water Environment Federation  
(retired)

# Department of Public Works



*Organized into five Bureaus*



## Engineering

- Design, support, oversight of construction projects
- Water & wastewater treatment, mains, & pumping stations

## Utility Operations

- Water treatment and distribution
- Wastewater collection and treatment Pre-treatment Program

## Highways

- Maintenance for County's 6,175 roads
- Nearly 4,000 lane miles

## Waste Management

- Collects solid waste, recycled material, and yard waste.
- Manages landfill
- Generates electricity from landfill gas

## Watershed & Protection

- Environmental assessment, restoration implementation, and ecological evaluation
- MS4 Permit



# Department of Public Works Overview



**7**  
water reclamation facilities



**308**  
pump stations



**9**  
water treatment facilities



**1,000**  
miles of stormwater piping



**1,300+**  
miles of gravity sanitary sewer lines



**1,400+**  
miles of water distribution piping

## Services

- Drinking water
- Wastewater treatment
- Recycling



**DPW & YOU**

— *Making a difference, together* —



03

Our wAAter Program

# What is Our wAAtEr?



An integrated program to reach our water quality goals



It takes a long-term strategy to improve the health of our waterways and the Chesapeake Bay, while strengthening the County's water resiliency.



# Chesapeake Bay TMDL



## Maryland's Phase III Watershed Implementation Plan (WIP)



*“Maryland's Phase III Watershed Implementation Plan (WIP), published on August 23, 2019, is designed to be locally-driven, achievable, and balanced. Nitrogen is the primary focus in the plan because Maryland is well on track to meet its 2025 phosphorus and sediment goals.”*

<https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/Phase3WIP.aspx>

## Chesapeake Bay TMDL Fact Sheet



Map of the Chesapeake Bay Watershed. The watershed encompasses six states and the District of Columbia.

### Driving Actions to Clean Local Waters and the Chesapeake Bay

On December 29, 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL), a historic and comprehensive “pollution diet.” This TMDL includes accountability features to guide sweeping actions to restore clean water in the Chesapeake Bay and the region’s streams, creeks and rivers.

Despite extensive restoration efforts during the prior 25 years, the TMDL was prompted by insufficient progress and poor water quality in the Chesapeake Bay and its tidal tributaries. The TMDL was required under the federal Clean Water Act and responded to consent decrees in Virginia and the District of Columbia from the late 1990s. It was also a keystone commitment of a federal strategy to meet President Barack Obama’s Executive Order to restore and protect the Bay.

- *Initial strategies focused on removals by sector – i.e. stormwater, wastewater, septics, etc.*
- **Phase III WIP** – County is on track to meet all Phase III WIP goals, but needs a long term strategy to balance growth and enhance cost effectiveness

# Nutrient Management Alternatives Analysis



- Plan for 2025 nutrient reductions – heavily reliant on wastewater treatment performance
- Long-term plan needed to maintain compliance
- County reviewed projections - established target of reducing 115,000 lb TN/year over baseline by 2050 to maintain long-term nutrient compliance

## Long-Term Stressors to TMDL



Wastewater



Population Growth

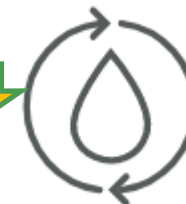


Climate Change

## Sectors Available to Address



Small Systems



Water Reuse



Septic



Stormwater



# Maintaining Current Progress



## Wastewater Treatment

- Maintain excellent performance
  - *Over 50% TN reduction at treatment plants from 2010*
- Examine opportunities for improvements

## Stormwater Management

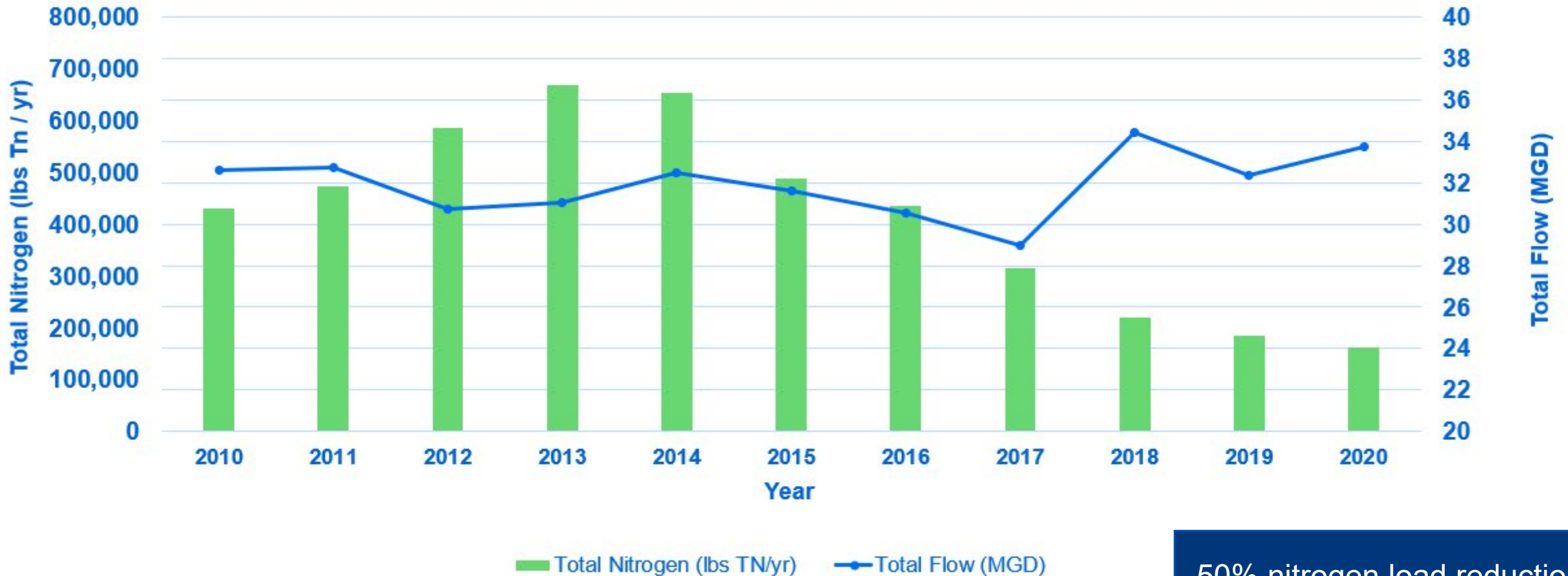
### Key Areas

- Stormwater pond retrofits
- Stormwater outfall repairs
- Stream & Wetland restoration



***County is on track to meet all Phase III WIP goals and MS4 Permit requirements, but needs a long term strategy to balance growth and enhance cost effectiveness***

# Water Reclamation Facility Nitrogen Loads



50% nitrogen load reduction  
over past 5 years

# BWPR Progress

## BWPR Restoration Project Goals



### Stream & Shoreline Restoration

30 out of 84 Completed



### Stormwater Management

30 out of 66 Completed



### Outfall Stabilizations

7 out of 16 Completed



(Number of projects completed/anticipated)

**1000+**  
Stormwater  
Infrastructure  
Projects Completed

**146**  
Restoration  
Projects  
Completed

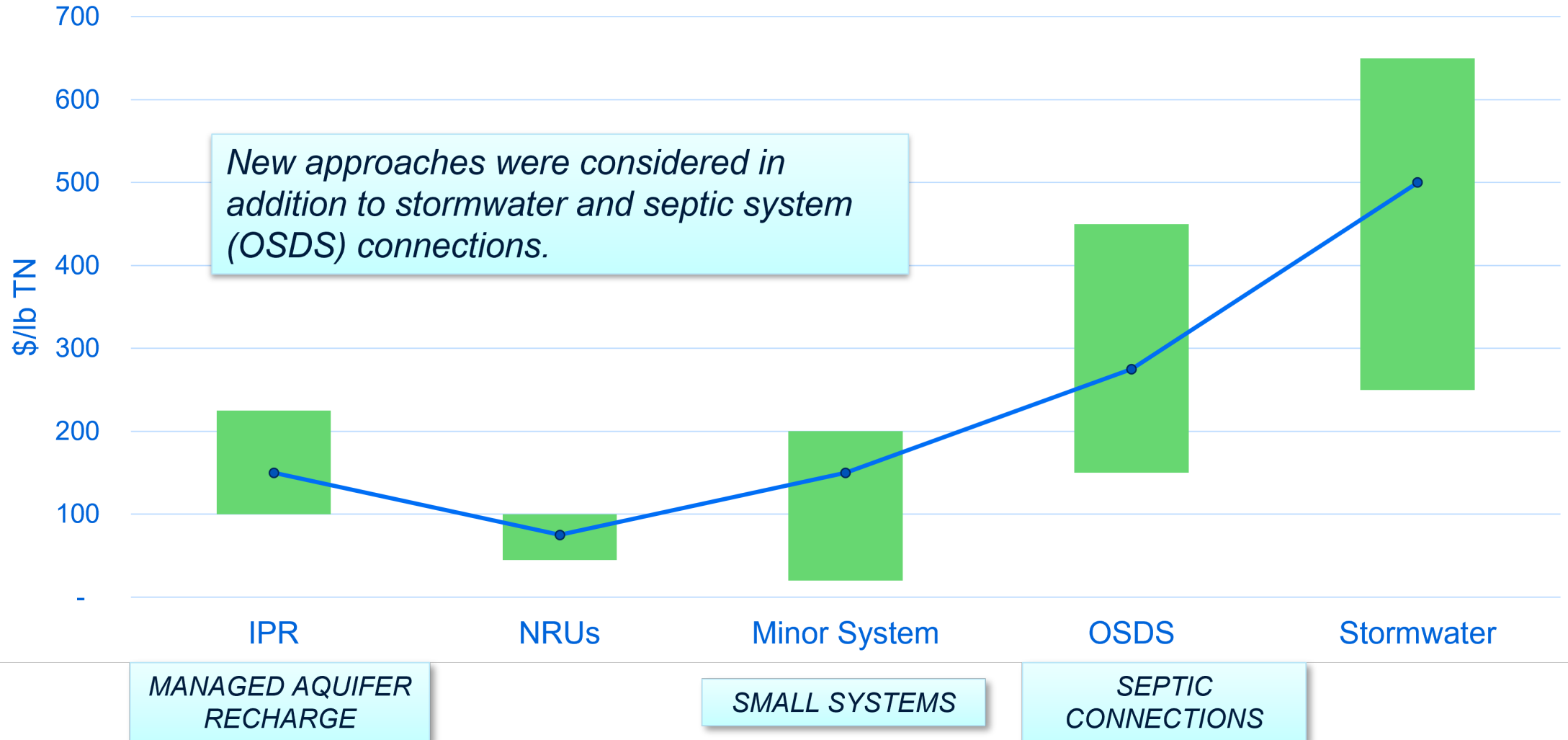
**204**  
Projects  
Completed in  
FY 22

Goal to treat  
**2,998**  
impervious acres  
through the CIP  
through 2026





# Range of Capital Costs



# New Approaches



**Small System Upgrades**  
Consolidate and/or upgrade small privately owned facilities



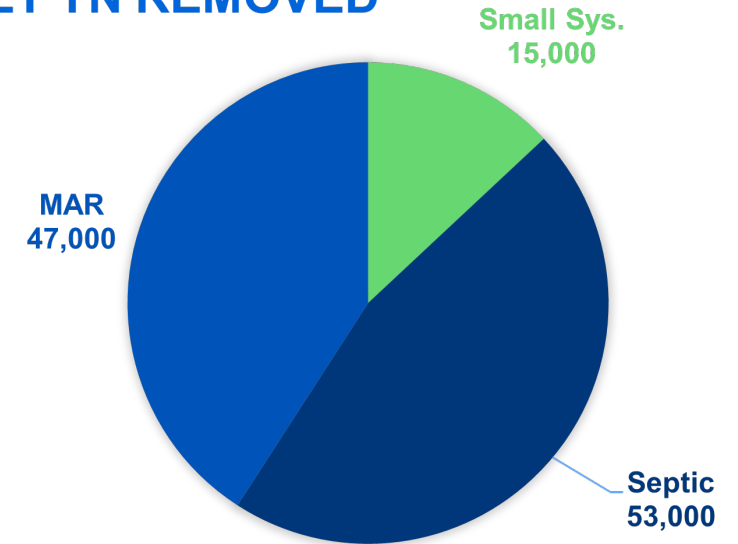
**Septic conversions**  
Goal of connecting 6,000 units over 30 years



**Managed Aquifer Recharge**  
Test and implement at Patuxent WRF



**NET TN REMOVED**



*Balanced approach  
across multiple  
sectors – not the  
lowest cost*

# OurwAAter.org



## About Our wAAter

**Septic-to-Sewer Connection Program**

**Resources & FAQs**

**Application Review Process**

**Wastewater Treatment Enhancements**

**Small System Upgrades**

**Stormwater Improvements**

**Groundwater Resiliency**

**Managed Aquifer Recharge (MAR)**

**Integrated Management Plan**



**News & Events**

**Our wAAter Blog**

**Contact Us**

HDR

Anne Arundel County  
Integrated Management Plan

May 2022

DRAFT



**ANNE ARUNDEL  
COUNTY**  
MARYLAND

# The Clean Water Program

5 initiatives | one strategy





04

# Integrated Management Plan



## Key Concepts

- Voluntary Program
- Based on improvements in multiple sectors
- Adaptive and able to meet increasingly stringent nutrient allocations and climate change



# Objectives of Anne Arundel County's Draft Integrated Management Plan



## What this plan is...

- Voluntary plan
- Summarizes previous / ongoing planning and prioritization efforts
- Tool to gain stakeholder buy-in of the County's wastewater and stormwater investment strategy and to facilitate regulatory and capital improvement decision-making.

## What this plan is NOT...

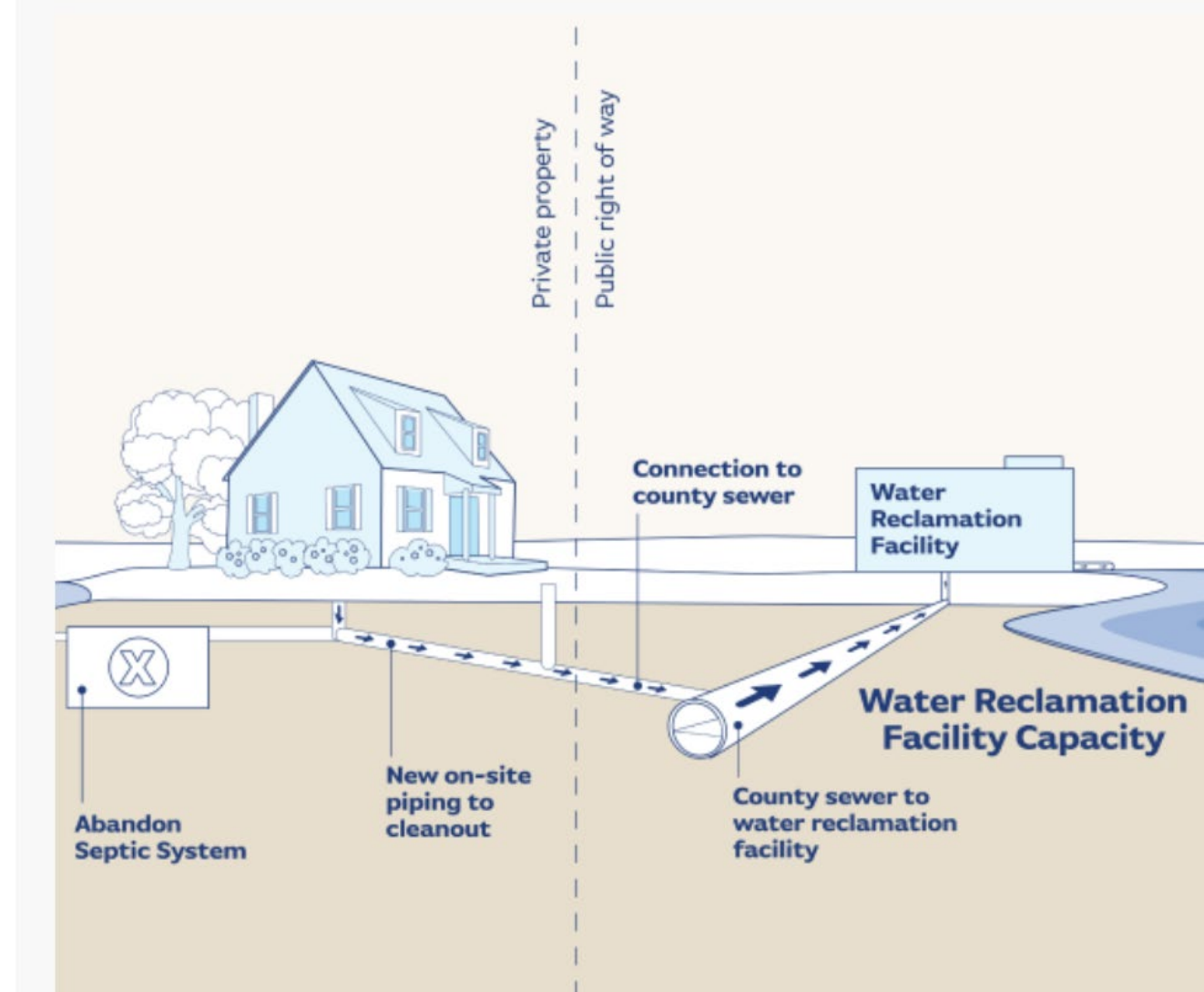
- Mandatory plan that obligates the County
- A re-prioritization of the CIP

# Septic-to-Sewer Connections



## Goals:

- Convert eligible communities from septic systems to publicly owned water reclamation facilities operating at advanced treatment levels
- Reduce the costs of converting from private septic tanks to the county sewer system
- Convert up to 6,000 private septic systems to public sewer connections over the next 30 years.





# Groundwater Resiliency



## Goals:

- To replenish groundwater supplies
- Battle the intrusion of saltwater into local aquifers as sea levels rise
- Combat potential ground sinking from the dewatering of our aquifers through increased withdrawals

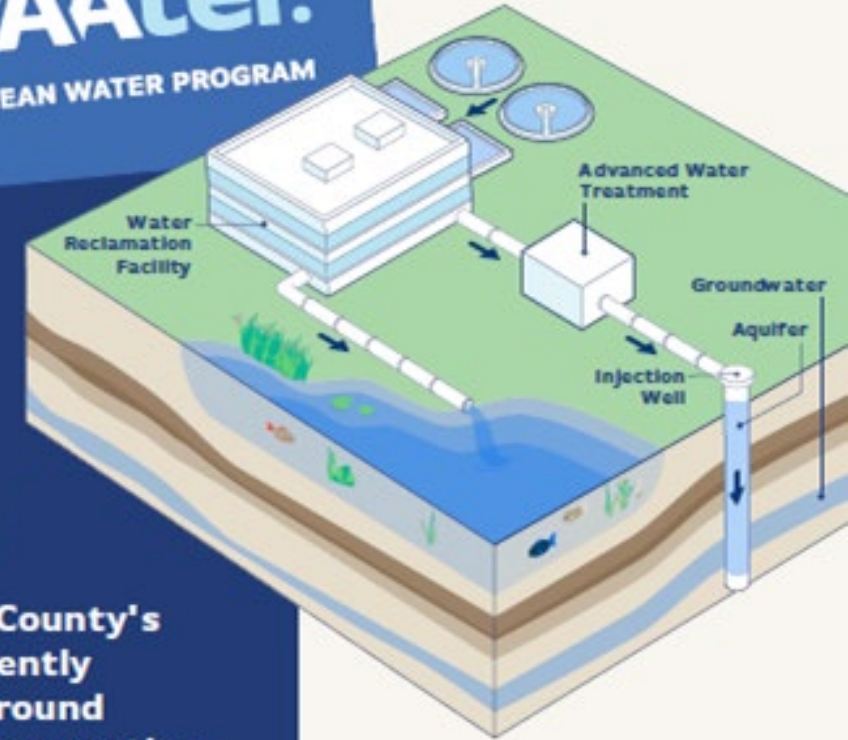
## Our wAAtEr.

THE ANNE ARUNDEL CLEAN WATER PROGRAM

## Managed Aquifer Recharge

All of Anne Arundel County's drinking water currently comes from underground aquifers. But our consumption is outpacing the rate that these underground aquifers naturally recharge.

Managed Aquifer Recharge can replenish groundwater supplies while simultaneously providing nutrient removal benefits by directly reducing the discharges to nearby water bodies.



The County is considering an approach that involves injecting recycled water that has been treated to drinking water standards into groundwater aquifers.

When water seeps into the ground to naturally recharge the aquifer, it creates a reserve that is less vulnerable to environmental influences (e.g. extreme weather, agriculture, and wildlife) than surface water in rivers and streams.

# Stormwater Improvements

- Goal: To restore streams and wetlands, and improve stormwater infrastructure



# Small Systems



- To work with smaller Anne Arundel County communities to find cost-effective ways to improve their privately-owned wastewater treatment or to connect them to a County-owned water reclamation facility.

## Did you know?



**Our future.  
Our WAAter.**

# Wastewater Treatment Enhancements



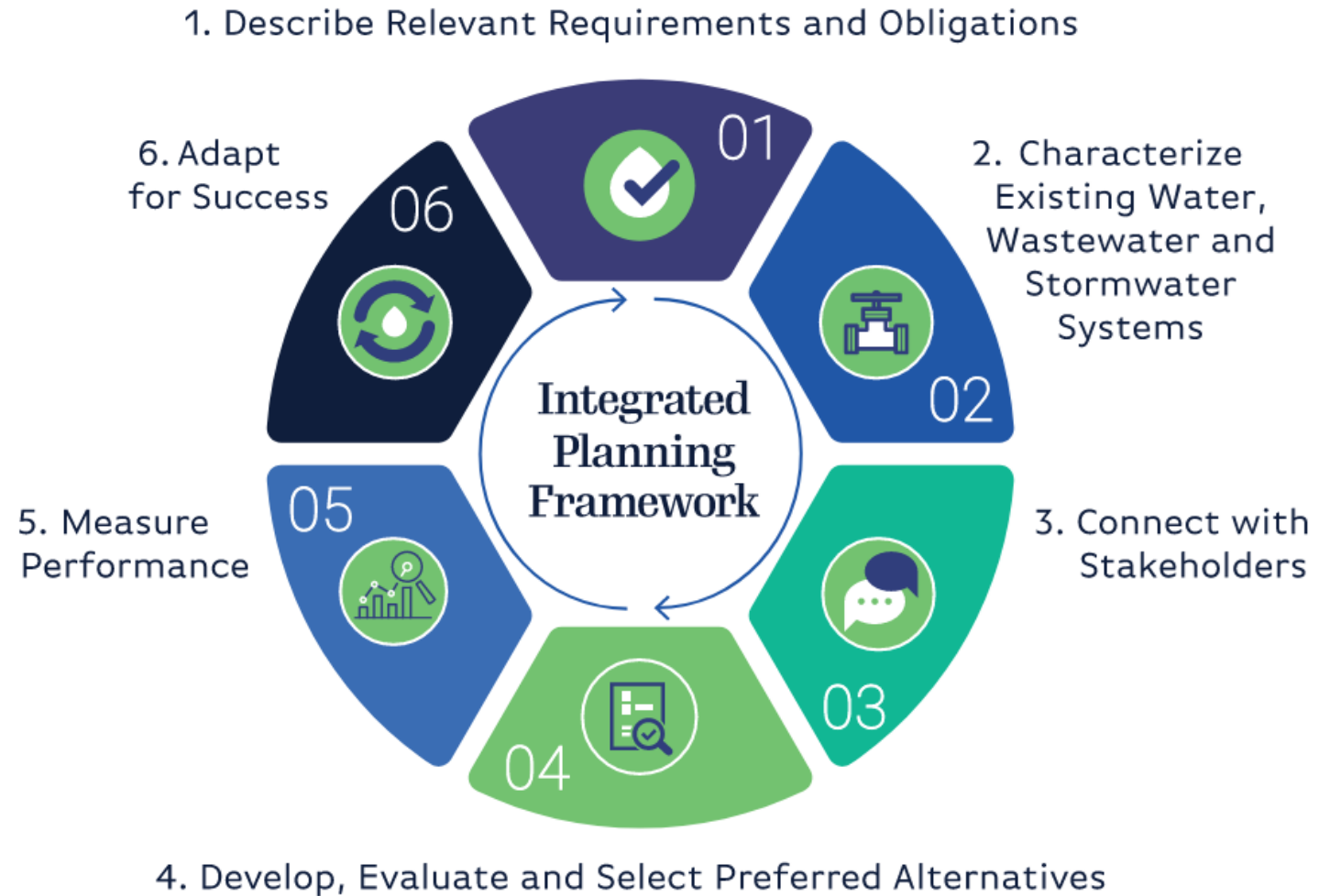
- To continue investments in innovative technology and advanced treatment that results in cleaner wastewater that is eventually discharged to local rivers and the Chesapeake Bay.



# Integrated Planning Approach Framework



- 6 Elements
- Voluntary path to comply with the Clean Water Act





# 30-Year Schedule

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- Long-term investment strategy to address system-wide infrastructure needs, improve water quality, and improve regulatory certainty over time
- **Goal:** Develop prioritized and balanced infrastructure investment strategy across the County's service area over the next 30 years



Address system-wide  
infrastructure needs



Meets regulatory  
requirements

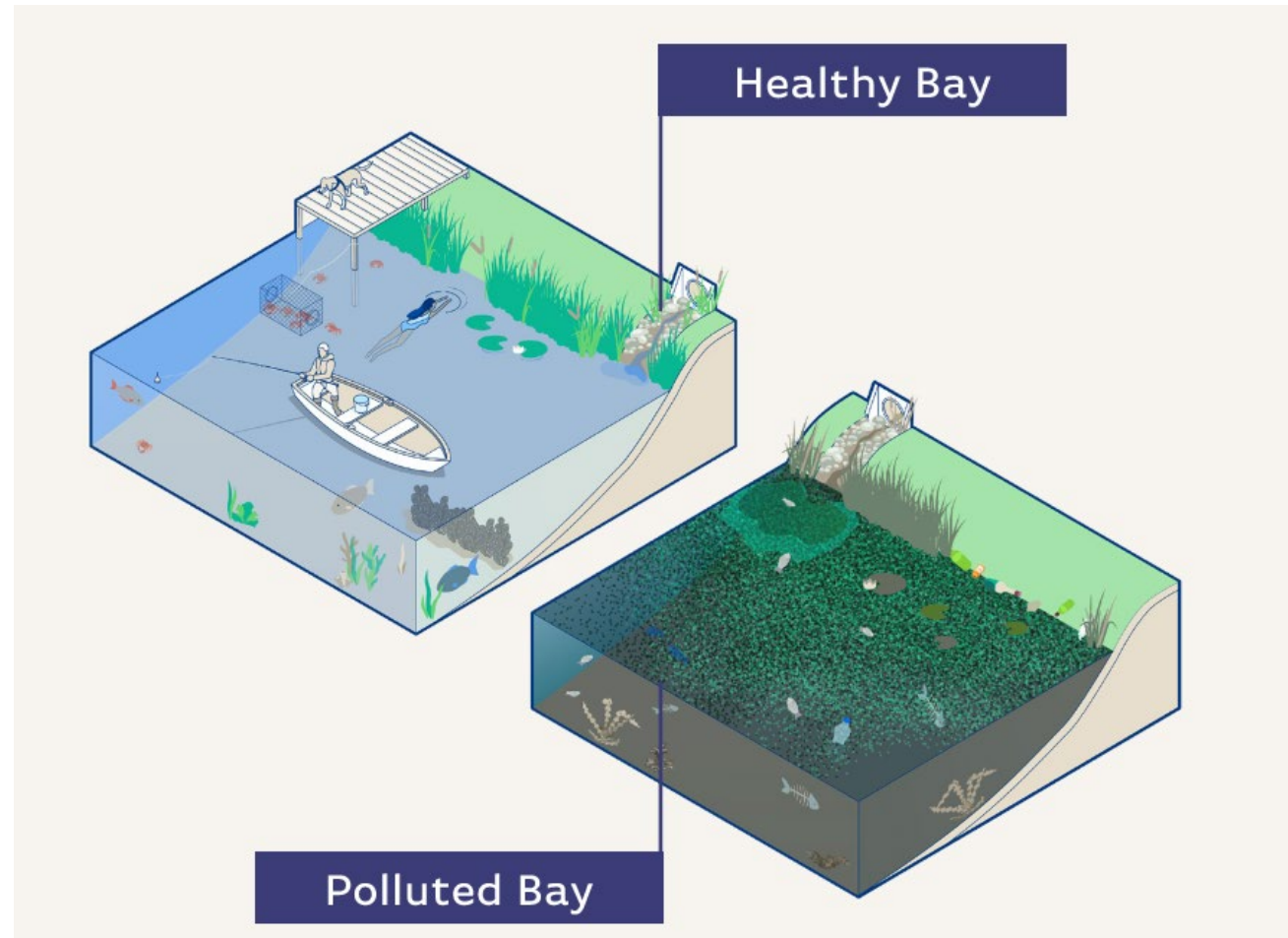


Improve water  
quality



# Existing Regulatory Drivers

- Water Reclamation Facility NPDES Permits
- MS4 Permit
- TMDL Requirements
- Enhanced Nutrient Removal
- Wet Weather Discharges
- EPA Lead and Copper Rule (LCR) Changes





# Evolving Regulatory Drivers

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- Phase III Watershed Implementation Plan (WIP)
- Constituents of Emerging Concern (CEC's)
  - PFAS (lifetime health advisories updated since draft IMP published)
- Biosolids Management
- Federal 304(a) Water Quality Criteria





# Utility Drivers

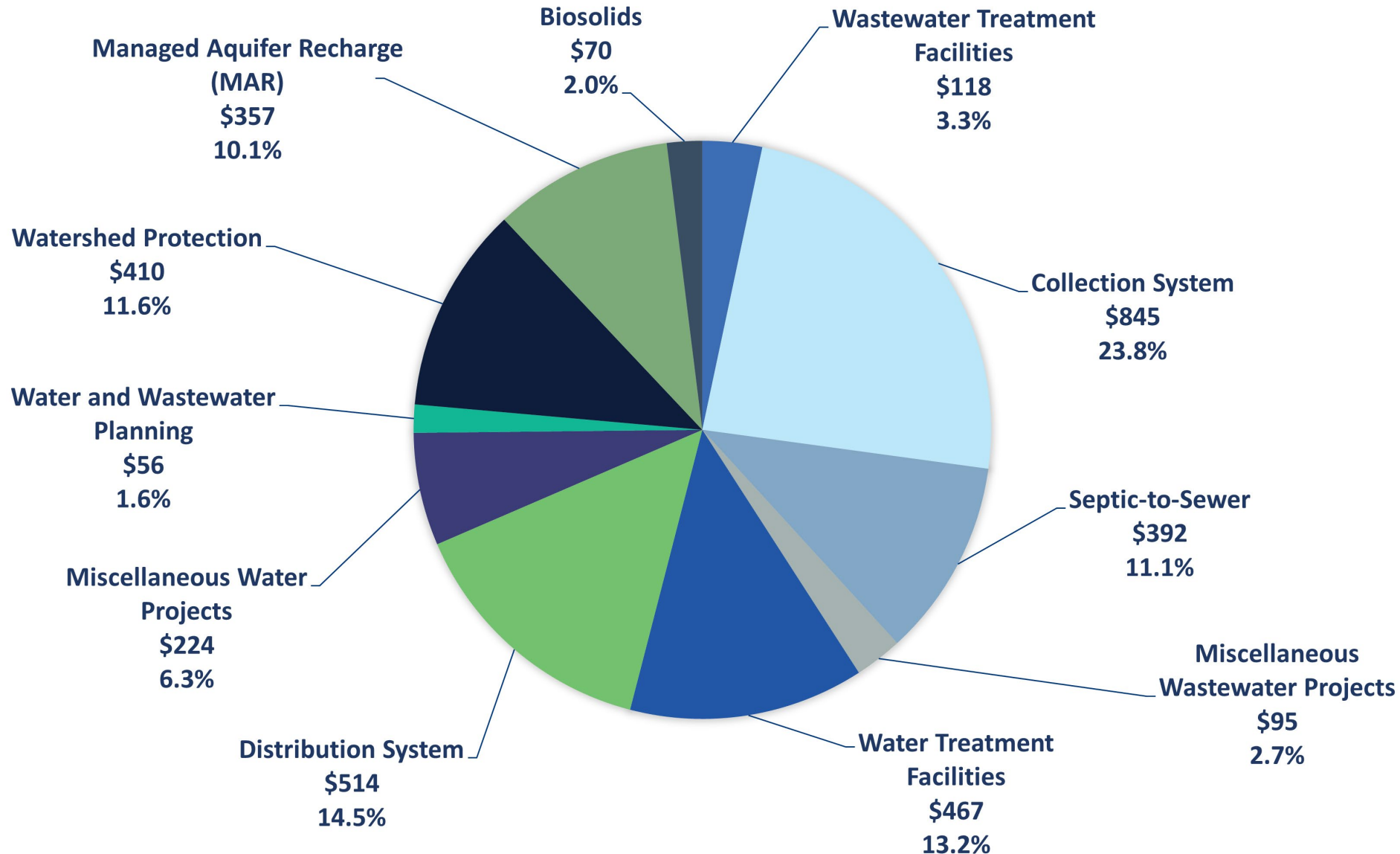
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- On-Site Wastewater Management Problem Areas
- Resource Recovery and Waste Acceptance
- Sea Level Rise/Inundation
- Water Supply Resiliency
- Diversity, Equity, and Inclusion

# Total 30-Year Investment\*: \$3.5 Billion



**\*Values in millions of dollars**



# Multiple Criteria Decision Analysis Tool

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- 1. Goal** – Identify projects that provide the greatest community and environmental benefit.
- 2. Projects and Programs** – The projects and programs were defined based on an assessment of forecasted needs through the year 2050.
- 3. Weighted Evaluation Criteria** – The weighting reflects the relative importance of each criterion. In this MCDA, the evaluation criteria reflect DPW’s Mission Statement.
- 4. Benefit Scores** – Benefit scores were developed to quantify how well each project address the planning objectives.



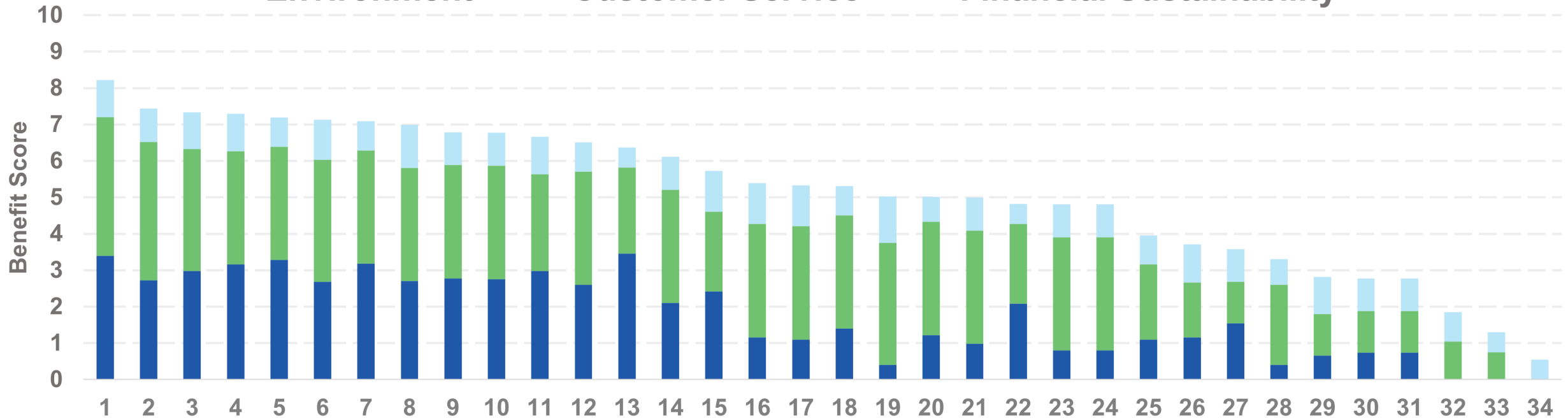
# Weighted Prioritization Criteria

Objective (Weight)	Sub-Objective (Weight)	Combined Weight
<b>Safeguard the Environment (0.4)</b>	Meet Regulatory Objectives (0.4)	0.16
	Watershed Protection and Restoration (0.24)	0.10
	Sustainable, Forward-Thinking Use of Natural Resources (0.16)	0.06
	Resiliency, Ability to Adapt (0.2)	0.08
<b>Customer Service (0.38)</b>	Maximize Public Health, Safety, and Welfare (0.6)	0.23
	Provide for Reliable Services (0.4)	0.15
<b>Financial Sustainability (0.22)</b>	Affordable for Customers (0.48)	0.11
	Partnered Financial Support (0.28)	0.06
	Economic Impact (0.24)	0.05

**Environment**

**Customer Service**

**Financial Sustainability**

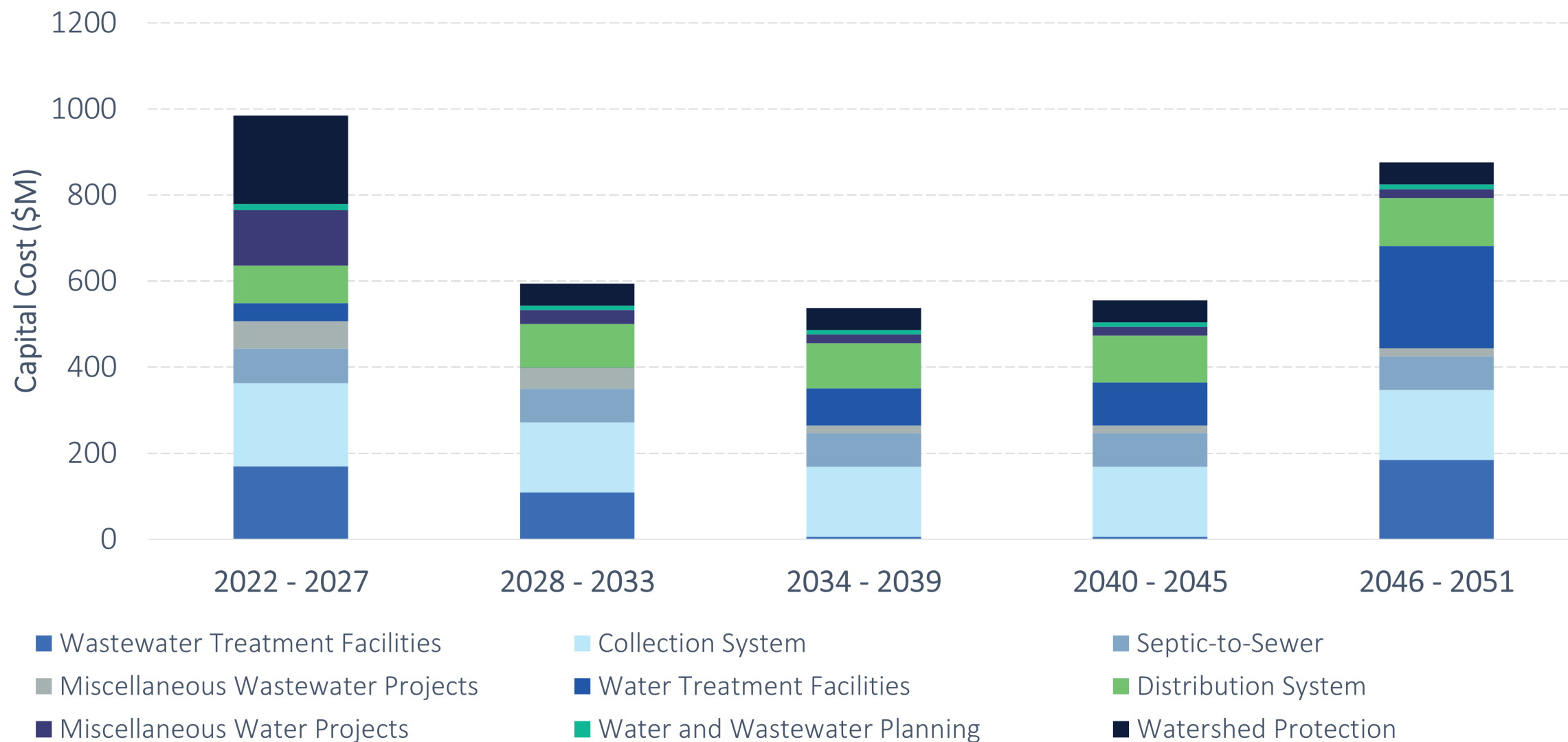


- 1 - Sewer Main Replacement & Reconstruction
- 2 - Stormwater Infrastructure
- 3 - Minor Systems Upgrades
- 4 - Upgrade/Retrofit Sanitary Sewer Pump Stations
- 5 - Ongoing WRF Upgrades
- 6 - Septic-to-Sewer
- 7 - Ongoing WTP Upgrades
- 8 - Managed Aquifer Recharge (MAR)
- 9 - Broadneck WRF Upgrade
- 10 - Baltimore County Sewer Agreement
- 11 - Grinder Pump Replacements & Upgrades
- 12 - WRF Infrastructure Upgrades/Retrofit
- 13 - Stormwater Permit Cycle 3 Placeholder

- 14 - Sewer Extensions
- 15 - SPS Facility Generator Replacements
- 16 - Water Main Repl./Recon., Water Storage Tank Painting, & WTR Infrastr. Up/Retro
- 17 - Existing Well Redevelopment and Replacements
- 18 - Aquifer Storage and Recovery (ASR)
- 19 - Fire Hydrant Rehabilitation
- 20 - TM-M Rte 32 @ Meade & E/W TM
- 21 - Elevated Water Storage
- 22 - Planning
- 23 - Water Facility Emergency Generators
- 24 - Water Extensions

- 25 - Millersville WTP (10 MGD)
- 26 - Billing (AMI/AMR)
- 27 - Cox Creek WRF Expansion
- 28 - Wastewater Service Connections
- 29 - Biosolids
- 30 - Crofton Meadows II Expansion Phase II
- 31 - WTP Construction/Expansions
- 32 - State Highway Sewer Relocation
- 33 - Dorsey Road Offline
- 34 - Demolition

# 30-Year IMP Investment Schedule



# Draft 30-Year IMP Program Budget: 2022-2051



## Draft 30-Year IMP Program Budget (2022-2051)



**Total: \$3.5 Billion**



# Six-Year IMP Investment Schedule

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- DPW will prioritize future program improvements to address the most critical environmental and public health issues first
- Top tier:
  - Projects that maintain regulatory compliance
  - Projects that protect water quality
  - Projects that protect human health
  - Includes projects within the Our wAAtEr program
- DPW will explore opportunities for improving efficiency and sustainability



# Adaptive Management

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- Identify adaptive management activities that allow refinement of priorities based on new information, for example:
  - Evolving Infrastructure Initiatives
    - Asset Management
    - Advanced Metering Infrastructure
  - Biosolids
  - PFAS
- Successful outcomes will be measured through KPI monitoring program and verification of established milestones





05

Next Steps

# Next Steps: Meeting Series Overview



**Meeting 2: Septic to Sewer/Small Systems**

**Meeting 3: Site visit to MAR pilot demonstration +  
MAR discussion**

**Meeting 4: Project Prioritization Exercise**

**Meeting 5: Present Updated IMP**

*Additional In-depth meetings can be  
scheduled for specific program elements*





# Next Steps: Meeting Frequency

<b>Proposed Meeting Frequency:</b> Third Wednesday of each month	<b>Revised Dates:</b>
November 16, 2022	-
<del>December 21, 2022</del>	December 14, 2022
<del>January 18, 2023</del>	January 25, 2023
<del>February 15, 2023</del>	February 15, 2023
<del>March 15, 2023</del>	March 15, 2023

*Additional In-depth meetings can be scheduled for specific program elements*

**Our wAAter.**

**Thank you!**

Clean  
Our w

Protect  
Our wAAter.

Preserve  
Our wAAter.

Save  
Our wAAter.

Our wAAter.

THE ANNE ARUNDEL CLEAN WATER PROGRAM

