



HRSD's Integrated Plan

A Regional Collaboration

Success Story

July 20, 2023



Population served: 1.9 million

14th Largest Wastewater Utility



Political Subdivision created in 1940
Serves 20 Cities and Counties



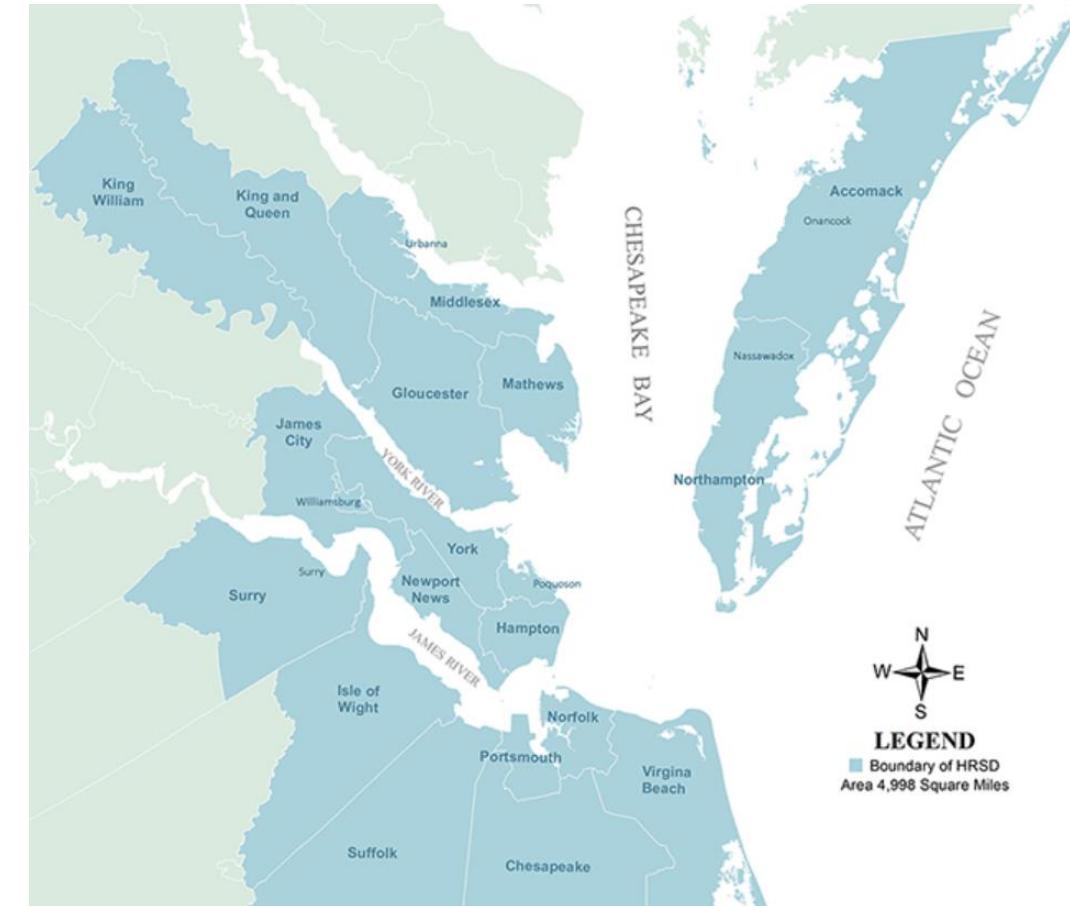
Combined wastewater treatment
capacity: 225 million gallons/day



Operate 8 major and 6 smaller treatment
plants and more than 100 pump stations



Separate Sanitary System with > 500 miles
of pipe



Hampton Roads Primary Environmental Regulatory Drivers

- Clean Water Act Compliance
 - For Sanitary Sewer Overflows (SSOs)
- Chesapeake Bay Restoration
 - Nutrient Reduction
 - Total Maximum Daily Load (TMDL) – “Pollution Diet”



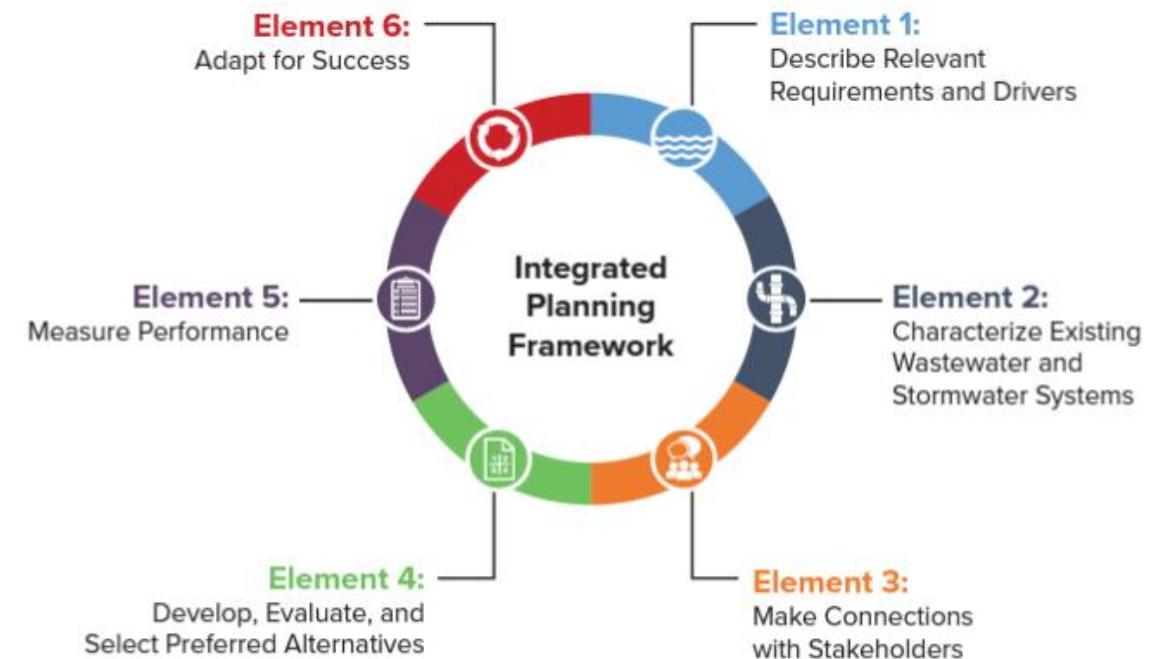
Chesapeake
Bay TMDL Phase III
Watershed
Implementation
Plan (WIP)



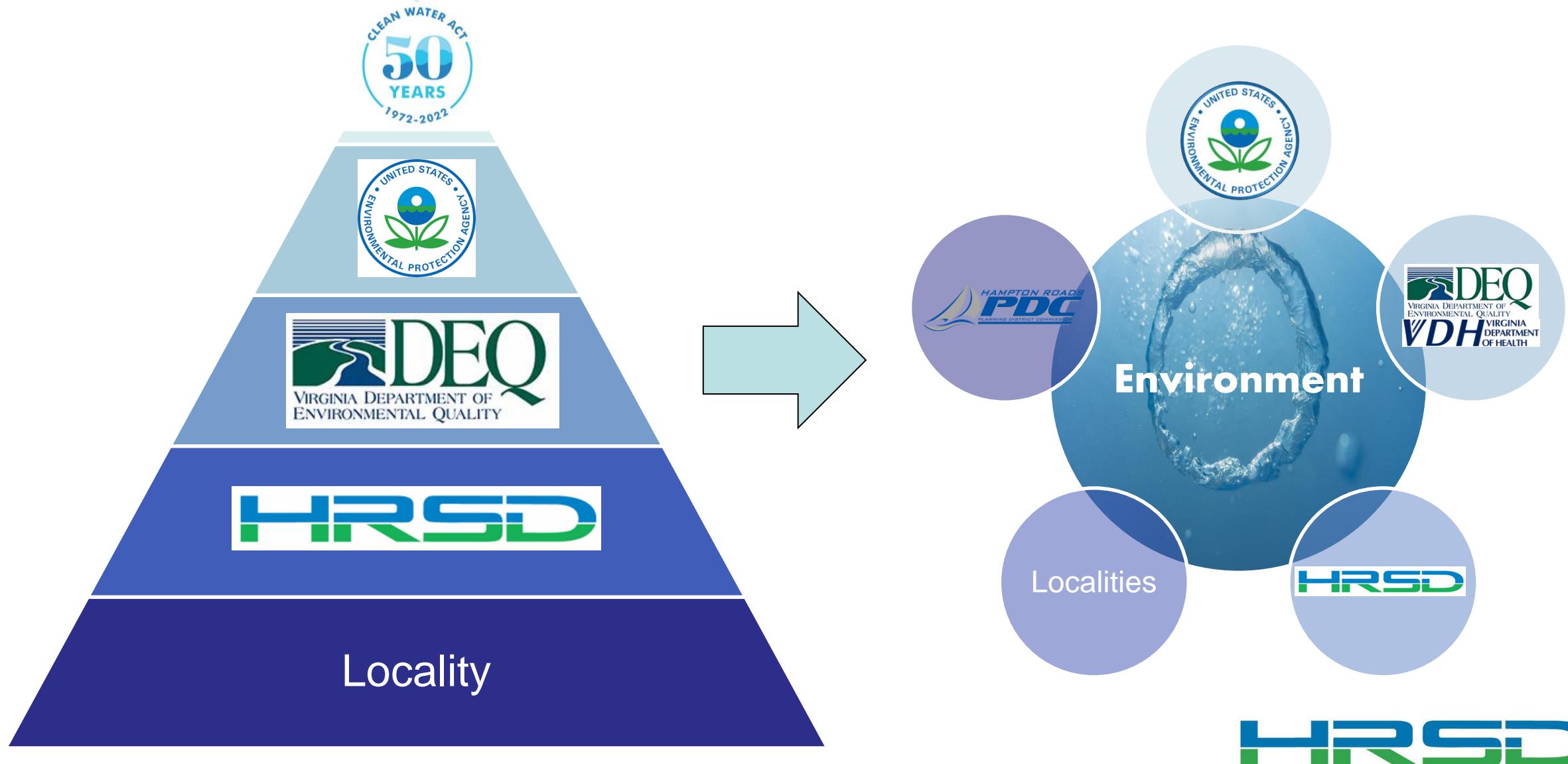
EPA's Integrated Planning Framework

*Integrated planning is a process for municipalities to **achieve clean water and human health goals** while addressing aging wastewater and stormwater infrastructure, changing population and rainfall patterns, and **competing priorities for funding**.*

- Requires stakeholder collaboration
- One water mindset
- Innovative solutions
- Community have limited resources – Prioritization!



Collaborative Process through Integrated Planning



Evolution from EPA Consent Decree for Sanitary Sewer Overflows to an EPA Integrated Plan (IP)

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022



Develop Regional Wet Weather Management Plan – Estimated @ \$1.8B

Aquifer Replenishment Program (ARP)



Feasibility

Pilot



Design

Alternatives Analysis

4th Amendment

Locality Trading Agreement

Integrated Plan Development

5th Amendment

EPA INTEGRATED PLANNING
“...prioritize capital investments and achieve our human health and water quality objectives.”



IP SIGNED Feb 8, 2022

HRSD's Integrated Plan – Dual Compliance

2021 2022 2023 2024 **2025** 2026 2027 2028 2029 **2030** 2031 **2032** 2033 2034 2035 2036 2037 2038 2039 **2040 - 2043**

\$800M Phase 1,
Rehab Action Plan



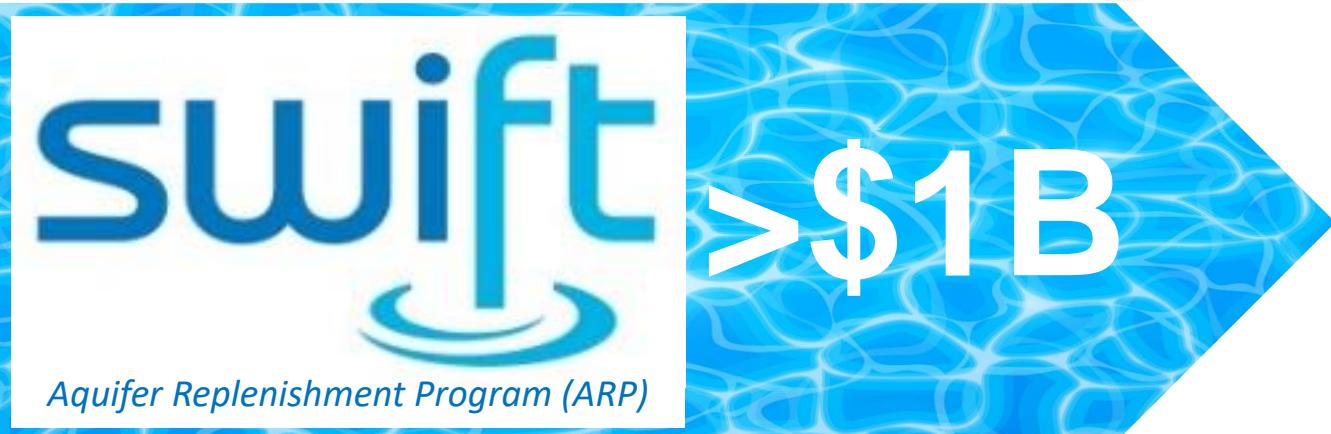
Adaptive Mgt

\$200M High Priority 1

-47%
SSO

\$205M High Priority 2

-69%
SSO



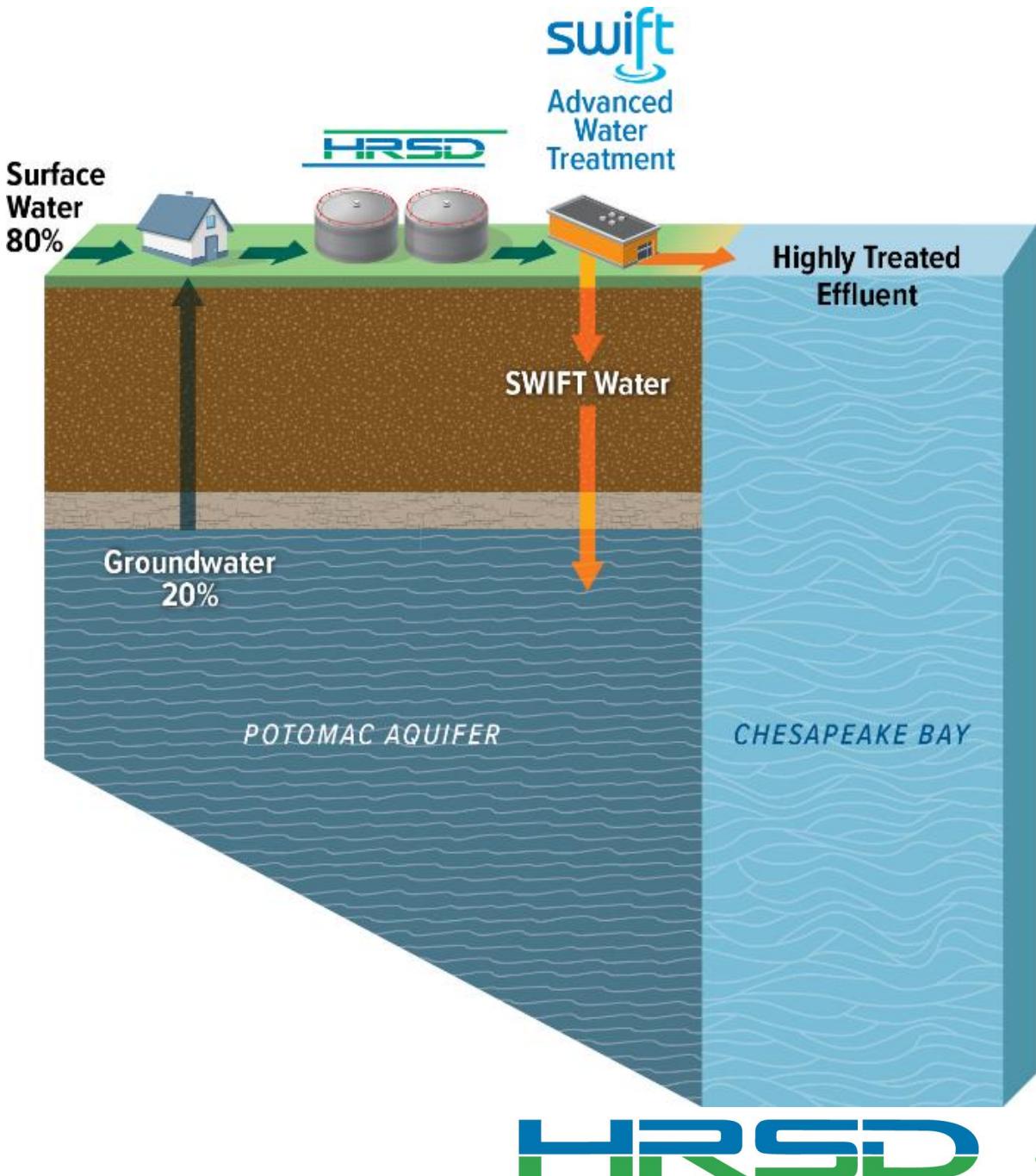
\$20M Microbial Source Tracking

HRSD

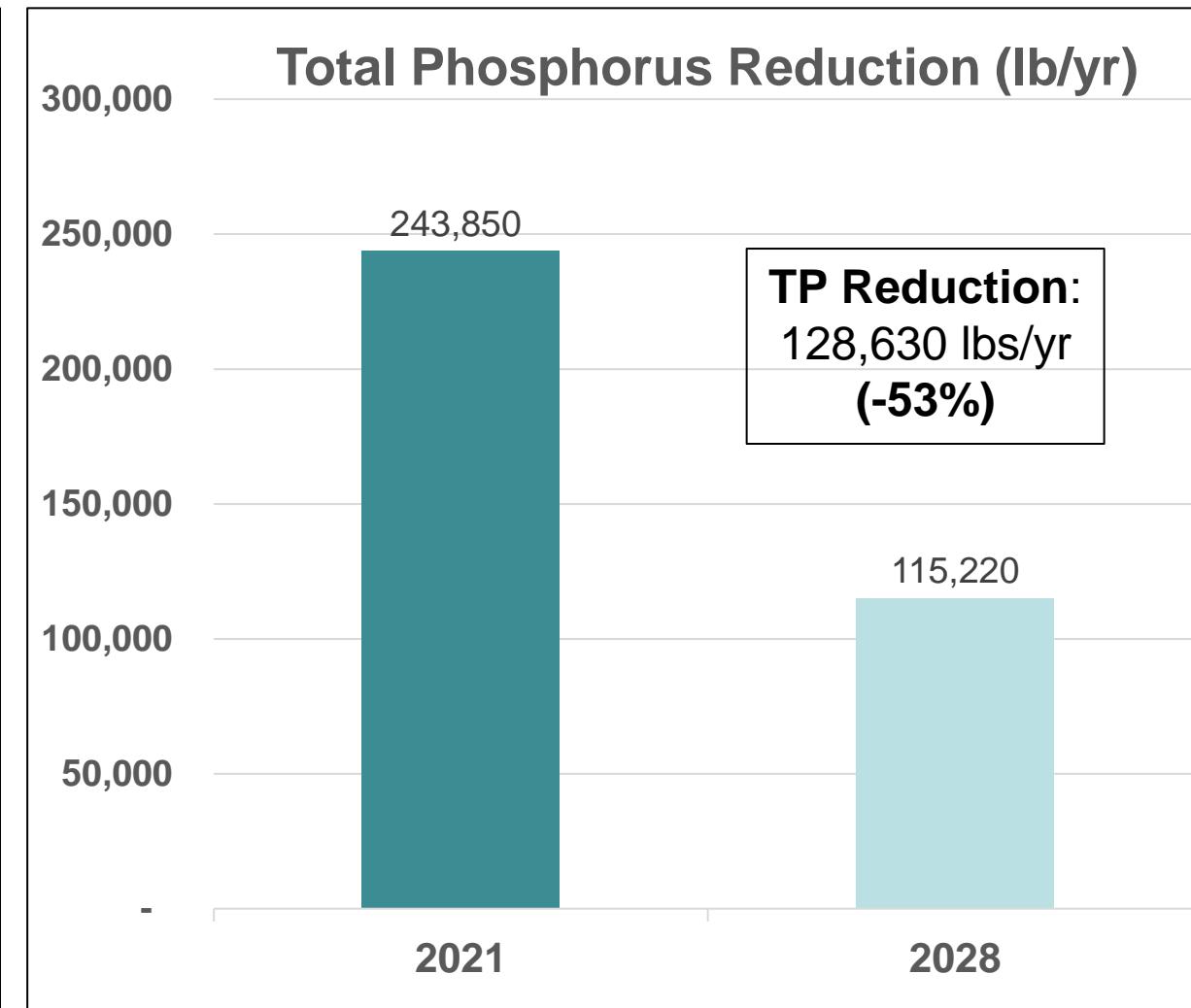
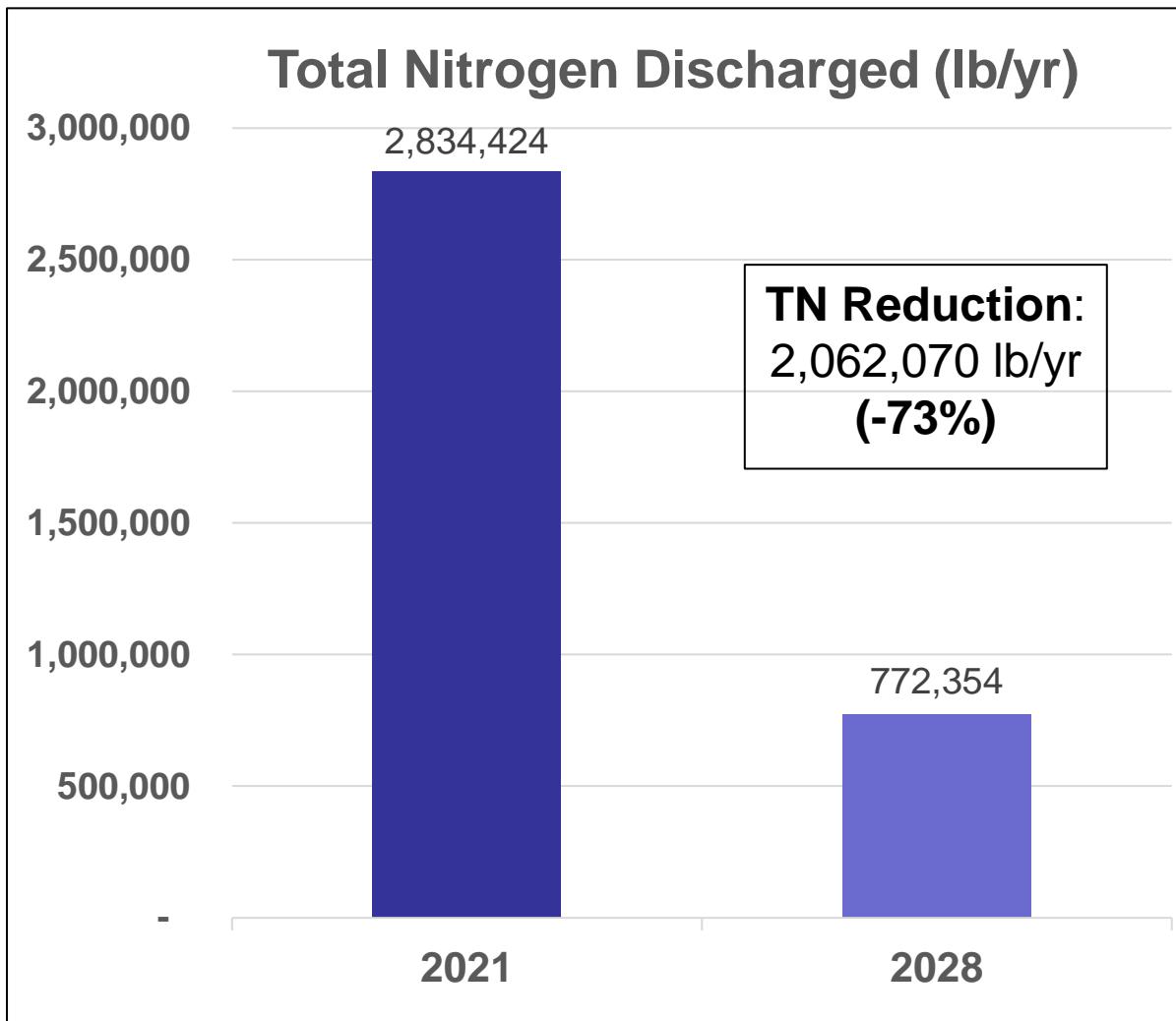
\$2M Post Construction Monitoring

SWIFT water that meets drinking water standards:

- Reduce nutrient discharge
- Sustainable groundwater supply
- Reduce land subsidence
- Protect from saltwater contamination



Significant Reduction in Nutrients discharged by 2028 – Lower James River Basin



Locality Stormwater Retrofits Required by 2025 2017 Nutrient Trading Agreements

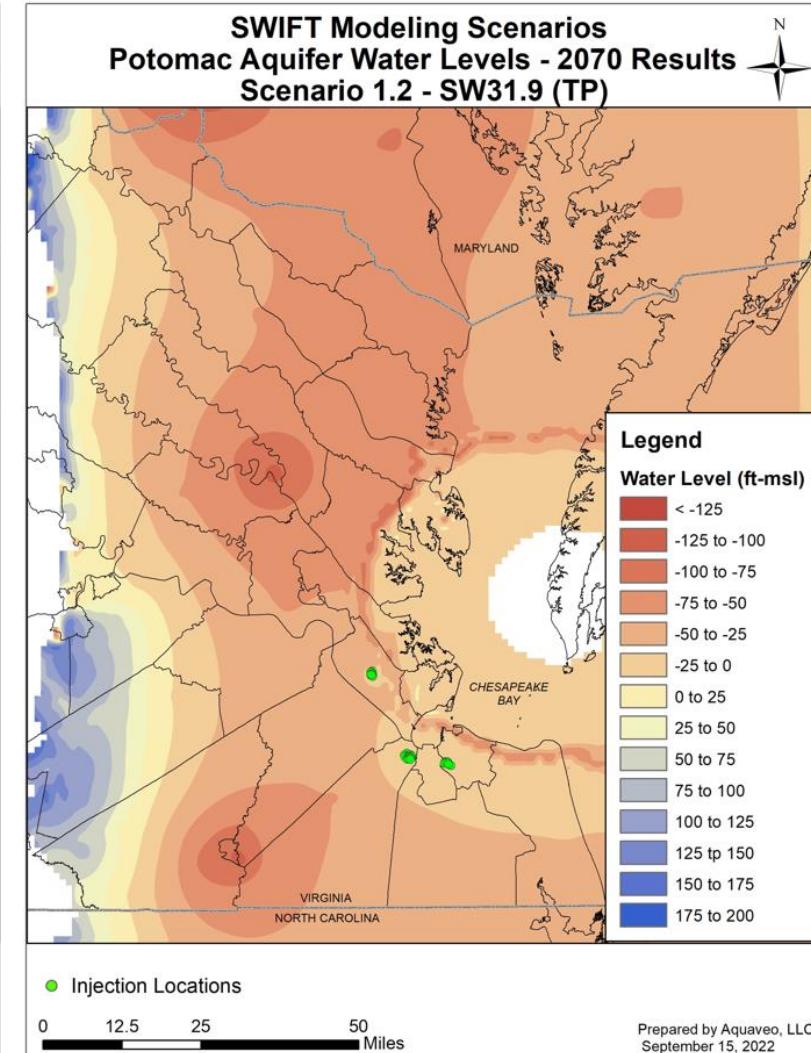
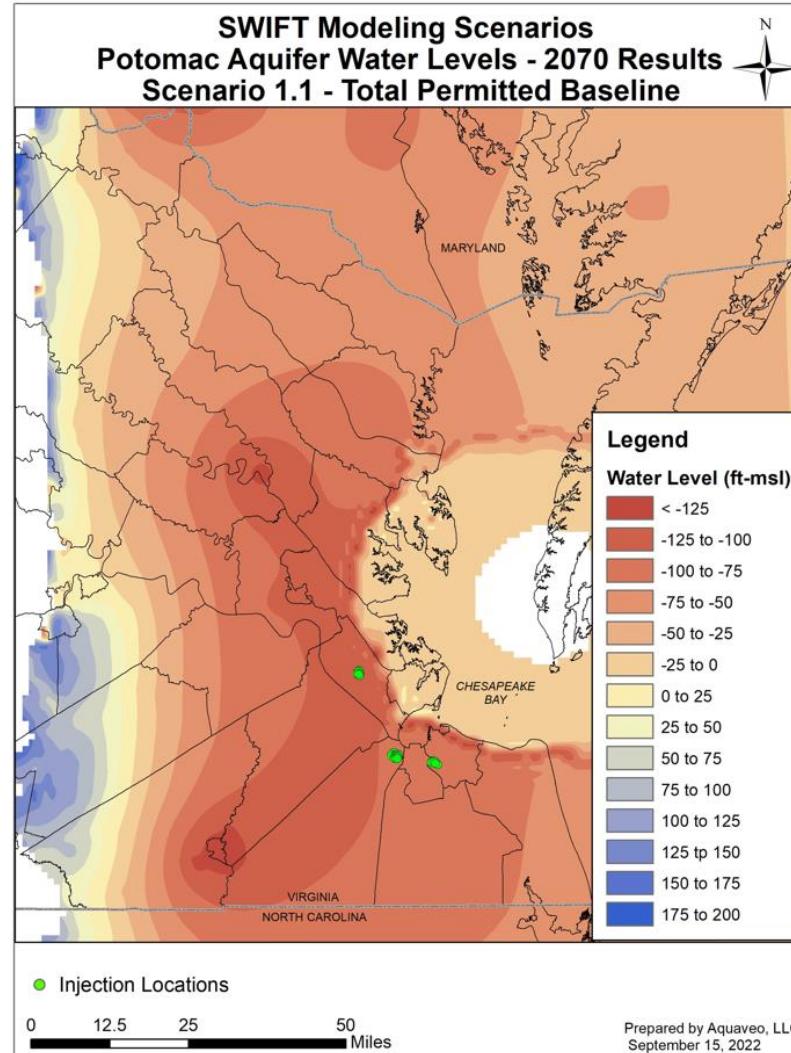
- In 2017, HRPDC estimated the regional stormwater retrofits would cost **\$1.8B (\$2.2B in 2023\$)**
- HRSD will annually transfer nutrient credits to each Locality to ensure stormwater retrofit compliance
- **No cost**
- Subject to Federal, State and Local approvals

Locality	Total Cost over 15 years	Locality	Total Cost over 15 years
Chesapeake	\$255M	James City County	\$87M
Hampton	\$198M	Poquoson	\$14M
Newport News	\$224M	Suffolk	\$109M
Norfolk	\$280M	Williamsburg	\$18M
Portsmouth	\$125M	York County	\$94M
Virginia Beach	\$323M	Gloucester County	\$33M
Isle of Wight	\$40M	Surry County	\$7M
Hampton Roads	\$1.8B		
			Nov 2017

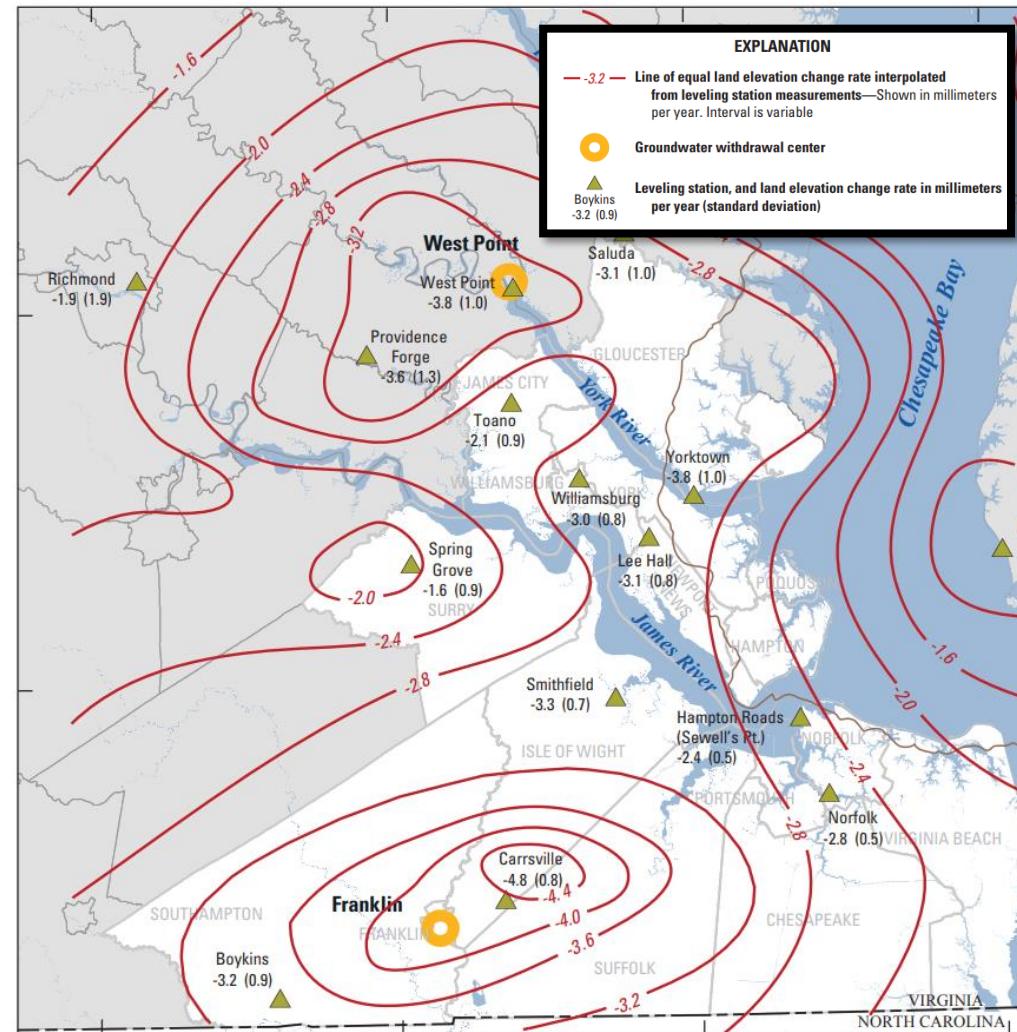


SWIFT Provides a Sustainable Water Supply

- Aquifer does not naturally replenish
- 77% Reduction in Critical Cells
- +50' to + 75' in pressure head
- Reverses decades of declines



- NOAA estimates **one-third of Sea-Level Rise** is due to land subsidence



What does the Integrated Plan mean for the region economically?

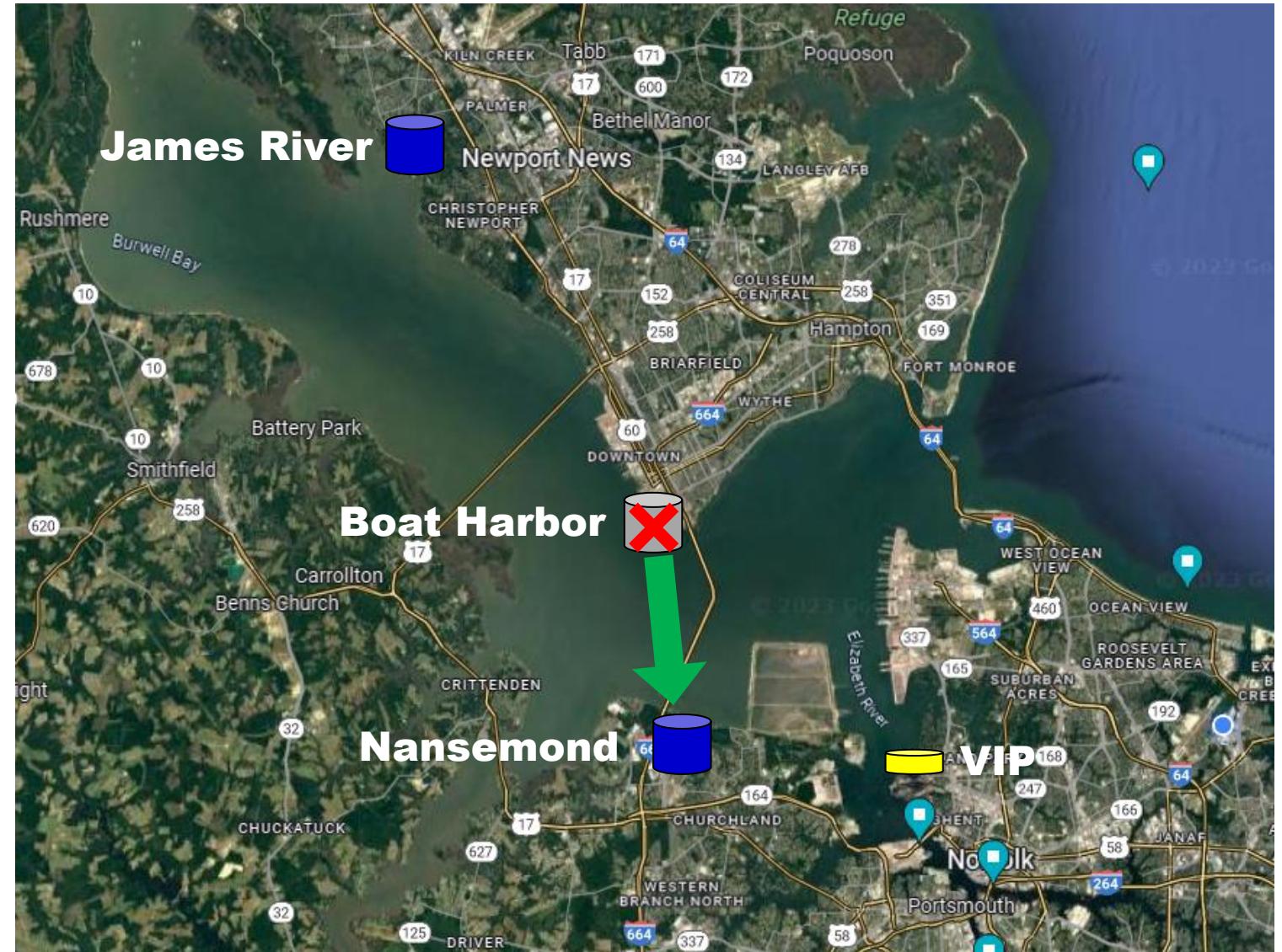
- **HRSD's Integrated Plan = \$2.8B, Dual Compliance Benefit**
- **Without an Integrated Plan = \$7.8B**
- Clean Water Act Compliance - \$4.1B
 - Each Locality builds wet weather capacity = \$2.7B
 - HRSD builds wet weather capacity = \$1.4B
- Chesapeake Bay TMDL (Nutrient Reduction) - \$3.7B
 - HRSD nutrient reduction plants = \$1.5B
 - Locality stormwater retrofits = \$2.2B

HRSD's Integrated Plan saves the region \$5.0B*

**This does not include the value of sea-level rise mitigation, sustainable water supply and protection from saltwater intrusion*

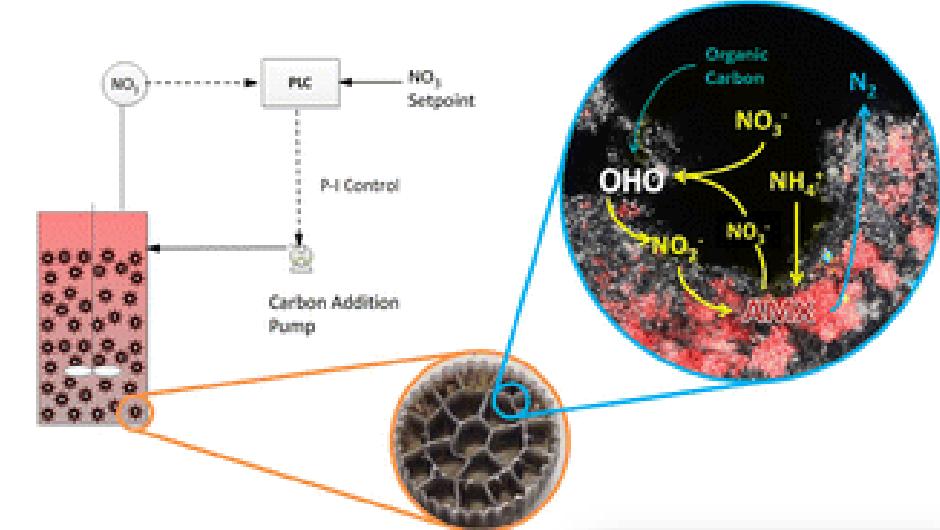
SWIFT Phase 1

- 50 MGD SWIFT Capacity
- James River
 - Newport News
 - 2026 Completion
- Boat Harbor
 - Newport News
 - 2026 Completion
- Nansemond
 - Suffolk
 - 2028-2030 Completion
- VIP
 - Norfolk
 - 2032 Completion



Partial Denitrification Anammox (PdNA)

- Patented and licensed technology with DC Water
- Over a decade's worth of research
- York River Plant – **first in the world**
 - 80% less chemicals
 - 50% less power
 - Saves \$1 million a year
 - Saved over \$10 million capital costs
- Potential to revolutionize wastewater treatment



Mutually beneficial partnership for the region and our residents

- Our SWIFT program and conveyance projects are needed to comply with the Integrated Plan
- Key compliance dates coming up
 - 2025 Rehab Action Plan
 - 2026 Nutrients
 - 2030 High Priority 1 Projects
 - 2032 Nutrients and SWIFT
- Locality approvals needed



Always researching ways to lower costs and keep our waterways clean



HRSD

Questions?