



Urban Stormwater: The Growing Source

Myth or Fact?

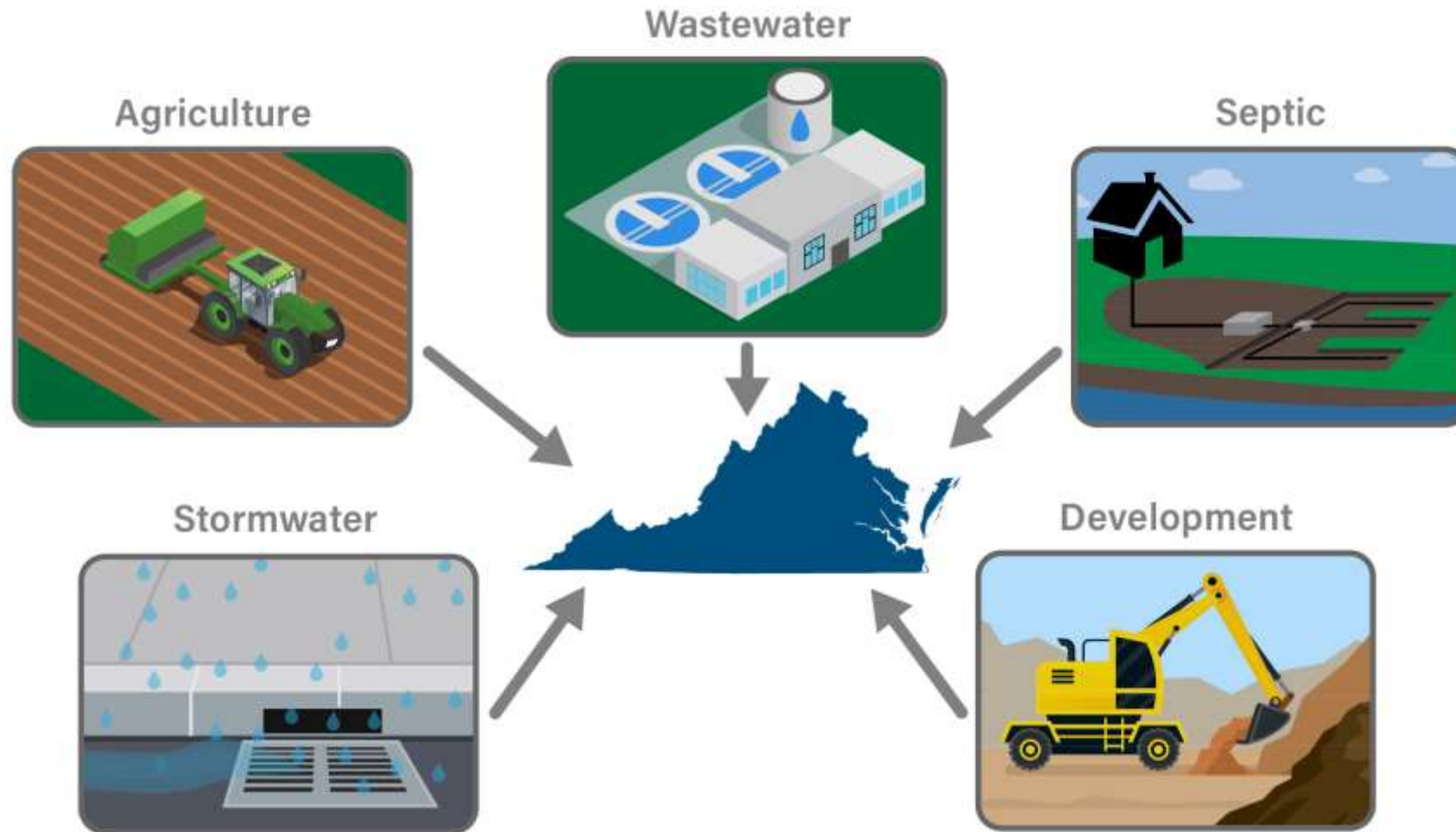
Presentation to the Chesapeake Bay Commission

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Director
Virginia Department of Environmental Quality
August 10, 2023

3 Questions Posed:

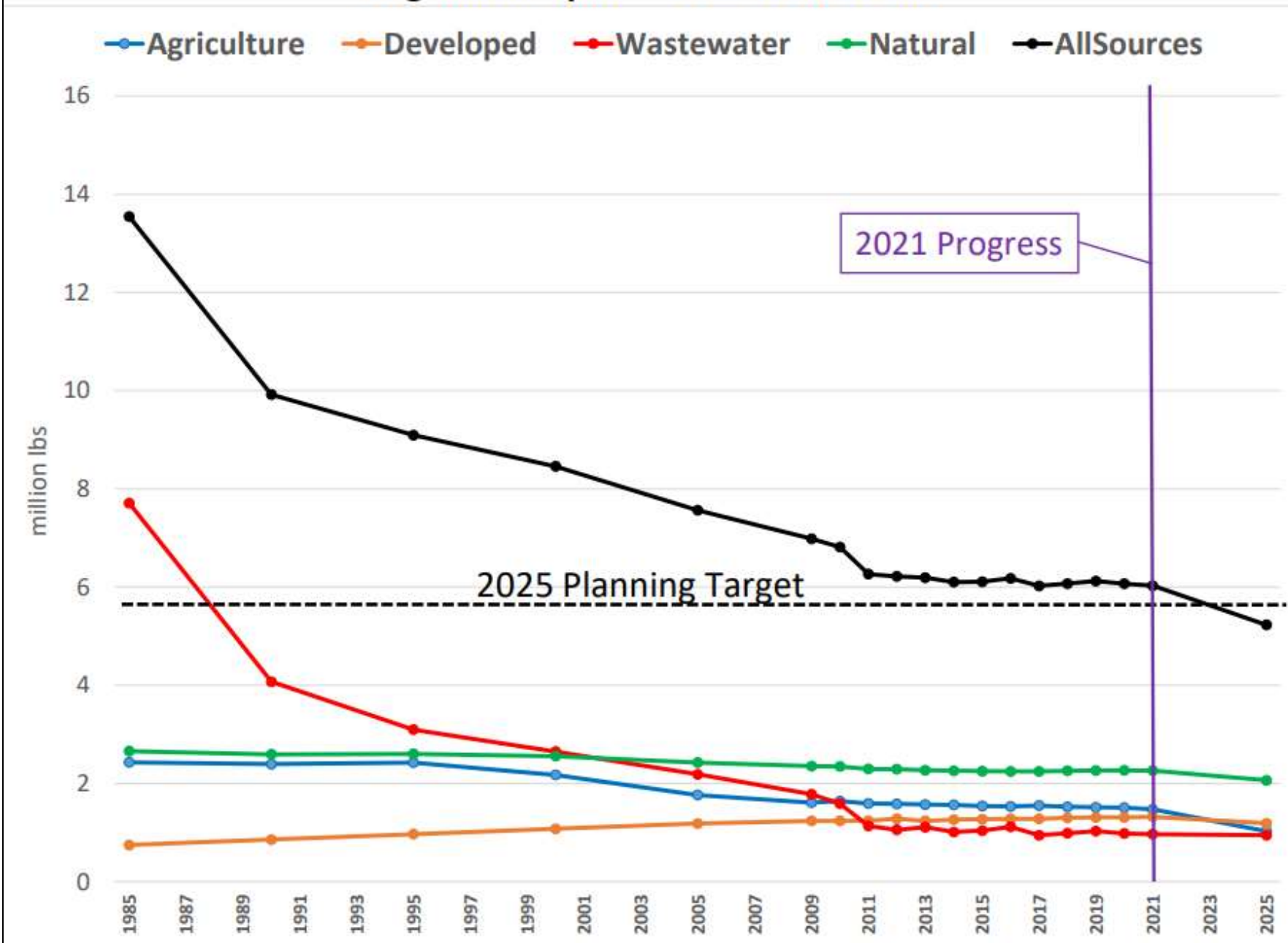
- How is Virginia adapting the regulatory landscape to address the only growing source of pollution?
- What has been done so far and what changes are needed to streamline our efforts?
- How could Virginia achieve targeted pollution-reduction outcomes?

Each sector is working towards their goals



We want all sectors to team up to meet the Commonwealth of Virginia's goals.

Virginia Phosphorus Loads and Goals

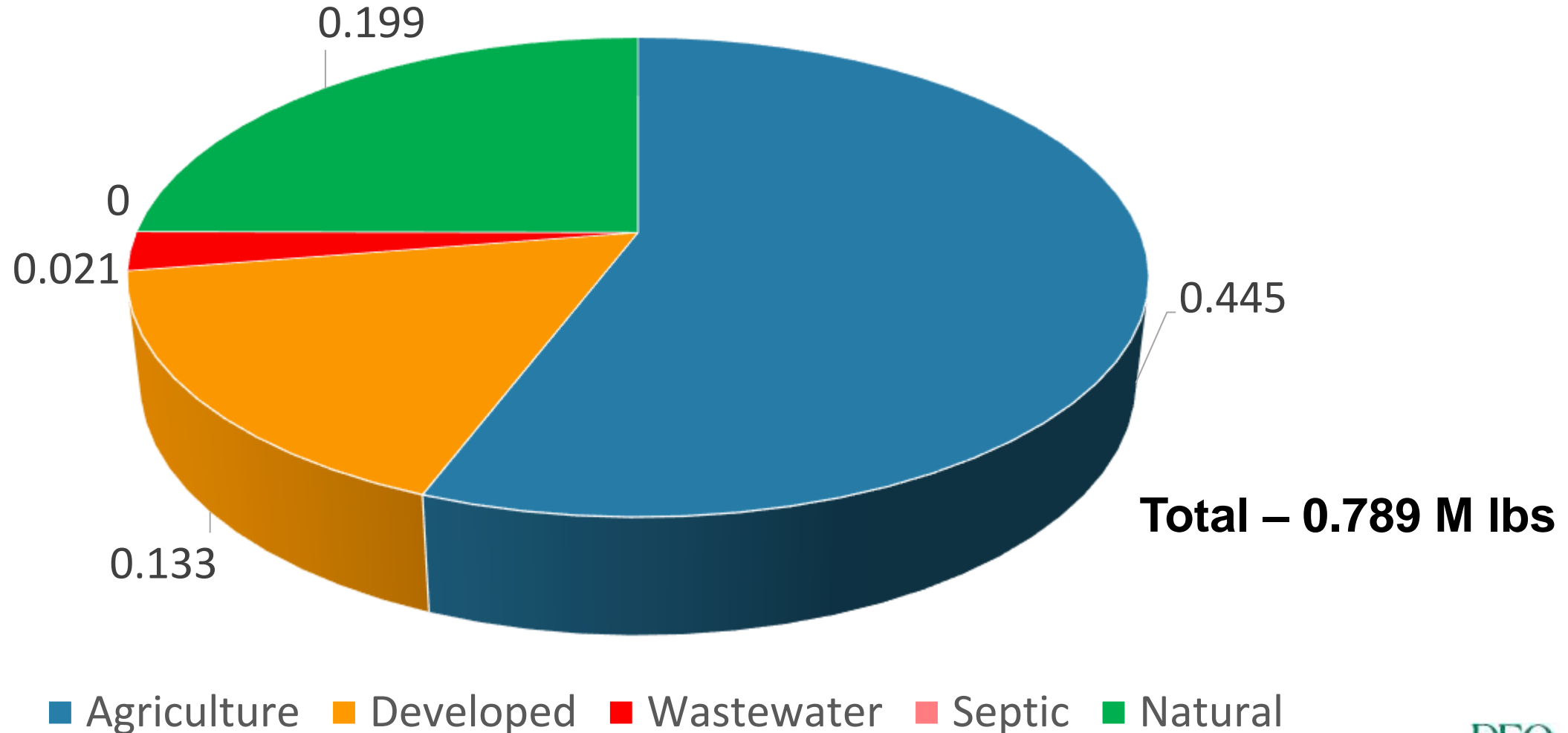


Presentation to Virginia Nutrient Credit Exchange Association, December 2022



Virginia Phosphorous Gaps by Source

2021 to 2025 Milestone Gap (M lbs/year)

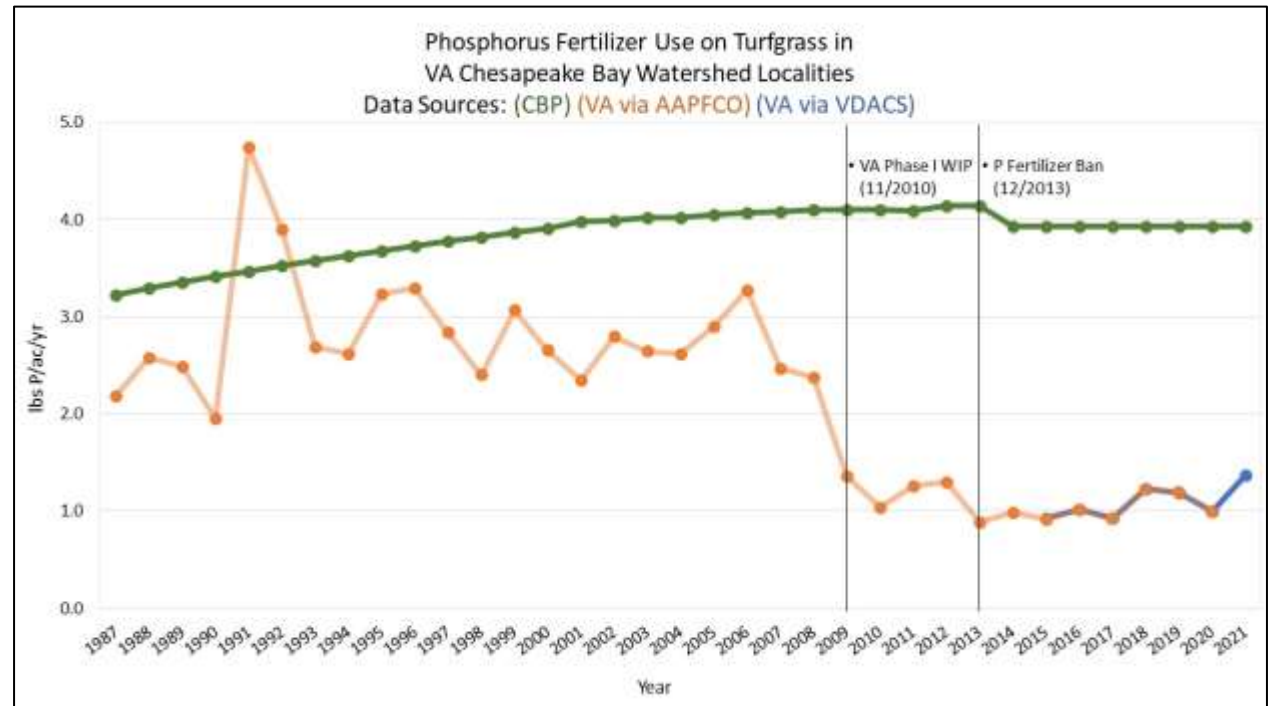


Background on Phosphorous

- Current Chesapeake Bay Watershed Model (CBWM) (2021) shows growing TP load, and a “gap” of 789,000 lbs
- 2014 – New SW Regulations set statewide TP goal/acre
- No net increase on new development
 - 20% reduction for redevelopment (10% if <1 acre)
 - 5- and 10-year grandfathering
- Lawn fertilizer ban not reflected in current CBWM Model Run

Lawn Fertilizer

- WIP I (2010) and HB1831 (2011) banned most total phosphorus (TP) in lawn fertilizer
- 4 million lbs/yr TP reduction in lawn fertilizer application in VA
- Bay Model and VRRM to be updated



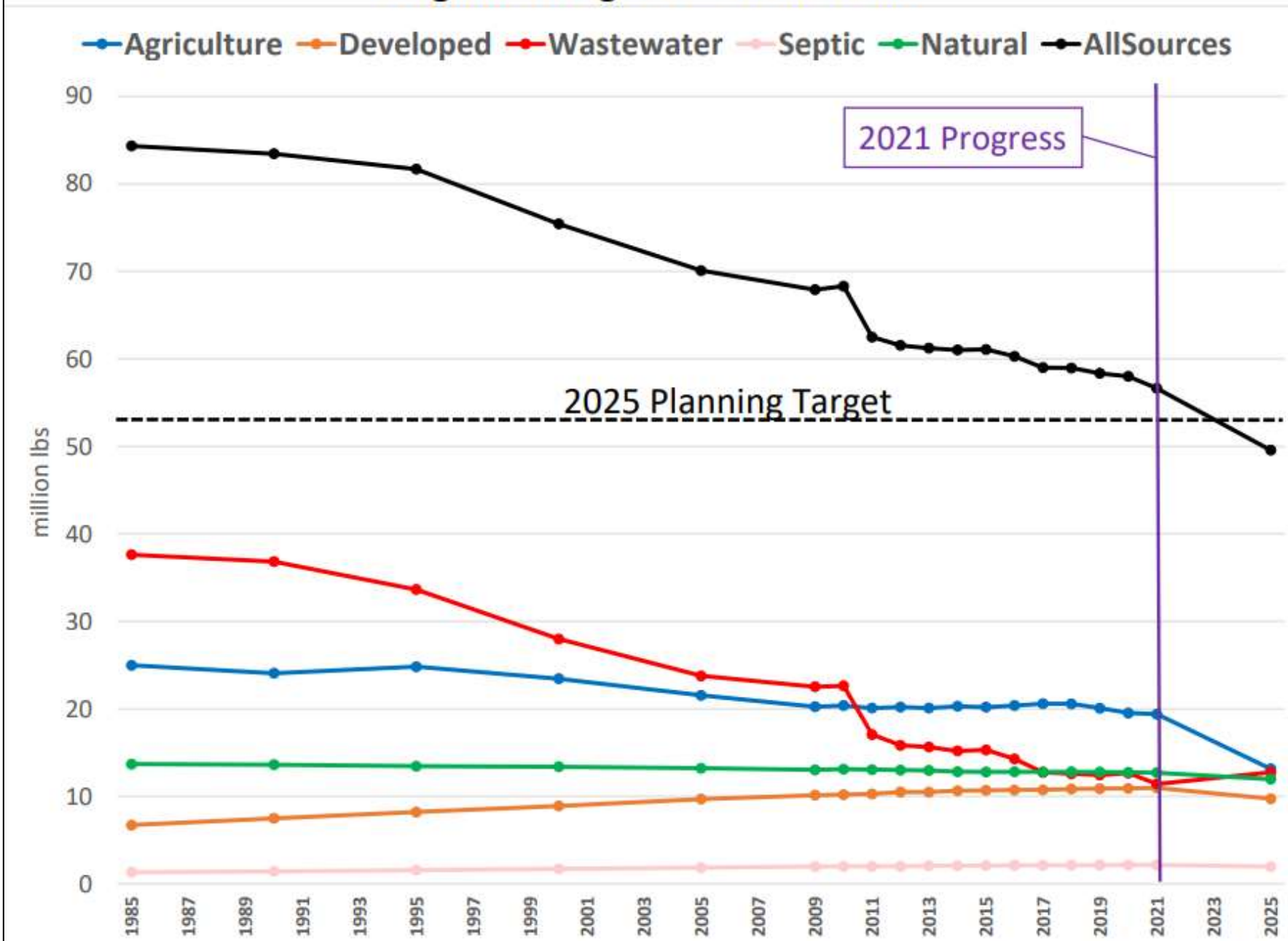
Facts on Urban Stormwater TP

Area			
	2014	2021	%
Impervious Area (ac)	662,835	672,820	+1.5%
Turf Area (ac)	1,139,556	1,187,648	+4.1%
Total	1,802,391	1,860,468	+3.2%

Total Phosphorous (#s)			
	CAST 2014 w/ BMPs	VRRM 4.0 (Using Special CAST Run)	%
Impervious	529,034	577,280	+8.7%
Turf	1,547,946	826,603	-46.6%
Total	2,076,980	1,403,883	-32.4%

TP Reduction = 673,000 lbs
Almost (85%) meets entire TMDL gap for all sectors

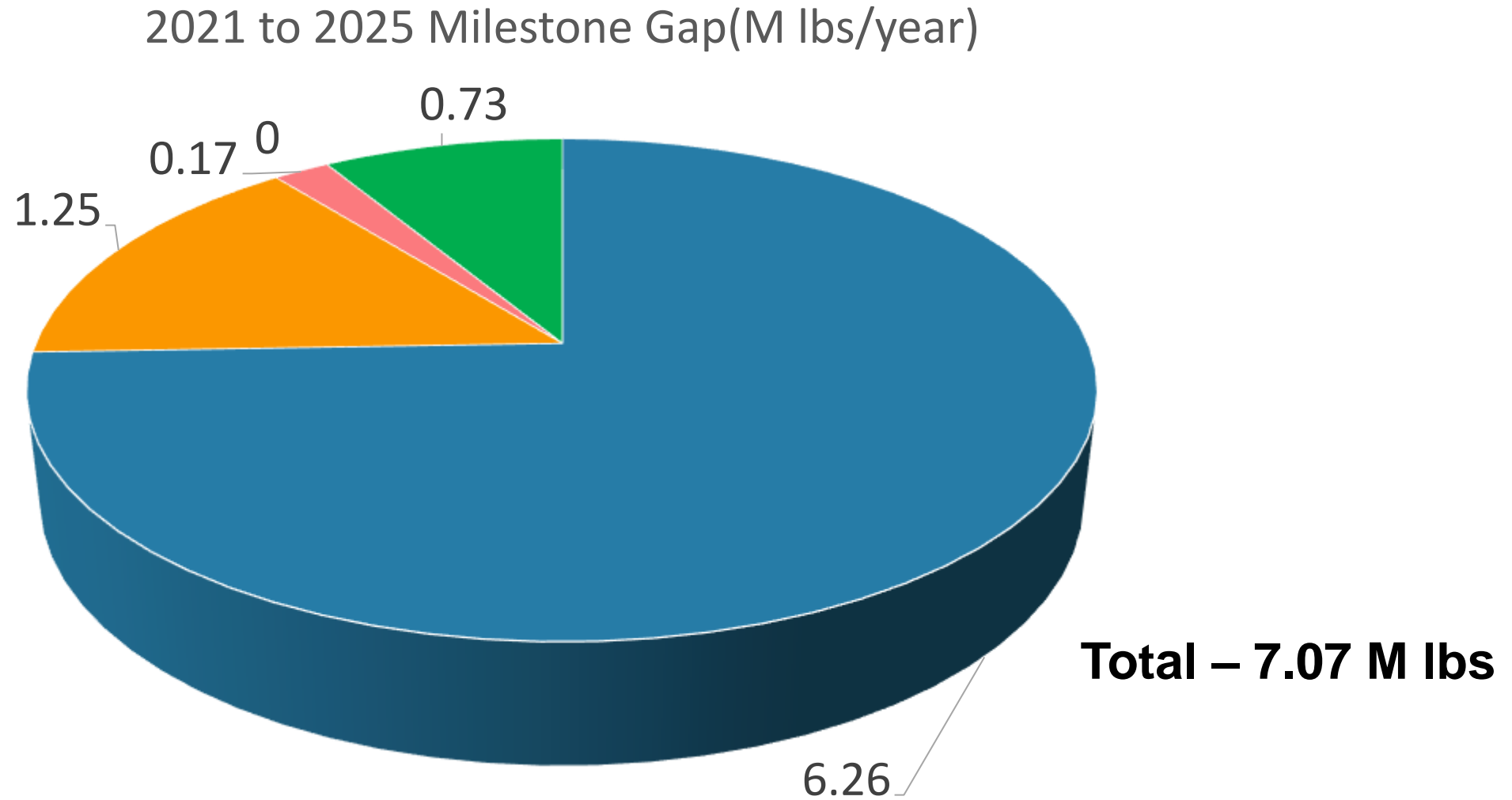
Virginia Nitrogen Loads and Goals



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Virginia Nitrogen Gap by Source



■ Agriculture ■ Developed ■ Wastewater ■ Septic ■ Natural

Facts on Urban Stormwater TN

Total Nitrogen (#s)			
	CAST 2014 w/ BMPs	2021 (VRRM 4.0)	%
Impervious	7,878,053	8,298,567	+5.3%
Turf	8,175,633	8,800,470	+7.6%
Total	16,053,686	17,099,037	+6.5%

TN “Gap” slowly growing still (0.9%/yr)

Pay for Performance Pilot

- Grant Agreement with Virginia Nutrient Credit Exchange Association
- Date: June 28, 2023
- Term: 1 year
- \$949,990.02 for 129,334 lbs of TN

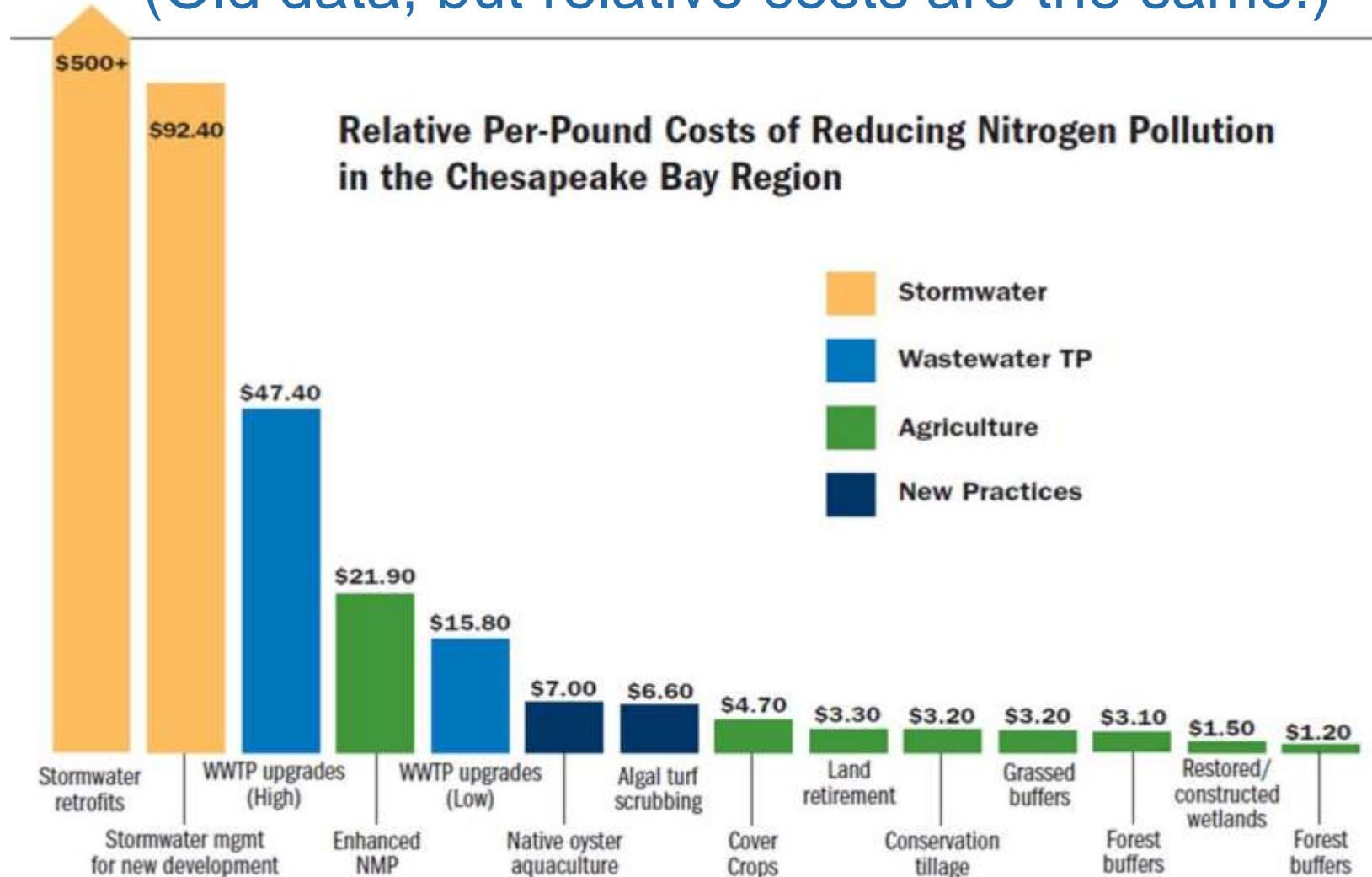
\$7.34/lb of TN

TN Gap from Urban SW: 1.045M lbs of TN

- Cost to address:
 - Option 1: \$7.67M/year
 - Option 2: \$306.8M cap value at 2.5%
(Dept. of Army – Economic Guidance Memorandum 23-01)

VA Senate Finance Committee Report on the Chesapeake Bay TMDL WIP (2011):

(Old data, but relative costs are the same.)



**What has been done so far and
what changes are needed to
streamline our efforts?**



**VIRGINIA STORMWATER LAWS, REGULATIONS, MANUALS
GUIDANCE DOCUMENTS, TECHNICAL BULLETINS, ETC...**

Multipronged Solution

Improvement	Status
1. All current documents on website	Completed
2. New SWM Handbook	To Be Completed - End of 2023 – Effective 7/1/2024
3. SWM Guidance – “Cliff Notes”	Effective 2/20/2023
4. Streamlined SWM Plan Review Guidance	Effective 2/20/2023
5. Virginia Runoff Reduction Method (VRRM) Update	Informal Comment Period Ends 8/21/2023
6. SWM/ESC Reg Consolidation - HB1250 & SB673 (2016) • HB2390 & SB1168 Approval (2023)	SWCB Approved 6/22/2023 • Effective 7/1/2024
7. Agribusiness SWM	Effective 7/1/2023
8. Recruiting Staff	Very successful- 90% staffing achieved 7/1/2023
9. Construction General Permit (CGP)	Automated 7/1/2023

How could Virginia achieve targeted pollution-reduction outcomes?

- Reduce TN from wastewater and septic with “Pay for Performance” options
- Potomac Embayment TN standards for wastewater are **3 mg/L vs. 4+ mg/L**
- SWIFT-like projects
- Research into more effective SWM TN removal
- Establish TN goals for SWM

Questions?