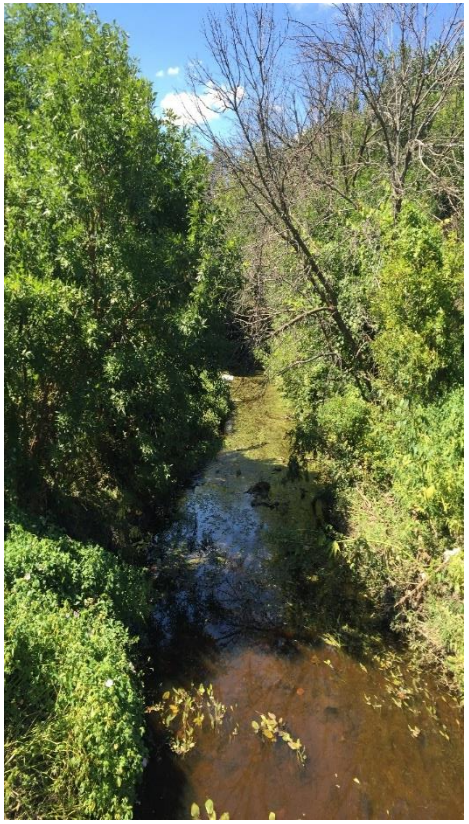
Chesapeake Bay Regulated Stormwater Technical Memo Development:

Overview of WRI/CBF Nutrient Trading by Municipal Stormwater Program Case Studies

Tetra Tech
April 19, 2017



Presentation Overview

- Introduction to the Regulated Municipal Separate Storm Sewer System (MS4) Trading and Offset Technical Memo development process

- Summary of World Resources Institute (WRI) and Chesapeake Bay Foundation (CBF) Nutrient Trading Municipal Stormwater Case Study Working Paper

- Feedback from TOWG on MS4 Trading and Offset TM Real-World Examples

Regulated MS4 Trading and Offset TM

- Provide basic steps for MS4s when using water quality trading as a tool to implement the Chesapeake Bay Total Maximum Daily Load (TMDL) or to satisfy permit compliance
  - NPDES permitting authorities
  - Regulated MS4 permittees

- Illustrate steps with real-world examples
  - Must be in Chesapeake Bay jurisdictions
  - Use final rather than draft information
  - Combination of permit/guidance language
  - Looking for actual trades

Regulated MS4 Trading and Offset TM: Real World Examples To Date

- Permits
  - 2015 Virginia Chesapeake Bay TMDL Action Plan, also referred to as Chesapeake Bay TMDL Special Condition Guidance (GM15-2005)
- Guidance
  - 2016 Maryland Trading and Offset Policy and Guidance Manual Chesapeake Bay Watershed
  - 2014 Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated guidance
- Actual Trades
  - No completed MS4 trades found during research
  - Preliminary municipal stormwater program nutrient trading case studies by WRI and CBF

WRI/CBF Nutrient Trading by Stormwater Programs in MD and VA Case Studies

- February 2017 Working Paper (available at http://www.wri.org/publication/nutrient-trading-municipal-stormwater-programs-maryland-and-virginia-three-case-studies)

Background on Chesapeake Bay Stormwater Trading Rationale

- Previous WRI analysis of nutrient trading benefits indicated 10 to 50 percent nutrient removal cost reductions for municipal stormwater sector
- 2012 Chesapeake Bay Commission economic study indicated approximately 79-82 percent annual cost savings when trading expanded to include urban stormwater
  - 53 percent greater than trading with only PS
  - 33 percent greater than trading with PS and ag NPS
- Same 2012 study estimated total cost of stormwater controls at $1.09 billion/yr, indicating need for lower-cost solutions

Nutrient Trading by Municipal Stormwater Program Case Studies

- Purpose
  - To assess and demonstrate feasibility and potential benefits
  - To help inform trading policy development and MS4 permitting strategies
- Involved three local partners in MD and VA
  - Arlington County, VA (regulated Phase I MS4)
  - Montgomery County, MD (regulated Phase I MS4)
  - Queen Anne's County, MD (not a regulated MS4)

Case Study Methodology

- Determine load reduction requirements
- Examine stormwater management strategy for meeting requirements
- Determine potential credit demand
- Analyze potential credit supply (ag producers in MD; POTW in VA)
- Apply protocols for local water quality protection
- Develop trading mechanisms and instruments
- Facilitate actual trades

Nutrient Trading by Municipal Stormwater Program Case Studies: Arlington County, VA

- Credit Demand
  - VA WIP requirements based on CBP Watershed Model Phase 5.3.2 L2 scoping run distributed over three permitting cycles
    - 5 percent of the overall nutrient & sediment reductions in 1st cycle
    - Additional 35 percent of total reduction in 2nd cycle
    - Full 60 percent of total reduction in 3rd cycle
  - County intends to achieve reductions through 159 priority stormwater projects and 6 miles of stream restoration (approx. $50 million)
  - Nutrient credit demand projected in 2nd and 3rd permit cycles
- Credit Supply
  - POTW upgrades can provide nutrient credits to MS4, with credits to spare

Nutrient Trading by Municipal Stormwater Program Case Studies: Arlington County, VA

- Status of Trading
  - No trade necessary in first permit cycle
  - County will decide on nutrient credit purchase arrangements during 2018-2023 permit cycle
  - 2012 VA trading legislation expanded nutrient trading options to include authorized MS4s
    - County must submit Compliance Plan letter to VA DEQ with intent to purchase credits, including source, number of credits, dates of credit generation and acquisition, compliance year
    - County must submit letter to VA DEQ as part of annual report to certify credit acquisition

Nutrient Trading by Municipal Stormwater Program Case Studies: Montgomery County, MD

- Credit Demand
  - WIP requirements
    - 2017 target reductions: 12.2 percent N; 20 percent P
    - 2025 target reductions: 17.5 percent N; 27.9 percent P
    - Different models used by CBP and Montgomery County, resulting in different assessments of county's progress toward reductions
  - MS4 permit requires county to treat 20 percent of developed area lacking stormwater treatment
    - Shortfall of 2,051 acres in 2010-2015 remanded permit
- Credit Supply
  - Portions of five farms assessed for potential nutrient credit generation
  - MD trading regulations require entire farm to meet trading baseline before generating credits; portions assessed show baseline met
  - Incomplete supply information

Nutrient Trading by Municipal Stormwater Program Case Studies: Montgomery County, MD

- Status of Trading
  - No trading to date
  - Waiting for robust and transparent regulatory framework in place
    - MDE trading guidance still draft
  - Development of MDE's stormwater trading policy initiated during the WRI/CBF case study development process
  - Whole farm assessments on hold until farmers obtain additional credit procurement information
  - County interested in purchasing credits to close the gap on WIP load reductions and permit developed land treatment requirement

WRI/CBF Nutrient Trading by Municipal Stormwater Programs Lessons Learned

- Determining feasibility linked to clear regulatory basis
  - Clear legal foundation
  - Understandable credit procurement methods and policies
- Facilitating trading through MS4 permitting strategies and WIP targets
  - Quantifiable reductions
  - Translation of treatment requirements into numeric load reductions, like MD proposed translator for ag credits and impervious surface treatment requirements
  - Reliable estimates of current reductions
- Effectively approaching the agricultural community
  - Use trusted intermediaries
  - Listen
  - Show the economic case
  - Provide information on process

Case Studies and the Regulated MS4 Trading Considerations TM

- Highlights the need to do detailed feasibility assessment prior to trading
- Demonstrates how robust state policy and procedures affects willingness to participate
- Illustrates how MS4 permit requirements can help/hinder trading
- Raises issues of different modeling tools used to assess stormwater program progress and affect on estimates of credit demand

Questions for TOWG on Real World Examples for Regulated MS4 Trading Considerations TM

- Are the Arlington County, VA and Montgomery County, MD case studies effective to highlight in the TM?
- Are there other examples of MS4 trades in development that could serve as real-world examples?
- What other information would be helpful to NPDES permitting authorities and MS4s in this TM?