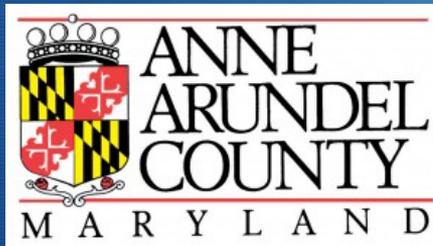


# Nutrient Trading, Offsets, and the Possibility of Environmental Markets in Maryland

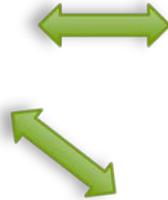
Erik Michelsen

Anne Arundel County Department of Public Works



# Nutrient Trading

“The exchange of pollution allocations between sources.”

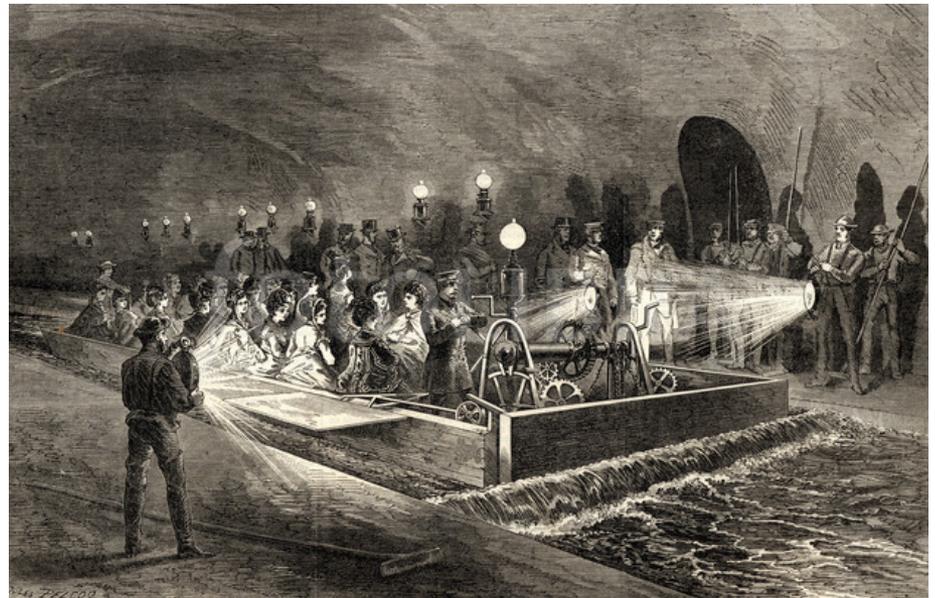


# Pollution

“A negative externality, or a cost that is suffered by a third party as a result of an economic transaction.”



# Offsets vs. Trading for Compliance



# Offsets vs. Trading for Compliance

- ◆ New pollution loads
- ◆ Capable of creating pollution “hotspots”
- ◆ Not accounted for in TMDL targets
- ◆ Largely borne by the “polluter”
- ◆ Existing pollution loads
- ◆ Result in reduction of existing pollution
- ◆ Means of achieving TMDL targets
- ◆ Often borne by the public

# So What Does This Mean for Local Governments?

- ◆ Anne Arundel County MS4
  - ◆ Retrofit 20% of the County's impervious acres (5,862)
  - ◆ Approximate capital cost to comply = \$250 M
  - ◆ A variety of additional stormwater requirements (e.g., illicit discharge monitoring, education and outreach, watershed assessments, etc.)
  - ◆ About \$8 million in annual, non-capital expenses
  - ◆ Deadline to comply = February 2019
  - ◆ Significant additional capital costs to accommodate restoration required beyond this MS4 term (i.e., WIP, next MS4 cycle)

# Capital Implementation Strategy

- ◆ 63 Water Quality Improvement Projects completed thus far in permit term.
- ◆ 195 additional projects underway
- ◆ Aiming to treat ~3,100 acres through the Capital Program.
- ◆ Includes ~155,000 lf of stream and wetland restoration as well as a host of other practices.















# Looking for Additional Ways to Engage the Private Sector

- Creating a \$5 million “pay for performance” project in the FY17 budget
- Seeking “turnkey,” permanently protected (e.g., perpetually eased, transferred to County ownership) practices that the County can count towards MS4/TMDL compliance.
- RFP out in summer/fall 2016.
- Paying for implementation, NOT trading.

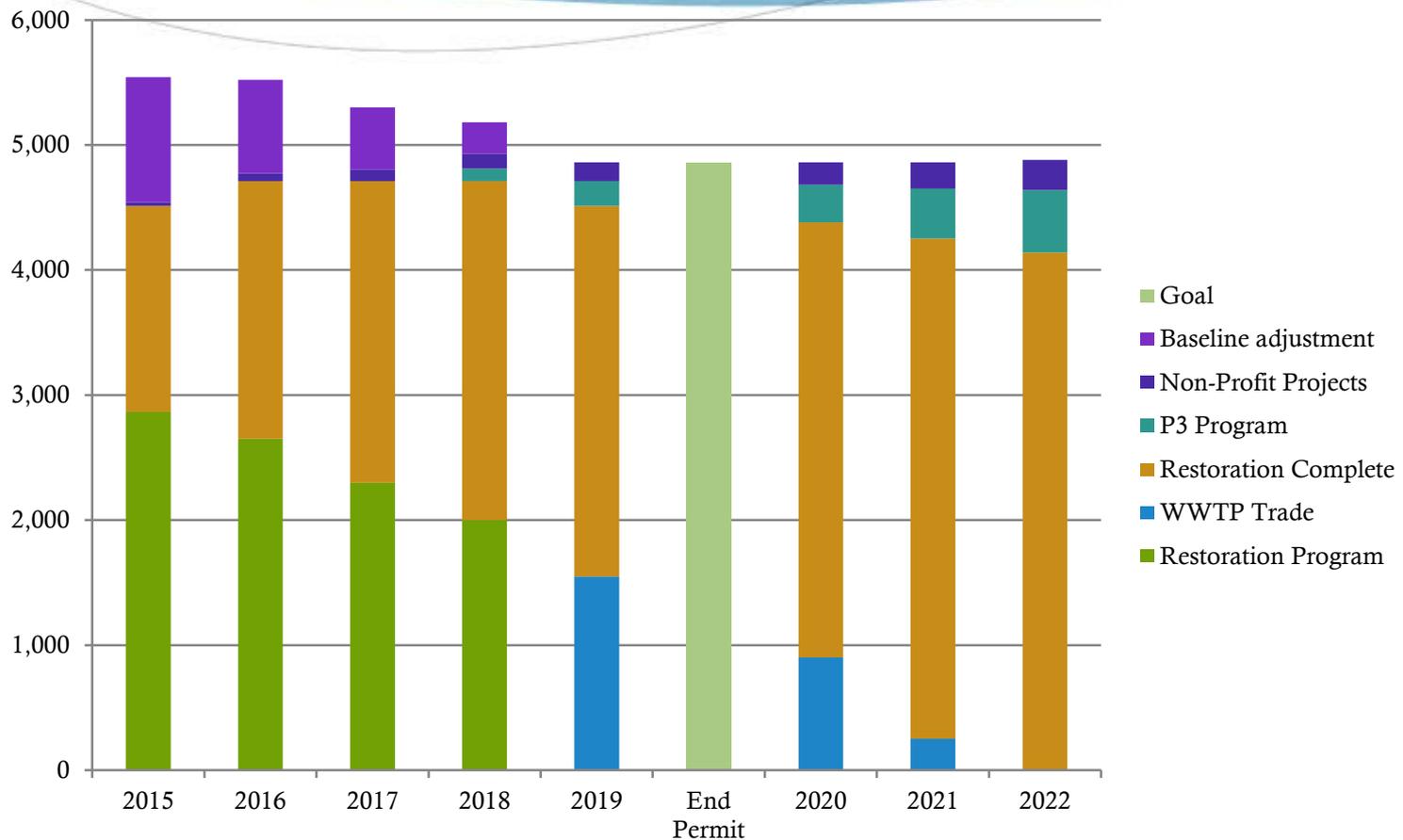


# Anne Arundel's Wastewater Treatment Plant Upgrades

	Existing Loads	Load Caps	Near Term Performance (Post ENR Upgrades)	Difference (Cap – ENR)	Lesser Gap
Total Nitrogen (lbs)	472,890	570,838	399,587	171,251	73,303
Total Phosphorus (lbs)	56,272	42,856	29,999	12,856	12,856

- Post ENR performance assumes “overperformance” from 4mg/l of TN to 3 mg/l of TN and function significantly below design capacity (which will diminish with growth in the County).
- If we said the performance below the lesser of existing loads or caps was “tradeable,” Anne Arundel WWTPs would have about 5,818 acres of impervious credits at the current conversion ratio (12.6 lbs TN/acre).

# A Path to MS4 Compliance



# WWTP to MS4 “Trading”

- ◆ Is really just a “trade in time” of real pollution reductions from WWTP upgrades to the stormwater sector as they work on additional pollution reductions.
- ◆ Does not get the MS4 “off the hook” of permit compliance, it just extends the compliance horizon to a more reasonable timeframe.
- ◆ Counties will have to backfill the WWTP reductions with reductions from other sectors (e.g., stormwater, septic), because WWTP reductions will be transitory as growth continues and capacity is consumed.

# The Need for Growth Offsets

- ◆ New development, particularly on forested sites, is creating net increases in pollution.
- ◆ Currently, those increases are still being externalized, and borne by the public (e.g., state and local governments).
- ◆ A robust offset program creates a performance standard (“no net increase in pollution”), and alleviates the need for overly prescriptive regulatory standards (e.g., “no new septics, ever” or “there is no flexibility in stormwater solutions.”)

# Questions?

Erik Michelsen

Administrator

Anne Arundel County Watershed  
Protection & Restoration Program

[pwmich20@aacounty.org](mailto:pwmich20@aacounty.org)

[aarivers.org](http://aarivers.org)