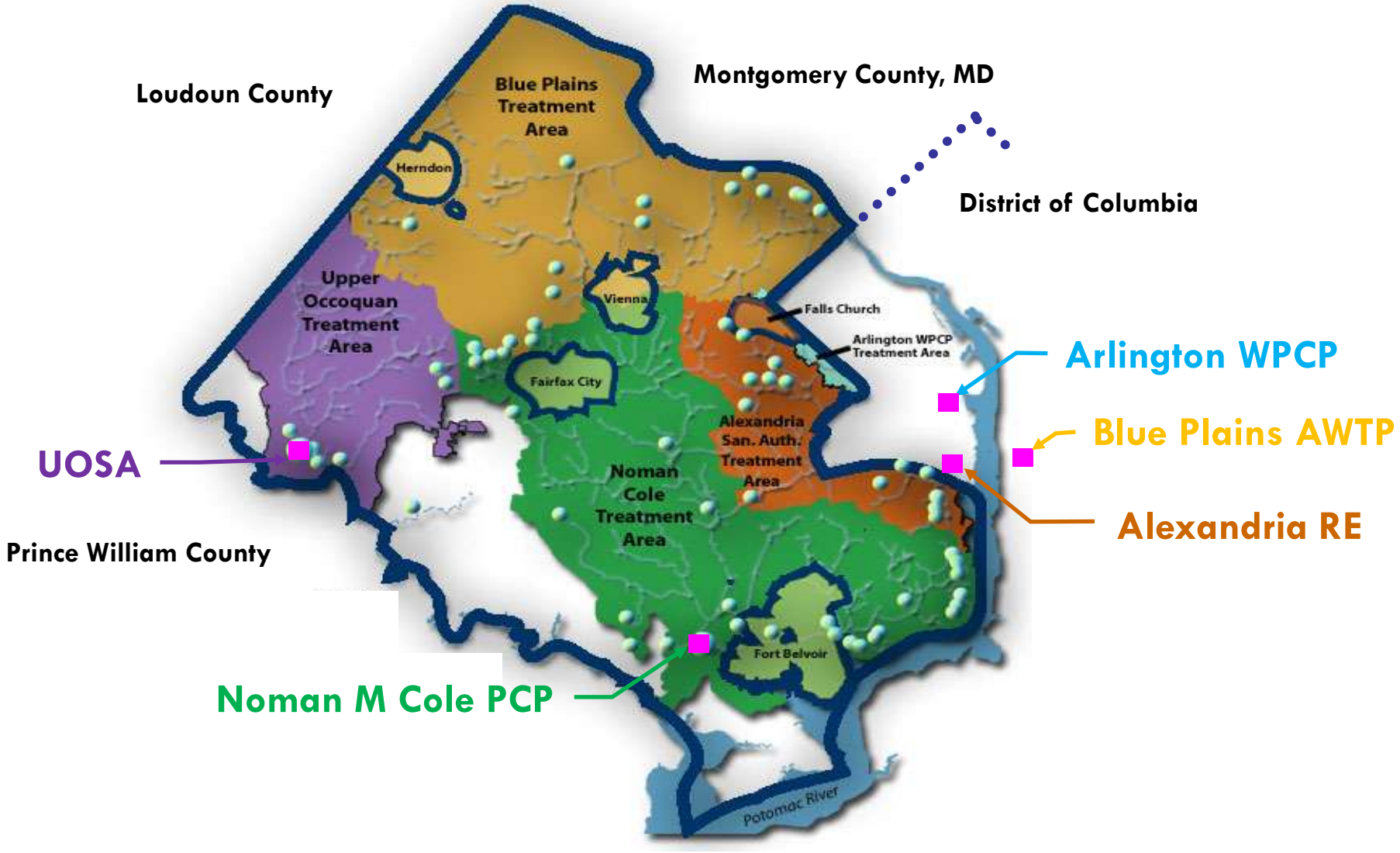
Nutrient Removal Program

Noman M Cole Pollution Control Plant

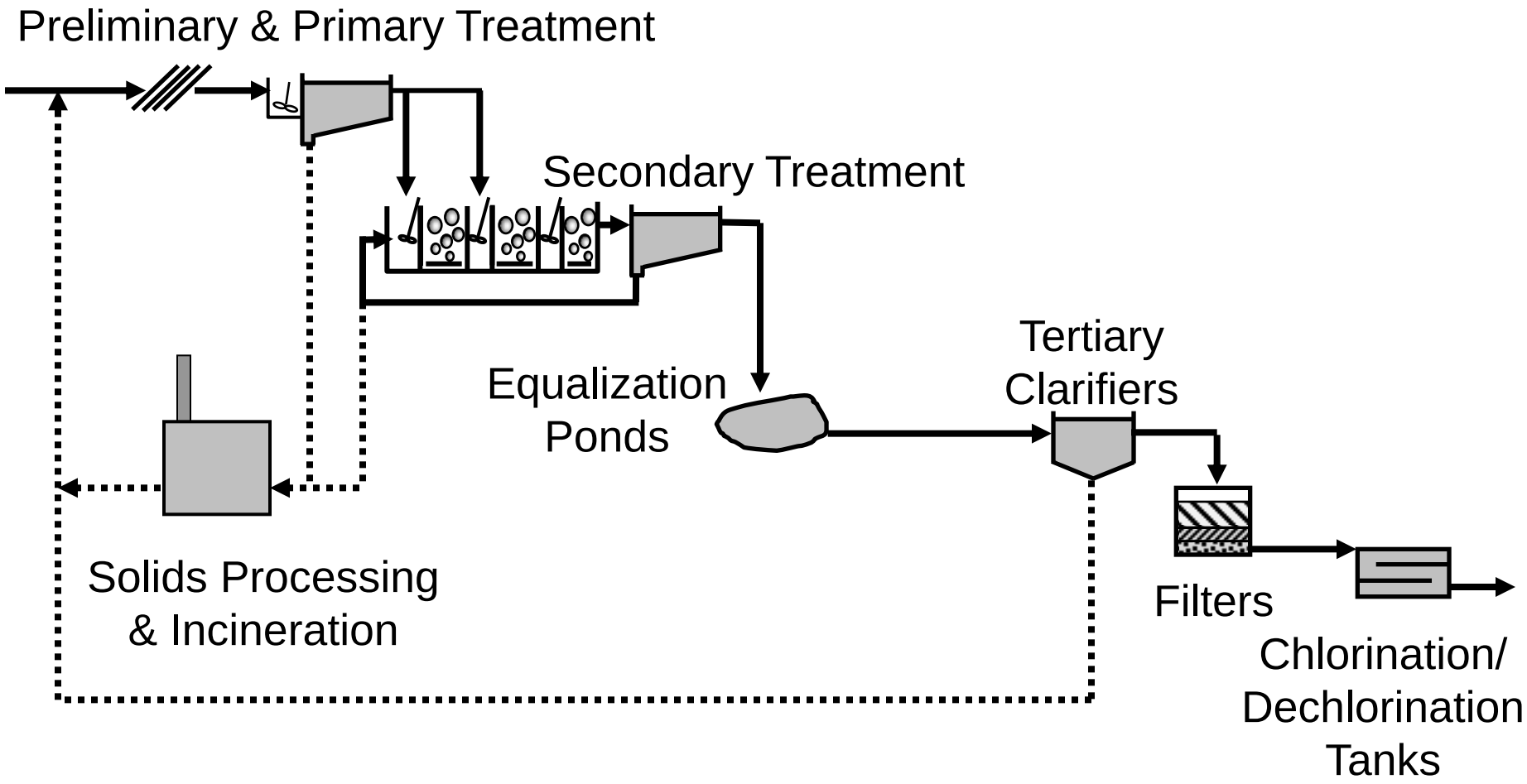
MW COG Chesapeake Bay and Water Resources Policy Committee

The Noman Cole Plant Serves the Southern part of Fairfax County



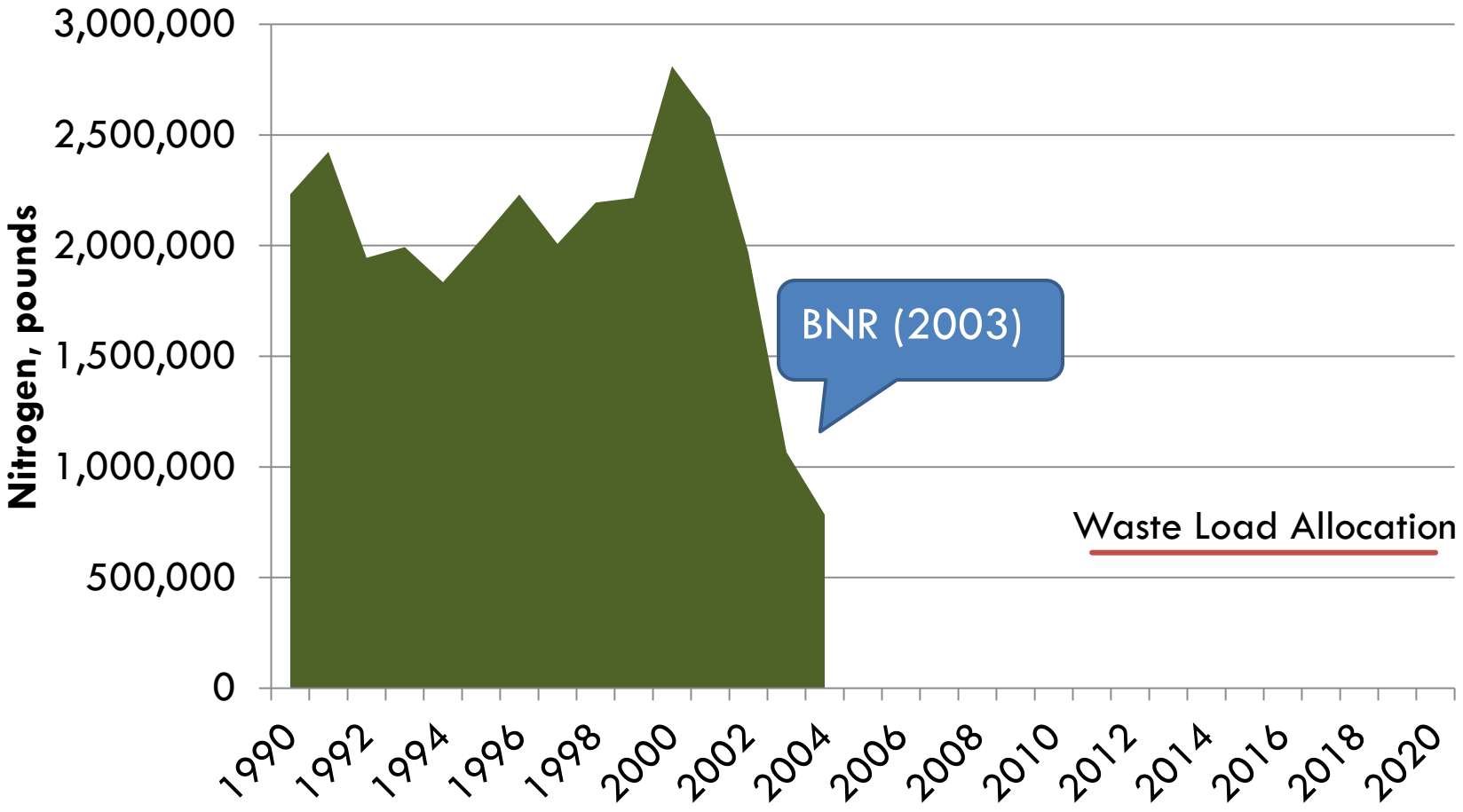
The Noman Cole Plant has been Upgraded Many Times Since 1971

Overall Plant Schematic

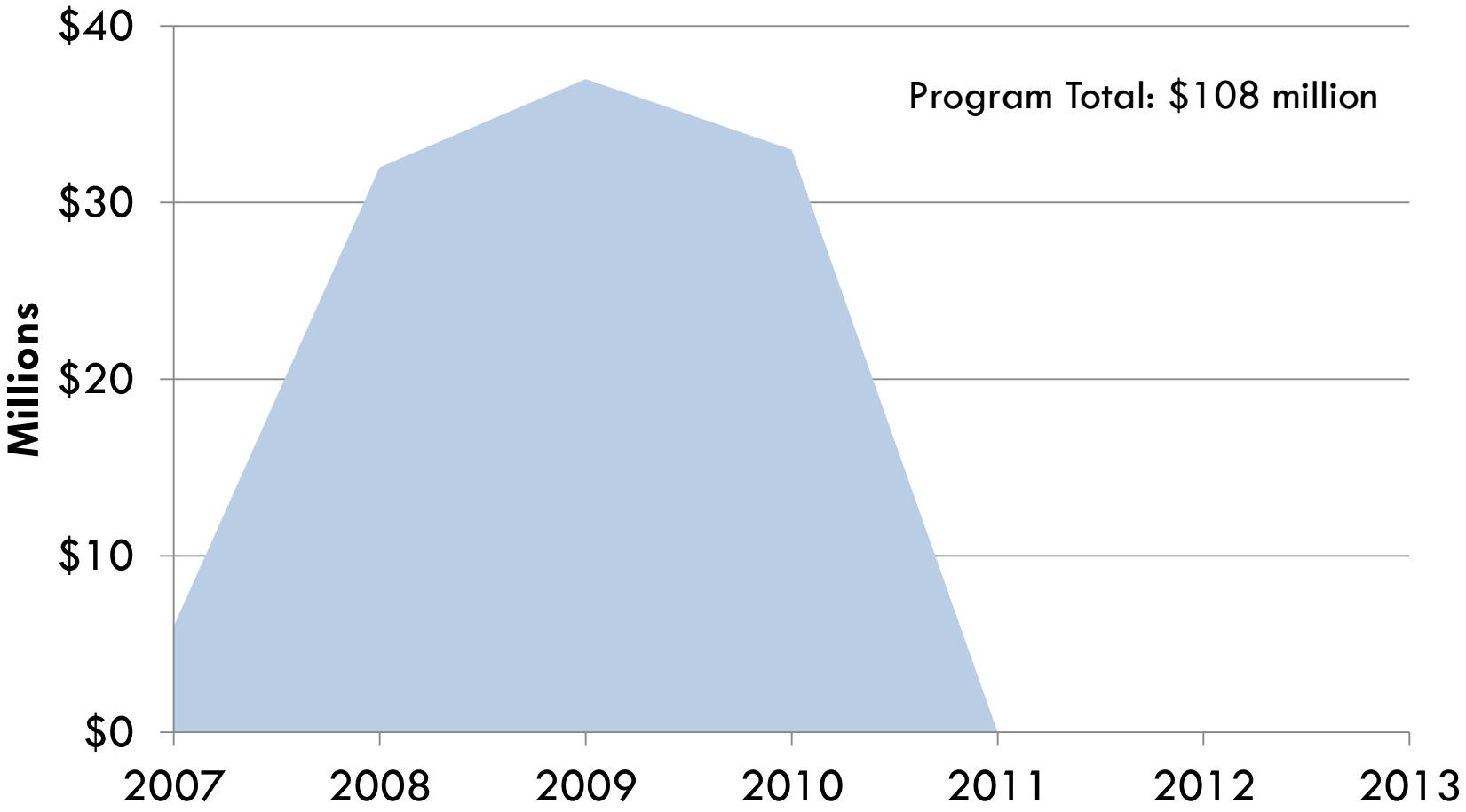


Program Planning - 2004

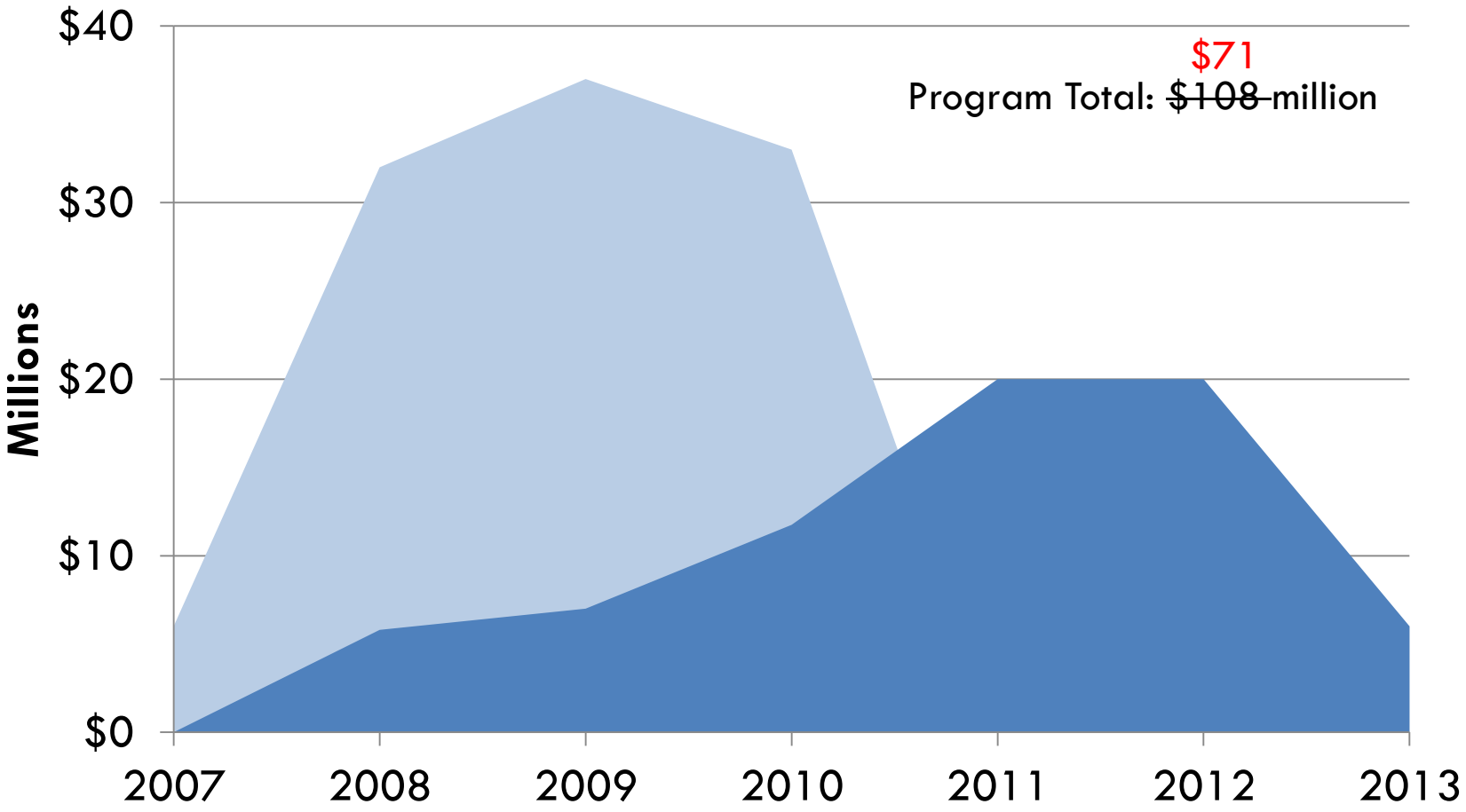
Nitrogen Discharge Through 2004



Initial Budget - Limit of Technology



Revised Program Budget



Virginia Nutrient Credit Exchange - General

- Established in 2005 by Virginia General Assembly
- 110 Participants
- Key Benefits:
  - Help restore & maintain health of the Bay
  - Use grant funding effectively
  - Reduce point source loads faster
  - Mitigate sewer rate increases
  - Provide “safety net”

Virginia Nutrient Credit Exchange – 2011 Performance

- All Basins in Full Compliance
- $1,908,808 in Total Sales
- 20 Facilities used “Safety Net” for Unanticipated Purchase

Virginia Nutrient Credit Exchange – Fairfax County Experience

- Met 2011 Wasteload Allocation (WLA) for both Nitrogen & Phosphorus
- Earned 106,542 nitrogen credits and 25, 455 phosphorus credits
- Received $63,342 in credit sales

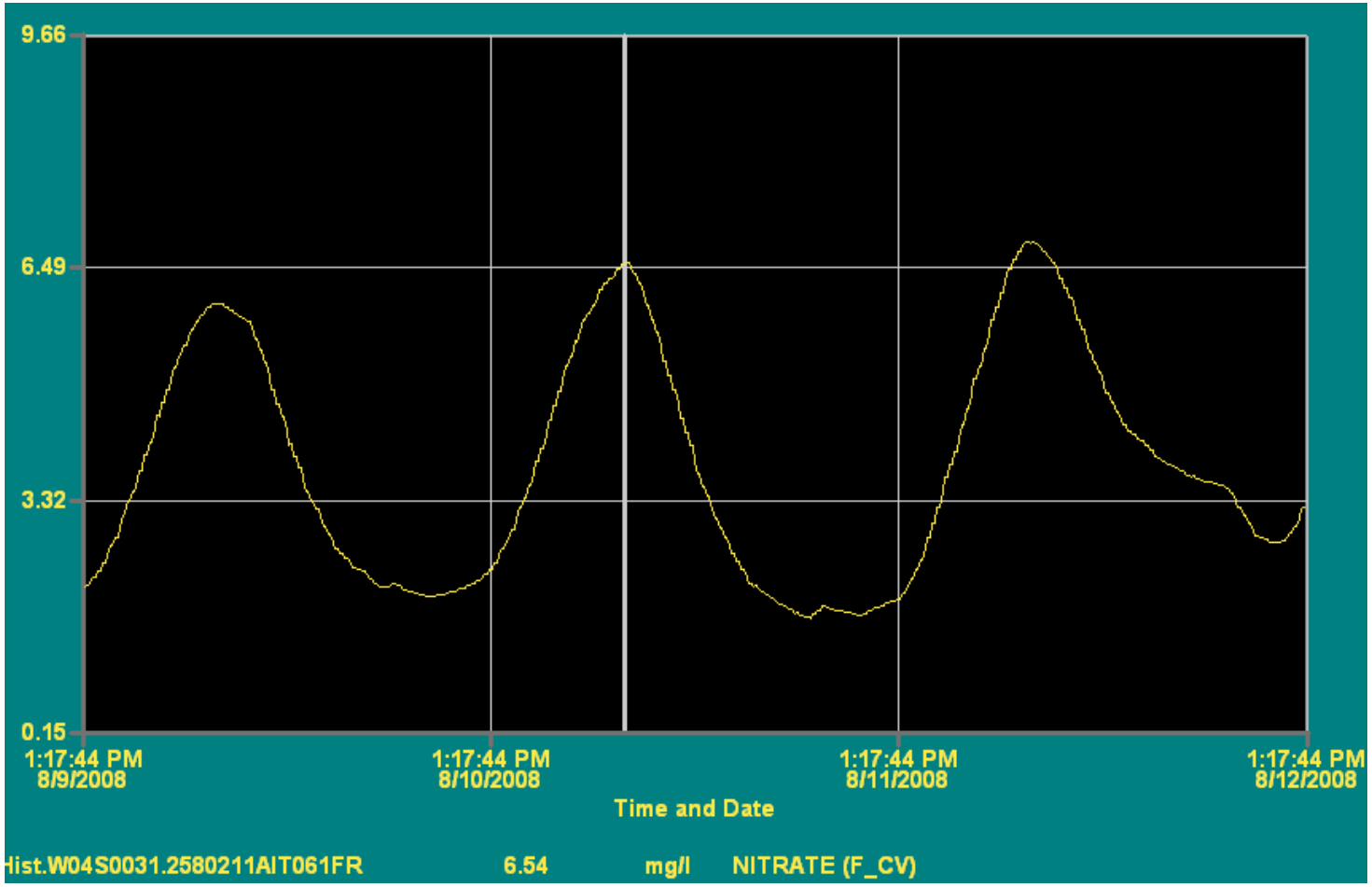
Program Projects & Elements

- Attentive Operations
- Wet Weather Improvements
- Enhanced Nutrient Removal
  - Methanol Building
  - AST Improvements
- Moving Bed BioReactor (MBBR)
- Water Reclamation and Reuse

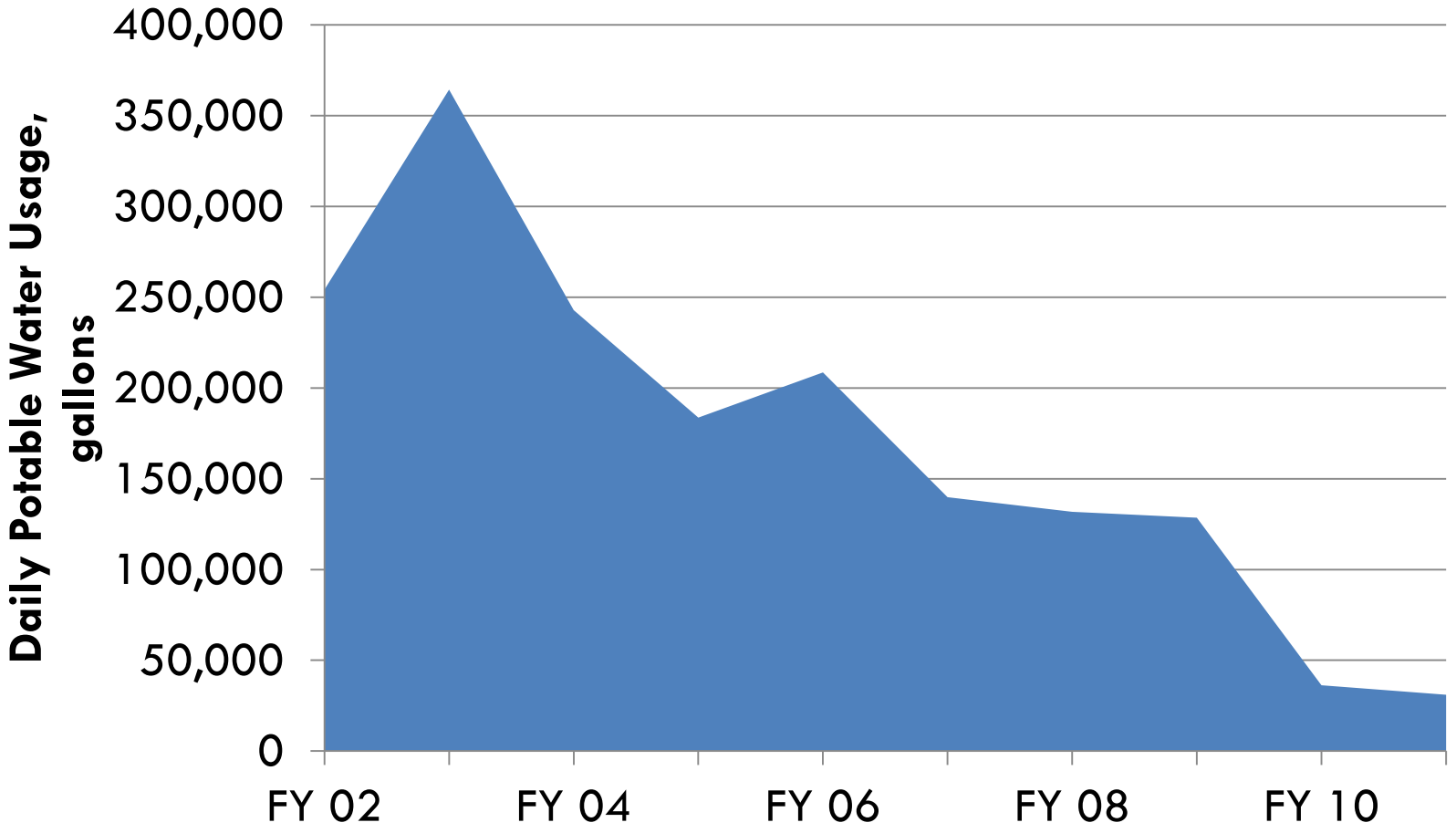
Attentive Operations

Nitrate Analyzer

Real Time Feedback Improves Performance



Potable Water Savings Reduced Plant Discharge



Wet Weather Improvements

Additional Wet Weather Storage Volume

Additional Wet Weather Storage Volume

Capital Cost	$9.5 million
Grant Funding	$1.2 million
Additional Annual Costs	---
Annual N Reduction At Design	30,000 lbs

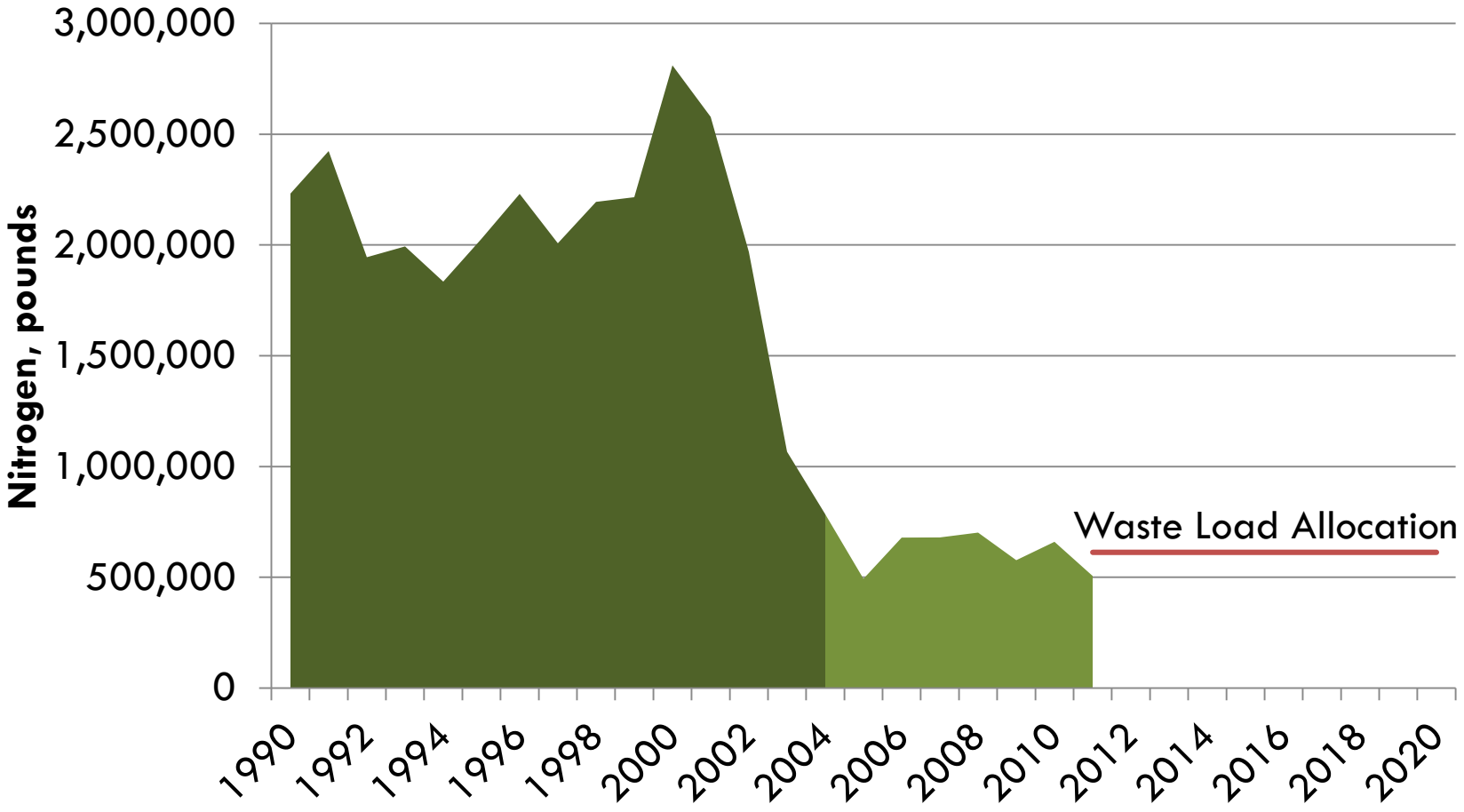
Enhanced Nutrient Removal

Methanol Feed Building

Activated Sludge Tank Modifications

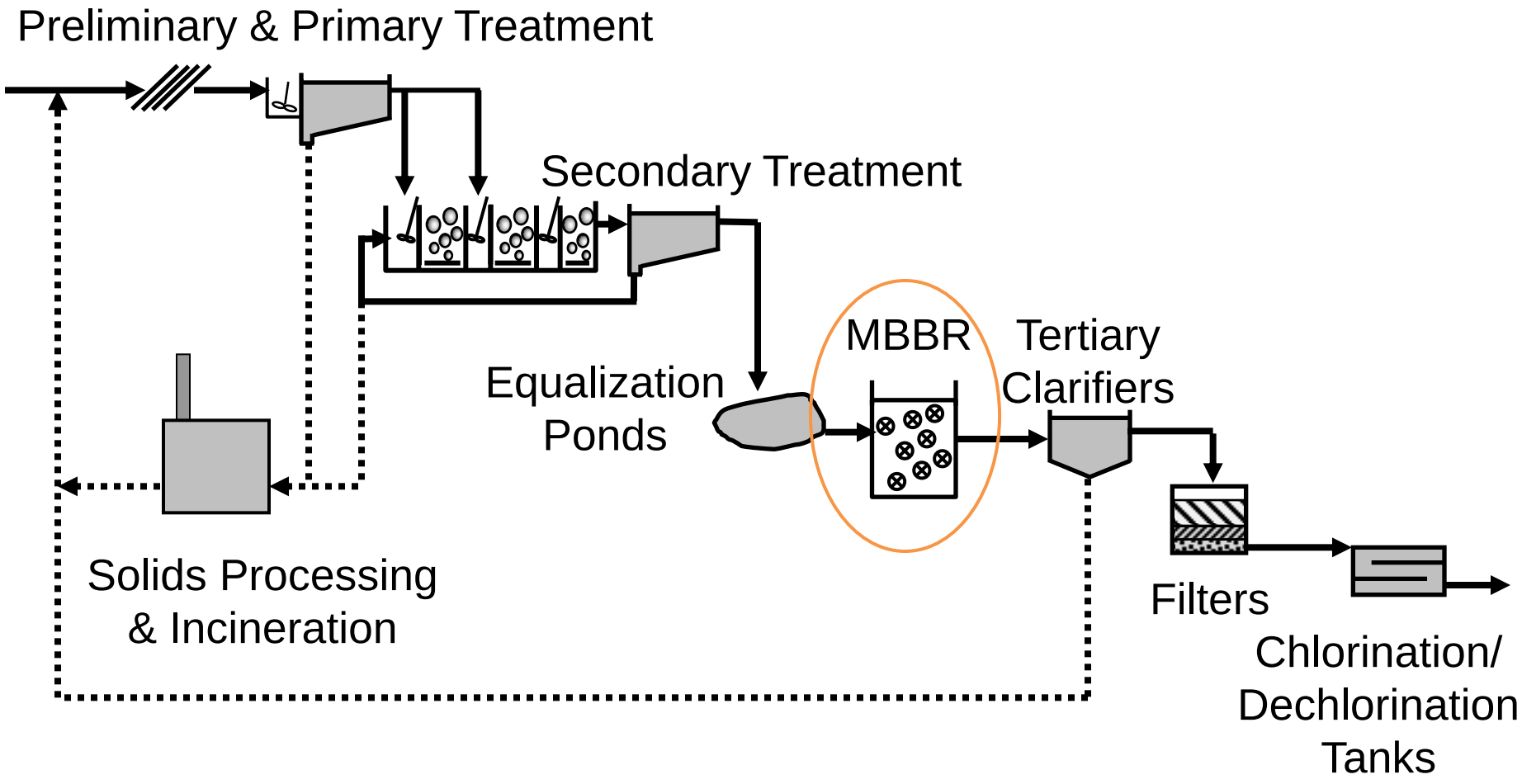
Capital Cost	$6.5 million
Grant Funding	$1.9 million
Additional Annual Costs	$300,000
Annual N Reduction At Design	600,000 lbs

Nitrogen Discharge Through 2011

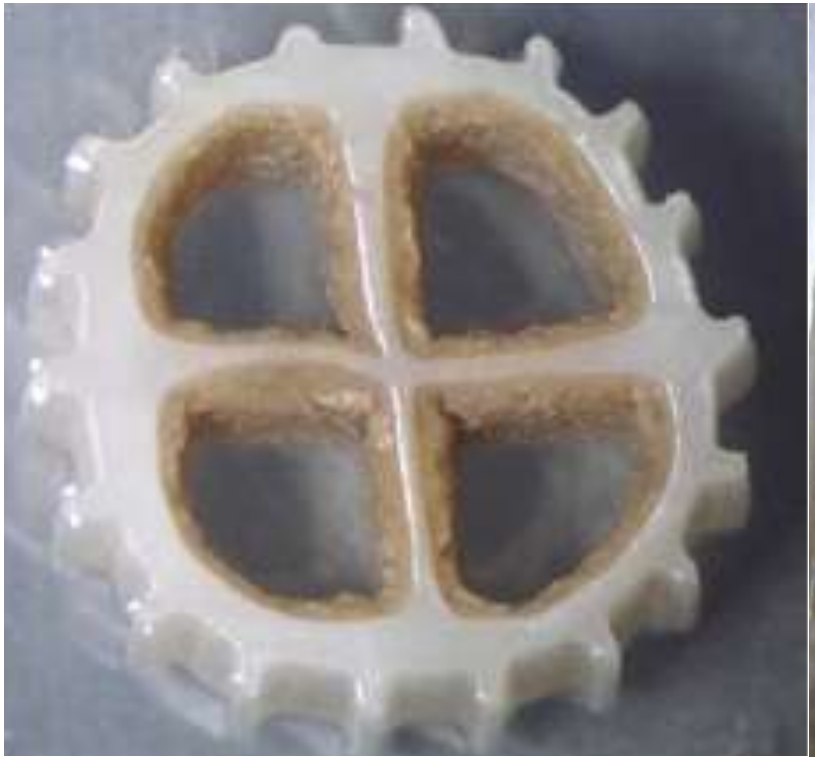


Moving Bed Bio Reactor

Overall Plant Schematic



Pilot Media



Capital Cost	$35.4 million
Grant Funding	$11.9 million
Additional Annual Costs	$250,000
Annual N Reduction At Design	400,000 lbs

Wastewater Reclamation & Reuse

Pollution Control to Resource Recovery

I-95 E/RRF & Landfill

Ash
Reclaimed Water
Biosolids?
Natural Gas?

Noman Cole Plant

Blowdown Water
Landfill Gas
Electricity?
Food Waste?

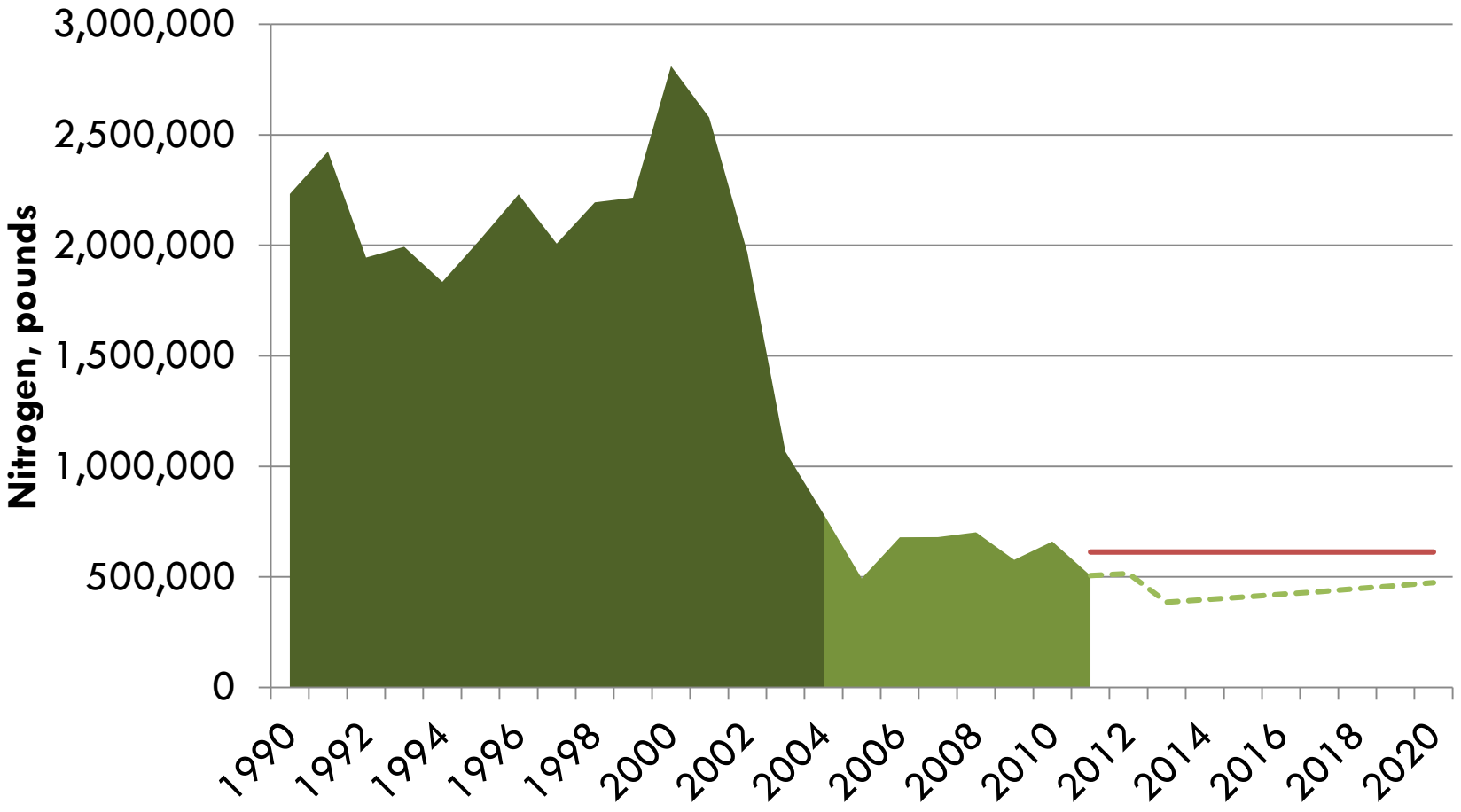
Reuse Pipeline Route

Labeled Pipe

Storage Tank

Capital Cost	$15.2 million
Grant Funding	$9.7 million
Annual Revenue	$1,500,000
Annual N Reduction At Design	30,000 lbs

Reuse to Sustain Load Cap



NUTRIENT REMOVAL PROGRAM AT THE NOMAN M COLE POLLUTION CONTROL PLANT

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