

NACWA 2014 Winter Conference

Upper Blackstone Water Pollution Abatement District – Project Update



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**CDM
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Since 2004, UBWPAD has Spent \$180 Million to Upgrade and Expand Wastewater Treatment Facility



In 2009, Upgrades Were Put On-Line On Schedule

In 2012, District Received NACWA Peak Performance Award

	2001 Permit	Actual (FY2012)
Flow (mgd)	56*	33.1
Total Phosphorus (mg/L)		
Summer	0.75	0.54
Winter	Report	0.44
Total Nitrogen (mg/L)		
Summer	No limit	4.1
Winter	No limit	4.3

* Facility designed for an average daily flow of 45 mgd



A Success Story.....?



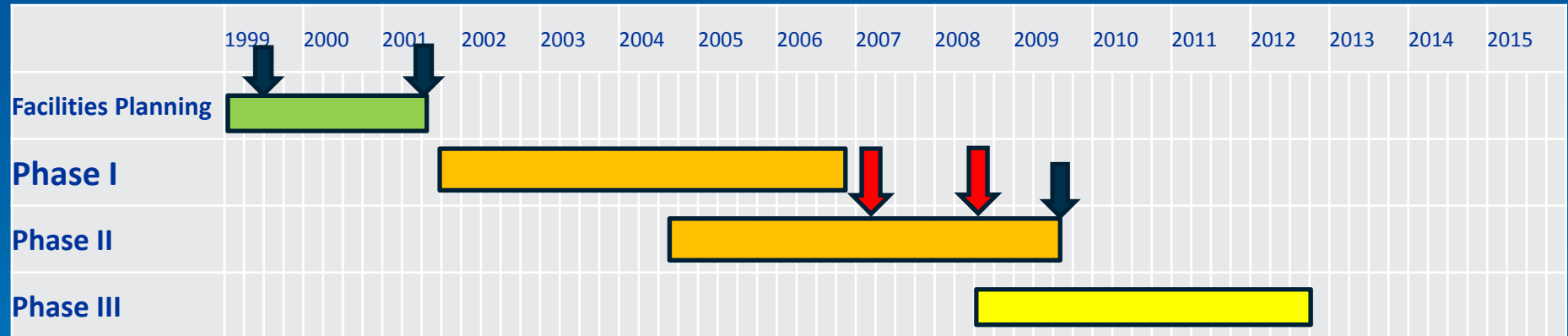
But.....In the Midst of Construction EPA Issued New NPDES Permit with Extreme Nutrient Limits

	2001 Permit	2008 Permit
Flow (mgd)	56*	56*
Total Phosphorus (mg/L)		
Summer	0.75	0.1
Winter	Report	1.0
Total Nitrogen (mg/L)		
Summer	No limit	5
Winter	No limit	No limit

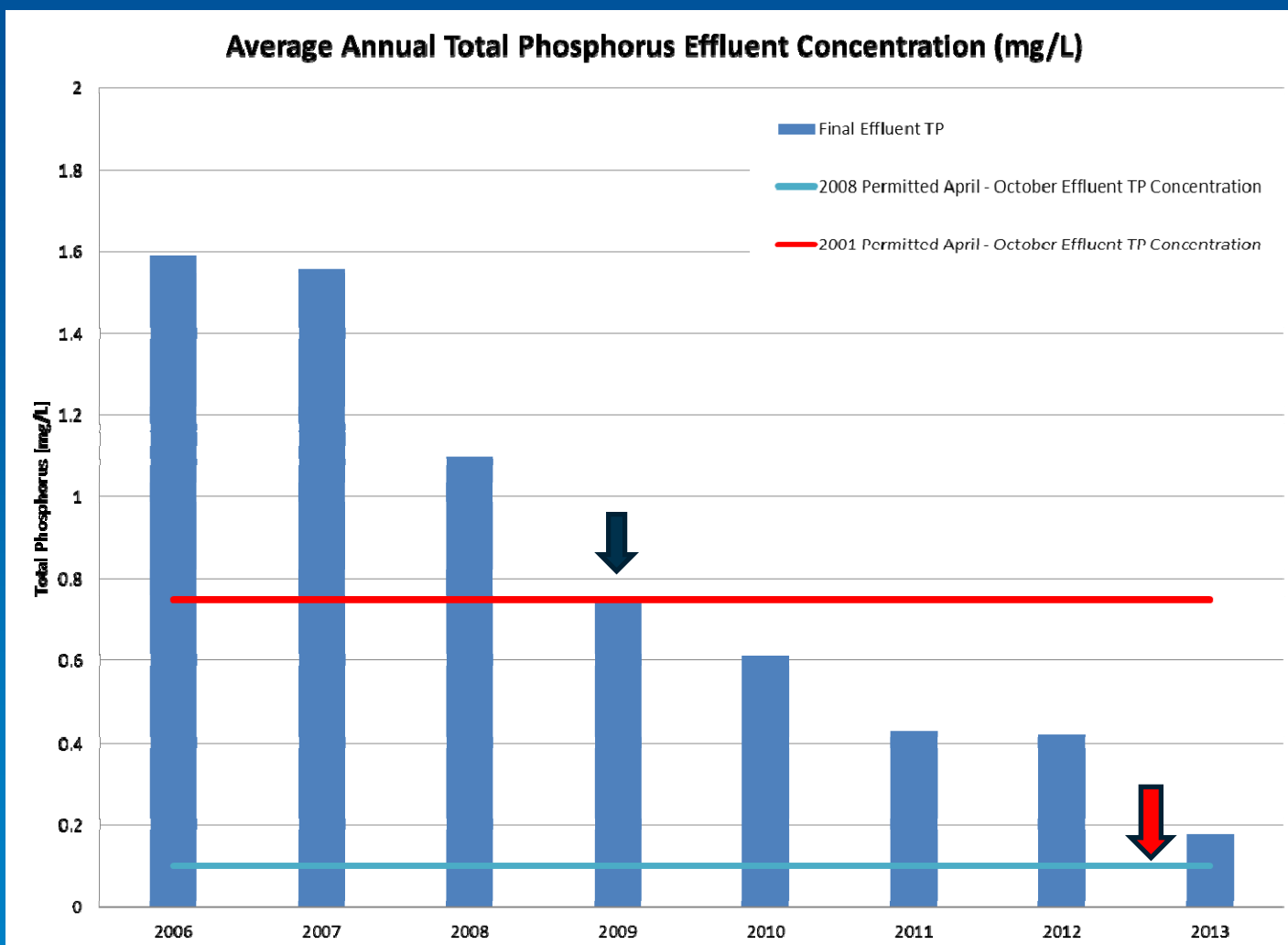
* Facility designed for an average daily flow of 45 mgd

- District Contested
 - Timing of the permit was Illogical
 - No scientific basis for permit limits
 - Meeting limits would result in extreme economic and environmental impacts

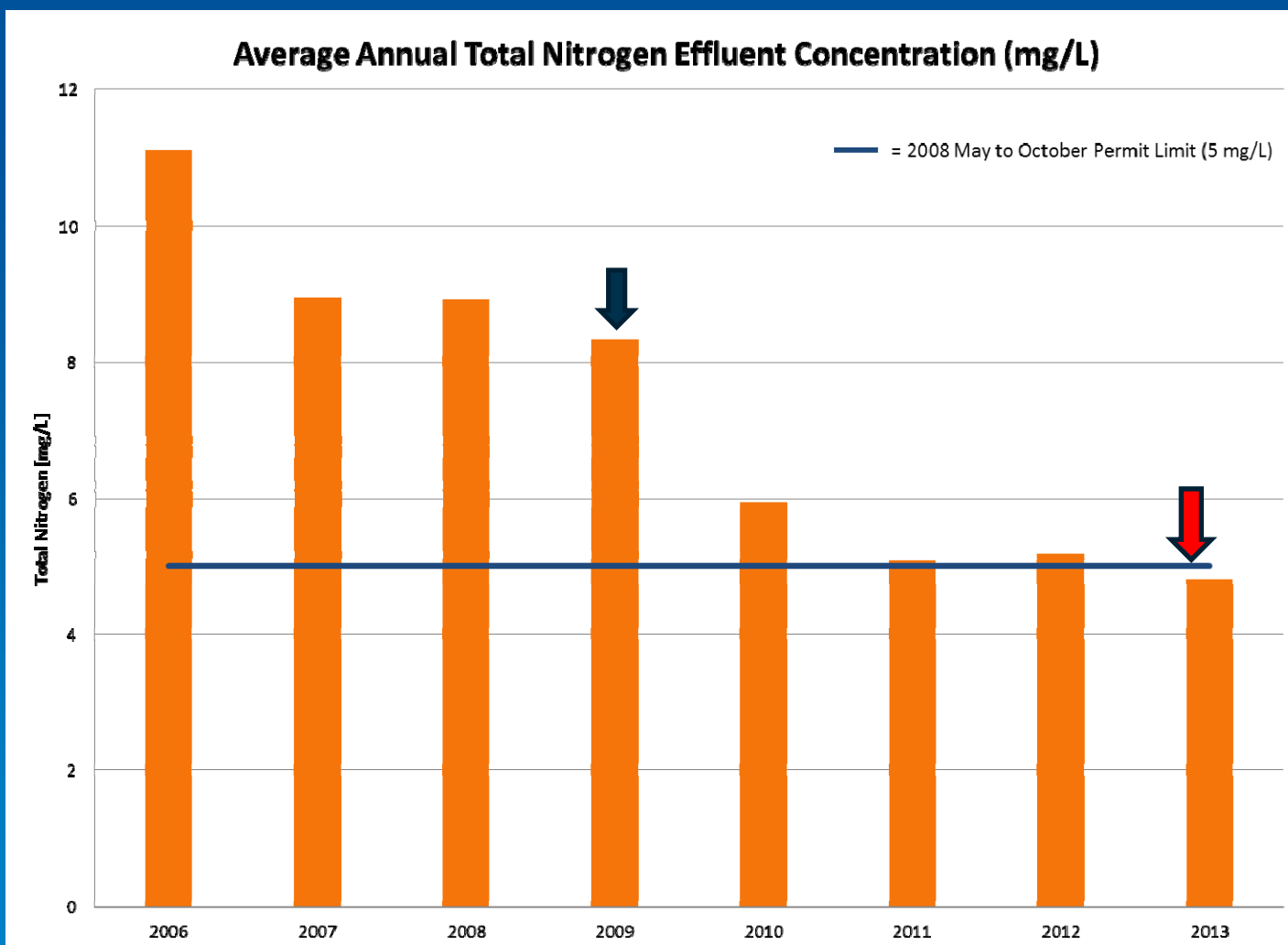
Schedule – Timing of the Permit was Illogical



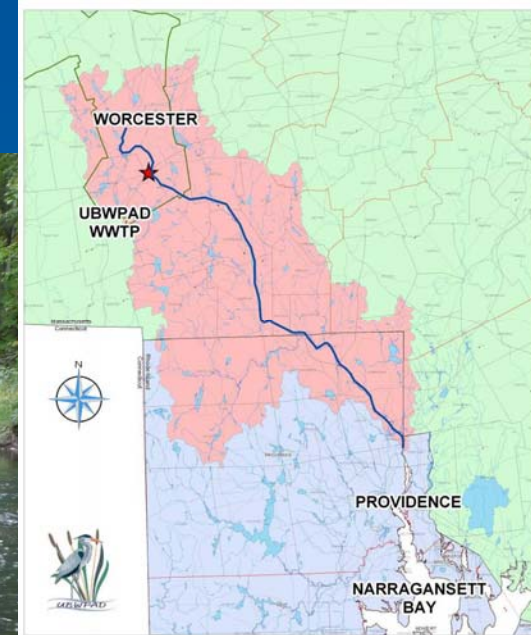
District Continues to Improve Performance of Biological Nutrient Removal (BNR) Process



Total Nitrogen Limit Established in 2008 Permit Nearly Being Met



EPA's 2008 Permit Had No Scientific Basis, District's Model Showed NPS and Dams Drive Water Quality

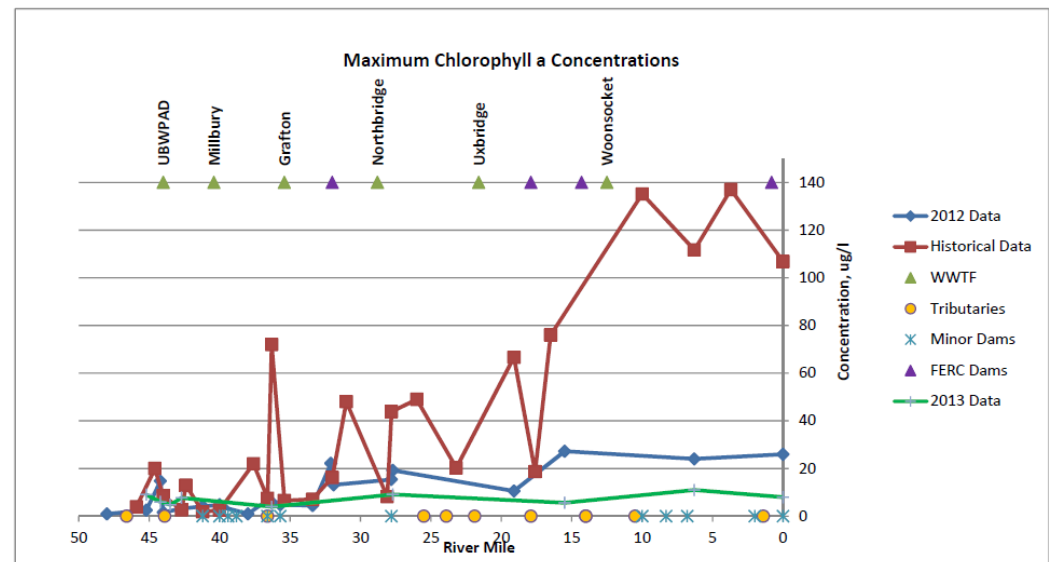
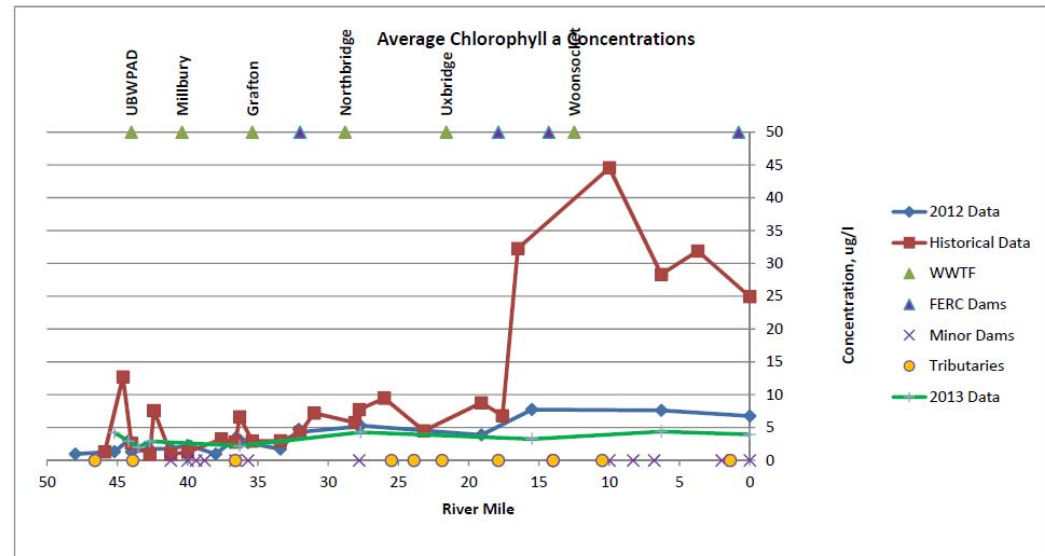


Blackstone River Watershed
Providence County, RI
and Worcester County, MA

River Response

In-stream
Chlorophyll a
Concentrations
Have Reduced in
Response to
Improved Effluent
Quality

2013 Sampling Data Through 9/25/2013



In 2007 Estimated Extreme Economic and Environmental Impact of Necessary Improvements

- \$200 Million Capital Cost
- \$5 million O&M cost
- 20% increase in power consumption
- 50% increase in sludge production
- Four-fold increase in ash production
- 5 additional 8,000-gallon tanker truck deliveries daily
- 14% increase in NOx production

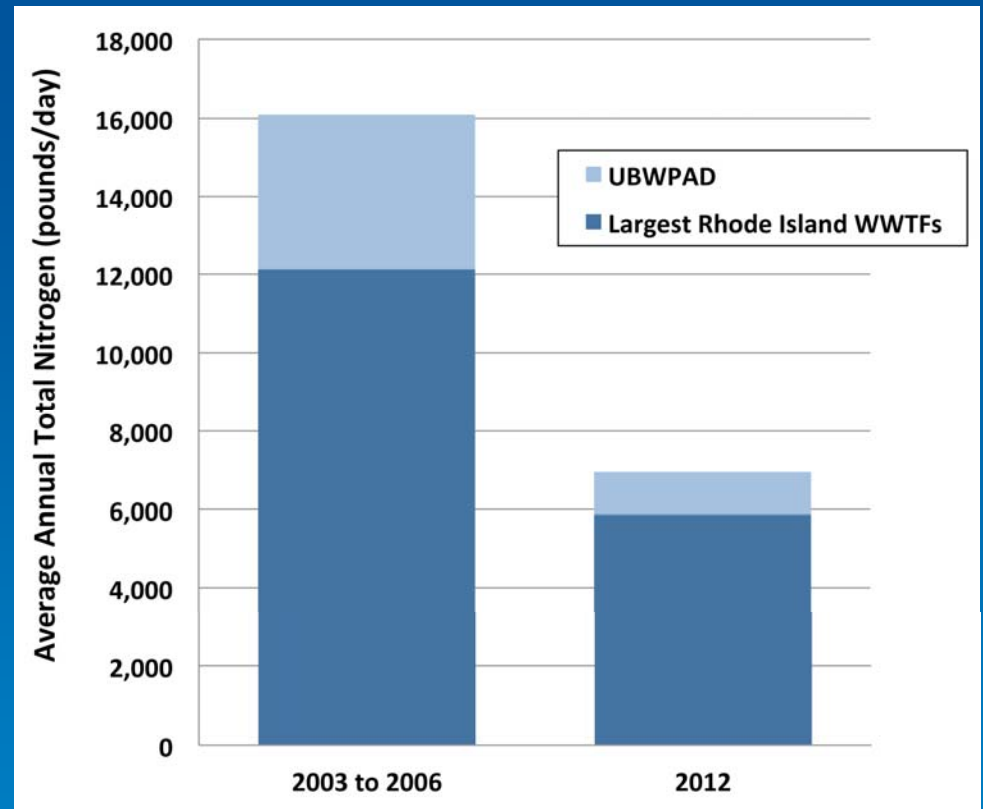


The District Currently Commencing Piloting of Sustainable Solutions to Meet 2008 Permit

- Operational Modifications
 - Step Feed
 - Real-time Control
 - Magnesium Hydroxide for Alkalinity Control
 - 5-stage Bardenpho
- Targeted Chemical Addition
 - Supplemental carbon
 - Ferric prior to dewatering
- Algae Treatment

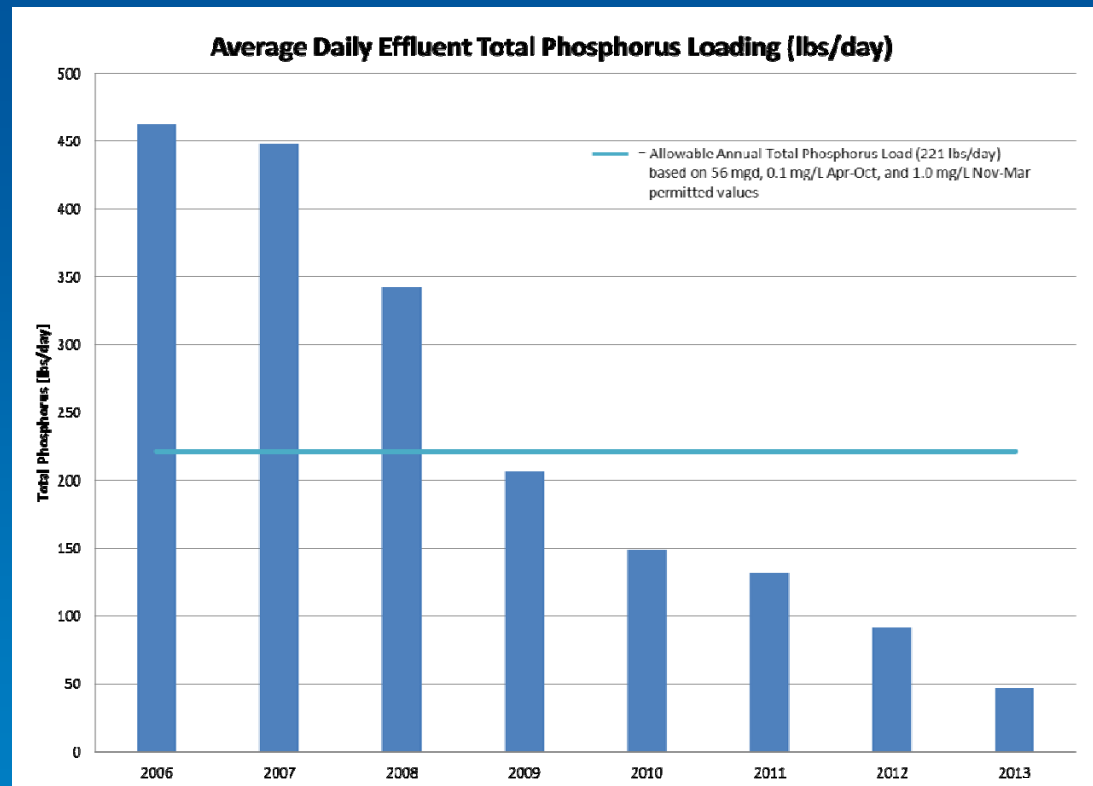
Lessons Learned

- Negotiate no change in limits for the term of the Administration Order
- Establish water quality criteria that need to be achieved with regulators prior to setting limits



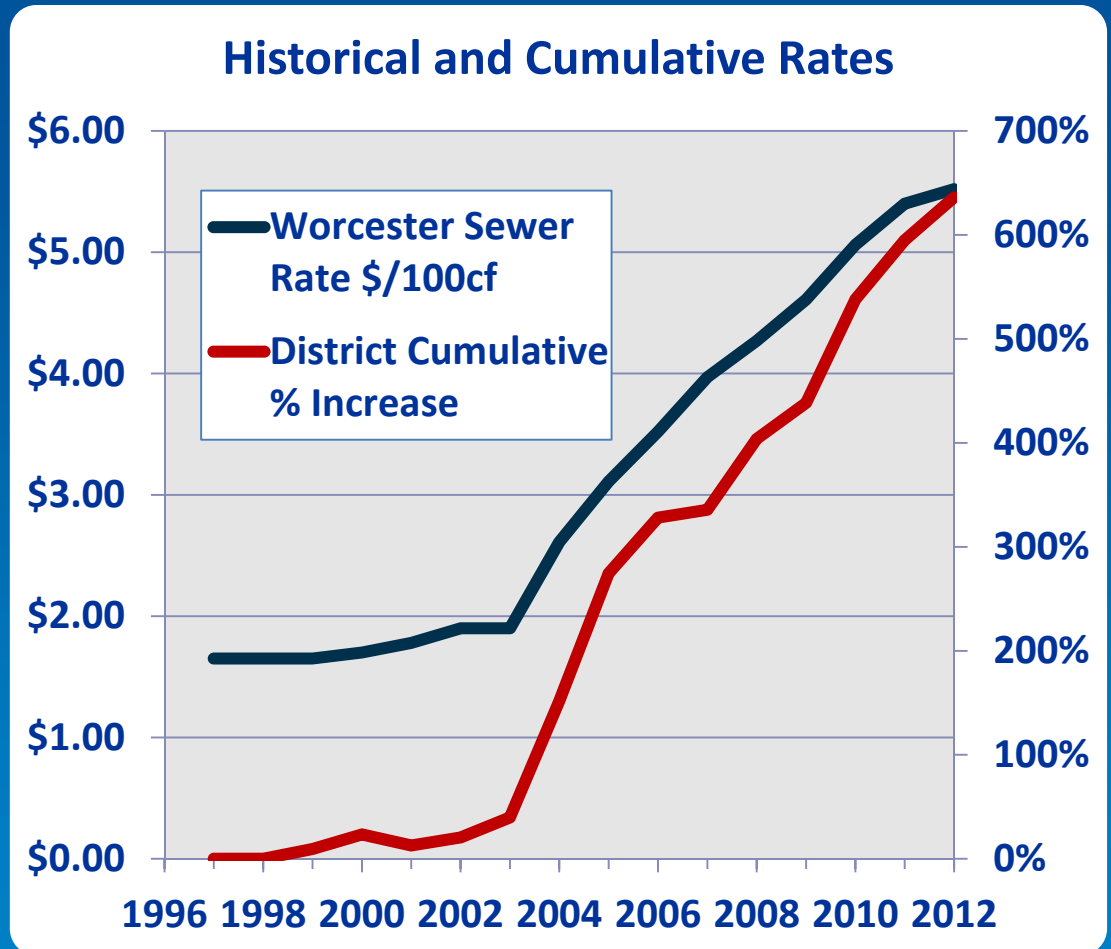
Lessons Learned

- Take an active role in river modeling and engage the regulators
- Understand how permit limits are written, as this can significantly impact compliance



Lessons Learned

- Educate EPA with respect to cost-benefit of suggested permit limits (including environmental cost)
- Push for the use of Integrated Planning to prioritize improvements and spend money in the right place



Questions/Discussion

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