Silver Creek Adaptive Management Pilot Project

Jeff Smudde, NEW Water
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2016 Spring Biosolids Symposium
Adaptive Management - Background

- Fox River contributes 1/3 nutrients to Lake Michigan
- NEW Water issued new combined WPDES permit July 1, 2014
- 5-year-permit cycle
- New future Total Phosphorus and Total Suspended Solids reductions
- Several options for compliance
- Facility improvements: $223 - $394 million capital cost + $2 million annual O&M cost
- **Adaptive Management** addresses new phosphorus and solids limits
  - Current: AM Pilot + Plant Optimization

*Photo credit: Steve Seilo* (www.photodynamix.com)
- Watershed Size: 4,800 Acres
- Land Use: 48% Agriculture
- Stream Length: 15 Miles
Goals of the Silver Creek Pilot Project

- Assess the ability to collaborate with a diverse group of partners
- Test the willingness of landowners and growers to participate in a volunteer/incentive-based program
- Measure water quality response after conservation practice installation
- Evaluate the capacity of partners to assist
- Estimate overall cost of Adaptive Management
- Develop a framework for full scale Adaptive Management
# Silver Creek Project Partners

## Conservation Planning
- Private agronomists
- Brown & Outagamie Co LCD
- Oneida Tribe
- NRCS
- CH2M
- NEW Water

## Water Quality Monitoring
- NEW Water
- USGS
- UW-Green Bay

## Wetland Restoration
- Ducks Unlimited
- US Fish and Wildlife Service
- The Nature Conservancy
- Oneida Tribe
- UW-Green Bay
- NEW Water

## Managed Grazing
- NRCS
- Oneida Tribe
- UW-Green Bay
- NEW Water
2015 – A Year of Inventory

Soil Sampling

• 108 Fields sampled – 2.5 acre grid

Comprehensive Field Evaluations

• ArcGIS Collector – tablet application
2015 – A Year of Inventory

Conservation Planning Meetings

Grazing & Wetland Planning Meetings

- Agronomists, County, Oneida, NRCS, CH2M, NEW Water Staff
Conservation Plans

- **Structural Practices**
  - Grassed Waterways
  - Buffer Strips
  - Critical Area Plantings

- **Operational Practices**
  - Cover Crops
  - Reduced till/no till
  - Crop rotation modification
  - Precision nutrient application
  - Etc

- **Nutrient Management Plan**
Success in 2015

Critical Area Planting

Inter-Seeding

Cover Crops
Success in 2015

Perennial Forage

Waterway setbacks

No-Till
Winter 2016 - Planning

Wetland Site Plans

Grazing Site Plans
Next Steps – 2016

- March 4 NRCS EQIP Funding Applications
- “Kitchen table” meetings with growers and owners
- Refine Conservation Plans and Enhanced Nutrient Management Plans
- Cost-Share Agreements
- Establish grazing operation
- Wetland restoration
- Continued Water Quality Sampling
  - Sample in-stream sediment
- **Installing practices ★**
Observations From the Pilot Project

• Diverse field teams yield new perspectives for conservation opportunities
• Every field has a need
• Agronomists are a huge asset in opening lines of communication with land owners and growers
• Grower trust is critical, but can vary
• Growers are stewards, but businessmen first
What Is Impacting Biosolids Operations?

- Available land is diminishing
  - Urban sprawl
  - Increased herd sizes
  - Nutrient Management Plans
    - Applications based on soil P instead of crop N needs
  - Other crop-based restrictions

- May need to start evaluating alternative technologies and methods for biosolids use
  - Municipal WWTPs
  - Industrial WWTPs
  - Waste Haulers
Questions?

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