

# Land Owner and Grower Project Summary

## Silver Creek Pilot Watershed Project

Silver Creek is a small stream located 1 mile west of the Austin Straubel airport and flows from Outagamie County into Brown County. The watershed is about 7.5 square miles (4,800 acres) and it is a tributary to Duck Creek and ultimately the bay of Green Bay. Water testing in Silver Creek shows that it has high levels of phosphorus and sediment that contributes to algae growth, low oxygen and loss of habitat for fish and aquatic life.

The Silver Creek pilot project is a demonstration partnership started in June 2014 between agricultural land owners and operators, state, local and tribal governments NEW Water, the brand of the Green Bay Metropolitan Sewerage District. A primary goal of the project is to improve soil health, implement operational improvements, and install conservation practices to retain phosphorus and soil on the field where it is beneficial to the farm. It is through this goal that attaining water quality standards in Silver Creek will be achieved, and a long-term partnership between NEW Water and the agricultural community can be established.

### 2016 – Year of Implementation

Success of the demonstration project is due in large part to the participation by land owners and operators in the Silver Creek watershed. Through 2016, accomplishments of the pilot project have included:

- » Soil nutrient sampling at 2.5 acre grids for all fields;
- » Annual field walks with conservation and agronomic professionals to identify opportunities for reducing field-level phosphorus and soil loss;
- » Conservation and Enhanced Nutrient Management Plans developed with each land owner and grower, and updated for each field and specific crop rotation to ensure that the conservation and nutrient planning is endorsed by the grower:
  - Obtain conservation practice funding, utilizing a variety of funding sources to meet the needs of the grower or land owner;
  - Assist with contracting, implementation, inspection and operation of the conservation practices starting in early 2017;

### Practices Implemented in 2016

- 4 acres of grassed waterways
- 8 acres of critical area plantings
- 10 acres of filter strips
- 3 Water and sediment control basins treating 73 Acres

- 1 manure pit upgraded/concrete lined
- 1 manure pit removed
- 1 stable outlet implemented
- 1 food plot planted
- 740 acres of cover crops installed
- 230 acres of tillage practice changes enacted
- 97 acres converted to grazing
- 70 acres converted to harvestable forage or cereal
- 120 acres used variable rate technology for fertilizer
- 440 acres reduced phosphorus application, no manure or phosphorus applied, or manure injected
- 180 acres of alfalfa planted with grass
- 240 acres of modified crop rotations
- 220 acres of increased crop residue

Pilot project efforts, and coordination with growers and land owners in 2017 and beyond will include:

- Re-walk selected fields to confirm conservation and nutrient management opportunities;
- Meet with individual land owners and growers to review conservation opportunities and implementation;
- Continue monitoring phosphorus water quality along Silver Creek to measure progress towards obtaining the phosphorus and sediment water quality standards; and
- Update conservation and enhanced nutrient management plans at the end of 2017 in preparation for 2018.



Grassed waterway installation

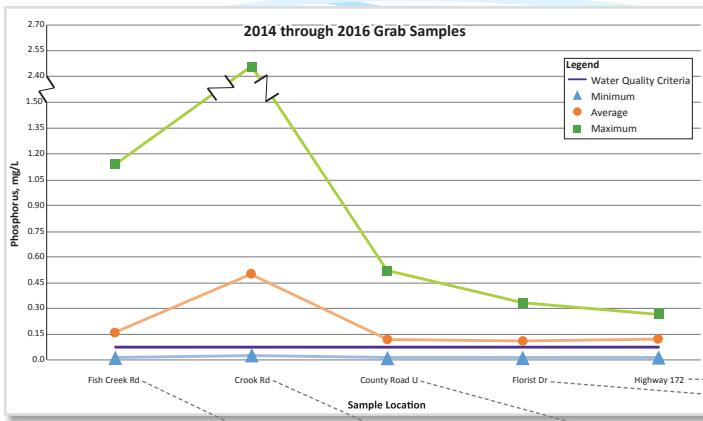


Corn field planted with winter rye cover crop



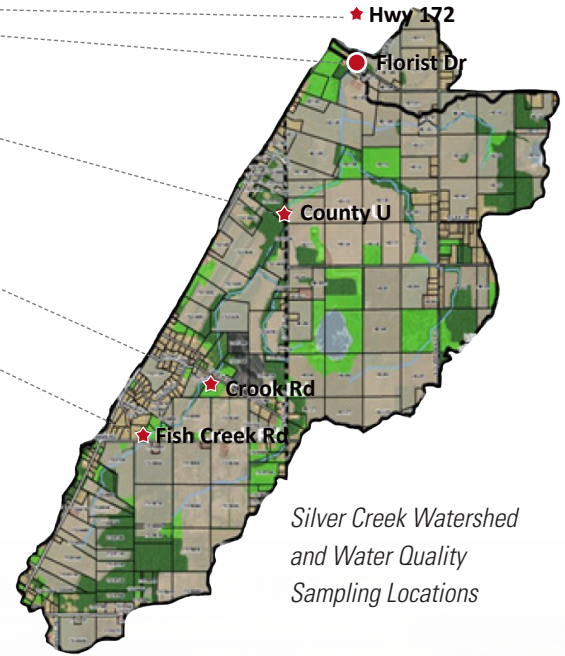
## Ties to Water Quality

Through water sampling in Silver Creek during baseline conditions in 2014 and 2015, 77% of samples had phosphorus results higher than the water quality criterion. Implementation of conservation practices reduced that to 46% in 2016. A team of agriculture and water quality experts is continually working on ideas to further improve Silver Creek water quality.



## Biological Monitoring

Species richness and general diversity of populations decreased between 2014 and 2015, at the same time phosphorus levels increased. This indicates biological monitoring is a good indicator of phosphorus levels in the watershed. Similar to decreased levels of phosphorus seen in 2016 water quality sampling data, the general diversity of populations increased in 2016 showing general improvement in habitat for biological communities as phosphorus levels decrease in the watershed. Monitoring the biology of the watershed can assist in determining the success of conservation. Because after all, we are doing this for the biology and health of the watershed.



Silver Creek Watershed and Water Quality Sampling Locations

Milestone	2014	2015	2016	2017	2018	2019
Silver Creek Pilot Duration	[Continuous bar from 2014 to 2019]					
Water Quality Monitoring	[Bar]	[Bar]	[Bar]	[Bar]	[Bar]	[Bar]
Field Soil Testing	[Bar]					[Bar]
Develop Conservation and Nutrient Plans		[Continuous bar from 2015 to 2019]				
Implement Conservation and Nutrient Management		[Continuous bar from 2015 to 2018]				
Develop Full Scale Program		[Continuous bar from 2016 to 2019]				

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## Additional Information

For additional information about the demonstration project, please contact Jeff Smudde (jsmudde@newwater.us or 920-438-1071) or Brent Brown (brent.brown@ch2m.com or 414-847-0393).

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