RESOLUTION R-6-12

URBAN NON-POINT SOURCE & STORM WATER GRANT PROGRAM

INTRODUCED BY Ald. Taylor,

WHEREAS, the City of Menasha recognizes that urban non-point source pollution has the potential to degrade surface water quality and impact designated uses for the Fox River and Lake Winnebago; and

WHEREAS, the Fox River and Lake Winnebago are 303(d) listed water bodies and a Total Maximum Daily Load for sediment and phosphorus pollutants has been developed for the Lower Fox River Basin; and

WHEREAS, the City desires to conduct the following planning activities in order to reduce urban non-point source pollution, improve stormwater quality, and assist with NR 216 Municipal Separate Storm Sewer System (MS4) Permit compliance; and

WHEREAS, the City desires to develop ordinances for construction site erosion control (ordinance update), post-construction stormwater management (ordinance update), and street sweeping (new ordinance); and

WHEREAS, the City desires to evalute possible new financing mechanisms and update existing financing mechanisms; and

WHEREAS, the City desires to update municipal storm sewer system maps; and

WHEREAS, the City desires to update its stormwater management plan for the entire City in accordance with NR 151 (developed urban area); and

WHEREAS, the City desires to develop a new stormwater management plan for only a fraction of the City in accordance with NR 151 (new development); and

WHEREAS, the local-share funds for the project are already included specifically in the City's adopted budget; and

NOW THEREFORE BE IT RESOLVED, that the City of Menasha hereby supports submittal of an Urban Non-Point Source & Storm Water (UNPS&SW) Planning Grant Application to the Wisconsin Department of Natural Resources (DNR) for these planning activities.

Passed and approved this _____ day of _____, 2012

_____
Donald Merkes, Mayor

_____
Deborah A. Galeazzi, City Clerk

Restoring Our Water Heritage

A TMDL: Creating a Better Future for the Lower Fox River and Green Bay

Wisconsin Department of Natural Resources

A Resource Worth Protecting

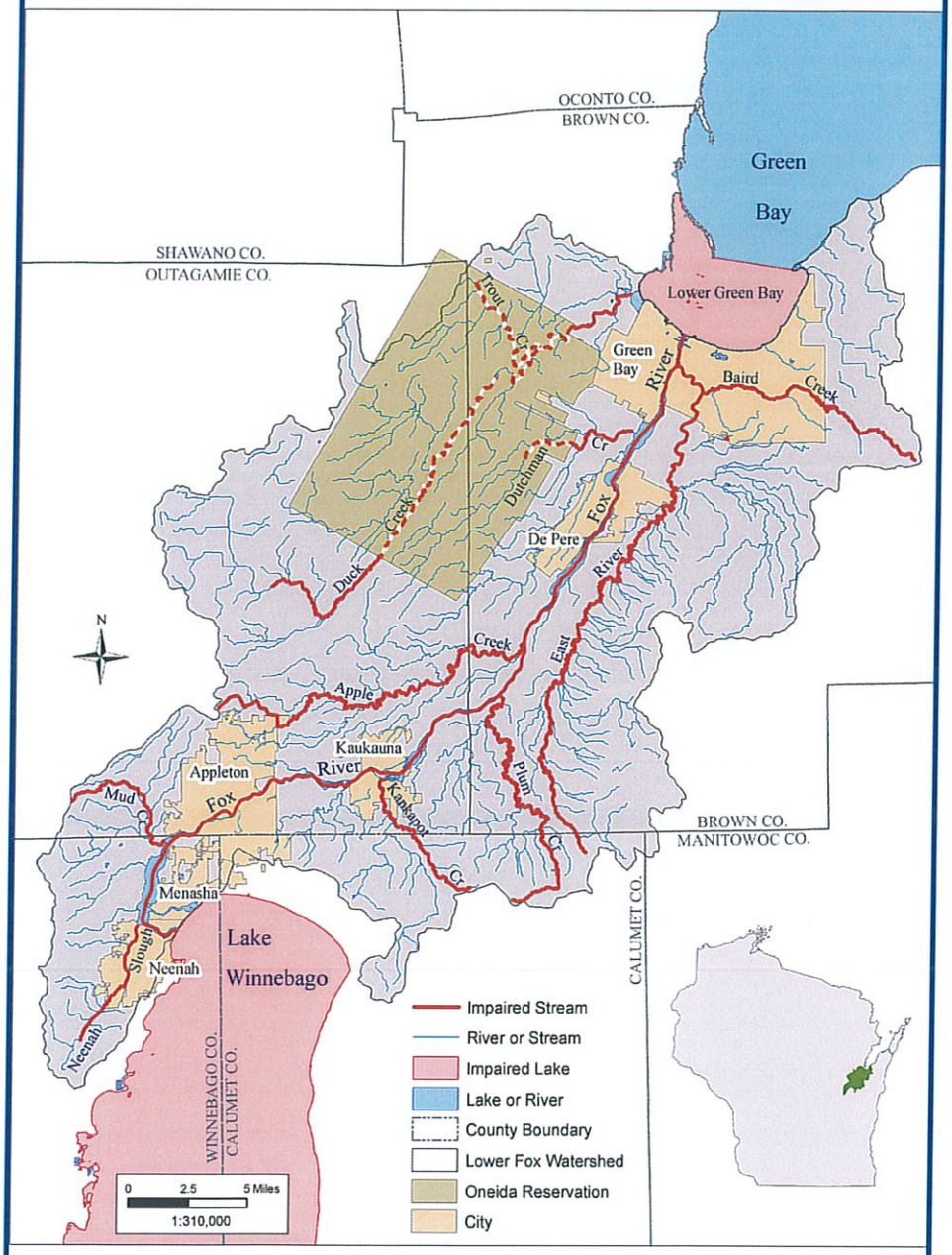
The Lower Fox River Basin and Green Bay are important environmental and economic resources for the state and the local community, contributing to our economic development and community character. People have long used the river and bay for transportation, commerce, energy, food, and recreation.

Situated on one of the major bird migration routes in North America, the Mississippi flyway, the Lower Fox River and Green Bay environment provides essential habitat for breeding and migratory birds. The terrestrial, wetland, and aquatic habitats in the basin support a wide diversity of songbirds, shorebirds, waterfowl, and birds of prey.

The river and bay also support a nationally known fishery. Green Bay is the largest freshwater estuary in the world; the bay itself is an inflow to Lake Michigan. The wetlands along Green Bay's west shore, as well as the wetlands lining the Lower Fox River that flows into Green Bay, provide critical fish spawning habitat for perch, northern, walleye and the elusive spotted musky.

The natural resources of the Lower Fox River Basin and Green Bay are critical to tourism and the local economy. The river and bay support popular recreational activities such as hiking, boating, fishing, snowmobiling, cross-country skiing, and ice fishing. Many local and state parks and wildlife areas are scattered throughout the basin. These areas provide opportunities to enjoy camping, trails, and hunting, and passive nature observation.

Map of the Lower Fox River Basin and Green Bay



The 638 square-mile Lower Fox River Basin is located in northeastern Wisconsin and encompasses the following counties: Brown, Calumet, Outagamie, Winnebago, and most of the Oneida Nation Reservation. The impaired waterbodies (colored in red on the map) include: Apple Creek, Baird Creek, Duck Creek, Dutchman Creek, East River, Fox River, Kankapot Creek, Mud Creek, Neenah Slough, Plum Creek, Trout Creek, Lower Green Bay.

Lower Fox River and Green Bay Pollutants and Impairments

The Lower Fox River Basin and Green Bay are impaired due to phosphorus, sediment, PCBs, and mercury. Remedial actions to address the human and ecological risks associated with PCBs in the sediment within the Fox River and Green Bay are currently being addressed through the Comprehensive Environmental Remediation and Liability Act. The focus of the actions described in this factsheet address excess phosphorus and sediment loading from the landscape accumulating in the river, the bay, and surrounding wetlands, damaging aquatic life and habitat.

Phosphorus is an essential plant nutrient that occurs in different forms throughout the environment. However, excess phosphorus in the basin increases the occurrence of unwanted algae blooms. Excessive algae growth severely depletes the supply of oxygen in the waterbodies of the Lower Fox River Basin and Green Bay, endangering fish and other aquatic life. Excess sediments in the river and bay reduce light availability to critical aquatic plants, restricting their ability to grow. Aquatic plants serve as vital habitat and food sources for fish, birds, frogs, turtles, insects, and other kinds of wildlife. They also produce life-giving oxygen, help stabilize bottom sediments, protect shorelines from erosion, and take up nutrients that would otherwise be available for nuisance algae growth. When aquatic plants die due to excess sediments in the river or bay, water quality is degraded.

Water quality in the Lower Fox River and Green Bay can be improved. Decreasing the amount of phosphorus and sediments entering the river and bay will reduce algae blooms, which will increase the amount of oxygen available for fish and other aquatic species. Further, reduced sediment in the bay will increase water clarity and light availability for aquatic plants. Greater water clarity and decreased algae blooms will increase the beauty of the river and bay, and provide the public with more recreational opportunities.

The TMDL Process: A Plan to Improve Water Quality in the Lower Fox River Basin and Green Bay

The Federal Clean Water Act requires states and authorized Tribes to identify and restore impaired waterbodies. A water body is "impaired" or polluted if it fails to meet applicable water quality standards. In Wisconsin, water quality standards are established by the Wisconsin Department of Natural Resources (DNR) and authorized tribes to protect and maintain a waterbody's uses, such as drinking water supply, fishing, and swimming.

Several streams and rivers in the Lower Fox River Basin and Green Bay are impaired due to excess amounts of phosphorus and sediments. The sources of these pollutants include runoff from agricultural and urban areas and construction sites, degraded habitats, and municipal and industrial wastewater discharges. To improve water quality, a plan is being developed (also known as a Total Maximum Daily Load or TMDL) for the Lower Fox and Green Bay. Many of the basin's wetlands are also impaired (but not listed as impaired waters) and will benefit from the TMDL process. Wetland restoration has the potential to provide the greatest benefit to overcoming degraded habitat for fish, waterfowl and other aquatic and terrestrial life in the basin.

Partners working on the TMDL plan include Wisconsin DNR, U.S. Environmental Protection Agency (EPA), U.S. Geological Survey, University of Wisconsin-Green Bay, University of Wisconsin-Extension, Green Bay Metropolitan Sewerage District, Brown County Land and Water Conservation Department, and the Oneida Tribe of Indians. The focus of the TMDL is to reduce the amount of phosphorus and sediment in the Lower Fox River Basin and Green Bay.

A TMDL is the total amount of a pollutant that a given waterbody can receive without violating water quality standards. The TMDL for a waterbody is an actual formula:

$$TMDL = WLA + LA + MOS$$

where the Total Maximum Daily Load is equal to the sum of the Waste Load Allocation (WLA) from point sources, plus the Load Allocation (LA) from nonpoint sources, plus a Margin of Safety (MOS), which accounts for uncertainty between pollutant loads and the quality of the receiving waterbody.

Water Pollution: What is the difference between point and nonpoint source pollution?

There are two general types of water pollution: **point source** and **nonpoint source**. Point sources come from identifiable, localized sources that discharge directly into a waterbody, usually through a pipe or outfall. Industries and wastewater treatment plants are two common point sources. Certain stormwater discharges are also considered point sources. Nonpoint source pollution does not come from a single source like point source pollution; it comes from land use activities such as agriculture and other diffuse sources. Most nonpoint source pollution occurs as a result of runoff. When rain or melted snow moves over and through the ground, the water carries any pollutants it comes into contact with to nearby waterbodies, such as the Lower Fox River and Green Bay. Nonpoint source pollution is difficult to control because it comes from many different sources and locations.

The federal Clean Water Act requires states and authorized tribes to develop TMDLs for all impaired waterbodies. TMDLs are required to account for point sources, such as wastewater discharges; nonpoint sources, such as runoff from agriculture fields; and natural background sources. TMDLs must also include components that address future growth of these sources, variations in flow and seasons, and a margin of safety to ensure that, once implemented, water quality standards will be achieved. A TMDL may be calculated for a single waterbody, multiple waterbodies, or an entire basin. A TMDL may also be calculated for multiple pollutants (e.g., phosphorus and sediment).

The goal of the Lower Fox River Basin and Green Bay TMDL is to set achievable limits on phosphorus and sediments that are protective enough to correct water quality impairments and meet water quality standards in the river and bay. The TMDL will identify the sources of the pollutants and the reductions necessary to meet water quality standards. The DNR is responsible for developing the Lower Fox River Basin and Green Bay TMDL. Scientific and technical experts will provide valuable information and insight to the TMDL process. Stakeholders (such as farmers, municipalities, business owners, and citizens) will play a critical role in the implementation of the TMDL. The Lower Fox River Basin and Green Bay TMDL will provide municipalities, counties, and individual landowners with a strategy for improving water quality in the river and bay.

What Can Be Done to Implement the TMDL and Improve Water Quality in the Lower Fox River and Green Bay?

Developing a TMDL is only the first step to restoring water quality in the Lower Fox River and Green Bay. The TMDL identifies the amount of phosphorus and sediment reductions needed from each source category (such as cropland and urban land) in order to achieve water quality standards. The next step is to implement the TMDL by taking actions that will reduce the amount of phosphorus and sediment entering the river and bay.

Industrial and municipal point sources have already begun to reduce their discharge of phosphorus as part of their permit requirements established by DNR. However, this reduction alone is not enough to meet water quality standards and restore water quality in the river and bay.

Reducing phosphorus and sediment loading to the Lower Fox River Basin and Green Bay will also require reducing polluted runoff from nonpoint sources, such as pastures and cropland. The delivery of nonpoint sources of phosphorus and sediment are closely linked, as polluted runoff frequently carries both phosphorus and sediment. Some of the actions that reduce the delivery of phosphorus will also reduce the amount of sediment.

Examples of potential TMDL implementation activities that will reduce sediment and phosphorus delivery to the Lower Fox River and Green Bay include:

- ✓ Lowering phosphorus levels in agricultural soils and reducing soil loss.
- ✓ Implementing rotational grazing for livestock and conservation tillage on cropland.
- ✓ Installing vegetated buffer and grass filter systems with high trapping efficiency (and not removing natural buffers) along streams and rivers. Buffers and grass filters trap sediment from agricultural runoff before it enters streams.
- ✓ Controlling short-term and long term consequences of urbanization. The Lower Fox River and Green Bay Basin includes some of the fastest growing urban and rural areas in the State of Wisconsin. Methods such as Low Impact Development techniques, reducing impervious surfaces, effective erosion and sediment

Plum Creek Restoration Project - Installation of Vegetated Buffers

Before

After

Riparian buffers protect and enhance water quality. Vegetated buffers can trap sediment and reduce or remove nutrients and other pollutants from runoff. The percentage of removal of these contaminants depends upon the width of the buffer and the composition of the vegetation in the buffer. Buffers also reduce the speed and volume of runoff through enhanced infiltration into the soil. The roots in vegetated buffers also help stabilize streambanks, which reduces erosion.

control, and increasing infiltration can result in phosphorus and sediment reductions. Also, designing stormwater systems that go above and beyond current state standards will maximize phosphorus and sediment reduction potential.

- ✓ Developing and implementing nutrient management plans (for farms) with the most effective and appropriate mix of management practices to reduce phosphorus and sediment runoff.
- ✓ Managing manure application on the landscape and exploring composting, digesting, or other emerging technologies for manure management.
- ✓ Stabilizing the natural hydrology of the urban and rural areas through stormwater management and planning and reclamation of wetlands.
- ✓ Restoring wetlands throughout the basin to improve degraded habitat.

How Might the TMDL Affect Me?

In Wisconsin, the implementation of point source load allocations is done through permits issued under the Wisconsin Pollutant Discharge Elimination System (WPDES) program, which includes stormwater discharge permits. Municipal and industrial point source dischargers, as well as construction sites, may be affected by the TMDL. Once the TMDL is developed for the Lower Fox River and Green Bay, the point source allocation will need to be incorporated into all existing and future discharge permits.

Within the boundaries of the Oneida Reservation, EPA issues National Pollutant Discharge Elimination System (NPDES) permits for point sources and stormwater dischargers and considers load reduction in issuing permits. Also, EPA's national general construction stormwater permit applies to the Oneida Reservation.

Nonpoint source implementation is managed primarily through Wisconsin's runoff management performance standards. In order to reduce their contribution to water pollution, farming operations and municipalities may be required to install best management practices (BMPs) to maximize water quality improvements. If they have not done so already, municipalities may have to adopt erosion control and stormwater management ordinances or modify existing ones. The Oneida Tribe has also adopted a nonpoint source pollution management plan based on state, tribal, and federal standards.

Public Participation

Active public involvement will be a vital part of the development and implementation of the Lower Fox River Basin and Green Bay TMDL. Accomplishing reductions in phosphorus and sediment loadings to the river and bay will require participation from every community member.

Every citizen and interested party is encouraged to become involved in implementing the Lower Fox River Basin and Green Bay TMDL. Public involvement ensures that the TMDL will be sensitive to local stakeholder concerns and will be integrated with other water quality improvement efforts. Public informational meetings and a 30-day public comment period are a part of every TMDL process.

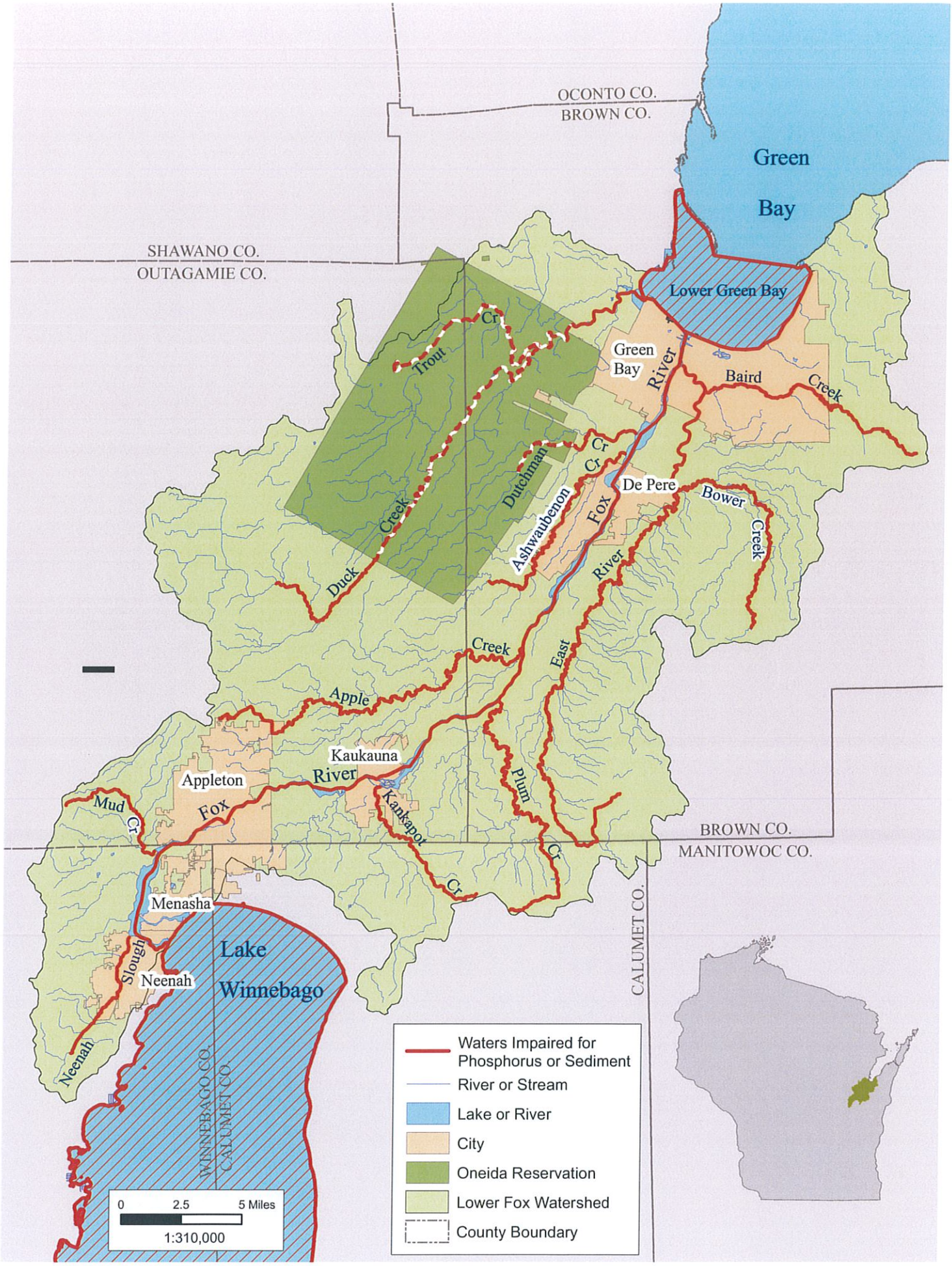
The success of the TMDL implementation effort rests with you, the basin stakeholders. Stakeholder participation in planning and implementing the water quality improvement actions is what will ultimately restore water quality in the Lower Fox River and Green Bay.

WISCONSIN
DEPT. OF NATURAL RESOURCES

TMDL Resources

For more information regarding the Lower Fox River and Green Bay TMDL Process, contact Nicole Richmond at (608) 266-0152, or Nicole.Richmond@wisconsin.gov, or visit DNR's TMDL Web site at dnr.wi.gov/org/water/wm/wqs/303d/index.html.

Additional information about the TMDL program is also available on EPA's TMDL Website at www.epa.gov/owow/tmdl.


OCONTO CO.
BROWN CO.
Green Bay
SHAWANO CO.
OUTAGAMIE CO.
Lower Green Bay
Green Bay
River
Baird
Creek
Trout
Cr
Dutchman
Cr
Cr
De Pere
Bower
Creek
Fox
River
Ashwaubenon
Duck
Creek
East
Creek
Apple
Kaukauna
River
Appleton
Fox
Mud
Cr
Kankapot
Cr
Plum
Cr
BROWN CO.
MANITOWOC CO.
Menasha
Lake Winnebago
Slough
Neenah
Neenah
WINNEBAGO CO.
CALUMET CO.
CALUMET CO.
0
2.5
5 Miles
1:310,000
Waters Impaired for Phosphorus or Sediment
River or Stream
Lake or River
City
Oneida Reservation
Lower Fox Watershed
County Boundary