State of Ohio Environmental Protection Agency

Fact Sheet

December 2009

# Nimishillen Creek Watershed TMDL Report

***What are the essential facts?***

- *Ohio EPA studied the Nimishillen Creek watershed and found water quality problems at most of the locations measured.*
- *The watershed can make progress towards restoration with practical, economical actions.*
- *Improving the streams depends on the participation of the watershed's residents.*

***What is the significance of this report?*** *The Nimishillen Creek watershed TMDL report is a tool to help improve and maintain water quality and habitat in the watershed, including local ideas from the endorsed watershed action plan.*

***What is a watershed?*** *A watershed is the land area from which surface runoff drains into a specific body of water.*

**Where is the Nimishillen Creek watershed?**

The Nimishillen Creek watershed drains 188 square miles in Stark, Summit and Tuscarawas counties of northeast Ohio. This area is highly populated and urban and industrial land uses are prevalent. The watershed covers the City of Canton, North Canton and Louisville.

The mainstem of Nimishillen Creek is about 25 miles long and flows into Sandy Creek, which then flows into the Tuscarawas River. There are three major tributaries to Nimishillen Creek which include the West Branch, the Middle Branch, and the East Branch. Other notable tributaries include Hurford Run and Sherrick Run (also called Sherrie Run).

The northern two-thirds of the watershed was once covered by glaciers, resulting in gently sloping land. In the unglaciated southern portion of the watershed, Nimishillen Creek has cut a narrow gorge.

The City of Canton is the largest community in the watershed with 80,806 residents. The population of other cites and villages within the watershed are North Canton (16,369), Louisville (8,904), Hartville (2,174), and East Canton (1,629). (U.S. Census, 2000).

Overall, the land use in the Nimishillen Creek watershed is approximately 19% developed open space, 27% developed, 19% cultivated crops, 16% pasture and hay, 15% forest and other types that make up less than 5% of the total.

**How does Ohio EPA measure water quality?**

Ohio is one of the few states that measure the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large

*Middle Branch Nimishillen Creek upstream of Reifsynder Park*

number of insects and fish that are sensitive to pollution indicate a healthy stream. Stream surveys were conducted in 2003, 2004 and 2005; impairments were found for biological communities as well as elevated phosphorus and bacteria.

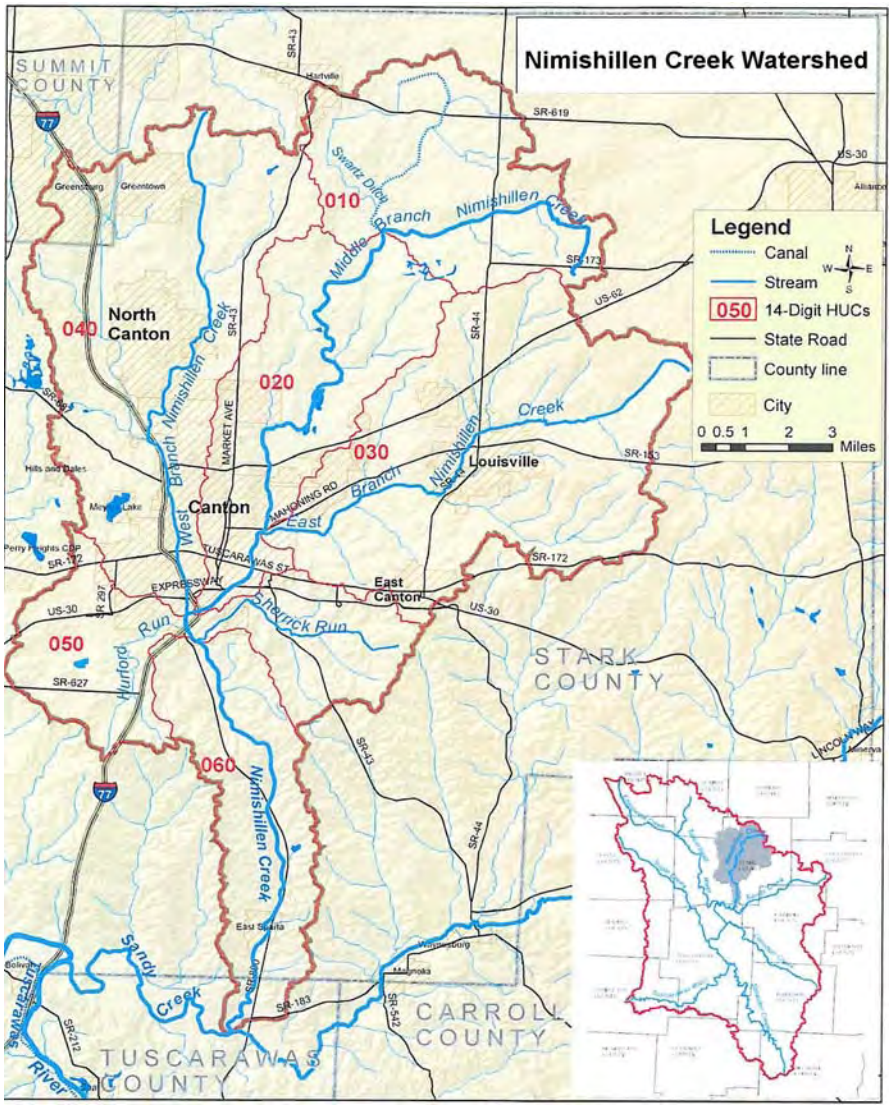
The watershed's conditions were compared with state water quality goals to determine which stream segments are impaired, and how much needs to be done to restore good stream habitat and water quality.

**What is the condition of the Nimishillen Creek watershed?**

Ohio EPA's study of 33 sites on 10 streams in the watershed showed that it continues to be severely impaired. Of the 33 sites, 19 (57%) were not attaining biological goals, 11 (33%) were partially attaining the goals, and only 3 (9%) were in fully attaining the goals.

Biological communities have been impacted over the years by a number of sources including discharges from industrial and municipal wastewater treatment plants, agriculture, and septic (home sewage treatment) systems. The modification of natural drainage patterns through dredging and ditching is also a significant issue in the Nimishillen watershed

When trees along the stream banks are removed, the lack of shade allows the water temperature to increase, which decreases the amount of dissolved oxygen for aquatic organisms. The depletion of dissolved oxygen is worsened by manure runoff and untreated sewage flowing from failing home septic systems and small communities without any wastewater collection or treatment.




Lack of water in small headwater streams, especially in the summer, makes it hard for pollutants to be absorbed and treated by the natural stream ecology. Agricultural drainage improvements such as tiling and routine dredging contribute to uneven and unsustainable water flow in these small streams, making it difficult to support good aquatic life communities.

**How will water quality get better?**

The Nimishillen Creek watershed is included on Ohio's list of impaired waters. Under the Clean Water Act, a cleanup plan is required for each impaired watershed. This clean-up plan, known as a total maximum daily load (TMDL) report, calculates the maximum amount of pollutants a water body can receive and still meet standards (goals). The TMDL report specifies how much pollution must be reduced from various sources and recommends specific actions to achieve these reductions.

The TMDL report will provide specific numeric goals for reducing pollutants, including pathogens, phosphorus, and sediment, as well as ways to improve habitat. Ohio

EPA can address some of the Nimishillen's problems through regulatory actions, such as permits for wastewater and storm water dischargers. Other actions, such as committing to proper manure management and reduced home sewage system failures, will be up to local residents.

**What actions are needed to improve water quality?**

Because there are many reasons streams in the Nimishillen Creek watershed fail to meet water quality goals, several actions are required to improve the current condition and protect the watershed in the future. The recommendations should focus on reducing pollutant loads and/or increasing the capacity of the streams to handle the remaining pollutant loads.

Restoring a more natural flow regime is an essential component of protecting water quality and aquatic biological communities. The basic principles of providing floodplain connectivity, stable stream morphology and watershed hydrology that approximates natural conditions are applicable to all areas of the watershed. Likewise, stream buffers are appropriate for all land use types in the watershed.

There will continue to be a need for drainage projects within the Nimishillen watershed given the risks of flood damage in urbanized areas and agricultural drainage needs in the northern and eastern sections. All local governmental agencies involved with drainage maintenance and flood control practices should re-assess current practices in light of the severe degree of impact shown in the water quality and biological data. This problem is not unique to the Nimishillen watershed; a workgroup convened by the Ohio Department of Natural Resources and the Ohio Federation of SWCDs has recognized the need to provide guidelines and a *Drainage Manual* should be published in the near future. Alternative methods of ditching and stream channel management can be implemented to achieve the necessary drainage with less environmental impact.

Local planning and zoning will need to look at better ways of integrating watershed stewardship and storm water management into land use decision making. Good planning decisions early will help to minimize long term consequences and expenses.

Other steps to improve water quality include:

➢ Municipal- and county-owned wastewater treatment plants will be required to monitor total phosphorus with a goal to discharge no more than 1.0 milligram per liter. Plants not meeting this goal will need to be upgraded. Effluent limits will result in phosphorus load reductions of 229 kilograms per day

➢ Home sewage treatment systems (HSTS) should be addressed in rural, urban and developing areas by the county health departments.

➢ Sediment flowing into streams is a concern in both agricultural and developing areas. Controls include reducing erosion with cover crops or conservation tillage; providing buffers along stream banks; identifying concentrated flow paths from agricultural fields and implementing site-specific practices to reduce sources of sediment and nutrient loading. Also appropriate is adopting measures that maintain stream stability during land disturbance activities such as construction.

***What are the most important "fixes" in the watershed?***

- ***Include phosphorus effluent limits of 1 mg/l in NPDES permits issued to wastewater treatment plants***
- ***Improve erosion and sediment control in all areas***
  - o *Practice conservation tillage on row crop farms*
  - o *Install filter strips along <u>all</u> agricultural tributaries*
  - o *Install storm water controls in developing areas and construction sites*
  - o *Establish and protect vegetation along stream banks*
- ***Develop better storm water management – reduce dependency on "ditching"***
  - o *Remedy current methods of ditching, which are destructive to habitat, exacerbate downstream flooding, and are harmful to aquatic life and water quality*
  - o *Integrate holistic view of storm water and its management to provide long-term cost effective solutions*
- ***Eliminate pervasive bacteria problems***
  - o *Improve planning for environmentally sustainable manure and nutrient management agricultural facilities*
  - o *Reduce and correct home sewage treatment system failures*

**Who is responsible for taking action?**

Implementation of this report's recommendations will be accomplished by state and local partners, including the voluntary efforts of landowners.

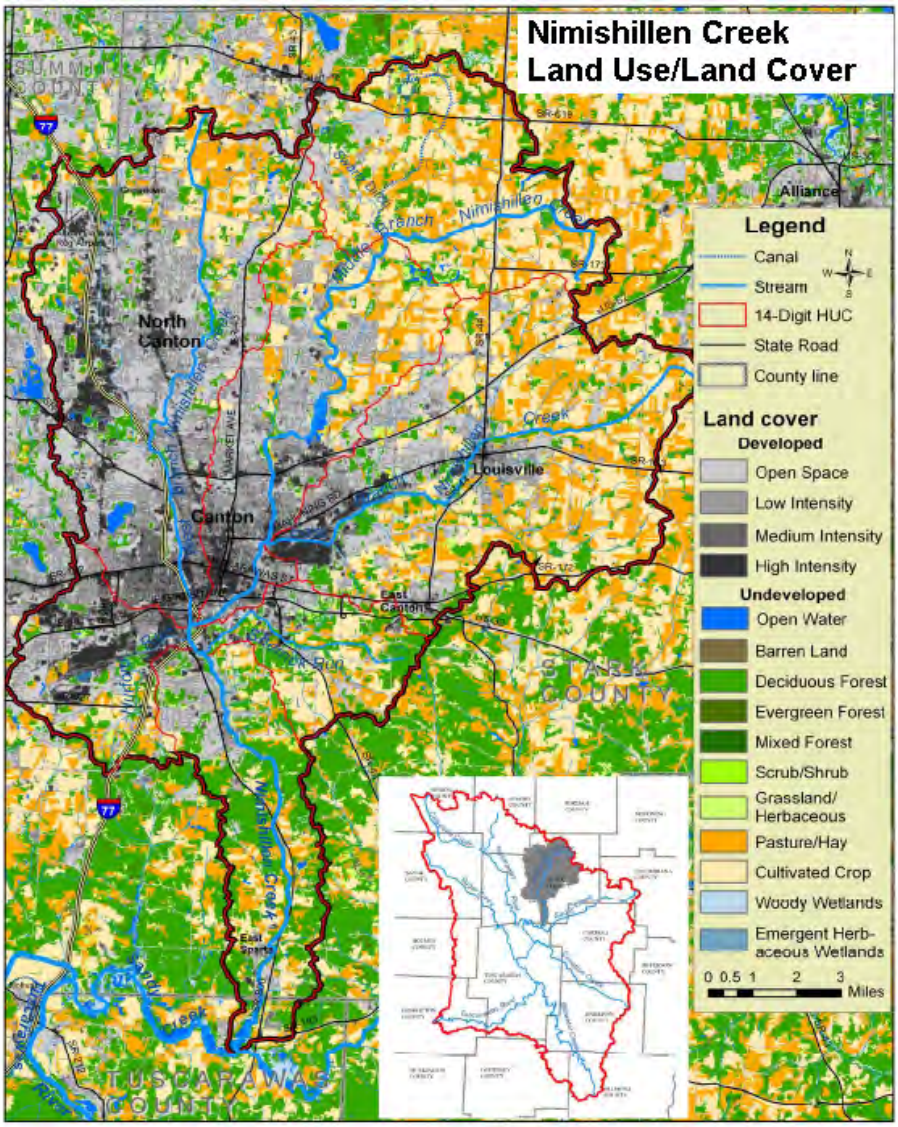
Locally, discussion of actions to restore the watershed has occurred as diverse partners have worked to develop a watershed action plan. The Nimishillen Creek Watershed Partners have written a watershed action plan and received state endorsement.

Additionally, Ohio EPA's 208 Program may provide a venue for local citizens to design and direct actions that abate pollution and preserve clean water within the watershed.

**Are any actions already underway?**

In addition to the watershed action plans discussed above, several activities indicate a high interest in restoring the watershed:

- The Nimishillen Creek Watershed Partners organize an annual clean-up event within the watershed. The Sixth Annual Nimishillen Creek LEAP Litter Elimination, Awareness and Prevention took place in the City of Louisville and in Nimishillen Township.




- The Stark County Drainage Task Force continues to discuss opportunities for storm water projects in the watershed.

- The watershed action plan continues to serve as a guide for water quality improvements as recommendations are implemented.

***Where can I learn more?*** *General information on TMDLs, water quality standards, 208 planning, permitting and other Ohio EPA programs, is available at http://www.epa.ohio.gov/dsw/Home.aspx.*

*The final report was approved on December 16, 2009, and is available at http://www.epa.ohio.gov/dsw/tmdl/index.aspx.*

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