The Vermillion River Watershed encompasses an area of approximately 335 square miles, including portions of two counties and all or portions of 20 cities, towns, and townships. The main stem of the river begins in southeastern Scott County in New Market Township flowing east through central Dakota County, passing over a waterfall in the City of Hastings, and then discharging to the Mississippi River both through a northerly flowing outlet near the City of Hastings as well as through a southerly flowing outlet near the City of Red Wing, Minnesota.

Updated: March 2015

(Continued from front)

Priority areas for improvement

All of the impaired reaches need help, but perhaps none so much as reach 517. This reach, which is a DNR-designated trout stream, is impaired because it doesn't meet state standards for fecal coliform bacteria, turbidity, dissolved oxygen, mercury, and fish and macroinvertebrate health. Why does this reach have so many listed impairments? A few possible reasons:

- Riparian buffers (vegetated strips along streams and waterways) filter pollutants and sediments out of stormwater and allow infiltration. Many streams have adequate riparian buffers, but some buffers lack tree shading, which stabilizes stream banks, maintains cool water temperatures, and filters pollutants.
- Older parts of the city pre-date regulations for stormwater management. Stormwater running into storm drains in older areas of Farmington go directly to one or four outlets into the Vermillion River – all of which drain into reach 517. Retrofitting older parts of the city with stormwater management practices would improve river conditions.
- The land elevation changes very little in reach 517, so water moves slowly. Adding features to mix and aerate the water would improve oxygen conditions in reach 517.

Priority areas for protection

Rambling River Park is located along much of reach 517, and its streambank vegetation provides some filtration for overland stormwater runoff. The park also contains wetland areas to contain and infiltrate stormwater and provide habitat for macroinvertebrates.

Greatest stress on fish and aquatic life

Turbidity (primarily from sediment) is the greatest stressor on fish and aquatic life. (The current method to measure turbidity is total suspended solids, or TSS.) Controlling stormwater runoff by reducing the volume of water reaching the river would reduce sediment loading.

Reducing pollutant loads

The WRAPS study estimates pollutant load reductions that will improve water quality to meet state standards. Farmington has a state municipal separate storm sewer system (MS4) permit and will receive a waste load allocation – a pollutant load reduction goal the city will be required to achieve to meet water-quality standards on all Farmington river and tributary reaches.

Benefits of restored waters

- Rivers and wetlands reduce the effects of flood or drought on urban and rural property.
- Water resources support many kinds of life. These living things break down wastes, prevent soil erosion, reduce pests, pollinate plants, serve as food, or otherwise benefit human populations.
- Clean rivers and lakes increase property values, boost the local economy, and attract recreational users.
- Clean water attracts wildlife, supports healthy outdoor recreation, and improves the quality of life.

For more information about:

- **The Vermillion River Watershed**, visit www.vermillionriverwatershed.org
- **Impaired waters**, go to the MPCA website at www.pca.state.mn.us, search "impaired waters"
- **E-mail notifications of events** or subscriptions to the VRWJPO newsletter, send an e-mail to water@co.dakota.mn.us

Vermillion River Watershed Joint Powers Organization
14955 Galaxie Avenue
Apple Valley, MN 55124
www.vermillionriverwatershed.org
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Vermillion River watershed *reflecting life*

Frequently Asked Questions

Remeandered portion of North Creek in Farmington

Impaired Waters in the City of Farmington and the Watershed Restoration and Protection Strategy (WRAPS)

Impaired waters

Portions of the Vermillion River, its tributaries, and lakes in the Vermillion River Watershed are listed as "impaired" by the Minnesota Pollution Control Agency (MPCA) and the U.S. Environmental Protection Agency (EPA) under the federal Clean Water Act.

Impaired waters are rivers, lakes, or streams that **do not meet one or more state water-quality standards** and are considered too polluted for their designated uses. Designated uses for water bodies can include consumption (drinking water, eating fish); aquatic recreation (swimming, canoeing); and aquatic life (living conditions for fish, insects, and other aquatic species).

Watershed Restoration and Protection Strategy

The Vermillion River Watershed Joint Powers Organization (VRWJPO) and MPCA are responsible for identifying pollution sources and stresses causing these impairments and creating a Watershed Restoration and Protection Strategy (WRAPS) to restore impaired waters and protect waters from becoming impaired.

In developing the WRAPS, the VRWJPO is consulting with people in the City of Farmington to inform them about the impairments and identify strategies to achieve water-quality goals. Strategies taken to achieve these goals must comply with existing laws and be practical, cost-effective, and eligible for grant funding. This FAQ describes impaired waters in Farmington, factors that affect water quality in the area, and general information about required pollutant reduction goals.

Farmington's water and land

The City of Farmington is entirely within the Vermillion River Watershed. Parts of the river's main stem, as well as portions of three major tributaries (South Creek, Middle Creek, and North Creek) pass through Farmington from west to east. The Vermillion River main stem passes through Rambling River Park.

Priority areas for improvement

The impaired river reaches are 507 and 517 (Vermillion River main stem); 527 (South Creek); 546, 548, and 668 (Middle Creek); and 542 and 670 (North Creek). These are identified on the map in center of this fact sheet.

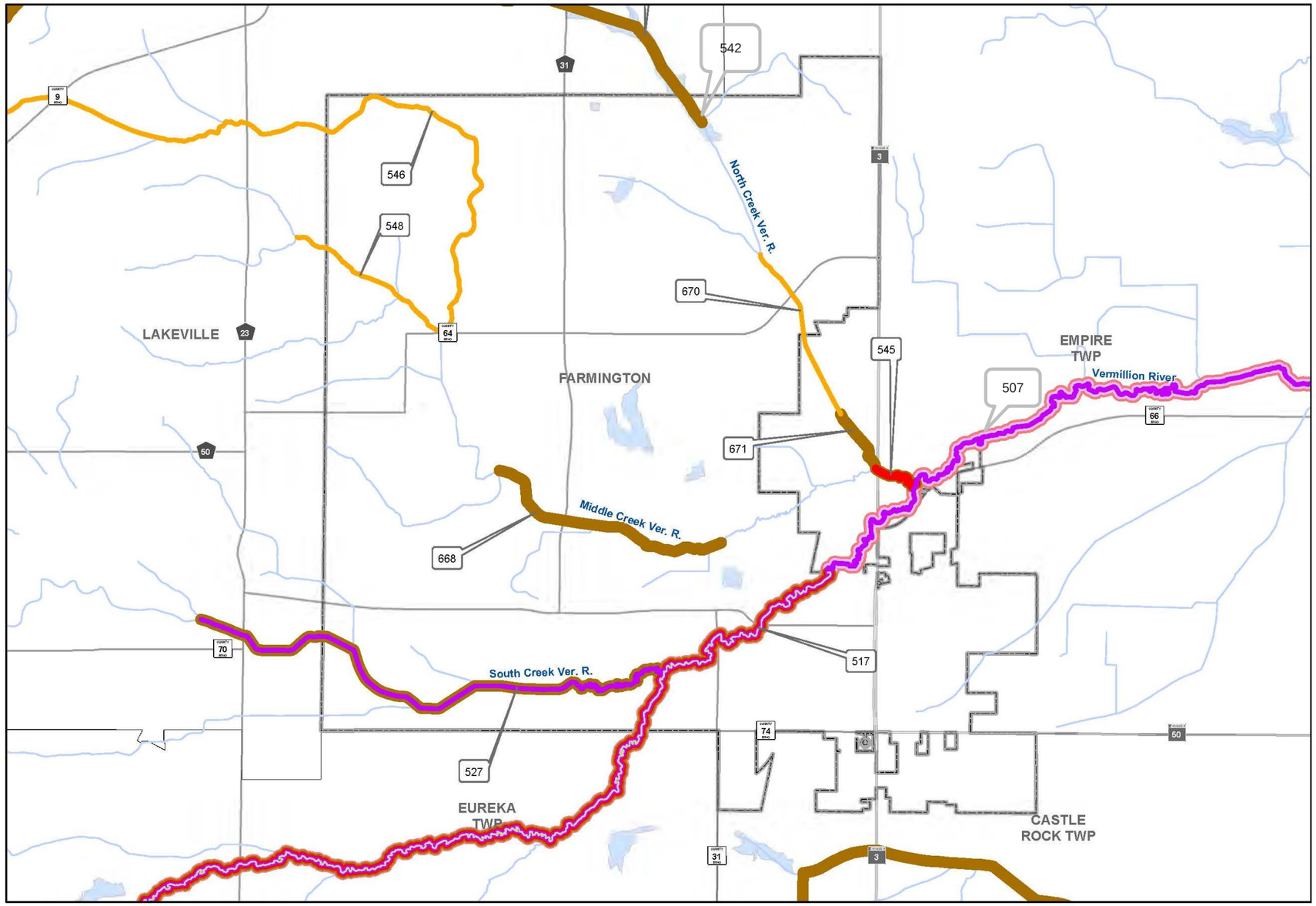
(continued on back)

Where are the current water quality impairments in the City of Farmington?

Mercury is a statewide issue

Some pollutants are widespread in the environment, including mercury (a toxic element) in water resources. Mercury builds up in fish tissue as it moves through the food chain. This makes some species or sizes of fish unsafe to eat in large quantities. In Farmington, river segments (507 and 517) are impaired by mercury, which is deposited on water from the air. One major source is coal-burning power plants.

The State of Minnesota is responsible for reducing mercury pollution. To find out more, visit the Minnesota Pollution Control Agency website at www.pca.state.mn.us/index.php/topics/mercury/index.html.



Legend

- Turbidity
- Fish & Macroinvertebrates
- Escherichia coli (E-coli)
- Oxygen, Dissolved
- Fecal Coliform
- Fecal Coliform (Existing TMDL)
- Mercury
- Vermillion River Waterway
- Vermillion River Watershed JPO
- Municipal Boundary

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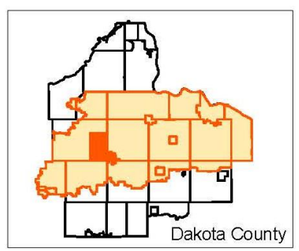
Miles



Impairments in Farmington

Bacteria – The most common pollutant found in all of Farmington's river reaches is **fecal coliform bacteria, especially *E. coli*.** The bacteria come from the intestines of warm-blooded organisms. People exposed to these bacteria can get sick. Where these bacteria occur, they indicate that other diseases that affect human health may be present in the water, too.

Low dissolved oxygen – If a river or stream does not have enough dissolved oxygen (as is the case in reach 517), fish and other aquatic organisms are stressed and less able to live and reproduce. Reach 517 has poor oxygen conditions because it is slow moving, becomes stagnant, does not have in-stream features to help aerate the water, and is too warm.

Turbidity is cloudiness in water (517) caused by individual particles (typically sediment). Stormwater brings particles from land surfaces to water bodies. High turbidity levels can block light from reaching lower water depths; inhibit growth of aquatic plants and species (such as fish or aquatic insects) that depend on those plants; cover and fill vital habitat, hinder the ability of species to see food, and damage gills.

Fish and Macroinvertebrates – The health of the river is measured, in part, by its ability to support living things, such as fish and macroinvertebrates (aquatic insects). In river segments 507, 517 and 527, fish and macroinvertebrates are unhealthy. The reach does not contain the right kinds of living things in the right amounts, primarily because of turbidity, but also high temperature, low oxygen, and poor habitat.