

(Continued from front)

#### Priority areas for improvement

If nitrate levels in reach 707 can be reduced now, we could prevent the South Branch of the Vermillion River from being listed as impaired for nitrate. (See “Test the Waters” fact sheet to find out more about nitrate in drinking water issues.)

Nitrate data from the cold-water trout streams are compared to the state’s drinking water standard for nitrate of 10 mg/L. State agencies are developing a surface water standard for nitrate, which may be lower than the 10 mg/L standard. Reach 707 in Castle Rock Township may violate the new standard, if it is adopted. Calculations from the 2012 and 2013 Vermillion River Monitoring Network annual reports show that the nitrate yields entering surface water were 10.0 pounds per acre and originate in the South Branch (which includes 707).

Nitrate affecting surface water also seeps into the groundwater, especially in eastern Dakota County. The Dakota County Targeted Townships groundwater sampling program conducted in 2013 showed that 15 percent of private drinking water wells tested in Castle Rock Township have nitrate levels that exceed the health risks limits set by the Minnesota Department of Health.

#### VERMILLION RIVER WATERSHED JOINT POWERS BOARD

Commissioner Mike Slavik,  
(Dakota County)

Commissioner Mary Liz Holberg,  
(Dakota County)

Commissioner Tom Wolf,  
(Scott County)



#### Vermillion River Watershed Joint Powers Organization

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Apple Valley, MN 55124  
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952-891-7000

#### The biggest challenge

Throughout the Vermillion River Watershed, levels of bacteria in surface water are too high. Reaches 706 and 707 are impaired for fecal coliform bacteria. The bacteria come from the intestines of warm-blooded organisms, so sources of bacteria may include livestock waste, wildlife waste, and failing septic systems. Best management practices (BMPs) can reduce bacteria levels and improve water quality, and state and local incentives are available to landowners.

#### Groundwater impacts on water quality

Reaches 706 and 707 are “gaining,” which means that groundwater moves into the river. This keeps the surface water in 707 cold enough to support cold-water species, such as trout.

#### Reducing pollutant loads

The WRAPS study estimates pollutant load reductions that will improve water quality to meet state standards. Each city with a state municipal separate storm sewer system (MS4) permit will receive a waste load allocation – a pollutant load reduction they will be required to achieve. The unincorporated areas **as a whole** that drain to the river are given a load allocation – a pollutant load reduction the unincorporated areas will try to achieve together.

#### 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](http://www.vermillionriverwatershed.org)
- **Impaired waters**, go to the MPCA website at [www.pca.state.mn.us](http://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](mailto:water@co.dakota.mn.us)



#### Frequently Asked Questions



Dakota County Agricultural Society  
Restoration and Easement

#### 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) is 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.

## Impaired Waters in Castle Rock Township and the Watershed Restoration and Protection Strategy (WRAPS)

In developing the WRAPS, the VRWJPO is consulting with people in Castle Rock Township 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, be practical and cost-effective, and be eligible for grant funding. This FAQ describes impaired waters in Castle Rock Township, factors that affect water quality in the area, and general information about pollutant loading.

#### Castle Rock Twp.’s water and land

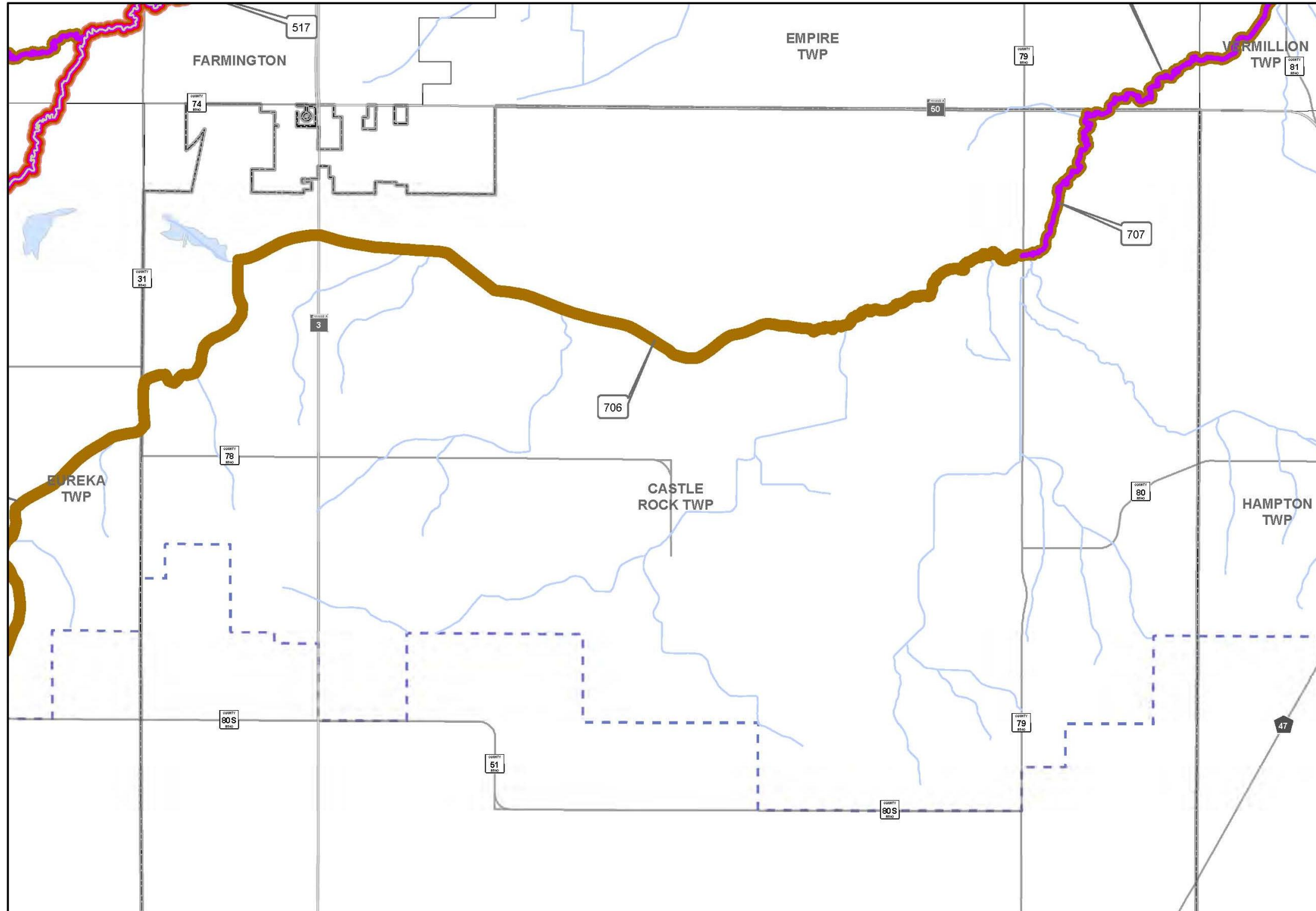
Castle Rock Township is split between two watersheds. The northern portion of Castle Rock Township is in the Vermillion River Watershed; the southern portion is in the North Cannon River Watershed. This fact sheet covers only the portion in the Vermillion River Watershed.

#### Priority areas for improvement

The impaired river reaches are 706 and 707 (South Branch of the Vermillion River). These reaches are identified on the map in the center of this fact sheet. Reach 706 is classified as a warm-water stream; reach 707 is classified as a cold-water trout stream. Regulations and standard are more stringent for cold-water streams.

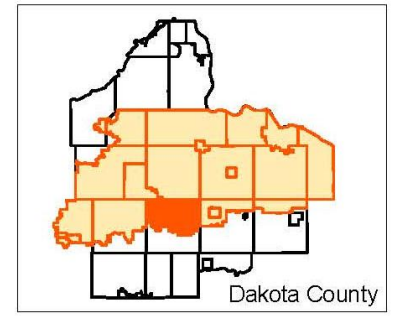
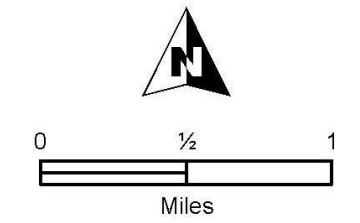
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# Where are the current water quality impairments in Castle Rock Township?



**Legend**

- Turbidity
- Fish & Macroinvertebrates
- Fecal Coliform
- Vermillion River Waterway
- Vermillion River Watershed JPO
- Municipal Boundary



This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data located in various City, County, and State Offices and other sources, affecting the area shown, and is to be used for reference purposes only. Dakota County is not responsible for any inaccuracies herein contained. If discrepancies are found please contact the Dakota County Water Resources Office at 952-891-7000. ©2014 Dakota County

## 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. Mercury 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](http://www.pca.state.mn.us/index.php/topics/mercury/index.html).



**Bacteria** – The most common pollutant in Castle Rock Township’s river reaches (706 and 707) 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.

**Fish and Macroinvertebrates** – The health of the river is measured, in part, by its ability to support aquatic life, such as fish and macroinvertebrates (aquatic insects). In river segment 707, the make-up of the fish and macroinvertebrate communities is considered unhealthy. The reach does not contain the right kinds of living things in the right amounts, primarily because of environmental stress.

These environmental stresses include turbidity caused by too much sediment eroding into the river or carried to the river by stormwater, areas of degraded habitat, high water temperature, lack of dissolved oxygen, and excess nitrate.