

Hazard Mitigation Works in Bayfield County to Prevent Damage

Madison, WI – Located near Lake Superior in Northern Wisconsin, the Town of Clover is a small Bayfield County community made up of 223 residents. The Town experiences periods of seasonal flooding each year, particularly on Nicoletti Road, a town roadway located on an unnamed perennial tributary to Lake Superior, locally referred to as “Horseshoe Creek.” Repeated road closures, costly repairs, public safety issues, and concern over the amount of road material entering nearby waterways prompted the Town to explore mitigation opportunities for the Nicoletti Road culvert. The original culvert was undersized relative to the amount of storm water discharge known to pass through the area during seasonal flood events. Therefore, the Town decided to replace the existing culvert with an upgraded culvert crossing large enough to accommodate a 100-year (1-percent-annual-chance) flood event.

When the Horseshoe Creek in Bayfield County floods, it sometimes causes the closure of Nicoletti Road. It is not only an inconvenience for motorists but was also a safety concern since a road washout could become an obstacle for first responder vehicles. That’s why the Town of Clover decided to take action and develop a hazard mitigation strategy to replace a culvert with a larger one that would help alleviate flooding issues.



Once the Town of Clover had developed a mitigation strategy, the next step was to secure funding. In 2013, the Town of Clover applied for funding under FEMA’s Hazard Mitigation Grant Program (HMGP) to install a large culvert in Horseshoe Creek at Nicoletti Road. Under the HMGP, 75% of project costs or \$51,565 was covered by Federal funds, with the State of Wisconsin and the municipality each contributing 12.5% or \$44,198. The grant was awarded in 2014, and the project was completed in October 2015.

Clay soil near Lake Superior limits infiltration, resulting in large volumes of storm water runoff during heavy rain events. This runoff, as well as snow melt in the spring, regularly flooded the wetlands and waterways near Nicoletti Road, rendering it and other area roads impassable during any rain event of 2 inches or greater (approximately a 1-year storm). The section of the roadway near the Horseshoe Creek culvert was particularly prone to washing out, requiring repeated annual repairs. Because the culvert was not large enough to allow the flow from a 1-year storm to pass through, the wetland area upstream would overflow and inundate nearby Bark Bay Road as well. Flooded roads routinely presented public safety threats by endangering drivers and creating obstacles for EMS and fire response in the area. Washouts also carried gravel and sediment from the roadways to the wetlands, estuary, and lake within the Bark Bay Slough Natural Area. The new culvert would solve the problem of the repetitive flooding that affected the community and surrounding area. The installation

of the appropriate culvert would address the flooding concerns and associated damage should rainfall amounts be of sufficient amounts to cause flooding.

During the July 11-12, 2016, storms, three to four inches of rain fell on the Town of Clover in a 24-hour period. Many roads and culverts in the area washed out, including part of Nicoletti Road to the east of the culvert mitigation project. At this point of the road, 11 streams from the hills to the south drain into a ditch on the south side of the roadway. During the storms, this ditch filled beyond its capacity and overtopped Nicoletti Road, resulting in a quarter mile of roadbed erosion and subsequent closure of the road. While numerous roads were washed out and damaged during the torrential rain that fell in northern Wisconsin in July, the enhanced Nicoletti culvert performed as expected and damages were prevented due to the HGMP project.

Road damage during the storms stopped short of the culvert mitigation project; the upsized culvert was able to handle the runoff from this event, and Nicoletti Road at Horseshoe Creek “held beautifully,” according to Beverly Steele, Town of Clover Chairperson. Although the Horseshoe Creek culvert was a success, Steele stated the washout on the other part of Nicoletti Road indicates that “further mitigation is needed.” Recently, hazard mitigation projects have helped prevent damage by replacing small culverts with larger ones that could handle heavy water flow during major storms.



For additional FEMA HMGP information visit: <https://www.fema.gov/what-mitigation>.

For more information regarding Wisconsin Hazard Mitigation, please visit: <http://emergencymanagement.wi.gov/mitigation/default.asp> or contact them via e-mail, DMAWEMHazardMitigation@wisconsin.gov.