



*Mississippi River - Grand Rapids  
Watershed Restoration & Protection Strategies*

## **Strategies for Water Quality Restoration Culverts and Stream Health**

While driving down the road, it's easy to overlook how many culverts there are. Culverts are used not only for stream crossings but also to pass water between wetland areas and ditches. The placement and sizing of culverts can have a big impact on water resources. Culverts that are too small can speed up the flow of water, making it difficult or impossible for fish and bugs to move up or downstream, which can lead to a stream becoming impaired. They also contribute to sediment pollution by causing erosion. That's why the replacing old, undersized culverts with fish friendly options can be an important strategy for improving water quality

### **What makes a culvert fish friendly?**

A fish friendly culvert is sized to be as wide as the stream during a storm event. This size is known as bank-full width. These culverts tend to be many times wider than the culverts they replace and during "normal" or "low flow" may seem very large indeed! But, sizing in this manner slows the water down and ensures that high flow water, debris and organisms can pass under the road.

Bed material in the culvert helps reduce the energy of the water, reduces the wear on the culvert bottom, maintains the culvert elevations, and provides wildlife habitat. In some cases, a flood plain culvert that only flows during very high water may be added, so the stream will have access to the floodplain during a flood event. The bottom line is that a fish friendly culvert will look similar to the stream as it passes under the road.



### Reduced Maintenance Cost

Although a larger culvert has a higher price tag initially, they will end up saving money in the long run. The cost of replacing a culvert or lost road bed materials can be enormous, especially as we are seeing more frequent high rain fall events.

Not to mention the impact to local residents and businesses when a road has to be closed until those repairs can be completed.



### Improved Safety

Culverts that fail during storm events present a large safety hazard. Drivers may be unaware of a washed out road and many flood deaths occur because people attempt to cross a flooded roadway.

When roads are closed due to flood events, it can take much longer or even be possible for emergency personal to assist with medical and fire emergencies.

### Water Quality

When culverts fail or a stream or river washes out a road many tons of road material are washed down stream. This material not only becomes a major source of sediment throughout the watershed but, also covers up stream and wetland plants. Valuable wetlands and wildlife habitat are lost! Properly sized culverts help us keep the road where it's supposed to be....on the road!

For more information. Please contact one of the Soil and Water Conservation Districts partnering on this project.  
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