

# TRANSPORTATION RESILIENCE

## The Vermont Transportation Resiliency Planning Tool

CVRPC, in cooperation with communities in the Steven's Branch watershed, has been awarded a grant to add the watershed to the Vermont Transportation Resiliency Planning Tool.

The Tool is a web-based application that identifies bridges, culverts, and road embankments that are vulnerable to damage from flood inundation, erosion, and deposition for 10-year, 50-year, and 100-year storm events. It estimates risk based on the vulnerability and criticality of roadway segments and identifies potential mitigation measures based on the factors driving the vulnerability.

The Tool combines river science, hydraulics, and transportation planning methods. It is applied at a watershed scale.

With a minimal training, the on-line map service can be used by anyone with an interest in planning to identify and prioritize vulnerable locations and to create a list of potential solutions for watershed in the Tool.

### The Stevens Branch Watershed

Municipalities within this watershed have seen their share of flood related damage recently.

The road network in downtown Barre City, including Route 302, is especially vulnerable to flood risk because it is predominantly in the Steven's Branch and Gunner's Brook river valleys. In May 2001, Barre City suffered damage from a significant flood event where areas in the 150-year floodplain were flooded with up to five



feet of water. Ten culverts were damaged, and the City incurred over \$1 million in damages.

Flood prone areas with Barre Town and Berlin include key infrastructure, including the Route 302 and 14 transportation corridors. Route 110 in Washington also is very vulnerable to flood risk.

In the Steven's Branch watershed, there are 225 miles of roads and 78 structures considered vulnerable to flood waters by inundation, erosion or deposition. Road miles and structure degree of risk include:

High:	14 miles, 0 structures
Medium:	19 miles, 25 structures
Low:	193 miles, 53 structures

Figure 1 provides a map of the roadways and structures affected by flood vulnerability. While the severity of the flood risk in this watershed primarily is low, the percentage of roadways susceptible to flooding (77%) is high, making this a high priority watershed for gathering information on the infrastructure flood vulnerability.

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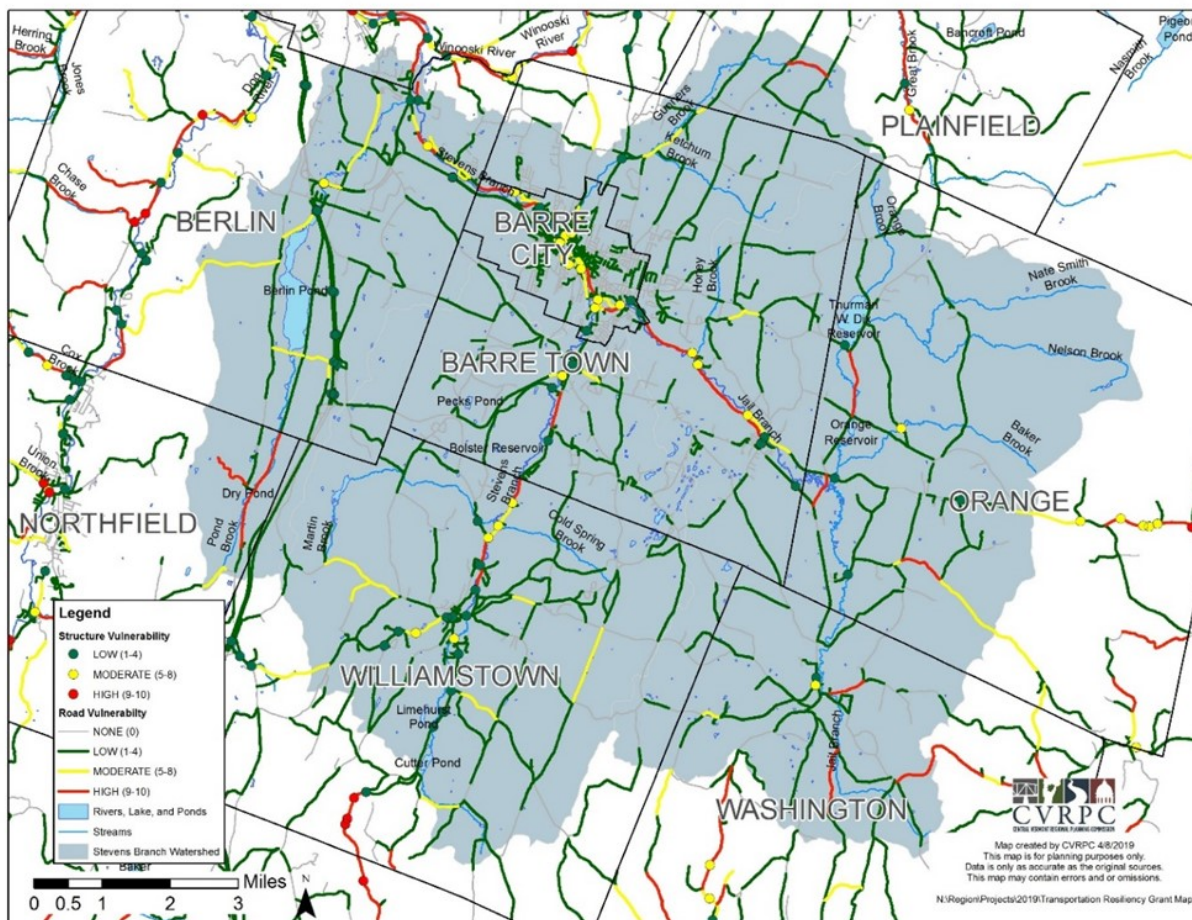


Figure 1: Steven's Branch Watershed

Infrastructure vulnerability data will help the valley municipalities (Barre City, Barre Town, and Berlin) understand their risk, and help the headwater municipalities (Orange, Washington, Williamstown, Plainfield, and Northfield) plan for and support flood resilience efforts.

### Applying the Tool's Results

This Tool will assist communities to be proactive in how they approach infrastructure improvement projects. The Tools' results — a list of vulnerable infrastructure, potential mitigation measures,

and priority projects — can be incorporated into a municipality's Local Hazard Mitigation Plan. These Plans are reviewed annually. They drive future mitigation grant applications.

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