

## **Salmon Creek Streambank Stabilization**

**HMGP 4480**

**Town of Lansing, Tompkins County, New York**

### **Detailed Project Description**

- a) Cause of the problem: Lateral migration of Salmon Creek stream channel, due to blockage of the historic channel, deposition of excessive amounts of sediment and subsequent shifting of the channel alignment. The shifting channel alignment has created a situation where the stream flows 90 degrees perpendicular to the roadway, directly impacting the roadway right of way and roadway embankment.
- b) How long the problem has existed: 2011
- c) The types of damages that occur: Toe erosion of roadway right-of-way and roadway embankment.
- d) Studies that have been performed:
  - a. Feasibility Study Stabilization of Salmon Creek, November 2011. Prepared by Barton & Loguidice, P.C.
  - b. FEMA Seneca HUC8 Risk MAP Watershed Study engineering data models: Salmon Creek Gage Analysis; Salmon Creek Trib. Regression Analysis

### **Proposed mitigation and how it will mitigate the problem**

The Town of Lansing, in cooperation with Tompkins County Soil & Water Conservation District, proposes a long-term stabilization strategy include realignment of approximately 1,650 feet of Salmon Creek, a major tributary of Cayuga Lake, extending 110 feet upstream and 550 feet downstream of the current impacted roadbed area. Upstream of the impacted area will focus on establishing stable bankfull cross section geometry and reestablishment of ample floodplain to reduce channel velocity as it approaches the roadway. Reconfiguration of the upstream channel will also provide significant reduction of channel/roadway approach angle by realigning the channel to a flowpath that more gradually parallels Salmon Creek Road. Downstream of the impacted area, reconfiguration of the reach would include construction of stable bankfull cross-section geometry and establishment of active floodplain (bankfull bench) between the stream and the roadway through the area of the roadway that is eroding. The bankfull bench coupled with riprap armoring of the roadway embankment, will provide energy dissipation during high flow events and moves the flood thalweg away from the toe of the embankment slope, thereby reducing sheer stress. The realigned channel will also need cross vanes or other structures to maintain grade control, reduce streambank erosion, maintain channel/floodplain connectivity, and prevent lateral migration of the channel back towards the roadway embankment.