

Quantifying Nutrient Pollution Reductions Achieved by Erosion Remediation Projects on Vermont's Roads

PROJECT TITLE

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STUDY TIMELINE

July 2019 – June 2021

INVESTIGATORS

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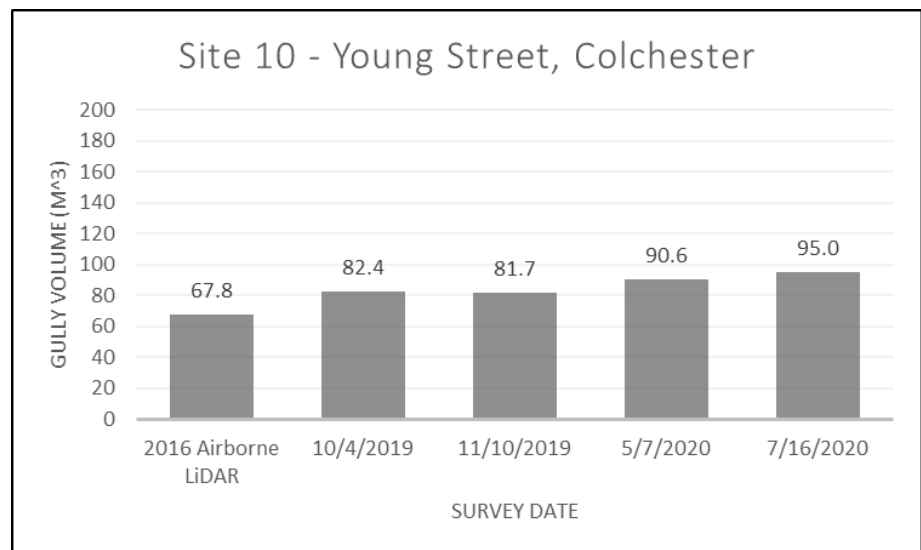
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More information about the VTrans Research Program, including additional Fact Sheets, can be found at: <http://vtrans.vermont.gov/planning/research>

Problem Statement

In this project we aim to (1) quantify rates of sediment and phosphorus production associated with erosion at concentrated road drainage points, (2) assess the effectiveness of erosion control measures in reducing sediment and phosphorus from roads, and (3) develop a framework for providing credits for erosion mitigation measures that can be implemented under the Lake Champlain Total Maximum Daily Load (TMDL) for phosphorus.



Methodology

Gully erosion sites on federal and state highways and municipal roads have been surveyed since September 2019. Airborne lidar is currently being analyzed to identify gully erosion features to quantify rates of erosion. A retrospective field assessment is currently being conducted to evaluate if best management practices previously installed on roads sustain the water quality benefits they were designed to provide.

Next Steps

Surveying will take place through June 2021. By October 2020, we aim to have initial estimates of magnitude of sediment and phosphorus generated at sites that have erosion mitigation installed. Over the winter, data collected from the retrospective field and airborne lidar assessment will be analyzed. This information will provide context for determining opportunities to reduce loads to receiving waters and credit erosion-control efforts under the Lake Champlain TMDL.

Potential Impacts and VTrans Benefits

This project will help identify water quality impacts of Vermont's transportation system and quantify benefits that can be achieved by erosion mitigation. Results of this research will contribute to the overarching goals of **making Vermont's transportation system more resilient to extreme weather events**, responsible for the bulk of the erosion that occurs along roadways and **minimizing the environmental impacts of transportation system**.