



FINAL REPORT

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BEST MANAGEMENT PRACTICES FOR POLLUTION REDUCTION AT THE SMUGGLERS NOTCH SCENIC HIGHWAY AND STATE PARK

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EXECUTIVE SUMMARY

The Lamoille County Planning Commission (LCPC), in partnership with the Smugglers Notch Partners, implemented streambank and roadside revegetation best management practices to reduce environmental degradation, sedimentation, and excessive nutrient transport. The project included two sites – the Former Long Trail Trailhead and the “Town Line” Roadside and Streambank Revegetation area.

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1. PROJECT SYNOPSIS

The Lamoille County Planning Commission (LCPC), in partnership with the Smugglers Notch Partners, implemented streambank and roadside revegetation best management practices to reduce environmental degradation, sedimentation, and excessive nutrient transport.

Prior to the project, stormwater runoff originated from informal illicit parking areas along Route 108 through Smugglers Notch (The Notch) in the Towns of Stowe and Cambridge — including areas located directly on the streambank. This Lake Champlain Basin Program (LCBP) Grant resulted in revegetation of two locations, accounting for a reduction of approximately 22,000 square feet of impervious surfaces.

Lake Champlain Basin Program funds were used to close and to revegetate two roadside parking areas that posed significant negative environmental impacts. Revegetation and disconnect were selected to address stormwater runoff and erosion in the Notch due to their overall effectiveness and because the remote environment presents challenges to maintaining structural best management practices (BMPs). LCPC worked closely with The Vermont Department of Forests, Parks, and Recreation (VTFR) to select vegetation suitable for the Notch setting.

Revegetation was completed at the following two sites:

Site 1: Former Long Trail Trailhead -- Prior to the project, this site was a large pull-off that formally served as a Long Trail Trailhead. This section of the Long Trail has been relocated, so this parking is no longer needed. The project replaced significant amounts of impervious surface with native vegetation planted on ground regraded to attenuate runoff and stabilize the soils against erosion.

Site 2: Town Line Roadside and Streambank Revegetation -- In this area along Route 108 roadside pullovers had compacted soils and damaged vegetation. Some pull offs extend to the top-of-bank of the North Branch of the Winooski River, which is a fragile headwaters area. Erosion is visible from these parking areas to the stream bed. The project addressed visible sediment accumulating in an important headwaters stream by replacing significant amounts of impervious surface with native vegetation, by eliminating parking along the streambank, and by replacing it with appropriate vegetation.

The project resulted in successful revegetation of both sites, as well as an overall reduction in impervious surface, runoff, and sediment loading in an important and highly visible headwaters area.

2. TASKS COMPLETED

1) Construct Former Long Trail Trailhead Revegetation

Work at this site involved removing the excess asphalt shoulder, regrading the area to support vegetation and disconnect runoff from surface water as appropriate, and revegetating the site with native vegetation.

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At this site, we removed and revegetated 12,983.79 square feet of impervious surface, resulting in a reduction of 556.06 lbs. of sediment and 1.7 lbs. of phosphorous based on calculations completed by the project engineer.

2) Construct Town Line Roadside and Streambank Revegetation

Work at this site involved removing the excess asphalt and compacted gravel shoulder, regrading the area to support vegetation and disconnect runoff from surface water as appropriate, and revegetating the site with native vegetation.

At this site, we removed and revegetated 8,991.03 square feet of impervious surface, resulting in a reduction of 215.21 lbs. of sediment and 0.74 lbs. of phosphorous based on calculations completed by the project engineer.

3) Design and Install Interactive Interpretive Display

This task included working with the Smugglers Notch Partners to develop an interactive display highlighting the importance of headwater streams, to be within the Barnes Camp Visitors Center. The panel will display the LCBP and NEIWPC logos. See notes regarding this task in Section 5.

4) Project Management, including Quarterly and Final Report

LCPC oversaw the project engineer and construction contractor and completed the quarterly and final reports required by the Lake Champlain Basin Program throughout the project period.

3. METHODOLOGY

The restored sites utilize revegetation and disconnect, which are recognized in the Vermont Stormwater Manual as effective Best Management Practices (BMPs) to address recharge and water quality (Sections 4.2.1 and 4.2.2). Revegetation and disconnect were selected to address stormwater runoff and erosion in the Notch due to overall effectiveness and because the remote environment presents challenges to maintaining structural BMPs.

Revegetation and disconnect are suitable treatments in areas such as stream buffers and river corridors where structural BMPs are discouraged or even prohibited by the Stormwater Manual (Section 2.1). LCPC worked in concert with ecologists from the Vermont Department of Forests, Parks, and Recreation (VTFFPR) to select vegetation suitable for the Notch setting.

4. DELIVERABLES COMPLETED

Both sites have been successfully regraded and revegetated per the workplan.

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Some larger plants were illicitly removed from the project area. Unfortunately, it is too late in the season to replant. The removed plants will be replanted in the spring. LCPC alerted authorities and posted information to social media along with a request to report suspicious activity.

Installation of the interpretive panels was delayed. After deliberations, the Partners feel that information related to headwaters and water quality would be most effective and most likely be read if located outside Barnes Camp. The panels in the existing outdoor kiosk adjacent to Barnes Camp are nearly two decades old and contain outdated information. The Partners intend to update and replace these panels in the near future. Information related to headwaters and water quality, as well as an acknowledgement of the Lake Champlain Basin Program, will be incorporated into that update.

5. CONCLUSIONS

The project demonstrated successful revegetation of compacted, roadside parking areas in a challenging alpine environment. As part of the project, a ground cover seed mix with plant types selected specifically for the environment was developed. The formula for this mix can be made available for similar revegetation projects in roadside environments.

The COVID-19 pandemic delayed implementation of the project by several years. Construction was further delayed by the July 2023 flood, which caused significant damage in Vermont, specifically in both the Winooski and Lamoille Watersheds. While the project itself was undamaged by the flood, the contractor was redeployed to address flood damage and recovery elsewhere.

An unexpected challenge related to illicit removal of some larger plantings – including shrubs and trees – from the project site. In order to survive, the plants will need to be replanted in warmer weather, likely Spring 2024. Future revegetation projects in high visibility locations should consider this challenge. LCPC will be partnering with the Vermont Department of Forests, Parks and Recreation to monitor the revegetation sites to prevent further Illicit removal.

6. APPENDICES

Appended Documents:

- Vermont Business Magazine, Lamoille County Economic Report: From the Notch to Lake Champlain, February 2022
- June 6, 2023, WCAX News Story <https://www.wcax.com/video/2023/06/06/project-aims-improve-designated-parking-smugglers-notch/>
- October 5, 2023 WCAX News Story <https://www.wcax.com/video/2023/10/05/expanded-parking-coming-smugglers-notch/>
- Sediment and phosphorus loading reduction calculations were provided to the LCBP Project Officer.

Photos:

Project photos have been uploaded to the LCBP SharePoint site. Photos depict both sites under construction as well as sites with plantings installed.