

Transportation Resilience in Vermont

Incentivizing road stormwater infrastructure on private land

Context

Climate change causes an increase in extreme weather events such as flooding and more frequent rainfall.¹ The state of Vermont has recognized this: “Total annual rainfall in Vermont has increased over the last fifty years... causing flood damage in many communities.”² Increased flooding is concerning in part, because it inadvertently introduces pollutants into local bodies of water. In Vermont, pollutants such as phosphorous are of concern when concentrated in water because of the resulting toxic algae blooms in Lake Champlain.³ It is with this in mind that many experts have turned to policy mandates that implement sustainable design to mitigate flooding⁴ and address water quality issues. Act 64 from the 2015 legislative session is a prime example, in which policies were set to address flooding and water quality.⁵

The Municipal Roads General Permit (MRGP), which mandates that municipal owned roads meet new standards, was established to mitigate the harmful effects of stormwater runoff on Vermont’s local waterways.³ But, the MRGP only addresses municipally owned roads. This leaves steep unpaved roads, often located in rural mountainous areas, unregulated. These areas are important because as Dr. Beverley Wemple, a University of Vermont geomorphologist who aided in the creation of the MRGP notes, “Steep gradients on the unpaved road network amplify the drainage and maintenance challenges experienced by municipalities.” Given this concern, and a lack of data, it is imperative that a study committee is established to research the feasibility of creating incentives for private land owners to mitigate stormwater runoff.

Policy Recommendation

I recommend that the Vermont Legislature establish a study committee to research the feasibility of (1) implementing financial incentives for the installation of road stormwater infrastructure on private land, and (2) conducting a pilot program to test this approach. The privately owned land would be located at an elevation above 1,500 feet and be of a 5% or greater road grade because, “Steep gradients on the unpaved road network amplify the drainage and maintenance challenges.”⁶ This act would address runoff from privately owned land and explore how to prevent this runoff from undermining the strides achieved by municipalities under the MRGP to limit erosion and stormwater runoff.

The study committee should update past research to determine the most effective and monetarily efficient types of road stormwater infrastructure. Further, the committee should estimate the expected cost of installations on private roads, and use the results to determine a monetary value for grant incentives, and also identify ways to fund such grants. Upon completion of the study, a state agency designated by the committee would be put in charge of using the results of the study to create a pilot program. The pilot program would span two years, and complete at least four installations of road stormwater infrastructure on private roads. Finally, the designated agency would be responsible for establishing a proposal for a state-wide incentive program for private land owners based on experience with the pilot program.

Implementation

To ensure that the research and pilot programs are conducted in a way that is transdisciplinary and includes all stakeholders, the designated agency should conduct stakeholder meetings multiple times throughout the process. Some important stakeholders may include, but are not limited to, municipalities, regional town planners, contractors, private land owners, and professionals from relevant state agencies.

Addressing stormwater runoff from privately owned roads, creates the potential for cost savings because reducing pollutants in local bodies of water like Lake Champlain reduces the need to spend millions of dollars on lake clean up.⁷ Further, if stormwater runoff from privately owned roads is not addressed, money and effort spent renovating municipal roads under the MRGP may be wasted.

Potential Barriers

Some critics may argue that creating a study committee and pilot program will require funding. While this is true, I believe that pursuing these steps is a more diligent and cost effective way of addressing this issue. In addition, others may say that there are already programs in place to address stormwater runoff and flooding. To this I would respond that, in the long run, these additional steps to promote climate change resilience will be beneficial.⁸ Finally, it may be hard to gain support from private land owners given that many are already burdened with property taxes and lower-income levels. But, that only underscores the importance of establishing a study committee that, by working with stakeholders, will conduct research in a transdisciplinary, collaborative, and inclusive way to address such concerns.

Work Cited:

¹ Stocker, T. (Ed.). (2014). *Climate change 2013: the physical science basis: Working Group I contribution to the Fifth assessment report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

² State of Vermont. (2019). Climate change in Vermont. Retrieved from <https://climatechange.vermont.gov/>

³ Wertlieb, M. & Ste. Marie, A. (2017). New plan seeks to reduce phosphorus loading in lake Memphremagog. *Vermont Public Radio*. Retrieved from <https://www.vpr.org/post/new-plan-seeks-reduce-phosphorus-loading-lake-memphremagog#stream/0>

⁴ Vermont Agency of Natural Resources (2015). Calculating percent impervious surface. In *Vermont Shoreland Protection Act Handbook* (Appendix F). Retrieved from https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Shoreland/lp_AppendixFImpervious.pdf

⁵ Act 64 an act relating to improving the quality of State waters. H. R. 35 (2015).

⁶ Wemple, B.C. "Controlled Polluted Stormwater Runoff from Roads." *Vermont Journal of Environmental Law* 17, (2016): 793.

⁷ Ring, W. (2017, January 17). Lake Champlain cleanup could exceed \$1 billion. *The Burlington Free Press*. Retrieved from <https://www.burlingtonfreepress.com/story/news/2017/01/17/lawmakers-ponder-lake-champlain-cleanup-costs/96686544/>

⁸ Wemple, B.C. "Controlled Polluted Stormwater Runoff from Roads." *Vermont Journal of Environmental Law* 17, (2016): 809-10.