

Preventing Pollution on Palmer Court

On a summer stroll through the Palmer Court neighborhood of Williston in 2012, one would either thank their rain boots or take youthful leaps over some puddles...



Like many older neighborhoods in Greater Burlington, Palmer Court was built prior to mandated stormwater controls. The photos above show a cul-de-sac island at the end of Palmer Court. Stormwater runoff from residential lawns drain to and pool on this island. Without any stormwater facilities to collect runoff, the stormwater overflows from the island into the road.

Just three years later, this cul-de-sac island has been transformed, and one could enjoy a summer stroll without rain boots...



But how? In early 2013, the Town of Williston completed a study called the [Williston Town-Wide Watershed Improvement Plan](#). The plan identified and prioritized stormwater problem areas that, if fixed, could result in improved stream health and water quality. Out of nearly 100 problem areas identified, the stormwater problems at Palmer Court ranked #19.

Indeed, the cul-de-sac island receives runoff from nearly an acre of land, over half of which is impervious, meaning water cannot soak into the ground. To address this problem area, the plan recommended the installation of a bioretention area to collect stormwater runoff.

In early 2014, FWR stepped in to help. Palmer Court is located within the Allen Brook watershed. Williston's streams – Allen Brook, Muddy Brook and Sucker Brook – are all tributaries to the Winooski River. With support from the Town of Williston, FWR applied for and received a grant from the Lake Champlain Basin Program to fund the project. FWR hired Stone Environmental, Inc to complete designs, site surveys, soil testing, and engineering plans in the summer of 2014. By June 2015, contractors completed construction of the bioretention area, which will be maintained by the Town of Williston.

Remarkably, this bioretention area on Palmer Court is expected to prevent pollution by capturing 200 pounds of sediment and one pound of phosphorus per year!

How and why are bioretention areas so important? Bioretention areas are landscape features adapted to treat stormwater runoff. Runoff picks up pollutants such as pet waste, heavy metals, sediment, oil, herbicides, and fertilizers. When stormwater runoff reaches local waterways, sediment carried by the stormwater can bury important stream habitat features. Developed land can also contribute up to four times more nonpoint source phosphorus than average agricultural land and seven times more than forests. Phosphorus is a pollutant of concern in Lake Champlain because high levels can result in algal blooms that discourage recreation and can become toxic.

Bioretention areas direct stormwater runoff into a shallow, landscaped depression where plants and soil remove pollutants through a variety of physical, biological, and chemical treatment processes. In the Palmer Court installation, an underdrain was installed to convey excess treated water to an existing storm drain system (see sewer below).



The [UNH Stormwater Center](#) estimates that a properly designed bioretention area removes 80-90% of total suspended solids (e.g., leaf litter, road salts) and reduces average peak flow by 70-80%. Bioretention areas are commonly located in parking lot islands or within small pockets in residential land uses. They are relatively easy to maintain if sized and constructed properly. Find out more about bioretention in [this video](#) from the Alberta Low Impact Development Partnership.

FWR has managed the installation of several stormwater mitigation practices including rain gardens and bioretention areas. [Contact us](#) if you are interested in implementing stormwater mitigation practices on land that you own or manage.

Funding for this project was provided by a grant from the Lake Champlain Basin Program as well as \$2200 in cash match and staff time from the Town of Williston.
