

Questions and Answers

Pennichuck Square

Q: How will this project help the environment?

A: The project will help the environment by dramatically reducing water runoff from impervious surfaces such as rooftops and parking lots. This is important because impervious surfaces prevent rainfall from its natural course of infiltration into soil and groundwater. This interrupts the hydrologic cycle and causes many serious environmental impacts including flooding, pollution of streams and lakes and depletion of natural groundwater. Reducing natural groundwater levels depletes water supply wells and summer streamflows that are critical to fisheries.

Q: Why is stormwater so bad?

A: As rainfall runs off impervious surfaces, it picks up many pollutants and carries them directly into streams, ponds and lakes. These pollutants may include metals, oil, grease, bacteria, sand and salt from roadway and parking lot deicing. Stormwater that has traveled over sun-baked parking lots is also much hotter than normal, which has serious effects on fisheries. Pollutant levels in stormwater may be hundreds of times higher than natural waters.

Q: If stormwater is so bad, won't infiltrating it into groundwater create pollution too?

A: No. One of the objectives of this project is to prevent stormwater from the beginning by intercepting roof leaders and using this clean water to recharge groundwater instead of running across the parking lot creating polluted stormwater. Parking lot runoff is also being prevented almost before it is generated. Local soils, fill and other materials will cleanse water naturally, filtering out pollutants and allowing microorganisms within the soil to render them harmless. The green techniques being demonstrated at Pennichuck Square are designed to protect and enhance both surface

water and groundwater by preventing runoff, so pollutants are not just shifted from one medium to another. This type of development is called Low Impact Development (LID).

Q. Why are Pennichuck and DES spending money on a private property?

A. Private properties throughout the Pennichuck watershed and statewide have large parking lots that are one of the major sources of pollution today. By demonstrating better methods to deal with stormwater runoff, this project will encourage other private landowners, developers and engineers to use these green techniques on a more widespread basis. The benefit to everyone in the region, including Pennichuck's customers, could be significant.

Q: New Hampshire has a beautiful environment. Why do we need this demonstration project?

A: New Hampshire is growing rapidly, and as it does, it is being covered with parking lots, roads and highways. The environment has been degraded in some areas because of this and other development related impacts, which will get much worse as densities increase. If every development used these Low Impact Development techniques, it would have a dramatic impact on our quality of life. Muddy streams would run clear; fish would thrive; private wells would be protected; and public water supplies would cost less to treat. The alternative is degraded water resources, weed and algae filled ponds and depleted water supplies. This is a prevention project to show that we can protect the environment better.

Q: Why doesn't every parking lot use these techniques?

A: Because change is hard. Standard techniques to improve drainage on developing sites include piping runoff to the nearest stream as quickly as possible. In recent years, environmental engineers and scientists have become more aware that this technique is

not working and creates long-term impacts on the environment and on people through serious side effects like increased downstream flooding, but the word is not out to the general public. New techniques such as those being demonstrated at Pennichuck Square have been developed, but need to be demonstrated so that everyone can see how simple and common-sense techniques can easily and cost-effectively replace the old damaging techniques.

Q. Aren't new developments already regulated so that they do not cause environmental harm?

A. To some degree, yes. But recent data shows clearly that new developments are causing significant impacts on water resources in particular, because the older less protective drainage techniques are still allowed. Piping drainage out to the nearest surface water is still allowed or even mandated in some cases, largely because this is the "way it's always been done." Change is hard, but progressive landowners like Renwood Companies will lead the way for others, showing that these Low Impact Development (LID) techniques not only work but are superior to the old, more damaging techniques.

Q. Why isn't Low Impact Development mandatory if it has such great benefits and competitive costs?

A. Some states to the south and on the west coast, where density is greater, are beginning to move towards mandated LID. Others like Minnesota are adding mandated techniques out of concern for their many lakes and ponds. Maine has also recently tightened its stormwater regulations and while LID is not mandatory, it is being strongly encouraged for the protection of that state's many recreational waters. In New Hampshire, some communities like Merrimack are beginning to request LID techniques and some like Peterborough are making regulatory changes that strongly encourage them. This project will help these far-sighted communities to show developers, contractors and engineers that LID techniques are actually preferable and

potentially more cost-effective. It makes so much sense that most people will hopefully do it voluntarily.

Q: Why would a landowner want a project such as the construction project ongoing at Pennichuck Square? Isn't it potentially disruptive?

A: It is an overwhelmingly positive project. First, it protects the environment and the water supply. Second, onsite drainage issues may be improved and the improvements are designed to be attractive as well. Finally, it shows off the company's tenants and business practices. Customers can see that the mall's owners and tenants care about the environment and are willing to do their part to improve it. Minor construction issues are insignificant in the face of such major benefits.

Q: I'm a homeowner so I don't have a big parking lot. Am I still causing stormwater pollution?

A: Most residents do cause some stormwater pollution from their compacted lawns, driveways and rooftops, although the extent of their impact depends on lot size and how much is cleared and many other factors. Excess fertilizer and pesticide use may also increase pollution from homes. Individually each home does not likely have a major impact on stormwater, but cumulatively residential development can cause significant pollution.

Q: What can individuals residents do?

A: Individuals can help. Lot by lot, if each homeowner handled their rainfall runoff onsite, the improvement on a widespread basis would be dramatic. One method is to build raingardens to handle runoff from roofs and driveways, or put in dry wells to infiltrate runoff. This can also help to improve local drainage issues. These techniques are both part of the demonstration project at Pennichuck Square, constructed in a format that could be used by either a commercial property owner or an individual

homeowner. A raingarden is simply a shallow depression whose soil has been amended with compost or other organics (roughly a 50/50 mix with the onsite soil) and planted, preferably with native plants. These gardens absorb and infiltrate a tremendous amount of runoff and are beautiful too.

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