

Treasure Valley:

- Located around Browning Pond, 30 min northwest of Worcester
- Serves as a summer camp for boy scouts and cub scouts



Problem:

- Unpaved roads are being heavily eroded
- Excess nutrient runoff from storm water
- Unmaintained Septic Systems

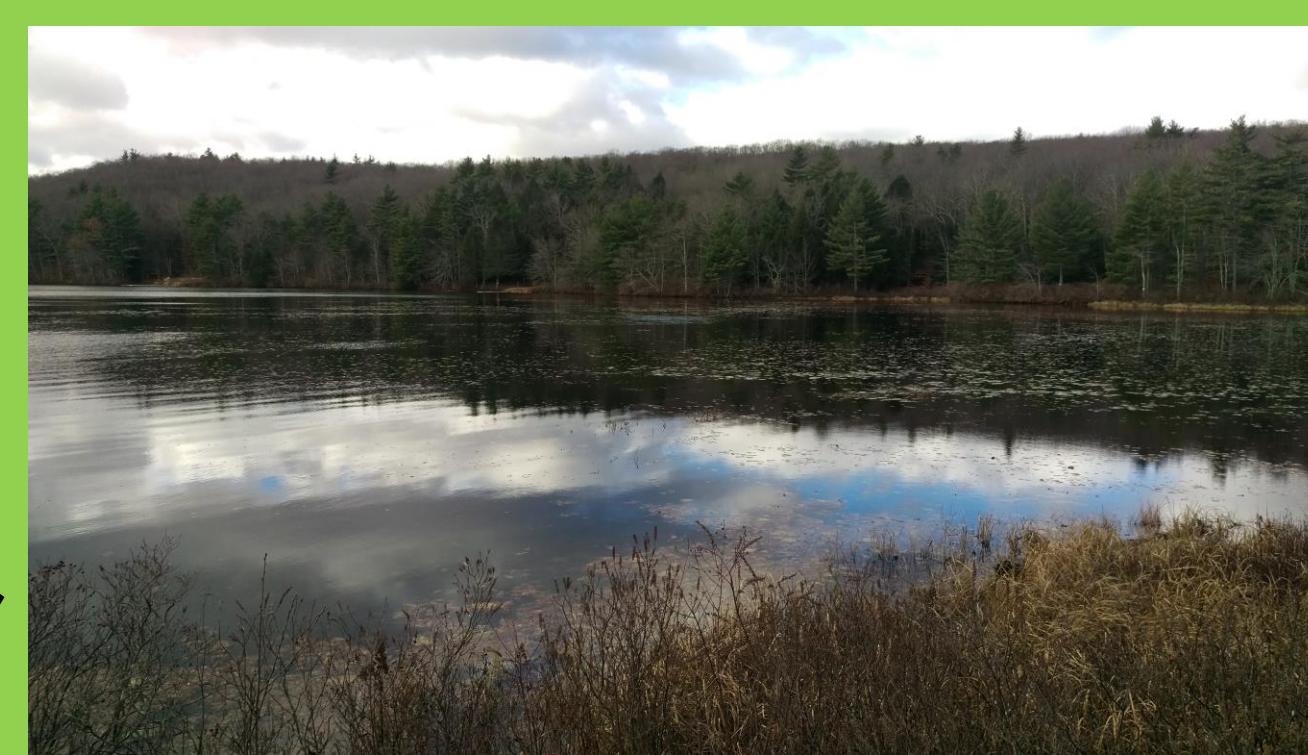


Erosion observed at the Reservation



Impact:

- Eutrophication:
- Depletes oxygen in water impairing the ecosystem
 - Water quality is not ideal for recreation



Browning Pond



Team Goals:

- Reduce and prevent eutrophication
- Maintain a healthy environment for scouts



Algae blooms



Scouts at waterfront

Solutions & Technologies

Cover Plants



- Reduces the amount of rain that hits the ground
- Holds soil in place

Filter Socks



Filtrexx Siltsoxx

- As the water flows through it traps nutrients and sediments
- For sediments a mixture of woodchips is used
- For nutrients compost with natural additives is used

Septic Systems

- Maintenance:
- Routine Pumping
 - Inspected regularly
 - Efficient water use

- Improvement:
- Upgrading outdated systems







Septic Pumping

Methodology

- Step 1: Identified the problem at Browning Pond
- Step 2: Data collection, participant observation, interviews
- Step 3: Investigated solutions based on data
- Step 4: Evaluated solutions using a Cost-Benefit Analysis
- Step 5: Created an implementation plan based on solutions

Cost Benefit Analysis

Green Technology		Costs	Benefits
	Cover Plants	- Initial payment is high - Requires seasonal care	- Improves environmental conditions - Controls erosion - Simple concept
	Filter Socks	- Can not handle high concentrated water flow	- Solves both the erosion and nutrient problem - Low Maintenance
Septic Systems			
	Septic System Maintenance	- Not directly impactful to the environment	- Already required - Low long-term cost
	Septic System Upgrading	- Initial investment is high - Difficult implementation	- Greatest impact in solving the nutrient problem

Implementation

- Step 1
 - Volunteers plant cover berries and install Filtrexx SiltSoxx and Filtrexx EnviroSoxx
 - To be completed in spring of 2016
- Step 2
 - Test the soil around septic systems for nutrients
 - Begin recommended septic system maintenance practices by summer of 2016
- Step 3
 - Monitor the solutions a year after implemented
 - Evaluate the pollutant and erosion levels in four years after each solution has been implemented