



Project Proposal Overview and Requirements

Overview:

Students will investigate a real-world stormwater runoff and/or flooding challenge in their school or community and develop a creative, science-based solution to improve local water quality. Working in teams, students will identify a site impacted by stormwater runoff or flooding, research existing infrastructure, and redesign the space using a green infrastructure redesign or other innovative solution that reduces pollutants before they reach local waterways.

Using the principles of Science, Technology, Engineering, Arts, and Mathematics (STEAM), students will apply real-world problem-solving skills to create solutions that address water quality challenges within the Long Island watershed. Projects should include pollutants that may be transported by stormwater runoff or flooding, such as nitrogen, phosphorus, bacteria, or other contaminants affecting Long Island's waters.

Winning teams may receive a grant of up to \$2,500 to implement their design on school grounds.

Requirements:

Cover Page

Include:

- Name of School and Address
- Teacher/Advisor
- Grade level
- Student team members
- Contact information

Project Topic

Students will address a real stormwater runoff or flooding challenge on school grounds or in their community. Teams will investigate how water flows through their selected site and design either a green infrastructure solution or another innovative approach to better manage stormwater and flooding to help prevent pollutants from reaching Long Island's waterways.

Problem Statement

Clearly describe the water quality issue your project will address. Include:

- The problem: stormwater runoff, flooding, or both
- Explain what is causing or contributing to the problem at the selected site
- Identify the pollutant(s) that may be transported by stormwater or flooding (i.e. nitrogen, phosphorus, bacteria, or other contaminants)
- Explain why the problem is important to address
- Support your conclusions using scientific research and site-specific observations or evidence

Site Selection and Existing Conditions

Identify and describe the project location. The location can be either on school grounds or within the local community.

- **Runoff & Flood Mapping:** Students may physically explore or use tools such as Google Earth to identify a location (e.g., parking lot, roadway, cul-de-sac, school grounds, commercial area, park).
- **Grey Infrastructure Identification:** Research the existing stormwater systems on-site such as storm drains, pipes, culverts, gutters, and downspouts.
- **Problem Identification:** Document signs of poor drainage, flooding, erosion, and pooling water. Identify where pollutants like nitrogen, phosphorous, pathogens, and other contaminants could be entering the site.
- **Trace the Path:** Determine where stormwater flows and how it may transport pollutants into nearby surface waters or groundwater.
- Include “before” visuals of the site that will provide evidence that the problem exists; this can be a map, drawing, Google Earth image, GIS.

Proposed Solution

Develop a green infrastructure redesign or innovative solution that addresses the problem identified at the site. Include:

- A detailed description of the redesign or innovation
 - An explanation of how the solution works and the scientific principles behind it
 - Why is the solution appropriate for the site
 - How the solution would reduce stormwater runoff and/or flooding
 - How the solution would reduce the transport of pollutants into Long Island’s waterways or groundwater
 - All materials needed to create the project
 - Relevant measurements, estimates, data, or calculations that helped form the design
 - Consider whether the solution could realistically be implemented at the site.
 - Describe how you would evaluate the project after implementation (observations, data, etc.) to determine if the solution is reducing stormwater runoff, flooding, and pollutant transport
 - Submit a labeled “after” visual of the site
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Expected Project Impact

Describe the benefits of the proposed solution, including:

- Reduction in stormwater runoff and/or flooding
- Reduction in pollutant transport
- Environmental and ecological benefits
- Water quality improvements
- How the project can be used to educate students or community members
- Long-term sustainability

Long Island Watershed Program Alignment

Explain how the proposed project supports the goals of the Long Island Watershed Program ([LIWP](#)).

Conclusion

Re-state the chosen site and your proposed design solution. Briefly explain how your design improves the current situation.

References and Other Notes

- Cite all scientific information, data, maps, websites used in the proposal. Proposals that use Long Island specific, or regionally relevant resources score higher.
- Include any additional visual images to assist in better understanding the project.