Green Resolution to Resist Water Pollution

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Abstract

A combined sewer system is a sewer system where the runoff, domestic sewage, and industrial sewage flows into the same sewer system. CSO's occur in combined sewer systems when there is an abundance of rainfall. As a result of the rainfall excess rainfall the sewage system cannot contain the excess rainfall. The untreated sewage and the rainfall spills over into lakes and rivers. One of the causes of CSO's are due to the lack of infiltration because of impermeable surfaces. We are investigating how Green infrastructure helps to mitigate CSO's. Specifically Green Infrastructure that helps with the infiltration of water.

What is A CSO?

A CSO is a combined sewer overflow. During periods of heavy rainfall or snowmelt, the wastewater volume in a combined sewer system exceeds the capacity of the sewer systems or treatment plant (Figure 1). CSOs are major water pollution concerns for approximately 772 cities in the U.S. that have combined sewer systems.

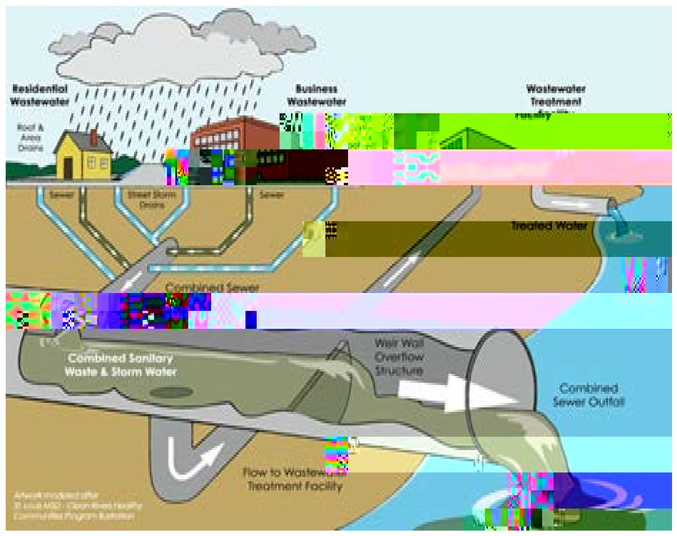

Figure 1: Schematic of a Combined Sewer Overflow

Controlling the Overflow

In 1994, the federal government decided to integrate green infrastructure into the federal regulatory framework for CSO Control. They created the 1994 CSO Policy, which provides guidance to EPA and State NPDES authorities on how to develop NPDES permits for CSO discharges, as well as how to conduct enforcement actions against violators with CSOs.

Figure 2: The process for meeting federal requirements for CSO controls generally follows the series of steps.

Green Infrastructure?

Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. It is effective, economical, and enhances community safety and quality of life. These solutions can be applied to private homes, public buildings, and in landscaping. On the local level, green infrastructure practices include rain gardens, permeable pavements, green roofs, infiltration planters, tree boxes, and rainwater harvesting systems. At the largest scale, the preservation and restoration of natural landscapes (such as forests, floodplains and wetlands) are critical components of green infrastructure.

Benefits

- Reduce greenhouse gases by using less energy
- Improved public health with better air quality
- Save money when you recycle rain barrel water foe plants and grass
- Increased property values by beautifying Newark
- Energy savings trees & green roofs offer more shade & a cooling effect
- Improve storm resiliency and reduce flooding

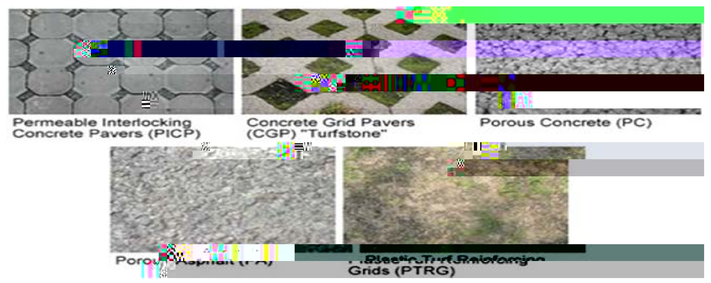

Figure 3: Examples of Permeable Pavements

Conclusion

The field of green infrastructure and its valuation is still developing. Challenges in assigning value still exist. Recognizing green infrastructure's benefits will help municipalities make choices that only provide solutions to urban storm water management issues but also bring an abundance of additional benefits to their communities.

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