Westmoreland Conservation District

Stormwater Program

Vandergrift Permeable Pavement Project

Design Features: Bioretention facility; soil containment system (Silva Cell), canopy trees and permeable paving in an urban area.

Date of Installation: 2010

Location: Grant Street, Borough of Vandergrift, PA

Installaiton Cost: $75,000; PA DEP Growing Greener Grant

Client: Vandergrift Improvement Program

Partners: Westmoreland Conservation District, Vandergrift Improvement Program, Borough of Vandergrift, Botanic LLC, Bruce Construction LLC

Project contact: Kathryn Hamilton RLA; kathyh@wcdpa.com

Canopy trees in tree grates over pervious concrete and soil containment system

Project Description

This project is a central business district stormwater management retrofit project to capture and treat stormwater along a sidewalk and parking lot. One 6-foot wide by 180-foot long section of existing concrete and asphalt sidewalk paving was removed and replaced with an underground soil containment system to support trees and a permeable concrete overlay. The system captures and retains stormwater runoff from a 16-foot wide sidewalk and reduces the volume of runoff and provides water quality improvements to the Kiskiminetas River. There was no net loss of pavement or parking spaces in the adjacent parking lot, and shade for pavement and cars was provided.

Benefits/Performance Measures

Impervious area managed: 0.10 acres

Stormwater reduction performance analysis: Runoff from 1" storm event on 0.10 acres of impervious area is managed by 6 canopy trees. 1,260 sq/ft porous concrete, 3,150 cu/ft structural soil containment bio-infiltration system. 300 cu/ft total runoff captured.

Community and economic benefits that have resulted from the project: The project provides shade to impervious area and parked cars. Landscaping enhances the central business district. The underground infiltration system provides stormwater management for volume reduction and water quality improvements to the Kiskiminetas River in an area where little currently exists.

Related information: The project costs include pavement demolition, excavation, installation of "silva cells" soil containment system, underdrain, engineered soil mix, permeable concrete, canopy trees.

Recommended Maintenance

Link to maintenance guidelines for similar projects

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Additional Information

Grant Street sidewalk before project, 16 feet wide sidewalk bordering a Borough parking lot

Existing sidewalk pavement was removed and 4 foot deep trench excavated to provide the depth for the soil containment system to capture and treat stormwater runoff.

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Soil containment system being filled with an engineered soil mix to support tree root growth beneath new permeable sidewalk.

Linden and Sycamore canopy trees in tree grates over pervious concrete and soil containment system

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Vandergrift canopy trees and permeable sidewalk after 5 years of growth