RiverSmart Washington

What is RiverSmart Washington?

The RiverSmart Washington project will be installing practices to reduce stormwater volume runoff in two neighborhoods in northwest Washington. These practices include permeable paving in alleys, roads, and parking lanes, and rain gardens in tree areas and curb bumpouts. The stormwater flow will be monitored and measured to calculate the stormwater runoff reduction.

Why RiverSmart?

Stormwater runoff carries pollutants from roofs, roads, alleys, and parking lots in the District's storm drain system and into the streams. The pollutants impair the health of small streams and contribute to problems in Rock Creek, the Potomac River, and the Chesapeake Bay. The significant volumes of water erode stream banks and create poor conditions for aquatic life. The U.S. Environmental Protection Agency has issued a Municipal Separated Storm Sewer System (MS4) Permit (http://ddoe.dc.gov/publication/npdes-permit) to the District that requires stormwater runoff volume reduction and retrofits to existing buildings and streets to reduce stormwater runoff. The city is using green infrastructure and low impact design (LID) practices, such as such as rain gardens, bioretention, stormwater bumpouts, and permeable paving, to capture and filter the stormwater runoff. DC Water is exploring ways to use LID to reduce the stormwater flow into the Combined Sewer System (CSS) area to potentially reduce the size of tunnels required for stormwater storage under the Long Term Control Plan.

Project locations

Lafayette site: blocks bounded by Patterson St, 32nd St, Rittenhouse St, and Broad Branch Rd NW in the MS4 area

MacFarland site: Georgia Ave, Iowa Ave, and Allison St NW in the CSS area.

How did we pick these project locations?

We looked for areas already planned for alley or road improvements and where the sewer pipes allowed for monitoring of a small definable area.

Project contacts

DDOT (Road and Alley project): Meredith Upchurch, DDOT, 202-671-4663, meredith.upchurch@dc.gov
DDOE (Private property & School project): Steve Saari, DDOE, 202-535-2961, steve.saari@dc.gov

Project website

Project Overview website:
http://www.rockcreekconservancy.org/index.php/what-we-do/riversmart-washington
DDOT Project Status website for road and alley project:
http://dashboard.ddot.dc.gov/ddotdashboard/#ProjectDetail/ItemID=4ProjectID=97PhaseID=2

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Why rain gardens & bioretention?

Rain gardens and bioretention are landscaped, low-lying garden beds filled with a special soil mixture that allows water to infiltrate into the ground. They are installed in areas to capture stormwater flowing from impervious areas such as roads, driveways, and rooftops. The benefits of these systems are that they clean dirty stormwater, they recharge groundwater tables, and they provide additional green space in our highly urban environment.

Why permeable paving?

Permeable paving is a useful way of infiltrating stormwater from roadways and alleys. Permeable paving captures stormwater that falls on it and some adjacent area that drains towards it. Depending on how it is installed it can create the perception of a narrow roadway thereby calming traffic and making streets safer for pedestrians. Permeable paving is more expensive for the area treated than rain gardens or bioretention. The additional cost comes from the expense of the material and the fact that paving cannot capture as much stormwater volume relative to its size when compared with rain gardens.

I've heard that permeable paving holds snow and ice longer than regular paving.

There are many studies that have examined the performance of pervious pavement compared with conventional pavement in cold climates. The general consensus is that pervious applications show less buildup of ice and snow because of their ability to infiltrate precipitation that falls on it. The link to one source can be found here: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=135&minmeasure=5

Why bumpouts?

Bumpouts are a type of rain garden or bioretention that rather than being located in the tree box area is located in the street. Bumpouts are proposed because they allow for stormwater infiltration without damaging mature street trees and because they are cost effective compared with permeable paving. They have an additional benefit of narrowing the roadway and slowing traffic which makes crossing the street safer – an important goal in the two project neighborhoods because of their proximity to schools and recreation centers.

Will bumpouts reduce parking spaces?

Yes, bumpouts will reduce the number of parking spaces in the project areas. Based on community feedback, we have tried to locate the bumpouts in areas with lower parking pressure such as near intersections, along the side yard of properties, or in front of parks and schools. In the Lafayette neighborhood, our parking analysis calculated approximately 180 spaces in the project area, 120 spaces needed for residents at 2 cars per house, and approximately 10 street parking spaces used for bumpouts.

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These practices look like they might harm the trees.
Harming existing trees is counter to our environmental goal of this project to reduce stormwater volumes because large trees are efficient at holding stormwater. For this reason we have located our practices in such a way to avoid impacting the large trees that are present. We have sought the advice of several professional arborists in locating our proposed practices. In some cases we have located practices in the roadway adjacent to mature trees. We have done this because we are confident that their roots do not run into this highly compacted and tree unfriendly area. See the photo at right for evidence this is the case.

What do the drawings show?
The 90% progress drawings show existing conditions from the survey conducted at both sites, project layout, proposed locations and layout of each stormwater facility, drainage areas, and construction drawings.

What are impacts during construction?
During construction, alleys and small sections of roads will be closed while construction is taking place. Parking lanes in the street will be closed and you will not have vehicle access to the alley when each section is under construction. The contractor will preserve access to all properties and will work to minimize durations of each closed area.

How is the project funded?
The total project budget is $3.5 million for design, construction, and monitoring of the private and public stormwater practices. The funding comes from a National Fish and Wildlife Foundation Grant, the District Stormwater Permit Compliance Enterprise Fund, DC Water, the District Department of Environment, and the Natural Resource Conservation Service

What happens next?
The design layout is final and details are in development. Full design completion is planned for this April 2013. Construction is planned to start this summer and complete in the spring of 2014.

How can I give input?
Attend a public meeting or contact the project managers listed above.

Project Status *March 2014*

Construction NTP: March 2014

Construction Start: April 2014

Schedule
Final design plans – Fall 2013
Construction start - Spring 2014
Construction finish – December 2014

MacFarland Site

LEGEND:

- BIORETENTION
- STANDARD CONCRETE PAVEMENT
- PERMEABLE PAVEMENT SIDEWALKS
- PERMEABLE PAVEMENT ALLEYS
- PERMEABLE PAVEMENT ROADWAYS

Lafayette Site