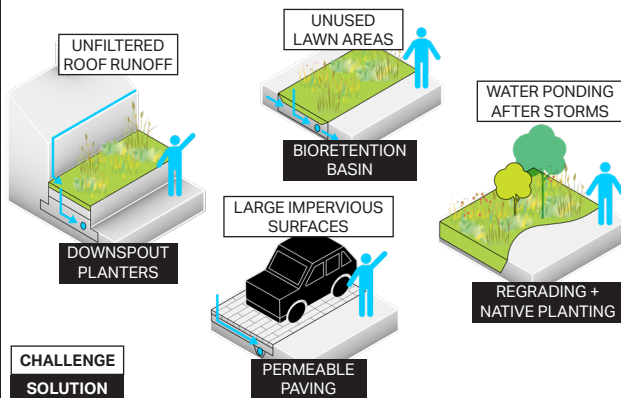


RESILIENT PARKS + PUBLIC BUILDINGS

AN APPROACH TO IMPROVE LANDSCAPE PERFORMANCE + COMMUNITY BENEFITS

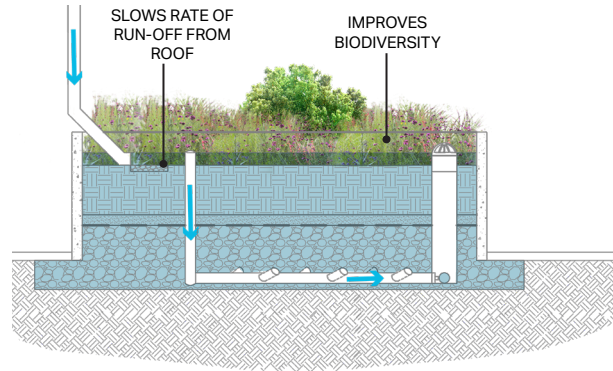


Typical challenges at public buildings include on-site ponding after rain events as a result of runoff from roofs and parking lots. Four strategies are proposed to collect and filter runoff before redirecting it back into the drainage network. These include downspout planters, bio-filter basins, permeable pavers, and simple site grading and planting with new deep-rooted native vegetation. This document describes an approach to resilient public facilities as they apply to the Rebuild by Design Meadowlands case study.

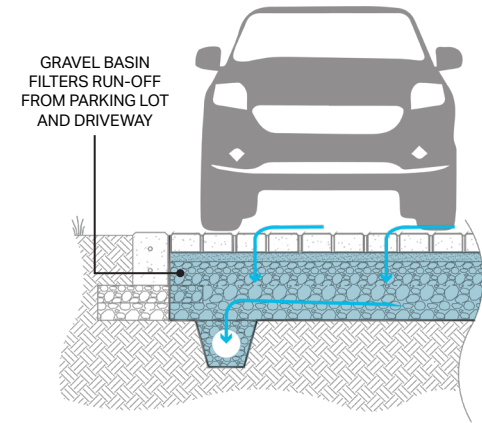


TYPICAL DOWNSPOUT PLANTERS

Roof downspouts are redirected to an above-ground planter system called a downspout planter that temporarily stores and slows the rate of runoff from the roof. They are used to capture roof runoff where depth to groundwater is shallow and site-limiting factors prevent subsurface systems.



TYPICAL PERMEABLE PAVERS



A green infrastructure strategy consisting of individual paving blocks that allow water to infiltrate in between. This is one type of pervious paving system that can be used to capture and filter stormwater.

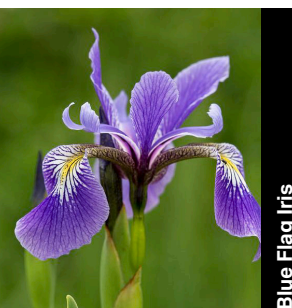
SELECTING PLANTS FOR DOWNSPOUT PLANTERS

Green infrastructure-type systems rely on the success of plants as well as underground systems in order to fully filter and manage stormwater. The plants used in downspout planters should have a root depth ~12-18" without a tap root in order to avoid interruption of the function of the stone layers below the planting soil which filter and store the runoff. Plants should be tolerant of intermittent flooding and dry periods since these systems are not irrigated and rain occurs at irregular intervals.



Physostegia virginiana
fye-soe-STEE-jee-uh ver-jin-nee-AY-nuh

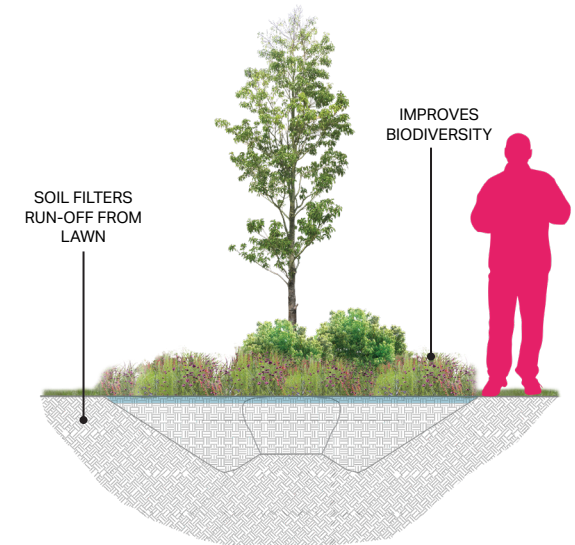
The nectar-producing flowers of Obedient plant are attractive to pollinators like bees, butterflies and hummingbirds.



Iris versicolor
EYE-riss VER-suh-kuh-lor

Northern blue flag thrives naturally in wetland habitats making for a perfect species in downspout planters.

REGRAIDING + NATIVE PLANTING



Simple site grading and the planting of native plants with deep roots can improve local drainage. Additionally, native plants improve ecological health by increasing biodiversity.

For more information please visit:
www.nj.gov/dep/floodresilience/rbd-meadowlands.htm

[@NewJerseyDEP](https://www.facebook.com/NewJerseyDEP)



LITTLE FERRY + MOONACHIE CASE STUDY

IMPROVEMENTS TO EXISTING PUBLIC BUILDINGS



PROPOSED PROJECTS IN LITTLE FERRY + MOONACHIE

These include downspout planters, bio-filter basins, permeable pavers, and simple site grading and planting with new deep-rooted native vegetation. These each reduce the rate of runoff, improve water quality and provide ecological habitat. These strategies are proposed at four locations based on site conditions and community needs: Joseph St. Park, Memorial Middle School, Little Ferry Borough Hall, and Little Ferry Public Library. Additionally, the project will build the Liberty Street Pump Station which includes a bioretention basin and public seating area with native plants. In these locations, there are a total of 13 green infrastructure-type systems that assist in reducing the risk of flooding in the area overall and provide improved biodiversity and community benefits.

GREEN INFRASTRUCTURE COMPONENTS

2 biofilter basins

68%

peak runoff rate reduction for 2-year storm events

5 downspout planters

63%

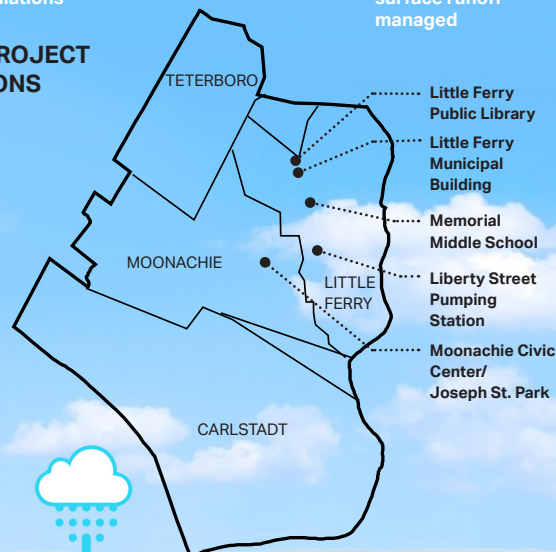
peak runoff rate reduction for 10-year storm events

6 permeable paver installations

2.2

acres of impervious surface runoff managed

RBDM PROJECT LOCATIONS



HOW IT WORKS

Green infrastructure addresses stormwater management through techniques that mimic natural systems, such as pollutant filtration, groundwater recharge, reduction of runoff volume and flow rate, and stormwater infiltration. Green infrastructure can be applied within a larger network of urban stormwater management strategies that include traditional grey infrastructure and park and open space improvements. The creation of open space increases pervious surfaces for water to drain into. Environmental degradation of waterways can be reduced by including wetland restoration, where appropriate. Collectively, these strategies reduce the effects of flooding.

ADDITIONAL INFORMATION

This project is one component of the efforts the NJDEP is facilitating to assist communities in building resilience. For more information, check out the following resources:

PROJECT VIDEO - REBUILD BY DESIGN MEADOWLANDS
www.youtube.com/watch?v=Q3X5U4CTIxo

OFFICIAL WEBSITE - REBUILD BY DESIGN MEADOWLANDS
www.nj.gov/dep/floodresilience/rbd-meadowlands.htm

CLIMATE AND FLOOD RESILIENCE
www.nj.gov/dep/cfr/

STORMWATER INFRASTRUCTURE TOOLKIT
www.nj.gov/dep/floodresilience/toolkit.html



INFILTRATION

Sidewalk and lawn runoff is directed to nearby depressed planting areas where the stormwater slowly infiltrates into subsurface soils.



FILTRATION + STORAGE

Sidewalk and parking paving runoff is conveyed to permeable pavers where the stormwater is then temporarily stored in a subsurface layer (drain rock).



PLANT-TRANSPIRATION

Water absorbed through plant roots is released back to the atmosphere as vapor.



FILTRATION + CONVEYANCE

New downspouts convey roof runoff into planters. Roof runoff is temporarily stored in downspout planters before being conveyed to the storm system.

Permeable Paving

Reduces stormwater runoff and filters runoff from parking lot and driveway.

Existing Vegetation

Existing mature trees remain onsite to aid rainwater absorption and reduce ponding.

Native Planting

Native planting filters runoff from adjacent lawns and sidewalks removing sediment and non-point source pollutants.

Downspout Planter

Downspout planters are planted with species suitable to frequent inundation, improving on-site biodiversity.