Village of Ridgefield Park

Supplemental CSO Team

Meeting Number 3

Commissioner's Conference Room

Village of Ridgefield Park Municipal Building

December 11, 2017, 9 am

Group Meeting Minutes

1) Introduction

John Dening opened the meeting at 9 am with a safety minute about the importance of being cautious when driving in the snow.

2) Minutes of meeting #2 distributed.

3) Presentation (see power point slides)

a) Link to EPA Green Infrastructure Website referenced in the presentation
https://www.epa.gov/green-infrastructure/learn-about-green-infrastructure

b) Link to New Jersey DEP Stormwater page
www.njstormwater.org

4) Discussion and Questions

a) Mark Olsen described a program in Pennsylvania where people can register their rain gardens and receive feedback after every storm about how much runoff was diverted.

b) Are there meters at the outfalls? John explained that there were meters used to collect data for the models but that those meters are not permanent. Mark suggested that they write a grant to have meters installed permanently in order to raise public awareness and understanding. He also thought the meters would serve to demonstrate the long terms effects of community and municipal actions to reduce overflows.

c) A discussion followed about how the DEP requirements for green stormwater infrastructure and what engineering and maintenance guarantees are required to receive credit toward the LTCP. For example, if someone installs a rain garden can it be certified after it's built by testing the flow. Or can the overall benefit be measured by using outflow meters. This will require additional discussion with the NJDEP.

d) It was noted that Ridgefield Park does not have a lot of opportunity for land conservation.

e) Steven Quinn asked if changes to zoning ordinances count toward the LTCP. The group discussed that these changes might take time to show a benefit. It is unsure how RP will derive credits for actions that don't immediately impacts CSOs.

f) The group discussed that residents will need incentives to motivate them to comply with the suggestions especially because it is a problem that they don't see.
g) The Village has an Earth Day celebration on May 5 at Waterfront Park. Mark is interesting in having a demonstration and handouts at the event.
h) Mark and Stephen would like the opportunity to meet with representatives from the DEP to discuss ways that residents can earn credits for their efforts.

Meeting concluded at 11:10 am

Minutes submitted by: Donna Gregory

Ridgefield Park
Supplemental CSO Team
Meeting Number 3
Municipal Building, Public Meeting Room
December 11, 2017, 9 am

Name	Organization	Initials
John Rolak	Mott MacDonald	
John Dening	Mott MacDonald	
Donna Gregory	Mott MacDonald	
James Donohue	Principal, Ridgefield Park High School	
Flo Muller	Ridgefield Park Shade Tree Commission	
Mark Olson	Chairman, Green Team	
Stephen Quinn	Ridgefield Park Environmental Commission	
Linda Quinn	Ridgefield Park Environmental Commission	

6/20/2018

MOTT MACDONALD

Supplemental CSO Team

Meeting Number 3 – December 11, 2017
Green Infrastructure Basics

Village of Ridgefield Park

Supplemental CSO Team

Meeting No. 3 Agenda

Refresher - In Meeting #2 We Covered:

- Update of Sewer System Characterization Report
- Typical Hydraulic Year Analysis and Report
- Deadlines within Next 12 months.
- Major Deadlines thereafter.

Any Questions On Previous Topics?

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Supplemental CSO Team

Meeting No. 3 Agenda

Topics to Discuss Today:

- Green Infrastructure Basics
- Issues Planning Boards need to Consider
- Update on Project Progress
- Upcoming Deadline(s)

Green Infrastructure Basics

Description

Presentation is taken from USEPA website.

Learn more by going to:

https://www.epa.gov/green-infrastructure/learn-about-green-infrastructure

6/20/2018

Green Infrastructure Basics
Description

What is Green Infrastructure?

According to EPA: Green infrastructure is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits. While single-purpose gray stormwater infrastructure—conventional piped drainage and water treatment systems—is designed to move urban stormwater away from the built environment, green infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.

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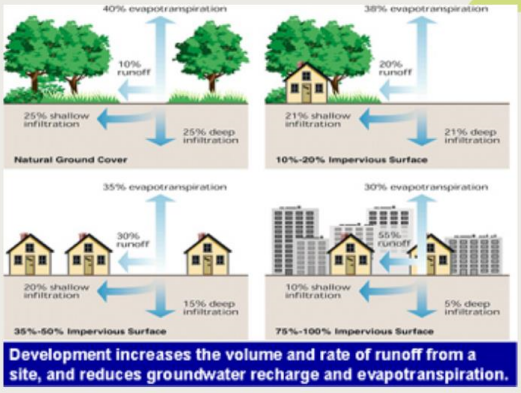
Green Infrastructure Basics
Description



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Green Infrastructure Basics
Description

What is Green Infrastructure?

Changes the Way Stormwater Runoff in Handled from common methods of transport and discharge, including:

- Treat it
- Use it
- Store it, or
- Slow it Down

In a way that can be economical and/or beneficial to the community.

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Green Infrastructure Basics
Description

What is Green Infrastructure?

Downspout Disconnection
Rainwater Harvesting
Rain Gardens
Planter Boxes
Bioswales
Permeable Pavements
Green Streets and Alleys
Green Parking
Green Roofs
Urban Tree Canopy
Land Conservation

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Green Infrastructure Basics
Examples

Downspout Disconnection

Reroute rooftop drains from curb drains or service laterals in combined sewers areas to dry wells, cisterns, or permeable areas.

Water from the roof flows from this disconnected downspout into the ground through a filter of pebbles.

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Green Infrastructure Basics
Description

Downspout Disconnection

Only works where roof leaders and downspouts are currently directed to service connection and combined sewer system.

Caution:

a. Water cannot be directed to a neighbor
b. Do not direct water across a sidewalk (freeze potential).
c. Does your soil perc?
d. Check your local ordinances.

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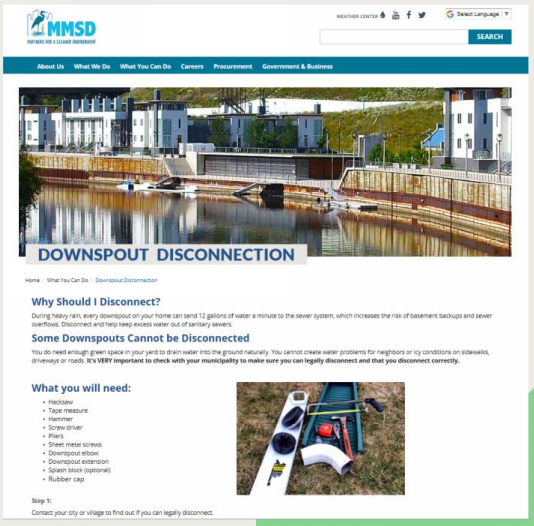
Green Infrastructure Basics

Example

Milwaukee Downspout Disconnection Program



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Green Infrastructure Basics

Description

Rainwater Harvesting

Collect and Store Rainwater for Later Use on Landscaping or Gardens, i.e. rain barrels, or larger storage tanks. Particularly valuable in arid regions with limited water supplies.

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Green Infrastructure Basics
Description

Rainwater Harvesting

Limitations:
- Size of Container
- Only reuse during growing season.
- Manual maintenance needed to keep barrel empty to maximum harvesting.

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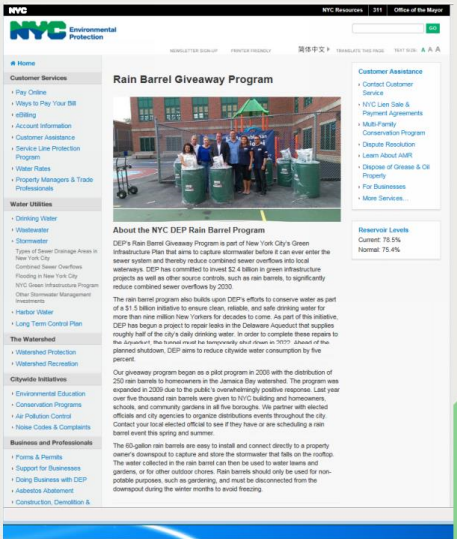
Green Infrastructure Basics
Example

New York City
Rain Barrel Giveaway Program



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Green Infrastructure Basics
Description

Rain Gardens

As per EPA, Rain gardens are versatile features that can be installed in almost any unpaved space. Also known as bioretention, or bioinfiltration, cells, they are shallow, vegetated basins that collect and absorb runoff from rooftops, sidewalks, and streets.

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Green Infrastructure Basics
Description

Rain Gardens

Limitation:

- Needs permeable non-paved areas

Advantage:
Mimics natural hydrology of infiltration, evaporation, and transpiration.

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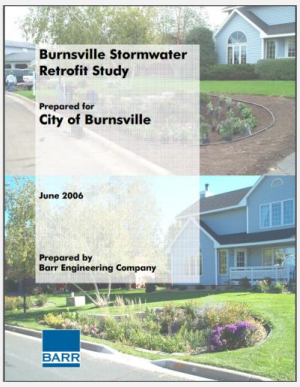
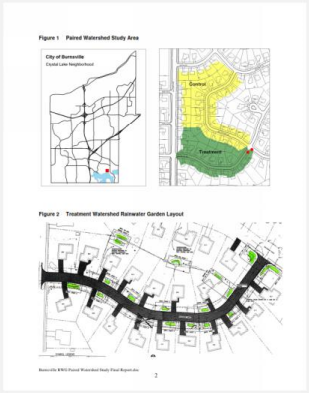
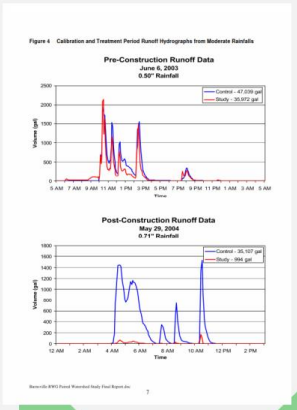
Green Infrastructure Basics

Rain Gardens - Minnesota







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Green Infrastructure Basics

Description

Planter Boxes

As per EPA, Planter boxes are urban rain gardens with vertical walls and either open or closed bottoms. They collect and absorb runoff from sidewalks, parking lots, and streets and are ideal for space-limited sites in dense urban areas and as a streetscaping element.

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Green Infrastructure Basics
Description

Planter Boxes

Limitation:
Needs permeable non-paved areas and thus a decent right-of-way width between curbs and buildings.

Advantage:
Mimics natural hydrology of infiltration, evaporation, and transpiration.

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Green Infrastructure Basics
Example

Philadelphia

Green Infrastructure Program

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Green Infrastructure Basics
Description

Bioswales

As per EPA, Bioswales are vegetated, mulched, or xeriscaped channels that provide treatment and retention as they move stormwater from one place to another. Vegetated swales slow, infiltrate, and filter stormwater flows.

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Green Infrastructure Basics
Description

Bioswales

Limitation:
Needs permeable non-paved areas and thus a decent right-of-way width between curbs and buildings.

Advantage:
Mimics natural hydrology of infiltration, evaporation, and transpiration.

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Green Infrastructure Basics
Description

Permeable Pavements

As per EPA, Permeable pavements infiltrate, treat, and/or store rainwater where it falls. They can be made of pervious concrete, porous asphalt, or permeable interlocking pavers.

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Green Infrastructure Basics
Description

Permeable Pavements

Limitation:
Needs permeable subsoils or high void volume subbase.
Require higher maintenance to limit plugging.

Advantage: Could be cost effective in areas with high land values and flooding or icing problems.

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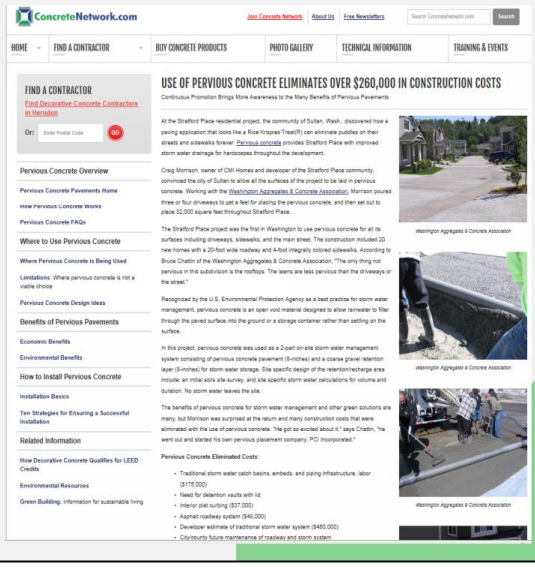
Green Infrastructure Basics
Example

Permeable Pavements

Sultan, Washington

Straford Place
Community
Residential Project



Green Infrastructure Basics
Description

Green Streets and Alleys

As per EPA, “Green streets and alleys are created by integrating green infrastructure elements into their design to store, infiltrate, and evapotranspire stormwater. Permeable pavement, bioswales, planter boxes, and trees are among the elements that can be woven into street or alley design

Green Infrastructure Basics

Description

Green Streets and Alleys

EPA Region 3 Green Streets, Green Jobs, and Green Towns (G3) Program is meant to provide guidance with:

- Policy, Regulations, and Incentives
- Planning and Design
- Construction, Operation, and Maintenance
- Financing and Economic Benefits
- Green Jobs and Training

https://www.epa.gov/G3

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Green Infrastructure Basics

Example

Green Streets and Alleys

Syracuse, NY Green Street Project

Save The Rain Clean The Lake

FACT SHEET
Green Street: Concord Place

Project:	Concord Place
GI Technology:	Infiltration Bed
Project Location:	Concord Place from Westcott St to Allen St
Project Owner:	City of Syracuse
Sewershed:	Erie
Capture Area:	39,000 square ft
Run-off Reduction:	955,000 gallons/yr
Year Completed:	2011
Construction Cost:	$78,500
Prime Contractor:	Cornerstone Paving

Project Description: Concord Place is the first "green street" project in Syracuse. This project demonstrates a subtle approach to managing stormwater with the installation of infiltration trenches along the street corridor. Stormwater enters the system through the existing storm drain connections in the street. Instead of the collected water flowing to the sewer system, as was previously the case, the water is directed to an underground trench filled with a stone base. As the water enters the trench, it slowly filters through the compacted stone and soil, eventually releasing into the ground water. In addition to the underground infiltration system, Concord Place also received a new mill and pave application to the street surface, which was paid for by the City of Syracuse.

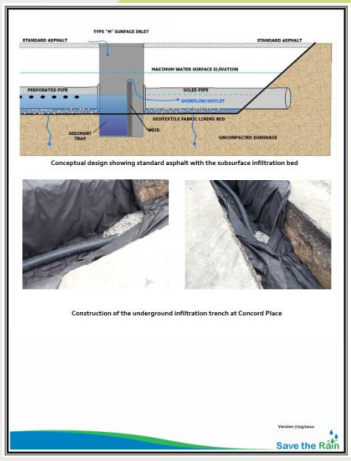
This type of project is unique among green infrastructure projects – although above the surface it appeared to be a traditional street paving process, below the street green infrastructure was installed to more effectively manage stormwater and protect our water resources.

The completion of the renovation of Concord Place is the first of several planned "green street" projects within the "Save the Rain" program.

Concord Place (looking south)

Concord Place (looking at center island)

Save the Rain



Conceptual design showing standard asphalt with the subsurface infiltration bed

Construction of the underground infiltration trench at Concord Place

Save the Rain

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Green Infrastructure Basics
Description

Green Parking

Use of permeable pavements can be installed in sections of a lot (parking spaces) and rain gardens and bioswales can be included in medians and along the parking lot perimeter.

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Green Infrastructure Basics
Description

Green Parking

Wilmington, MA
Silver Lake Beach Parking Lot

Key Results and Conclusions:

- Infiltration tests of the permeable paving materials, conducted after construction, indicated that infiltration rates met or exceeded specifications; the average observed infiltration rates were:

Porous Asphalt	Permeable Pavers	Flexi-Pave	Gravelpave
69 in./hr.	49 in./hr.	1,492 in./hr.	exceeds 5,000 in./hr

- Results of USGS monitoring show no indication of groundwater impairment beneath the areas with pervious paving.
- Reports from the town Board of Health show no closures of the swimming beach as a result of *E. coli* bacteria in the four years following installation of the LID features. For eight years prior to installation, beach closures due to *E. coli* occurred one or more times each summer.
- Since the installation of the LID features, the beach had one closure due to cyanobacteria, an algal bloom often associated with in influx of nutrients.

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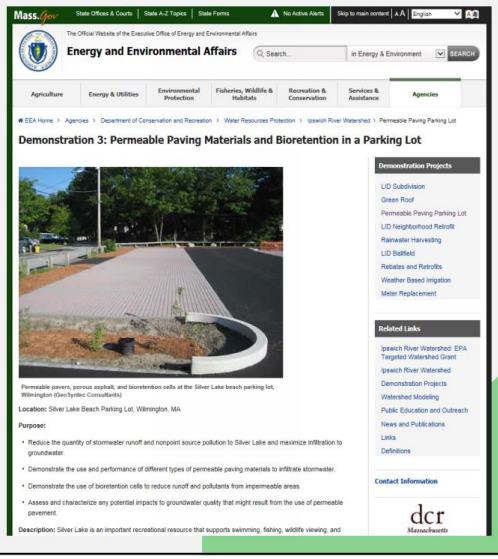

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Green Infrastructure Basics

Description

Green Roofs

As per EPA, Green roofs are covered with growing media and vegetation that enable rainfall infiltration and evapotranspiration of stored water. They are particularly cost-effective in dense urban areas where land values are high and on large industrial or office buildings where stormwater management costs are likely to be high.

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Green Infrastructure Basics

Example Washington State


King County Green Roof Case Study Report
Section 2 – Case Studies

Seminar II, Evergreen State College, *Olympia, WA*

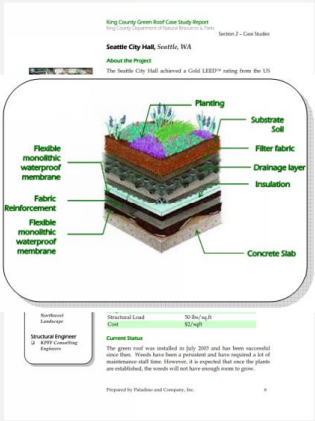
About the Project

Green Roof Characteristics

The project was completed in November 2003.

Existing Roof/ New Roof	New Roof
Green Roof Area	20,445 square feet
Green Roof Type	Extensive
Green Roof System	Garland Inc.
Accessibility	Building Occupants
Installation season	Fall 2004
Green Roof Slope	Flat
Soil Mix/ depth	4 to 6 inches
Plant Type	sedums & flowering species
Irrigation	Yes, establishment only
Structural Load	22.5 lbs/sq ft, saturated
Cost	$18 per sq.ft.

Prepared by Paladino and Company, Inc. 22



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Green Infrastructure Basics

Description

Urban Tree Canopy

Trees reduce and slow stormwater by intercepting precipitation in their leaves and branches. They can also be integrated into green infrastructure such as tree trenches or bioswales.

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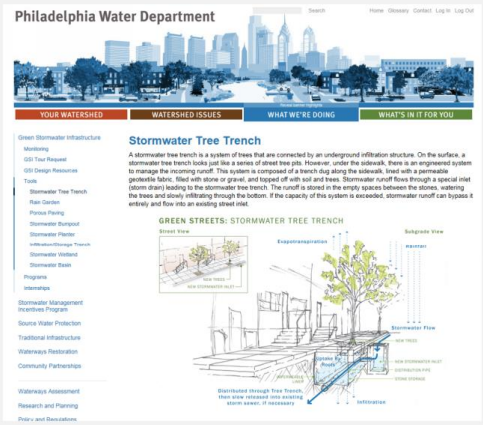
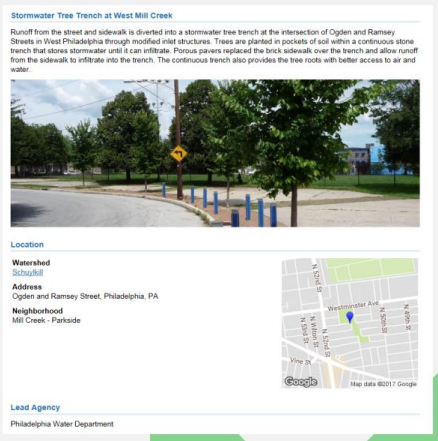
Green Infrastructure Basics

Example – Tree Canopy





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Green Infrastructure Basics
Description

Land Conservation

The water quality and flooding impacts of urban stormwater also can be addressed by protecting open spaces and sensitive natural areas within and adjacent to a city. Natural areas that should be a focus of this effort include riparian areas, wetlands, and steep hillsides.

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Issues Planning Boards Need to Consider
Description

The typical cry by municipalities is:

Ratables, Ratables, Ratables.

Ratable – Liable to assessment; taxable.

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Issues Planning Boards Need to Consider

Description

Many Local Land Use Ordinances have been established to maximize

Ratables, Ratables, Ratables.

by limiting open space or maximum impervious cover requirements.

Typical Comment: We don't want to change the character of our municipality.

Issues Planning Boards Need to Consider

Description

Village of Ridgefield Park

Schedule 4
District Area, Yard and Bulk Requirements
[Amended 7-12-2005 by Ord. No. 05-07; 12-13-2005 by Ord. No. 05-12; 10-25-2011 by Ord. No. 2011-12]

		Minimum Lot Dimensions			Maximum		Maximum Building Height	Minimum Yard Requirements (feet)			
										Side	
Zone	District	Area (square feet)	Width (feet)	Depth (feet)	Building Coverage (%)	Impervious Surface Coverage (%)	(feet/ stories)	Front	Rear	Other	One
R-1	Single-Family Residential	7,500	50	100	25	50	28/2	20	30	8	7
R-2	Single- and Two-Family Residential										
	Single-Family Residential	7,500	50	100	25	50	28/2	20	30	8	7
	Two-Family Residential	10,000	100	100	25	50	28/2	20	30	20	20
R-3	Multifamily Residential										
	Single-Family	7,500	50	100	25	50	28/2	20	30	8	7
	Two-Family	10,000	100	100	25	50	28/2	20	30	20	20
	Four-Family	10,000	100	100	35	60	28/2	30	30	20	20
	Townhouse	15,000	150	100	35	70	35/2	30	30	20	20
	Apartment	40,000	150	100	25	70	35/2	30	45	20	20
R-4	Medium Rise Multifamily Apartments	40,000	150	150	25	75	70*	30	45	20	20
C-1(H)	Central Business District	5,000	50	100	70	90	40/-	20	30	8	7
C-2	Neighborhood Commercial										
	Single-Family	7,500	50	100	25	50	28/2	20	30	8	7
	Two-Family	10,000	100	100	25	50	28/2	20	30	20	20
	Permitted Commercial Uses	5,000	50	100	35	75	35/2	20	35	8	7
C-3	Highway Office and Residential										
	Office and Professional	7,500	75	100	40	80	35/2	20	30	10	10
	Single-Family	7,500	50	100	25	50	28/2	20	30	8	7
OP-1	Office Park-1										
PD-1	Planned Development-1	See § 96-5.10.									
I-1	Light Industrial District										
	Automobile Service Station	15,000	100	125	20	75	20/-	25	40	25	25
	Office and Administrative Buildings	80,000	200	300	20	60	40/-	20	25	25	25
	Warehouse, Storage, Shipping and Distribution	40,000	150	200	30	60	40/-	20	25	25	25
	Generators, Transformers, Radio Equipment, and other Utilities	40,000	150	200	30	60	40/-	20	25	25	25
	Restaurants and Diners	15,000	100	125	30	60	20/-	25	40	25	25

96 Attachment 4:1 06 - 01 - 2014

Issues Planning Boards Need to Consider
Description

The Problem is:

Runoff is directly related to percent impervious.

Flow = Area x rainfall intensity x runoff factor (% impervious)

The higher the percent impervious the greater the peak flow and volume. The higher the peak flow and volume the more we need to capture or treatment, increasing the overall costs of CSO Controls.

Issues Planning Boards Need to Consider
Description

Potential solutions – Change Zoning Ordinances to:

- Reduce the maximum building coverage
- Reduce the maximum impermeable area
- Require onsite runoff storage to reduce peak flows
- Require permeable pavements
- Require more green infrastructure
- Require more open space

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Ridgefield Park Project Schedule Update

12/11/2017

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Ridgefield Park Project Status Report

Reports with Deadline of July 1, 2018:

- Quarterly Reports to NJDEP (current)
- Submit Regional System Characterization Report
  - Develop Template for Report (BCUA) (completed – under review)
  - Coordinate Model Integration (BCUA) (underway)
  - Draft Ridgefield Park Report – March 1, 2018
- Submit Public Participation Report
- Submit Compliance Monitoring Program Report* (draft under review)
- Submit Consideration of Sensitive Areas Plan

* New Jersey CSO Group Joint Effort

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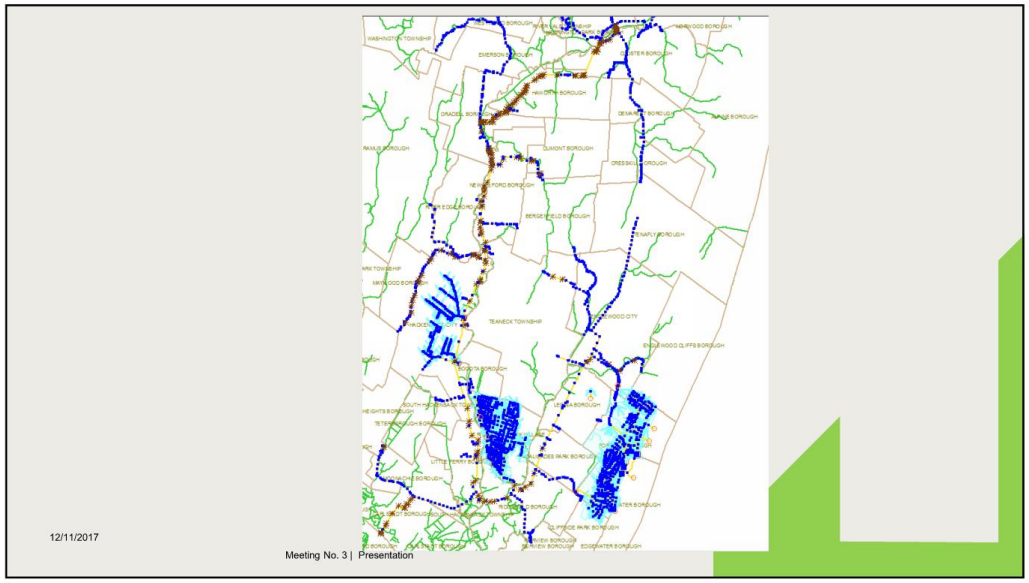

Ridgefield Park Project Status Report

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* New Jersey CSO Group Joint Effort

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Questions?
12/11/2017
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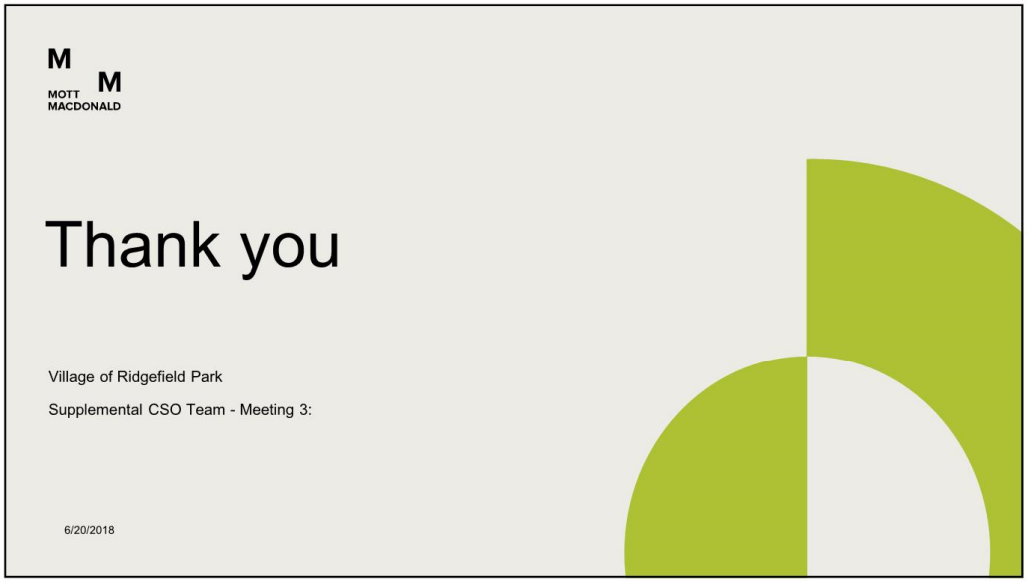
MOTT MACDONALD
Thank you
Village of Ridgefield Park
Supplemental CSO Team - Meeting 3:
6/20/2018