Green Infrastructure Champion Training: Part 8
Developing Green Infrastructure Masterplans for Entire Sites, Neighborhoods, and Townships

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Green Infrastructure Champions
Rutgers EcoComplex, Bordentown, NJ
May 31, 2019
Draft

Impervious Cover Reduction Action Plan
for
Hillsborough Township, Somerset County, New Jersey

Prepared for Hillsborough Township by the
Rutgers Cooperative Extension Water Resources Program

September 5, 2015
HILLSBOROUGH: GREEN INFRASTRUCTURE SITES

17. Hillsborough Municipal Building and Library
Rain gardens can capture, treat, and infiltrate runoff from the parking lots. Additional stormwater can be infiltrated with pervious pavement. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

<table>
<thead>
<tr>
<th>Impervious Cover</th>
<th>Existing Loads from Impervious Cover (lbs/yr)</th>
<th>Runoff Volume from Impervious Cover (Mgal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>sq. ft.</td>
<td>TP</td>
</tr>
<tr>
<td>22</td>
<td>304,677</td>
<td>14.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Green Infrastructure Practices</th>
<th>Recharge Potential (Mgal/yr)</th>
<th>TSS Removal Potential (lbs/yr)</th>
<th>Maximum Volume Reduction Potential (gal/storm)</th>
<th>Peak Discharge Reduction Potential (cu. ft./second)</th>
<th>Estimated Size (sq. ft.)</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioretention systems</td>
<td>0.610</td>
<td>102</td>
<td>45,217</td>
<td>1.70</td>
<td>5,920</td>
<td>$29,600</td>
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<tr>
<td>Pervious pavements</td>
<td>0.998</td>
<td>167</td>
<td>73,902</td>
<td>2.78</td>
<td>6,950</td>
<td>$173,750</td>
</tr>
</tbody>
</table>
GREEN INFRASTRUCTURE RECOMMENDATIONS

Hillsborough Municipal Building and Library
- Pervious pavements
- Bioretention / rain gardens
- Drainage areas
- Property line

2012 Aerial: NJOIT, OGIS
Demonstration Gardens to Full Site Sustainability Masterplans
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Demonstration Gardens to Full Site Sustainability Masterplans

HILLSBOROUGH, NJ
MUNICIPAL COMPLEX
SUSTAINABILITY MASTERPLAN
CONCEPTUAL DESIGN
Rutgers Cooperative Extension
Extension Specialist: Tobias Horton
County Environmental Resource Agent: Pat Hector
Goals of a Landscape Sustainability Masterplan

• Fundamentally change the way people experience their towns/cities
• Align currently uncoordinated efforts in Green Stormwater Infrastructure, Grey Stormwater Infrastructure, Transportation Planning, Greenspace Advocacy, Conservation, etc.
• Collaborate across disciplines, fields, and interests to improve the quality of life through improving the quality and access to nature
Objectives of a Landscape Sustainability Masterplan

- Work from funded installation projects towards a larger vision
- Strengthen working groups developed during small project planning and installation
- Appeal to different interest groups using themes in the Plan to join effort
- Conceptualize ‘ways forward’ to future projects
- Synthesize with existing and ongoing municipal and regional plans
Demonstration Gardens to Full Site Sustainability Masterplans

HILLSBOROUGH, NJ
MUNICIPAL COMPLEX
SUSTAINABILITY MASTERPLAN
CONCEPTUAL DESIGN

Rutgers Cooperative Extension
Extension Specialist Tobiah Horton
County Environmental Resource Agent Pat Rector
Phase 2 of the Hillsborough Municipal Complex
Landscape Sustainability Masterplan
Hillsborough Municipal Complex Landscape Sustainability Masterplan
Pollinator Garden, Gold Token Girl Scout Project
Pollinators
Their importance to our world

What is a Pollinator?
Pollinators are vital to most of our food production in America. Pollinators can be bees, butterflies, and many birds. These animals are widely responsible for the reproduction of many of our favorite fruits and vegetables. They have been on an upward trend in recent years, yet plants and flowers still need their help to reproduce. The goal of a pollinator is not just to pollinate, but to provide another breeding cycle for these amazing creatures. Making a difference towards the movement is not hard, just one plant could be enough to help hundreds of bees and butterflies!

What is in this Garden?
This assortment of flowers and bees is just some of the many that attract and accommodate pollinators. The major plants you see here include: Butterfly Bush, Salvia, Geranium, Cypress, Lavender, Margot, rose, Thyme, Nasturtium, and Geranium. You also see a collection of bees in the middle which serve as a nest of “honey bees” where they can be in a cluster area near your home! This area also shows the flowers that collect on bees allow them to spread the pollen. The knowledgeable owner is to attract some fragrant flowers as well.

How can YOU Help?
Installing just one of these plants into your yard or home is enough to make a difference to pollinators in our community. Local garden centers are just as involved in this cause and are more than happy to help you pick the perfect plant for your pollinator project.

This pollinator garden was donated to Hillsborough Township as the Girl Scout Gold Award Project of Brynne Briga. Thank you to these sponsors for making this project possible!
Hillsborough Municipal Complex Landscape Sustainability Masterplan
Future Police Memorial Native Plant Garden
Hillsborough Municipal Complex Landscape Sustainability Masterplan
Future Police Memorial Native Plant Garden
Demonstration Gardens to Full Site Sustainability Masterplans

Phase 1 & 2 Completed
Summer 2016
Summer 2017
eagle Scout Project

Phase 3
Completed
Summer 2017

Phase 4 Completed
Summer 2017
Girl Scout Project

Phase 5
Designed
Eagle Scout
Spring 2019

Future Phases

HILLSBOROUGH, NJ
MUNICIPAL COMPLEX
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Demonstration Gardens to Full Site Sustainability Masterplans

Nature and Fitness Path
Health Groups, Insurance Companies, Doctors Associations, etc.

Pollinator - Master Gardeners, Boy/Girl Scouts, School Science Groups...

Porous Asphalt - BID, Township, Watershed Association...

Agricultural History Garden - Historical Society, Local Farm Group, Individual Farmers, Food Non-Profits, Community Gardens...

Forest Gardens – Nature Focused Non-Profits, Watershed Associations...

Stream Restoration - Nature Focused Non-Profits, Watershed Associations...

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7. Green Buildings and Environmental Sustainability Plan Element *

Prepare a Green Buildings and Environmental Sustainability Plan Element. This new element would serve as the basis for incorporating green building and sustainability practices into the Land Use and Development Ordinance.
Elements of a Township-Wide Landscape Sustainability Masterplan

- Destinations connected to neighborhoods by walkable/bikeable corridors

- Stormwater kept on the surface in attractive amenities that mimic the performance of natural systems

- Remnant natural lands preserved and restored

- Social and cultural features and activities in the landscape are integrated with environmental improvements
Elements: Township Landscape Sustainability Masterplan: 
*Places and Connections*

**Places – Home - Destinations – “Nodes”**

**Small:**
- residences
- playgrounds
- pocket parks
- urban sites
- vacant lots to be reused
- schools w/out land
- small historic sites
- detention basins
- lakes/ponds

/ these are the locations for site scale green infrastructure installations

**Large:**
- Neighborhoods
- parks
- school campuses
- municipal complexes
- large
- historic sites
- cemeteries
- corporate parks
- business parks
- shopping areas, etc.

/ these are sites for large scale green infrastructure plans – knitting together smaller installations

**Connections - Streets – Paths – Streams – “Corridors”**

- Streets (especially wide streets)
- rails to trails
- linear parks
- river/floodplain parks
- stream corridors
- linear parks (e.g. D & R Canal)
- aggregated vacant lands
- infrastructure corridors (wide highway ROWs, rail line ROWs, power line/pipeline ROWs)
- historical corridors/trails
- waterfronts

/ these are the connective tissues that ensure that people, water, and wildlife flow through the landscape in safe, healthy, and attractive ways
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Hillsborough, New Jersey
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Dense Tree Cover
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Streams
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Floodplains
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Detention Basins
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Destinations
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Destinations and Origins
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Bike and Pedestrian Paths
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Complete Streets
Site Sustainability Masterplans to Neighborhood/Township
GSI Initiated Green Infrastructure Sustainability Masterplans

Safe Thoroughfares and Intersections
What Would a Neighborhood Look Like?
What Would a Neighborhood Look Like?
What Would a Neighborhood Look Like?
What Would a Neighborhood Look Like?

Connected Disconnected Neighborhood
What Would a Neighborhood Look Like?
What Would a Neighborhood Look Like?
Steps Towards Achieving this Type of Plan

**Municipal:**
- Demonstration Projects
- Grants
- Training of DPW/Parks

**Neighborhoods:**
- Rebate Programs
- Neighborhood Associations
- Individual Efforts

**Natural Lands:**
- Non-profit sector
- Grants
- Citizen Groups
- Neighbors/Friends of...

**Corridors:**
- DOT Projects
- Advocating Water BMPs
- Transportation Advocates
- Bike/Ped Advocates
- Health Advocates
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Masterplans for an Entire Site or Neighborhood

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