

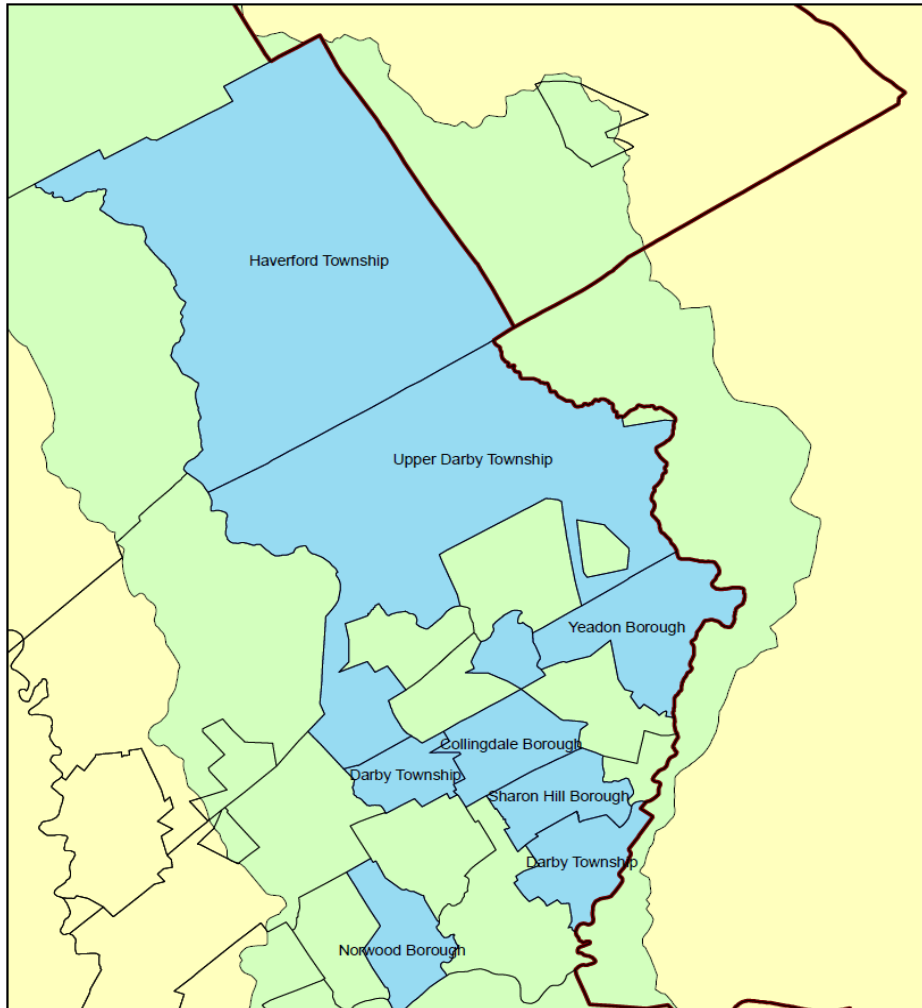
The Darby Cobbs Stormwater Initiative: *Getting to the New Normal*

Jamie N. Anderson,
Eastern Delaware County Stormwater Collaborative





Diana Andrejczak,
Pennsylvania Resources Council



Rain Gardens: Getting to the New Normal



Legend

-  County Boundary
-  Project Area
-  Darby and Cobbs Watershed
-  Municipal Boundaries

- Highly Urbanized
- All MS4s
- Impaired Streams
- Flooding Problems

Bringing Partners Together

- Pennsylvania Resources Council (PRC)
- Eastern Delaware County Stormwater Collaborative (EDCSC)
- Darby Creek Valley Association (DCVA)
- Haverford Township EAC



Project Goals

- Create public gardens that serve both water quality benefits as well as serve as educational tools for the public.
- Establish a framework to engage residents in installing rain gardens on their private properties
- Carry this framework throughout the watershed utilizing the support from the EDCSC communities



Sources of Funding

- NFWF Delaware River Initiative Grant
- Ethel Sergeant Clark Smith Foundation Grant
- Water Resources Education Network (WREN)
- In Kind Support from Municipalities

Rain Gardens

- 6 Public Gardens public areas of EDCSC communities
- 10 private gardens in Haverford



Project Timeline

Summer 2014

- Develop Workshop Curriculum
- First Workshop and Planting

Fall/Winter 2014 - 2015

- Determine public garden locations with municipalities
- Site assessments and selection of private garden locations
- Drafting of Agreements, Release Forms, etc.

Project Timeline

Spring 2015

- Public Works Training Workshop
- Residential Workshop
- Plant 2 Public Demonstration Rain Gardens
- Plant 5 Private Rain Gardens
- Volunteer Recruitment/ Resource Team

Summer 2015

- Evaluate Successes and Lessons from Phase 1

Fall 2015 – Spring 2016

- Plant Final 5 Private Rain Gardens (Fall)
- Plant 3 Public Gardens (Fall and Spring)
- Final Program Evaluations and Reporting

First Workshop and Planting September 2014 in Haverford, PA

- 2 days, 60 attendees
- Started with an hour long workshop focused on stormwater management issues in Delaware County and the installation of rain gardens
- After workshop, attendees helped to plant the rain garden



First Workshop and Planting September 2014 in Haverford, PA

- Rain garden area was pre-dug and prepped for planting
- Landscape design was color coded
- Plant trays were color coded to match
- Volunteers were able to easily match plants to planting areas and planted section by section





Public Garden Selection

- Highly Visible Municipal Locations
- Selected from list of sites recommended by each municipality
- Libraries, Township Buildings, Schools, Fire Station
- EAC or Public Works Crews Maintain
- Access to water
- Accessible to Public
- Educational Signage

Public Garden Selection



Next Steps

- Build Volunteer Base
- Select Planting Dates
- Draft Constructions Plans
- Layout Gardens and Select Plants
- Order Plants, Mulch, Top Soil, Etc.
- Rent/Secure Needed Equipment
- Collaborate with Public Works to Prepare Site for Planting

Private Garden Selection

- Online survey for those interested in rain garden on their property
- 35 people completed survey, 21 site assessments conducted
- Assessment form was created to help rate each location to determine suitability
- Top scores 85 points, lowest score 48 points
- Top 10 scoring properties will be selected for rain gardens

Rain Garden Assessment Form

Parameters Included:

- Flood Prone Area
- Visibility
- Obstacles
- Amount of Runoff
- Amount Diverted
- Soil Suitability
- Overflow

Residential Rain Garden Preliminary Assessment/Scoring				
Criteria	Description/Explanation/Comments	Rating (1-3)	Weight	Score (R x W)
1. Stormwater Runoff Flows into a Flood Prone Area of Haverford?	3=Yes 2=Maybe 1=No	1.5	x 4	6
2. Visible to Community?	3=Very 2=Partially 1=Not Visible	2.5	x 4	10
3. No Underground Obstacles in Path to Garden or in Garden Area?	3=Direct Knowledge of No Sewer, Water, Gas, Power Lines; 2=Believe no UG Lines/Minor Obstruction; 0=Known, Obstacle to Construction (RED FLAG)	3	x 4	12
4. Stormwater Currently Runs off by Driveway, Downspouts, etc. to street, storm channel or creek?	Est. sq ft Directly to Street: _____ Est. sq ft with <20 ft. Soil Buffer: _____ 3= >500 sq ft with <20ft Buffer 2= >500 sq ft; 1= No	3	x 4	12
5. Soil Suitability by Soil Type or drainage check (1' deep - 6 "water drains in):	3= 1 -12 hrs; Sandy or loamy 2= 12-24 hrs; Sandy/Loamy at 2' deep 1= > 24 hrs; Hard packed or clayey soil	3	x 4	12
6. Square Footage (sq ft) Impervious Runoff Proposed to be Diverted to Garden?	3=>1000 sq ft 2= 400-1000 sq ft 1=<400 sq ft	2	x 3	6
7. Garden Location / Drainage vs. Owner/ Neighbor Houses?	3= >10 ft, Slopes Away from Houses 2= >10 ft, Flat Slope or Can be Redirected by Hand grading 1= <10 ft or Slopes toward houses (FLAG)	3	x 3	9
8. Area Free of Standing Water After a Heavy Rain is over?	3= Drains Almost immediately 2= Drains Within an hour 1= >1 hr to Drain	3	x 2	6
9. Ease of Redirecting Runoff into the area by moving soil or a new drain pipe?	3=Naturally Flows to Area; 2=Flows with Simple Modification (e.g., extend drain, rock trench); 1=Difficult (e.g., need underground drain)	2	x 3	6
10. Does the Garden have a good overflow location that will not negatively affect neighbors?	3= Flows to current drainage path or large buffer area, away from house/neighbors; 2= Altered drainage, but adequate buffer 1= May negatively affect houses (FLAG)	3	x 2	6
TOTAL SCORE				85

High Scoring Profile

- Highly Visible, Corner Location
- Excellent Sandy Loam Soil
- Remove a curb discharge pipe
- Easy to redirect runoff from roof, no major modifications or construction
- No underground utilities in area
- Redirecting half of roof runoff to rain garden



Next Steps

- Top scores will be sent letters indicating property was selected
- Those properties not suitable were sent letters indicating why site was not chosen and other steps they might take on their properties
- All others are being notified that they might be available for a second round or if spot becomes available.

Next Steps

- Home Owners will need to sign an agreement that outlines construction, operation and maintenance
- PA One Call to map out utilities
- Cut Sod
- Determine dates for planting
- Pledge 4 hours of time to Pay It Forward
- Develop Rain Garden Resource Team
- 5 gardens planted Spring 2015, 5 Fall 2015

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