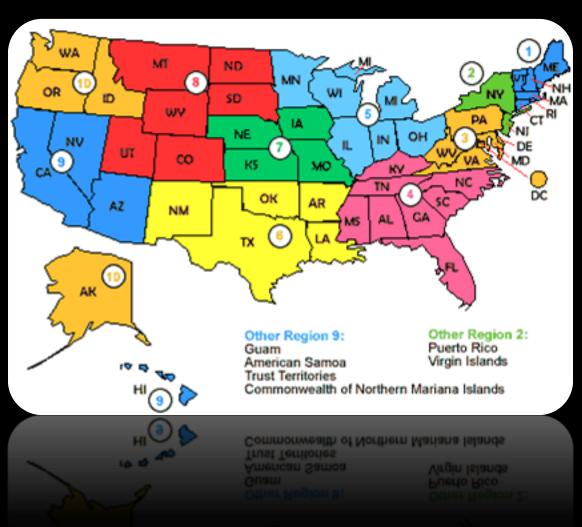
The University of Maryland Urban Studies & Planning Program and the National Center for Smart Growth's Brown Bag Webinar Series

December 3rd, 2014

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Jennifer Cotting, Research Associate --Green Infrastructure
www.efc.umd.edu



The EFC: Who are we?



Applying a financing lens across sectors . . .

- Technical Assistance
- Stormwater
- Green Infrastructure
- Agriculture
- Air Quality
- Climate & Energy
- Sustainability
- Program & Policy Analysis



Telling the financing story through the use graphics



for entertainment and recreation

DEMONSTRATING IMPACT

Green Infrastructure Implementation Project

Concentrating planning, nutreach. rain garden. a wetland bioswale. and bioinfiltration

Projected to remove more than

pounds of total suspended solids from the Fox River ■ EPA 319 Grant (58%) City of Aurora (42%)

each year

square mile of the city

STORMWATER FEES

Stormwater Management Fee Fund

Capitlized by . . .

- \$ \$6.90 bimonthly charge to each residential or business water and sewer service account
- **\$** state loans
- **\$** Clean Water Act grants

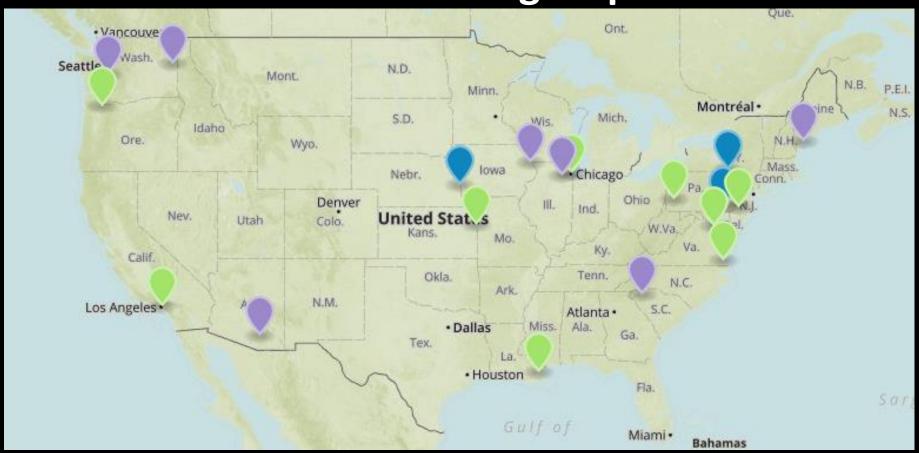




DEVELOPED BY THE ENVIRONMENTAL FINANCE CENTER WWW FFC UMD FDU



Green Infrastructure Financing Map



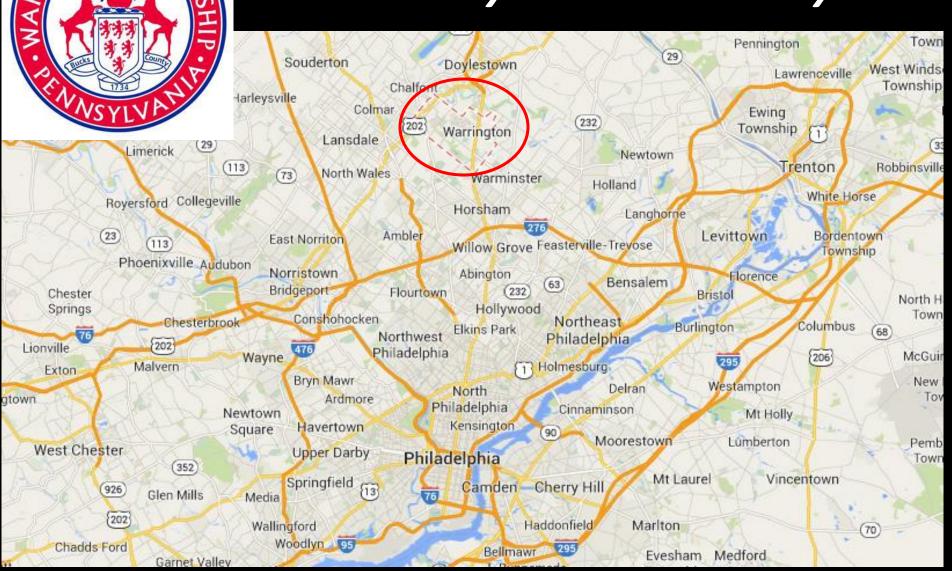
Twenty communities Diverse drivers, geography, scales, approach



A GREEN INFRASTRUCTURE APPROACH TO LEVERAGING LOCAL PRIORITIES IN WARRINGTON TOWNSHIP, PENNSYLVANIA



The Gateway to Bucks County



WARRINGTON, PA

Location: Bucks County, PA

Area: 13.8 square miles

Founded: 1734

Population: 17,580



Residents vote to borrow





LEVERAGING FOR GREATER IMPACT



\$350,000 from Bucks County and pursuing grants and other funding programs stretches local dollars further

Partnerships

Partnering with the land trust community can expand capacity and reduce the burden to the Township



Other Local Priorities

Considering open space planning in the context of other community priorities such as stormwater requirements and economic development goals can create efficiencies and reduce implementation costs



REFERENCES:

OPEN SPACE REFERENDUM INFORMATIONAL BROCHURE
RESOLUTION 2012-R-28, OPEN SPACE REFERENDUM, LAW OFFICES OF WHRC, JULY 2012

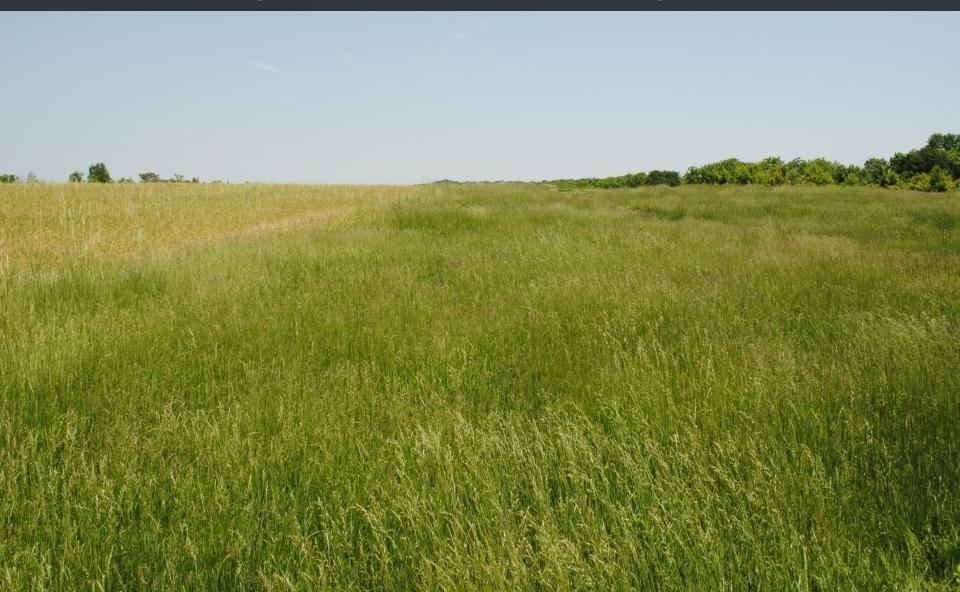
Project Purpose: Identify opportunities for the Township get much bigger bang for its buck www.

Project Outcome –

Provided a set of interrelated recommendations for Township to *think* and *act* strategically through:

- 1) Leveraging outside funding sources
- 2) Building new relationships and partnerships
- 3) Visualizing what "green infrastructure" looks like and the value it can bring to the community

RECOMMENDATION 1: Leverage Outside Funding Sources



Tiered Funding Opportunities

Based on:

- Priorities / Goals
- Eligibility / Likelihood
- Deadlines / Openings
- Networks / Partners
- Funding Level
- Technical Assistance



Highest priority (Start here)

Tier 2

\$150 million +

Viable with some weakness (Pursue after exploring tier 1)

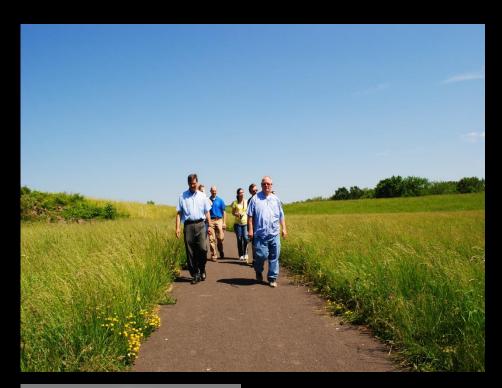


Tier 3

Significant issues limiting utility to Warrington (Pursue after others are exhausted)



Planning with the Help of Strategic Partnerships



ACCREDIANO TRUSTICS NO TRUSTIC

- Strategic assistance
- Experts in:
 - Open space planning
 - Acquisition
 - Easements
 - Natural resource protection
 - Stewardship & maintenance

More than just funders



Design

Landscape Architect Concept-Scale Designs



- Visualizing what green infrastructure and stormwater management look like in project design
- Sites utilized as pilot
- Planning and decision making tool

Greening Infrastructure for Open Space and Stormwater

Introduction & Goals

North Barness Park provides an opportunity to use green stormwater infrastructure to provide multiple benefits. The goals of this project are to 1) integrate green infrastructure stormwater practices into the site, 2) develop a range of recreational activities, and 3) create a landscape that is connected to the township. Bioretention will allow for infiltration of water from smaller rain events. Integrated tree plantings in the parking lot and as buffers along the edge of the property will enhance the overall quality of the site, provide cooling and shade, and create a model for a well designed parking lot. The proposed master plan provides for a variety of spaces, design elements and uses, while providing for environmental, recreational, and community needs.

Conditions & Concepts



Existing Site Conditions

Existing Site Conditions

North Barnes Barks close promiting to esisting ball
fields and residential neighborhoods creates an
opportunity to make strong reresidental connections
that are easily wellabel for local residents. The most
existing opportunity for the site is its commanding
sites of the countryside. The existing South Barness
Park is an additional opportunity to improve pediestrian
safety while connecting the two parks.



Proposed Concepts

The proposed concept transforms North Barness Park to a park that connects to the existing sports fields across from Bristol Road and communities. The site proposes Low Impact Development (LID) techniques to address from Bristol Road and communities. The site proposes Low Impact Development (LID) techniques to address the stormwater conditions as well as develop a strong plan for tree canopy development. Incorporating the avaitat history of the site, the building takes advantage of the commanding views of the beautiful countryside

Concept Features



A proposed park gateway at the intersection of Kelly Road and Bristol Road is located on the southwestern corner of the park. This designated gateway provides access to local neighborhoods - such as local neighbors coming from homes along Cadwallader Road. In addition, this park entry provides a clear destination for walkers and bikers coming from King and Turk Parks located north of North Barness



Four sports fields are proposed for the park. The soccer fields and softball fields are separated by a central parking area and small landscape area that accommodates the park's building facility.

Green Stormwater Infrastructure Parking Lot

Bioinfiltration units in selected bays capture stormwater that route sheetflow westward with overflow directed to proposed storm facilities in the east and west locations of the park. These features allow for integrated green stormwater infrastructure, tree plantings, and additional shrub and annual plantings to provide for exemplary design implementation in the township.

North Barness Park Green Airport Tower

The proposed airport tower celebrates the unique history of the site while providing needed for interior space for a restroom and other requirements for the park. In addition, a second story lookout provides an iconic feature that celebrates the site. The tower has the potential to also serve important civic functions for community events. In addition, for the growing sport of model planes and drone enthusiasts, the tower and facility could serve as an economic engine and encourage social community engagement and promote this exciting recreational activity.

Wildlife Walk and Rest Gazebo

A wildlife walk located to the east connects to the sports fields. This artful feature promotes environmental habitats by redirecting stormwater from the parking lot to the retention pond. Nearby a gazebo provides shelter and a viewing post for bird watching.

North and South Barness Parks Connector

The North Barness Park connects to the existing South Barness Park recreational fields by a proposed designated pedestrian crossing at Bristol Road. This connector includes traffic calming devices to mprove pedestrian safety, an important element to promote the safety and welfare of visitors to the

Focused User Groups



Local Neighbors will likely be some of the most frequent users of the North Barness Park. Local neighbors blising and walking will be drawn from neighborhoods west of the park. Approaching from Kelly Rosd, the neighbors in these subdivisions have the closest walkable b blisable access to the park.



Active Recreation Users

ACTIVE RECLEASION USES will also provides years a state of the stabilishment of an own-polary recustional park that utilized will take provide the screen state of the



Model Plane Enthusiasts might be a new group of user to consider. The celebration of the historical land use of the little that was a small airrity allows for the consideration for accommodating and celebrating the new and growing sport of flying model airplanes and autonomous vehicles.



will be active users. The diroular path surrounding the park will provide opportunities for jogging and strolling in a clear route. In addition, the p around the storemaster facility on the eastern dide of the park allows for birdwatching, strolling and viewing of plantings.

Conceptual Master Plan



North Barness Park

Warrington Township

Greening Infrastructure for Open Space and Stormwater



Wildlife Walk and Rest Gazebo Concept

The proposed detention or retention facility is encircled by a paved path to allow for casual walking and strolling activities. A small structure provides for sitting and a place for interpretive information to communicate information about the landscape and reforested areas.



North Barness Park Airport Tower Concept

The proposed structure provides needed interior space to meet the needs of a recreation facility including temporary concessions, storage, and restrooms. Stair access is afforced to a deck on the second story level. Here users have a view of the remaining roof planted in a deck on the second story level. Here users have a view of the remaining roof planted in a deck on the second story level. Here users have a view of the remaining roof planted in a deck on the second story level. Here users have a view of the remaining roof planted in a green roof, in addition, users also have commanding views of the ball field and of the surrounding countryside. This feature takes advantage of one of the most valuable assets of the site - a high elevation. Interpretative information could be included that communicates the forest cover in adjacent neighborhoods and helps communicate the value of green infrastructure



Playfield Sitting Wall and Bioretention Concept

This feature integrates parking, bioretention, and the path adjacent to the ball field as an integrated design element. Water sheetflows from parking into planted bioretention areas. Overflows from larger rian events are routed to retention or detention areas. The seating walls provide for spectator viewing and resting and provide a buffer separation between parking and ball fields.

































Introduction & Goals

Mill Creek Nature Trail Preserve creates an opportunity to celebrate a commitment to a sustainable future for Warrington Township. The goals of the Mill Creek Nature Trail Preserve project are to 1) create trail connectivity, 2) incorporate green infrastructure, and 3) provide opportunities for environmental interpretation and education. The proposed master plan provides for a variety of spaces, design elements and uses while making a commitment to provide for animal and plant diversity representing the local flora and fauna of the area.

Conditions & Concepts







The Mill Creek Trail Preserve vision creates multiple loops, winding through a variety of habitats. These loops and site features engage a variety of activities, from leisurely afternoon stroll for empty nesters, star gazing with children, and interesting bike routes for the avid biker.





Wildlife
will find additional improved habitat in the restoration of Mil Creek Nature Trail
Preserve, Reforested area, managed for invasilees, will provide additional forest
restablishment, meadow may be reduced to meet additional forest area goals.
Stream, pond and constructed weelland habitats provide water-centric habitats to
support a diversity of plants and eminatel.

Concept Features

wonderful opportunity to expand and connect Warrington Township to the 202 Trail

> Trailhead Parking and Entry at Stump Road
> This trailhead is integrated with the improved existing parking lot on the west side of Stump Road. Design and way-finding elements provide a clear and safe identity for local and non-local users.

Primary Trail - Pennington Trail Extension This proposed trail segment provides a critical first link from US 202 multi-use trail to Twin Oaks Park, Lower Nike Park, and Bradford Reservoir

Nature Play Meadow This meadow provides an opportunity for natural play based focused activities. It is conveniently located between two subdivisions.

middle of Mill Creek Nature Trail Preserve.

The Middle Meadow is the central non-forested open space. Users arriving to this meadow experience a clear sense that they are in the

The Overlook at Middle Meadow The overlook at Middle Meadow provides an opportunity for commanding views to the east looking towards Mill Creek. The proposed feature is an intermediate destination identifiable to users of the sites.

Stump Meadow Wetland The smaller of the proposed meadows, Stump Meadow Wetland provides a more intimate space that serves primarily users from the adjacent neighborhood. The proposed small wetland feature provides an opportunity to showcase a wetland restoration habitat and adds both habitat diversity and creates an opportunity for interpretive education.

The existing pond is integrated into the proposed trail network. The pond becomes a destination along the trail and can serve to demonstrate improved riparian buffers to protect water quality and enhance animal

Mill Creek Trace Trail

This proposed trail section provides a more secluded woods experience. The trail also provides opportunities for interpretive education.

The Bridge at Mill Creek The bridge serves as an opportunity to celebrate the central water feature of the preserve: Mill Creek.

Focused User Groups



Local and Non local Bikers
will be drawn from US 202 to Mill Creek Nature Trall Preserve by the
opportunities difforded by the proposed features: the overlook, winding trails to
Mill Creek and ultimately continued access to Warrington Township Parks and the
Bradford Reservicin Recreation Area.



Warrington Township Citizens
will take poke in the establishment of Mill Creek Nature Trail Preserve knowling
that they have created a landauge that stiding parter widdle and forest
protection while providing future generations access to nature. The proposed uses
are compatible to creating both healthy desires widding. Male are
compatible to creating both healthy desires widding both forest, meadows and
lowland-water oriented organisms.

Local Neighbors
will likely be the most frequent users of the Mill Creek Nature Trail Preserve and
lilkely stewards of the preserve. Approaching from Billingsley Drive or King's
Court, walkers can take evening stroids through Stump Meadow or reley of the
opportunity for rightimis trapsaging. Rediends from just a six farther will be not
convenient walls or bits from a definition that affords beaufiful views and a
variety of interventing reasonal habitats.



Students and training apparential to learn about a rich variety of ecological habitats. allie will fill no department of the provide the file allies for groups of students from a science data to learn about restoration habitats in progress; forest restoration, emergent upland wetland restoration, and the development and maintenance of memory that for the fabitation of the development and maintenance of memory that forest habitation contagged poliinators.



Conceptual Master Plan



Mill Creek Nature Trail Preserve

Greening Infrastructure for Open Space and Trail Connectivity



Parking Lot and Trail Entrance Concept

The proposed parking lot, designed using green infrastructure stormwater techniques, is conveniently located close to the existing 202 Parkway Trail providing an ease of access to proposed trail-head. Local residents, distant travelers, and school groups can easily park and explore the Mill Creek Nature Trail as well as accessing neighboring townships via the mwater techniques, is conveniently located close to the existing 202 Parkway Trail providing an ease of access to the



Primary Trail Entrance at Stump Road Concept

The entrance at Stump Road is the starting point of the Mill Creek Nature Trail and the first point connecting Warrington Township to the existing 202 Parkway Trail. This 10 foot wide paved trail complete with way-finding elements and multiple places to stop and rest, smoothly winds through reforested farmlands eventually connecting to Pinkertown Road.



Stump Meadow Wetland Concept

The Stump Meadow Wetland creates a beautiful additional habitat with opportunities for interpretive learning. Families can walk and view birds nesting nearby and aquatic wildlife. Bike





























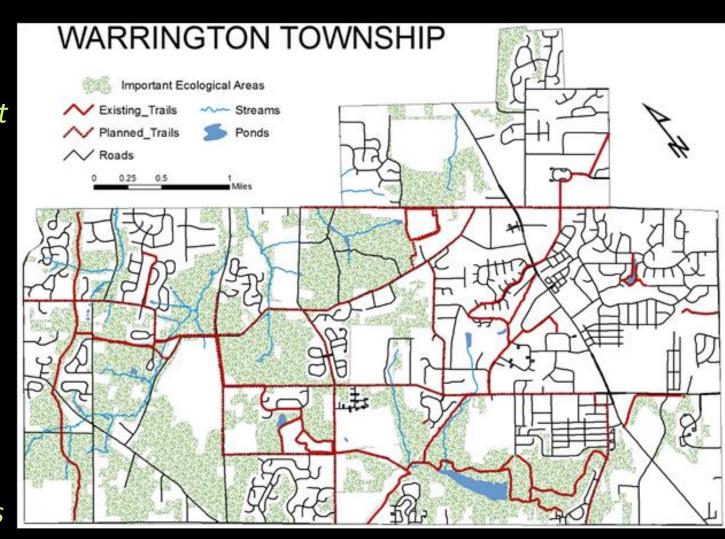


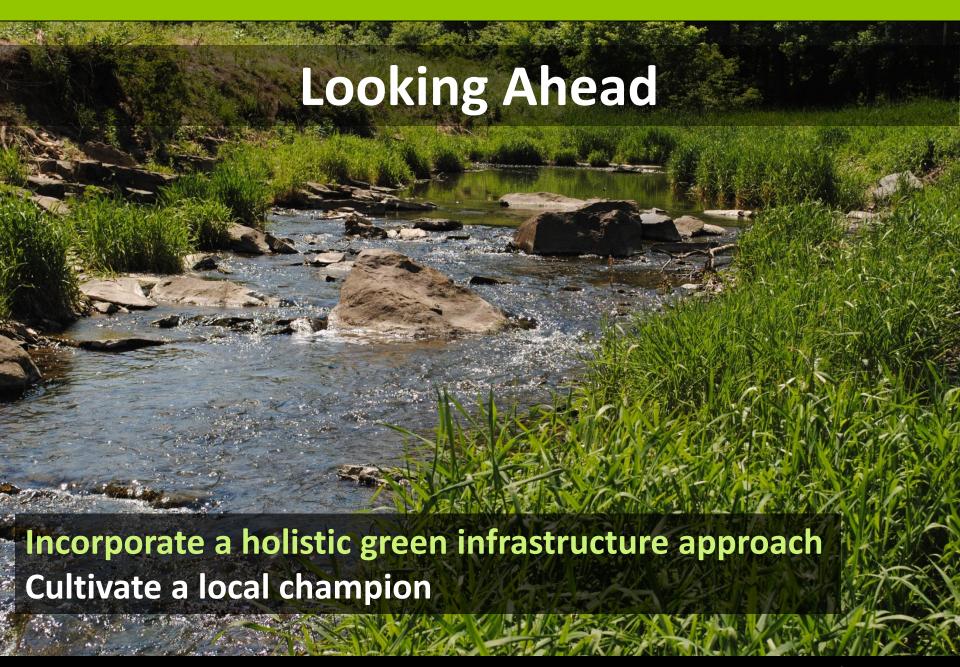
Green Infrastructure Strategy

Developed by the USEPA Region 3's Office of Environmental Information & Analysis

Prioritize areas
for open space
preservation that
maximizes the
ecological and
environmental
impact

Develop an
interconnected
network of
natural and
"undeveloped"
lands and waters





Need More Information? Contact Us!



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