

Upper Susquehanna Coalition Owego, New York May 7, 2015



### Integrated Planning Approach

A Walkable Watershed integrates the flow of **water** and **people** into a cohesive strategy to improve the overall health of a community and the surrounding watershed.



### Integrated Planning Approach

- Build on existing investments and initiatives
- Coordinate transportation and stormwater management investments
- Connect people to the river
- Address flooding issues
- Explore potential public land acquisitions
- Identify specific locations for stormwater improvements



- Enable safe access for all users (including pedestrians, bicyclists, motorists and transit riders of all ages and abilities)
- And enhance water quality by cleaning stormwater runoff.







Stormwater treatment can be integrated with safe pedestrian crossings.



Source: City of Philadelphia Green Streets Design Manual

# Stormwater Flow – On Street

**Swales** are grassy or vegetated channels that safely hold and direct water from one place to another. They can be located adjacent to streets and parking lots to slow and clean the water before it flows to the creek.



Curb extension retrofit

Water-filled planted swale during 25-year storm event

Grassy swale

# Stormwater Flow – Off Street

**Rain gardens** are planted areas that are sunk into the ground to collect rainwater runoff from impervious urban areas (such as roofs, driveways and parking lots). Rain gardens can be added to front yards, public spaces and vacant lots.



Integrated into a community park



In public spaces with educational signage



*Terraced rain gardens provide a visual attraction* 

# Celebrating Connections

Celebrating and enhancing community connections to urban waterways and environment restoration provides multiple benefits.



*Greenways provide access to waterways and recreational areas* 



Signage celebrates a community's legacy and connection to waterways

Skeo Solutions | Tioughnioga Urban Headwaters Action Plan

# Promoting Learning

Stormwater strategies can be designed to highlight how rainwater flows through the community to the river. Features such as bridges, splash blocks, storm drain inlets can be designed to celebrate the watershed.



Bridge reflects skeleton of native fish



Splash pad with fish imprint is a reminder that rain water flows to local waterways and fish habitat



Educational signage

### Tioughnioga River Urban Headwaters Action Plan



The City of Cortland is developing the Tioughnioga Urban Headwaters Green Infrastructure Action Plan with funding from the National Fish and Wildlife Foundation (NFWF) Technical Assistance program.

The following strategies provide preliminary concepts that integrate natural stormwater drainage and greenway trails in the Tioughnioga River watershed.





## Project Objectives

- Identify potential green infrastructure technologies to store, treat and infiltrate stormwater runoff and reduce impacts to the Tioughnioga River.
- Coordinate green infrastructure opportunities with transportation and corridor investments.
- Develop an action plan to guide design, funding and implementation of green infrastructure improvements.
- Build capacity across jurisdictions to advance green infrastructure solutions in the Tioughnioga River watershed.

# Strategies

 On-street Stormwater – natural drainage strategies integrated into streetscape and infrastructure design to improve walkability and stormwater management.

#### • Safe Crossings –

integrated stormwater infiltration and traffic calming measures located at strategic intersections, mid-block crossing points and greenway access points.

- Off-Street Stormwater Flows rain gardens or swales adjacent to roadways, aligned with trails or along paved areas to capture unmanaged stormwater runoff.
- Trails and Greenways improving pedestrian and bicycle access to waterways and open space areas.

#### **On-Street Opportunities**

Primary
 Secondary

#### Safe Crossings



#### **Off-Street Stormwater Flows**



Planted buffers and biorention

#### Trails and Greenways

- Potential Greenway System
  - Potential On-Street Greenway System

# Opportunities Map

#### **On-Street**

- 1. Clinton Avenue
- 2. Downtown Gateway
- 3. Rickard Street intersection
- 4. Main Street mid-block crossing

#### **Off-Street**

- 5. Green Infrastructure Rain Garden
- 6. Green Infrastructure Parking Lot Retrofit

#### Trails and Greenways

- 7. Greenway Trail System
- 8. Greenway Green Infrastructure
- 9. Watershed Education





- Action items to advance each of the 9 strategies.
- Key stakeholders and partners involved in implementation.
- Funding options for implementation (NFWF Nutrient and Sediment Reduction Grants; NY Environmental Facilities Corporation; NY Consolidated Funding Application).

# Contact Information

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Tioughnioga Urban Headwaters Action Plan website: <a href="http://www.walkablewatershed.com/cortland/">http://www.walkablewatershed.com/cortland/</a>