

# The Urban Ecosystem: FROM HIGHLY ALTERED TO HIGHLY LIVABLE

**O**ur urban ecosystems pulse with the flow of material and energy, ultimately transforming our ideas and products into fascinating places for industry, trade, and community. But these systems also produce pollution and waste, and require outside subsidies in order to survive. This not only makes them unsustainable, but unable to adapt, or recover quickly from catastrophic events like major storms and droughts.

But there is good news. Each piece of land and drop of water in a city can play a part in holding the urban fabric together and supporting ecosystem viability. Once we recognize a city as an ecosystem—albeit highly altered—we can begin to identify components of the system that need improvement, broken loops that need to be closed. These may include buried streams, filled wetlands, or fragmented forests.

Looking to natural ecosystems as models, we can restore these broken loops and knit them back into the urban fabric. With each restored loop, dependence on outside resources decreases, the air becomes less polluted, the urban heat island cools a bit, waterways become a little cleaner, and natural areas become more inviting and accessible to all communities. As the urban ecosystem becomes healthier and more interconnected, so do we.



Wastewater treatment and reuse, Portland, OR



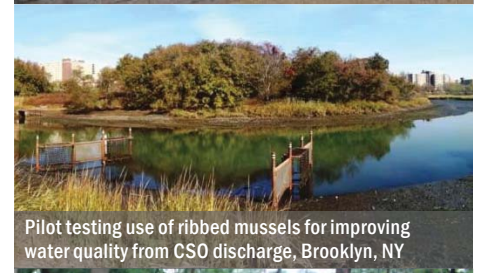
Green infrastructure framework for six-mile green corridor along Allegheny River, Pittsburgh, PA



Over 30 acres of freshwater tidal wetlands restored along Anacostia River, Washington, DC



Capturing rainwater for reuse reduces potable water use by 75%+ at federal courthouse, Albuquerque, NM



Pilot testing use of ribbed mussels for improving water quality from CSO discharge, Brooklyn, NY



A restored urban stream improves water quality and local hydrology, Washington, DC



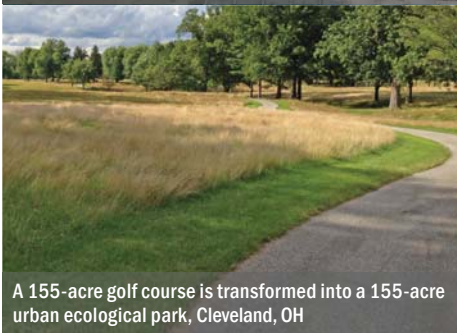
**There has never been a better time to help make our cities not only more desirable, but more livable—through a new vision of urban ecology.**



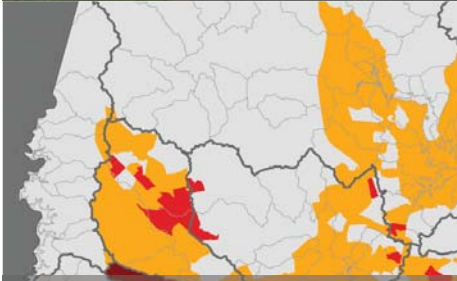
Ecological restoration and green infrastructure 260-acre brownfield site along Buffalo River, Buffalo, NY



Intensive retrofit of stormwater management practices provides model for urban neighborhoods, Baltimore, MD



A 155-acre golf course is transformed into a 155-acre urban ecological park, Cleveland, OH



Modeling shows relationship between water quality and community environmental justice, Baltimore, MD



Assessing the potential for West Denver to become a model of urban regeneration at the district scale, Denver, CO



Concrete parking lot transformed into riverfront park regenerating economy and ecology, Philadelphia, PA

## MULTIDISCIPLINARY TEAM AT YOUR FINGERTIPS

- |                                    |                          |
|------------------------------------|--------------------------|
| Water resources engineers          | Ecologists               |
| Ecological/environmental engineers | Hydrogeologists          |
| Environmental planners             | Fluvial geomorphologists |
| Landscape architects               | Conservation biologists  |
| Soil scientists                    | GIS technicians          |

## PROJECT TYPES & REPRESENTATIVE EXAMPLES

### Urban Open Space Planning/Management

- New York City CSO-PlaNYC Green Infrastructure Initiatives–Jamaica Bay Watershed Ecological Atlas, *New York, NY*
- North Delaware Riverfront Greenway–Lardner’s Point Park, *Philadelphia, PA*
- Poudre River Downtown Master Plan & Design Project, *Fort Collins, CO*
- Philadelphia Parkland Forest Management Framework, *Philadelphia, PA*
- Pittsburgh Regional Parks Management Plan, *Pittsburgh, PA*

### Brownfield Redevelopment Planning and Design

- Hog Island Ecological Restoration Master Plan, *Superior, WI*
- RiverBend Commerce Park Site Development Plan, *Buffalo, NY*
- City of Jamestown Chadakoin Riverfront Revitalization, *Jamestown, NY*
- South Buffalo Brownfield Opportunity Area Implementation Strategy, *Buffalo, NY*
- 200 South Ashley Street Redevelopment Project, *Ann Arbor, MI*

### Urban Waterways, Living Shoreline, and Innovations for Ecological Uplift

- Green Bulkheads for Cuyahoga River Navigation Channel, *Cleveland, OH*
- Teaneck Creek Park Wetland Restoration, *Teaneck, NJ*
- Arundel-on-the-Bay LID and Living Shoreline, *Anne Arundel County, MD*
- Linnean Park Regenerative Stormwater Conveyance Design-Build, *Washington, DC*
- Passaic River Shoreline Stabilization, *Newark, NJ*

### Urban Revitalization and Green Infrastructure (Stormwater) Planning and Implementation

- New York City CSO-PlaNYC Green Infrastructure Initiatives–BMP Pilots, *New York, NY*
- Savage Branch Environmental Site Design, *Howard County, MD*
- Rowan University Stormwater Management and Landscape Master Plan, *Glassboro, NJ*
- Stormwater Planning and Design for Baltimore Community Toolbank, *Baltimore, MD*
- Denver CityCraft, *Denver, CO*

### Urban Environmental Education

- Burke Park–Make a Difference Class, *Boulder, CO*
- New York City CSO-PlaNYC Green Infrastructure Initiative–Neighborhood Demonstration Areas
- Hudson High School/Tinkers Creek Stream Restoration Design-Build, *Hudson, OH*
- Sidwell Friends Middle School Natural Wastewater and Stormwater Treatment Reuse System, *Washington, DC*
- Baltimore Healthy Harbor Initiative Pilot Projects, *Baltimore, MD*



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