Solving Multiple Policy Goals with Green Stormwater Infrastructure in Parks

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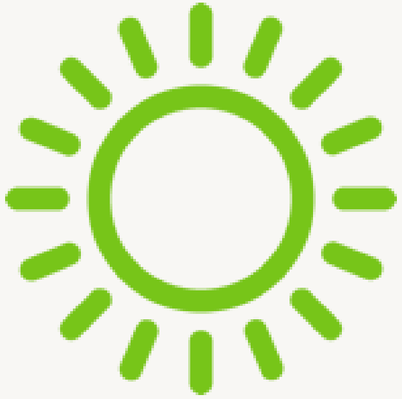
CONFERENCE TRACK



Parks and a Changing Climate

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Support for this session is provided by:

rwjf robert wood johnson foundation

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PROFESSIONAL AND CONTINUING EDUCATION

GENERAL CEUs

- Ensure your conference badge is scanned upon entering and exiting the session.
- Request your session transcript from a City Parks Alliance staff member.
- Transcript requests will be fulfilled within 10 business days of the request date.

LA CES

- Ensure your conference badge is scanned upon entering and exiting the session.
- Complete the session evaluation in the mobile app.
- Request your session transcript from a City Parks Alliance staff member.
- Transcript requests will be fulfilled within 10 business days of the request date.

AICP

- Self-report your participation on the AICP website
- Ensure your conference badge is scanned upon entering and exiting the session.
- Complete the session evaluation in the mobile app.

Participation data is shared electronically with the accrediting agencies.

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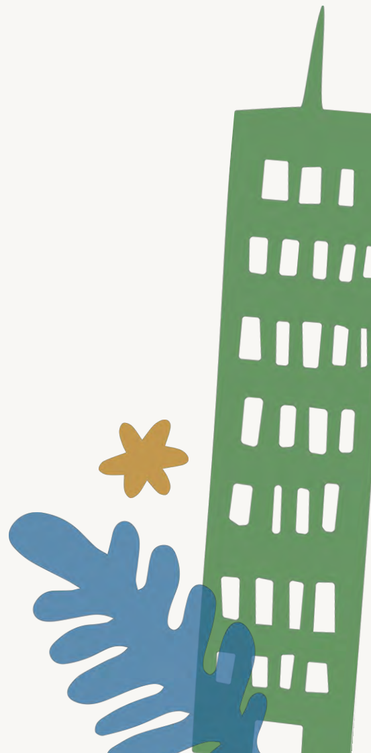

My Role

Kate England, GIP, ENV SP

Director of Green Infrastructure (City of Boston)

Right-of-Way GI Policy

Requires GI in ROW projects

Five Green Infrastructure Design Alternatives:

- ROW Bioretention
- Infiltration Tree Pit/Tree Trench
- Porous Paving
- Subsurface Infiltration Area
- One-time Seeding

Operations & Maintenance:

- Two (2) Maintenance Contracts
- Green Infrastructure Volunteer Program

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GI Maintenance Contracts

Remove maintenance “barrier”

- Two (2) maintenance contracts:
  - Landscape Maintenance Contract
  - Porous Paving Maintenance Contract
- Maintaining GI from all departments
  - BPL, BPRD, BPS, BTD, BWSC, PWD
- Procured contracts via “creative contracting”
  - RFP, rather than standard “low bid”
  - City Certified Businesses (three (3) quotes, $250k)

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Supporting All Departments

We're all in this together!

- GI Working Groups
  - Bi-monthly overall group
  - Three (3) subgroups: Coordination & Maintenance, Details & Specifications, Policy
- Capital requests for other departments' GI
  - e.g. $5 mil for Cummins Highway GI (PWD)
- Construct GI with other departments
  - BPL, BPRD, BPS, PWD

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Boston Housing Authority

Collaboration → New staff

BHA is the largest landowner in Boston

- Consulted on BHA's Sustainability Strategy
- Advised BHA about the new stormwater fee
- Supported BHA Summer Youth Council
- Planted trees and built a garden with youth

June 2024, BHA hired an in-house GI staffer!

- Bobby works with BHA Engineering and will also support O&M

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Pittsburgh's Stormwater Code Update

Innovation with Regulation

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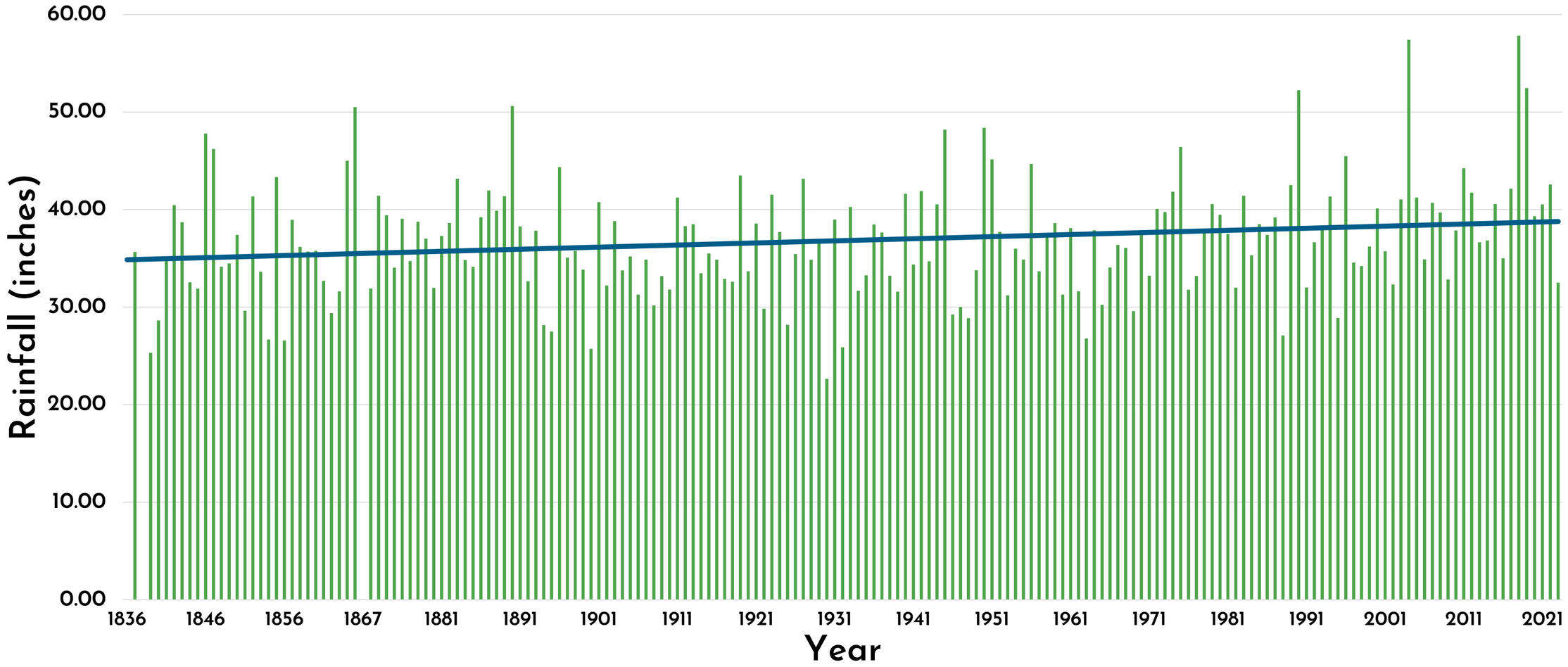
Agenda

- Why update the stormwater code?
- Timeline
- Engagement
- Climate change rainfall projections
- Stormwater Design Manual
- Volume control incentives
- Fee in-lieu
- Building staff capacity

Pittsburgh's Rainfall is on the Rise



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Timeline for Code Updates

01

SPRING 2020

Review existing code, identify technical resource needs, program improvements, and engage stakeholders.

02

JANUARY 2021

Draft code revisions finalized and Design Manual draft initiated.

03

OCTOBER 2021

Planning Commission and City Council approval.

04

APRIL 2022

Code and design manual are published and stormwater permit applications are online.

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Stakeholder Engagement

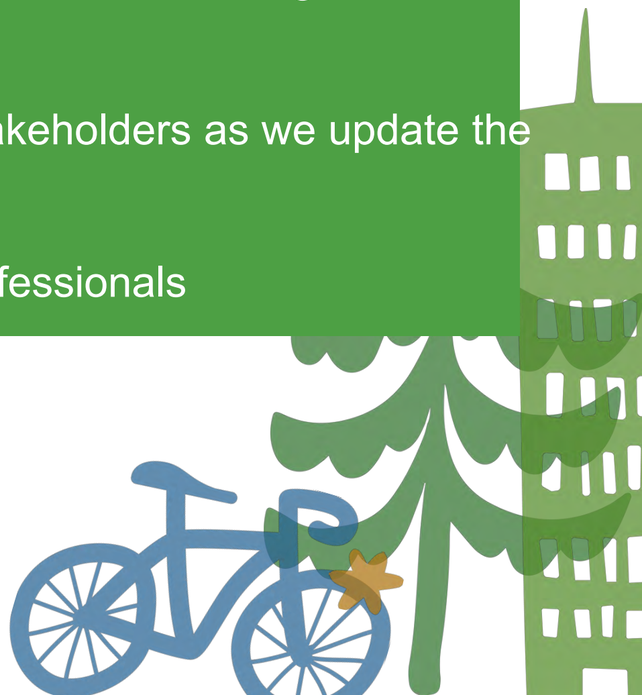
Two levels of public engagement:

Engaging the general public

- Sent public notices by mail to all residents in the Act 167 watersheds
- Created an online engagement platform to inform residents and allow for comments, questions, and feedback
- Received ~100 responses

Engaging design professionals

- Held events for stakeholders to provide input throughout the code update and following the implementation
- Continuing to engage stakeholders as we update the Design Manual
- Engaged 114 design professionals



Climate Change Projected Rainfall

TABLE 2.3. 24-HOUR DURATION FUTURE CLIMATE CHANGE RAINFALL VALUES FOR THE CITY OF PITTSBURGH

(Table adapted from RAND (2020) – results from Carnegie Mellon University)

Return Period (years)	Average Future Rainfall Depth (inches)
1	2.1
2	2.3
5	3.3
10	3.9
25	4.8
50	5.6
100	6.4

If the present-day NOAA Atlas 14 rainfall depth value is higher than the future climate projection rainfall value, the NOAA Atlas 14 value shall apply for modeling analysis purposes.

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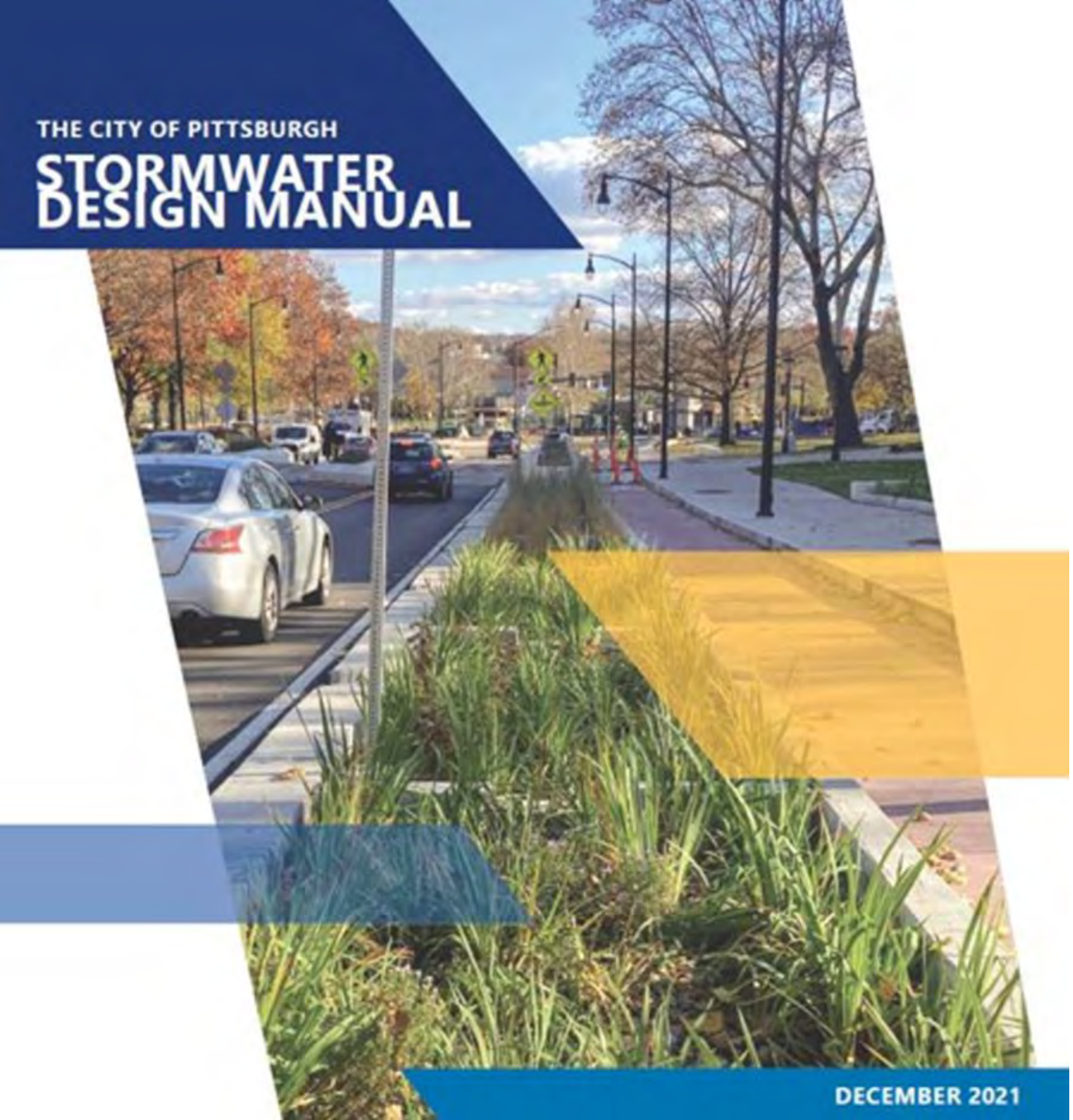

Pittsburgh Stormwater Design Manual

Published April 2022

Technical document to aid applicants in planning for and completing stormwater permits and green infrastructure projects. Created to allow us to adjust guidance without legislation.

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Volume Control Incentive

Innovation

Applicants that manage additional volume in excess of the requirements are eligible for volume control incentives.

Grant

Payment per additional cubic foot of storage volume provided up to two and one-half (2.5) inches of precipitation on the proposed site or on other property owned by the applicant.

Offsets

Applicants may offset the volume control requirement of one site by managing an equivalent area of impervious surface outside of the project site but on other property owned by the applicant.

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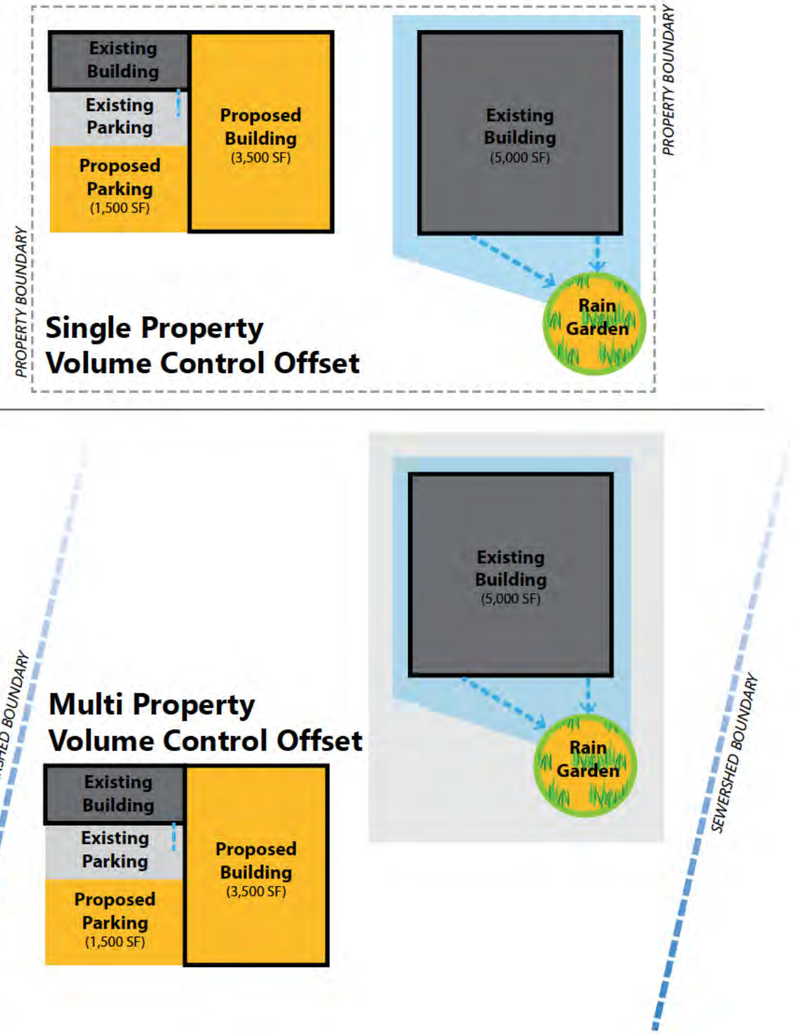
Volume Control Offsets



GUIDELINES

- The impervious area managed by the volume offset project must be previously unmanaged impervious area.
- Non-structural BMPs cannot be used.
- Useful for projects with a constrained property.
- Must be on a property with the same owner.
- Must be in the same sewershed.

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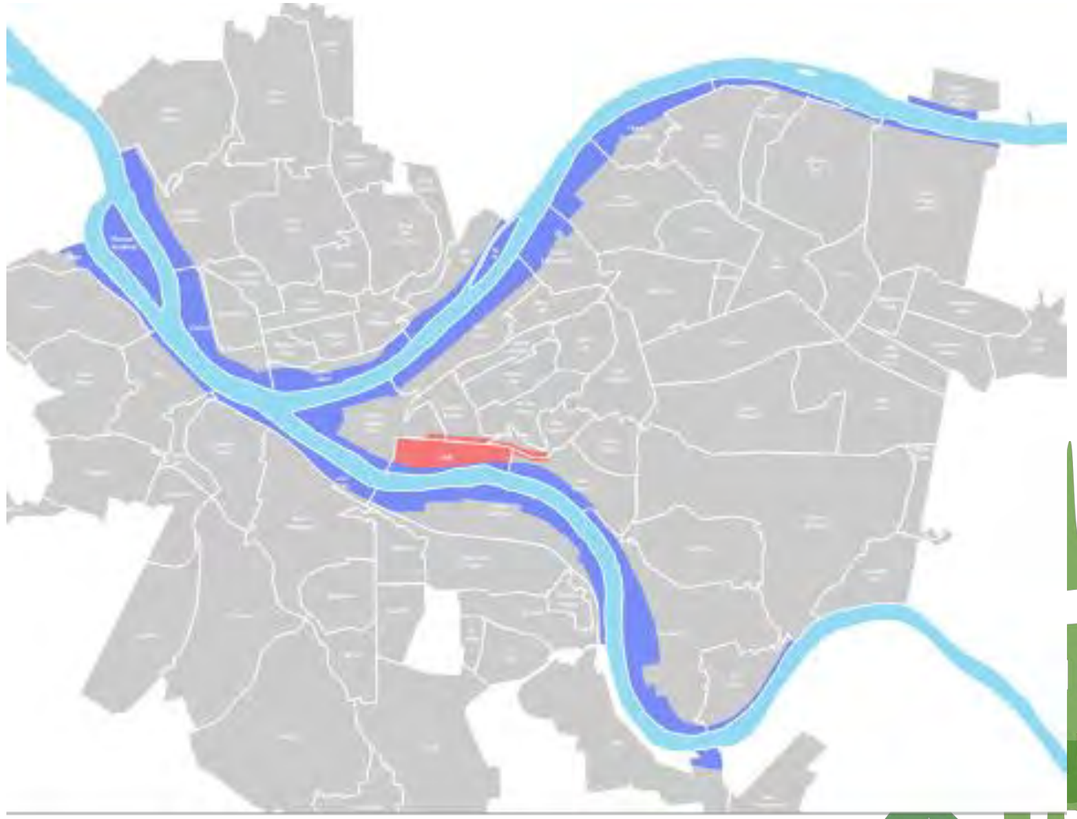
Rainwater Performance Points

GUIDELINES

- Only in certain Zoning districts.
- Allows for a height bonus of 10 feet up to the area's height maximum OR allows for placement 10 feet closer to the river from the distance specified by the Riparian Buffer Zone.

POINTS

Can earn up to 3 points depending on the percentage of the first 2 inches of runoff that can be managed on site.



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Updated Fee In-Lieu

Old Code

- Unclear technical infeasibility guidance
- Fee based on the 100% estimated cost of BMP construction

New Code

- Created standardized technical infeasibility criteria
- Consistent fee of $600,000.00 per acre-inch of the required volume managed

Fees are collected in the **Stormwater Trust Fund** to be allocated to planning, design, and construction of stormwater management projects in the same watershed.

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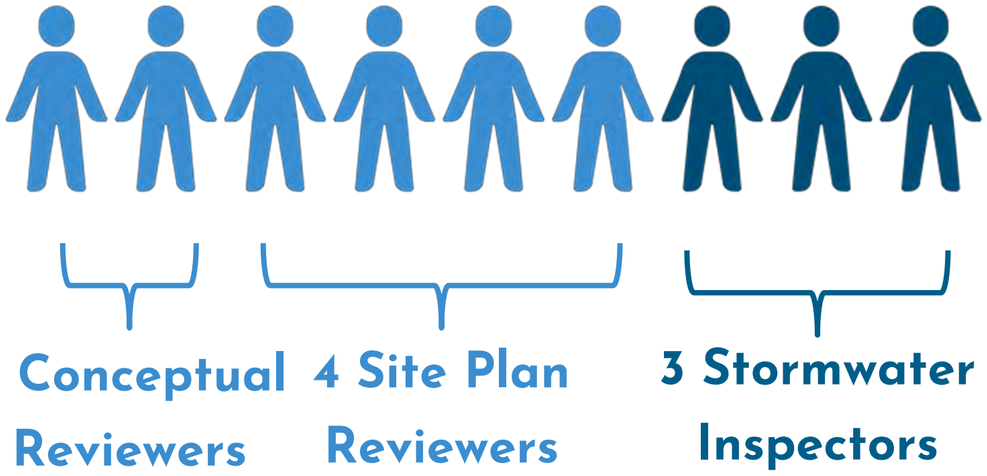
Building Staff Capacity



In total we added 4 new staff members and reassigned 4 staff members to complete the stormwater permit review and inspections.

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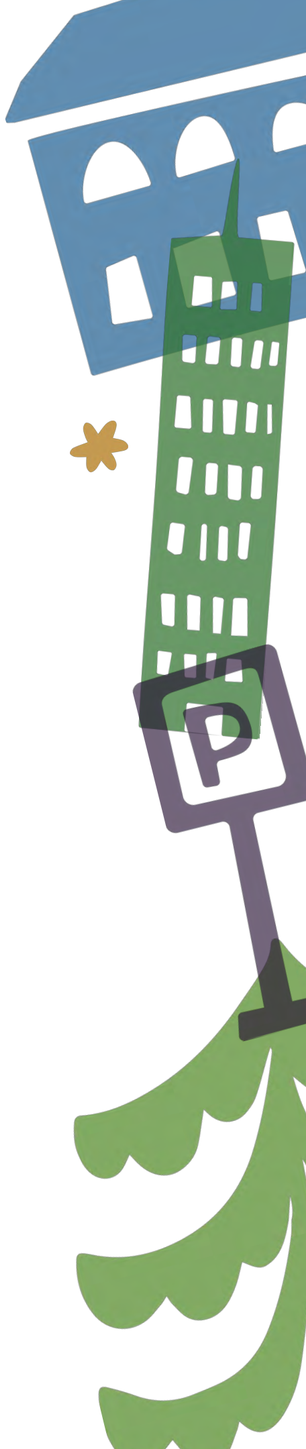
Wightman Park

Stormwater code in action.

Summary

When looking to update your stormwater regulations remember to allocate resources to community and stakeholder engagement, to use local climate data, add in flexibility for applicants, and consider how staffing will be impacted.



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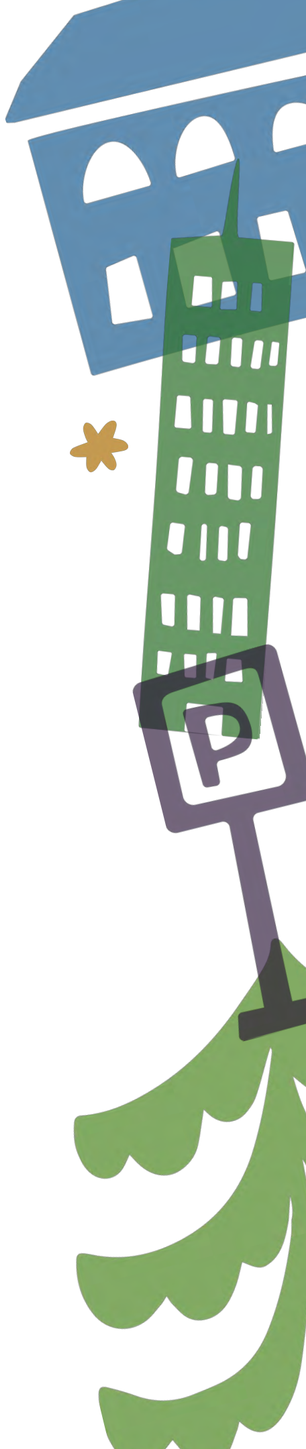
Thank You!



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Green Infrastructure, Parks, & Community in the City of Atlanta

Amanda Medori Hallauer,

City of Atlanta Department of Watershed Management

CITY OF ATLANTA DEPARTMENT OF
watershed management

Overview

1.2M
Customers Served

$621M
FY 2022 Operating Budget

$1.31B
5-YR Capital Improvement Program

WATER SYSTEM	WASTEWATER SYSTEM	WATERSHED PROTECTION
Delivers 98 MG of safe drinking water per day	Collects and treats 150 MG of wastewater per day	Manages stormwater, natural resources, water quality

Innovation, sustainability, equity, and resilience are core to the mission of DWM.

Atlanta's Green Infrastructure Program

Green Infrastructure (GI) manages stormwater runoff by replicating, restoring, or preserving natural systems and undeveloped hydrologic functions.

GI provides multiple "triple bottom line" benefits.

Environmental

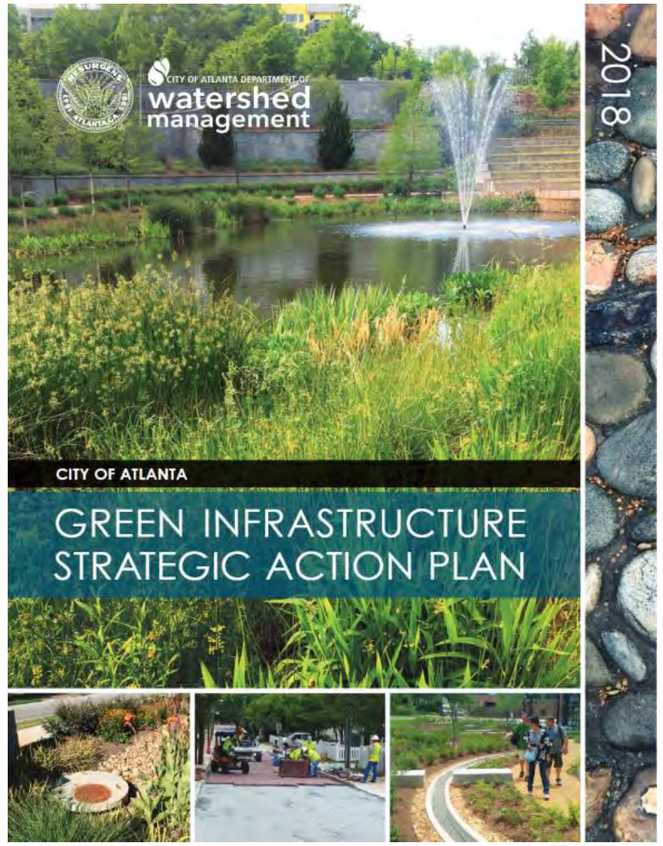
- Water quality
- Air quality
- Wildlife habitat
- Floodplain restoration
- Climate mitigation

Social

- Equity & workforce
- Flood reduction
- Public health
- Education
- Access to green space

Economic

- Job creation
- Increased property values
- Avoided flood damages
- Reduced infrastructure/ treatment costs



GREEN INFRASTRUCTURE GOAL:

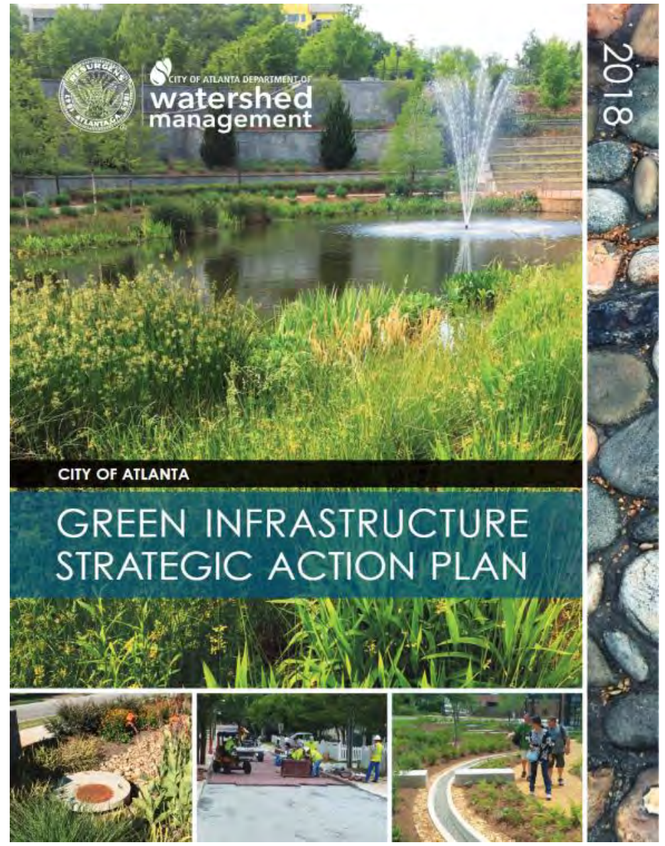
225 Million Gallon Reduction of Runoff Annually

(Annual 1% reduction in volume of runoff from a 1" storm)

Atlanta's Green Infrastructure Program

Advancing GI Citywide

- Private projects via post-development stormwater ordinance
- Public Projects (Parks and Streetscapes) via partnerships with City Departments and outside organizations



Participants in the GI Task Force Include the Following Agencies and Partner Organizations

CITY OF ATLANTA AGENCIES

Department of Watershed Management	Department of Parks & Recreation
Mayor's Office of Resilience	Department of Aviation
Department of Planning & Community Development	InvestAtlanta
Department of Public Works	Atlanta BeltLine, Inc.

PARTNERS

American Rivers	The Nature Conservancy
Chattahoochee Riverkeeper	Park Pride
Community Improvement Association, Inc.	Partnership for Southern Equity
The Conservation Fund	Southface
Eco-A	Trees Atlanta
ECO-Action	Trust for Public Land
West Atlanta Watershed Alliance	

GREEN INFRASTRUCTURE GOAL:

225 Million Gallon Reduction of Runoff Annually

(Annual 1% reduction in volume of runoff from a 1" storm)

Green Infrastructure in COA Parks

Historic Fourth Ward Park & Pond

- 2-acre pond in 17-acre park setting
- Drains 350-acre watershed
- GI approach saved at least $15M over the gray infrastructure solution
- Brownfield clean-up
- $500M+ in economic investment followed
- Daylights a section of Clear Creek

Before

April 16, 2017 - 4" rain event

Three days later...

Anti-Displacement Tools

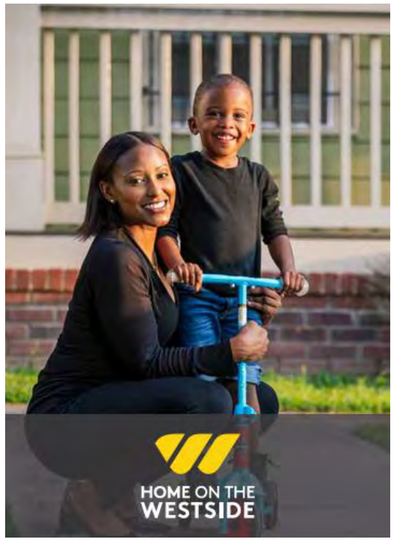
Multiple city and quasi-governmental agencies, non-profits and private partners

- City of Atlanta, Invest Atlanta, Westside Future Fund, Atlanta Beltline, Inc., City of Refuge, Atlanta Housing, charitable foundations

Policies and Programs

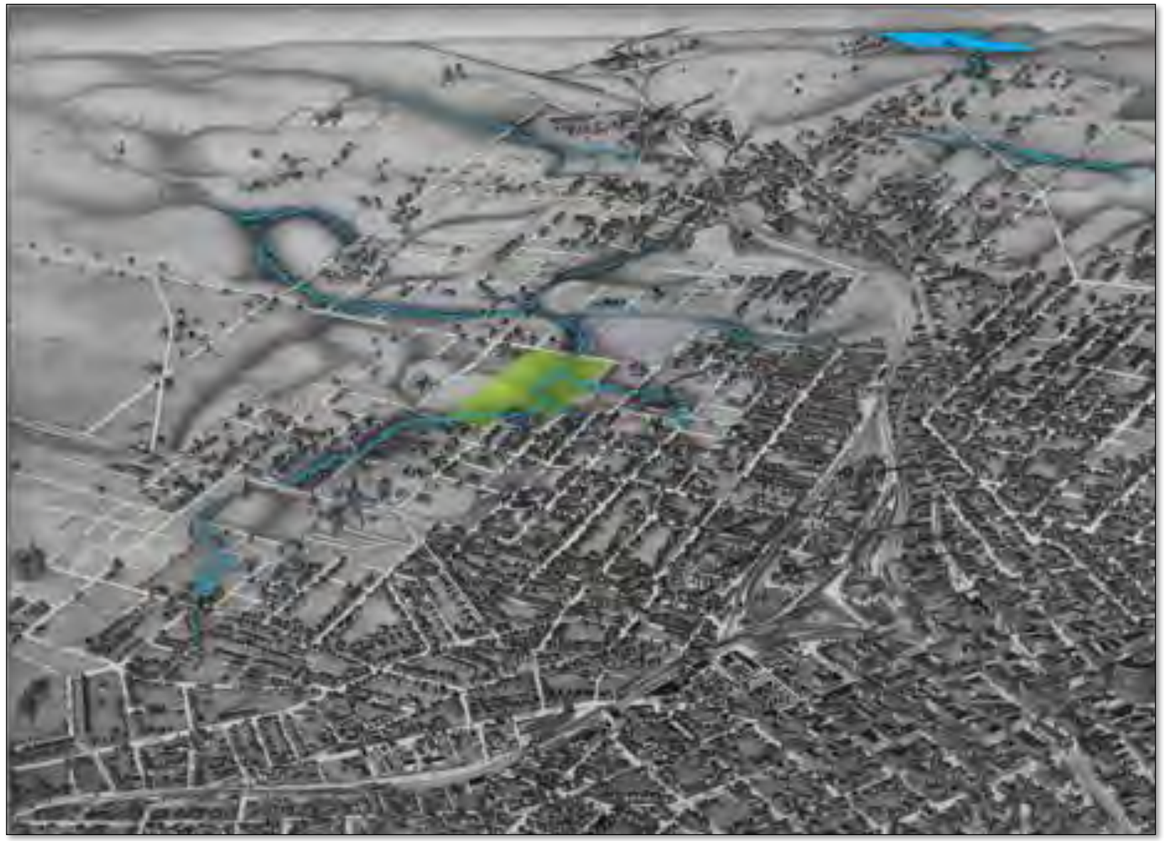
- Property tax relief
- Affordable housing development
- Rental and home ownership support
- Home repairs
- Financial literacy
- Workforce training

Westside Future Fund created the “Home on the Westside” housing program as part of our commitment to drive equitable and inclusive community retention on the Historic Westside.



Community Engagement

Rodney Cook Sr. Park in Historic Vine City



History

- Combined sewer basin
- 2002 storm event caused catastrophic flooding in the Vine City neighborhood
- Over 60 homes were purchased by the City as a result
- Opportunity for multiple partnerships to resolve flooding concerns and restore community health

Rodney Cook Sr. Park in Historic Vine City

History

- Combined sewer basin
- 2002 storm event caused catastrophic flooding in the Vine City neighborhood
- Over 60 homes were purchased by the City as a result
- Opportunity for multiple partnerships to resolve flooding concerns and restore community health


Mercedes-Benz
STADIUM

Rodney Cook Sr. Park in Historic Vine City

- 9+ million gallons of capacity relief, prevents localized flooding throughout the community
- Innovative stormwater management practices redirect surface runoff away from the combined sewer system
- Created wetlands bring nature into a highly urbanized area
- Recreational features, community gathering space, and historic/cultural monuments
- Multiple partnerships: Trust for Public Land, National Monuments Foundation, Department of Parks and Recreation

watershed management

Green Infrastructure in Cook Park: Stormwater Pond

This stormwater pond reduces flooding by capturing and storing stormwater runoff during major rainfall events.

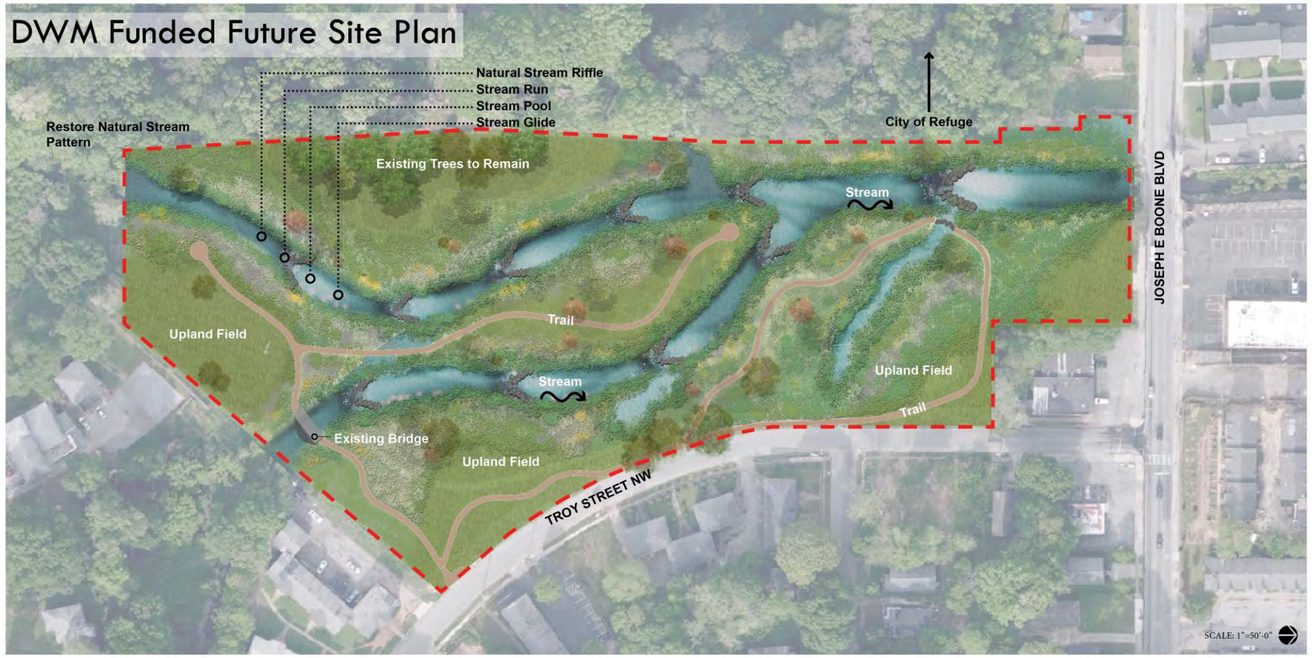
When it rains, runoff is directed to the pond from the surrounding neighborhood, where it is stored and released over an extended period of time. This reduces flooding and takes pressure off the combined sewer system. During a 100-year storm, the pond limits will expand onto the Great Lawn, temporarily storing over 9 million gallons of runoff.

The littoral shelf is the area between the pond and the surrounding land that is planted with native aquatic vegetation. This wetlands strip helps to filter out excess nutrients and minerals in stormwater runoff.

The recirculating fountains located in the pond help to increase oxygen in the surrounding aquatic ecosystem.

PROCTOR CREEK STREAM RESTORATION AT HISTORIC HUNTER HILLS

Atlanta, GA | April 2020



THE CONSERVATION FUND

CITY OF ATLANTA DEPARTMENT OF watershed management

Jacobs

GSI in Park

Seattle's Innovations

Natural Areas

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WORKING TOGETHER FOR BETTER COMMUNITY OUTCOMES

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Summary

Seattle Public Utilities (SPU) and Seattle Parks and Recreation (SPR) share responsibility with several other City Departments for protecting and restoring urban creeks and critical shoreline habitats.

Agenda

- Partnership Framework
- Urban Creek Innovations
  - Designing for Salmon
  - Designing with Nature
  - Community Driven Restoration
  - Floodplain Storage
  - Shared Management Strategy

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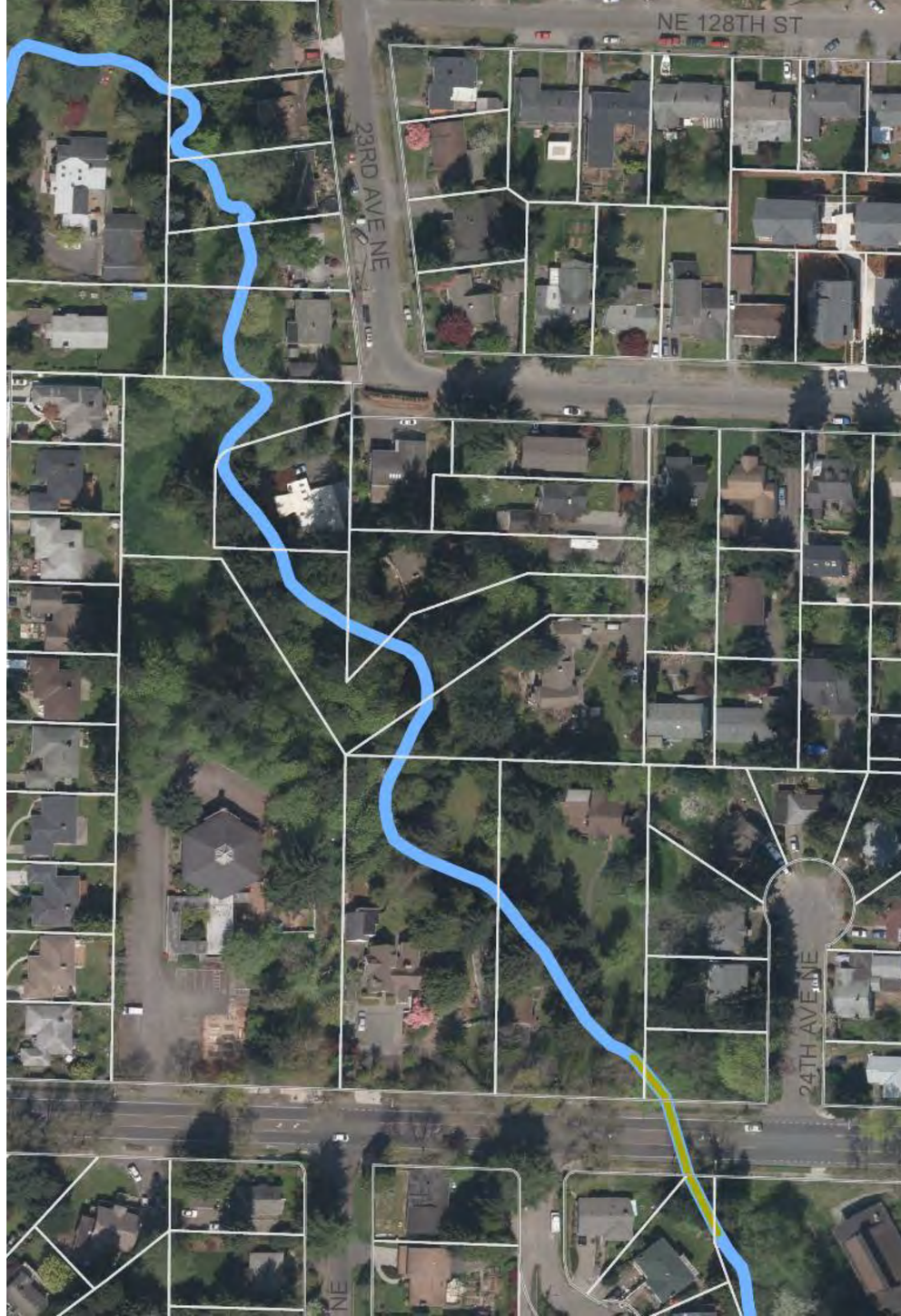
Collaborative Partnership Framework

- Shared Staff Position (SPU and SPR)
- Acquisition
- Project Definition and Goals
- Design Synergies
- Joint Decision Making
- Management and Ownership



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Designing for Salmon

Culvert, Creek, and Riparian Restoration

- 6 salmon bearing streams in Seattle
- Poor habitat and fish barriers
- Limited community access
- Regulatory, Cultural, Ecological Convergence

Fish Bone Bridge

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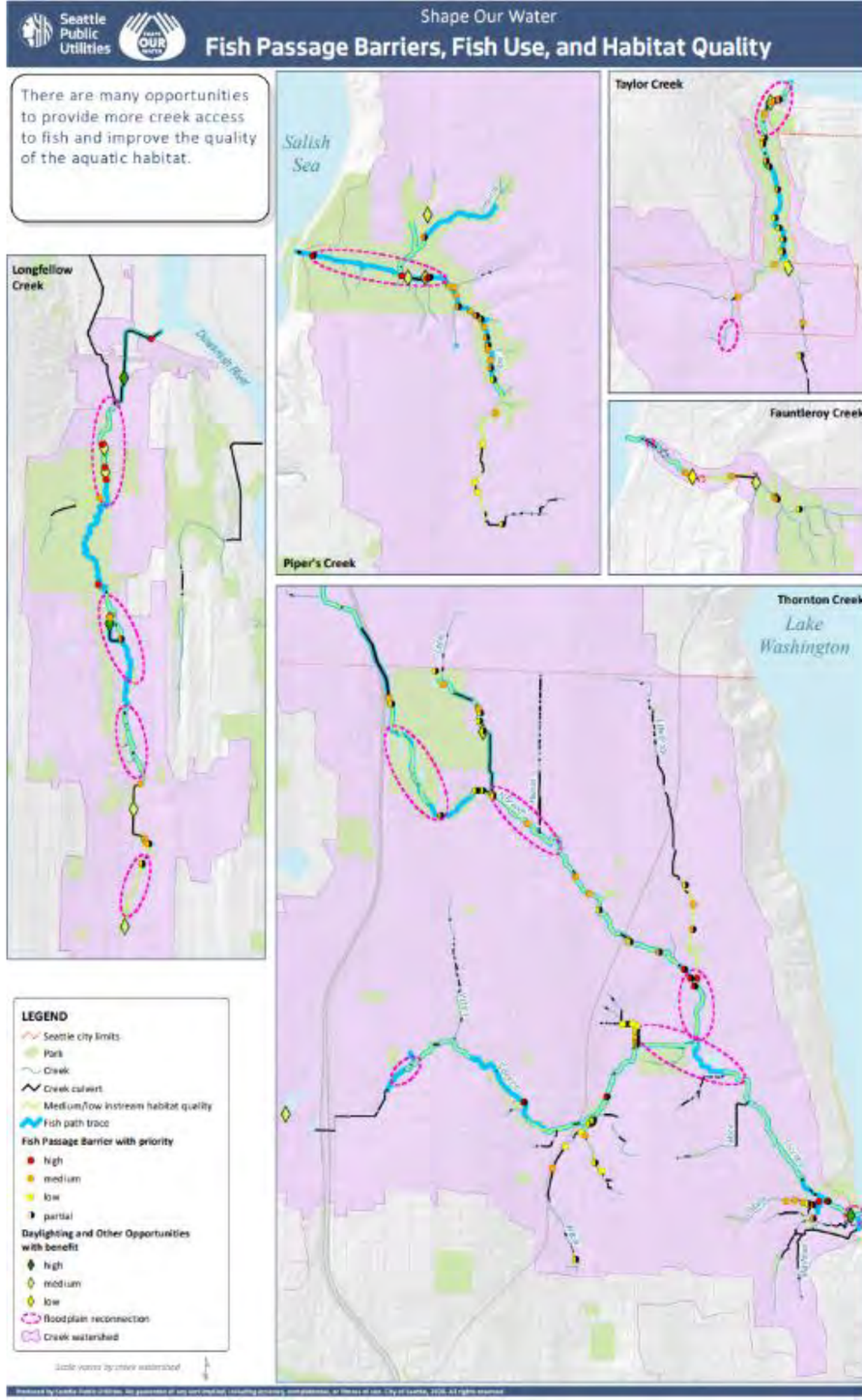
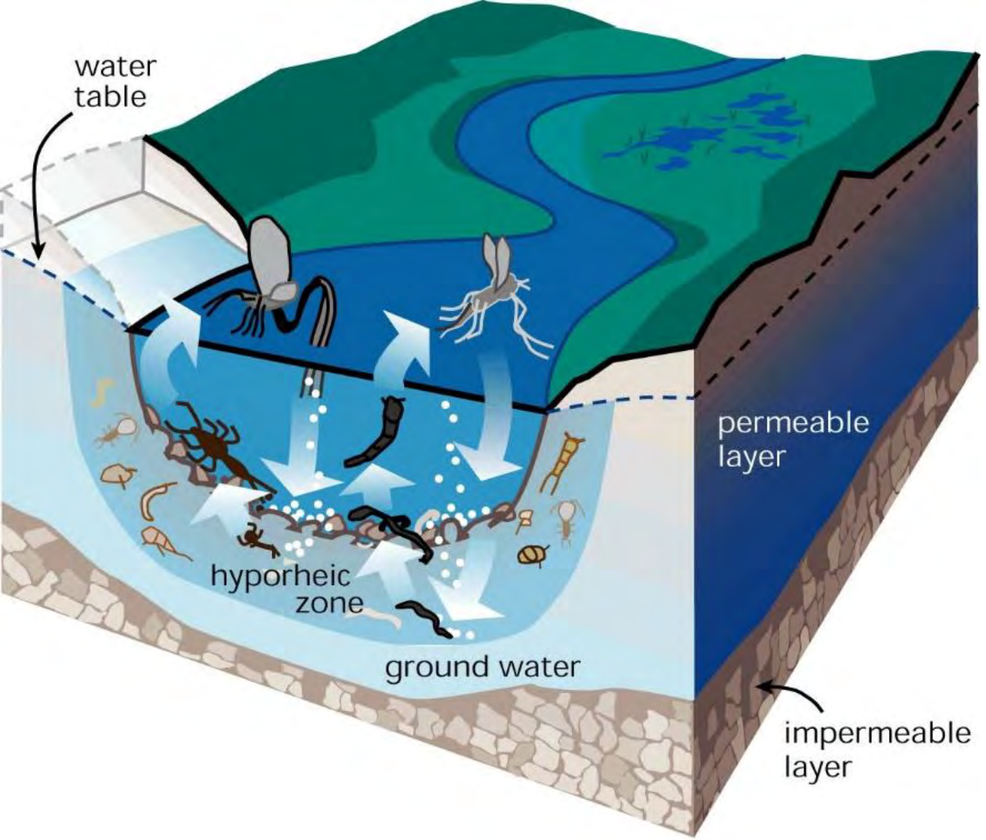
Shape Our Waters Analysis





Designing with Nature

Hyporheic Design

- Piloted this design of intentionally creating hyporheic zone
- Showed great water quality benefits

Designing with Beavers

- Beavers are present in our urban creeks
- Learned that we must design with them and that they can help with the restoration process

Community Driven Restoration

Roxhill Bog

- Community very interested in restoring bog and trails
- Initiated hydrogeologic study
- Evaluated options for keeping water in bog from leaking out
- SPU evaluating options to route drainage flows to water quality treatment and then wetlands

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Floodplain Storage

Kingfisher

- Completed project in XXX
- Co-designed (SPR & SPU)

Longfellow Flood Storage

- Evaluating multiple sites to provide floodplain storage
- Looking for opportunities to co-create with SPR and provide community amenity

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Site Management Strategy

Long term strategy around shared maintenance responsibilities and adaptive management principles.

Currently facing a paradigm shift!

Sharing in Relationship with Water-Land Nexus

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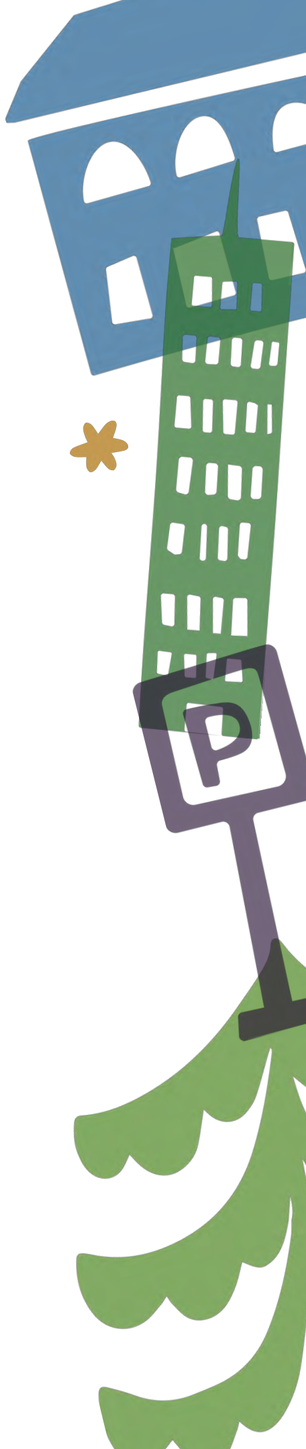
Thank You!



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