



# Blue Green Parks an integrated approach to stormwater

Bryan Bays, Peyton Peterson, TSW

# PRESENTERS

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**Bryan Bays** PLA

Principal Landscape Architect

TSW



**Peyton Peterson**, CPP

Associate, Project Manager

TSW



**PLANNING • ARCHITECTURE  
LANDSCAPE ARCHITECTURE**

# AGENDA

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1. Understand the benefits of Blue Green Parks
2. Review urban precedents of Blue Green Parks
3. Share key elements of TSW's stormwater toolkit
4. Q&A

# What are Blue Green Parks?

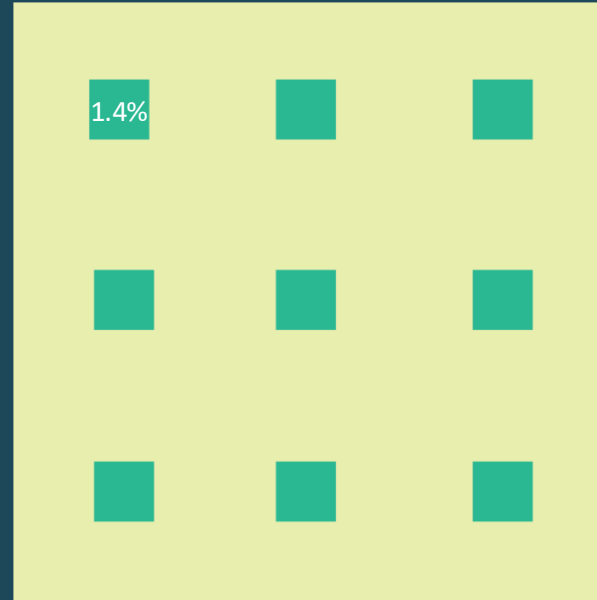
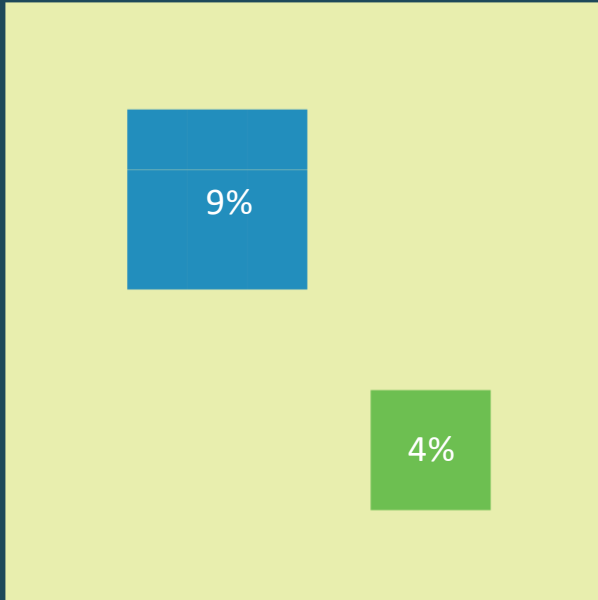
Blue Green Parks **integrate** programmed **park space + green infrastructure** stormwater elements to **maximize** useable **open space**.

# Blue Green Parks...

- Work with the land to improve stormwater outcomes
- Reduce grey infrastructure
- Increase access to open space
- Create value
- Elevate stormwater visibility

## Traditional

## Blue- Green



- 100% useable green space

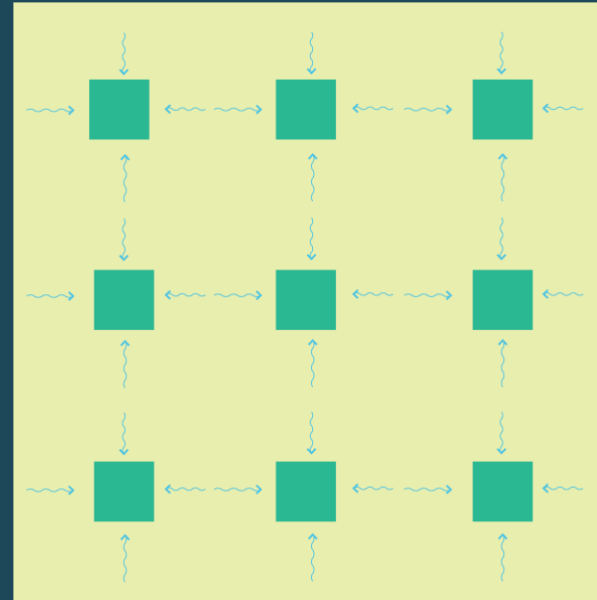
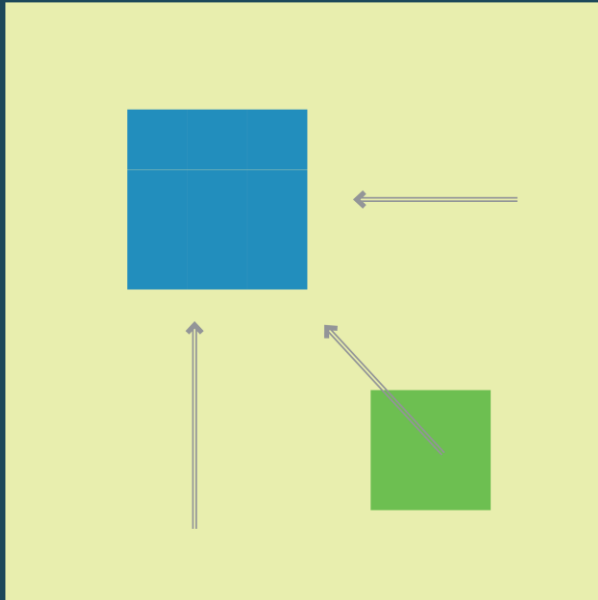
Focused use

Shared use

87% developed  
13% storm + park

## Traditional

## Blue- Green

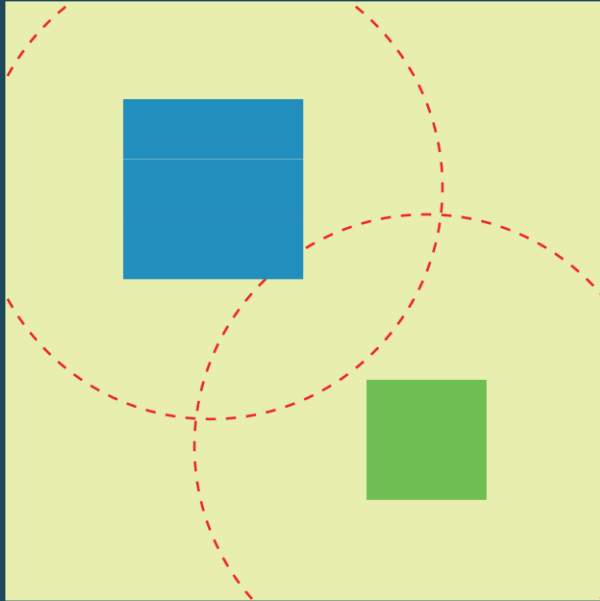


- 100% useable green space
- Capture at source

Piped conveyance

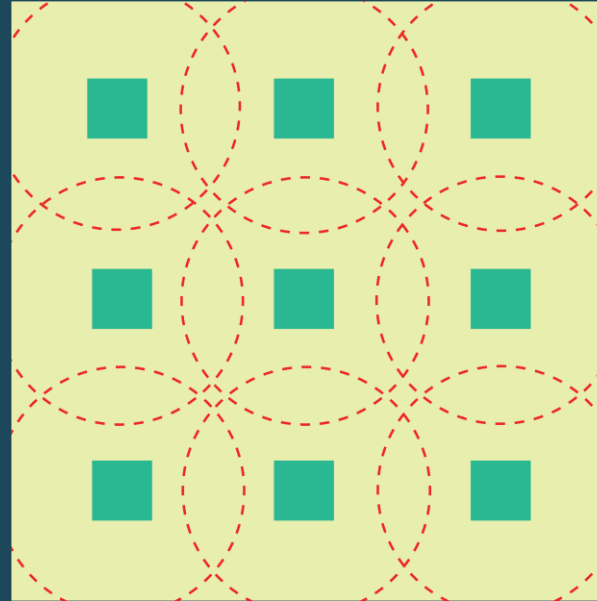
Surface conveyance

## Traditional



Long walk  
Fewer parks

## Blue- Green



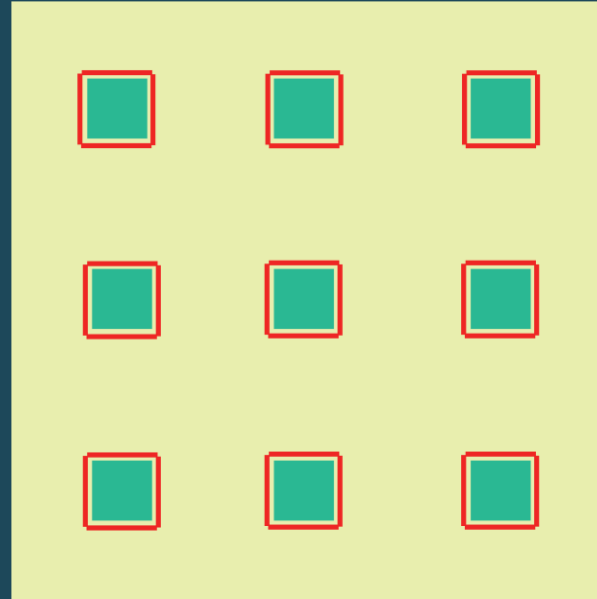
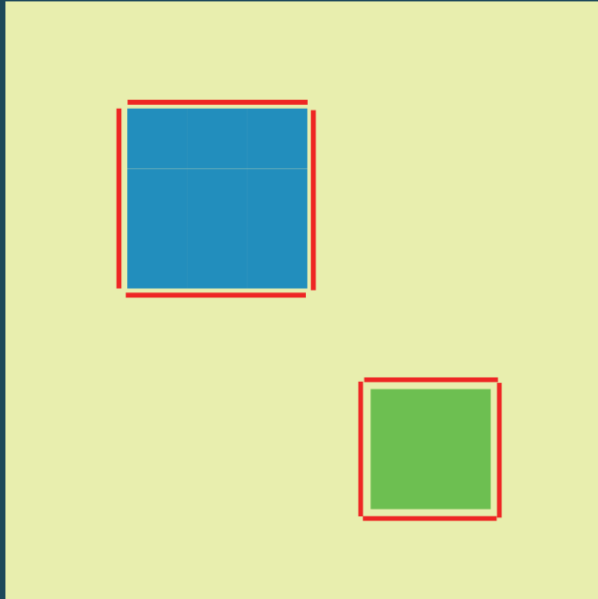
Short walk  
More parks

- 100% useable green space
- Capture at source
- Better park access



## Traditional

## Blue- Green

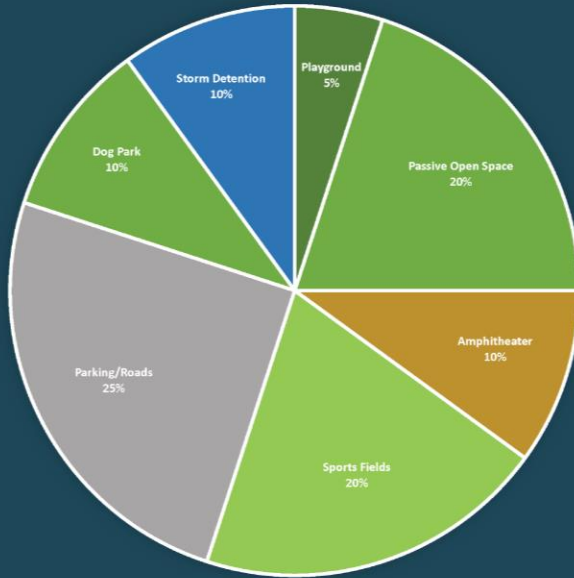


Fewer desirable lots

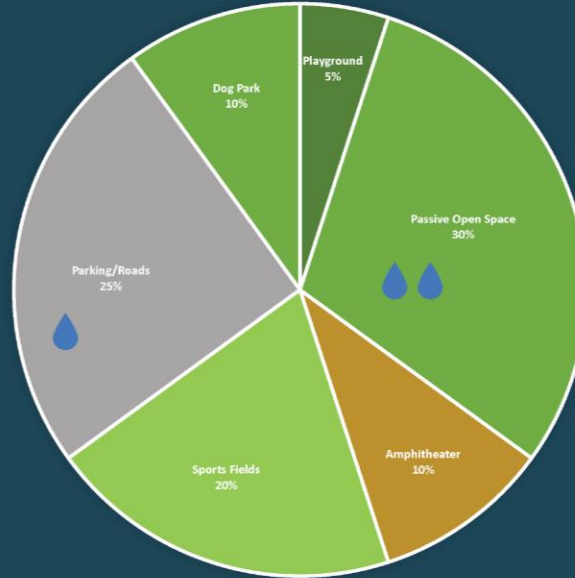
More desirable lots

- 100% useable green space
- Capture at source
- Better park access
- 56% more park valuable frontage

### Traditional Park



### Blue-Green Park



- Share program space with stormwater
- 10% more useable area
- Distributed – less conveyance

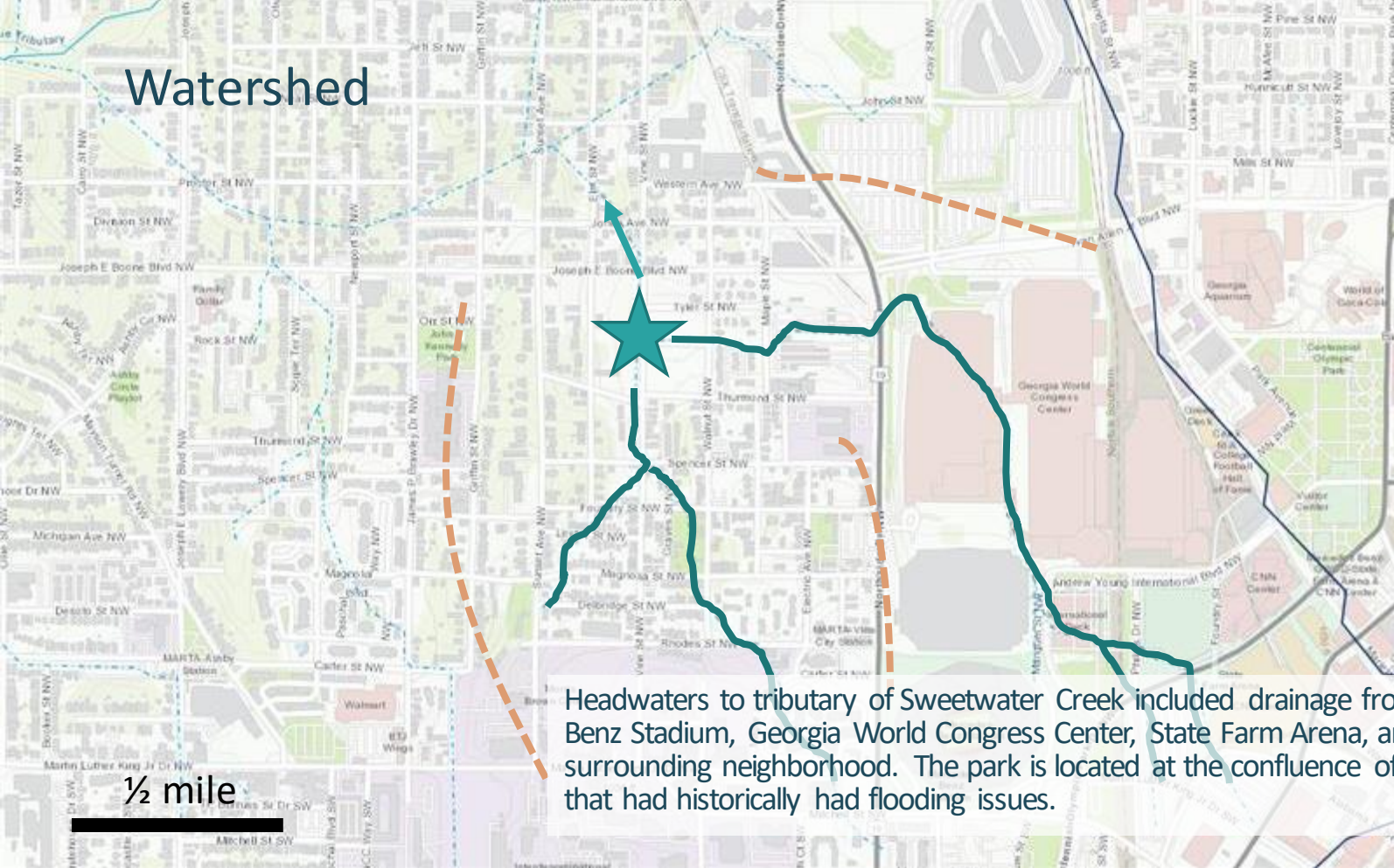
# Blue Green Park Precedents

- Rodney Cook Park - Atlanta HDR
- Glenwood Park - Atlanta TSW Planning
- Capitol Cascades Trail – Tallahassee, FL TSW
- Chason Park - Bainbridge, GA TSW

# Rodney Cook Park

- Atlanta, GA
- Owner – Trust of Public Land
- Designer - HDR

# Watershed



Headwaters to tributary of Sweetwater Creek included drainage from Mercedes Benz Stadium, Georgia World Congress Center, State Farm Arena, and surrounding neighborhood. The park is located at the confluence of tributaries that had historically had flooding issues.

1/2 mile



1. Welcome Plaza
2. Park Gateway
3. Central Plaza
4. Great Lawn
5. Pond
6. Terraced Pools
7. Fitness Zone and Climbing Boulder
8. Sports Courts
9. Kids Play and Splash Pad
10. Restrooms

Produced by HDR

# Designed for People + Water



- 16 Acres
- 10-million-gallon storage capacity
- Constructed Wetlands
- Integrates park space and flood control



**Green Infrastructure in Cook Park: Bioretention Area**

Bioretention areas reduce polluted stormwater runoff using engineered soils and native plants.

When it rains, this bioretention area acts like a sponge and captures thousands of gallons of runoff. Some of this collected runoff is soaked up by the plants and some infiltrates into the ground. This provides added capacity in our combined sewer system which helps to reduce flooding.

Pollutants and sediment are filtered out and broken down by the natural biological activity of the plants and microbes in the soil.

In addition to enhancing the appearance of the park, this nature-based stormwater management practice provides habitat for pollinators and other wildlife.




# Glenwood Park

- Atlanta, GA
- Developer – Green Street Properties
- Planners - TSW



28-acre Glenwood Park is a brownfield redevelopment with a traditional neighborhood design that is walkable and has a main street environment. The neighborhood has a preservation and environmental theme with a focus on contextual design and conservation.



## GLENWOOD PARK

ATLANTA, GEORGIA

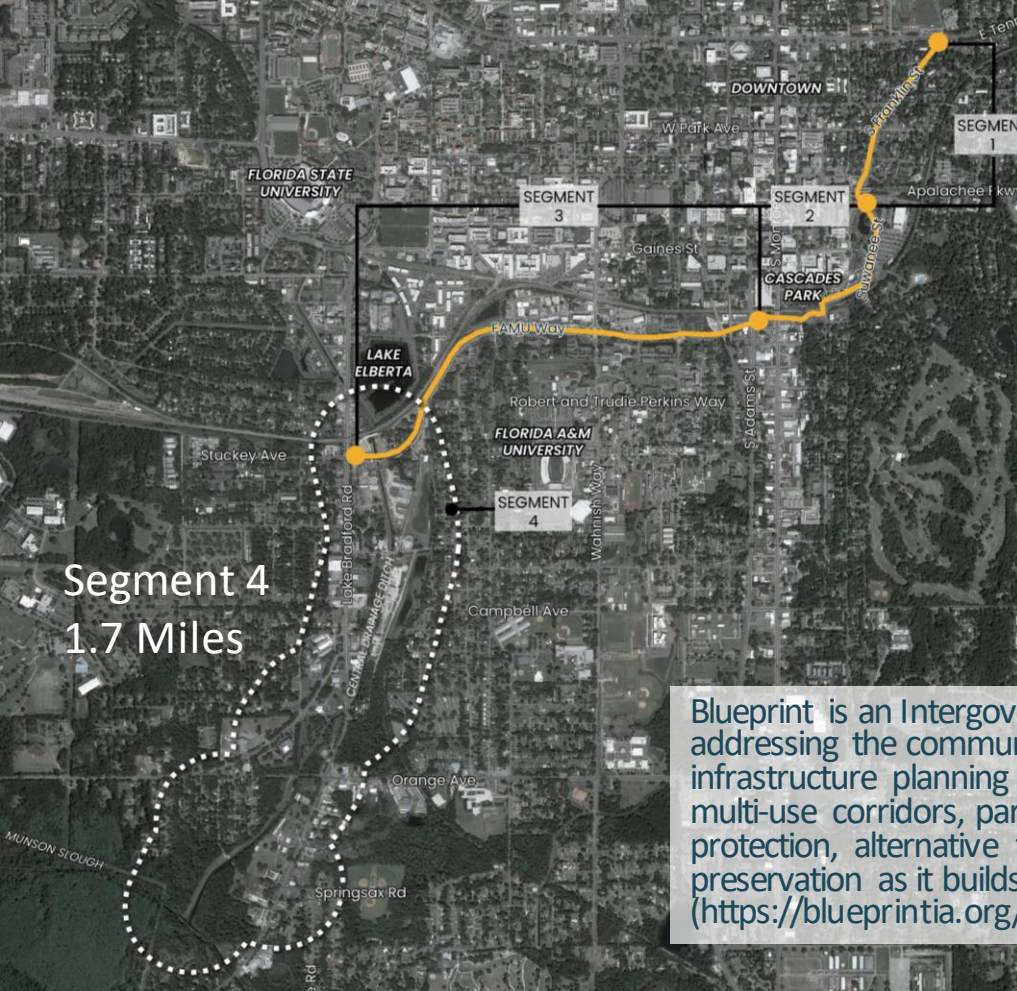
for GREENSTREET PROPERTIES  
by TUNNELL-SPANGLER & ASSOCIATES / DOVER, KOHL & PARTNERS



Glenwood park reduced the amount of stormwater runoff from its site by approximately 2/3 and treats 61,000 cubic feet of water for every 1.2" of rainfall

# Capitol Cascades Trail

- Tallahassee FL
- Developer – Blueprint
- Designers – TSW, George and Associates Civil



## Overview

Key project goals - create parks and trails that:

- Heal the environment
- Educate the public
- Promote healthy communities
- Provide equitable access to open space



Blueprint is an Intergovernmental Agency in Tallahassee Florida focused on addressing the community's infrastructure needs, based on a concept of holistic infrastructure planning and community redevelopment. The program promotes multi-use corridors, park-like regional stormwater facilities for water-quality protection, alternative transportation, passive recreation and wildlife-habitat preservation as it builds the infrastructure the community envisions. Blueprint (<https://blueprintia.org/>)

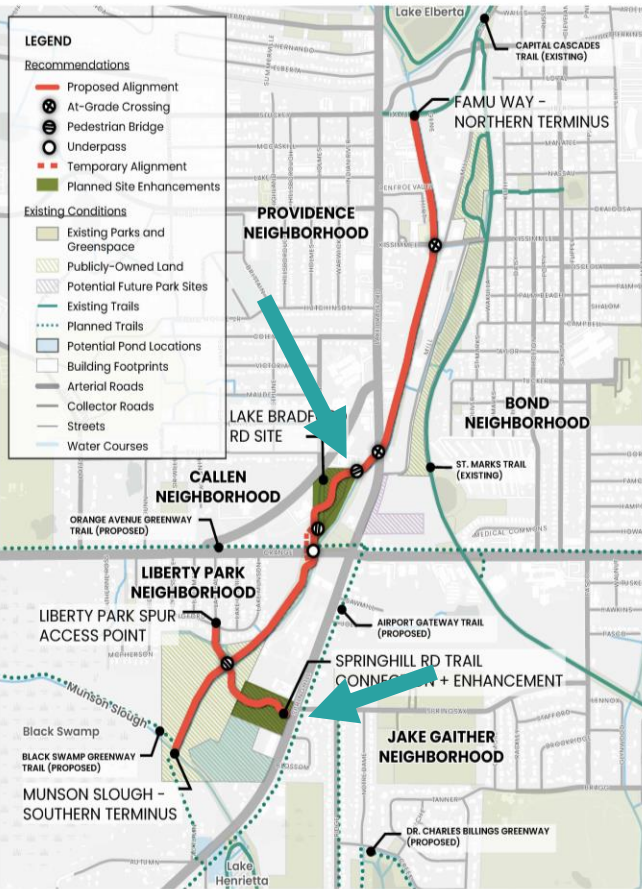
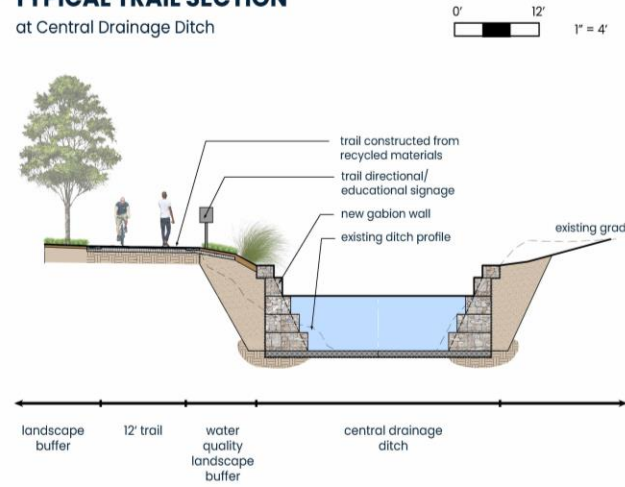
The goals for the project are to create public spaces and trails that **heal the environment**, **educate the public about environmental and cultural opportunities** within the corridor, **promote healthy communities**, and **provide equitable access to open space**.

## Corridor

- LID Trail Features
- Parks Treat + Store Offsite storm water

### TYPICAL TRAIL SECTION

at Central Drainage Ditch



PROPOSED ALIGNMENT

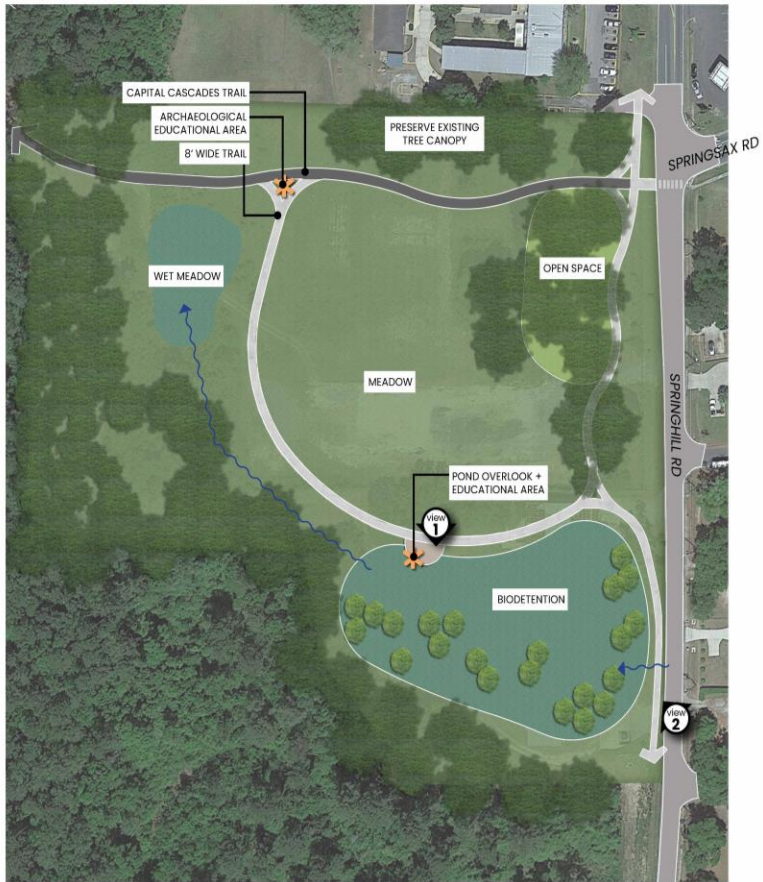


0' 120' 1" = 40'

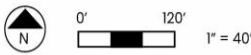


## Lake Bradford Park

- Passive park
- Water focused education
- Collect + treat offsite storm water
- Bioretention



CONCEPTUAL PLAN



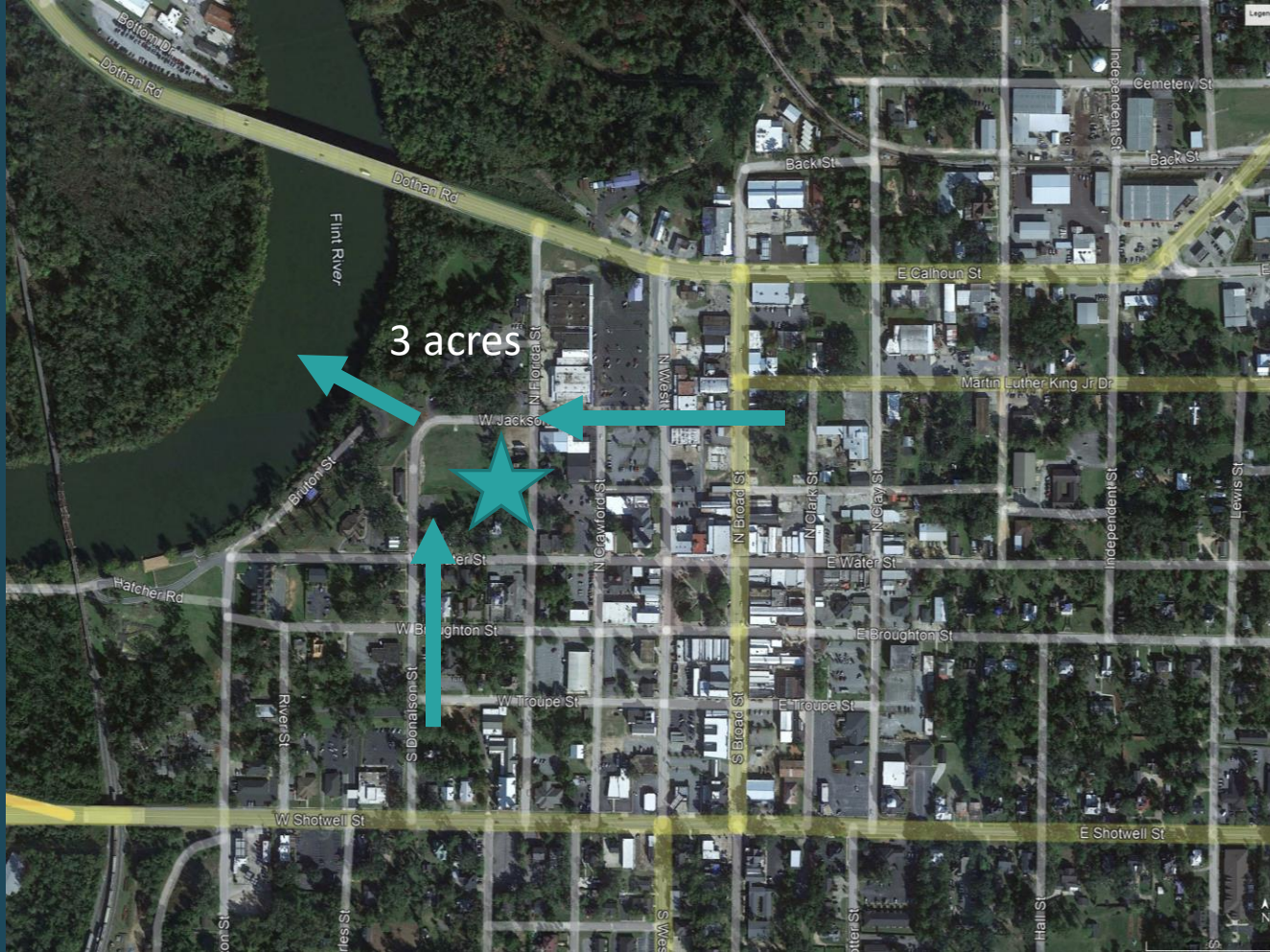
## Springhill Park

- Passive park
- Water focused education
- Collect + treat offsite storm water
- Bioretention

# Chason Park

- Bainbridge, GA
- Developer – City of Bainbridge
- Designers – TSW, Volkert Civil





## Overview

- Passive and active park
- Multiple integrated LID elements
- Greywater reuse
- Education  
“Riverstory”

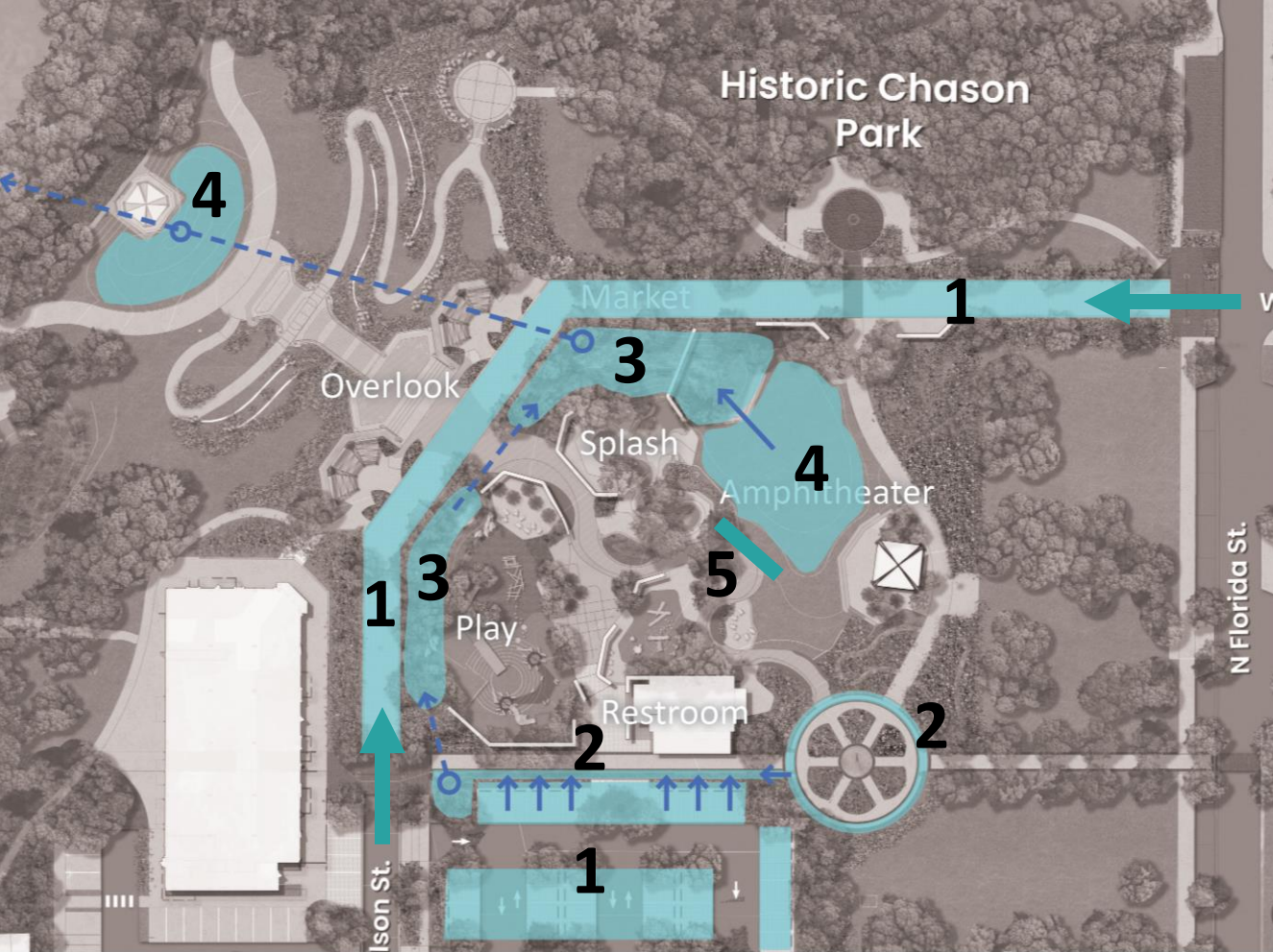


Precedents – Chason Park, Bainbridge GA



## Park Programming

- Playgrounds
- Splashpad
- Historic Fort
- Market Street
- Amphitheater
- Event Overlook
- Pollinator Gardens
- Restrooms
- “Riverstory”



## Blue Green Treatment Train

1. Permeable Paving
2. Stormwater Planter
3. Bio Retention
4. Lawn Depression
5. Cistern

Storage and Treatment:  
7236 cu/ft



Cistern



Market Street



Stormwater Planter + Permeable Pavers

# Green Infrastructure Toolkit

- Blue Green Ideas for Stormwater
- Know the soils
- Work with Civil on hydrology

## BIOSWALE

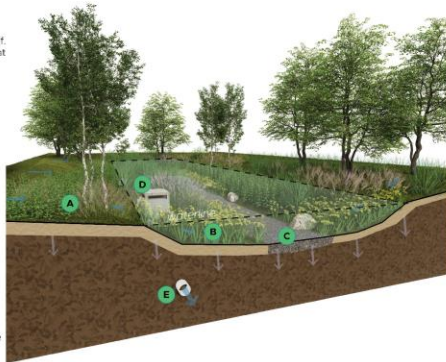
Bioswales are channels designed to convey stormwater runoff and improve water quality by reducing suspended solids. They consist of a drainage course with vegetated slopes. Weirs serve as check dams to slow water and allow recharge of groundwater while improving water quality.



- A** filtering vegetation/ detention area
- B** gabion wall
- C** weir
- D** perforated under-drain
- E** 50/50 soil mix
- F** #57 stone TBD per civil
- G** undisturbed subgrade

## BIORETENTION POND

Bioretention Ponds are deeper (3' or greater) stormwater basins or landscaped areas that utilize engineered soils and vegetation to capture and treat stormwater runoff. Side slopes can be steeper than that of a lawn depression.



- A** transition zone
- B** littoral shelf (0" to 36" below normal water line)
- C** river rock pond bottom
- D** emergency overflow structure
- E** outflow system

## RAIN GARDEN

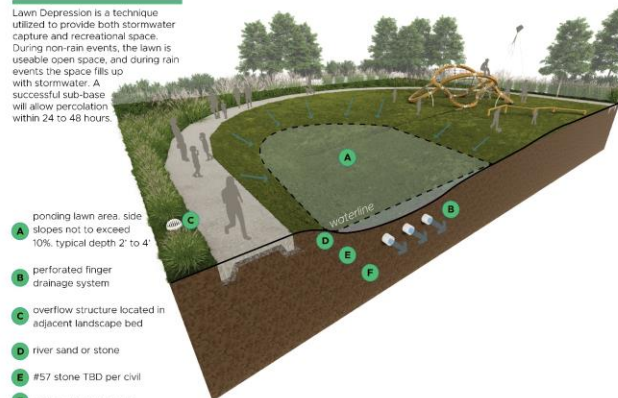
Rain gardens are shallow (4" to 8" deep) structural stormwater controls that capture and infiltrate or temporarily store stormwater (in close proximity to the point source) using soils and vegetation in landscaped areas.



- A** filtering vegetation area
- B** 4" to 8" ponding depth
- C** perforated outflow system
- D** river sand or stone
- E** #57 stone TBD per civil
- F** undisturbed subgrade

## LAWN DEPRESSION

Lawn Depression is a technique utilized to provide both stormwater capture and recreational space. During non-rain events, the lawn is useable open space, and during rain events the space fills up with stormwater. A successful sub-base will allow percolation within 24 to 48 hours.



- A** ponding lawn area, side slopes not to exceed 10%, typical depth 2' to 4"
- B** perforated finger drainage system
- C** overflow structure located in adjacent landscape bed
- D** river sand or stone
- E** #57 stone TBD per civil
- F** undisturbed subgrade



## PERMEABLE PAVERS

Permeable Pavers are installed over a gravel base course that provides structural support and stores stormwater runoff that infiltrates into underlying permeable soils.

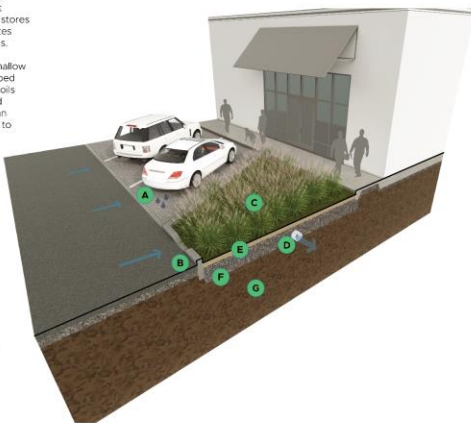


- A** vegetated area
- B** permeable pavers
- C** asphalt
- D** #57 stone TBD per civil
- E** undisturbed subgrade

## PERMEABLE PAVERS AND STORMWATER BUMP-OUTS

Permeable Pavers are installed over a gravel base course that provides structural support and stores stormwater runoff that infiltrates into underlying permeable soils.

Stormwater Bump-Outs are shallow stormwater basins or landscaped areas that utilize engineered soils and vegetation to capture and treat stormwater runoff with an underdrain that returns runoff to the conveyance system.



- A** permeable pavers over #57 stone
- B** curb-cut
- C** filtering vegetation/detention area
- D** outflow system
- E** 50/50 soil mix
- F** #57 stone TBD per civil
- G** undisturbed subgrade

## CISTERN

Above-ground and below-ground cisterns collect rainwater and store for later use.

Potential uses include irrigation and grey water (toilet flushing, building cooling, etc).

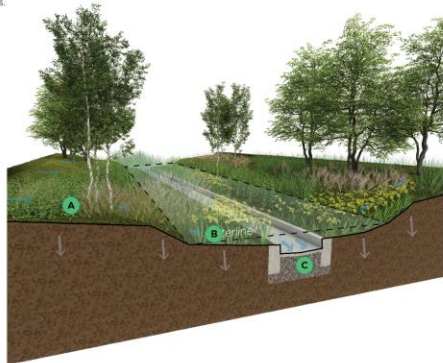


- A** rooftop collection
- B** downspout to cistern
- C** above ground cistern
- D** outlet for irrigation/greywater use
- E** emergency overflow outlet

## ENHANCED EXISTING STORMWATER CULVERT

Existing concrete culverts can be enhanced with the addition of vegetated banks and littoral shelves.

These new vegetated areas help slow stormwater runoff and allow for infiltration prior to entering the culvert.



- A** transition zone
- B** littoral shelf (0" to 36" below normal water line)
- C** existing stormwater culvert

# Questions

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