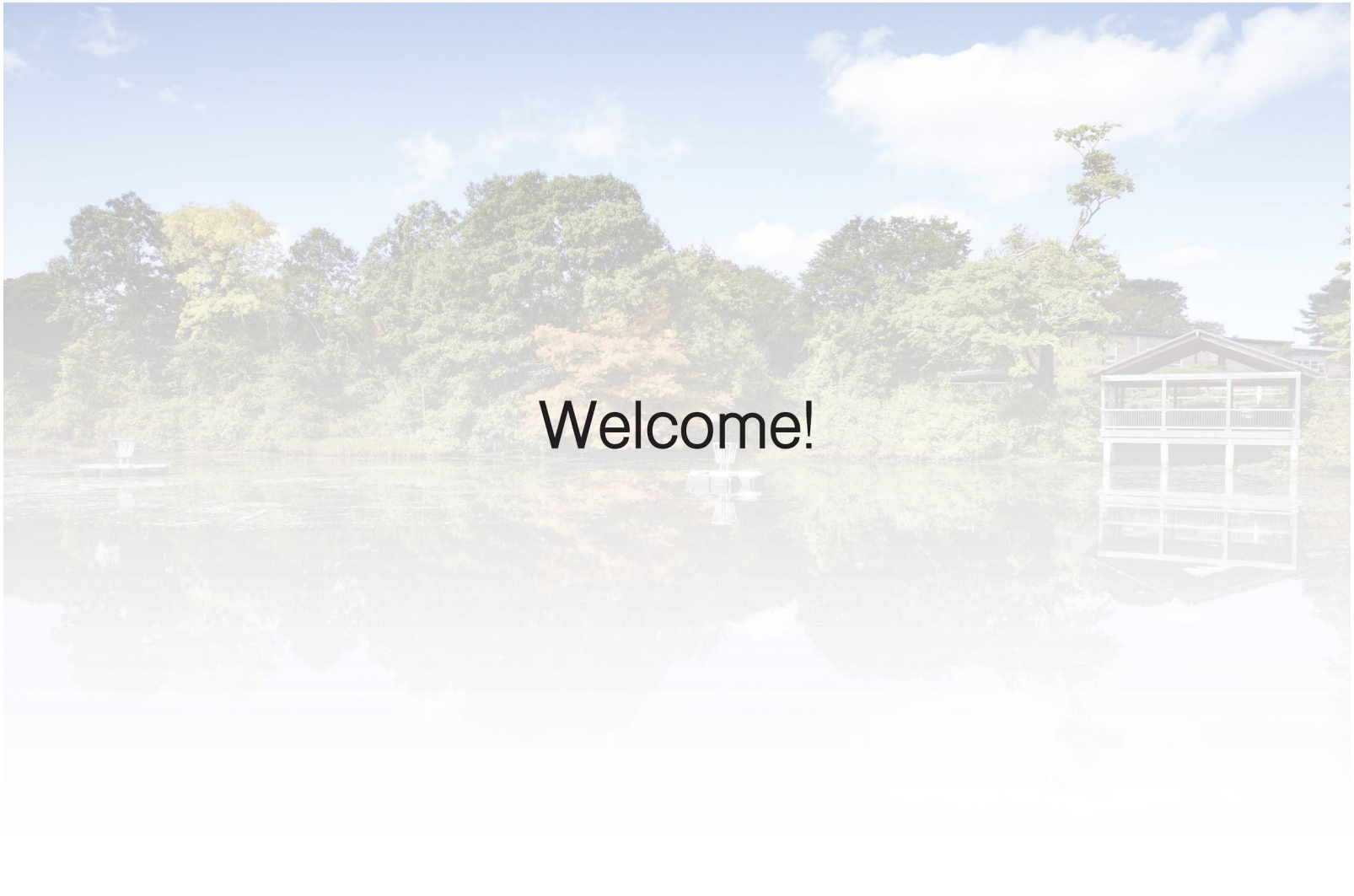
A Vision For The Saugatucket River

Wakefield, Rhode Island

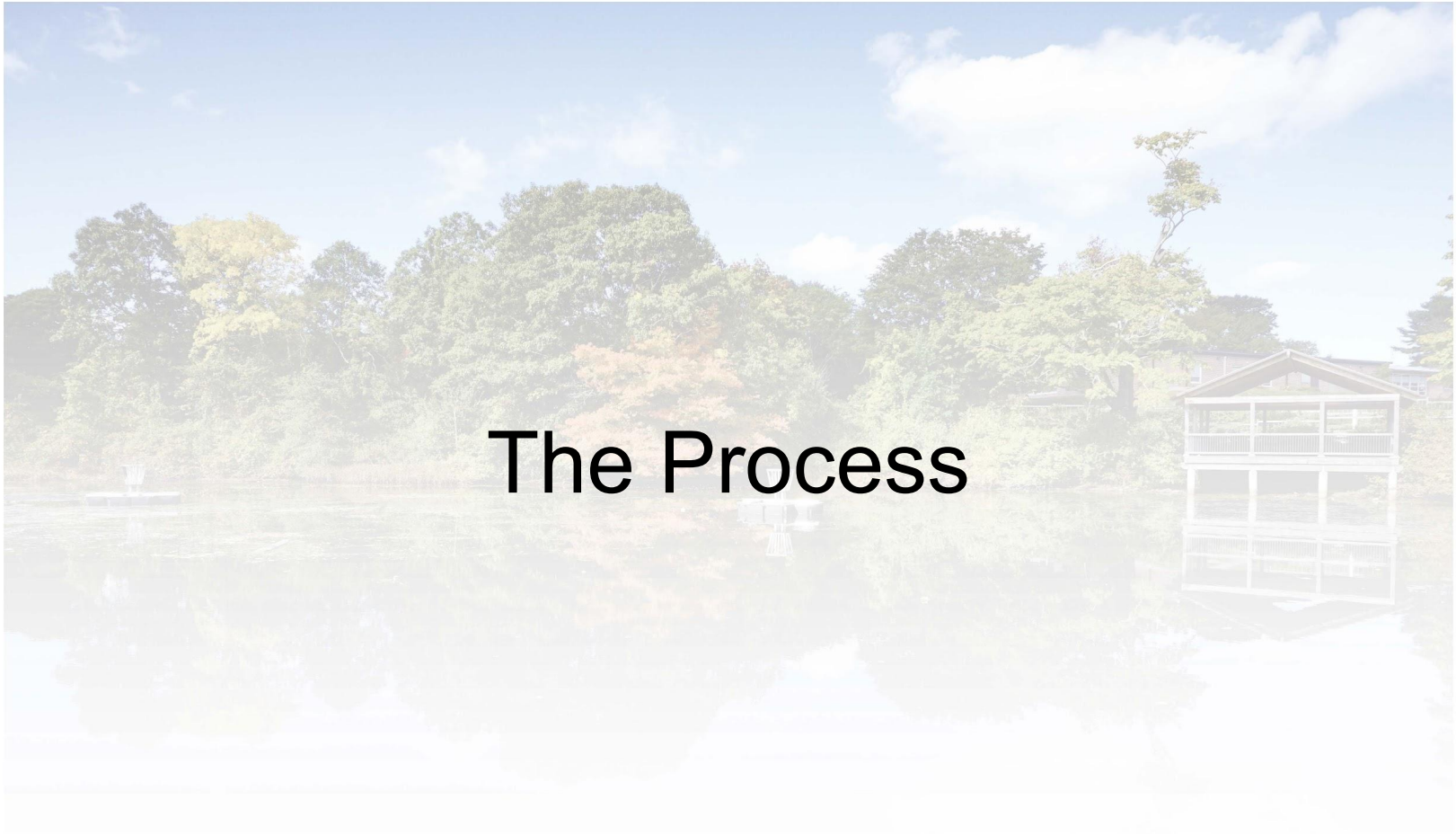
Prepared for: Town of South Kingstown

Prepared by: LAR 444 Senior Landscape Architecture Studio under the direction of Professor Will Green

December 14, 2016



Welcome!



The Process

SOUTH COUNTY BIKE PATH
PEACEDALE
PEACEDALE MILLS
SOUTH KINGSTOWN HIGHSCHOOL
WAKEFIELD ELEMENTARY
SAUGATUCKET PARK
MAIN STREET DOWNTOWN WAKEFIELD
SOUTH COUNTY BIKE PATH

Public Participation Workshop - September 28, 2016

In Class Work Session - November 21, 2016

Collaboration: professionals critiquing the student work.

Site Analysis

History & Aesthetics

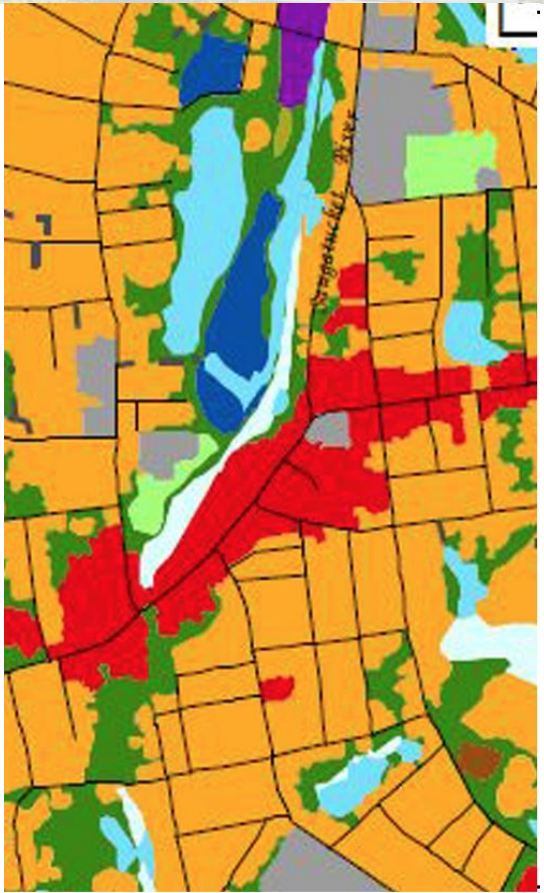
- 53 buildings contributing to Wakefield historic district
- Originally industrial based
- Elements that reference and celebrate the town's history are lacking
- Visual clutter

Land Use & Circulation

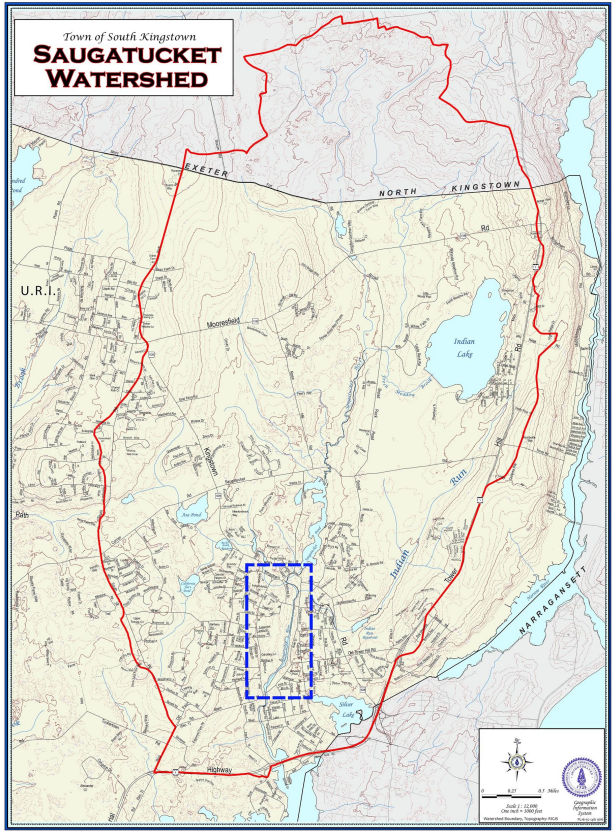
- Densely developed
- Exclusively for commercial and retail purposes
- At capacity with medium-high density residential development
- Revisions should be focused on improving the historic aesthetic of Main Street as well as pedestrian safety and accessibility.

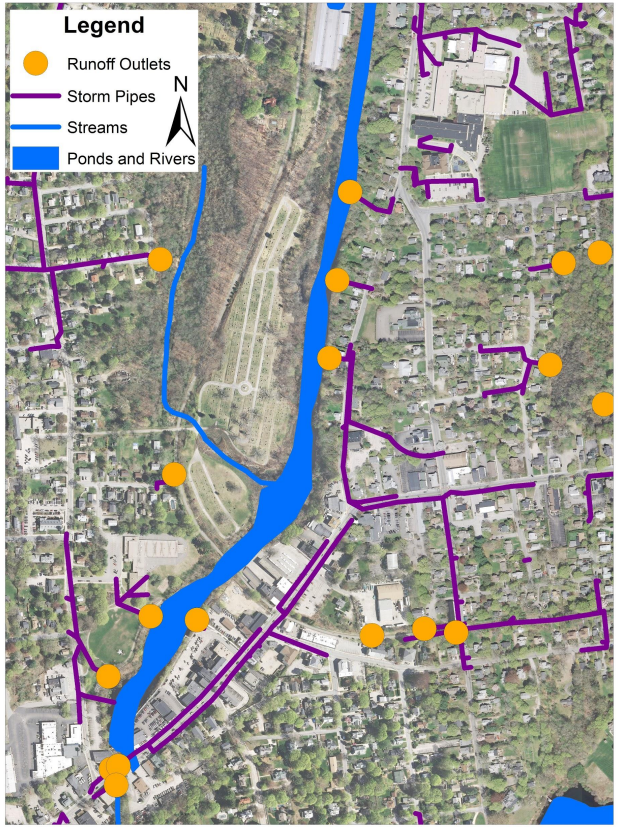
Land Use Map Legend:

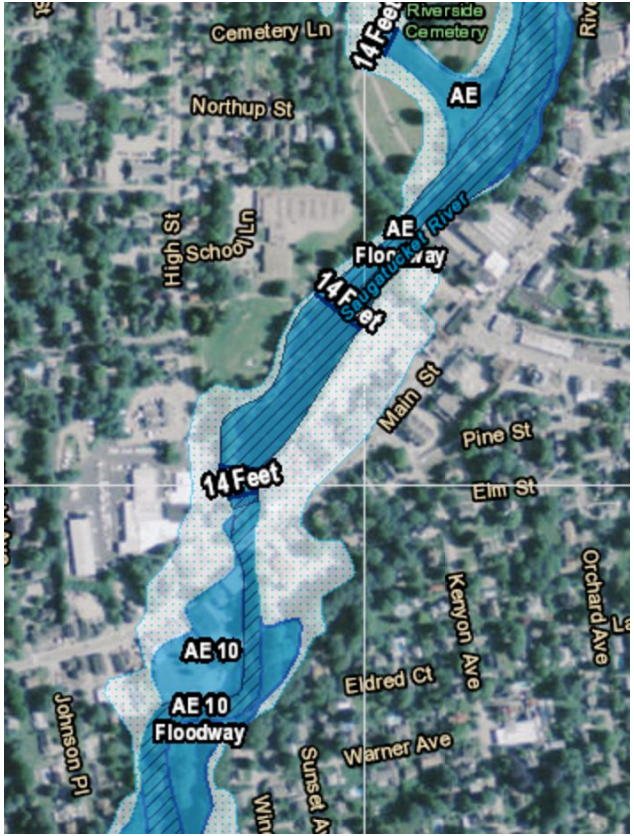
- = Commercial
- = Wetland
- = Residential
- = Cemetery
- = Forest



Hydrology & Geological Characteristics



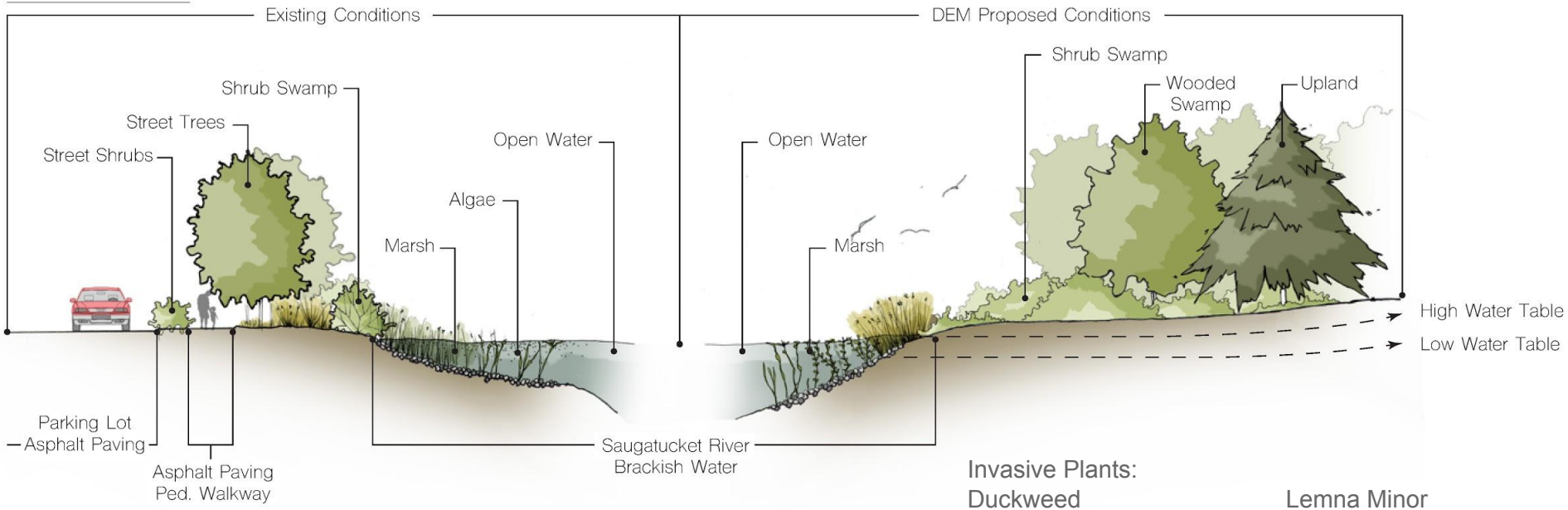




Ecology

Wetland Section

Scale: NTS



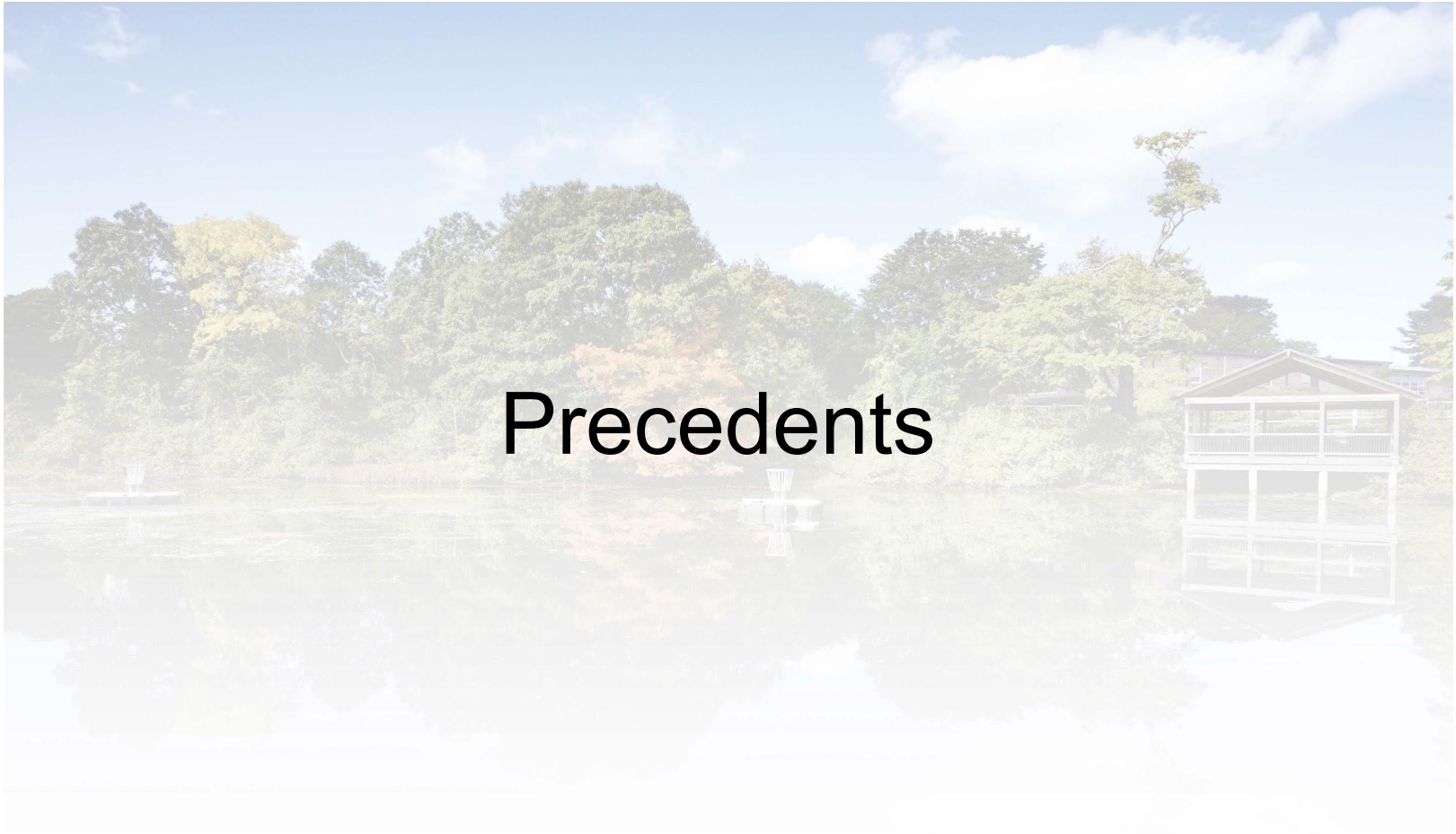
Fecal Coliform and Nitrogen are the main pollutants

Nitrogen - lack of best management practices, runoff and unfiltered outflow pipes

Fecal Coliform - birds, dogs and stormwater runoff

Invasive Plants:

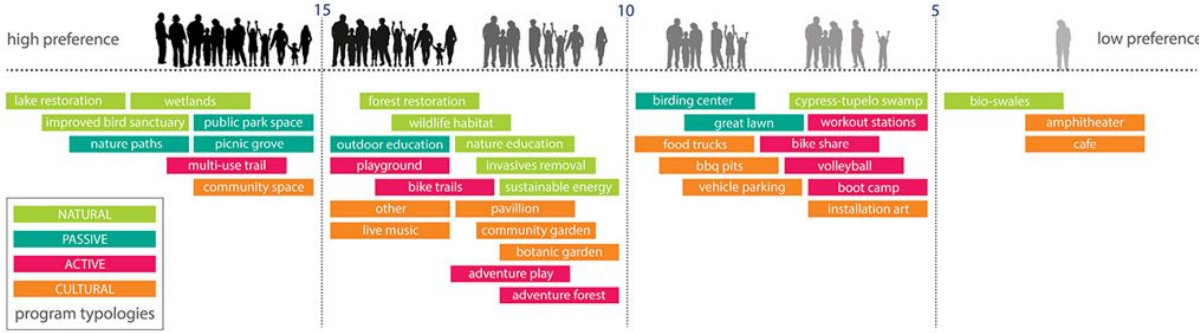
Duckweed	Lemna Minor
Phragmites	Common Reed
Fallopia japonica	Japanese Knotweed
Rosa multiflora	Multiflora Rose
Acer platanoides	Norway Maple
Celastrus orbiculatus	Ornamental Bittersweet
Lythrum salicaria	Purple Loosestrife



Precedents

Baton Rouge Louisiana

PUBLIC ENGAGEMENT



BUILD YOUR PARK WORKSHOP

FRAMEWORK WORKSHOP

MASTER PLAN PRESENTATION

- Awarded ASLA Professional Award, 2016
- Focused highly on public engagement; gaining opinions and desires of residents, professional insight, etc.

Baton Rouge Louisiana

- Promote meaningful connectivity to site both emotionally and physically
- Express unique identity associated with surrounding areas

- Create and regenerate thriving ecosystems
- Create safer environment; encourage residents and visitors to explore area

Ningbo, China Eco-Corridor Restoration

- Installation of “living filter” ; masses of vegetation for filtration of runoff
- Reconnecting people to nature
- Habitat restoration and wildlife attraction

Ningbo, China Eco-Corridor Restoration

Corktown Common, Toronto Canada

- Site is located on a floodplain
- Design remediation encompasses “the floodable” and “the protected

Corktown Common, Toronto Canada

- East side designed to withstand 500 year flood
- West side designed completely native landscape
- Entire project designed to be used throughout the year

Precedents

Harmony Park, Littleton, NH

- Boardwalks
- Streetscapes
- “Main Streets”
- Improvements
- Artwork
- Installations
- Signage and Wayfinding

Signage, Littleton, NH

Mural, Burlington, VT

Kayak Launch, Hudson, NY

Design Themes

Rediscovering The Saugatucket: A Learning Experience

Brynn Armstrong, Cameron Frecker, Kyle Savastano, Joe Tricarico

A River Defines Us

Emily Condon, Gabi D'Angelis, Olivia Fow, Emma Winkler

Creating A Sense of Place Through Culture, History and Sustainability

Brian Biezard, Romeo D'Andrea, Pabel Fernandez, Katie Meegan

Green Pockets of Sustainability

Zachary Driver, Casey Harrington, Kelvin Huang, Brian Males

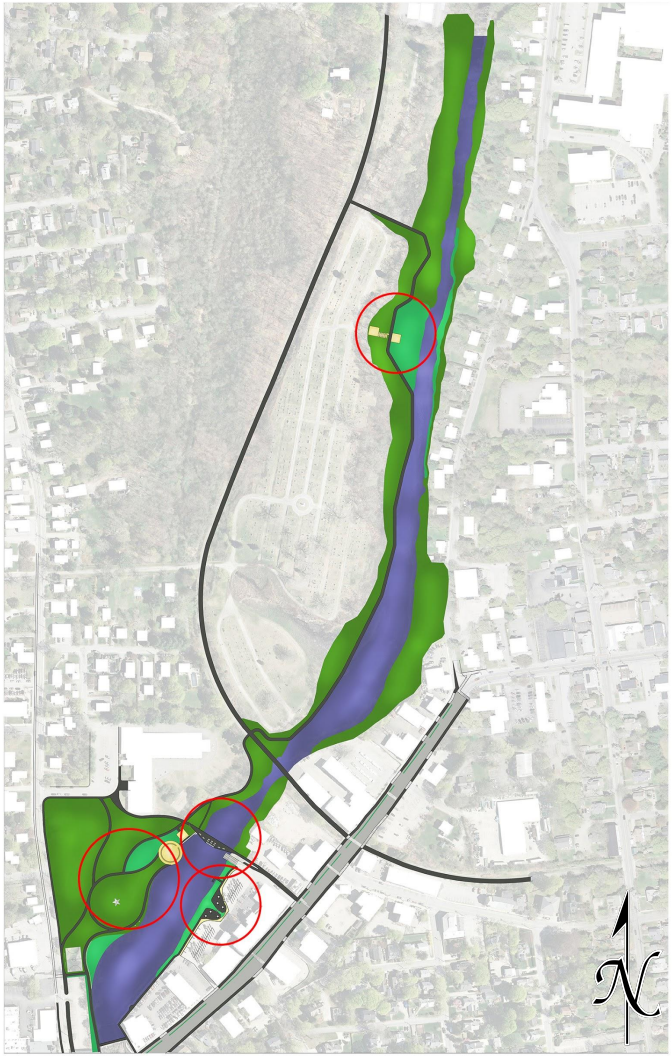
Rediscovering the Saugatucket: A Learning Experience

Designs by:
Brynn Armstrong, Kyle Savastano, Cam Frecker, Joe Tricarico
Prepared for Will Green • LAR 444 • Sustainable Design Studio • Fall 2016

Master Plan

KEY

- Proposed Swales
- Saugatucket River
- Vegetation
- Learning Areas



Design Objectives

- Introduce a series of learning spaces interconnected through pathways around the river.

<u>Learning Spaces</u>

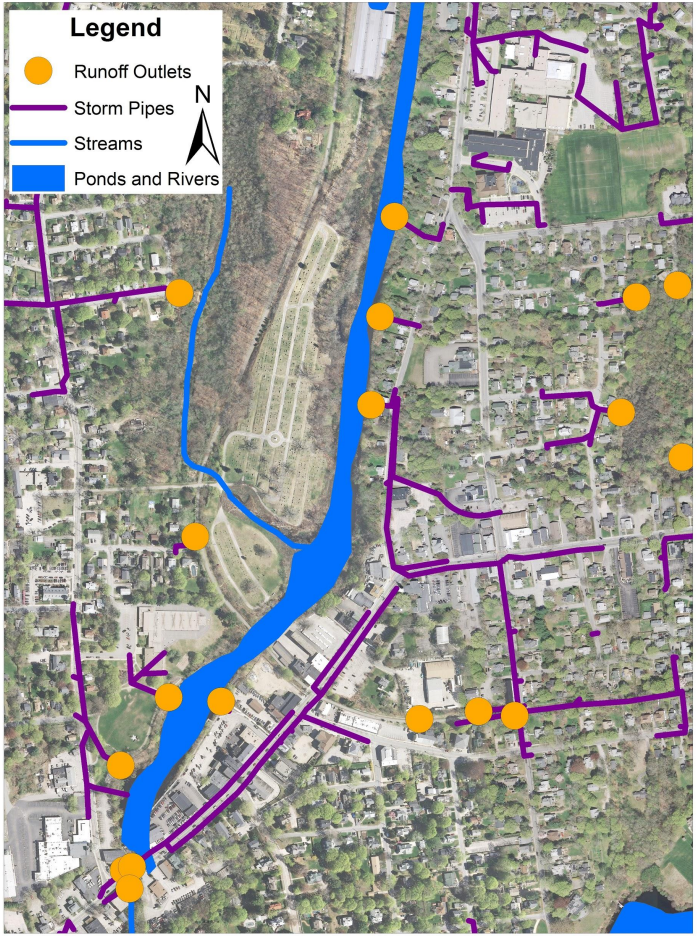
1. Environmental awareness
2. Health and Wellness
3. History of the site

- Improve circulation around the river by extending a path along the cemetery and proposing a bridge going over the dam

- Utilize green infrastructure to address polluted water and debris flowing into the river from various outflow pipes throughout the site

River Pollution - Outflow Pipes

A major source of pollution for the Saugatucket River is stormwater runoff. Rain is not able to percolate into the ground because of impervious surfaces like roofs and pavement. It then collects in catch basins which lead to storm pipes (purple). These pipes in most locations lead to the river, carrying not only water, but all of the debris the water has collected.



<u>Types of Runoff Pollution</u>

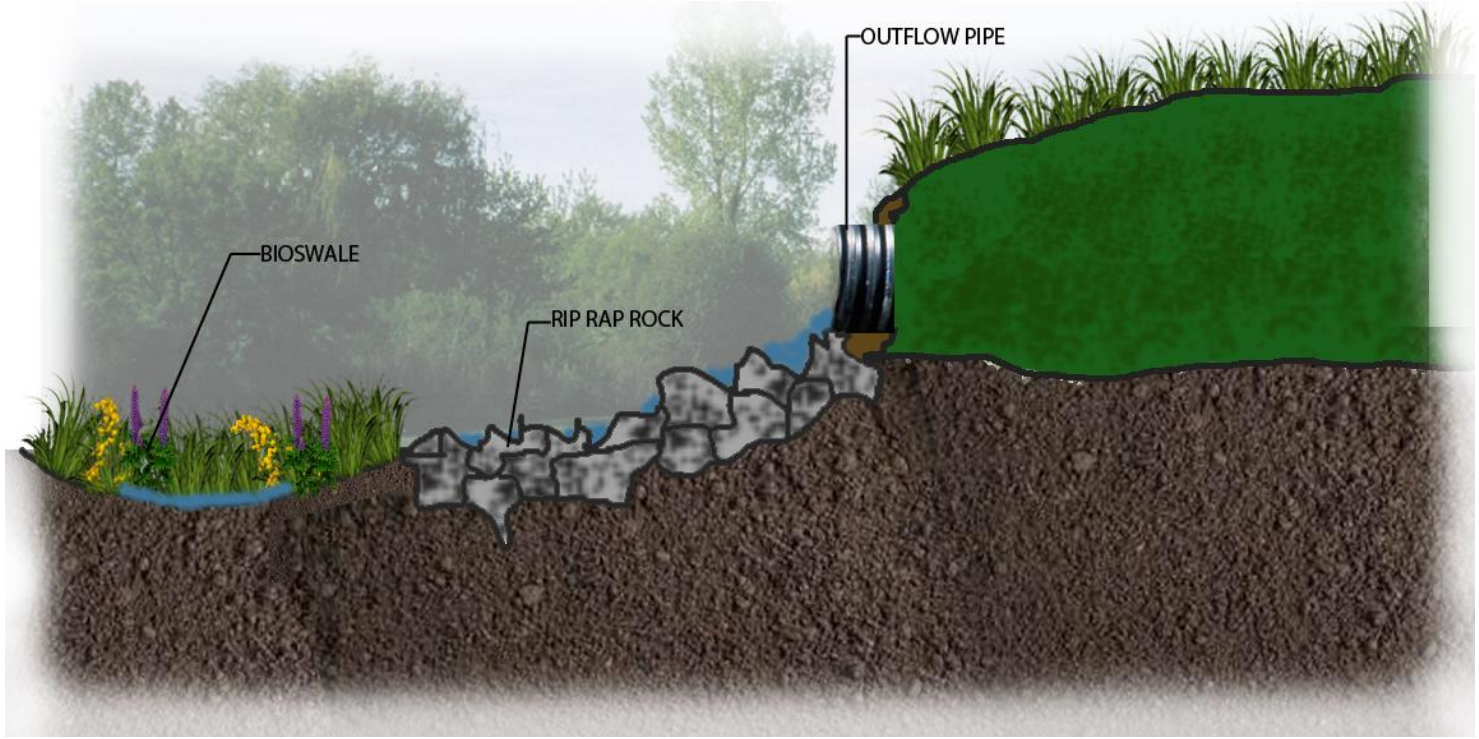
- Oil
- Gas
- Silt
- Natural Debris
- Metal Sediments
- Trash

Proposed Solution to Runoff Issue

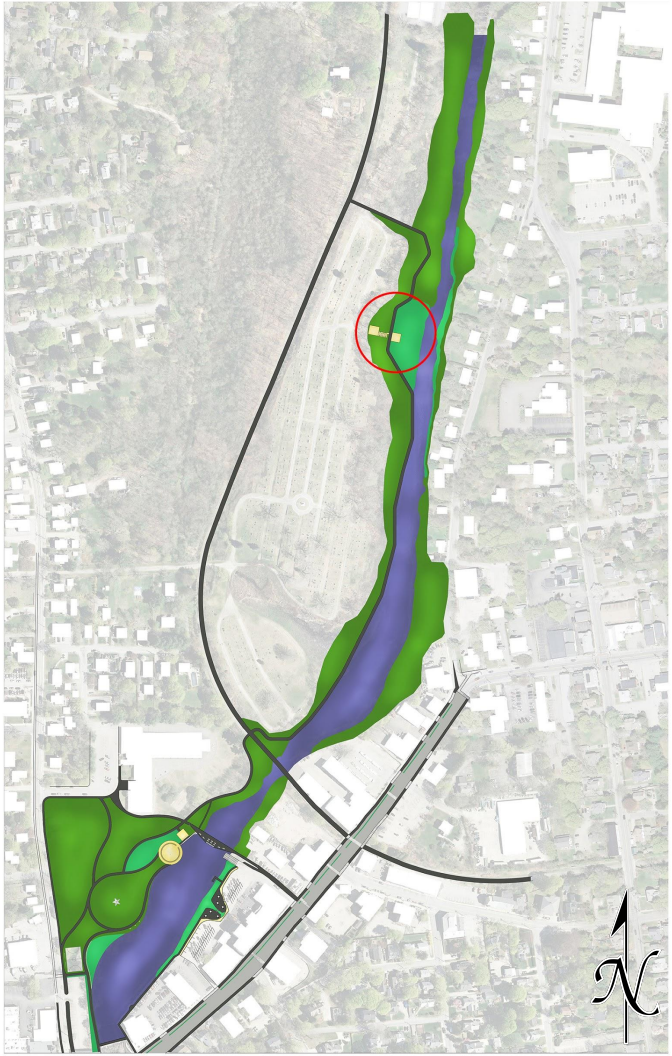
Bioswale System

<u>Treating Pollution at the Source</u>

Creating a riprap & bioswale system at outflow pipe locations will slow down runoff coming from the stormwater pipes. Rip rap rock prevents soil erosion while also collecting large debris. The water then runs down into a bioswale where sediments and other pollutants are filtered by the vegetation.



Environmental Observatory & Boardwalk



Boardwalk

- Boardwalk mimics river’s edge
- Interaction with nature
- River views

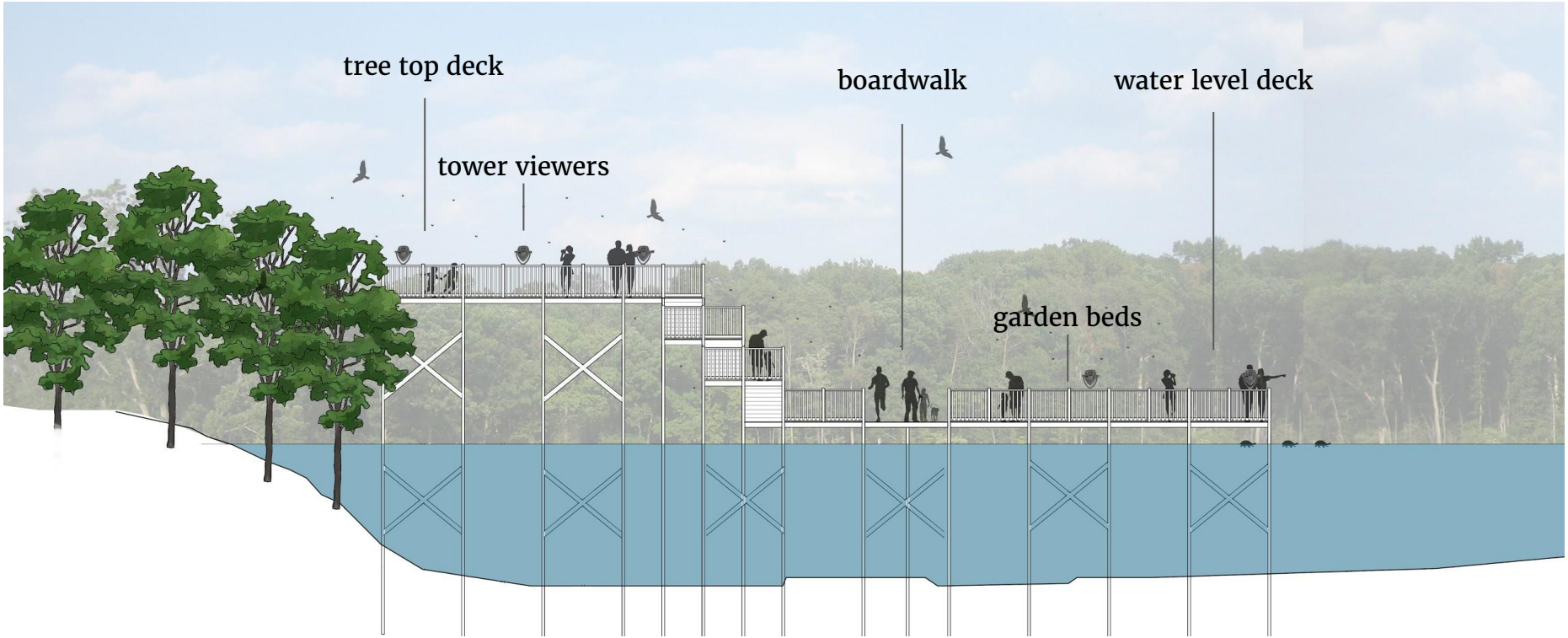
View of the Saugatucket River looking West with the Riverside Cemetery in the background

Boardwalk through wetlands precedent; RI Audubon Society

Environmental Observatory

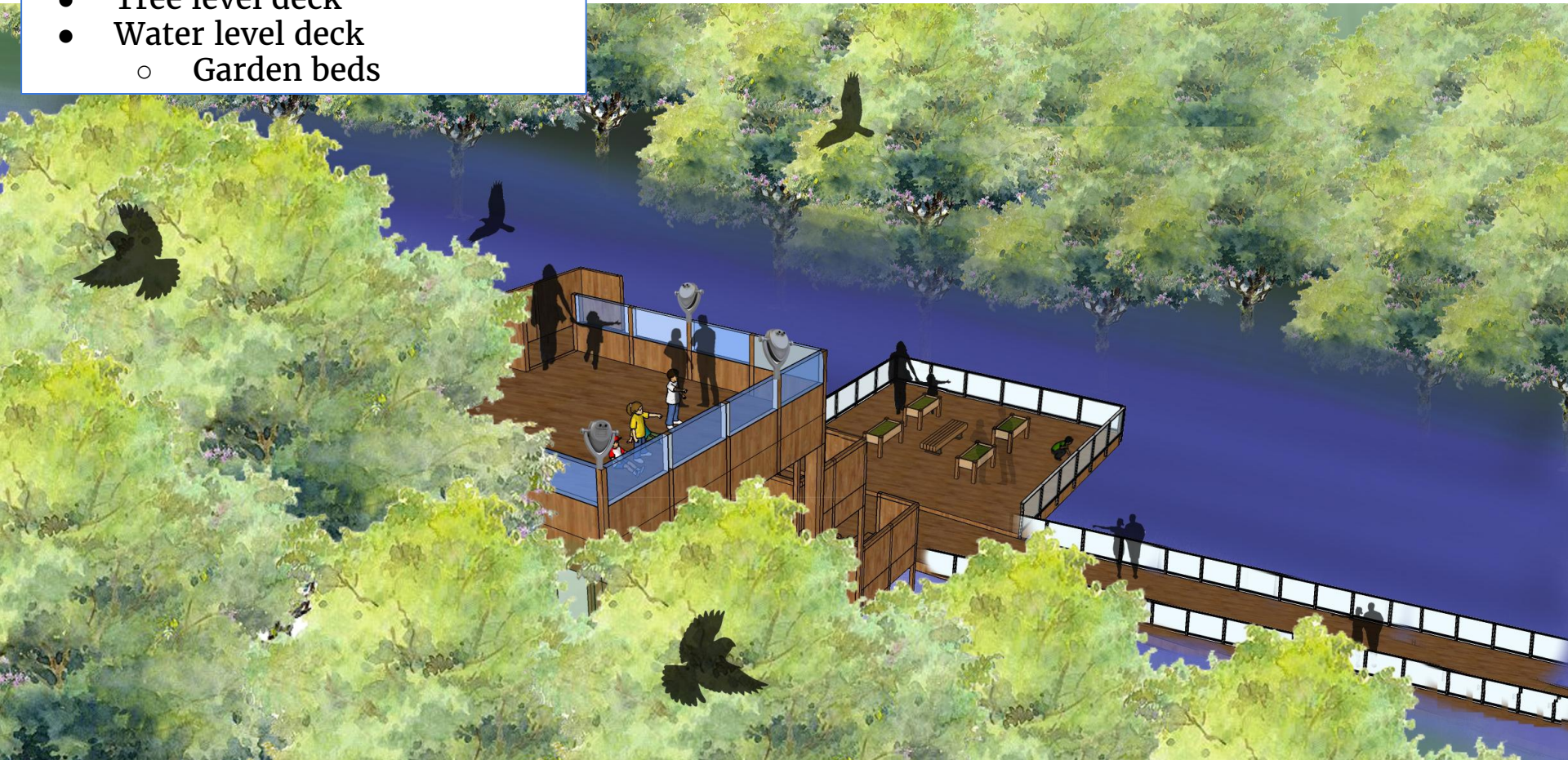
- Fun learning experience
- Community garden beds
  - Lower Deck
- Tower viewers
  - Higher Deck

Section view looking North

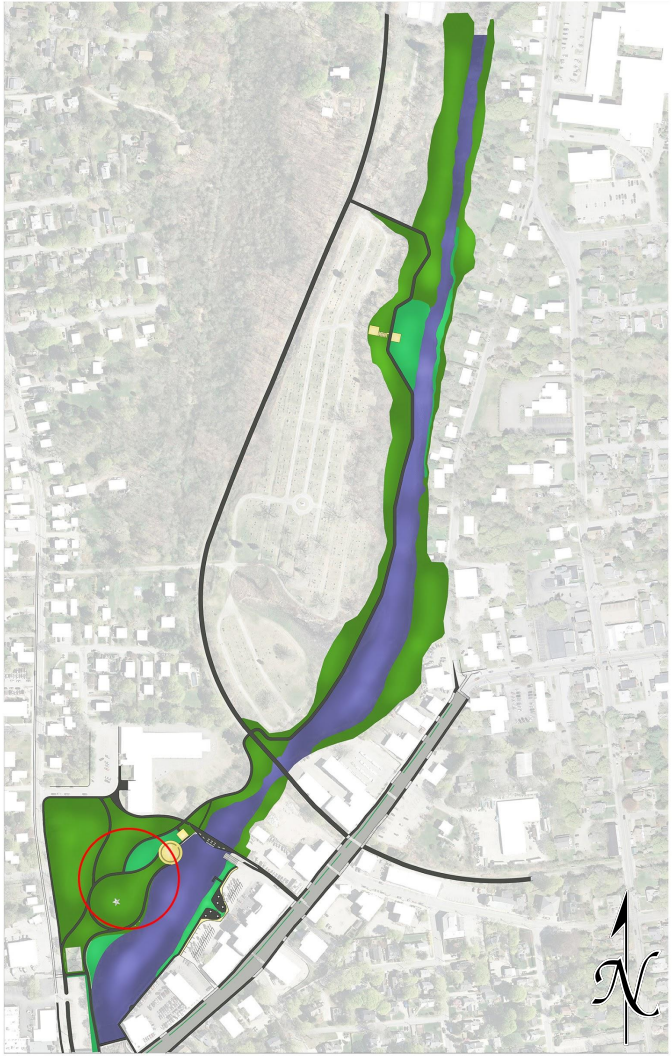


Eye to eye with Ecology

- Tree level deck
- Water level deck
  - Garden beds



Saugatucket Park



REDISCOVERING THE SAUGATUCKET

SAUGATUCKET PARK

DESIGN OBJECTIVES:

1. Improve spacial relationship between the elementary school and the public park by defining seperate spaces and implenting a plant buffer.
2. Build upon the underutilized Sari's Sanctuary to make an indoor/outdoor learning center and gathering space to be shared by the school and the public.
3. Promote classes and events related to health and wellness at the public learning center.
4. Implement green infrastructure at the two storm-water outfalls on site to filter out pollutants and debris before they enter the river.
5. Improve circulation by providing connections to nearby parking, across the river and to the South County Bike Trail.

Learning Space Precedent Images

Touchscreen kiosks, Lithuania

Yoga class at Race Street Pier, Philadelphia, PA

Outdoor classroom at Hedge School, Plymouth, MA

Boardwalk overlook, Crystal Cove State Park, CA

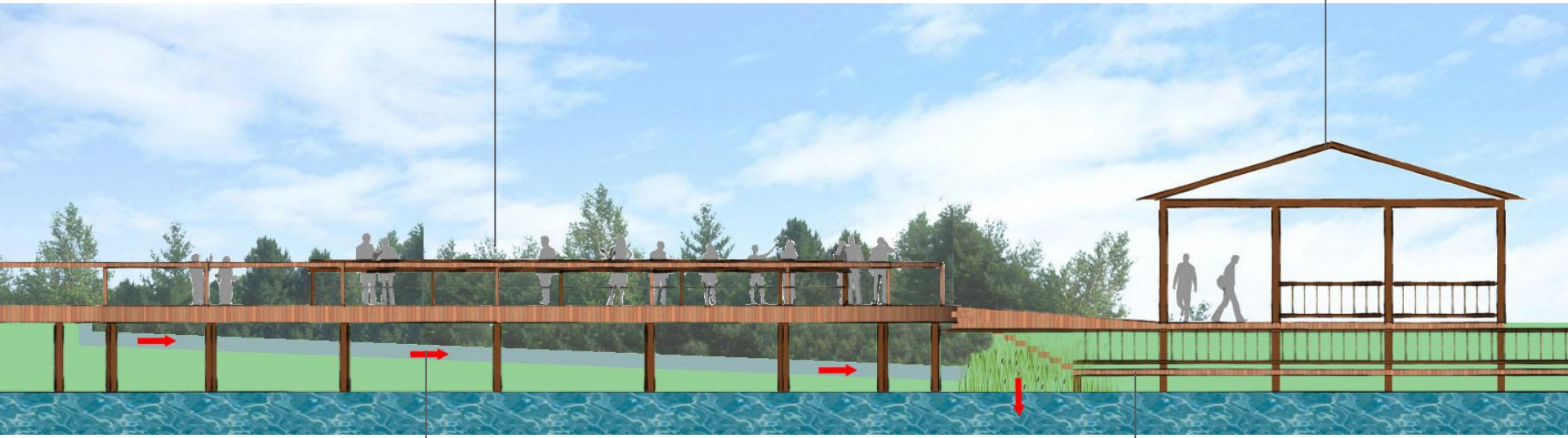
Health and Wellness Learning Space- Perspective

The elevated boardwalk platform hovers over the water's edge and provides excellent views of the surrounding area. Framing in the classroom space is a railing which acts as a standing desk and could be equipped with touchscreens to facilitate interactive learning. The permeable rubber surface of the center platform makes it a safe playspace for children and a comfortable surface for exercise classes such as yoga.

Health and Wellness Learning Space - Cross Section

Proposed outdoor classroom

Sari's Sanctuary



Outflow from bioswale

Proposed lower boardwalk w/ water access

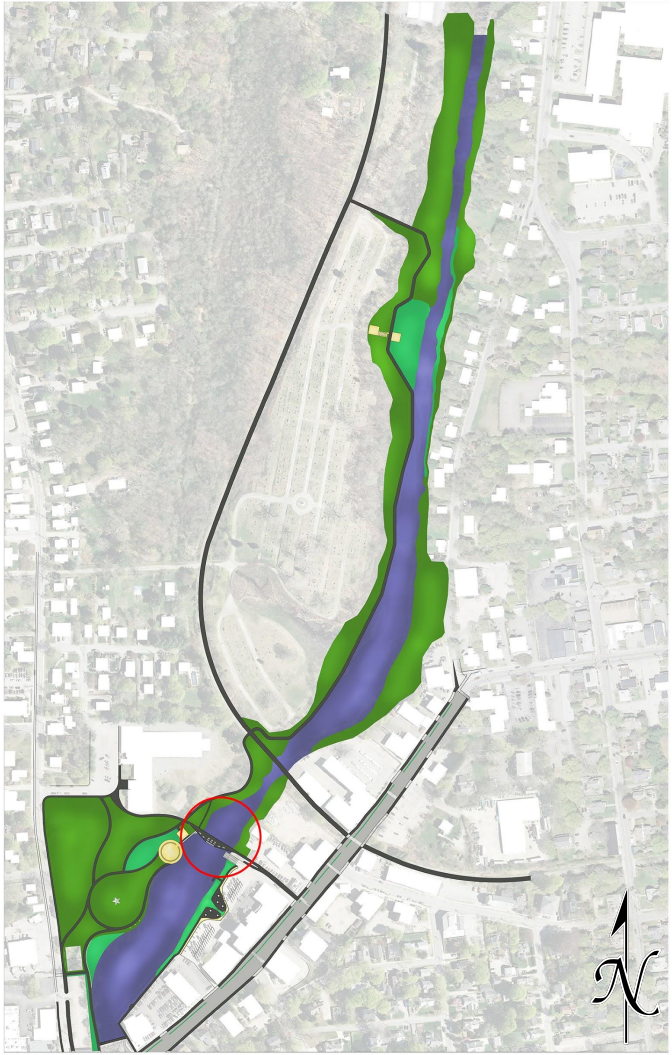
Pedestrian Bridge over the Dam

The safest and most logical choice to complete the walking loop around the river would be to build a pedestrian bridge going over the dam. Not only is it a simple solution that connects two pre-existing paths, it also keeps pedestrians away from the intersection of Main St. and High St. while adding to the desirable aesthetic of the dam. Informational signage regarding the fish ladder should also be incorporated.

Before

After

Riverside Connection & Mainstreet Transformation



River Bridge Learning Area

Replacing the current bridge not only improves pedestrian flow, but it also allows us to create an area for an outdoor learning area. We widened the South side of the bridge to add seating and an interactive information board which lowers while not in use to allow for better views of the river. Created with the many surrounding schools and visitors in mind.

Paddlecraft Boat Launch

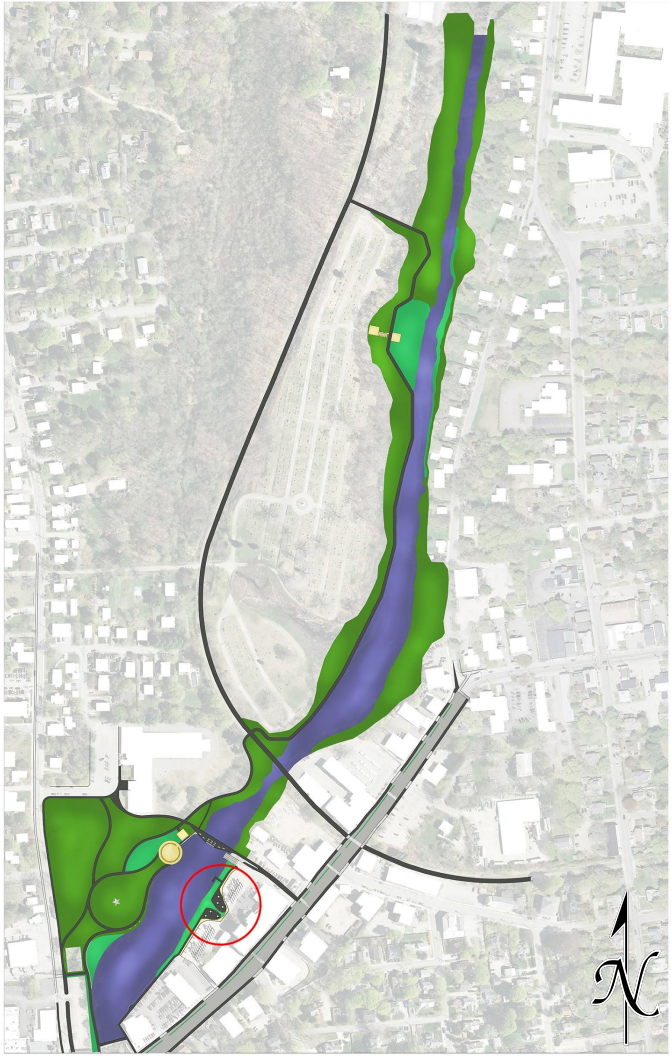
By cleaning up the river, more people will be attracted to the water. Creating a paddlecraft boat launch will allow people to access the river for their kayaks and canoes. We hope that in result more people will visit the site, leading to endless possibilities.

Current Main Street View

Proposed Redesigned Main Street View

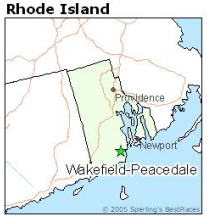
- Wider sidewalk on East side of street
- Trees added along both sides of Main Street
- Relocated parking on East side of street
- Bike path separated from road traffic by planting corridor
- Relocated overhead utility lines underground to provide clearer aesthetic view

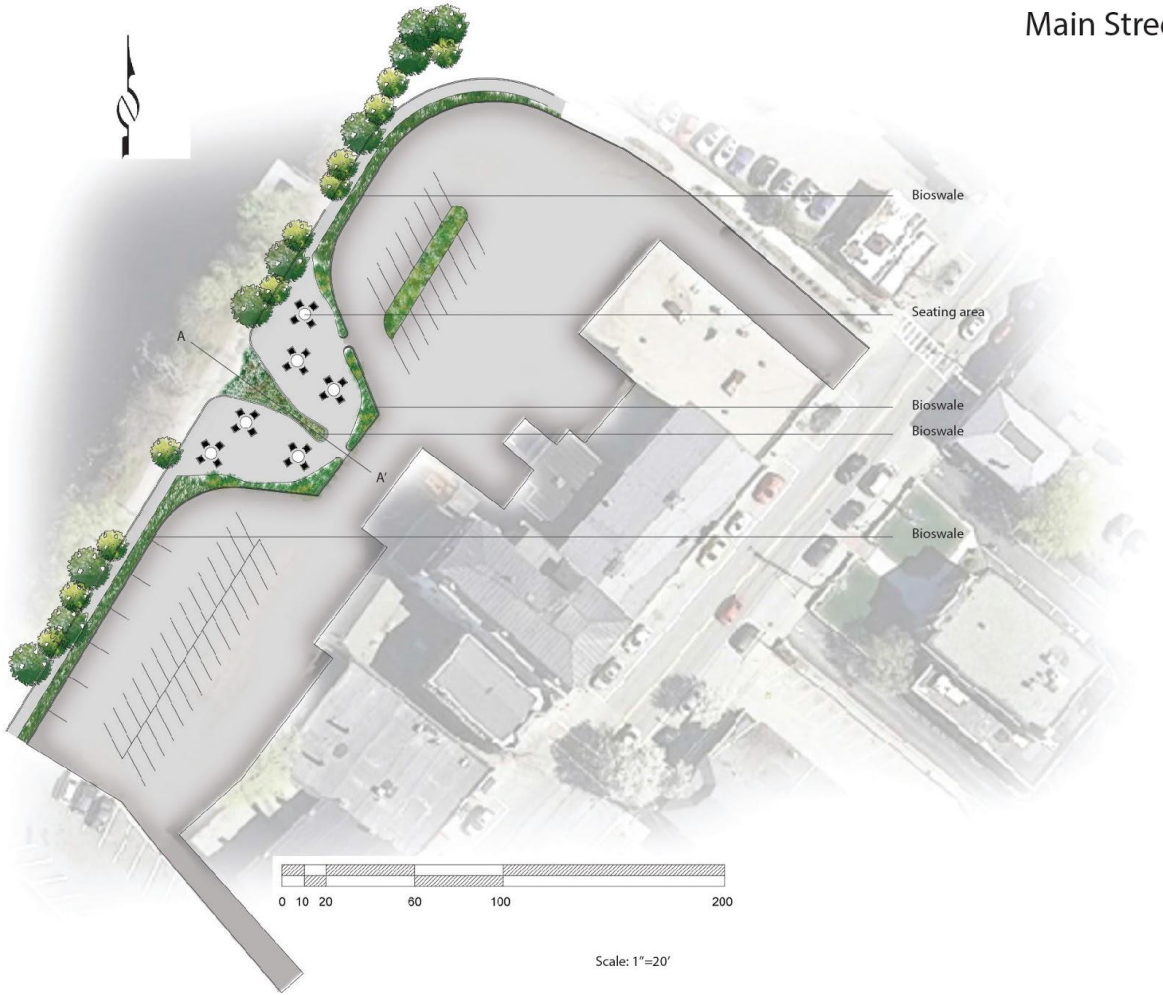
Mainstreet Parking Lot Restoration



Main Street Parking Lot Restoration

Wakefield, Rhode Island





This design achieves the following:

- Creates a common space where people can come and enjoy the views of the Saugatucket river.

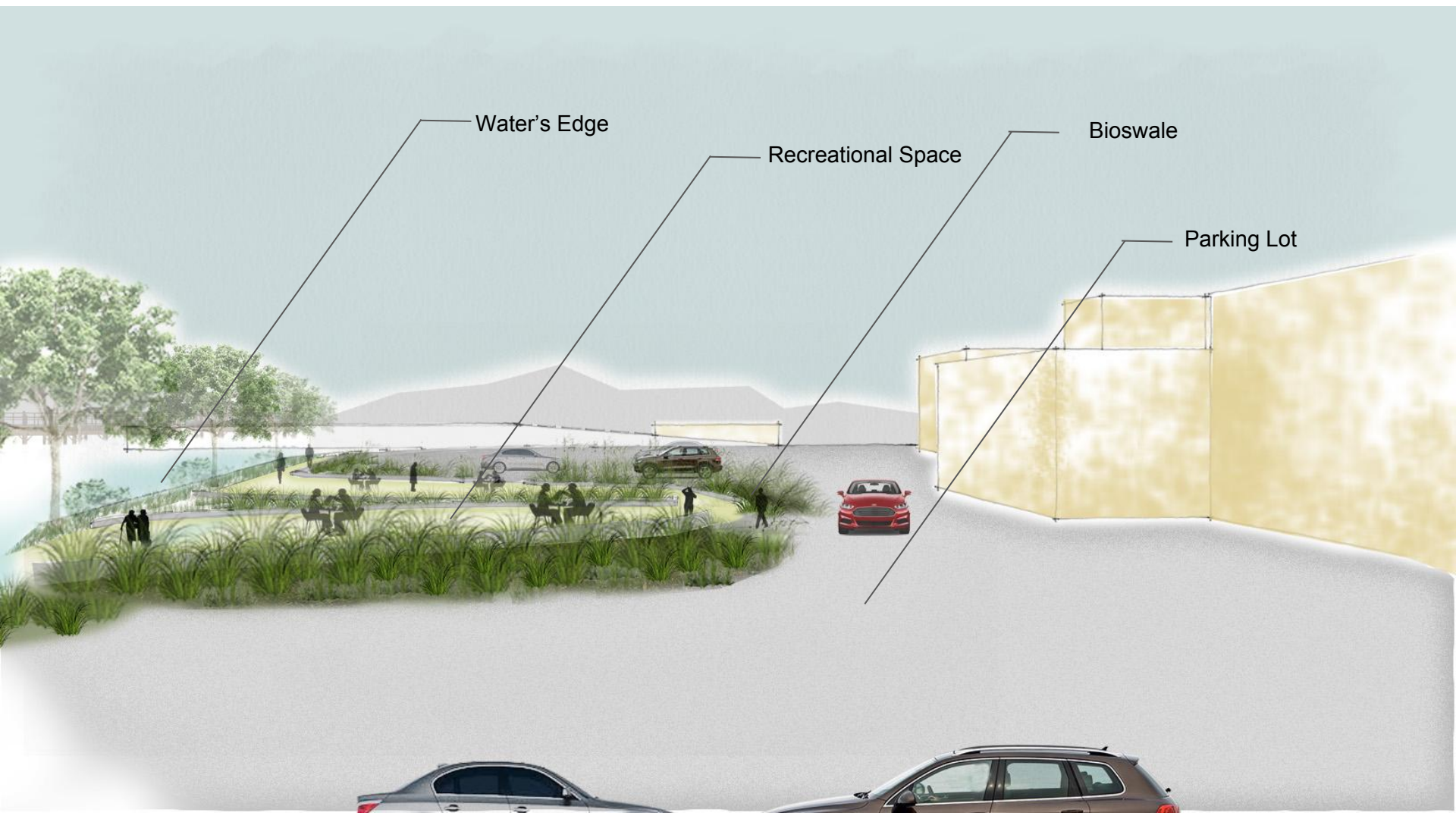
- Creates a space that will help absorb and filtrate non-point pollution caused by storms. This is accomplished by implementing Bioswales throughout the site.

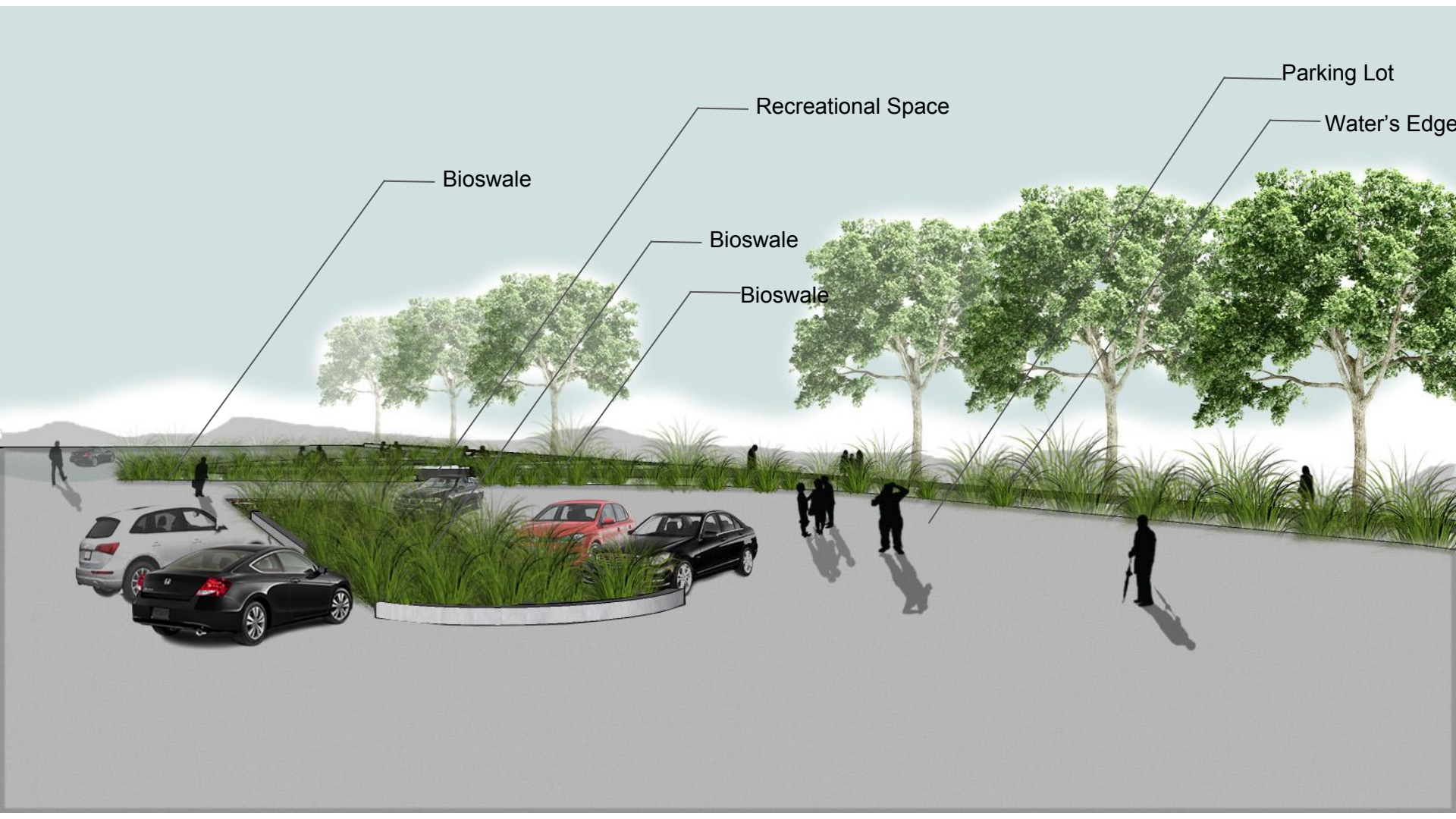
- Creates a learning enviornment where people can become aware of how and why these design installations function.

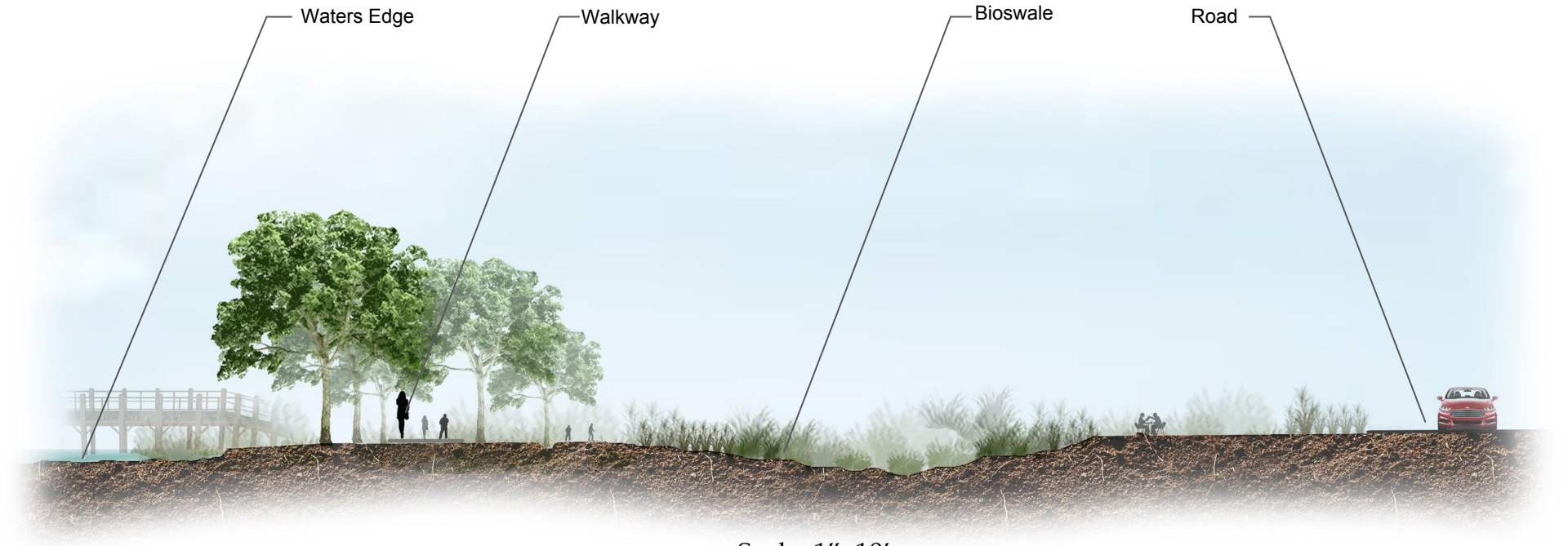
- Signage explains climate zones and storm hazard risks. Signs will also explain why the bioswales are located in the parking lot and how they function. Ultimatly creating a sense of awarness regarding the space they are in.

-Creates an economic opportunity for local businesses.

- Creates a better view to the river and enhances the existing habitat by removing invasive vegetation and replacing them with more appropriate vegetation.


Water's Edge
Recreational Space
Bioswale
Parking Lot


Parking Lot
Recreational Space
Water's Edge
Bioswale
Bioswale
Bioswale

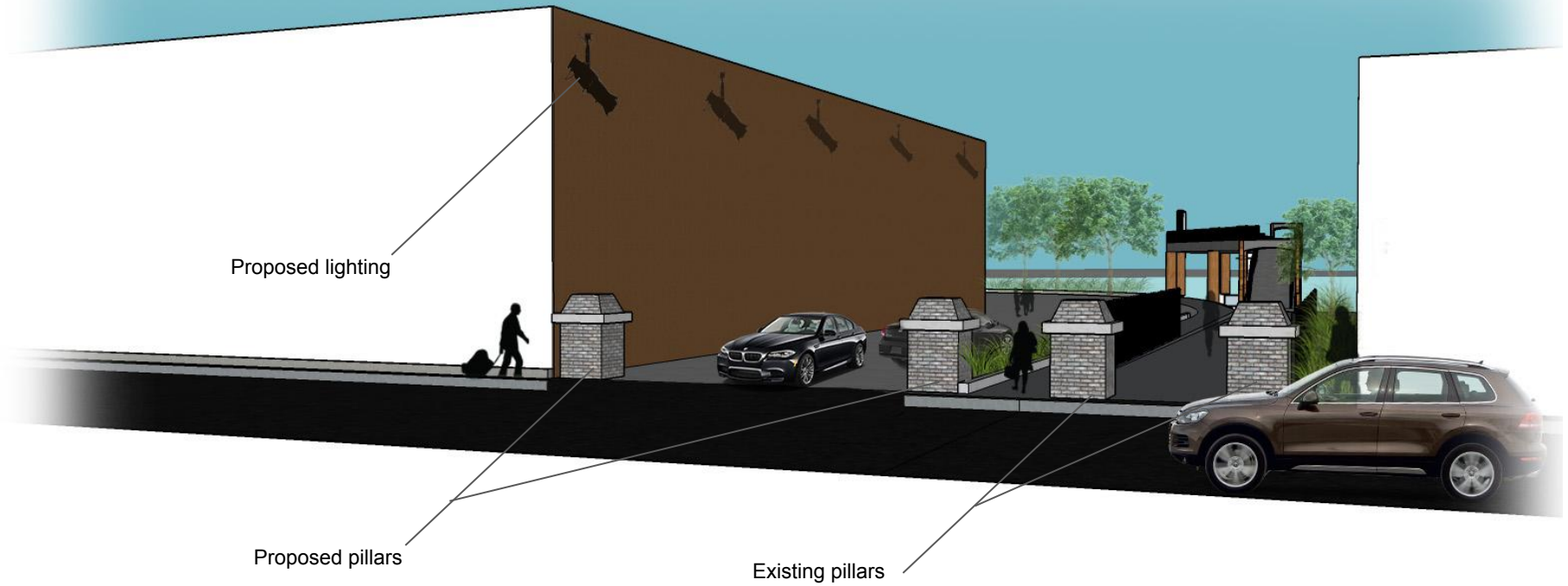


Scale: 1″=10′

A

A’

Entrance to Parking Lot; Before



Entrance to Parking Lot; After

Thank You!

a river defines us.

emma winkler, emily condon, olivia fow, gabriella dangelis

Goals and Objectives

rehabilitating and revitalizing the river's ecology and habitat

connecting people and the town to the water's edge

highlighting art, history, and culture of the area

promoting economic viability of the area

promoting social equity through implementation of communal spaces

high street
high street
high street
high street
main street
main street
river street
columbia street
church street
church street
kingstown road
kingstown road

MASTER PLAN

Two major pollutants – Fecal coliform (birds nesting in bridges and mills, sewer outputs and dog waste)
-- Nitrogen runoff

Existing

Remove

AQUATIC
Duckweed - Lemna minor

AQUATIC EMERGENT
Common reed - Phragmites
Japanese knotweed - Fallopia japonica
Purple loosestrife - Lythrum salicaria

EMERGENT
Multiflora rose - Rosa multiflora
Ornamental bittersweet - Celastrus orbiculatus

TREES
Norway Maple - Acer platanoides

Proposed

Replant (endemic seed)

AQUATIC EMERGENT
Swamp loosestrife - Decodon verticillatus

EMERGENT
Joe Pye Weed - Eutrochium purpureum
Large leaved Cattail - Typha latifolia
Soft rush - palustris
Tussock sedge - Carex stricta
Whool grass - Scirpus cyperinus

Trees

by branching over the river the water is kept cooler in the summer months this helps to stabilize the rivers ecosystem so it is not so subject to intense temperature changes

Black Willow - Salix nigra
Pin Oak - Quercus palustris
Red Maple - Acer rubrum
White Cedar - Thuja occidentalis

Aquatic Emergents

waters edge

Arrowwood viburnum - Viburnum dentatum
Bebs willow - Salix bebbiana
Button Bush - Cephalanthus occidentalis
Blue flag iris - Iris versicolor
Coastal pepperbush - Clethra alnifolia
New England Aster - Symphyotrichum novae-angliae
Redtwig dogwood - Cornus alba “Sibirica”
Speckled alder - Alnus incana -- nitrogen fixing

Aquatic Emergents

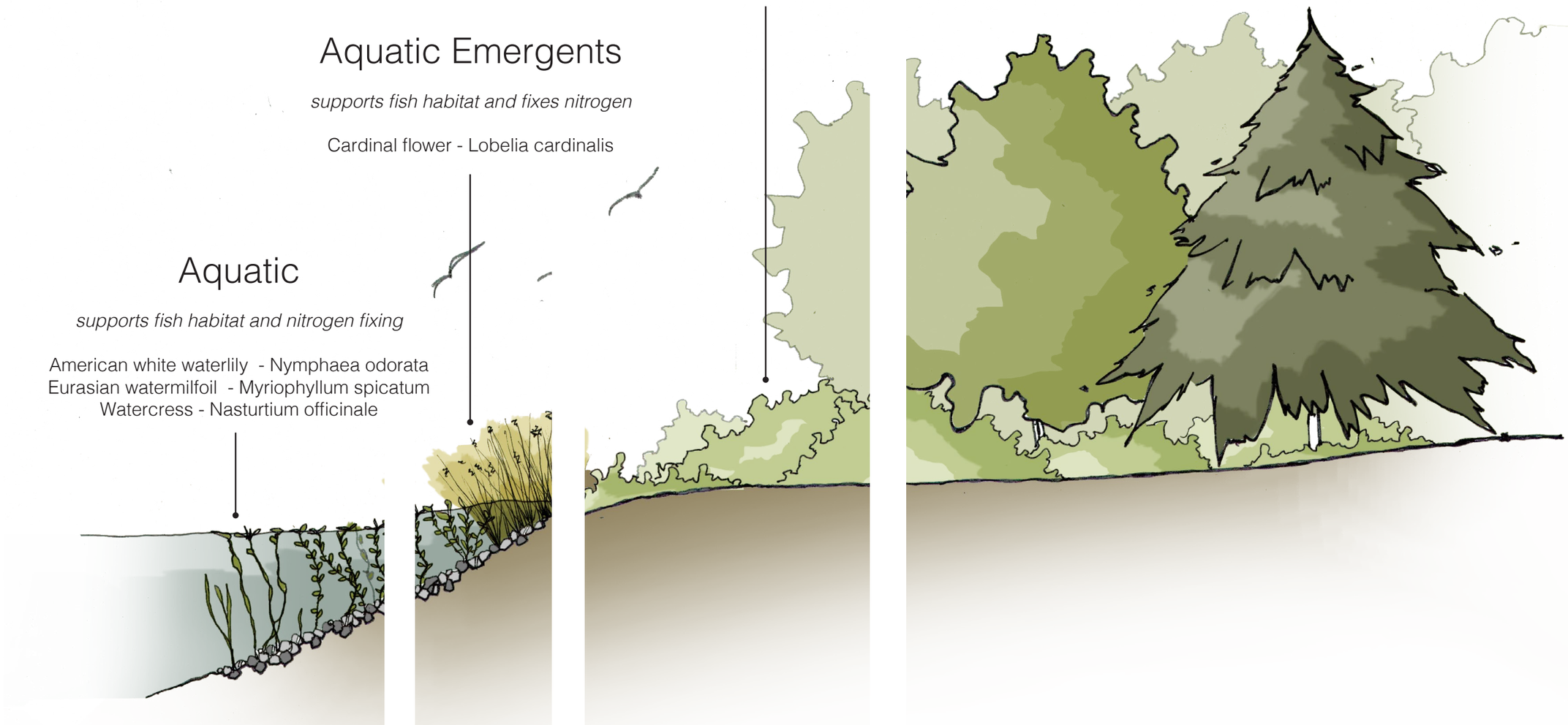
supports fish habitat and fixes nitrogen

Cardinal flower - Lobelia cardinalis

Aquatic

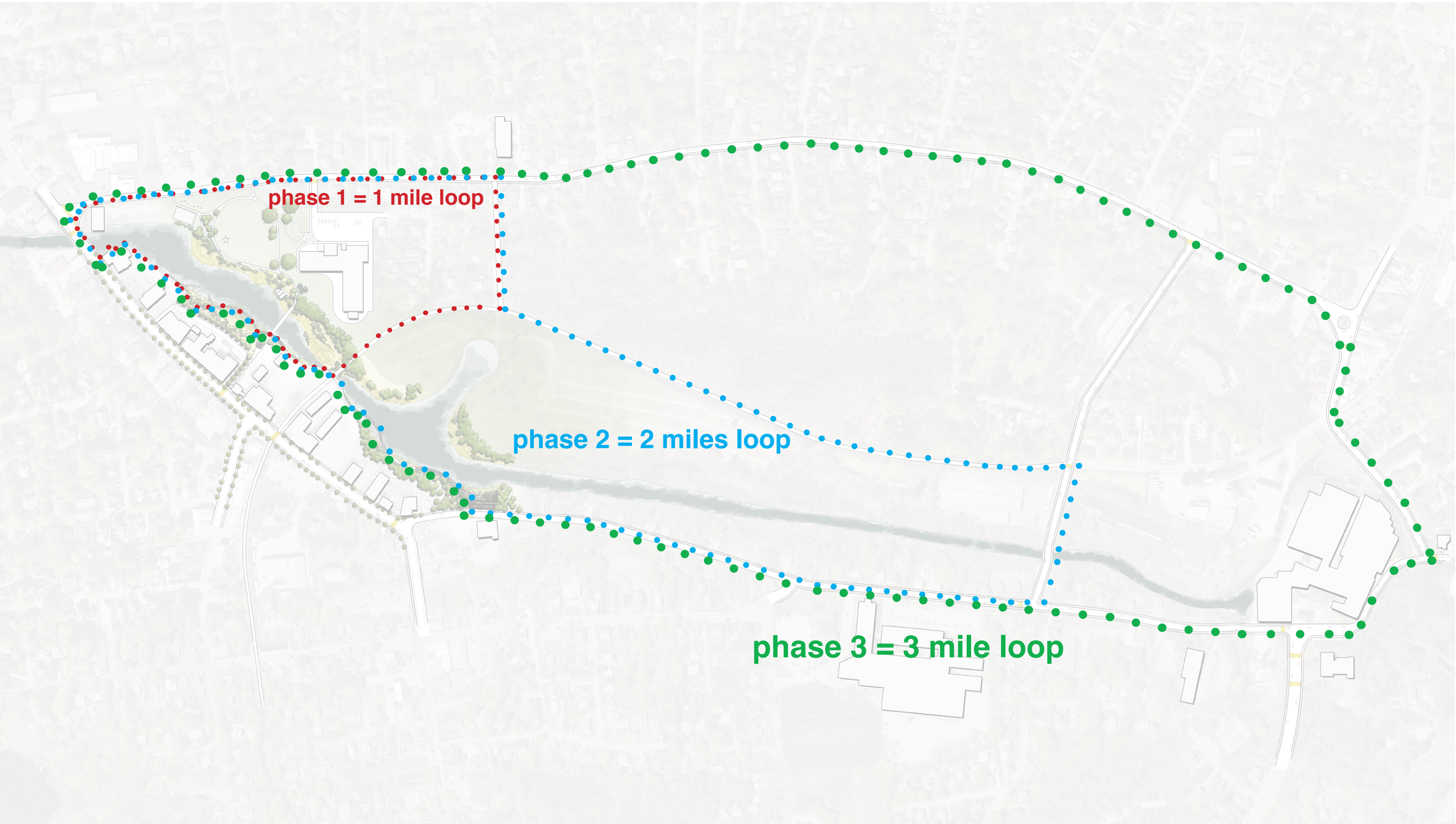
supports fish habitat and nitrogen fixing

American white waterlily - Nymphaea odorata
Eurasian watermilfoil - Myriophyllum spicatum
Watercress - Nasturtium officinale



high street
high street
high street
high street
main street
main street
river street
columbia street
church street
church street
kingstown road
kingstown road

MASTER PLAN


phase 1 = 1 mile loop
phase 2 = 2 miles loop
phase 3 = 3 mile loop

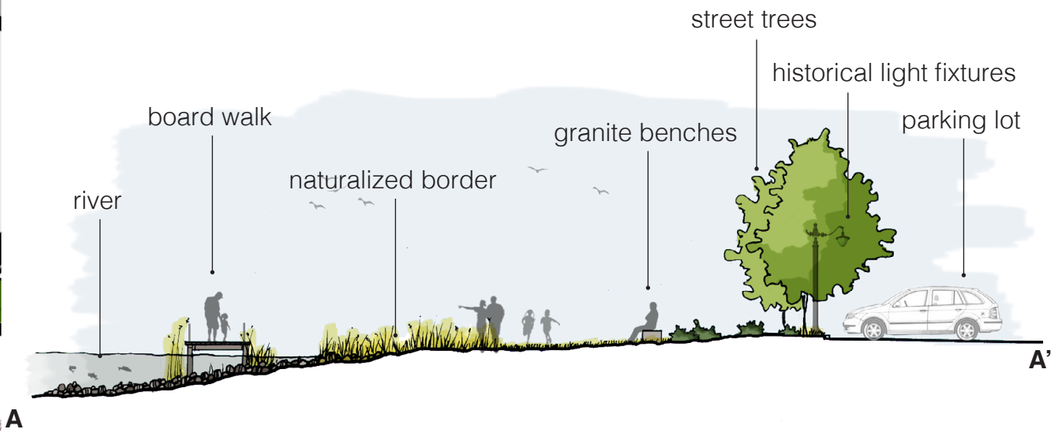
high street
high street
high street
high street
main street
main street
river street
columbia street
church street
church street
kingstown road
kingstown road

PHASE 1

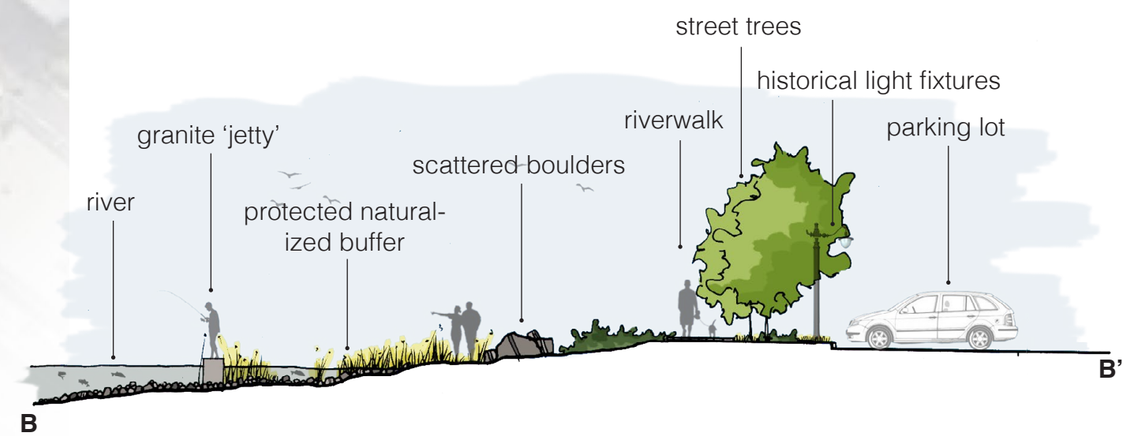
town hall
high street
high street
high street
high street
saugatucket park
wakefield elementary school
main street
main street
bike path
wakefield cemetery
main street
river street
church street
church street
columbia street
kingstown road
kingstown road
PHASE 1

sari's sanctuary
bike path
saugatucket park
riverwalk park
main street
fish ladder

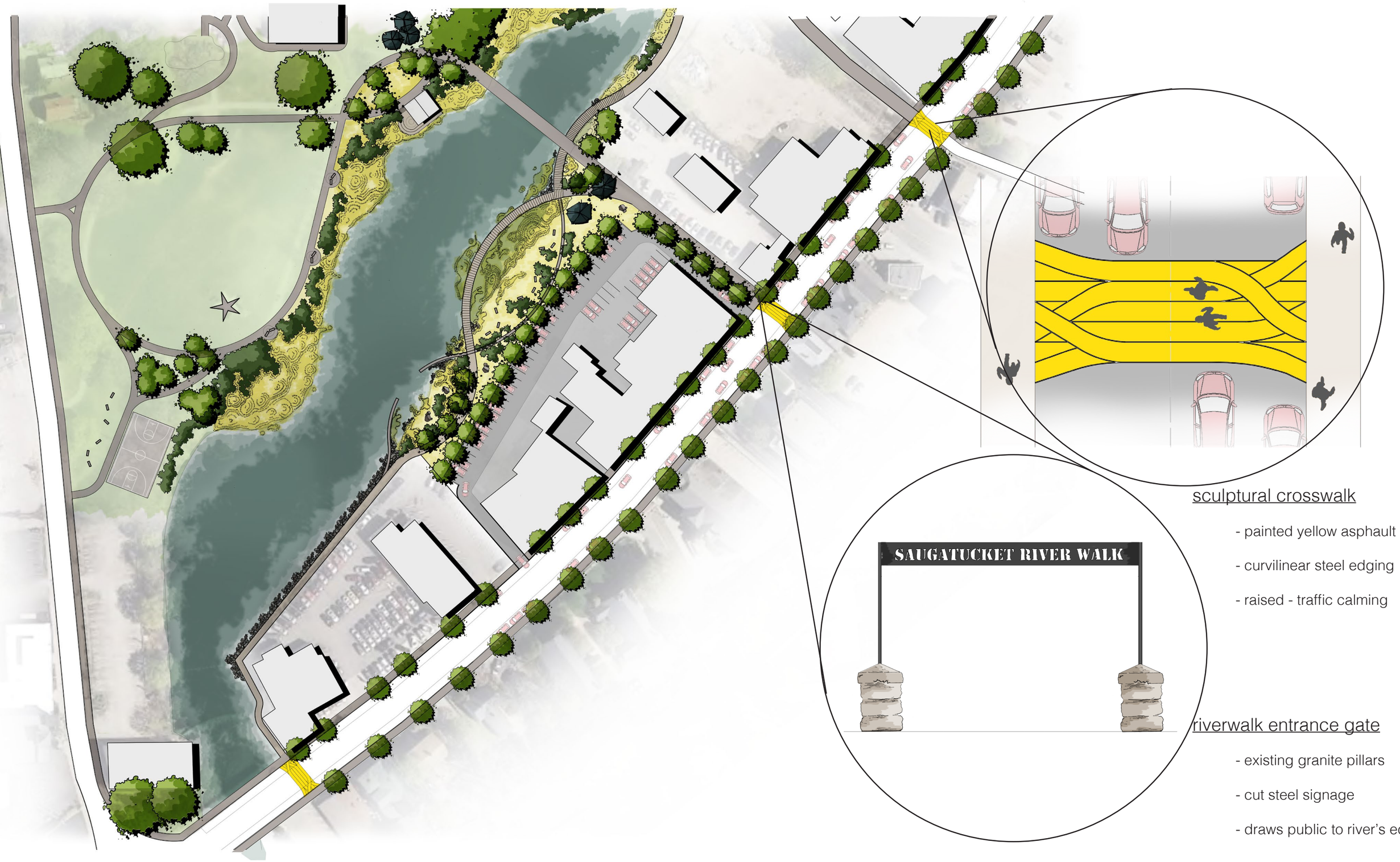
RIVERWALK PARK



cross section A - A'



cross section B - B'



sculptural crosswalk

- painted yellow asphault
- curvilinear steel edging
- raised - traffic calming

riverwalk entrance gate

- existing granite pillars
- cut steel signage
- draws public to river's edge

sari's sanctuary
bike path
saugatucket park
riverwalk park
main street
existing riverwalk

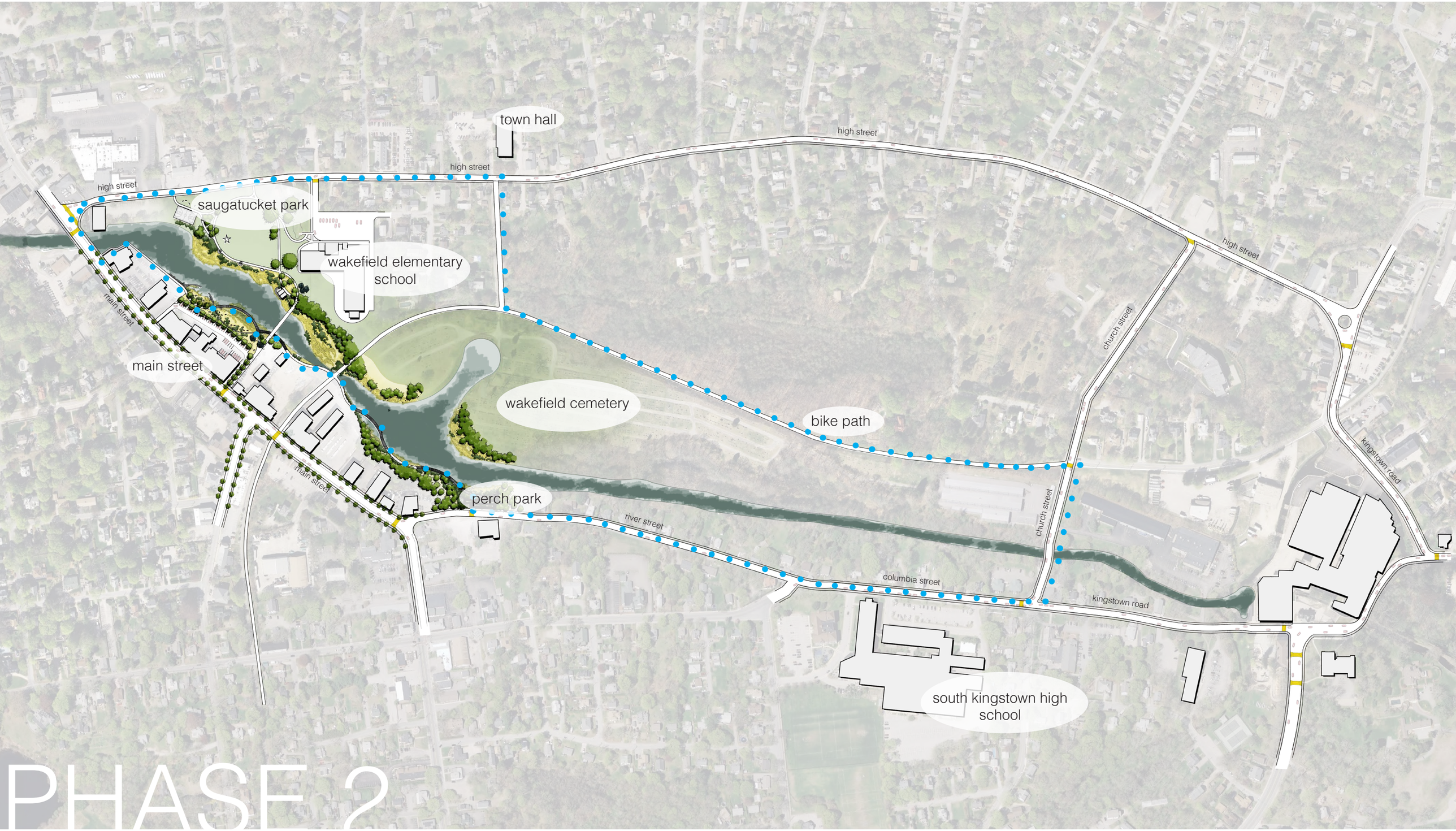
SAUGATUCKET PARK

perspective view A - standing on pathway, looking northeast

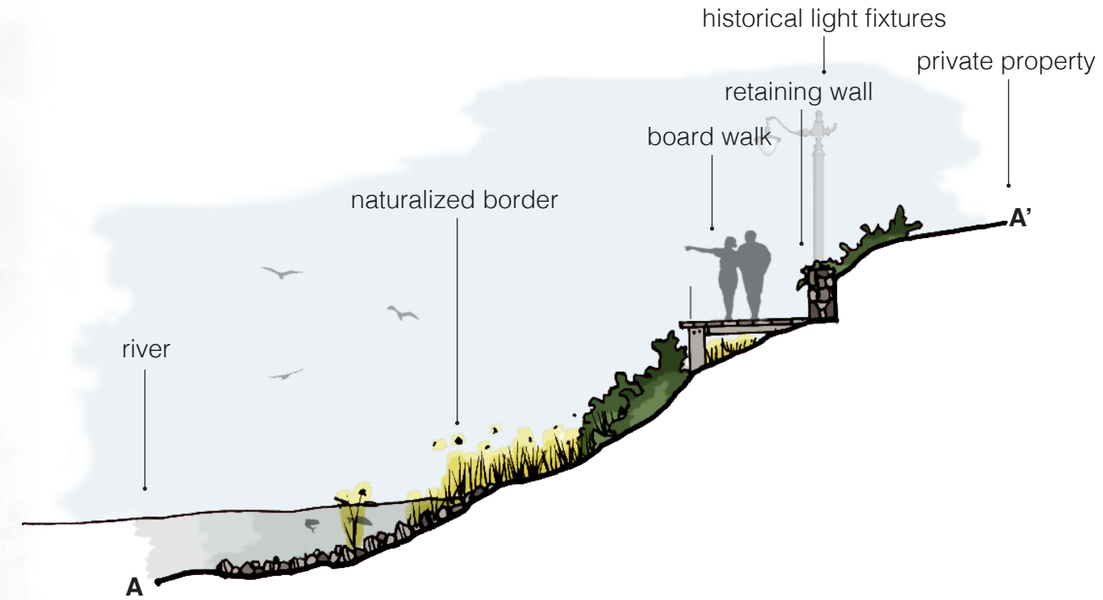
perspective view B - standing at riverwalk park, looking northwest

high street
high street
high street
high street
main street
main street
river street
columbia street
church street
church street
kingstown road
kingstown road

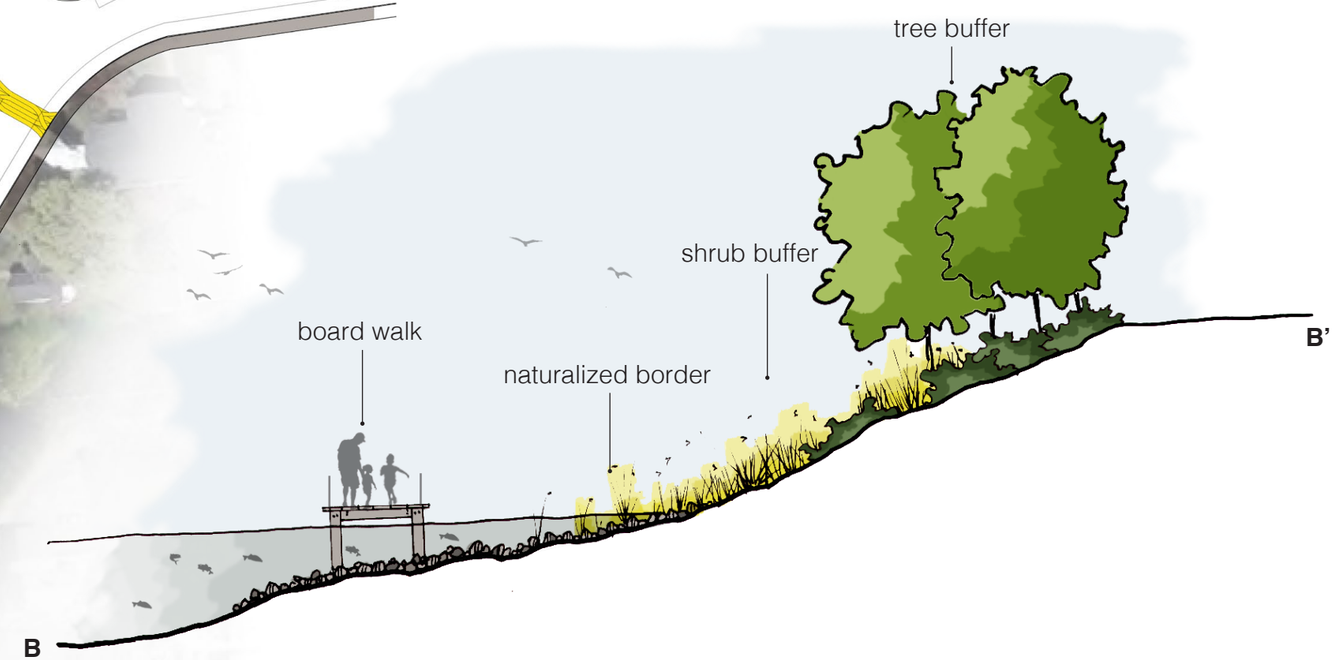
PHASE 2


town hall
high street
high street
high street
high street
saugatucket park
wakefield elementary school
main street
main street
main street
wakefield cemetery
bike path
church street
church street
kingstown road
kingstown road
perch park
river street
columbia street
south kingstown high school

PHASE 2



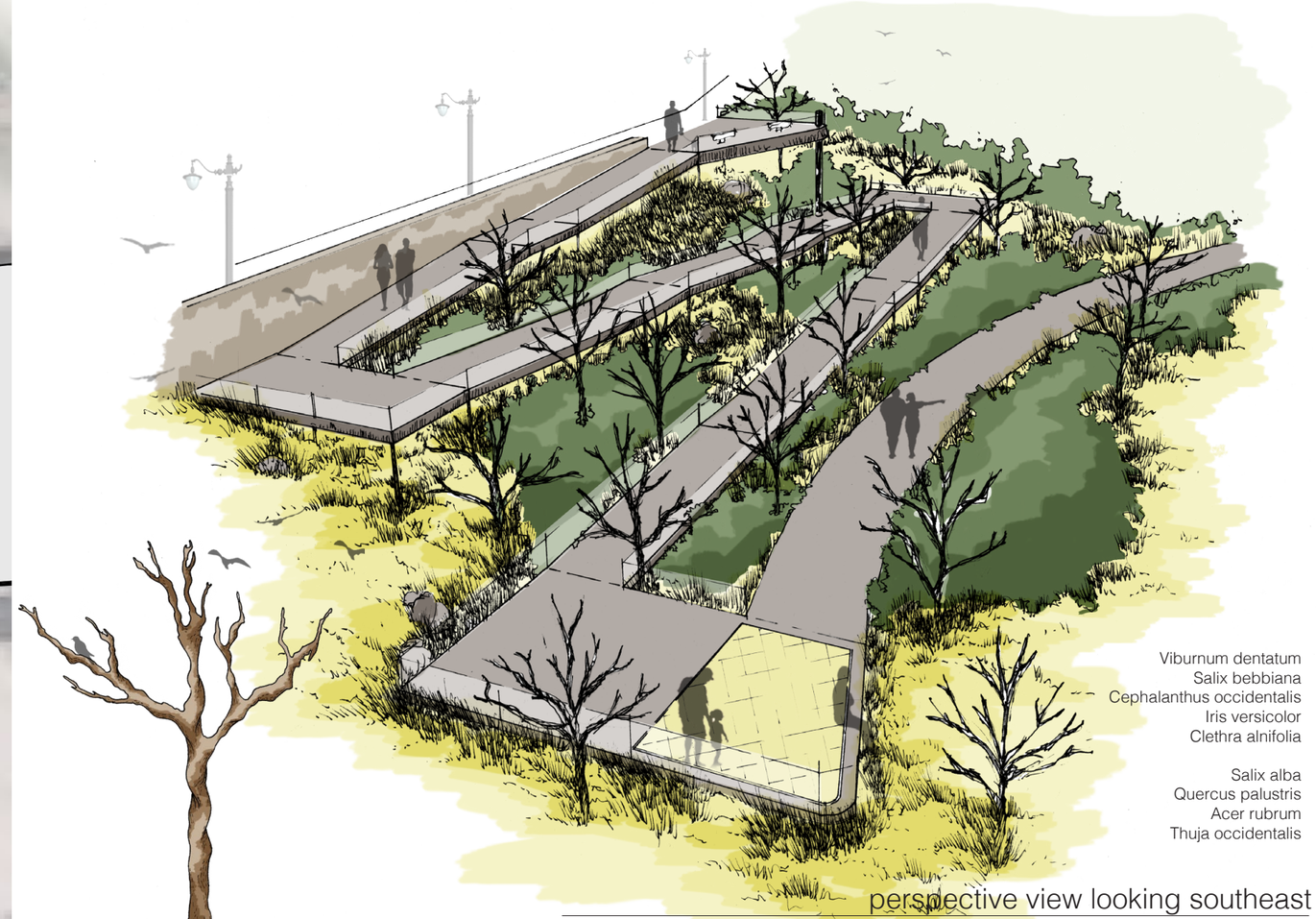
cross section A - A'



cross section B - B'

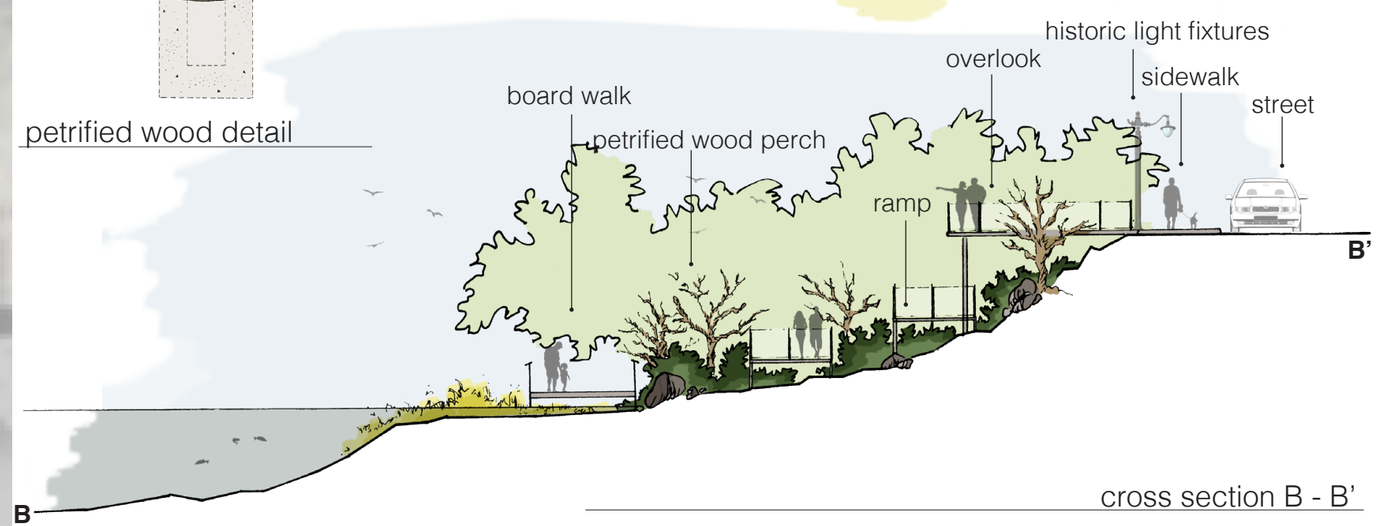
RIVERWALK

PERCH PARK



perspective view looking southeast

petrified wood detail



cross section B - B'

high street
high street
high street
high street
main street
main street
river street
columbia street
church street
church street
kingstown road
kingstown road

PHASE 3

- roadway improvements
- improvements to sidewalk + pedestrian circulation
- linking neighborhoods to the river
- linking neighborhoods to the village
- continuity of design elements thorughout the loop
    - historical light fixtures
    - sculptural crosswalk
    - benches

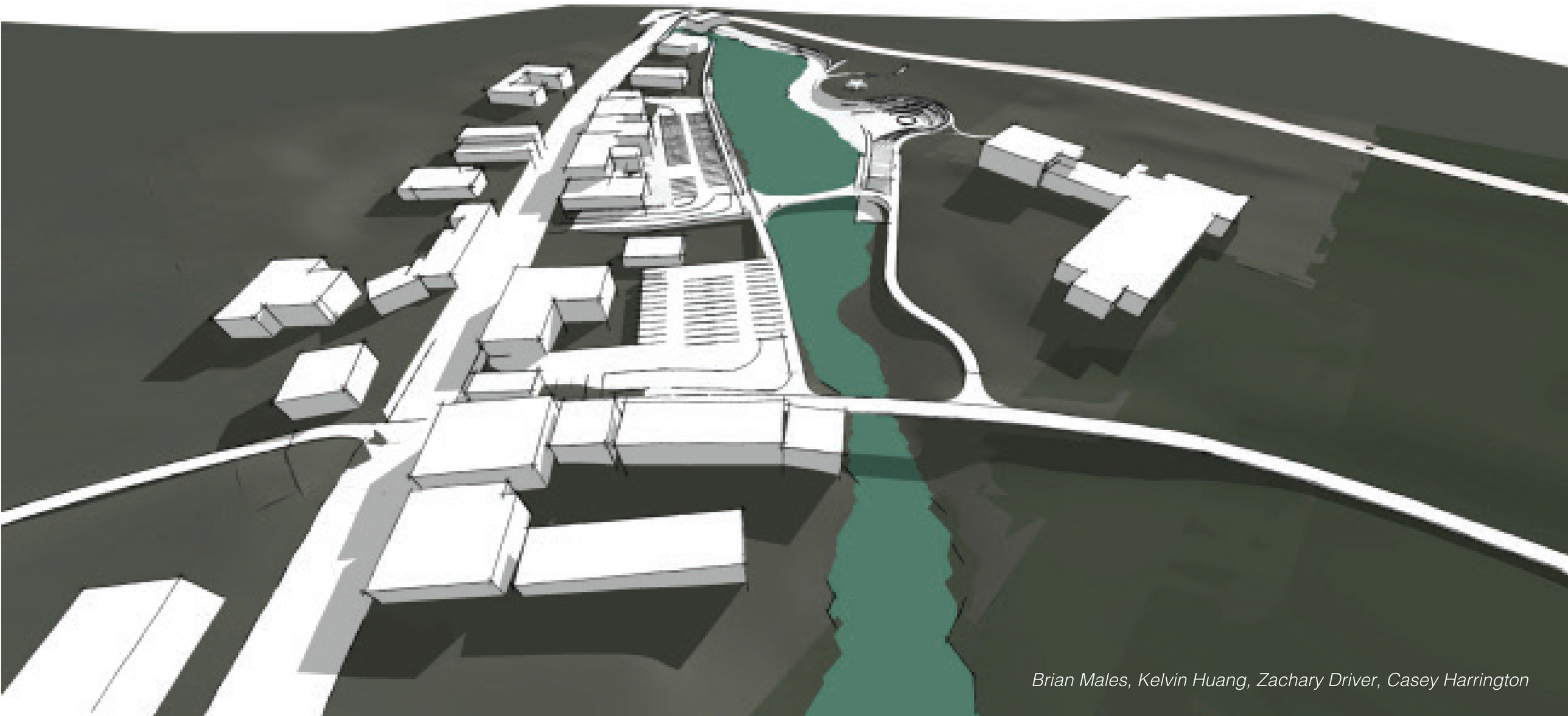
PHASE 3

thank you!

LAR 444 - Landscape Architecture Design III:

A Vision for Saugatucket Corridor

"Green Pockets of Sustainability"



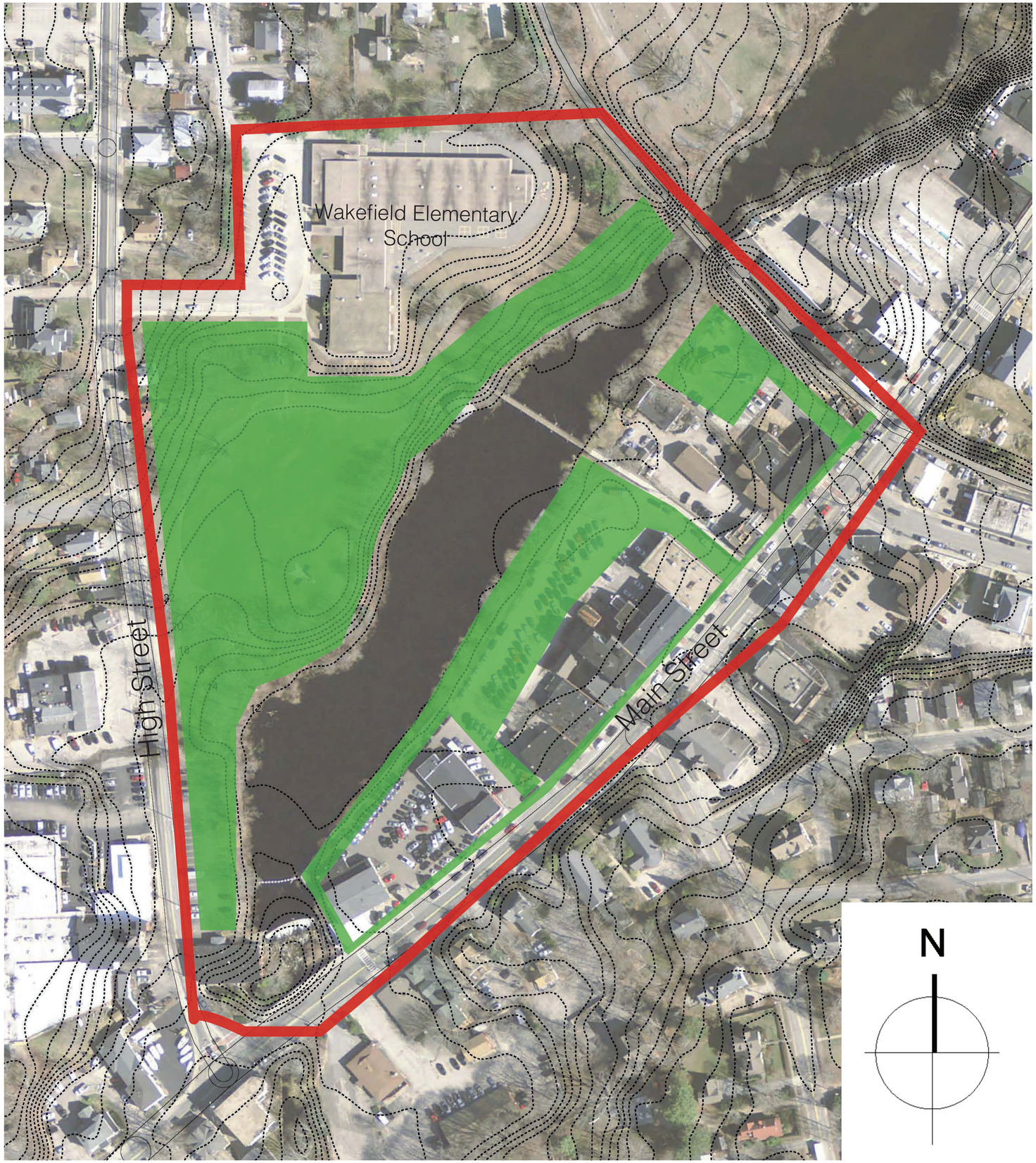
Brian Males, Kelvin Huang, Zachary Driver, Casey Harrington

Project Context:

Our project focuses on several areas between the South County Bike Path to the dam located at the bottom of the Saugatucket River.

These areas consist of:

- The two town owned parking lots along Main Street
- Saugatucket Park
- Riparian edge of the Wakefield Elementary School
- Streetscape of Main St.



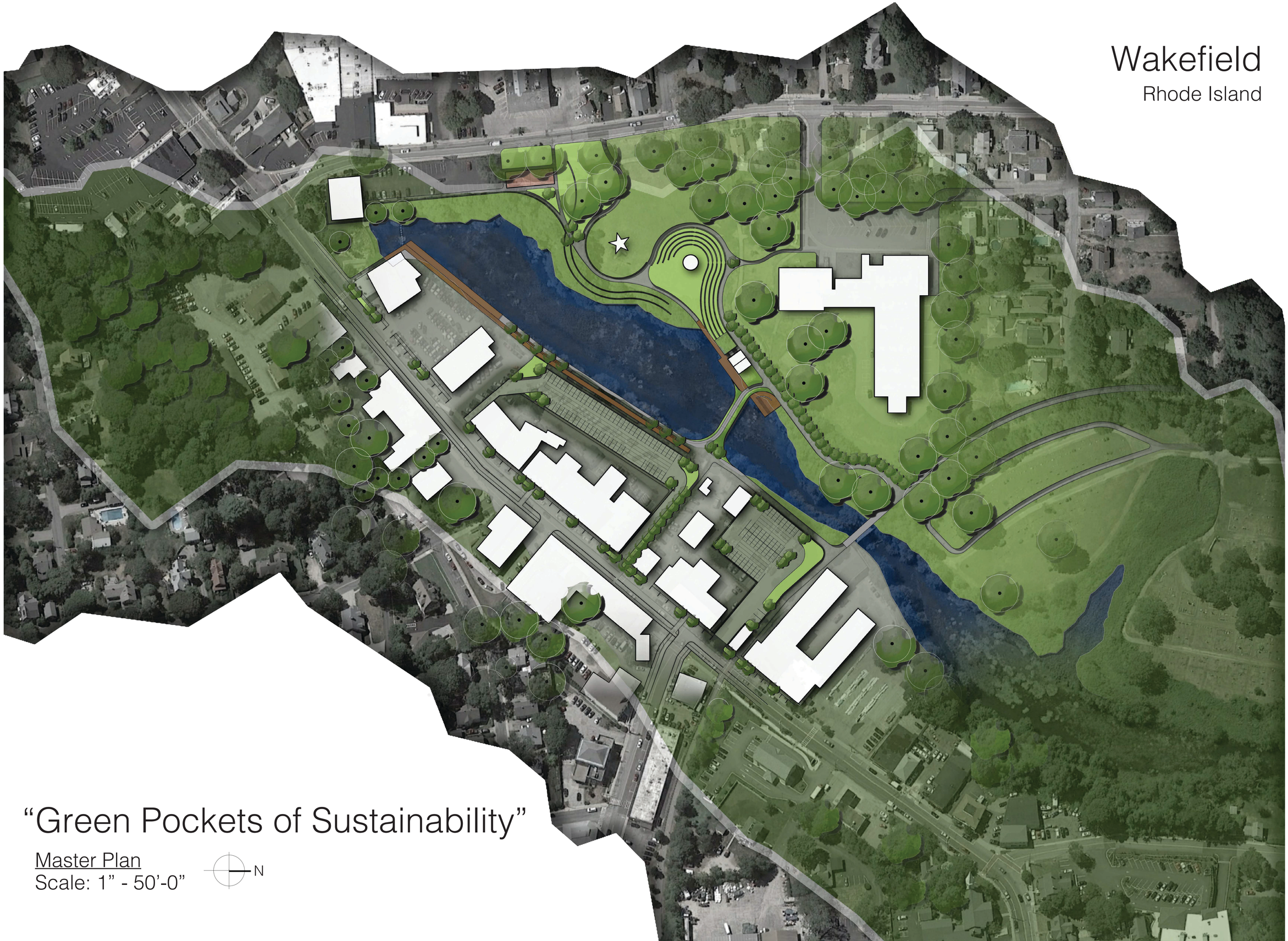
Design goals:

The “Green Pockets of Sustainability” concept will fulfill the following:

- Enhance the economic value of downtown Wakefield
- Provide creative spaces for cultural equity
- Improve and preserve the environmental values of the site.

Wakefield

Rhode Island

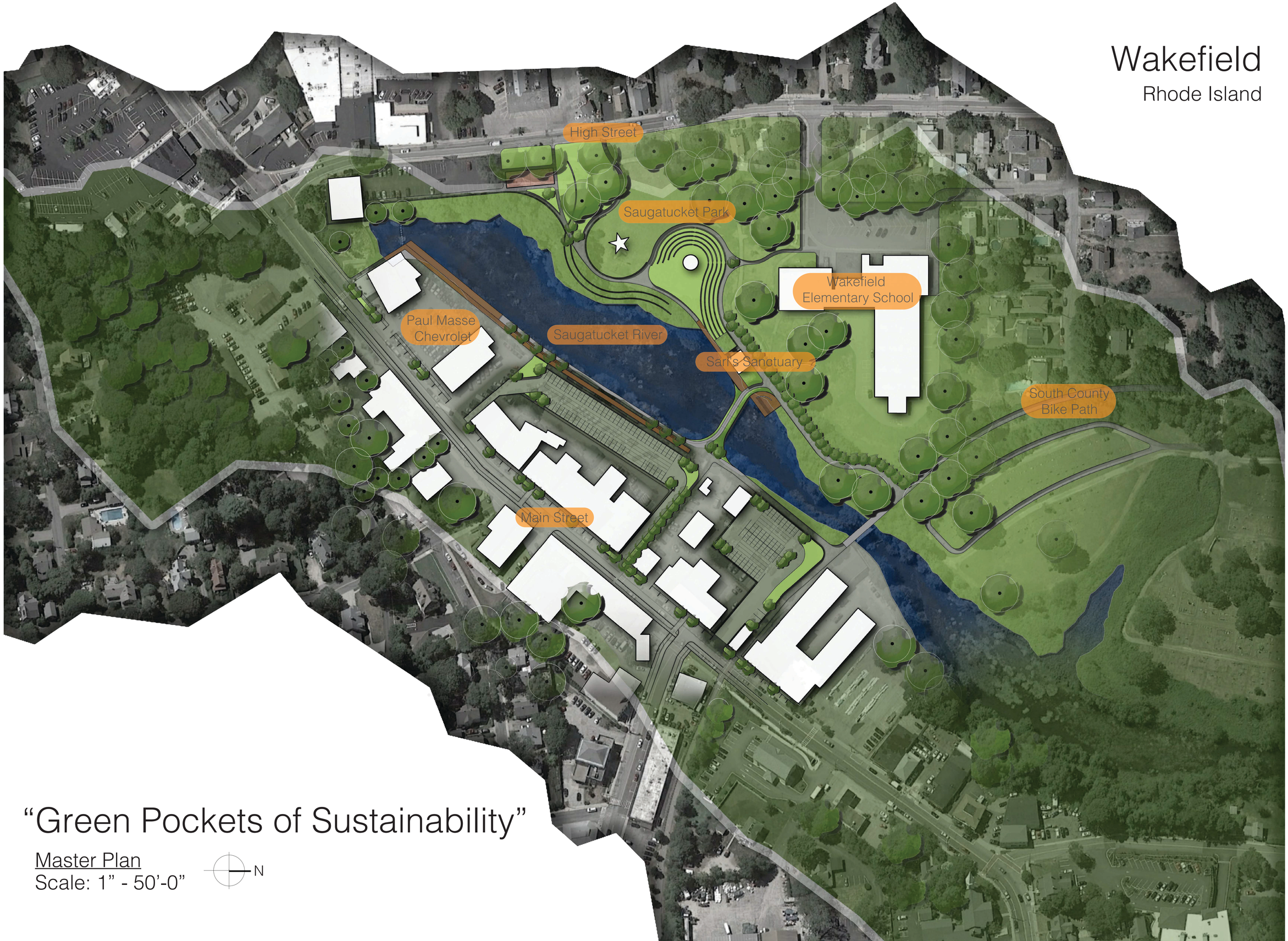


“Green Pockets of Sustainability”

Master Plan
Scale: 1” - 50’-0”

Wakefield

Rhode Island



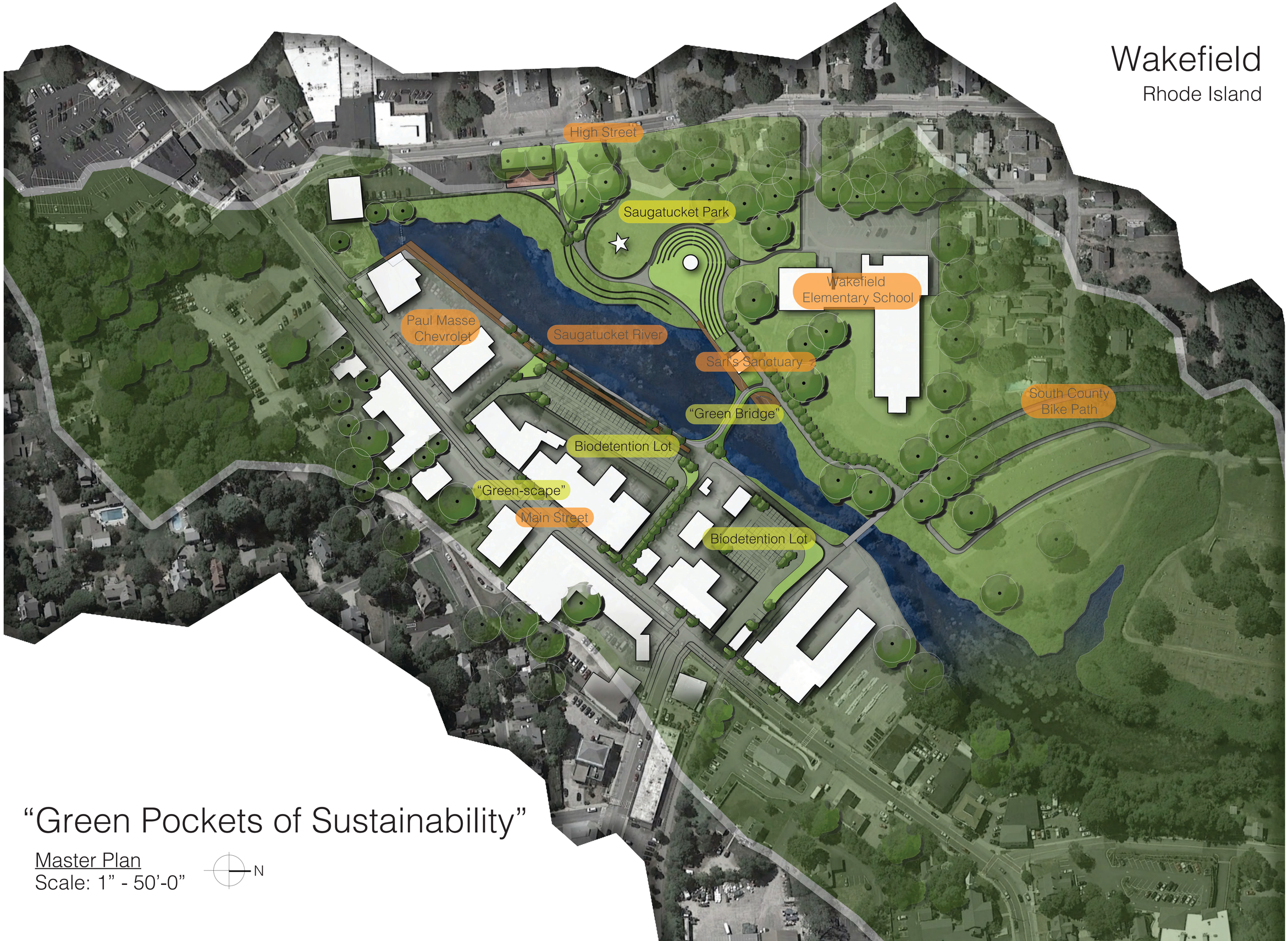
"Green Pockets of Sustainability"

Master Plan
Scale: 1" - 50'-0"

N

Wakefield

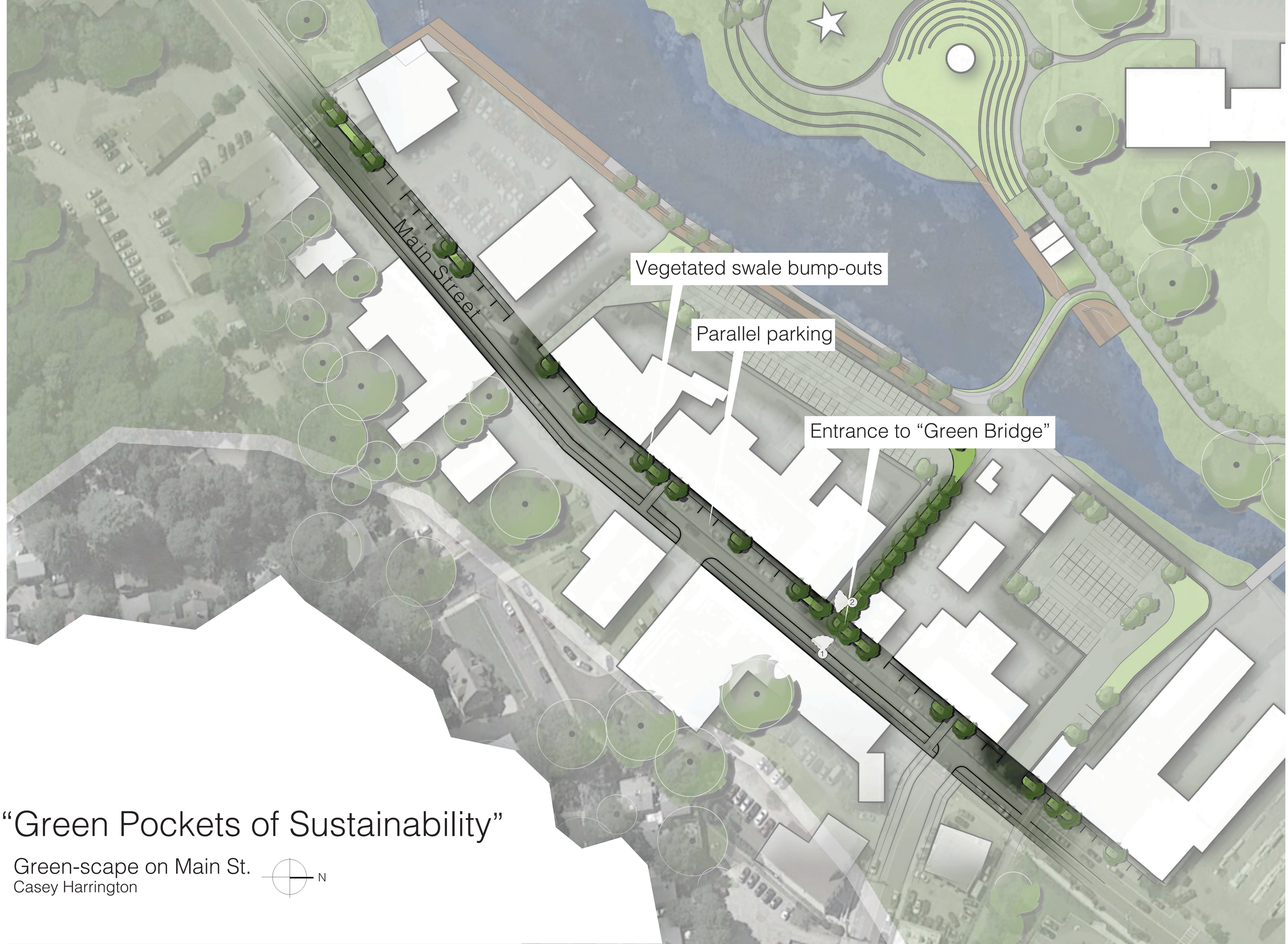
Rhode Island



"Green Pockets of Sustainability"

Master Plan
Scale: 1" - 50'-0"

N



“Green Pockets of Sustainability”

Green-scape on Main St.

Casey Harrington

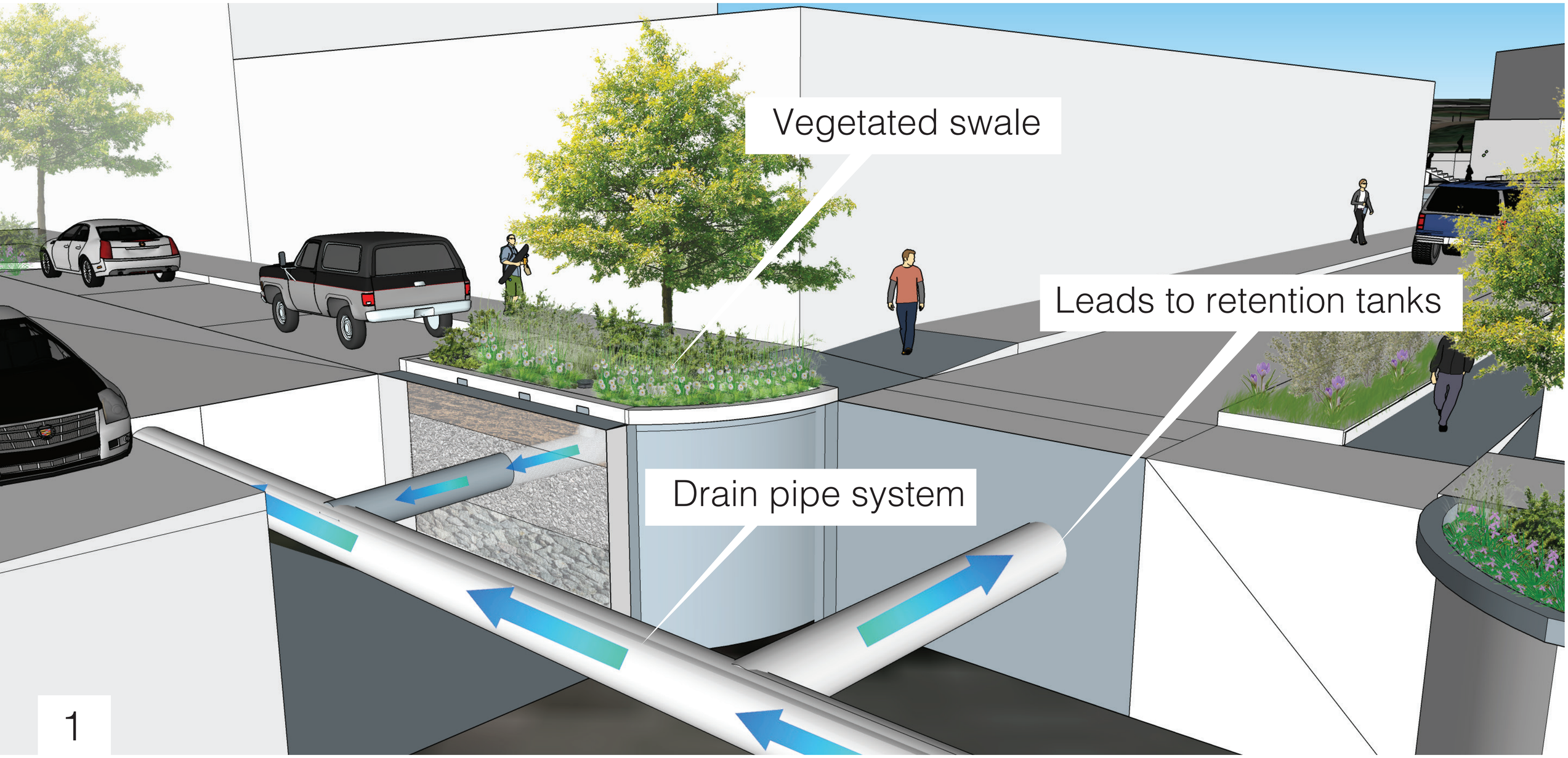
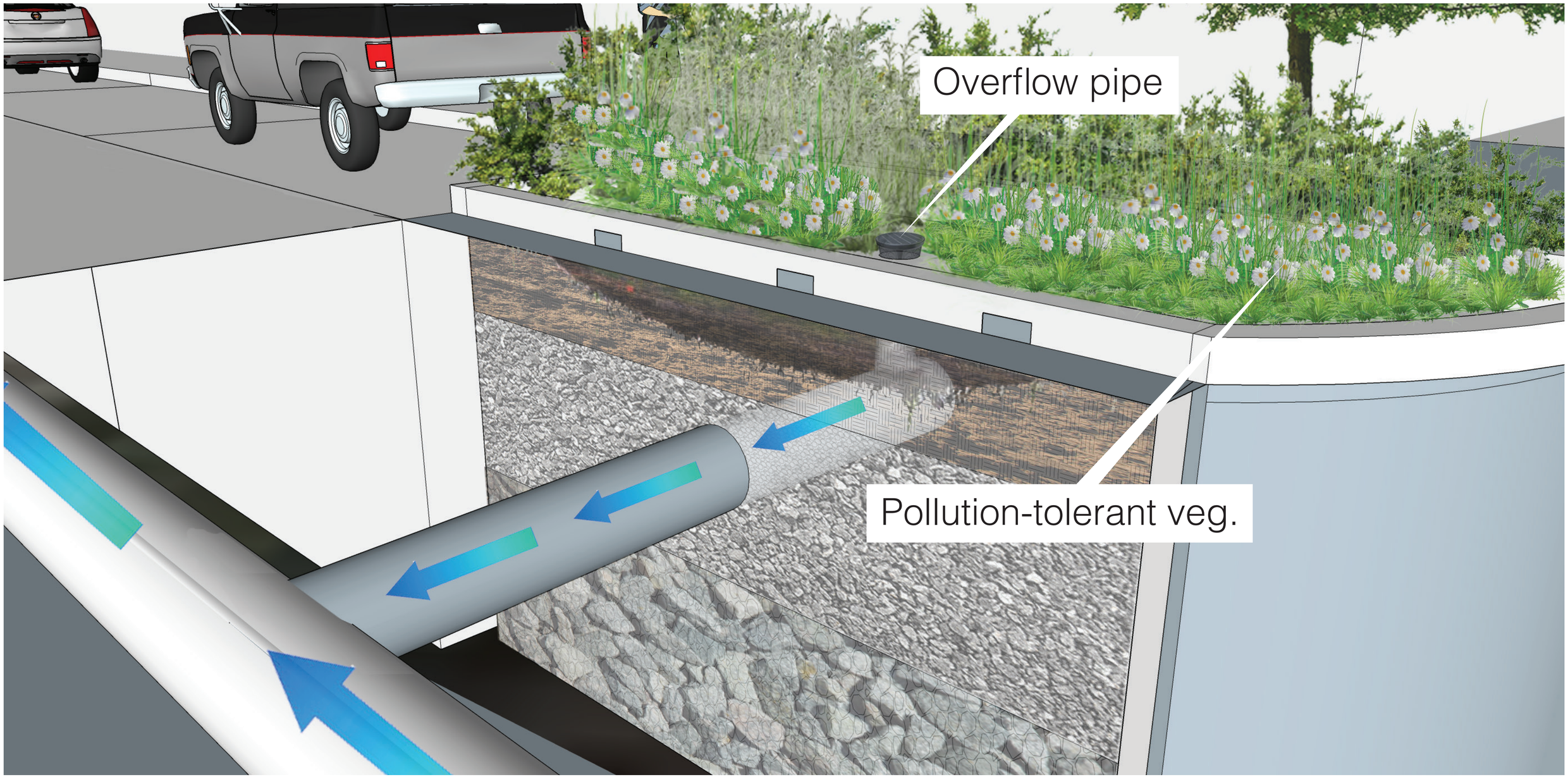
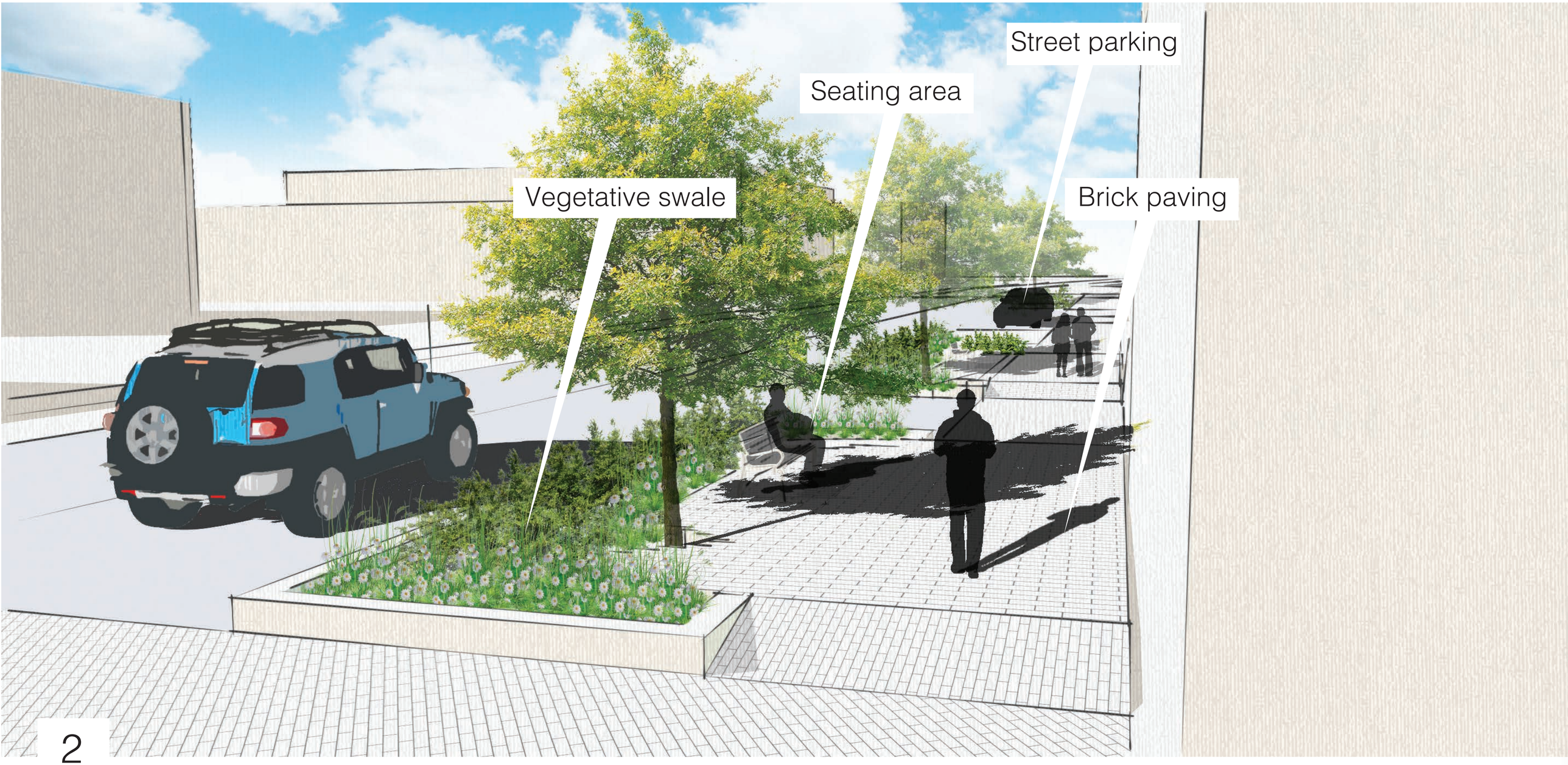


Diagram of green infrastructure

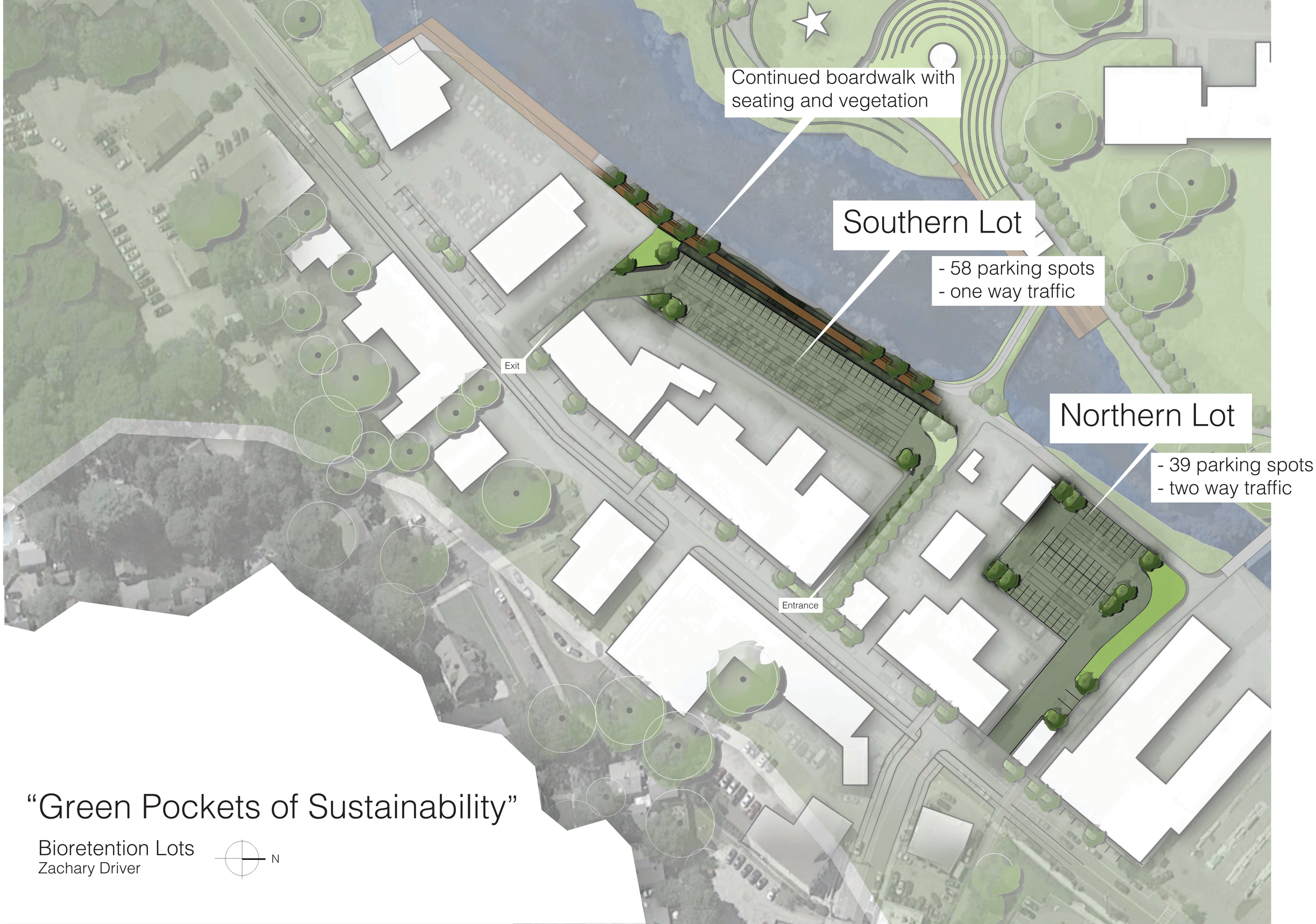


Detail of vegetated swale



2

Perspective of Green-scape looking south



"Green Pockets of Sustainability"

Bioretention Lots

Zachary Driver

"Green Pockets of Sustainability"

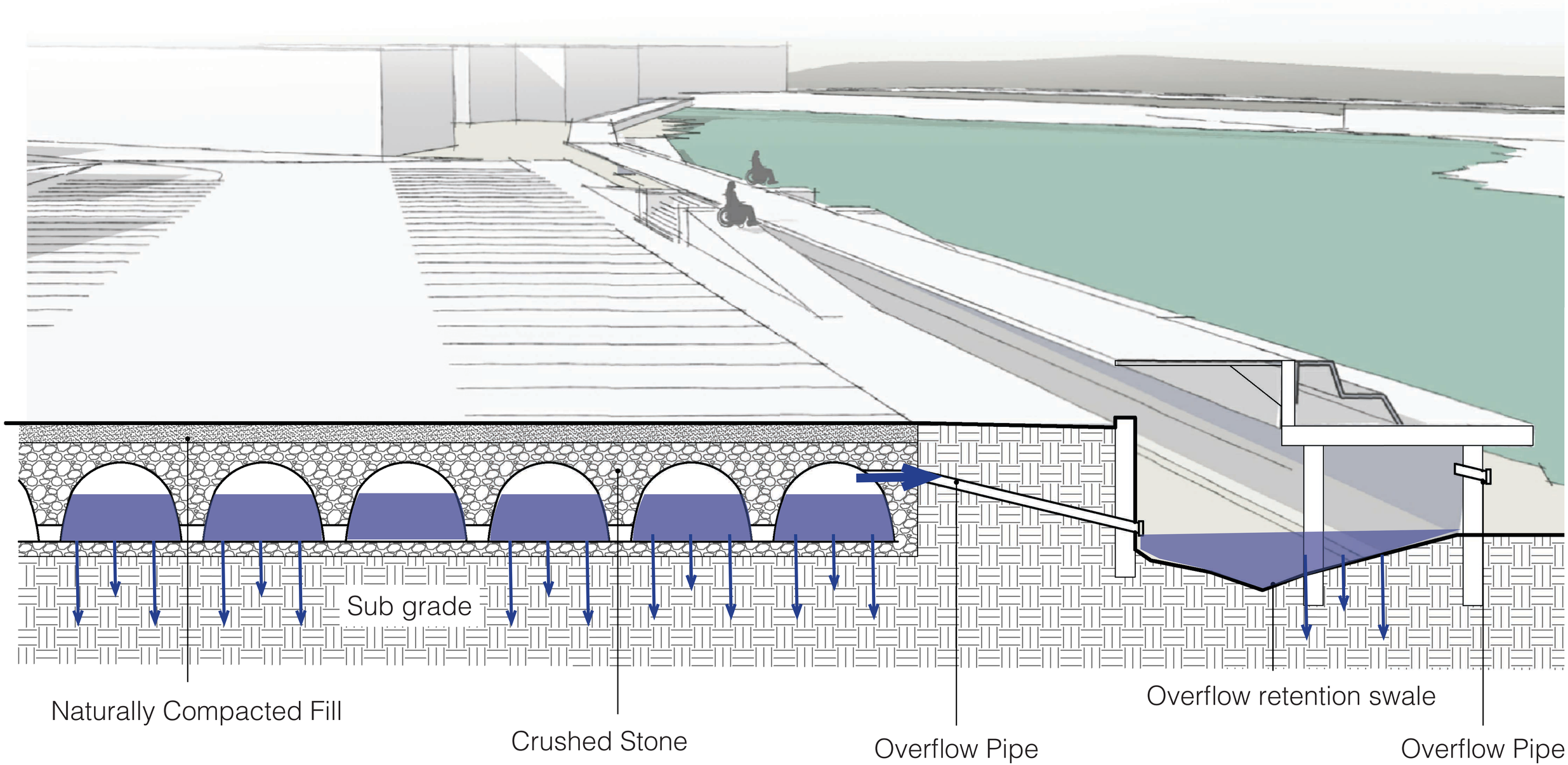
Stormwater and Parking Improvements

Zachary Driver

902HD Stormwater Chamber Visual

This system will store and release 600,000 gallons of runoff

Image from: Cultec Catalog/ Recharger® 902HD Stormwater Chambers



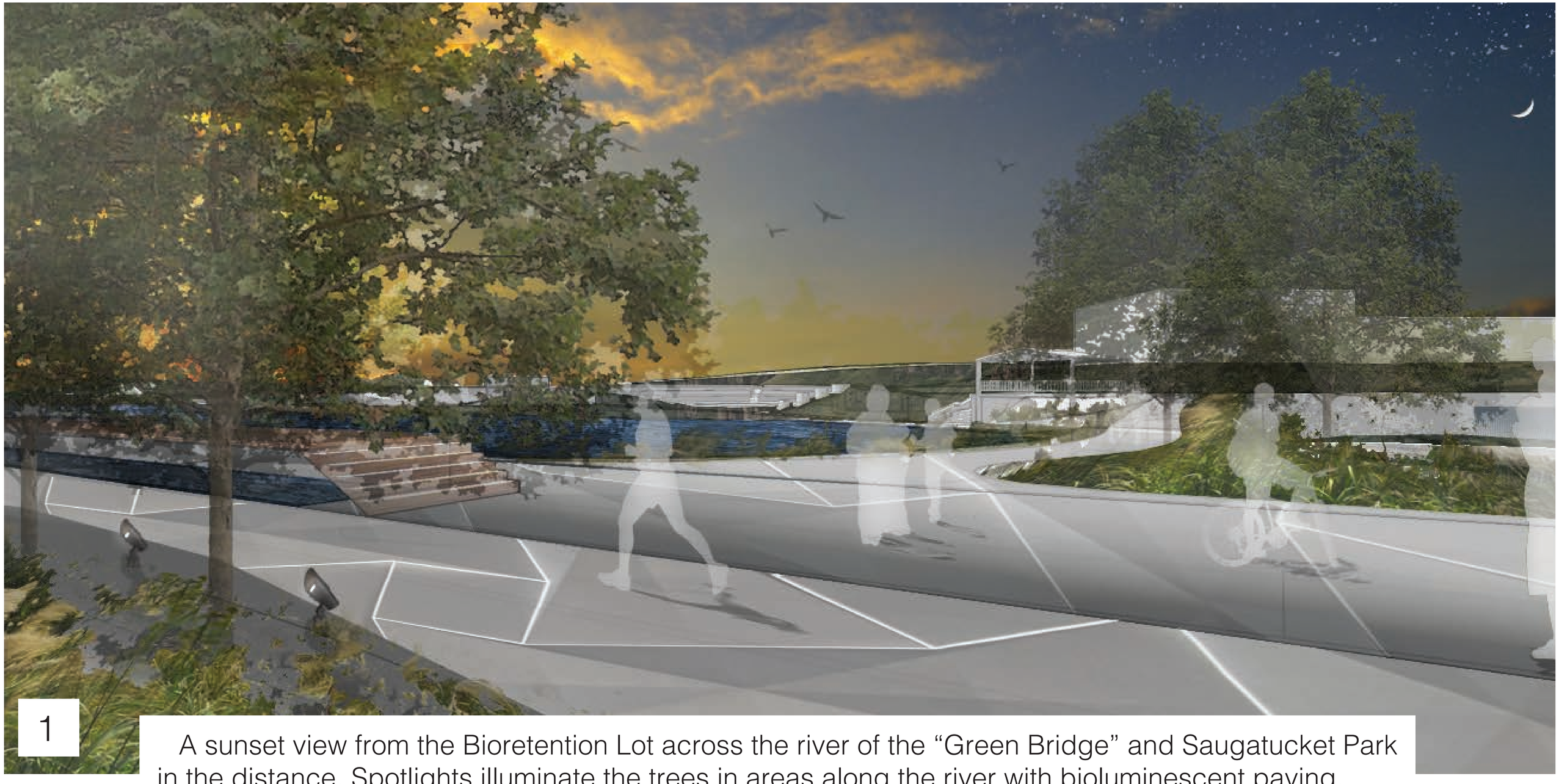
Bioretention Tank Diagram

Precedent image of the High Line in New York City.

"Green Pockets of Sustainability"

"Green Bridge"

Kelvin Huang



1

A sunset view from the Bioretention Lot across the river of the “Green Bridge” and Saugatucket Park in the distance. Spotlights illuminate the trees in areas along the river with bioluminescent paving.

A sunset view on the “Green Bridge” looking towards Sari’s Sanctuary and Saugatucket Park in the distance. Bioluminescent paving and glass railings illuminate the bridge as the sun goes down.

2

3

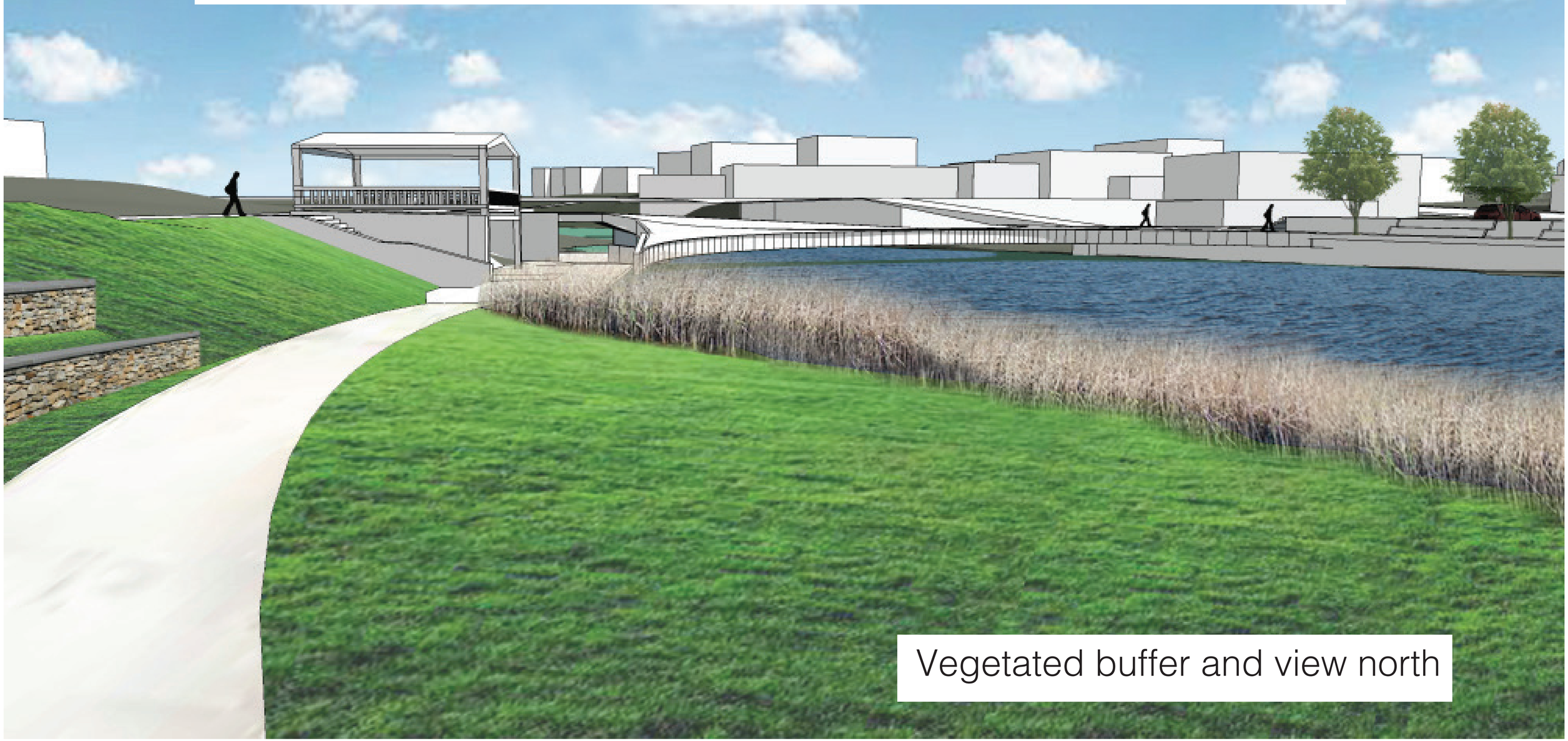
A river fire brings the community together. View on the designed boardwalk by Sari's Sanctuary looking towards the "Green Bridge" and Main St. skyline.

"Green Pockets of Sustainability"

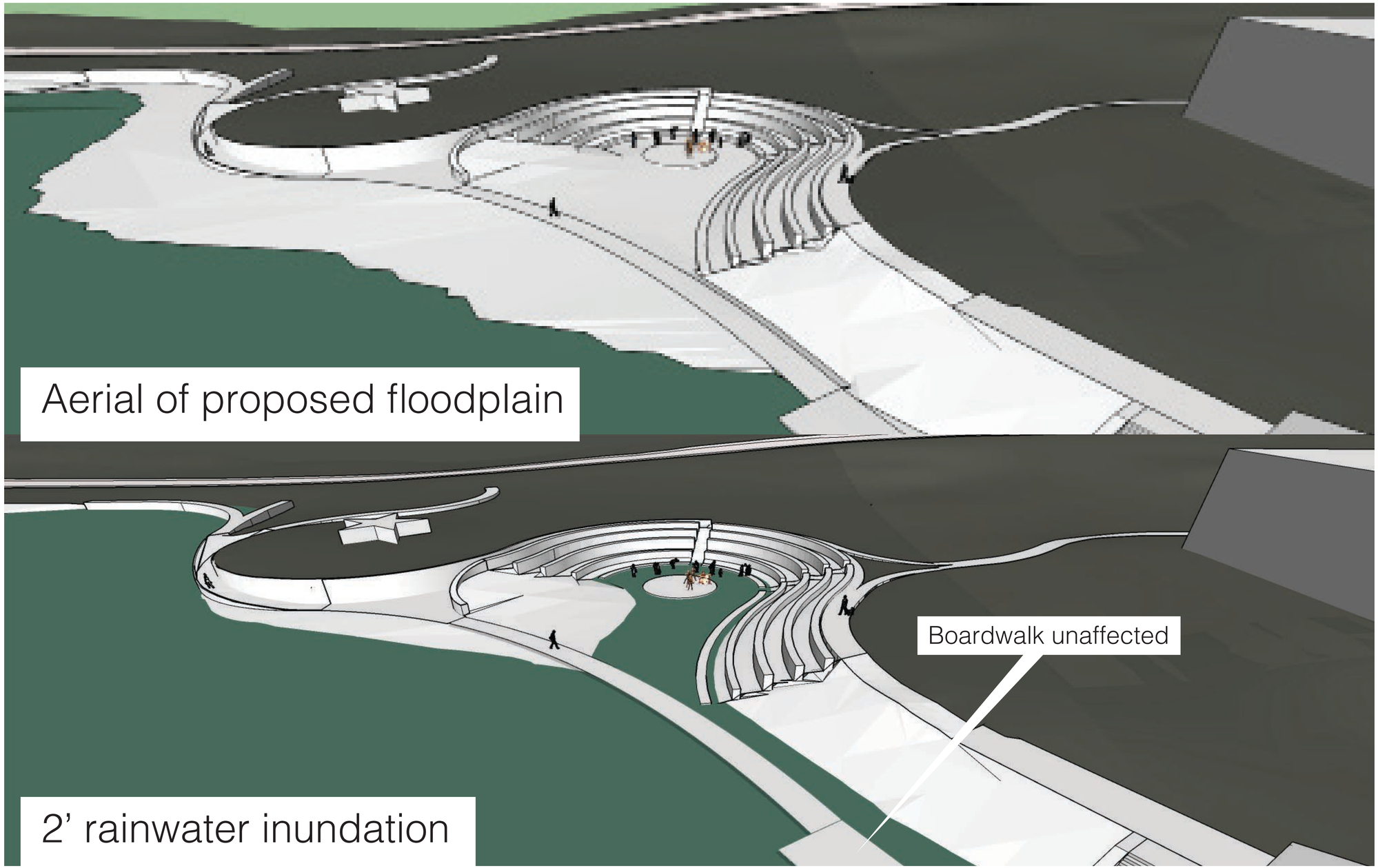
Saugatucket Park

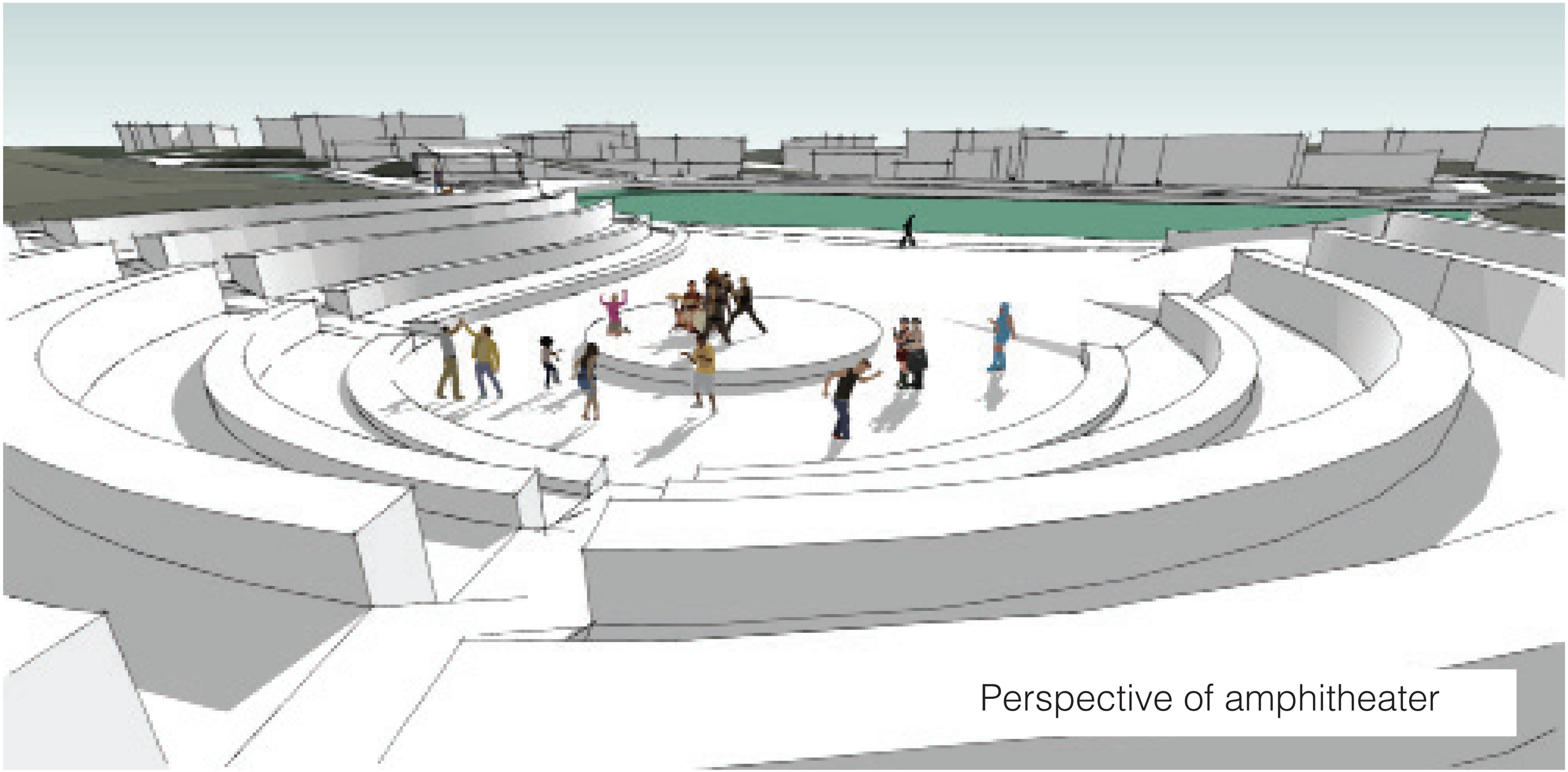
Brian Males

This area provides for flood storage while creating a new recreational space for all to enjoy.



Vegetated buffer and view north

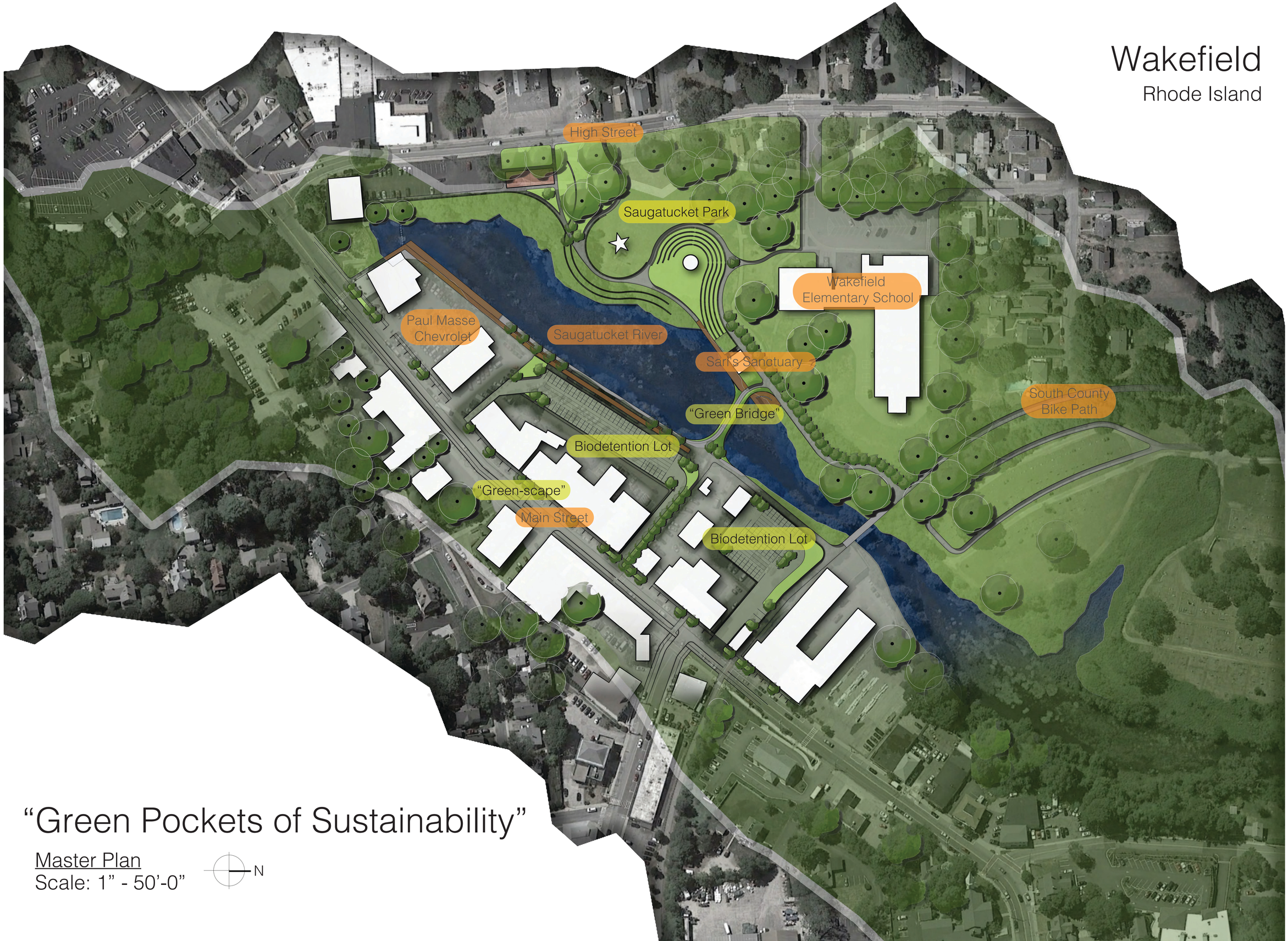

Aerial of proposed floodplain
Boardwalk unaffected
2’ rainwater inundation



Perspective of amphitheater

Wakefield

Rhode Island



"Green Pockets of Sustainability"

Master Plan
Scale: 1" - 50'-0"

N

Creating a Sense of Place Through Culture, History, and Sustainability

A Vision for Wakefield and The Saugatucket River

Romeo D'Andrea, Pabel Fernandez, Katie Meegan,
Brian Bieszard

Table of contents

1. Masterplan
2. Saugatucket Park - Brian Bieszard
3. Public Parking Lot - Katie Meegan
4. Main Street - Pabel Fernandez
5. Gateways - Romeo D’Andrea

Master Plan

Project Focus

1. Wakefield Elementary
2. Saugatucket Park
3. Public Parking Lot
4. Main Street

Gateways

5. Main Street Gaateway Arch
6. Bike Path Pergola
7. Public Lot Mural and Park Entrance
8. Southern Gateway to Downtown

Saugatucket Park

Project Focus

1. Wakefield Elementary
2. Saugatucket Park
3. Public Parking Lot
4. Main Street

Gateways

5. Main Street Gaateway Arch
6. Bike Path Pergola
7. Public Lot Mural and Park Entrance
8. Southern Gateway to Downtown

Saugatucket Park

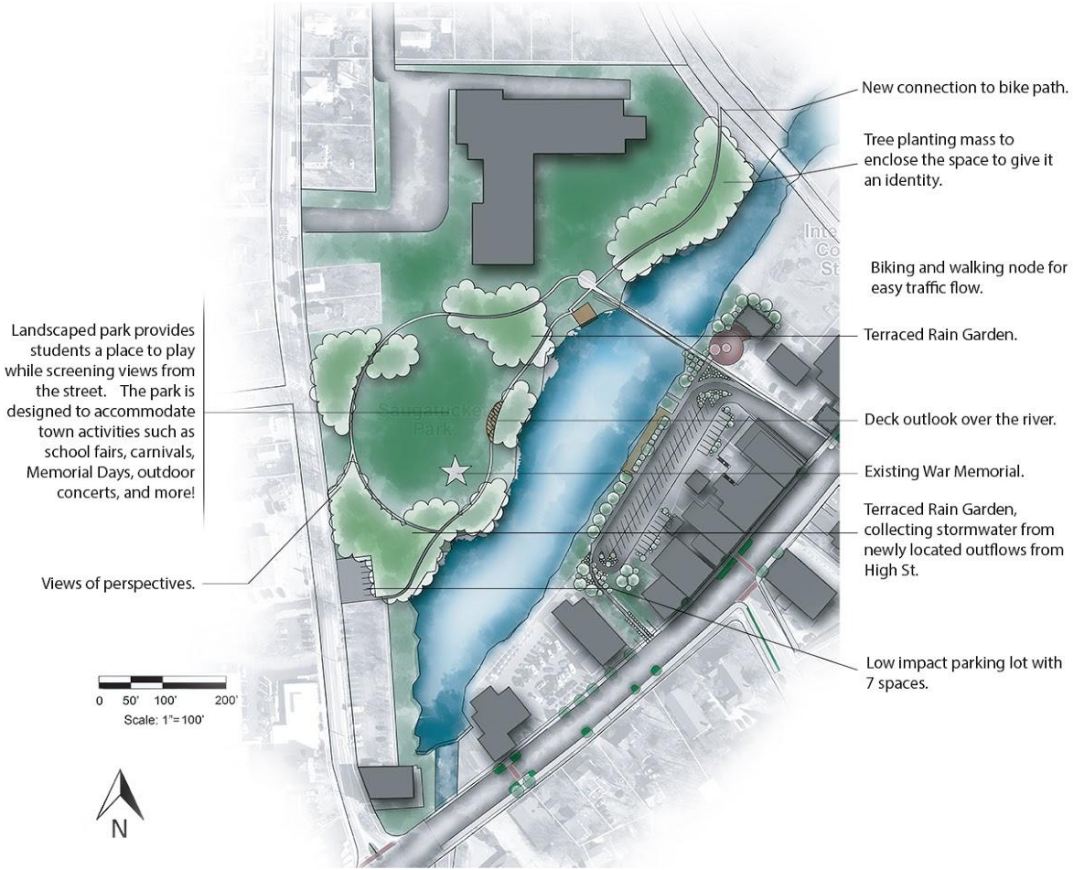
Project Goals:

My design will focus on making a more desirable destination, attracting people for events as well as connecting to the bike path and downtown Wakefield.

Project Objectives:

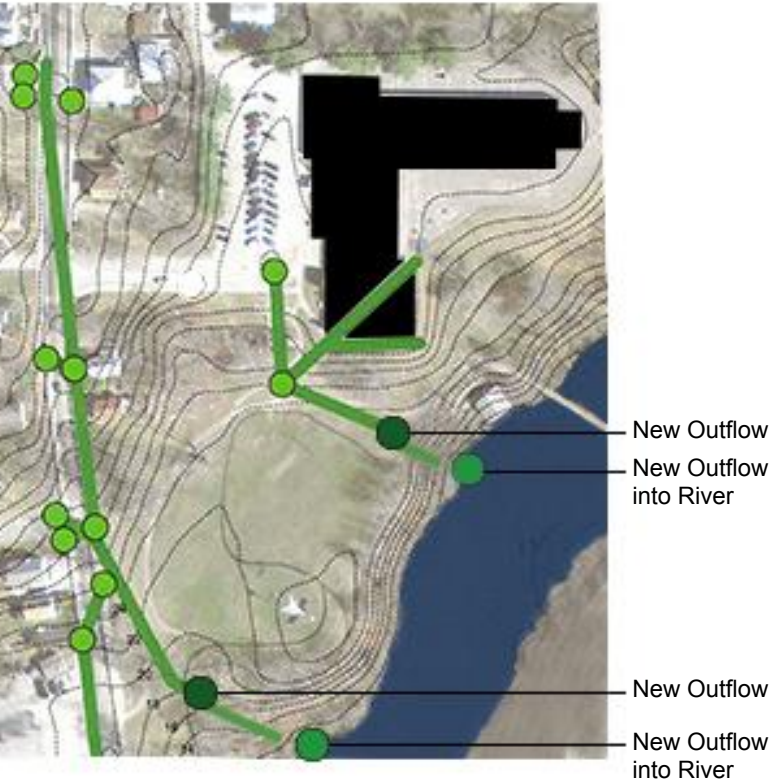
- The design provides view sheds in and out of the new park with paths that meander around the perimeter, along the steep river's edge from High St, connecting to Sari's Sanctuary, the walking bridge, and the bike path.
- The design will restructure the existing outflows collected from high street and direct them to new terraced rain gardens.
- Lastly the new design will bring residents and visitors to a safe, multi-purpose park that everyone will enjoy.

Saugatucket Park



Saugatucket Park

Selective Remediation of Invasives to Allow Natives To Thrive!



Outflows are detailed in the next slide.

Norway Maple

Rosa Multiflora

Japanese Knotweed

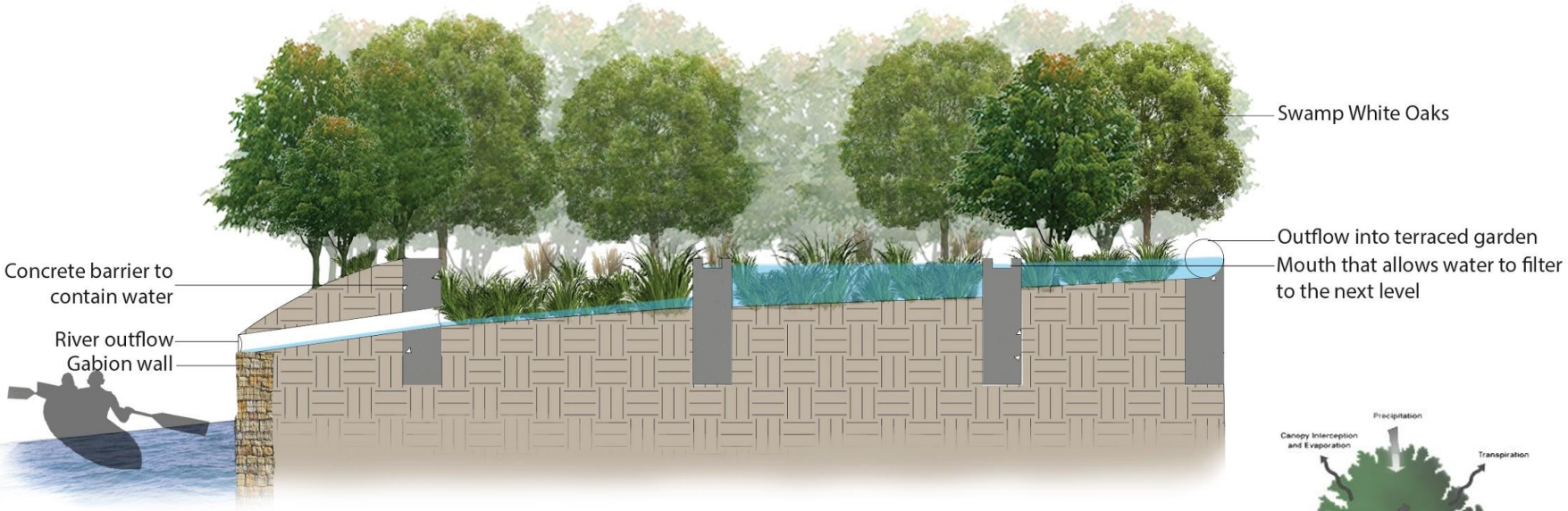
Purple Loosestrife

Common Reed

Bittersweet

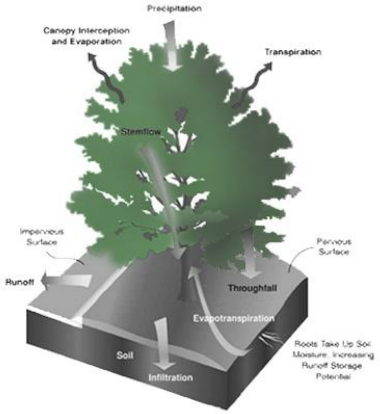
Duckweed

This will occur along the coastal edge from high street bridge to the cemetery

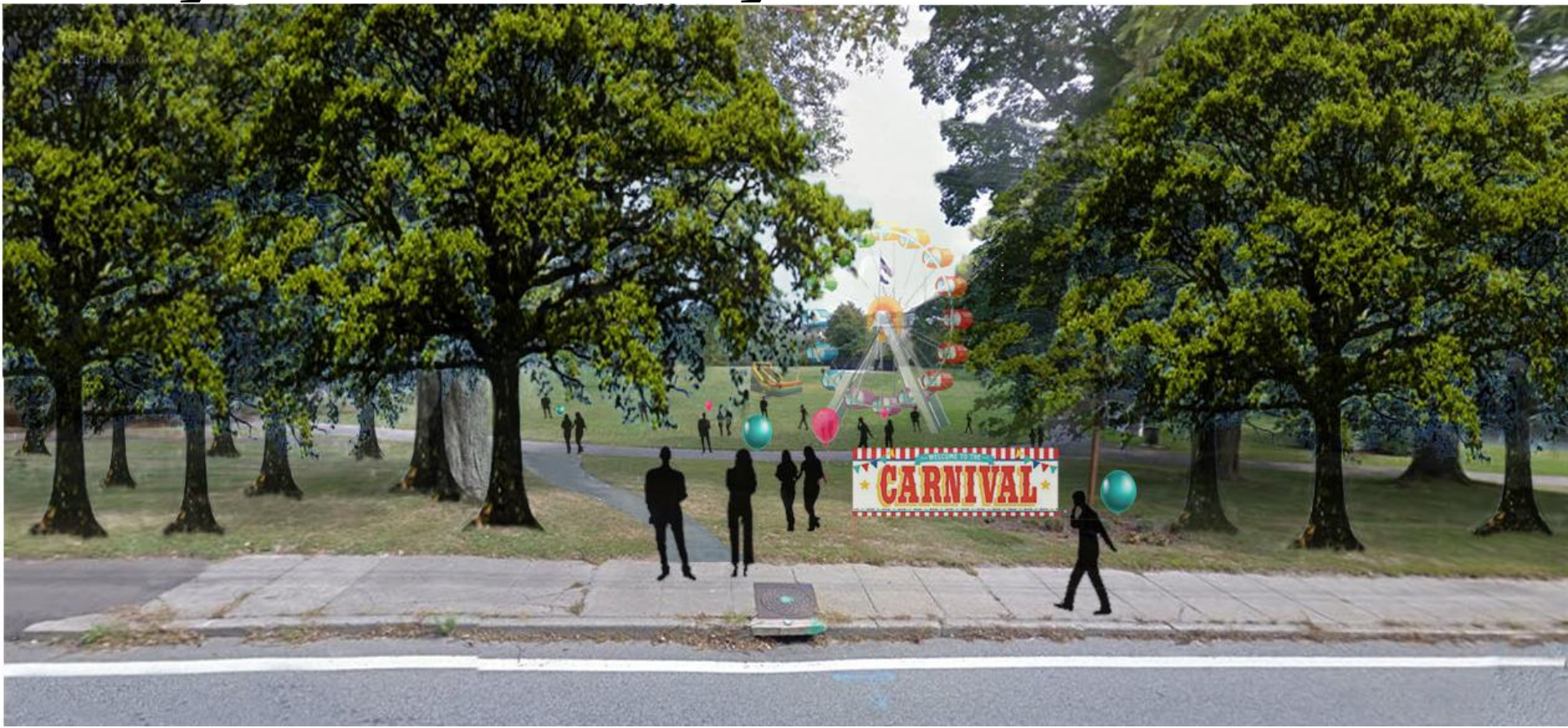


Cross section of the terraced rain garden.

1,235 gallons of H_2O, and 425 lbs of CO_2 annually consumed by the Swamp White Oaks



Saugatucket Park During a Carnival



Saugatucket Park During Memorial Day

Saugatucket Park During the River Fire

Parking Lot

Project Focus

1. Wakefield Elementary
2. Saugatucket Park
3. Public Parking Lot
4. Main Street

Gateways

5. Main Street Gaateway Arch
6. Bike Path Pergola
7. Public Lot Mural and Park Entrance
8. Southern Gateway to Downtown

Parking Lot

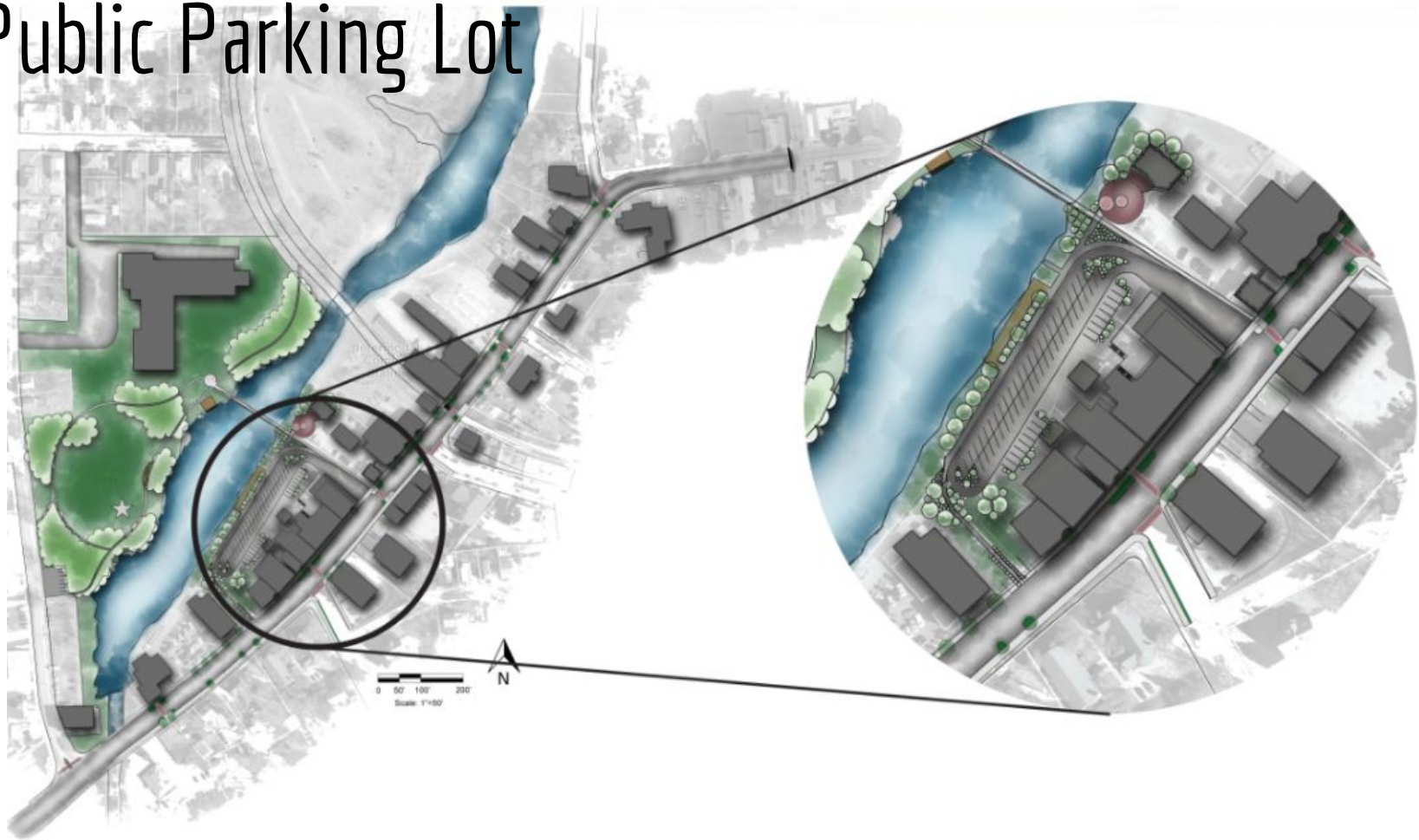
Project Goals:

Development of a new gathering space along the river that will integrate proposed improvements to the rear facade of Mary Murphy's pub continuing along Bell Block. The redesign will transform the parking lot from an intermediate mode of travel to a destination space.

Project Objectives:

- Remove and remediate pollutants that drain into the river from cars and other sources
- Filtration of water
- Addition of plant life
- Enhance economy/revenue to businesses by drawing more people to the area
- Create and enhance views of the river

Public Parking Lot



Redesign

Kayak Launch

Elongated Fishing Dock

Pedestrian Access Pathway Extension

Connection to Theater Parking Lot

Structured grass paving

Proposed decking providing a new gathering space for businesses

Maintenance of private parking spaces

Entrance to Public Parking

Pedestrian Boardwalk

Proposed Deck; A New Gathering Space

Main Street

Project Focus

1. Wakefield Elementary
2. Saugatucket Park
3. Public Parking Lot
4. Main Street

Gateways

5. Main Street Gaateway Arch
6. Bike Path Pergola
7. Public Lot Mural and Park Entrance
8. Southern Gateway to Downtown

Main Street

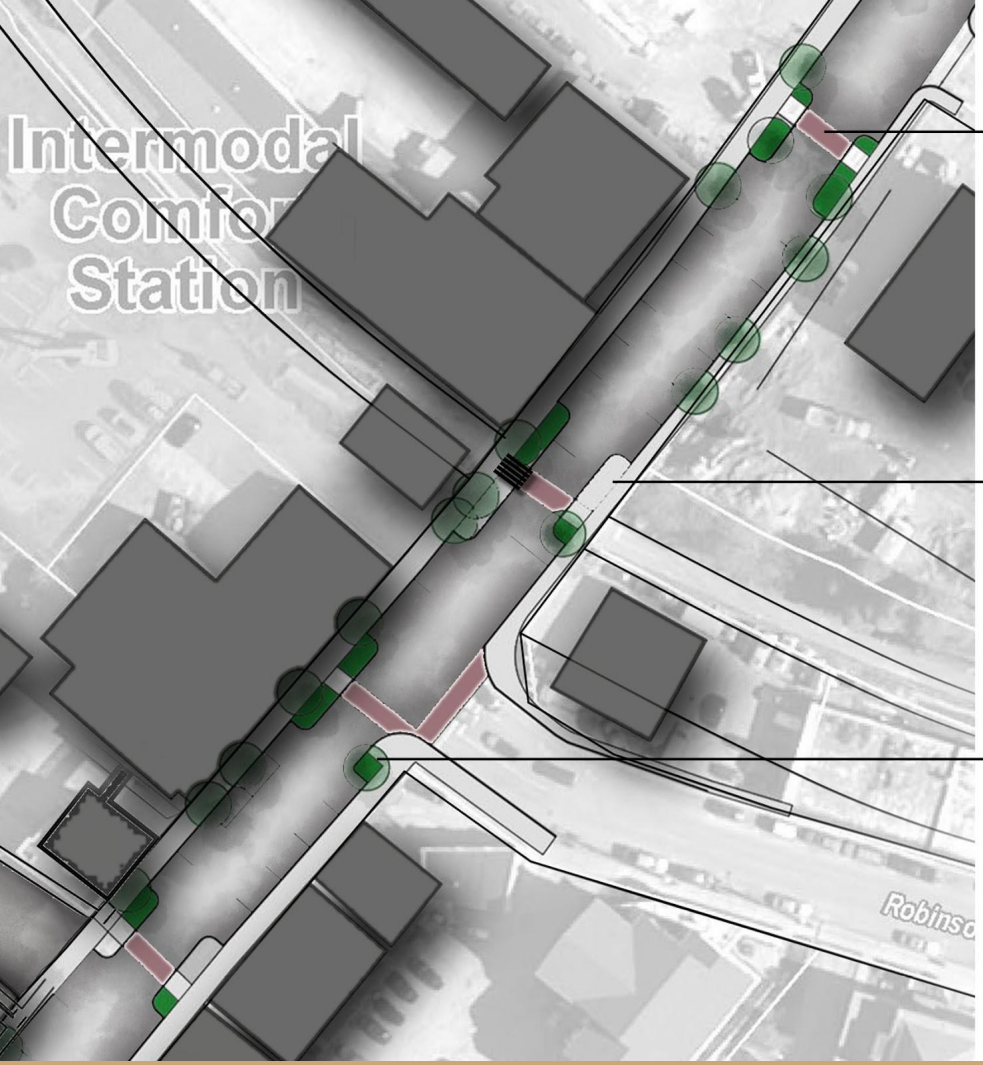
Project Goals:

To provide a safe experience for pedestrians, bicyclists

and vehicles, while enhancing sense of place.

Project Objectives:

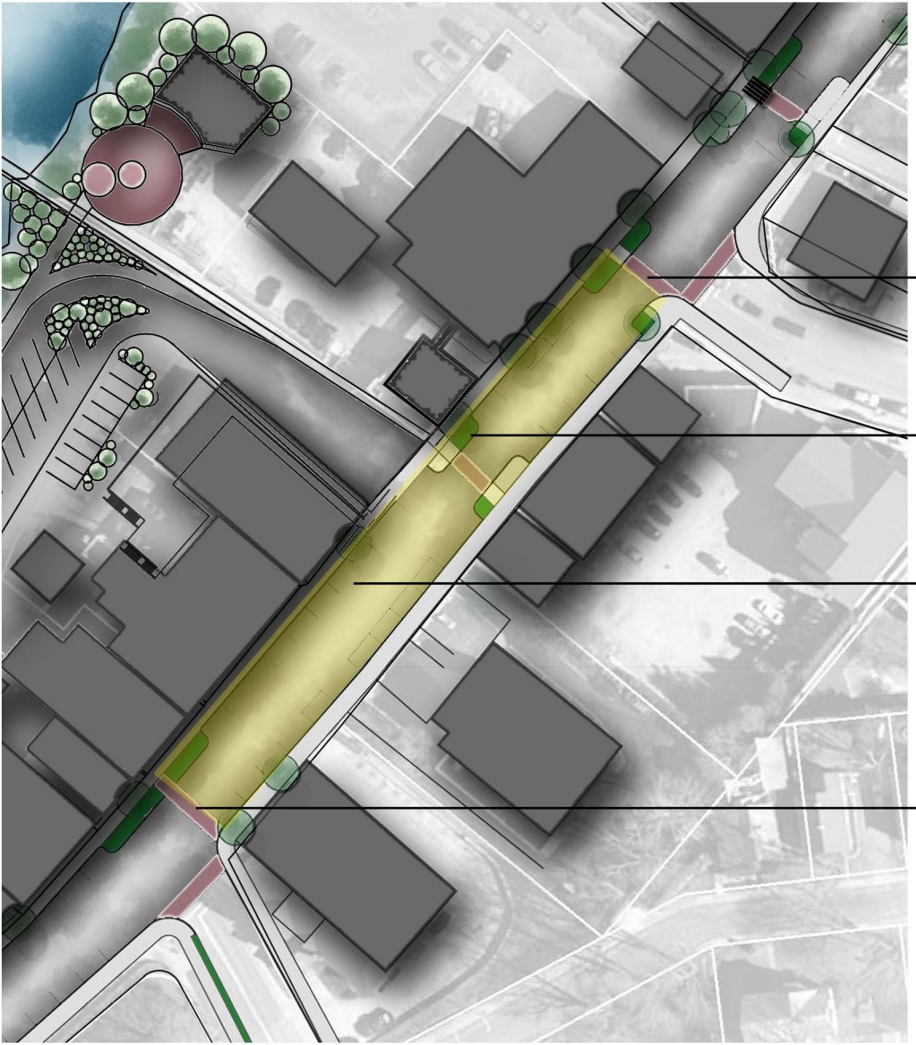
- Introduce traffic calming techniques.
- Capture and filter stormwater runoff before it flows back into the river.
- Provide area in front of businesses for sitting, reading, and gathering.
- Place utilities below grade for improved aesthetics and sense of place.



Consistent crosswalk design

Street Bump-out
- -Bike parking structure
- -Pedestrian Safety
- -Filter Stormwater
- -Seating area

Street Bump-out
- -Allows addition of 13 trees along Main st.
- -3,800sqft Green space



Removable Bollards
Intersection of Main st. with Robinson ave

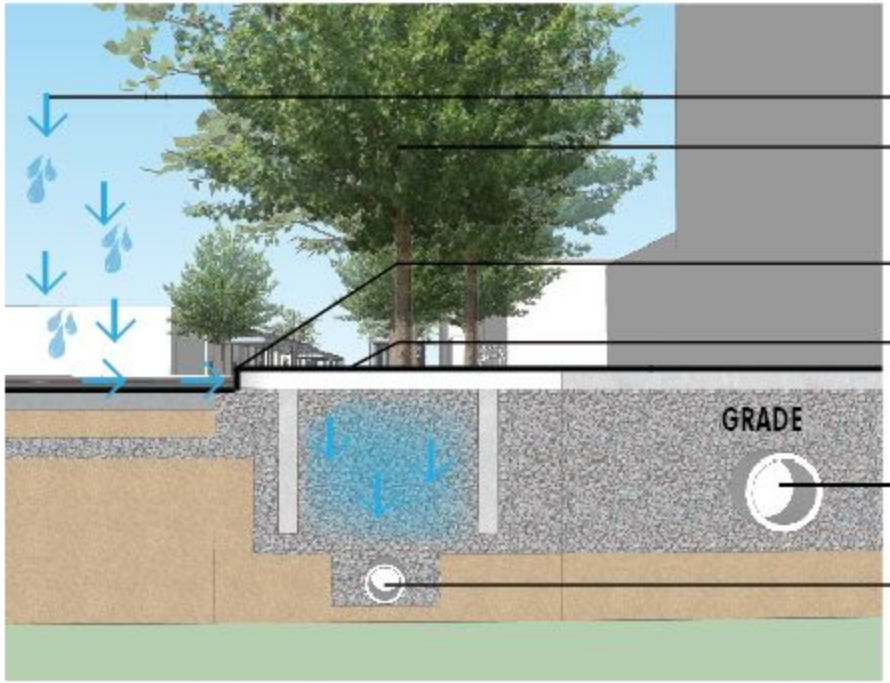
Street Bump-out
-Pedestrian Safety
-Filter Stormwater
-Seating area

Pedestrian Promenade for seasonal events

Removable Bollards
Intersection of Main st. with Kenyon ave

Las Ramblas, Barcelona

Las Ramblas, Barcelona



Street Storm Water System

Storm water

Shade Tree
-Captures rain water, filters air and provides shade.

Curb opening Inlet
-Captures road runoff

Storm water Infiltration Planter
-Stores and filters road runoff.

Utility Channel
-Houses utility lines.

Overflow Drain
-Transfers overflow to wetland system.

Diagram displays how storm water is captured, and filtered before infiltrating into the ground.

PIER PIZZA COMPANY
SALON
Main Street
BOUTIQUE

PIER PIZZA COMPANY
SALON
PIZZ
Main Street
BOUTIQUE

Gateways

Project Focus

1. Wakefield Elementary
2. Saugatucket Park
3. Public Parking Lot
4. Main Street

Gateways

5. Main Street Gaateway Arch
6. Bike Path Pergola
7. Public Lot Mural and Park Entrance
8. Southern Gateway to Downtown

Gateways

Gateways provide a unique sense of identity, transition and anticipation.

Gateways identify entrance points to the village and highlight key destinations.

Gateways

Project Goals:

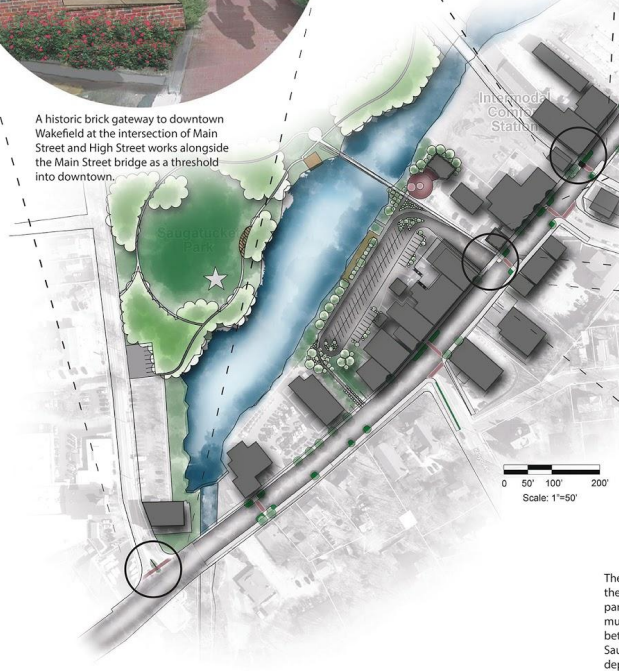
Develop a unique, attractive system of gateways, thresholds and landmarks that add to Wakefield's sense of place while providing clear, concise directions and continuity.

Project Objectives:

- Design gateways that welcome visitors and encourage movement into the village.
- Gateways will demonstrate continuity of meaning and materials.
- Different landmarks will act as gateways that welcome bicyclists, pedestrians and drivers.
- Landmarks and gateways will showcase a unique sense of place.

A historic brick gateway to downtown Wakefield at the intersection of Main Street and High Street works alongside the Main Street bridge as a threshold into downtown.

A wood and brick pergola at the intersection of the William C. O'Neil Bike Path and Main Street welcomes bicyclists with historically correct material. The pergola will arch over the bike path, acting as a landmark for cyclists who might otherwise ride directly through Wakefield.



Saugatucket Park signage gives visitors examples of the amenities available just over the bridge.

Northern gateway at Main Street and Columbia Street evokes a sense of anticipation, guiding drivers and pedestrians toward the village. The new downtown logo appears on the gateway at High Street and can be used on banners as well, contributing to continuity.

The North wall of Mary Murphy's frames the public's entrance to the municipal parking lot. With the work of a local artist, a mural installation can serve as a threshold between downtown Wakefield and the Saugatucket River. A beautiful painting depicting a pre-industrialized Saugatucket River will pay homage to the River's deep-rooted history within Wakefield.

Project Goals

Develop a unique, attractive system of gateways, threshold and landmarks, that add to Wakefield's sense of place while providing clear, concise directions and continuity.

Project Objectives

- Design gateways that welcome visitors and encourage movement into the village.
- Gateways will demonstrate continuity of meaning and materials.
- Different landmarks will act as gateways that welcome bicyclists, pedestrians and drivers.
- Landmarks and gateways will showcase artistic expression to express a unique character that is Wakefield.

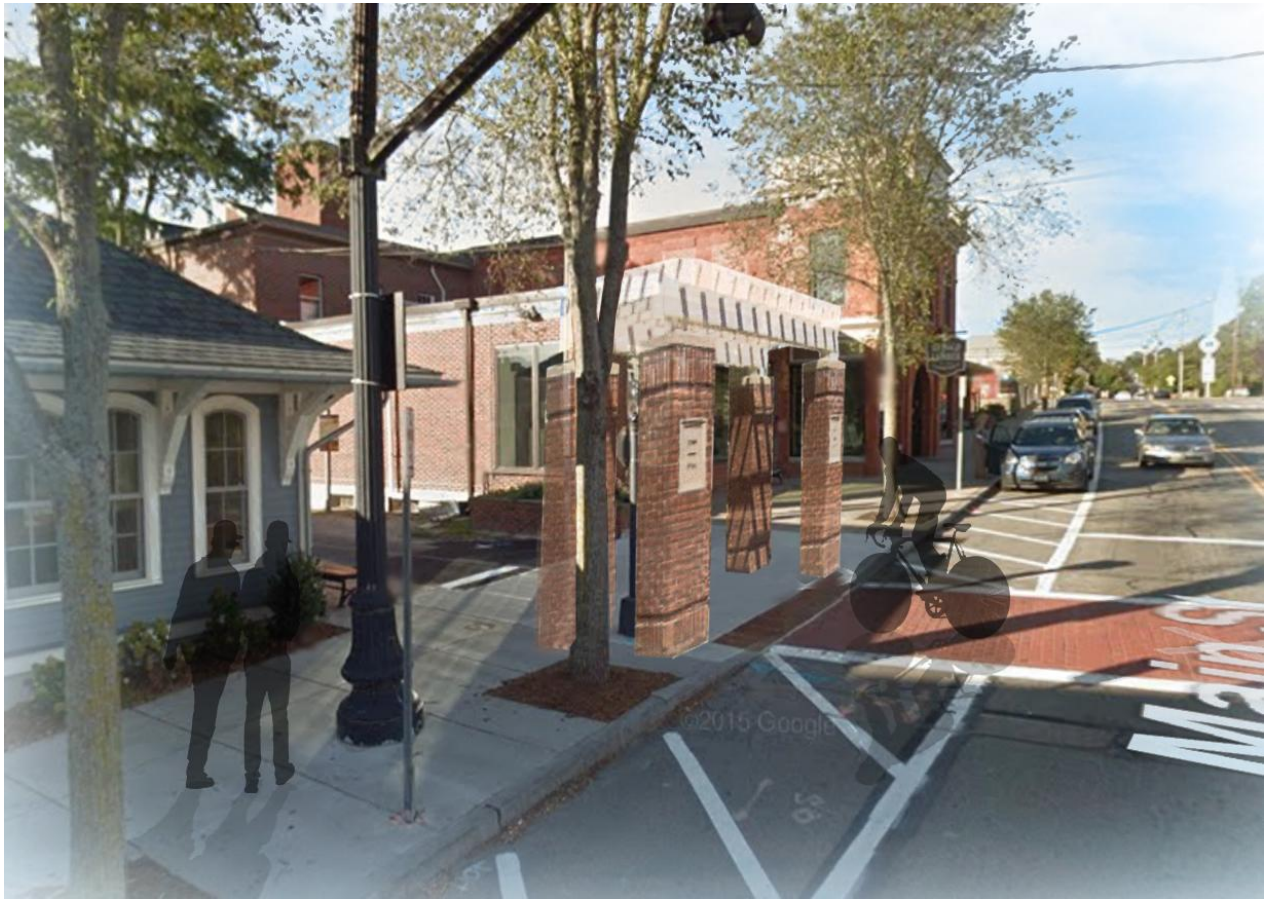
Northern Gateway at Main Street and Columbia Street

Southern Gateway at Intersection of Main Street and High Street

Mural of 18th Century Wakefield Along North Wall of Mary Murphy's

Entrance to Pedestrian Bridge over Saugatucket River

William C. O'Neil Bike Path at Main Street



Thank You!

(Questions and Answers)