Raritan River Multimodal Bridge and Boardwalk Recommendations

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Graduate Planning Studio: Public Access

Fall 2017

Presentation Overview

1. Project Overview
2. Site Characterization
3. Research Framework
4. Findings and Recommendations
    A. Multimodal Bridge
    B. Johnson Park to Livingston Connection
    C. Boardwalk
5. Regulations
6. Funding
7. Long-Term Sustainability and Partners
8. Conclusions

PROJECT OVERVIEW

Background of the Rutgers 2030 Plan

- Rutgers University Strategic Plan developed and adopted in February 2014

- Proposal framework
  - Campus Connectivity – Transportation
  - Strategic Academic Initiatives
  - Student Life
  - Housing
  - Health, Wellness, and Recreation

Source: Rutgers 2030 Masterplan

Task of the Public Access Studio

Review

the existing 2030 Masterplan and evaluate both proposed projects: the bridge and the boardwalk

Explore

these projects from three core perspectives and provide potential recommendations for the projects as the move further into the design phase

Evaluate

issues related to planning, regulation, environmental conditions, public access, and policy around the proposed boardwalk and pedestrian bridge projects

Introduction of the Proposed Projects

goals as outlined in the Rutgers 2030 Masterplan

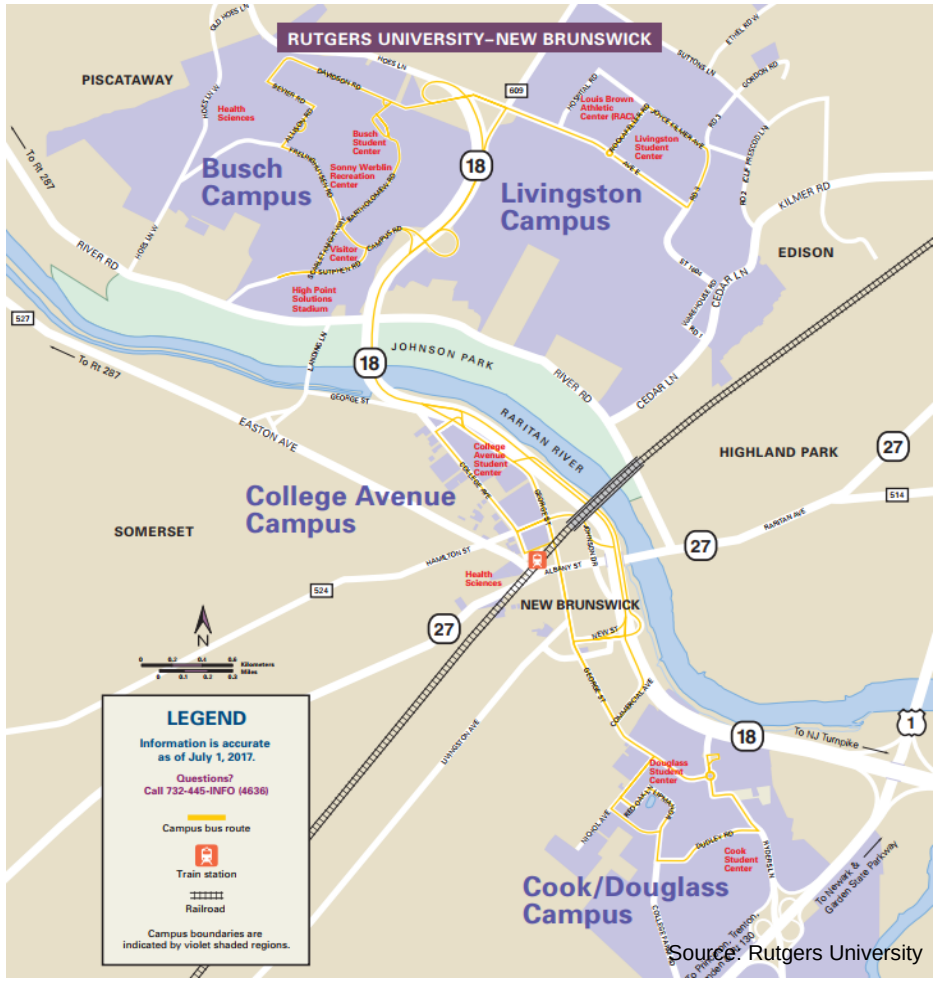
Bridge

- Link college avenue to Livingston through the ecological preserve
- Incorporate pedestrian and bicycle pathway
- Preserve open space while still providing this connection
- Create a symbol of the 21st century Rutgers

Boardwalk

- Link College Avenue and Douglass campuses along the waterfront
- Revive the town and campus connections to the Riverfront (currently severed with the construction of Rt 18)

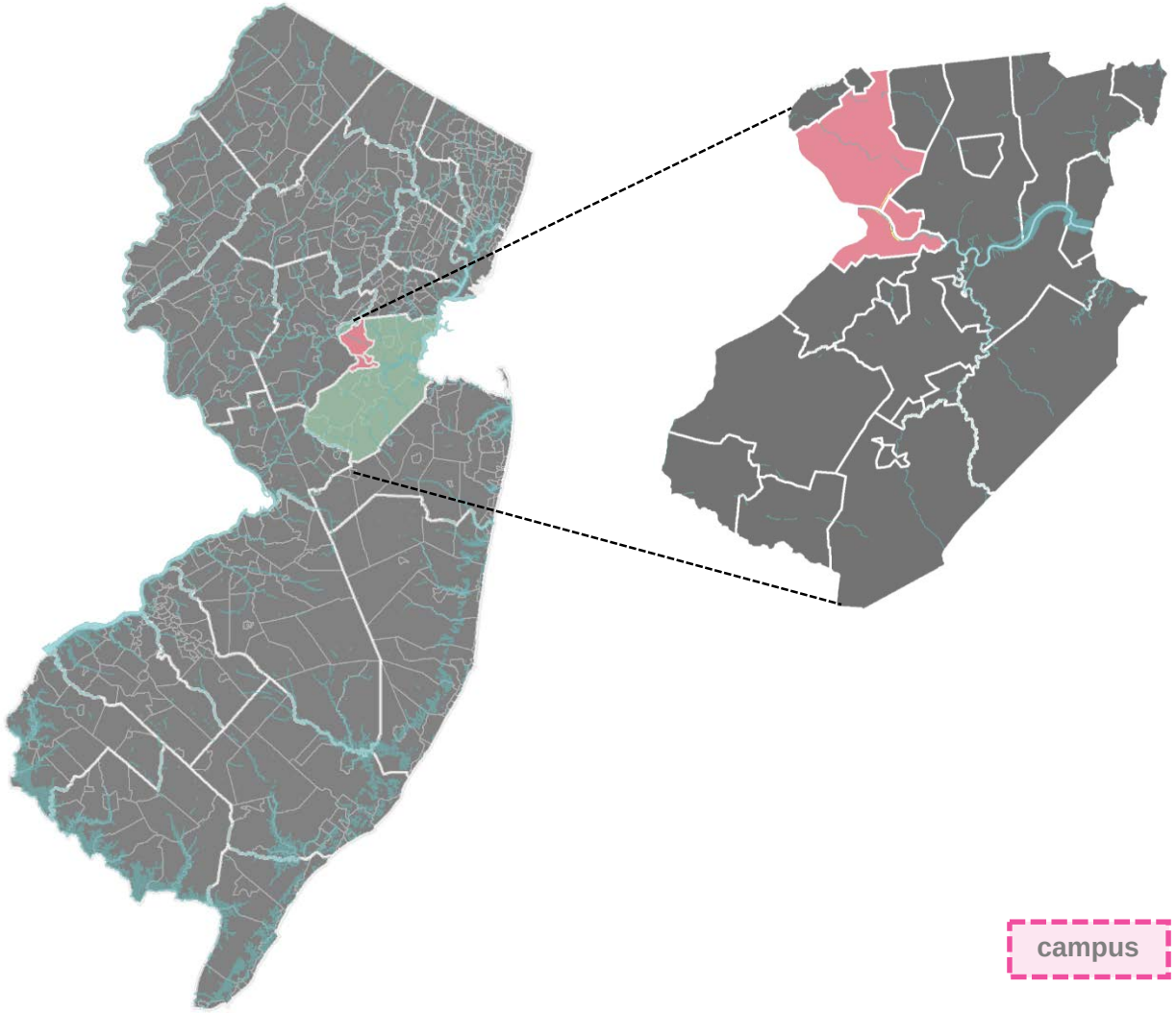
Both projects serve to strengthen the "link of the necklace of parks" that inhabit the river's floodplain

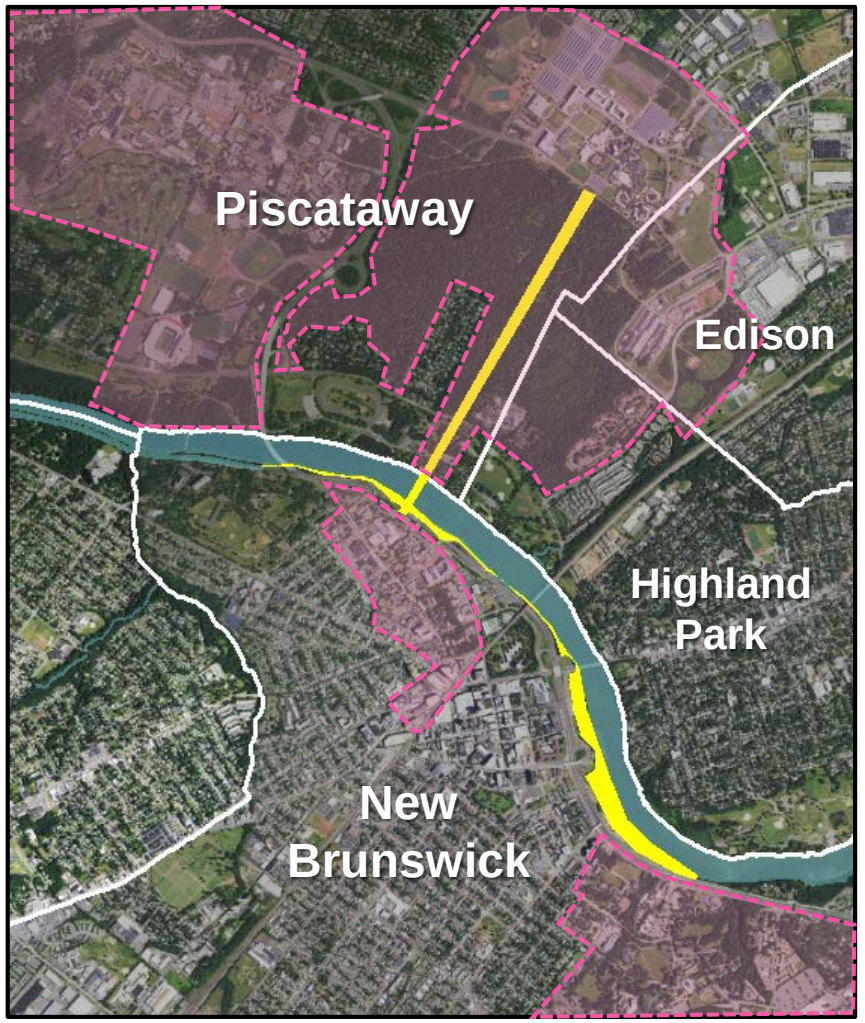


Source: Rutgers University

SITE CHARACTERIZATION

Location



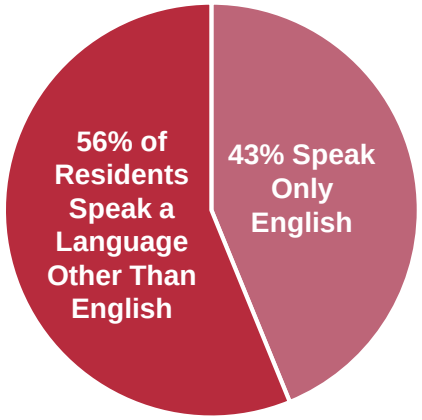


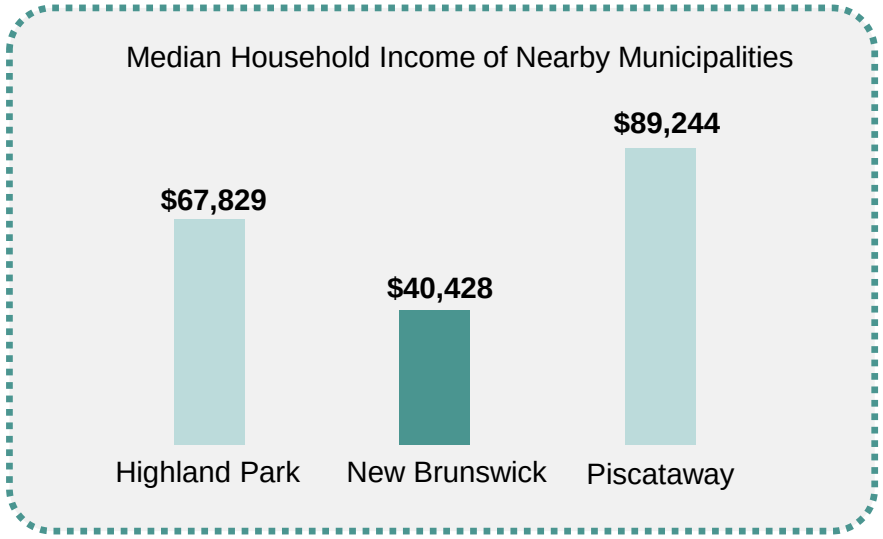
campus

User Demographics

41.6%
are 15 – 29 years old

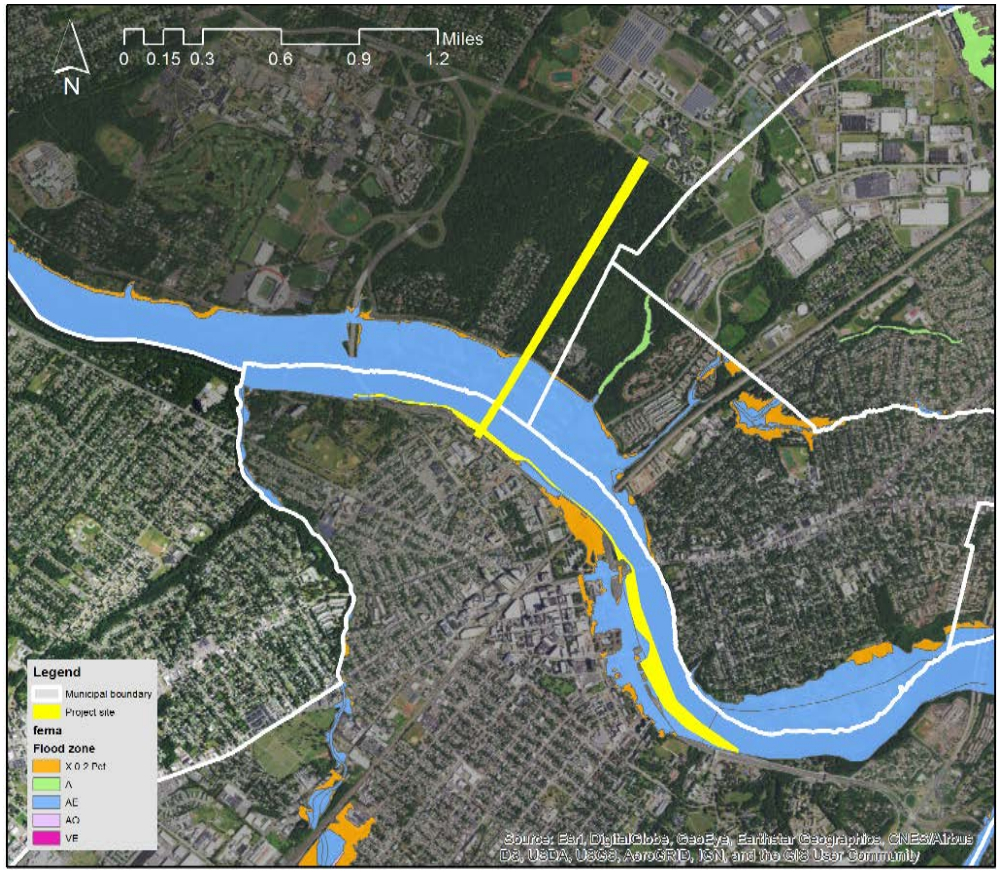
16%
have a Disability



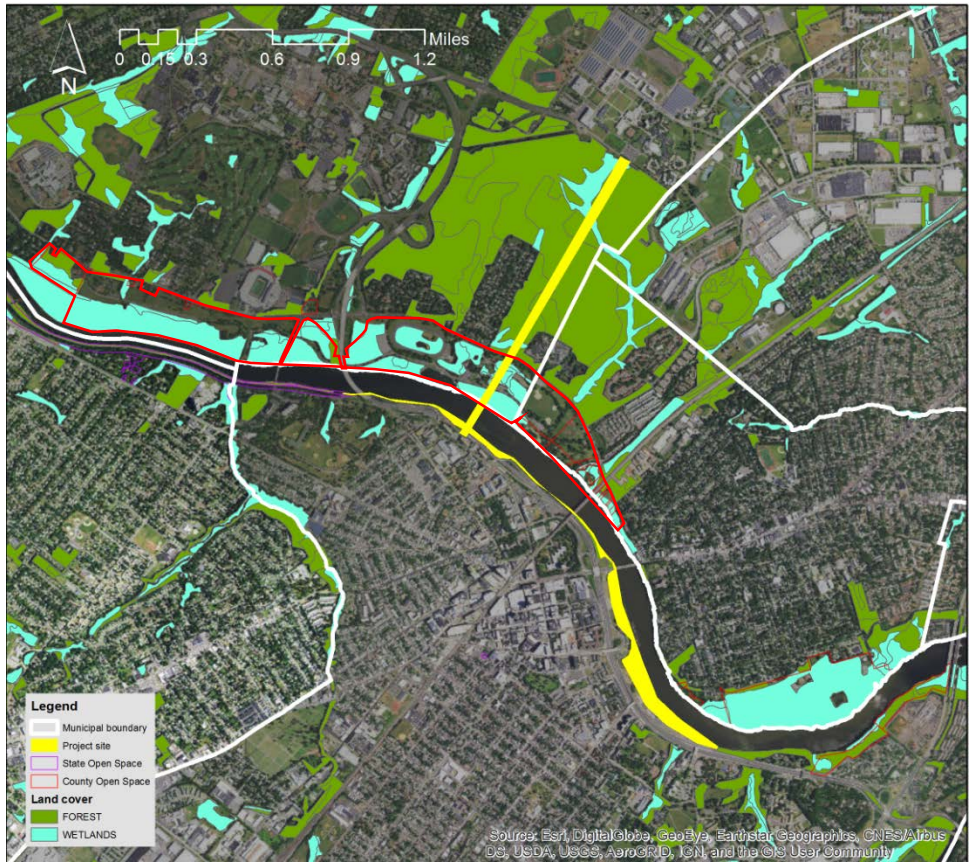


Existing Conditions
environment

Flood Zone

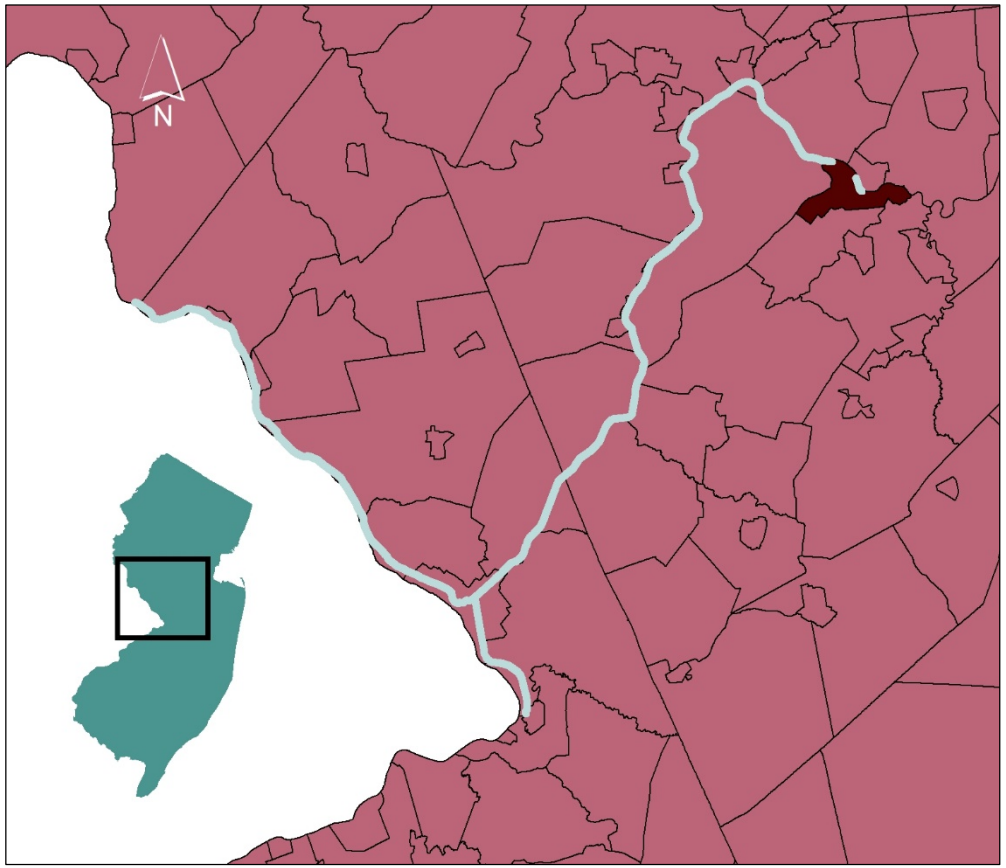


Wetlands, Forests & Open Space

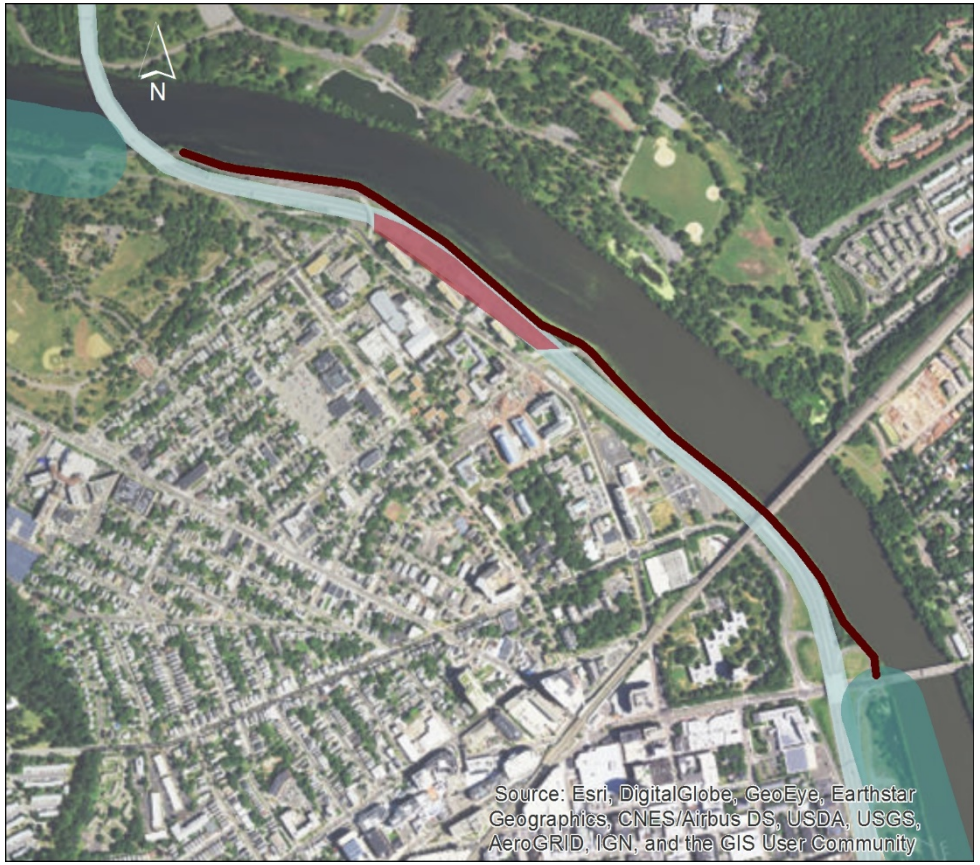


Existing Conditions
historical background

D & R Canal Historic District



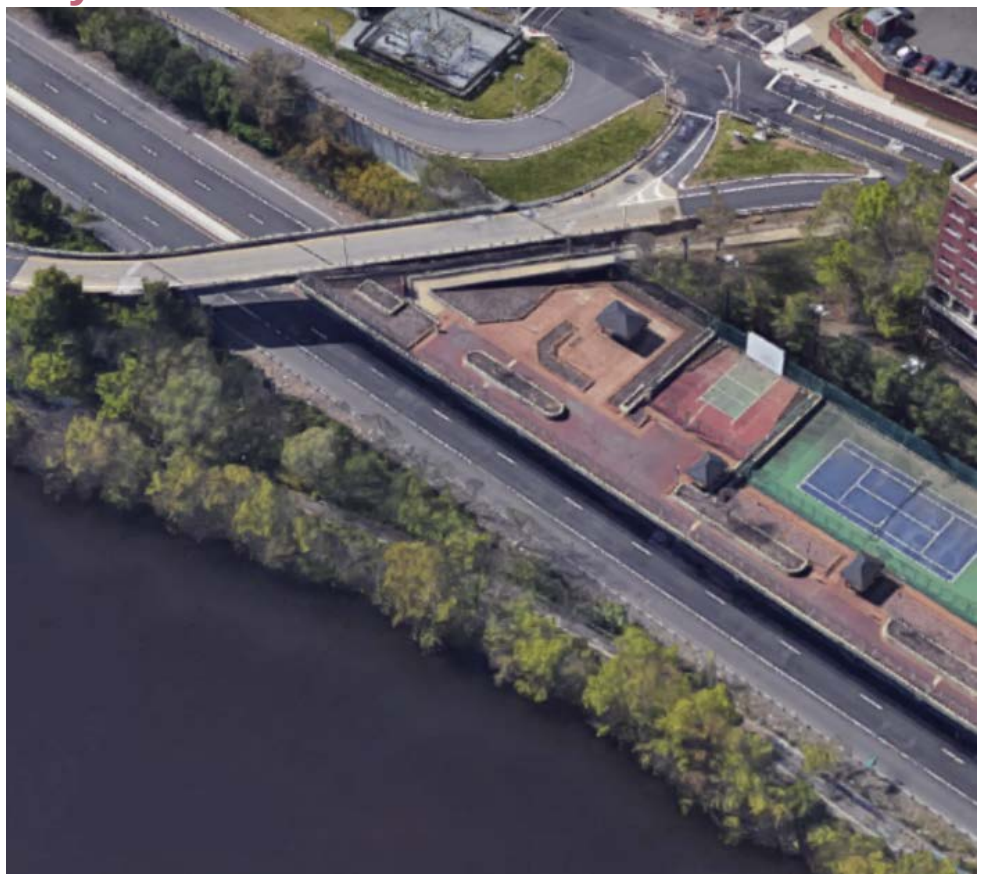
Route 18 & Canal



Existing Conditions
historical background

Spillway

Layers – Deiner Park over Rt. 18



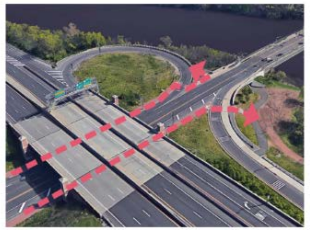
Existing Conditions

Access to river front from New Brunswick

1 George St. Access
(dangerous and underutilized)

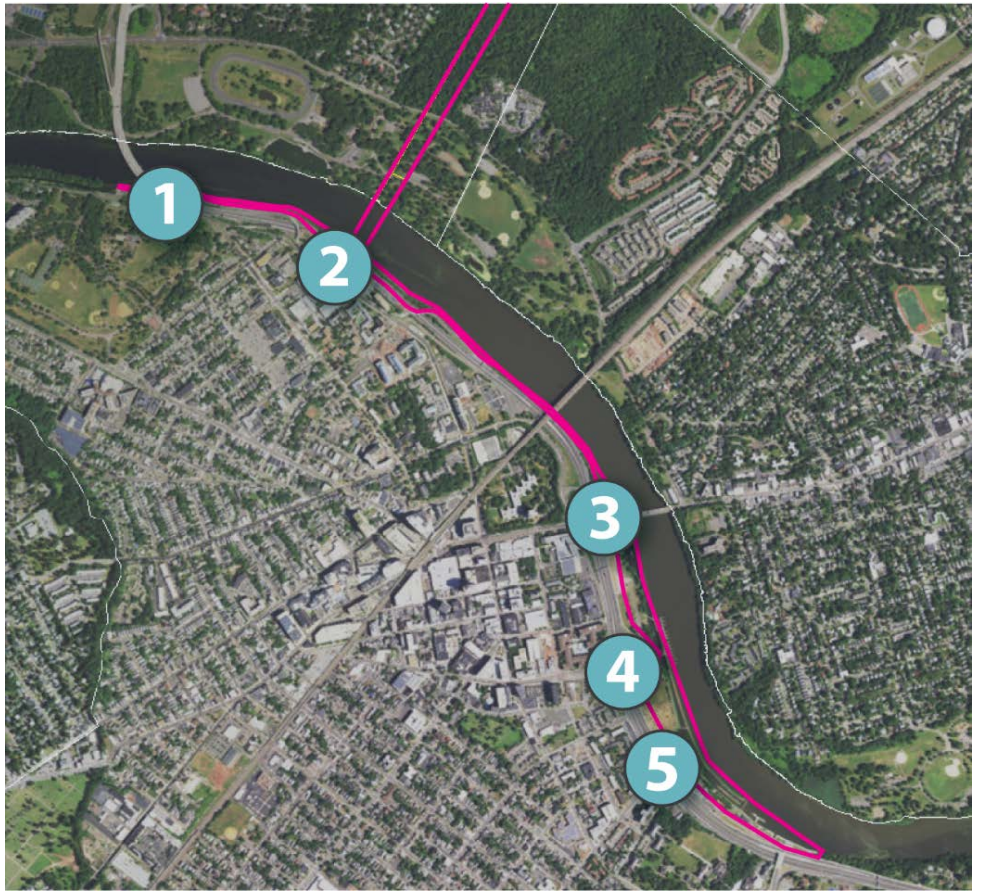
2 Deiner Park Access
(currently locked; proposed access)

3 Rt. 27 Access
(connect to Highlandpark)



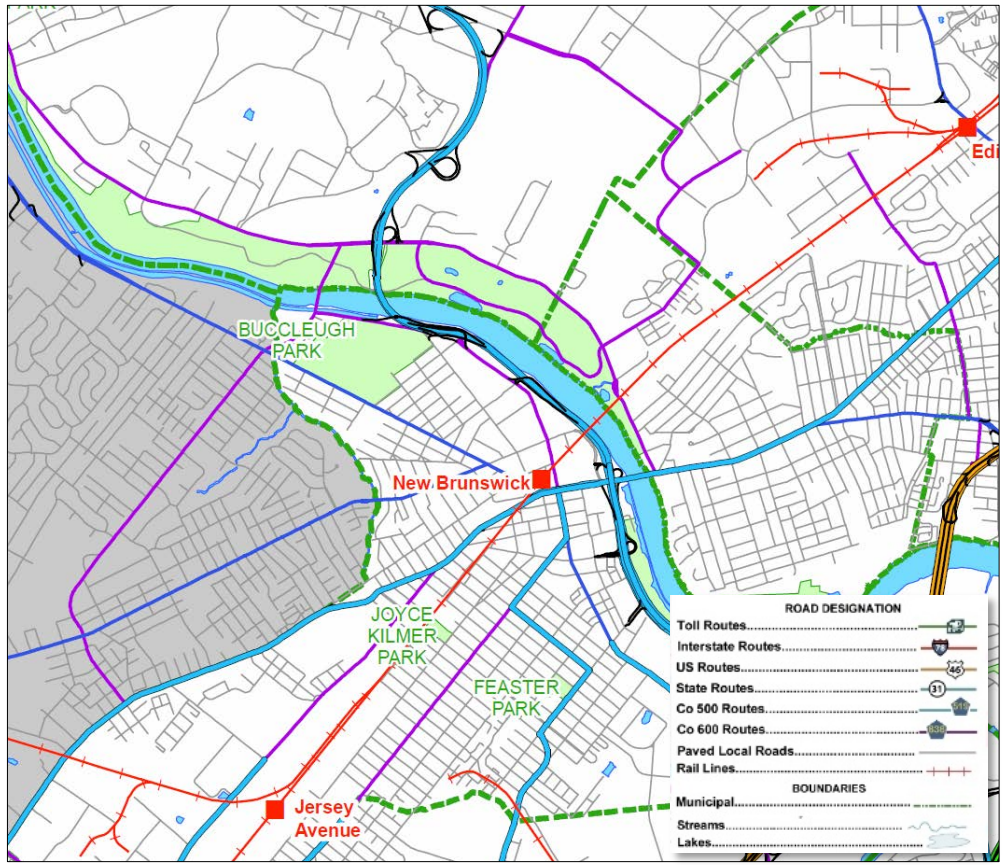
4 New St. Access
(long pedestrian ramp)

5 Commercial Ave. Access
(cross Rt.18; reach to Boyd Park)

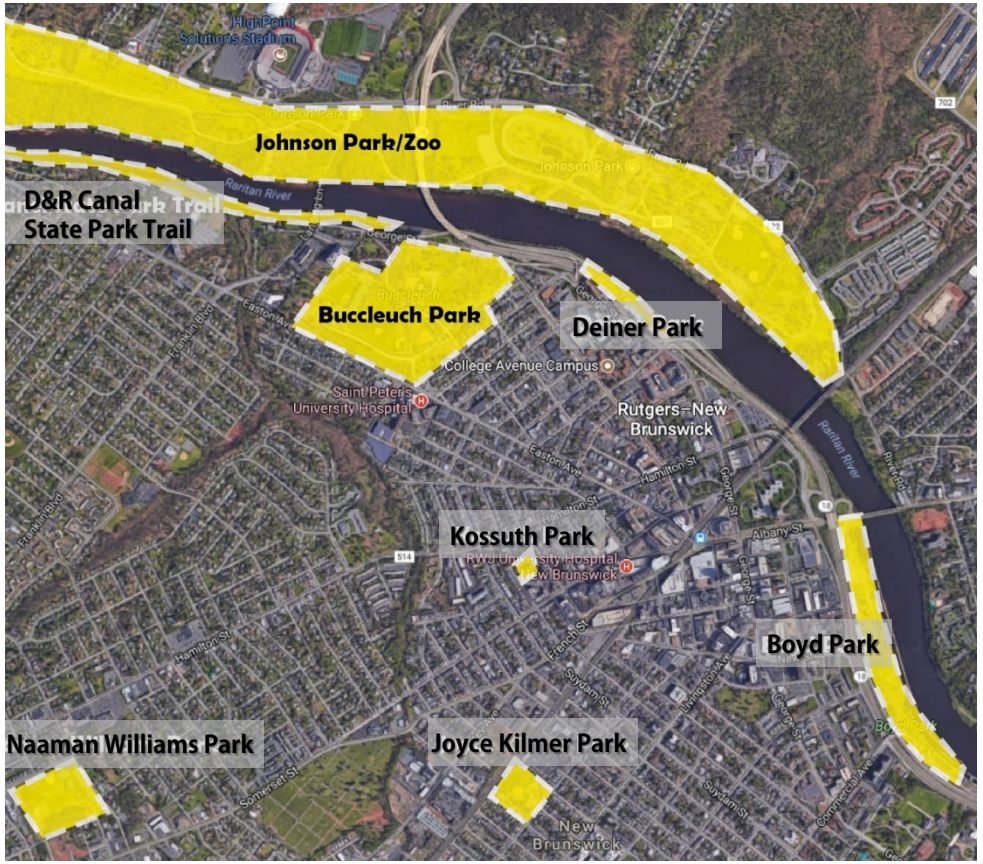


Existing Conditions
circulation and recreation

Road Network Hierarchy

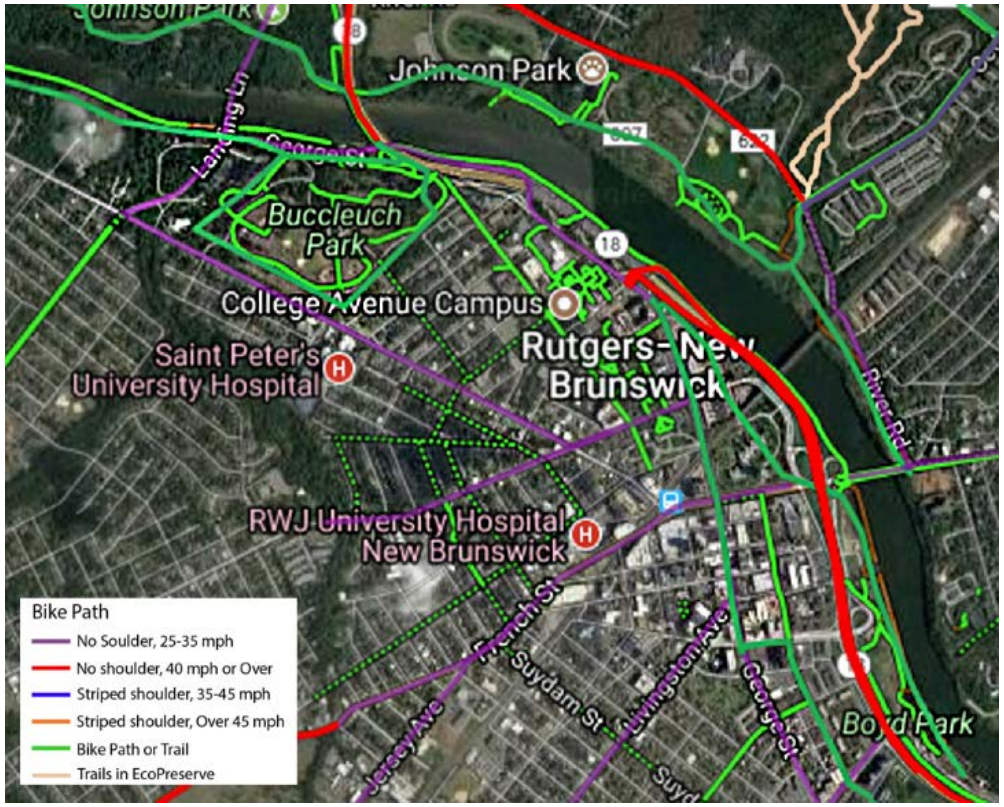


Parks Along Raritan River

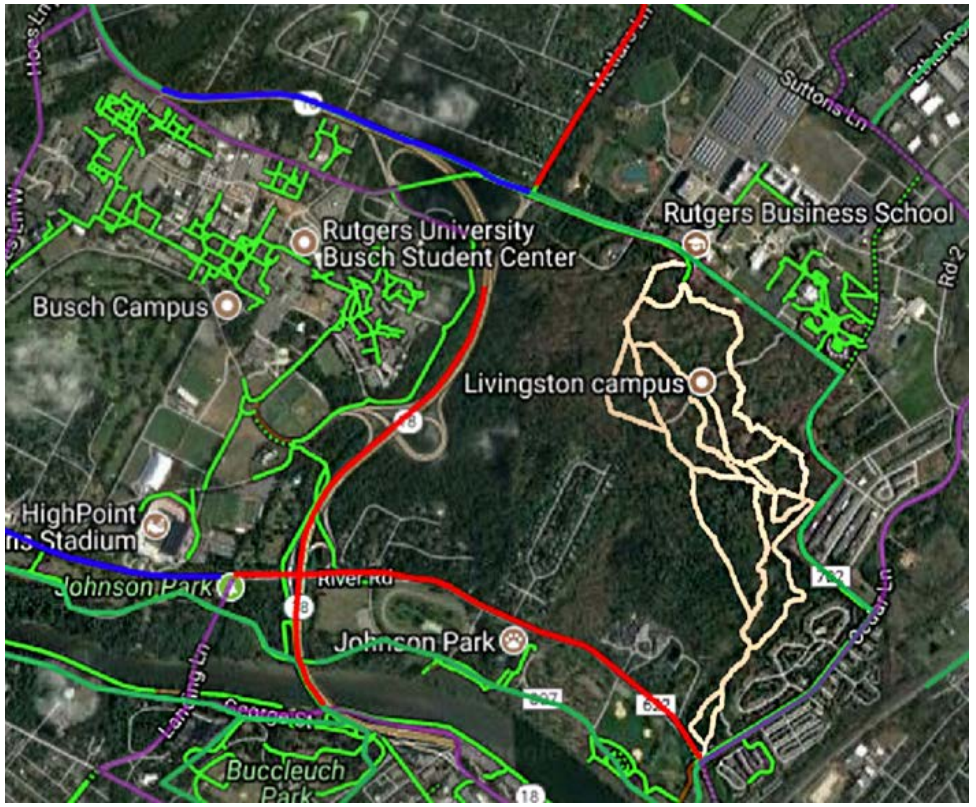


Existing Conditions
circulation and recreation

Bike Routes – New Brunswick



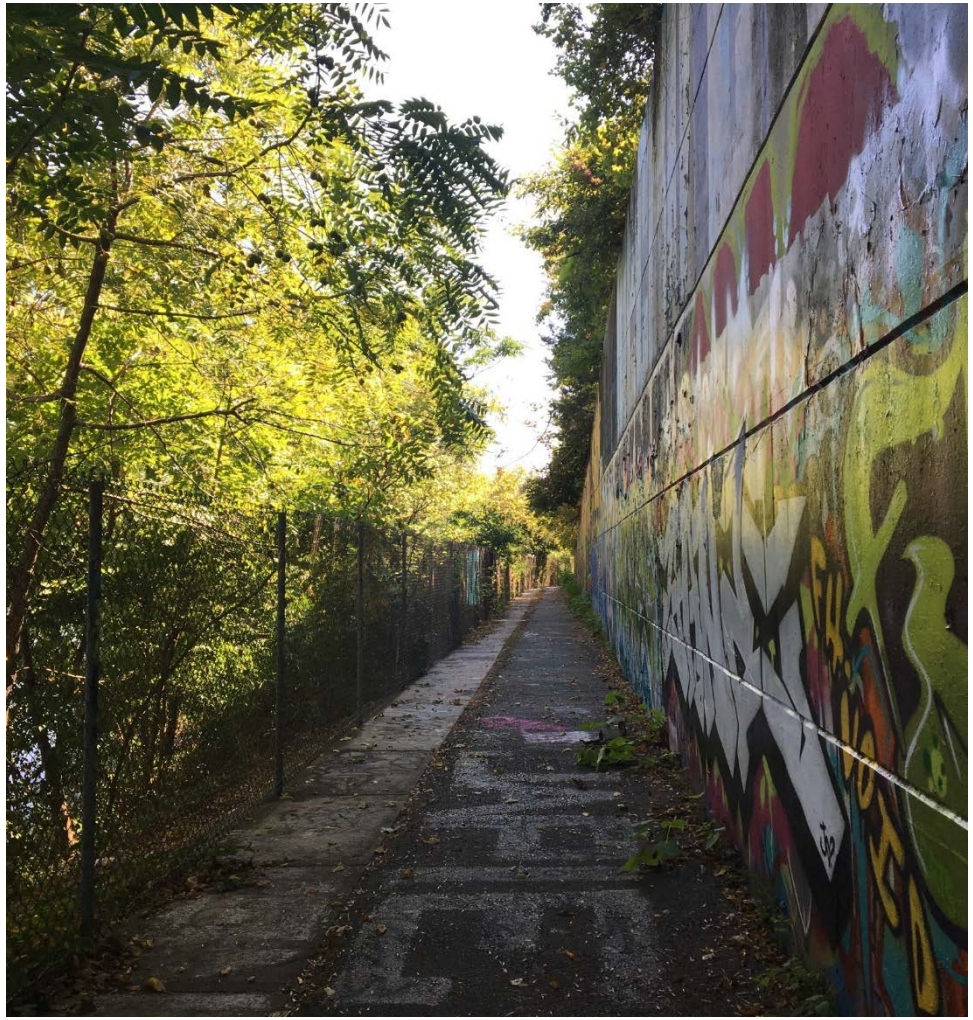
Bike Routes – Highland Park and Piscataway



RESEARCH FRAMEWORK

Methodology

Methodology



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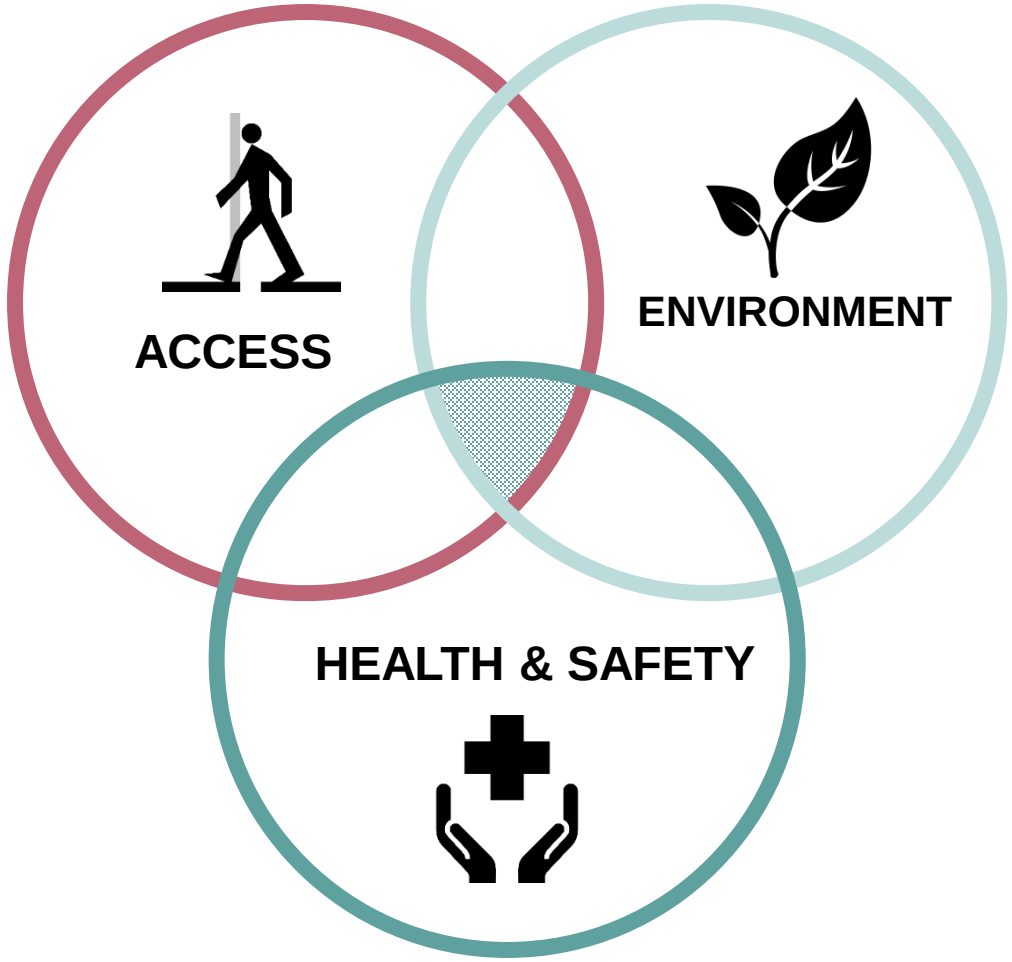

FINDINGS AND RECOMMENDATIONS

BOARDWALK

BOARDWALK

Rutgers 2030 objectives

- **Link** College Avenue and Douglass campuses along the waterfront

- **Revive** the town and campus connections to the Riverfront (currently severed with the construction of Rt 18)

Source: Rutgers 2030 Masterplan

BOARDWALK

Access Findings

- There are **limited** access points, but several **potential** connections
- Different elevations and construction techniques of the proposed boardwalk would provide different types of access for **multi-modal** transit and programming


Photo taken by Susana Gonzalez Rodriguez

Access Recommendations

- Take advantage of all **potential connections**
- Incorporate a comprehensive **wayfinding** scheme to highlight all current and future access points
- A **cantilevered edge** to provides the greatest range of programming and multi-modal access

BOARDWALK

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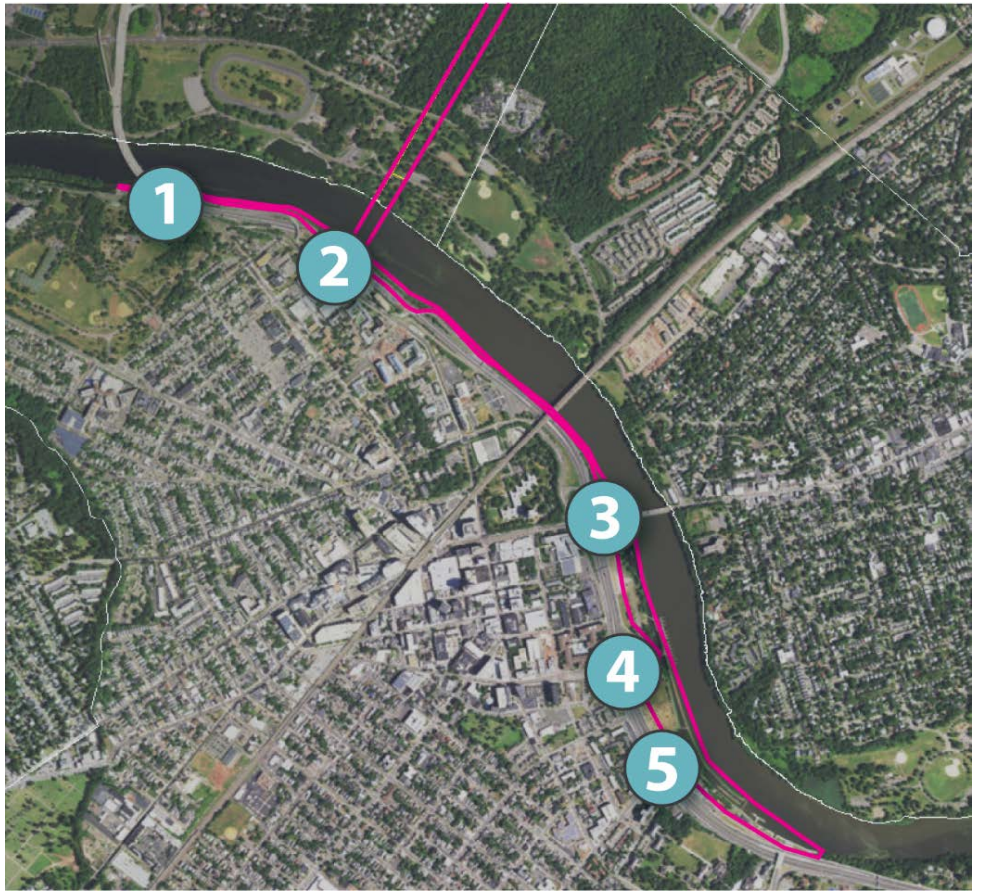
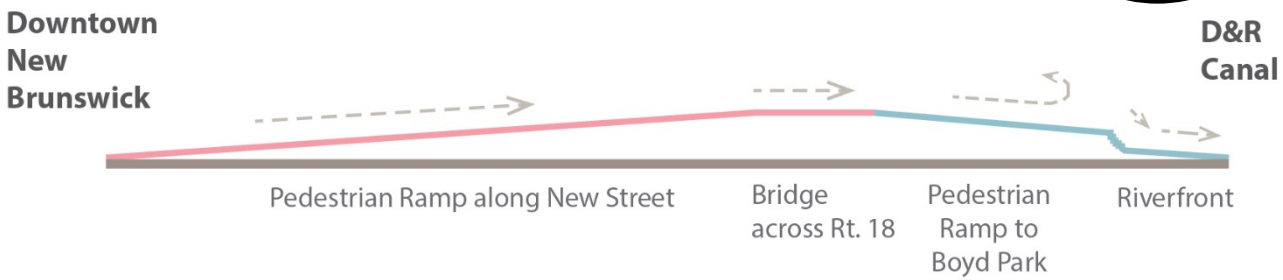


BOARDWALK

New Street



Commercial Ave

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BOARDWALK

access recommendations

1. Potential Connection - Spillway

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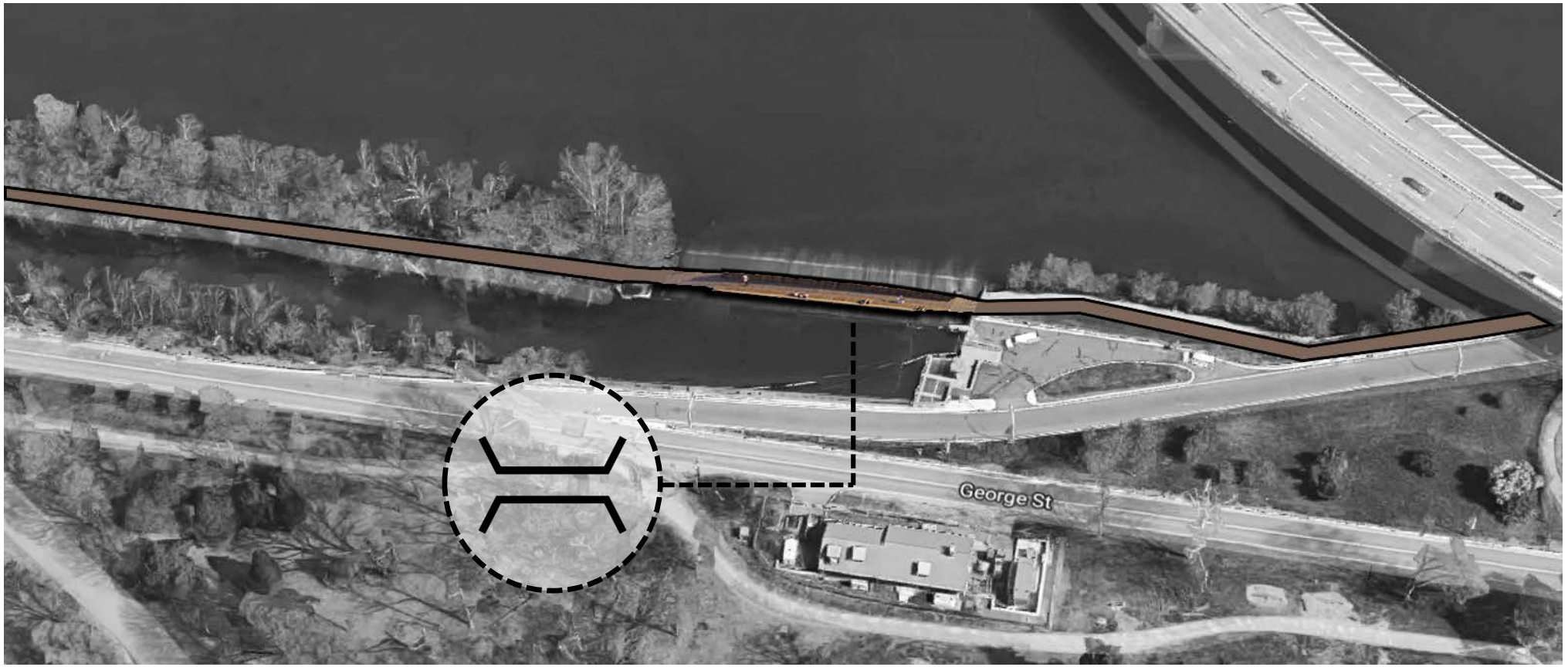


BOARDWALK

access recommendations

1. Potential Connection - Spillway

BOARDWALK

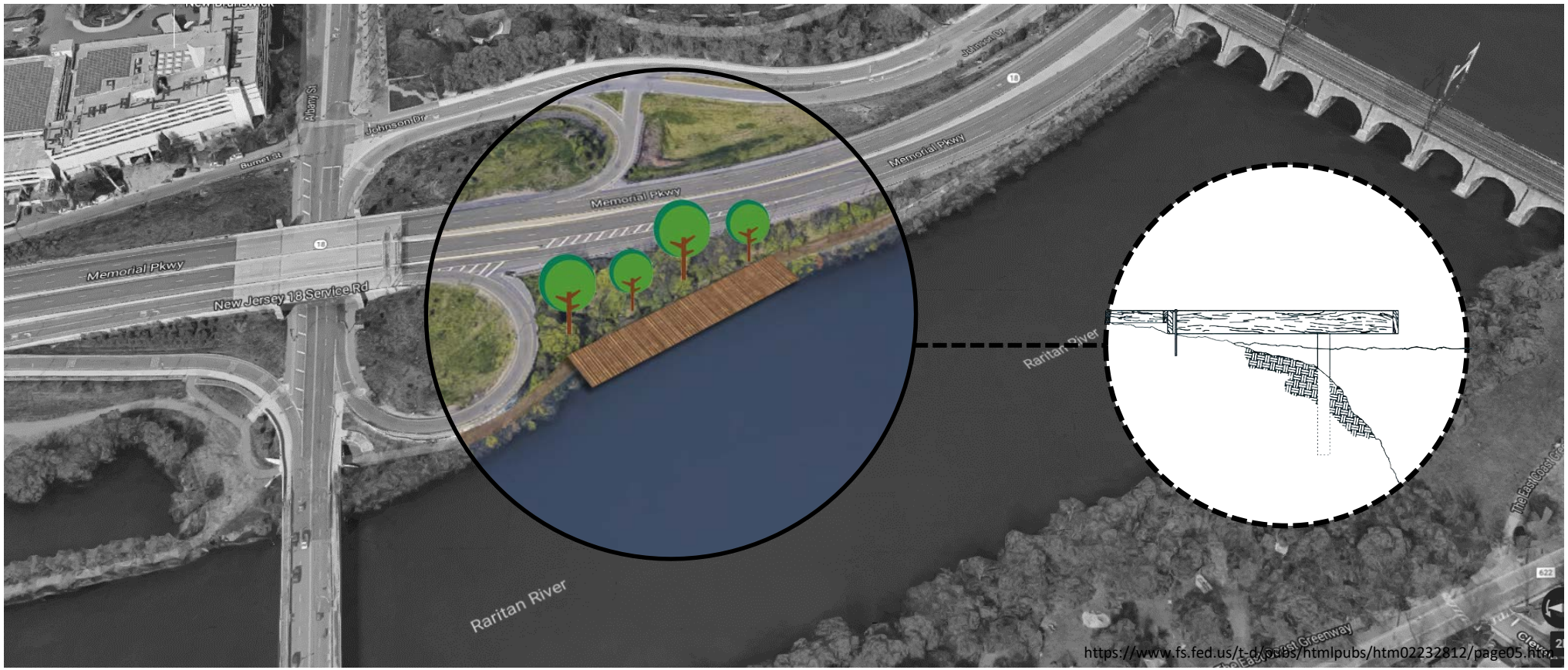
access recommendations

2. Cantilevered Sections

BOARDWALK

access recommendations

2. Cantilevered Sections



BOARDWALK

environment

Environmental Findings

- 100-year flood zones
- Impact on flora/fauna (riparian edge)

Environmental Recommendations

- Include in the design spaces that are flooded resilient and that can serve recreational purposes.
- Minimize ecological footprint of boardwalk (small intervention). (floating)

BOARDWALK

environment recommendations

1. Pro-Flooding Public Spaces

BOARDWALK

environment recommendations

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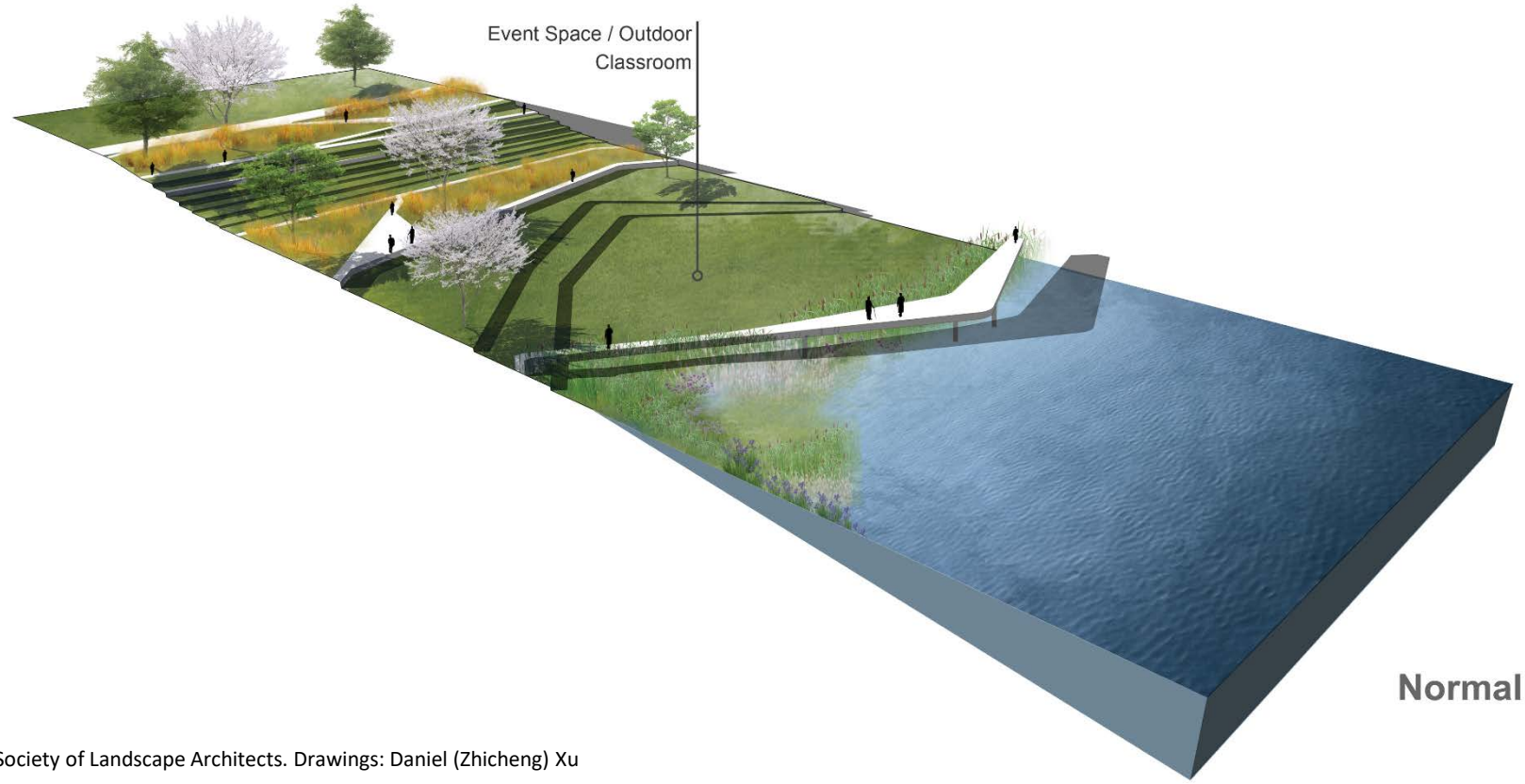
BOARDWALK

environment recommendations

2. Small/Narrow Intervention

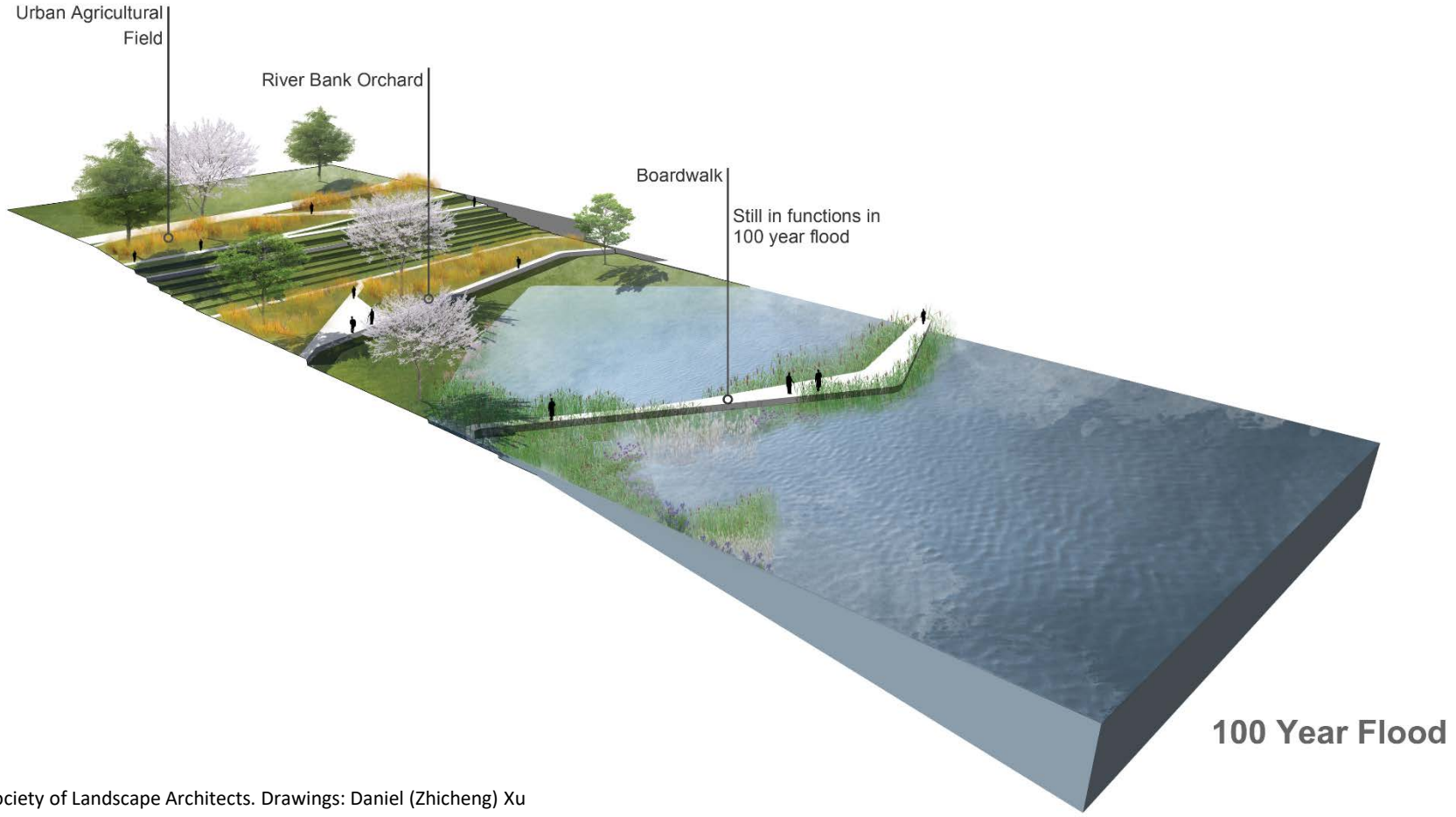


Source: American Society of Landscape Architects. Drawings: Daniel (Zhicheng) Xu

BOARDWALK

environment recommendations

2. Small/Narrow Intervention



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BOARDWALK

environment recommendations

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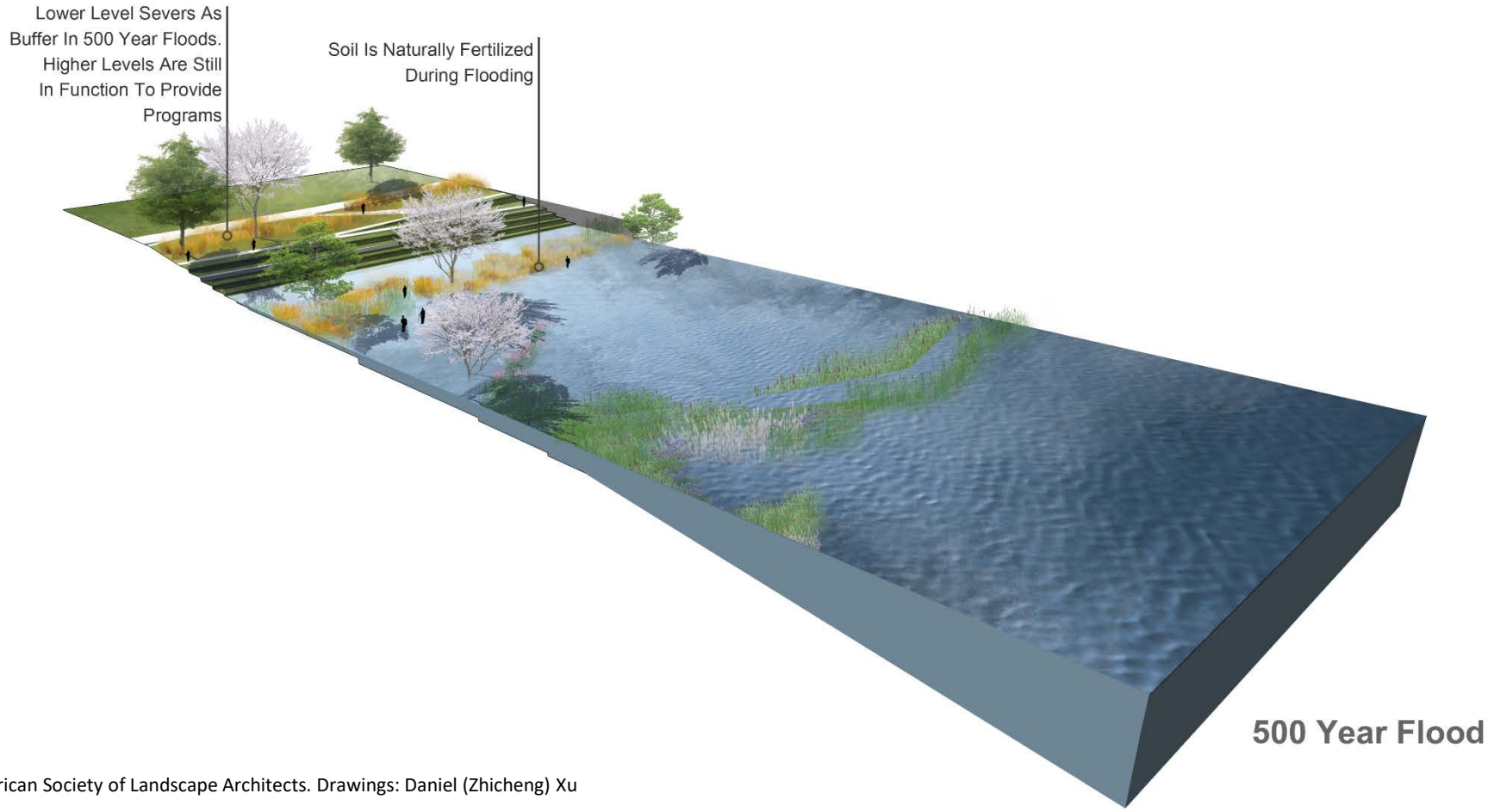

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BOARDWALK

Health and Safety Findings

- The **homeless encampments**, lack of maintenance and **deteriorating** amenities evoke the perception of crime and create an underutilized space
- Proximity to the river can increase water associated risks
- Proximity to Rt 18 exposes visitors to the effects of **noise** and air **pollutants** associated with vehicular traffic.

Health and Safety Recommendations

- Add emergency access routes, **patrol**, and other safety measures
- Enhance existing access points and provide **signage for navigation**
- Address encampment concerns in conjunction with boardwalk development

Source: Susana Gonzalez

BOARDWALK

health and safety recommendations

1. Safety Measures

BOARDWALK

health and safety recommendations

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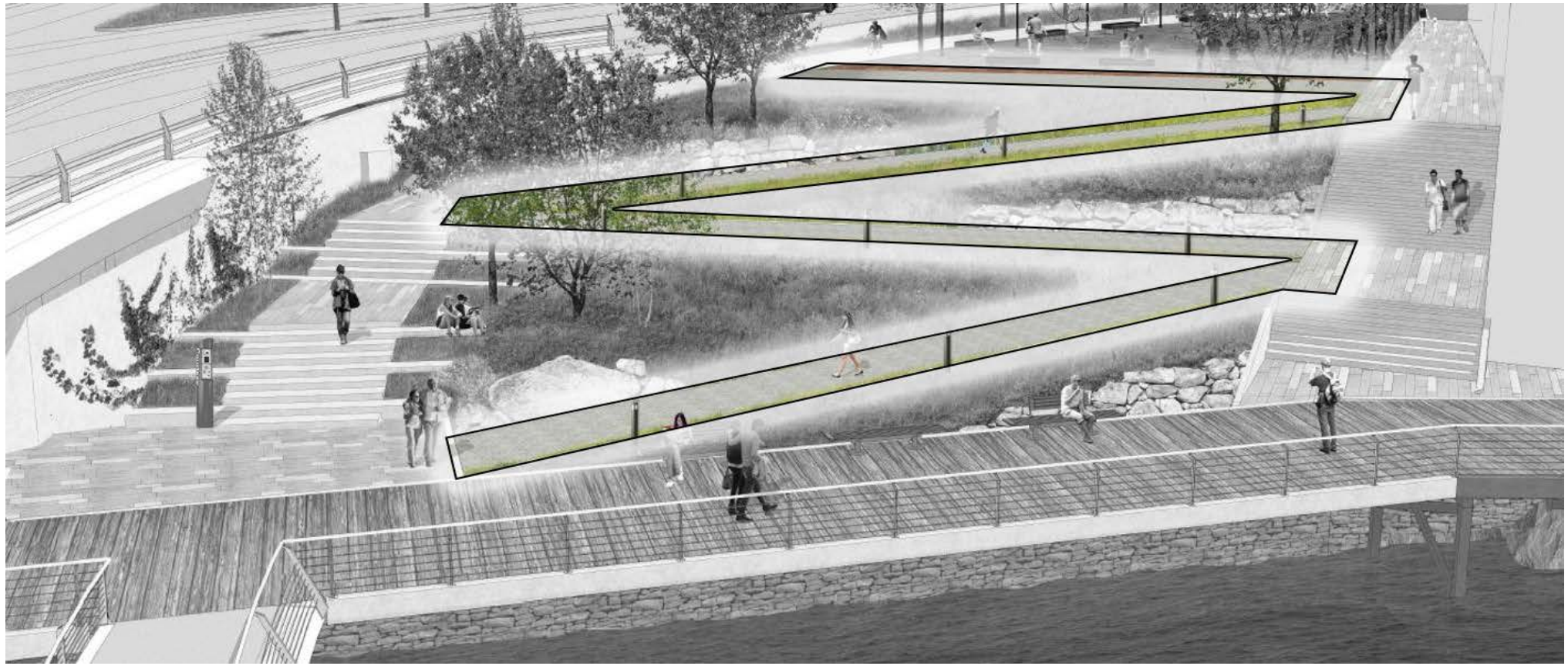
health and safety recommendations

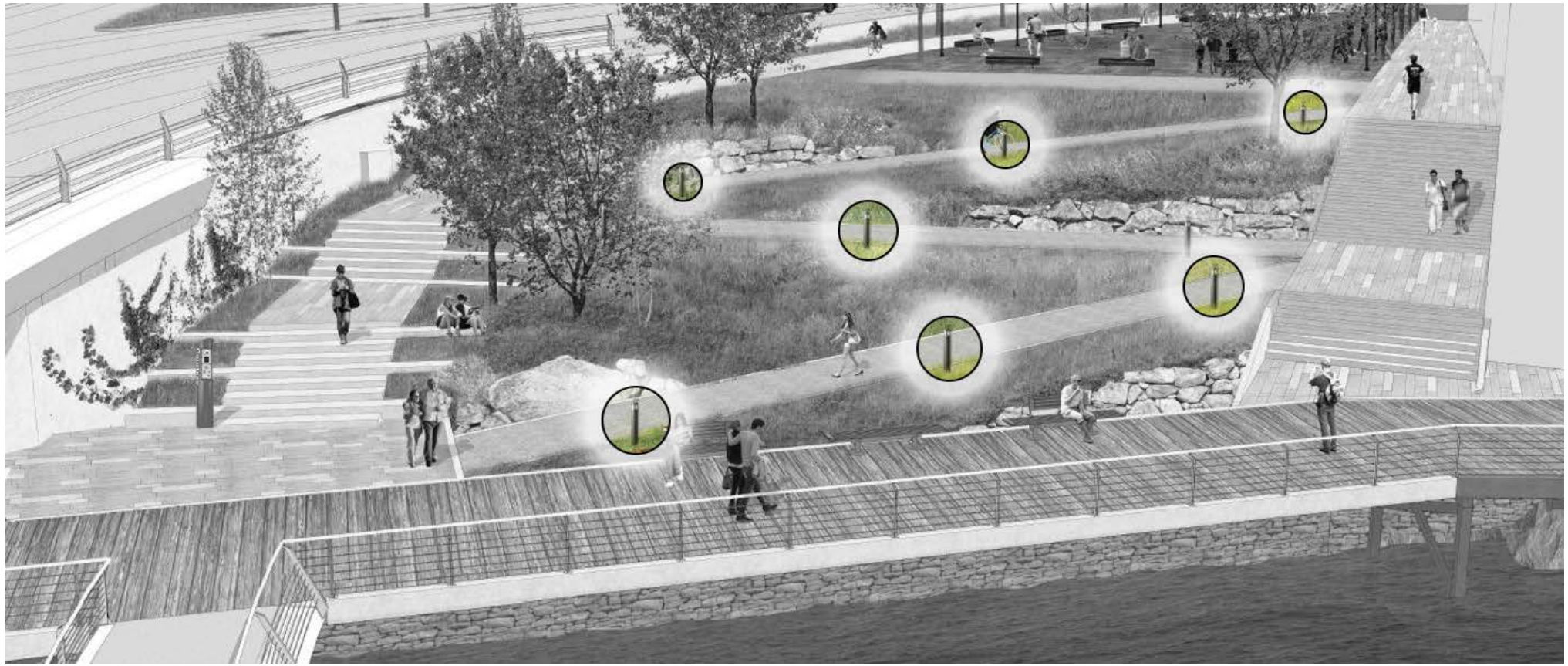
1. Safety Measures



BOARDWALK

health and safety recommendations

1. Safety Measures



BOARDWALK

health and safety recommendations

1. Safety Measures

MULTIMODAL BRIDGE

MULTIMODAL BRIDGE AND CONNECTION

Rutgers 2030 objectives

- Link college avenue to Livingston through the **ecological preserve**
- Incorporate **pedestrian** and **bicycle** pathway
- Preserve **open space** while still providing this connection
- Create a **symbol** of the 21st century Rutgers

Source: Rutgers 2030 Masterplan

MULTIMODAL BRIDGE

Access Findings

- **Significant length** required to cross the river
- A need to provide **multimodal access** to pedestrians, bicyclists, and emergency vehicles
- **Differing elevations** of Deiner Park and the potential boardwalk site pose challenges to multi-modal access.
- **No current access** between Deiner Park and the trench at any time of day.

Access Recommendations

- Add **amenity nodes** on bridge to provide relief to visitors and commuters
- Keep a **clear separation** between pedestrian and bicycle modes
- Keep the connection open during the **operating hours** of Deiner Park and Johnson Park.

MULTIMODAL BRIDGE

access recommendations

1. Amenity Nodes

London’s 9 Elms Bridge competition. Anonymous submission

MULTIMODAL BRIDGE

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MULTIMODAL BRIDGE

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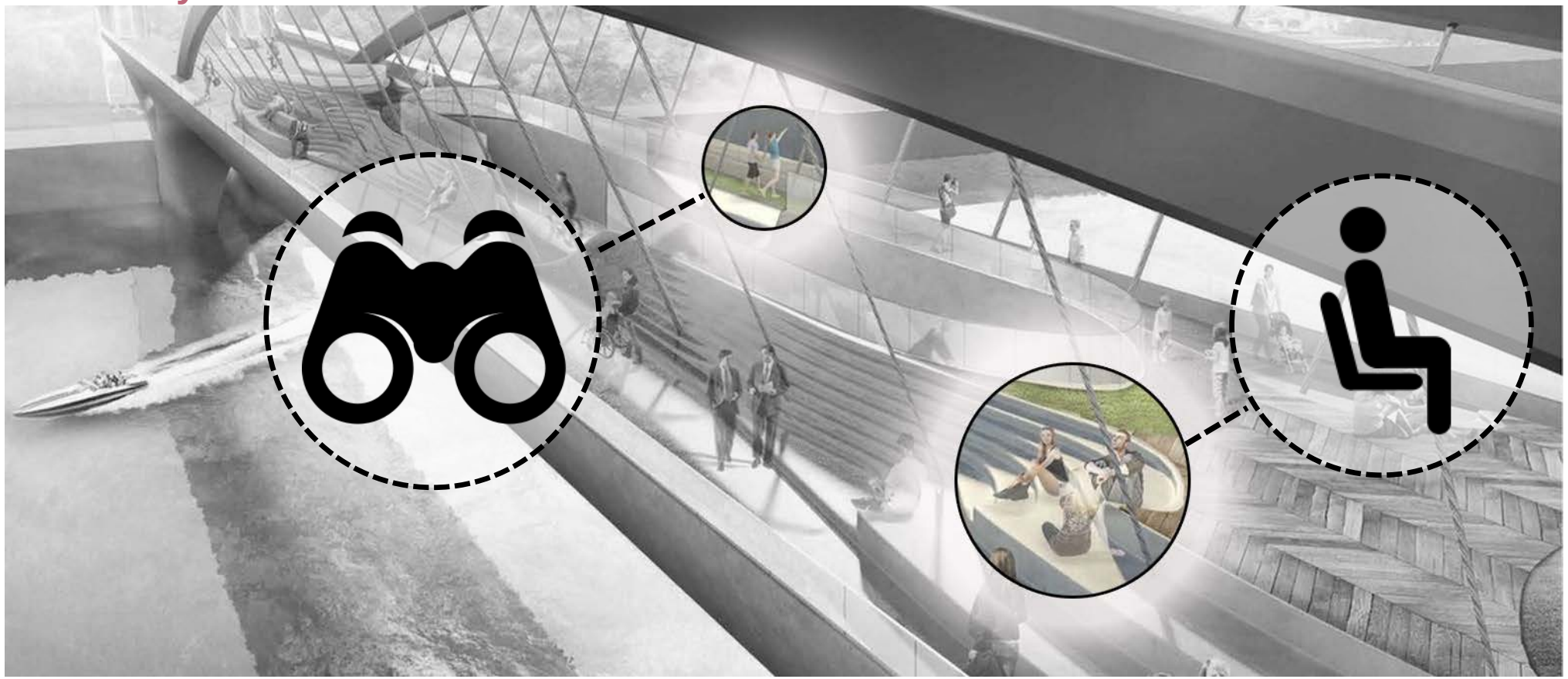

London’s 9 Elms Bridge competition. Anonymous submission

MULTIMODAL BRIDGE

access recommendations

2. Mode Separation

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MULTIMODAL BRIDGE
access recommendations

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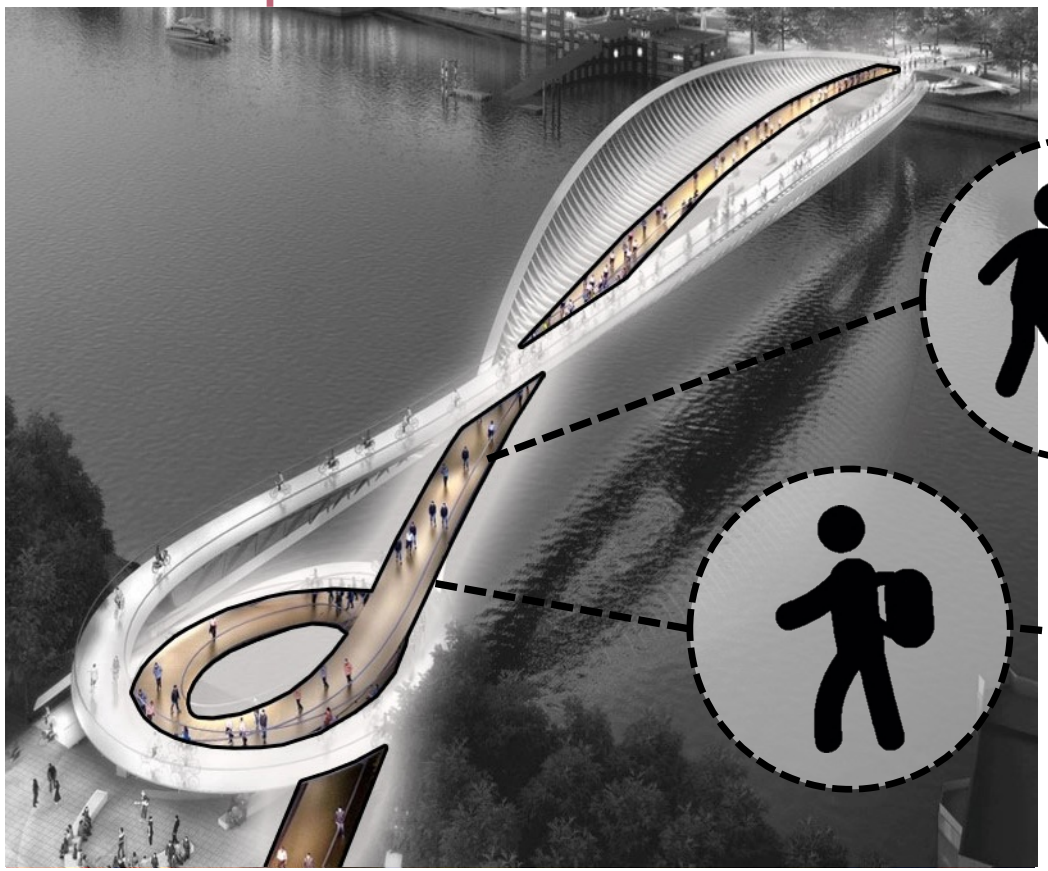

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MULTIMODAL BRIDGE

access recommendations

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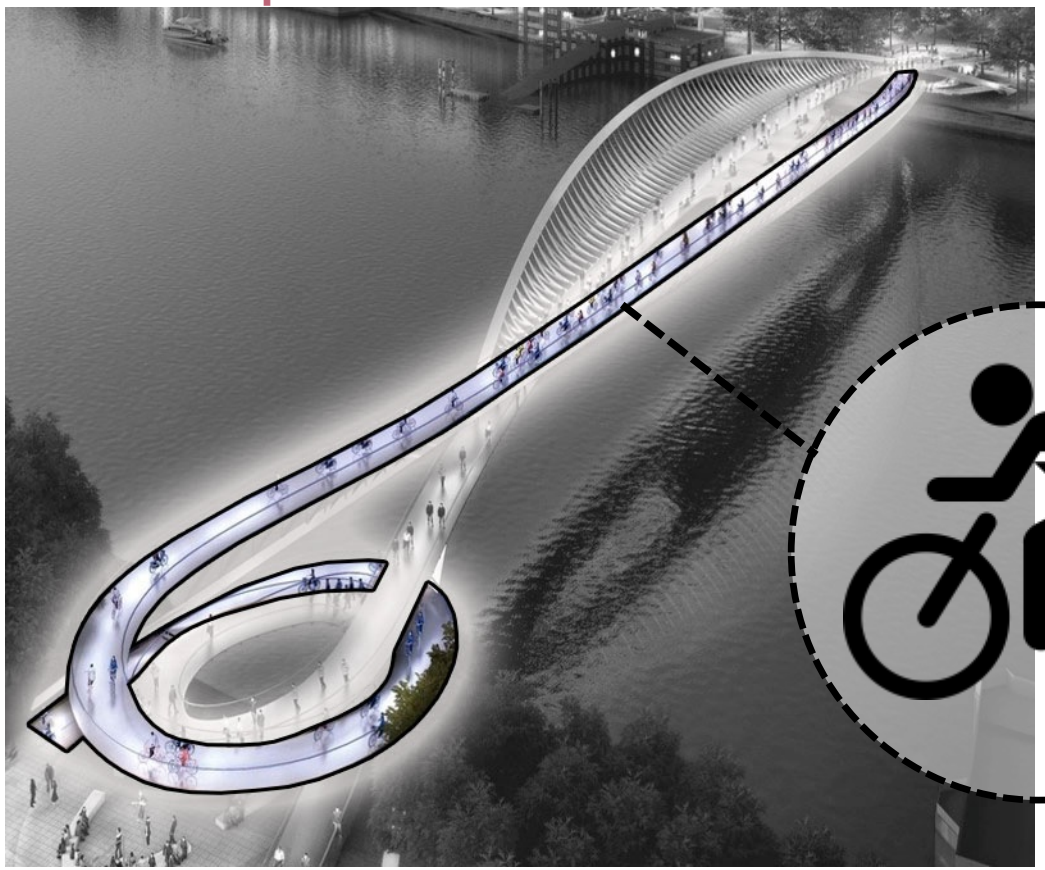

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MULTIMODAL BRIDGE

Environmental Findings

- **Developing** within the floodway and wetlands
- Impact from large **debris** coming from upstream
- **100-year Flood Zone** will affect Johnson Park landing
- **Noise** and **Air Pollution** emitted from Rt 18 vehicles will affect vertical connection

Environmental Recommendations

- Minimize the number of **pylon/piers** that are built within the floodway/wetlands
- Build **vertical connection** to boardwalk with a considerable offset from the existing trench to pull away from noise and air pollution

Photo taken by Pranay Kumar

MULTIMODAL BRIDGE

environment recommendations

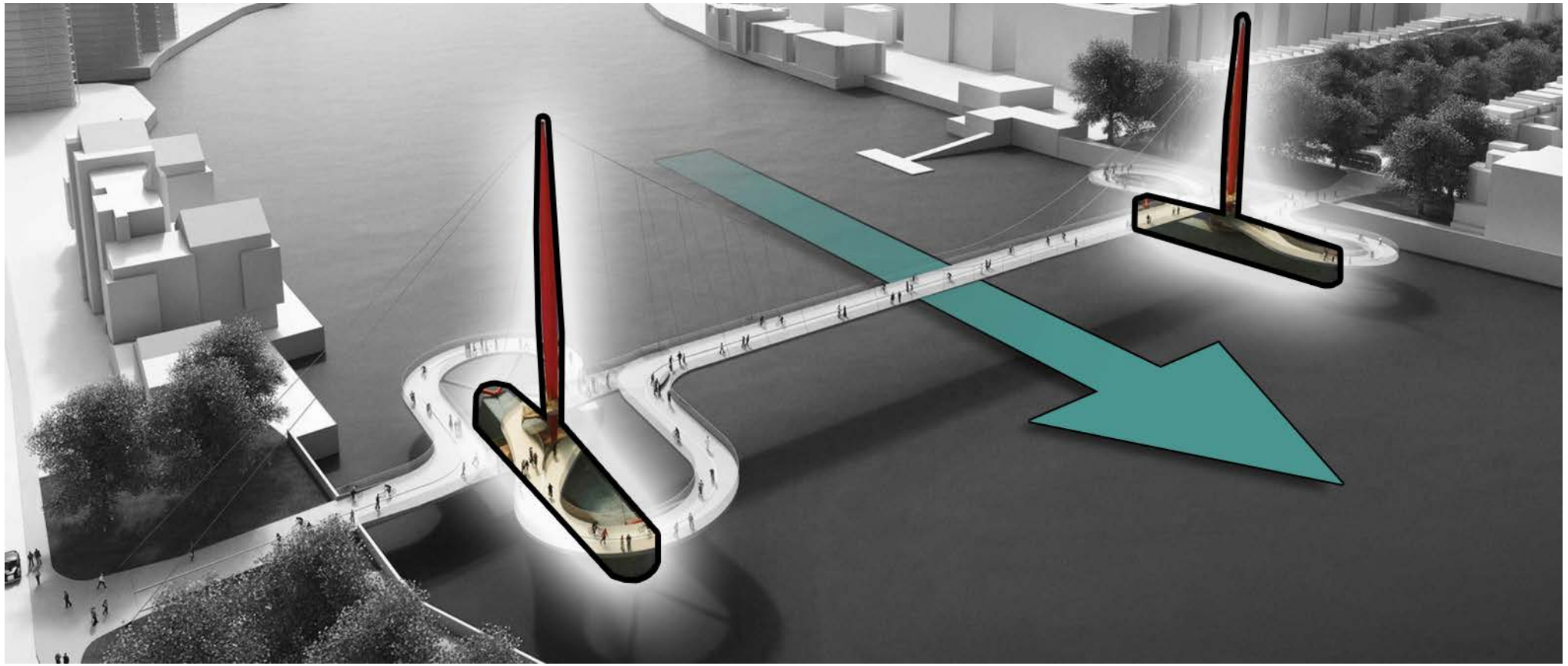
1. Minimize Number of Pylons

London’s 9 Elms Bridge competition. Proposal by Hopkins Architects with Ove Arup and Partners and Grant Associates

MULTIMODAL BRIDGE

environment recommendations

1. Minimize Number of Pylons



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MULTIMODAL BRIDGE

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MULTIMODAL BRIDGE

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MULTIMODAL BRIDGE

environment recommendations

2. Vertical Connection Offset from Rt. 18

MULTIMODAL BRIDGE

environment recommendations

2. Vertical Connection Offset from Rt. 18

Image by: Susana Gonzalez Rodriguez

MULTIMODAL BRIDGE

environment recommendations

2. Vertical Connection Offset from Rt. 18

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MULTIMODAL BRIDGE

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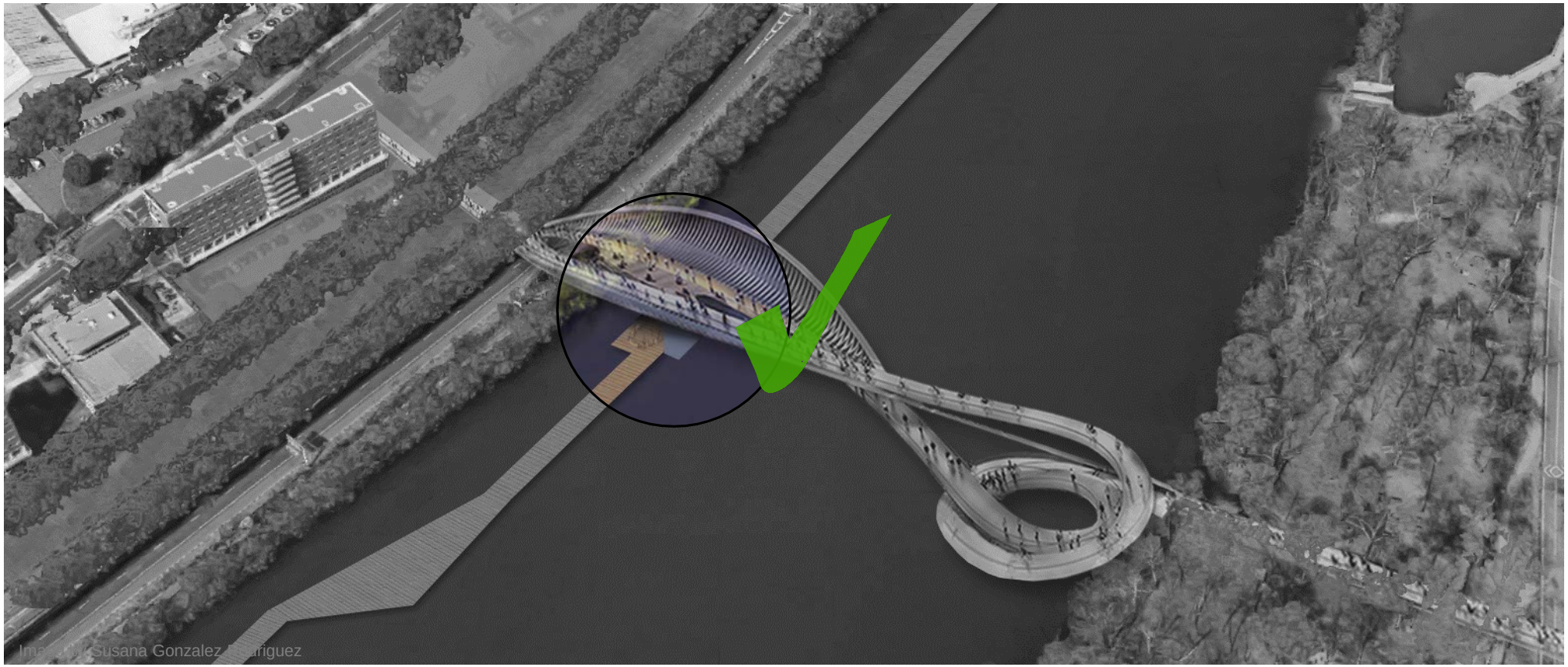
2. Vertical Connection Offset from Rt. 18



MULTIMODAL BRIDGE

Health and Safety Findings

- The existing footprint of the proposed bridge and its landing areas are **dark, unwelcoming and evoke the perception of crime**
- Accidents along transit paths, like the bridge, can result from **collisions, exposure to weather, and human hazard**
- Mental health/impaired judgement are safety concerns given the **height** of the bridge and **proximity to water**
- The existing connection from Diener Park to the bike trench is **locked**, eliminating all egress points from the 18 off ramp to the 27 bridge.

Health and Safety Recommendations

- Add emergency access routes, **patrol**, and other safety measures including access **lighting**
- Enhance **visibility** of entryway
- Incorporate suicide bridge **safety standards**

MULTIMODAL BRIDGE

health and safety recommendations

1. Patrol Access

https://worldlesstech.com/wp-content/uploads/2015/12/07/strup-triumphs-in-Nine-Elms-to-Pimlico-bridge-contest-3.jpg

MULTIMODAL BRIDGE

health and safety recommendations

1. Patrol Access

MULTIMODAL BRIDGE

health and safety recommendations

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MULTIMODAL BRIDGE

health and safety recommendations

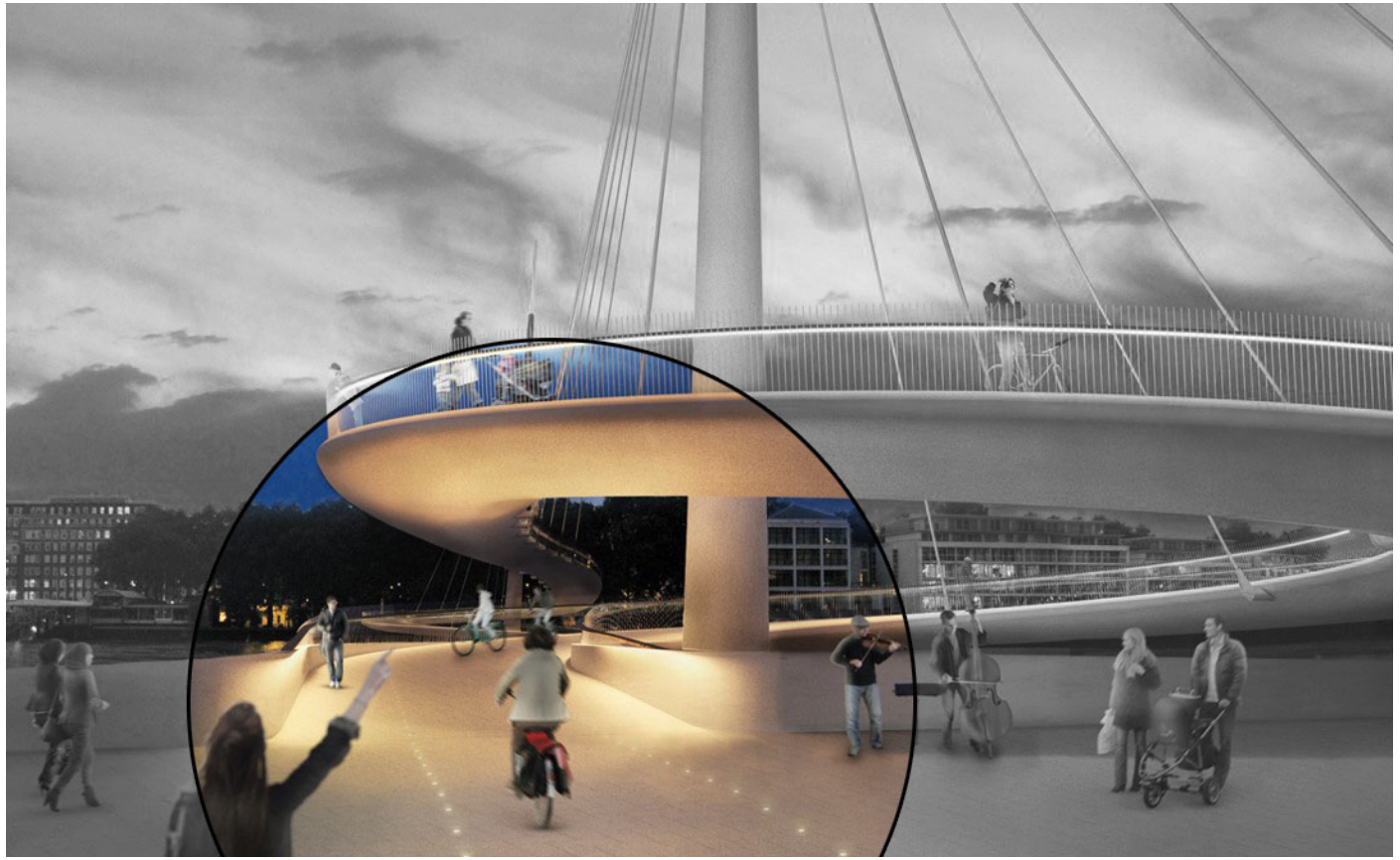
2. Enhance access points with lighting

London's 9 Elms Bridge competition. Design proposal by Bystrup Architecture. Engineering by Rob Snell & partnership with Sven Ole Hansen Aps, Aarsleff and AF Lighting

MULTIMODAL BRIDGE

health and safety recommendations

2. Enhance access points with lighting



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JOHNSON PARK TO LIVINGSTON CONNECTION

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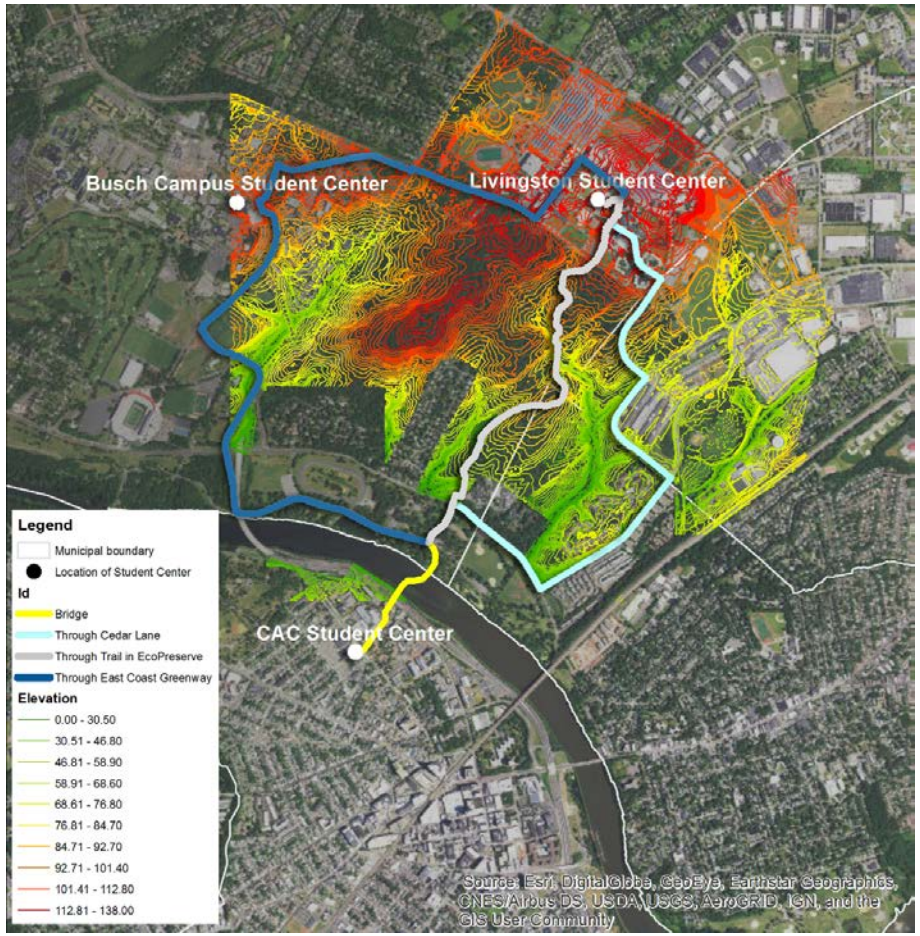
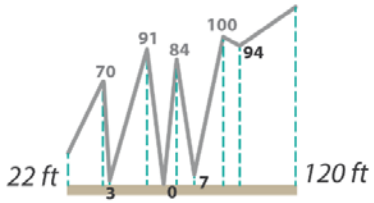
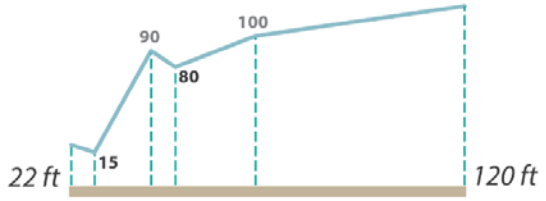


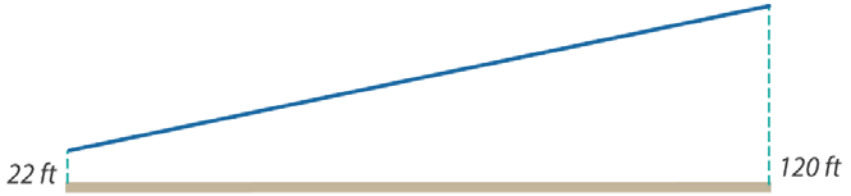
Bridge - EcoPreserve Trail - Livingston Total length: 1.54 miles



Bridge - Cedar Lane - Livingston Total length: 2.33 miles



Bridge - East Coast Greenway - Livingston Total length: 3.42 miles



JOHNSON PARK TO LIVINGSTON CONNECTION

Access Findings

- The **topography and features** of the EcoPreserve pose challenges to quick and easy access.
- The **existing bike/ped infrastructure** currently satisfies part of the demand.
- Transforming the EcoPreserve into a commuter route would require **costly additional amenities and maintenance**.

Access Recommendations

- **Enhance the existing** pedestrian and bicycle infrastructure linking College Ave campus/Johnson Park with Livingston campus, including **Routes 18 and 27 and Cedar Lane**.

access recommendations

1. Enhance Existing Infrastructure

access recommendations

1. Enhance Existing Infrastructure

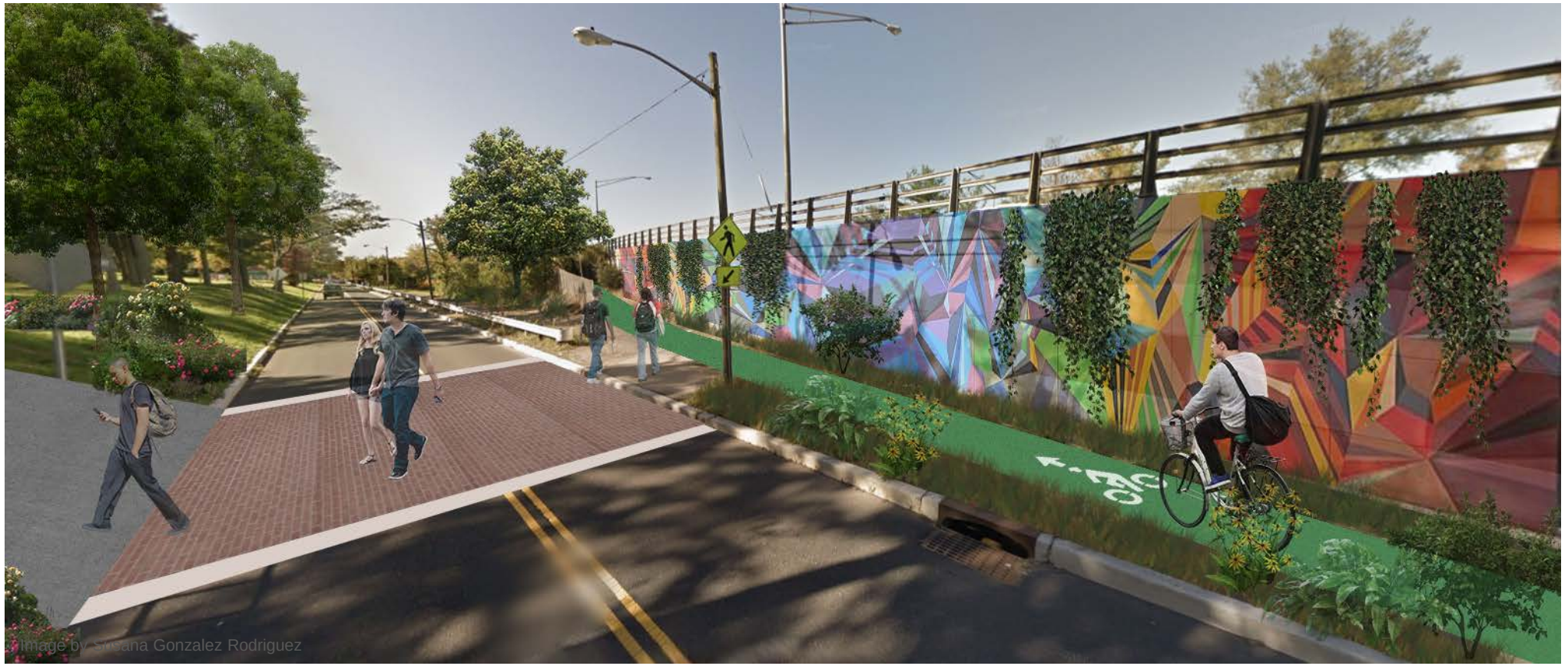


Image by Susana Gonzalez Rodriguez

JOHNSON PARK TO LIVINGSTON CONNECTION

Environmental Findings

- Eco preserve is a designated **critical environmental site** by NJ State Development and Redevelopment Plan
- Existing living lab environment


https://ecopreserve.rutgers.edu/wp-content/uploads/2012/04/DH10EcologPreserve0496.jpg

Environmental Recommendations

- Needs further consultation with stakeholders to determine if construction will truly impact flora and fauna environment.

JOHNSON PARK TO LIVINGSTON CONNECTION

Health and Safety Findings

- The existing Eco Preserve trail network was created as a recreational experience for “hikers, bikers, and natural enthusiasts”.
- The existing infrastructure provides multi-modal transportation from Johnson Park to both Busch and Livingston campuses.

Health and Safety Recommendations

- Enhance existing infrastructure to strengthen safety of campus connections
- Provide bike amenities to encourage use of existing bike infrastructure

health and safety recommendations

1. Bike Amenities

Image from Google Street View

health and safety recommendations

1. Bike Amenities

Image by Susana Gonzalez Rodriguez

REGULATIONS

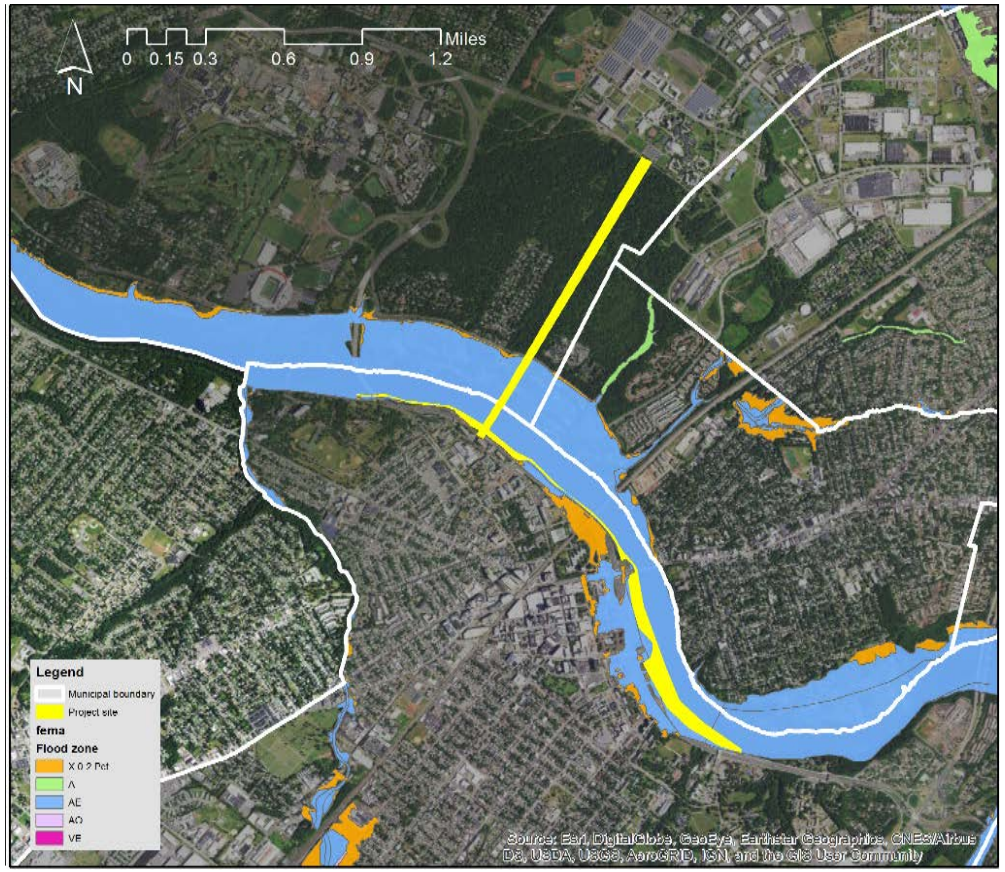
AVOID MINIMIZE MITIGATE

Regulatory Levels

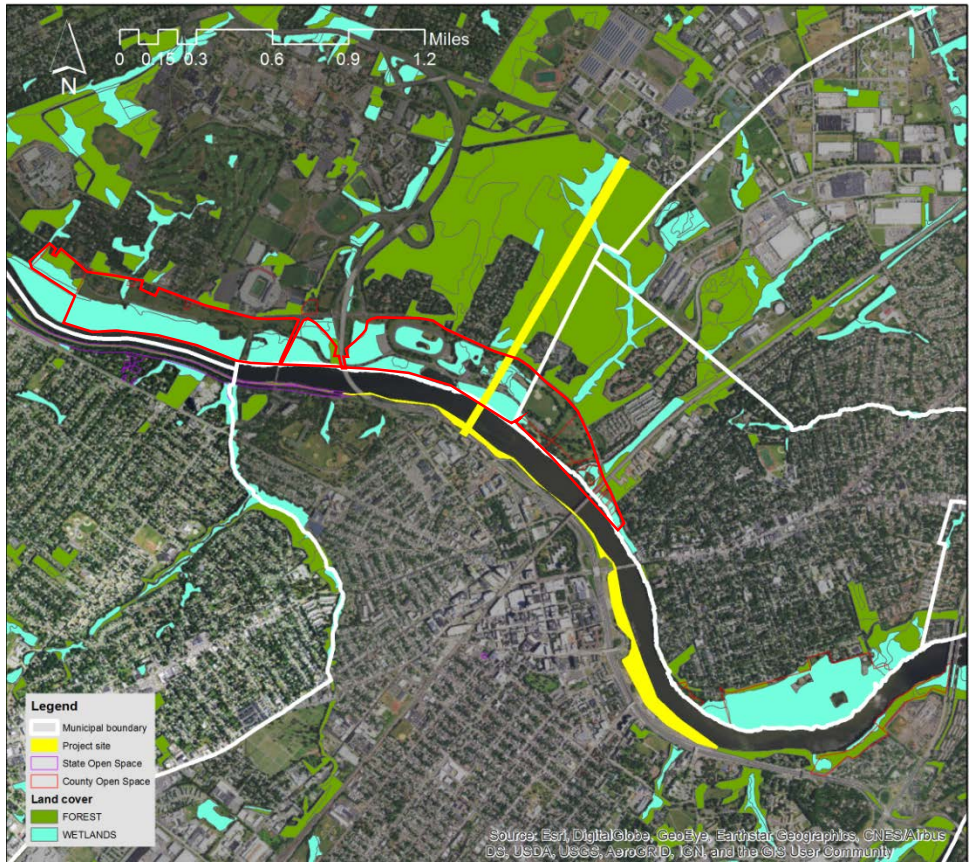
Federal	USACE | USCG | Advisory Council on Historic Preservation
State	NJDEP Land Use Regulations and Ecological Services Field Office | NJDOT
Regional	Delaware and Raritan Canal Commission
County	Middlesex
Municipal	Piscataway | New Brunswick | Highland Park

Regulatory Framework

Flood Zone



Wetlands, Forests & Open Space



Regulatory Framework

What is triggering regulation or review?

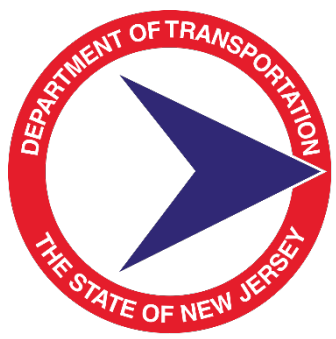
- Wetlands
- Tidelands/Fresh Lands
- Coastal Area
- Ecological Preserve
- Green Acres Laws
- Historic District
- Species of Concern
- Waterfront Conservation Districts (Multi-towns)
- Access or Modifications To Highway
- Type of Funds Used (e.g., Federal)

FUNDING

Funding Opportunities

Our compiled list of funding sources...

- Helps make some of our Long-term Sustainability recommendations feasible
- Adheres to the ***Lighter, Quicker, Cheaper*** (LQC) strategy for public spaces
- Funds activities in
  - Place-making
  - Historic preservation
  - Bike/ped infrastructure
  - Community health
  - Green infrastructure
  - Civic engagement
- Ranges from a few thousand to several hundred thousand dollars



National Trust *for* Historic Preservation
Save the past. Enrich the future.™

LONG-TERM SUSTAINABILITY AND PARTNERS

Long-Term Sustainability and Partners

Economic Opportunities

Stewardship

Community Engagement

Outdoor Recreation

Long-Term Sustainability and Partners

1. Community Clean-Ups

https://www.raritanheadwaters.org/wp-content/uploads/2013/12/Photo_2014.jpg

2. Maintenance Responsibility

http://s3.amazonaws.com/stb111/story_xlimage_2010_11_R9506_Bryant_Park_garbage_bins_win_prize.jpg

Long-Term Sustainability and Partners

3. Food Vendors

https://www.custommobilefoodequipment.com/wp-content/uploads/2016/08/cc44b75741cd0f57cfcfb2f4182a37f4.jpg

4. Tourism

https://media-cdn.tripadvisor.com/media/photo-s/0c/41/5b/b0/mi-kmaq-tour-with-alan.jpg

Long-Term Sustainability and Partners

5. Increase Park Programming

6. Draw Existing Festivals and Events Into Area

Long-Term Sustainability and Partners

7. Attractive Wayfinding

http://ecept.com.au/wp-content/uploads/2015/10/Portfolio_ACC_2-940x636.jpg

8. Attractive Interpretive Signage

https://i.pinimg.com/736x/e5/[illegible]--outdoor-signage-sign-system.jpg

Long-Term Sustainability and Partners

9. Art Walk

http://www.jerseygraf.com/index/new-brunswick/raritan-river-art-walks

10. Fish Exchange

https://patch.com/new-jersey/newbrunswi[illegible]or-fun-5d9cd7b0

Long-Term Sustainability and Partners

11. Reinstall Landings

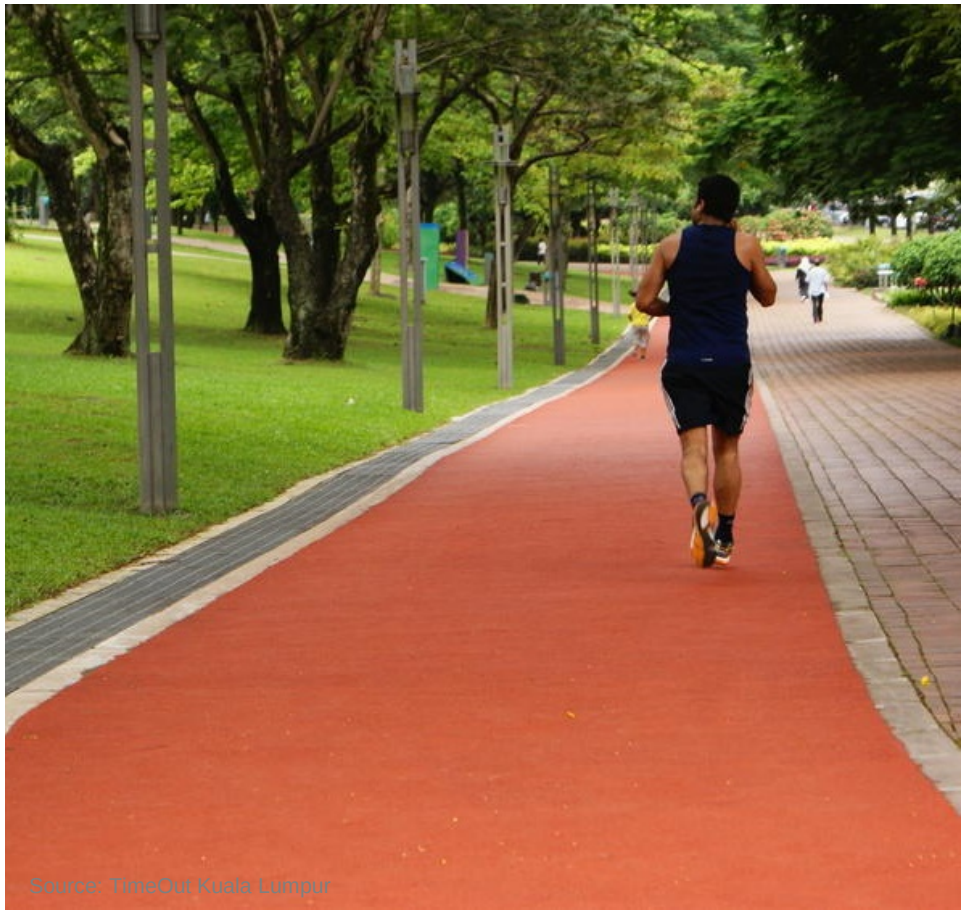
12. Channel Markers

Long-Term Sustainability and Partners

13. Outdoor Fitness Equipment

http://blog.shawcontractgroup.com/wp-content/uploads/2012/12/NFC-1.jpg

14. Track Surfaces



Source: TimeOut Kuala Lumpur

Long-Term Sustainability and Partners

15. Watersport Rentals

https://www.woodlandsjournal.com/wp-content/uploads/2015/03/RivaRow046.jpg

16. Public Lessons

https://www.paddlingmagazine.com/wp-content/uploads/2014/04/essential_kayaking_class.jpg

Long-Term Sustainability and Partners

Economic Opportunities

- Food vendors
- Tourism
- Reinstall landings
- Signage of restaurants, theaters, attractions, etc.
- Branding

Stewardship

- Community Clean-Ups
- Maintenance Responsibility
- Increased Rutgers Course programming
- Interpretive signage (Historical & Ecological)

Community Engagement

- Fish Exchange
- Increase Park programming
- Art Walk
- Wayfinding
- Draw Existing festivals into Park Area

Outdoor Recreation

- Watersport Rentals
- Channel Markers
- Public Lessons
- Outdoor Fitness Equipment & Track Surfaces

CONCLUSIONS

Conclusions

- Projects as destinations, not just means of transport
- Site is not a blank canvas, valued by students and community
- Existing infrastructure enhancement
- Recommendations outlined for boardwalk can be used in an integrated way
- Quality architectural design is important

THANK YOU