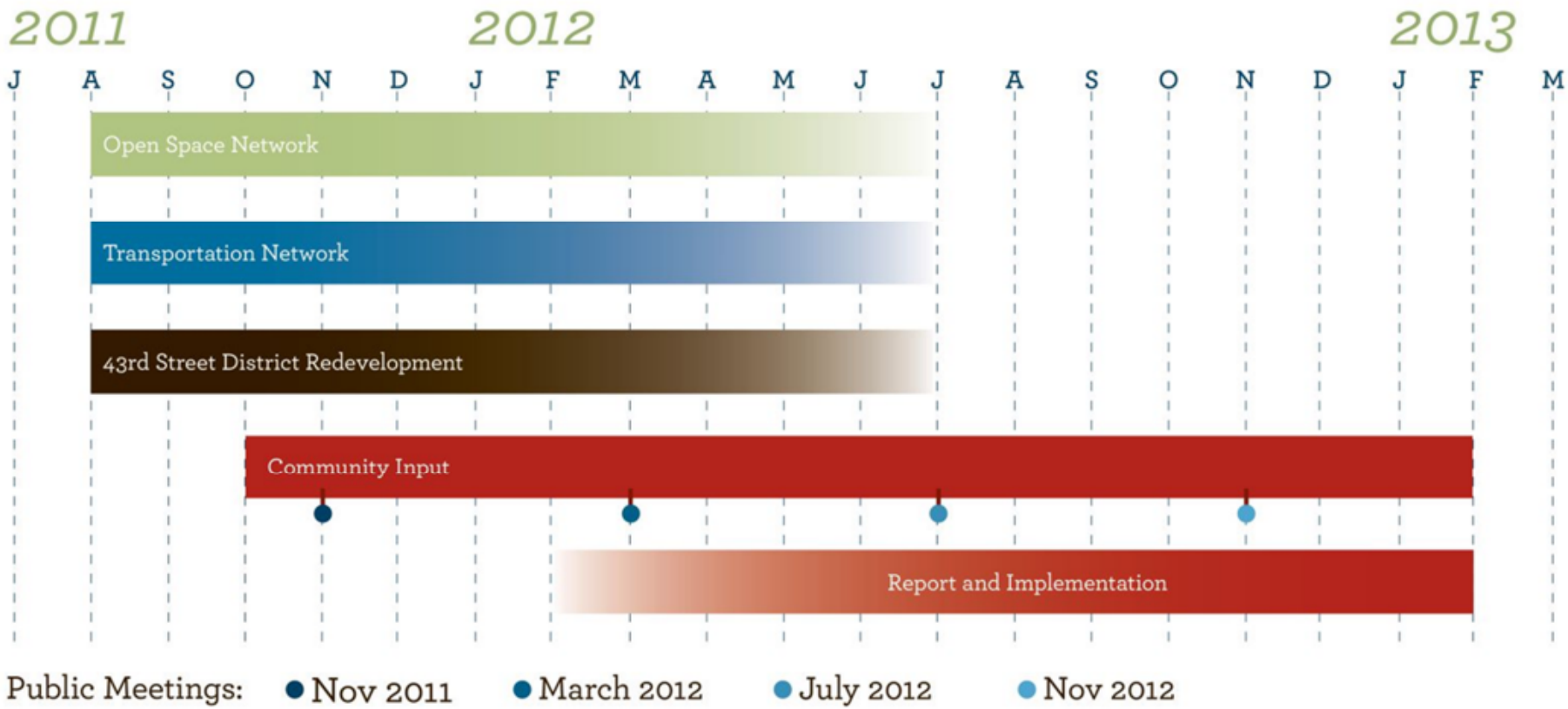
Public Meeting #4

11.15.2012

What is the Green Boulevard?

It's the **Allegheny Valley Railroad right-of-way**, transformed into a mixed mobility corridor, including commuter rail mixed with freight service, a multi-purpose path, and landscape and development improvements



~300 attendees to 3 public meetings – plus today!

THANKS TO EVERYONE WHO HAS PARTICIPATED IN THE PLAN!

269 participants in *mygreenboulevard.com*

287 'likes' on facebook – LIKE US!!

www.greenboulevardpgh.com

322 Green Boulevard members on the emailing list

12 Steering Committee meetings

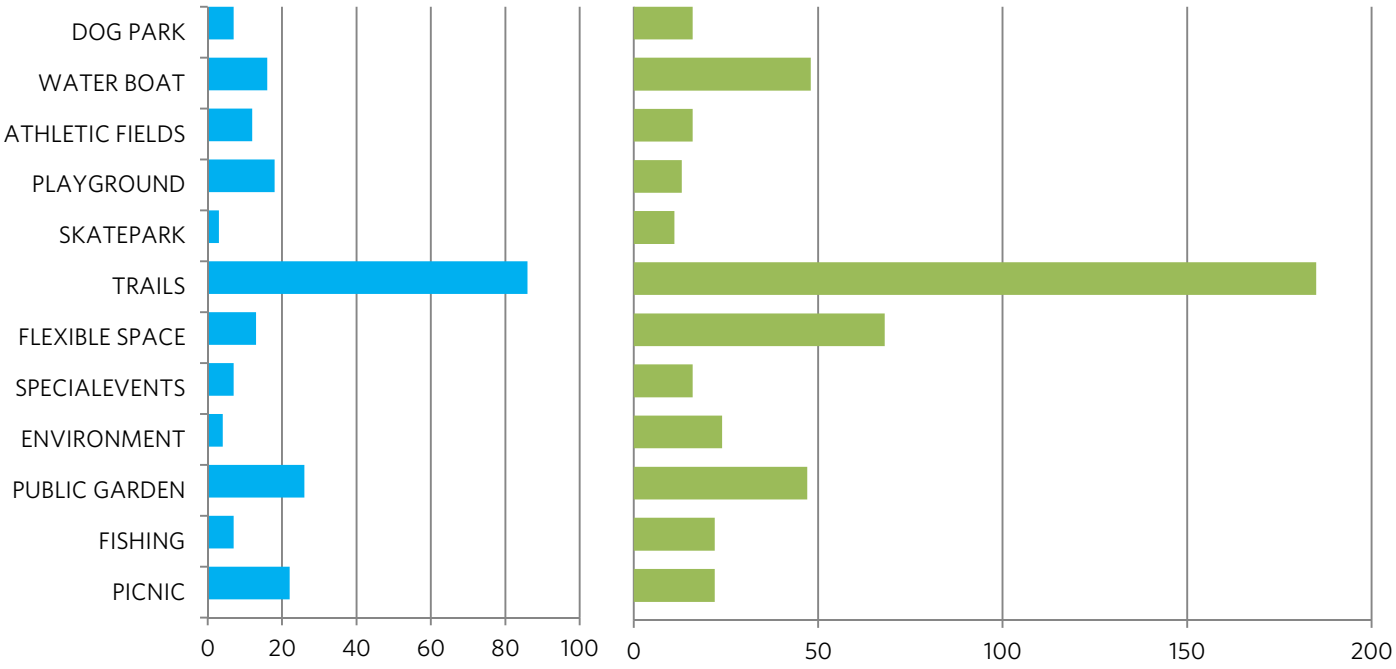
November 2011 @ the Society for Contemporary Craft

March 2012 @the Grey Box Theater

July 2012 @ the Pittsburgh Opera

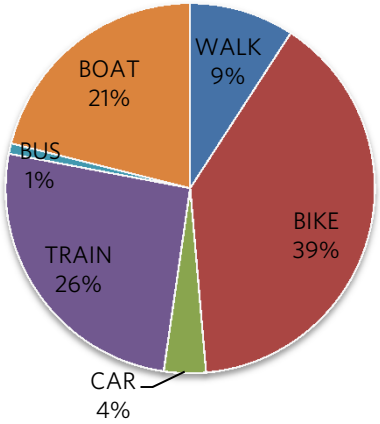
MyGreenBoulevard Open Space 87 responses

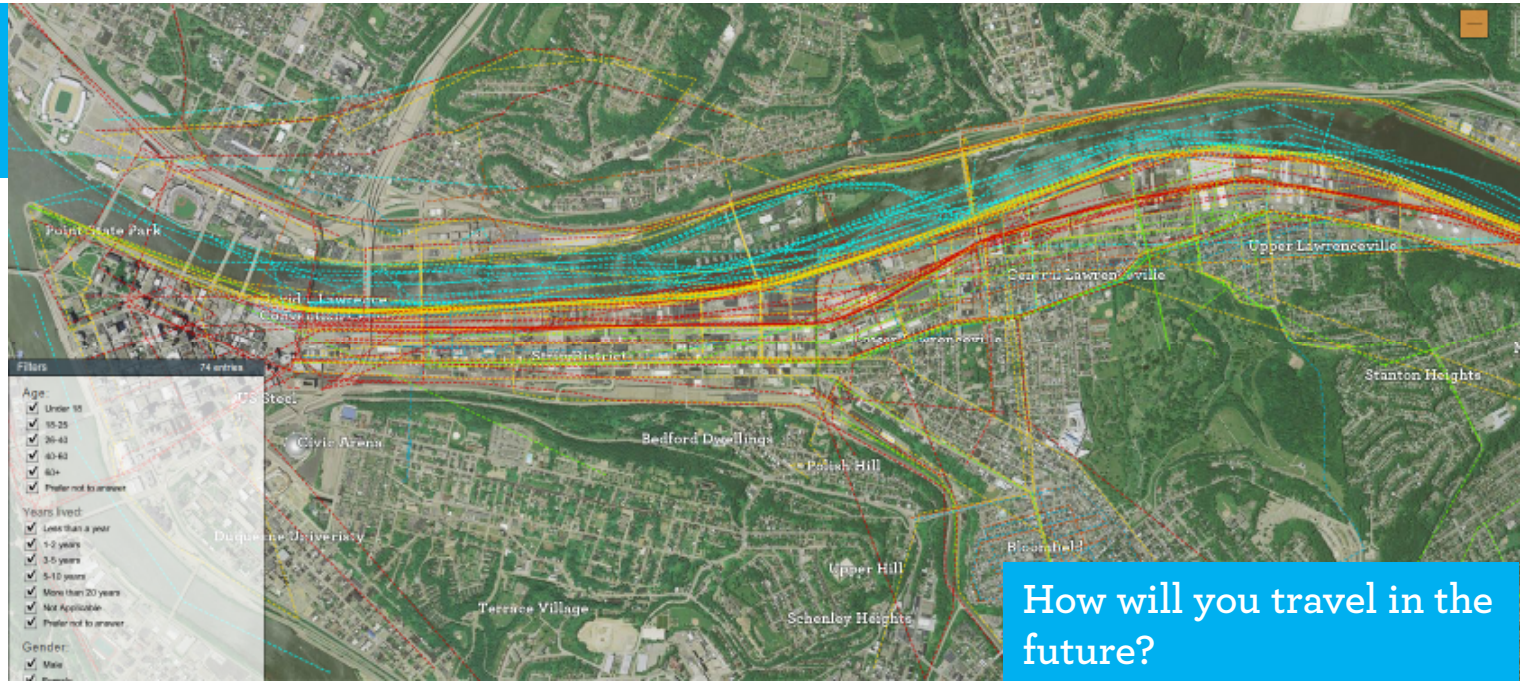
Q: How will you use the Riverfront and open space tomorrow?
A: More trails along the river, flexible open spaces, and connections from the neighborhoods.



MyGreenBoulevard Transportation 74 responses

Q: How will you travel tomorrow?

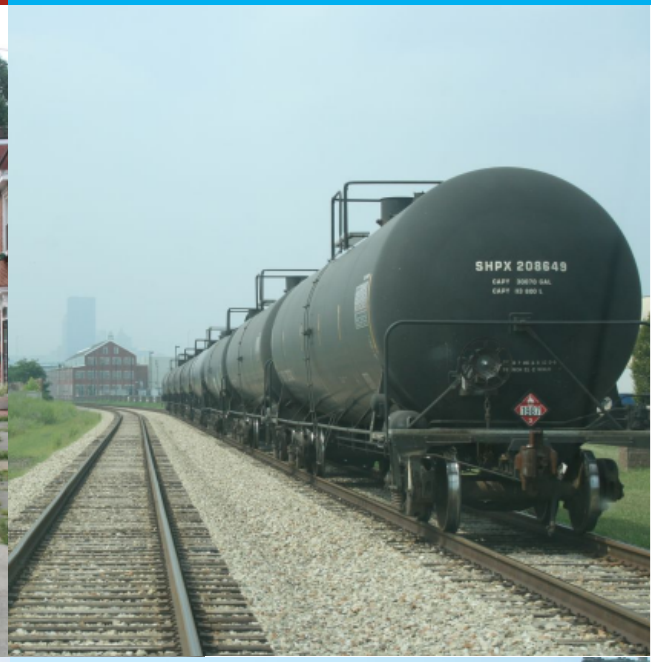




How will you travel in the future?

Summer 2012 Events

- Green Boulevard Trivia Night
- Bike the Green Boulevard
- Parking Day

Open Space	43rd Street District	Transportation
		

Achieving 6 HUD Livability Principles

1. Value **communities** and neighborhoods & support existing **communities**
2. Provide more **transportation** choices
3. Promote equitable, affordable **housing**
4. Enhance **economic** competitiveness
5. Coordinate and **leverage** federal policies and investment

1. Project Outreach
2. Increasing alternative transportation ridership
3. Diversifying housing choice in Lawrenceville
4. Supporting existing and new businesses
5. Implementing the plan

Community Supported Ideas

ACCESSING THE RIVER

- Riverfront path and parks in the Strip and Lawrenceville
- Neighborhood connections

EXPANDING TRANSPORTATION OPTIONS

- Bike path, including connection to Morningside
- Commuter rail and stations with identity

UNLOCKING ECONOMIC POTENTIAL

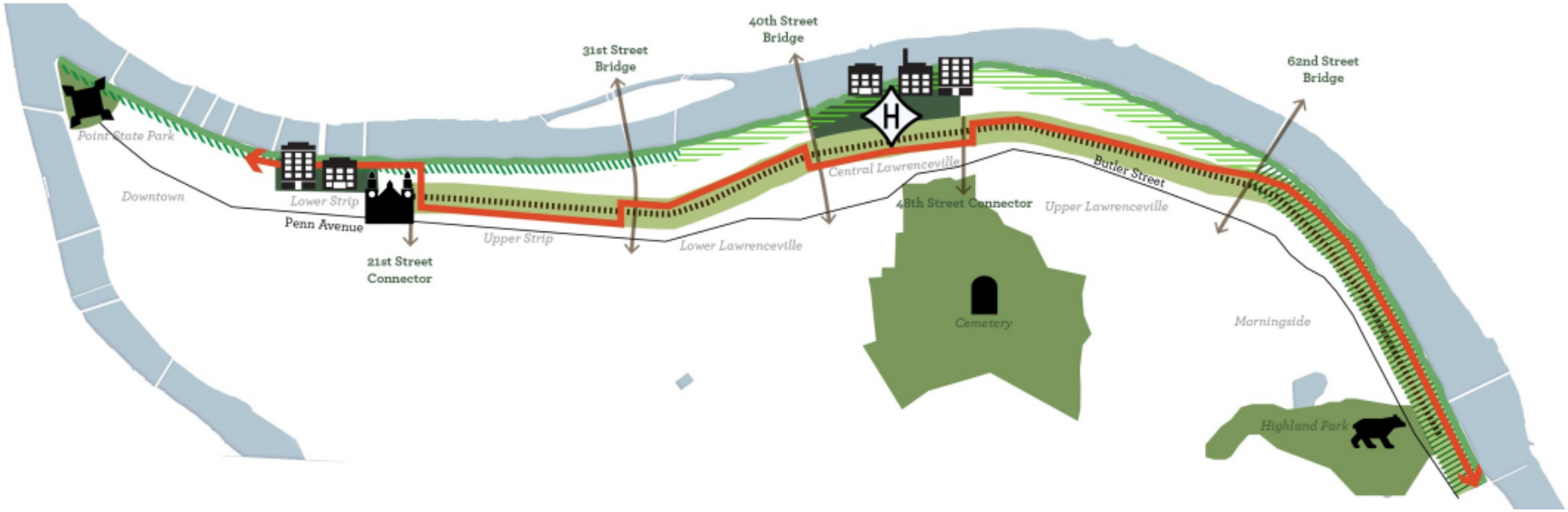
- Rehabilitate existing housing stock & integrate historic identity
- Connections into communities, like Butler Street in Lawrenceville

SUSTAINABILITY GOALS

- 47th Street watercourse
- Riverfront buffers

The Green Boulevard Plan

95' Set Back
125' - 150' Set Back
250' Set Back
Riverside Trail
Green Boulevard
New Open Space
Commuter Bicycle Trail
Through Track
Major Regional Connections
New Development

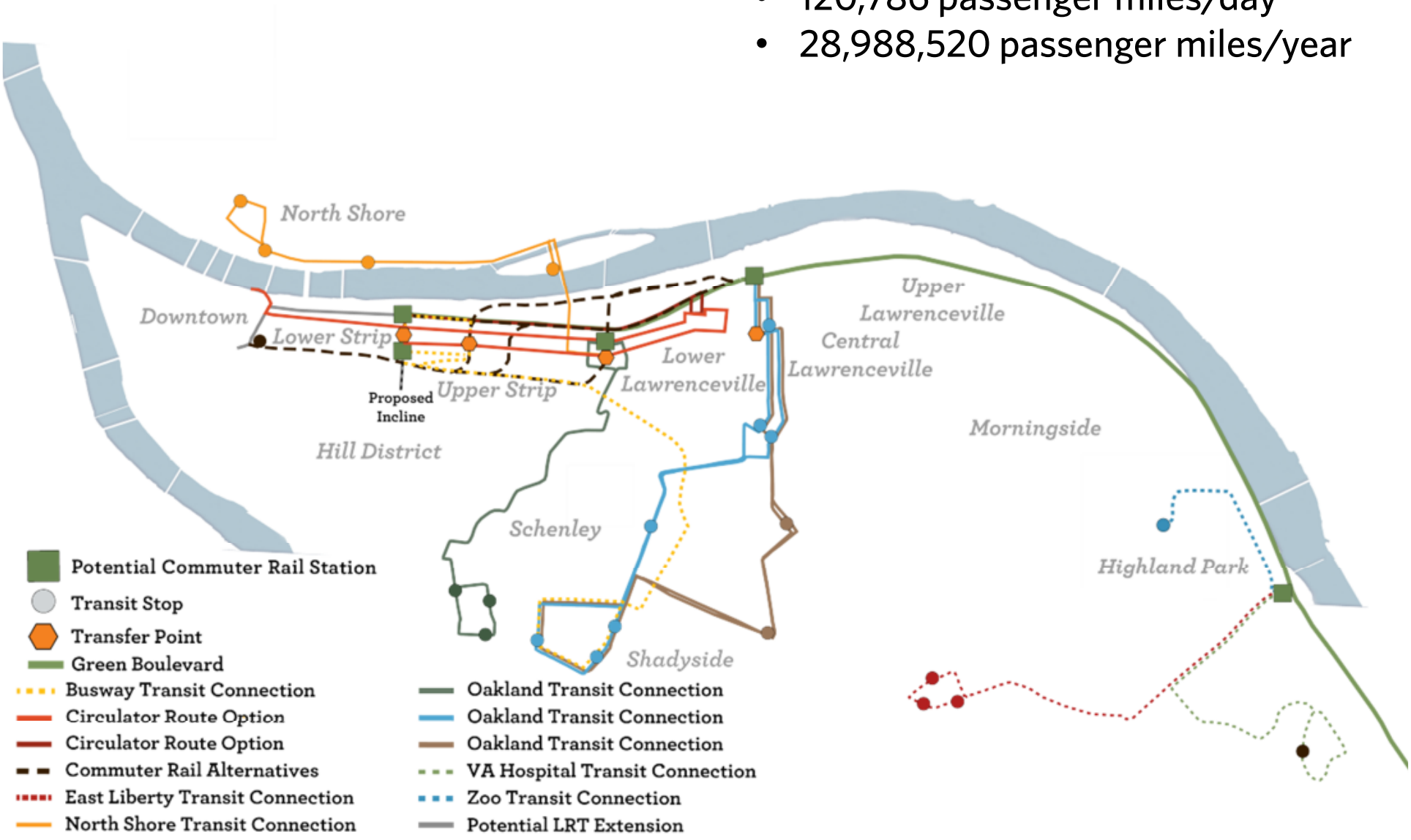


*areas owned by private property owners may be subject to private rights

Transit Connections

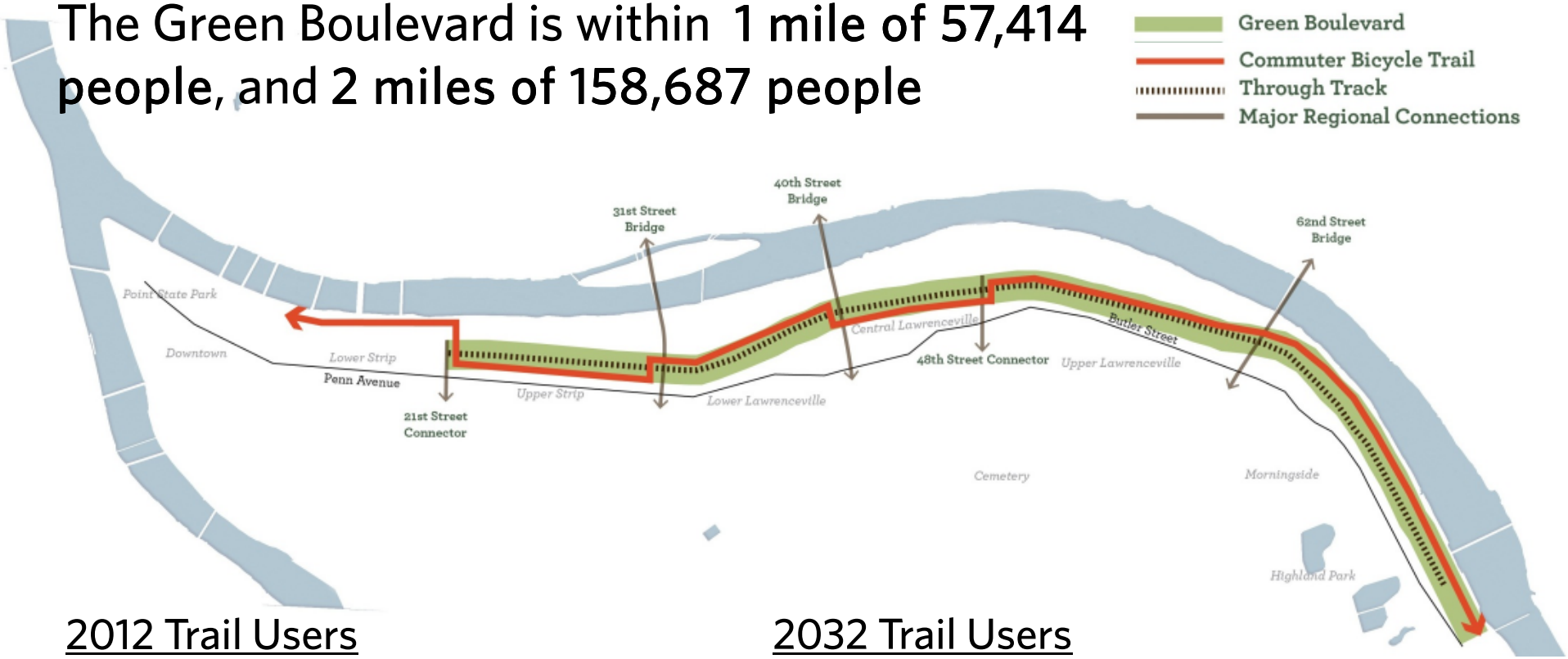
Projected Commuter Rail System

- Overall system: 20.63 miles
- Up to 8,550 county riders / day
- 120,786 passenger miles/day
- 28,988,520 passenger miles/year



Green Boulevard Trail Ridership

The Green Boulevard is within 1 mile of 57,414 people, and 2 miles of 158,687 people



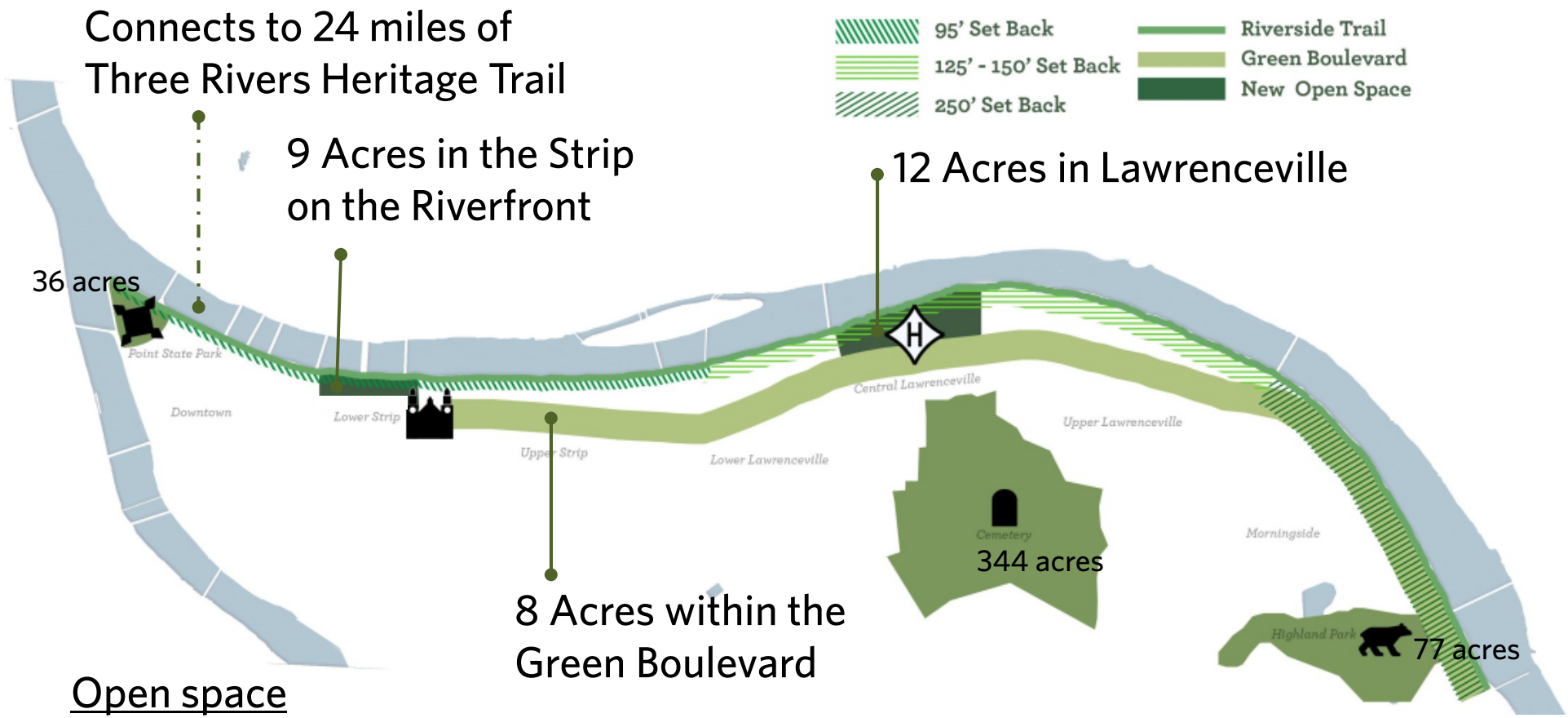
2012 Trail Users

- up to 1,780 / day
- up to 649,300 / year
- VMT's reduced: up to 289,400 miles/year
- Saves up to 108,400 kg eCO_2

2032 Trail Users

- up to 2,105 / day
- up to 763,100 / year
- VMT's reduced: up to 299,200 miles/year
- Saves up to 112,100 kg eCO_2

Open Space

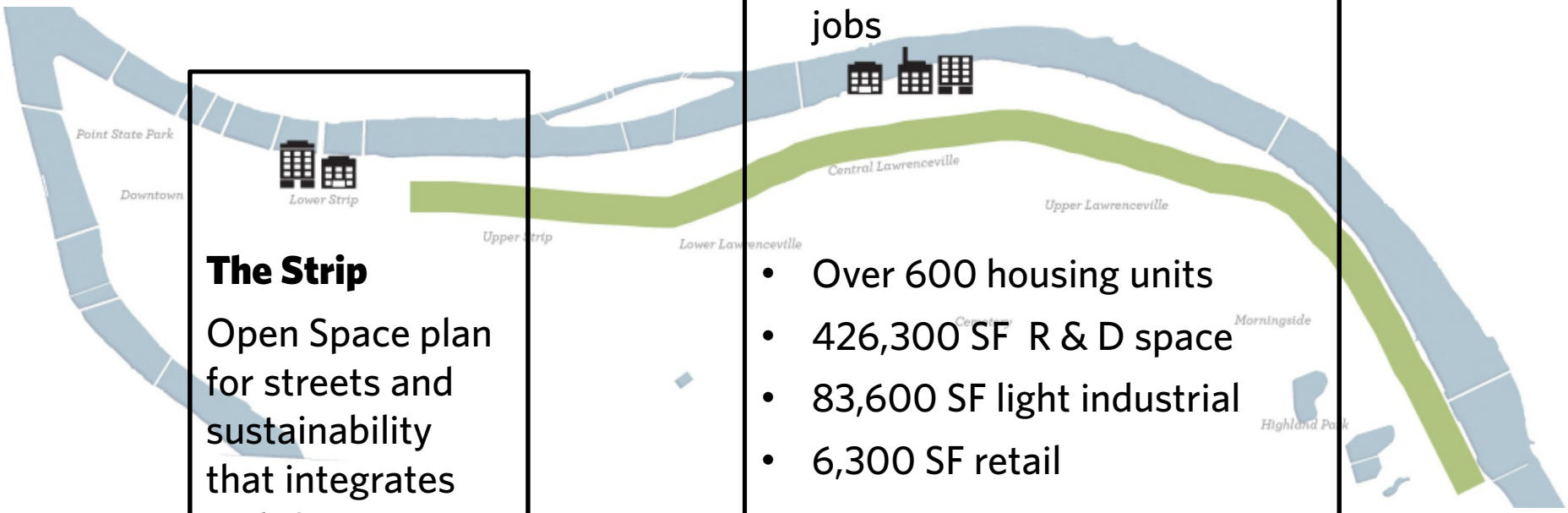


<u>Open space</u>

- 29 acres of new parks creating a network of 523 acres
- 7 miles of new trails creating a 31 mile network
- 120 acres of riverfront buffers improving bank stabilization, water quality, and habitat creation

*areas owned by private property owners may be subject to private rights

Future Development



43rd Street District

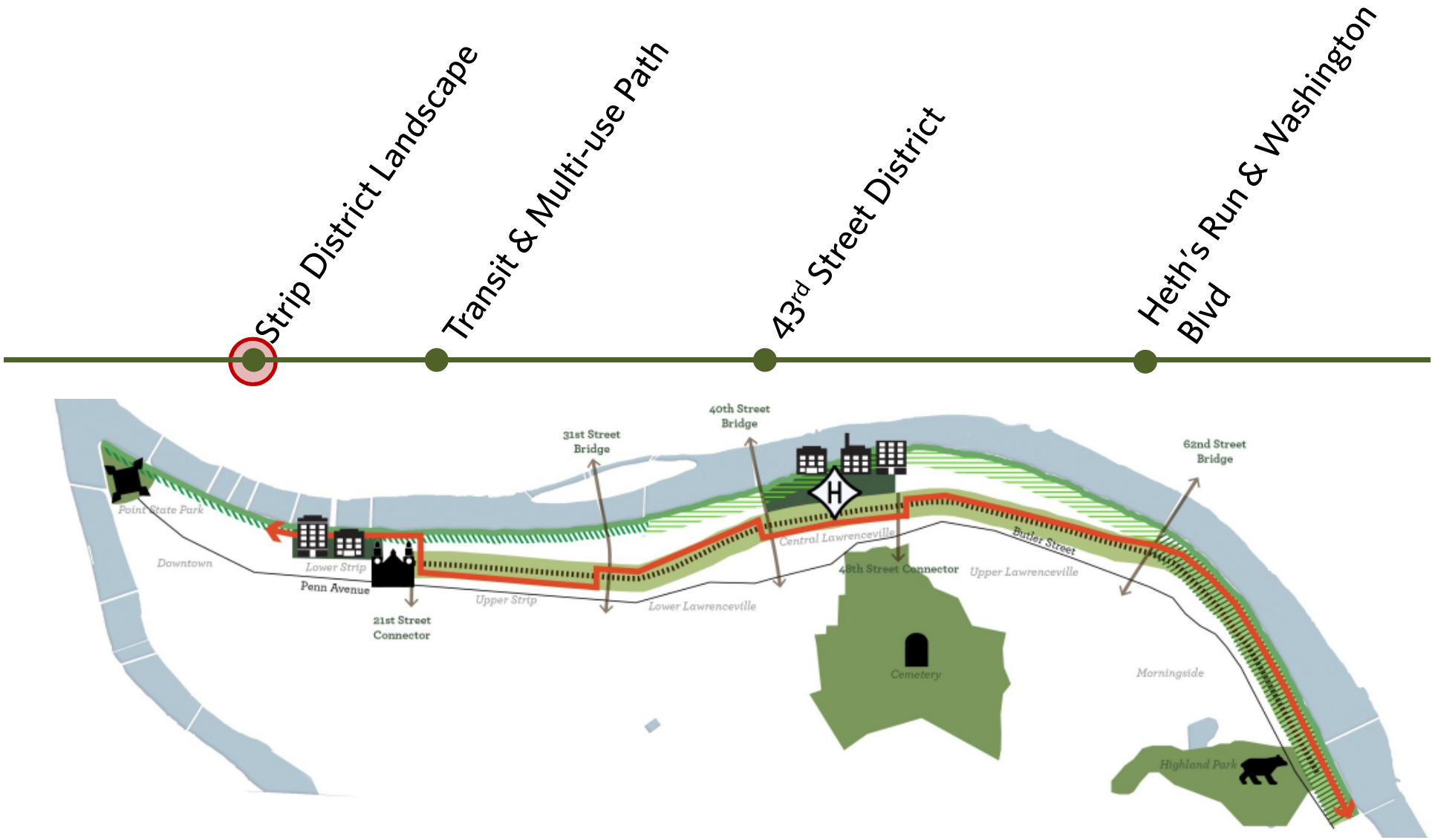
- Up to $2.6 M in new tax revenue
- 1.4 million SF of new & renovated space
- Up to 1,700 new jobs
- Up to 1,000 construction jobs

The Strip

Open Space plan for streets and sustainability that integrates with future private development

- Over 600 housing units
- 426,300 SF R & D space
- 83,600 SF light industrial
- 6,300 SF retail

Imagine the Green Boulevard!


Strip District Landscape
Transit & Multi-use Path
43rd Street District
Heth's Run & Washington Blvd
Point State Park
Downtown
Lower Strip
Penn Avenue
21st Street Connector
Upper Strip
31st Street Bridge
Lower Lawrenceville
40th Street Bridge
Central Lawrenceville
48th Street Connector
Cemetery
Upper Lawrenceville
Butler Street
62nd Street Bridge
Morningside
Highland Park

Ecology

Regional Hydrology Pittsburgh is defined by its three rivers: the Allegheny, the Monongahela, and the Ohio, as well as many small wetlands.

Regional Land Cover Pittsburgh is characterized by developed lands and areas of deciduous forests, most of which are parks found in the region

Regional Morphology Pittsburgh is built on the Appalachian Plateau. Elevations in this region range from 696 feet to 1359 feet.

Regional Geology Five main types of geology exist in the region, including the Allegheny Formation which is primarily composed of sandstone, siltstone, and coal - which is of major economic significance.

Rare, Threatened and Endangered (RTE) Species Allegheny County hosts 164 plant and animal species that are listed as federal/state protected or have rarity status. Twelve RTE species have been identified on-site.

Regional Vegetative Communities Pittsburgh's vegetative community include Silver Maple Flood, Sycamore-Box Elder Floodplain Forest, Black Willow Scrub/Shrub Wetland, Alder Ninebark Wetlands and the Water-Willow-Smartweed Riverbed Community.

Species Migration One of the primary Atlantic flyway routes crosses Western Pennsylvania, which is crucial to bird migration.

Riverbank Stabilization

What is HEC-RAS?

Hydrologic Engineering Centers River Analysis System (HEC-RAS) is a computer modeling software used to evaluate river hydraulics, including flood stages, flow velocities and sediment transport capacity. HEC-RAS describes river flow velocities for flood conditions and helps calculate expected flood stages over the length of the river system.

What is Scour?

General Scour — is the erosion of river bed material across the entire width of the channel

Local Scour — occurs at locations of obstructions such as piers, abutments and pile walls. The flow is accelerated causing vortices that mobilize and transport material of river banks and portions of the river bed.

What is Slope Stability?

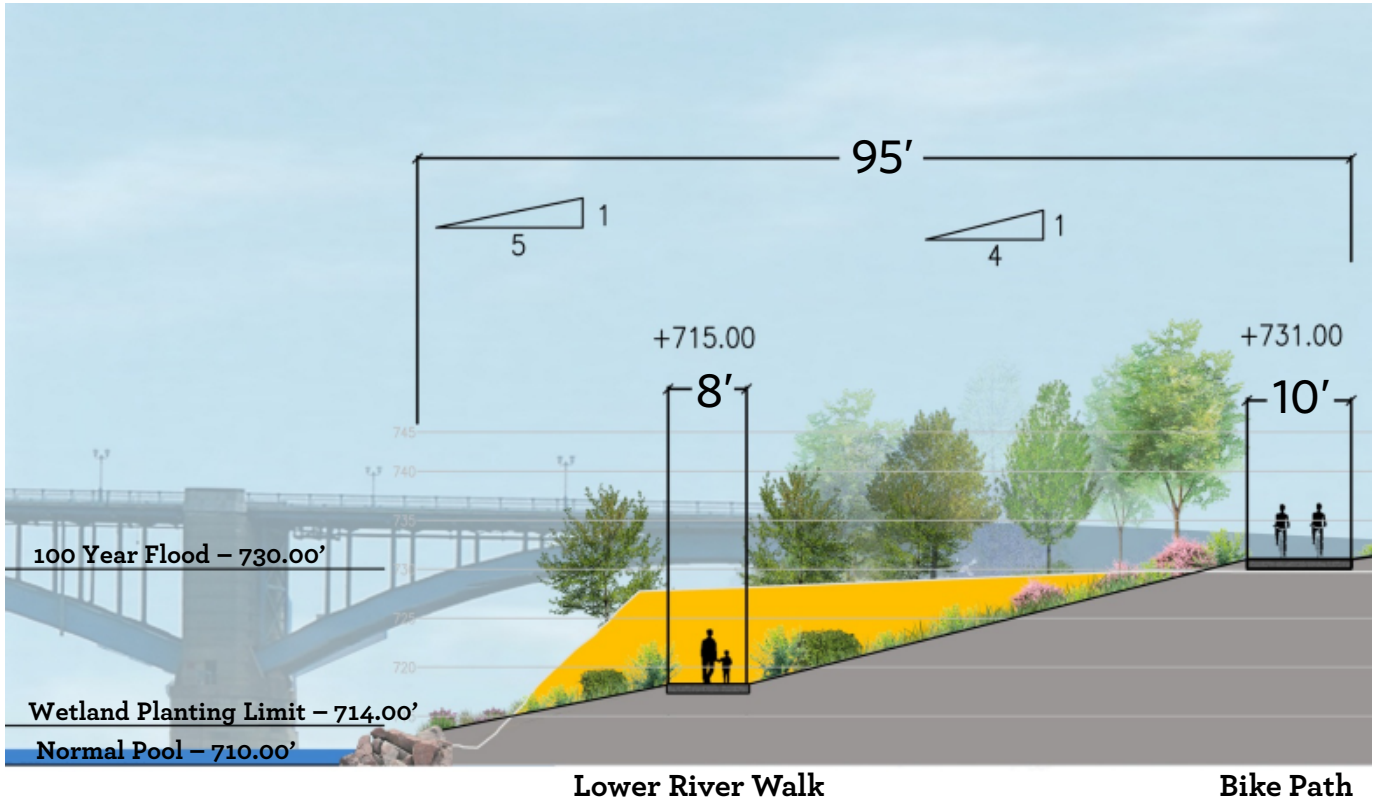
Slope Stability — encompasses the analysis of slope stability including rock-filled embankments, excavated slopes, and natural slopes in soil and soft rock.

Riverbank Stabilization + Ecological Enhancements

Historic and current analysis conclude that a slope ratio between 4:1 and 5:1 is needed for a stable bank condition.

Recommendation: 95′+ horizontal buffer

USDA buffer recommendation ranges for habitat, flood mitigation, sediment removal, nitrogen removal, water temperature moderation, and aquatic food web chain



*areas owned by private property owners, may be subject to private rights

Habitat Enhancement

Native ecological communities provide essential benefits and services.

Six Focal Species were selected for the study area that emphasize community variability and habitat diversity.

1. Paddlefish
2. Bank Swallow
3. Eastern Tiger Swallowtail (butterfly)
4. **Least Weasel**
5. Wood Frog
6. Louisiana Waterthrush

Strip District - Open Space Plan

Strip District Waterfront Programming

Open Space

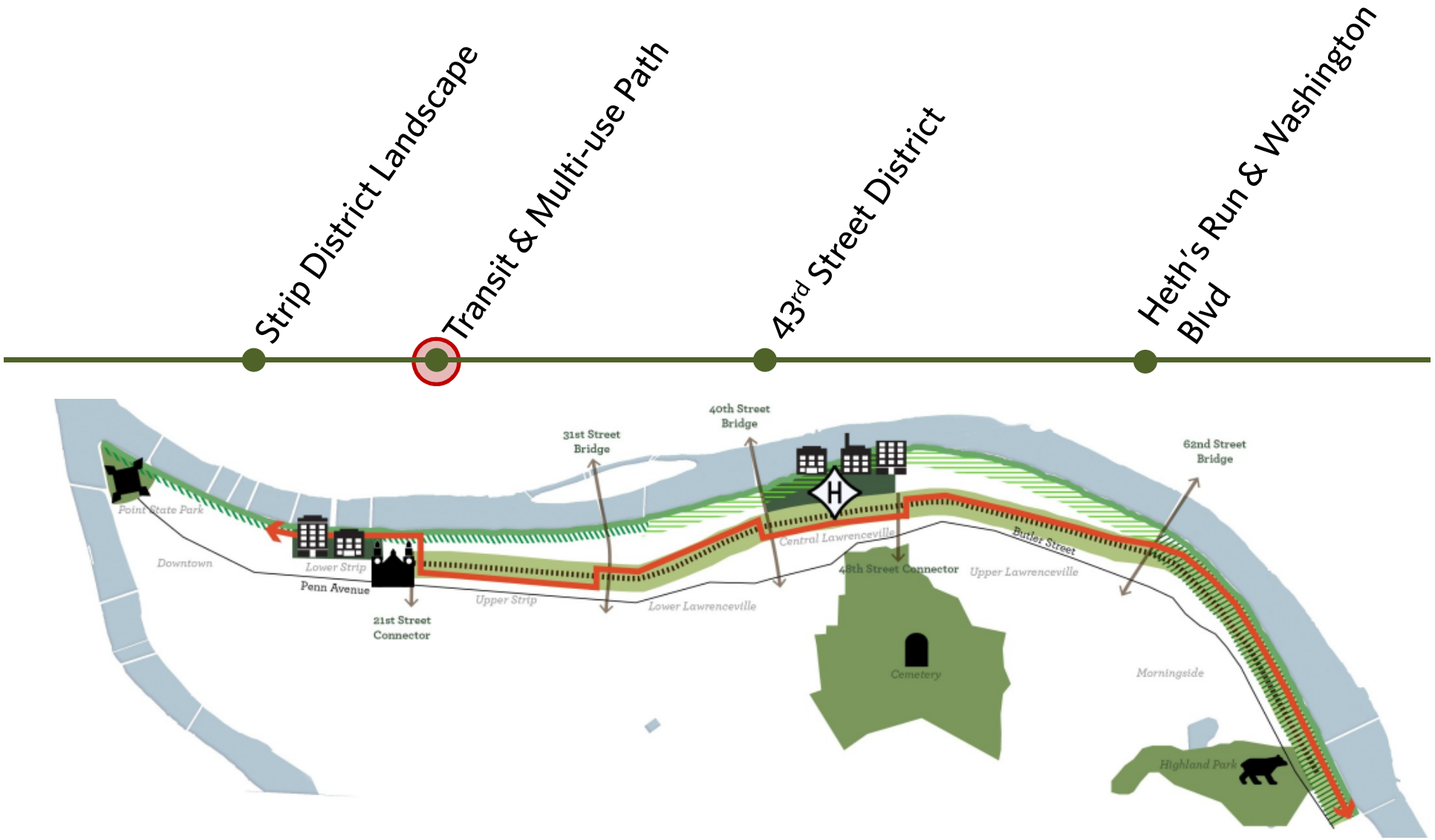
Existing

[The Strip]

Open Space

Proposed

[The Strip]


Strip District Landscape
Transit & Multi-use Path
43rd Street District
Heth's Run & Washington Blvd
Point State Park
Downtown
Lower Strip
Penn Avenue
21st Street Connector
Upper Strip
31st Street Bridge
Lower Lawrenceville
40th Street Bridge
Central Lawrenceville
48th Street Connector
Cemetery
Upper Lawrenceville
Butler Street
62nd Street Bridge
Morningside
Highland Park

FTA New Starts Project Development Process

Under SAFETEA-LU

Planning (We Are Here) → **Alternatives Analysis** → **Preliminary Engineering** → **Final Design** → **Full Funding Grant Agreement**

- Corridor Feasibility Study
- Alignment Screening

- Develop and review alternatives
- Select locally preferred alternative (LPA)
- Adopt LPA into fiscally constrained long range transportation plan

- Complete environmental review process
- Gain commitments of at least 50% of non-New Starts funding

- Gain commitments of all non-New Starts funding
- Complete sufficient engineering and design

- Construction

Under MAP-21

Planning (We Are Here) → **Project Development** → **Engineering** → **Full Funding Grant Agreement**

- Corridor Feasibility Study
- Alignment Screening

- Complete environmental review process including developing and reviewing alternatives, selecting locally preferred alternative (LPA), and adopting it into the fiscally constrained long range transportation plan

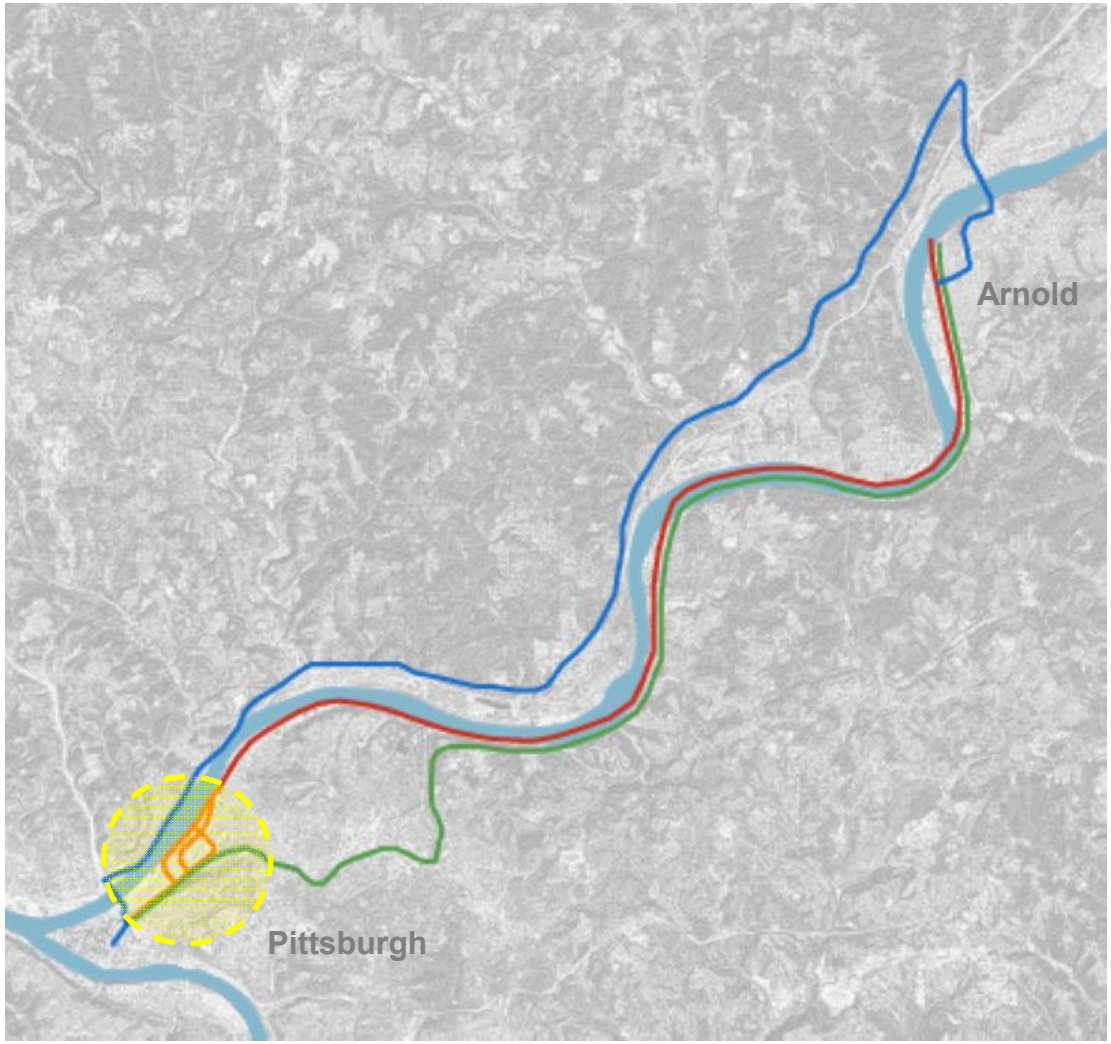
- Gain commitments of all non-New Starts funding
- Complete sufficient engineering and design

- Construction

Source: FTA (modified)

Legend ◆ = FTA approval ▶ = FTA evaluation, rating, and approval

Commuter Rail Alternatives Analysis



THE BIG PICTURE

- Corridor-wide comparisons (Arnold to Pittsburgh) across modes and other commuter rail alignments

  - ARGB Commuter Rail
  - Brilliant Branch Commuter Rail
  - RT 28 BRT
  - Others?

- Each alternative may have optional alignments

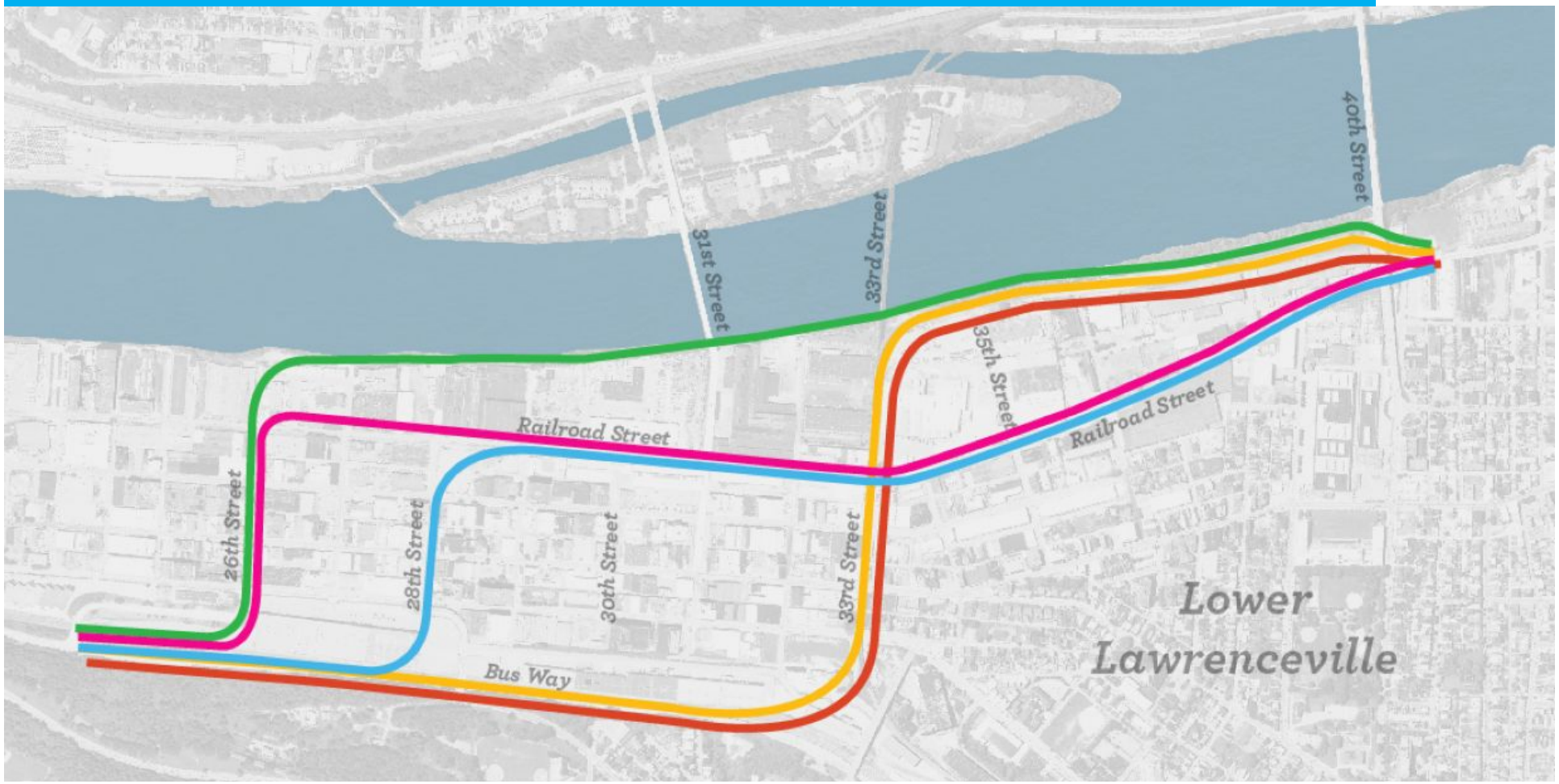
  Currently five (5) options for the ARGB Commuter Rail within Pittsburgh

Commuter Rail Options Screening to Connect Downtown

Comparative Evaluation Criteria	Commuter Rail Alignments – Access to Steel Plaza				
	Option A1 gold	Option A2 red	Option B blue	Option C pink	Option D green
	Along busway from existing 33rd St. Viaduct Existing	Along busway from existing 33rd St. Viaduct New	Along busway from new 28th St. Viaduct	Along busway from new 26th St. Viaduct	Along busway from new 26th St. Viaduct from riverfront
Capital Cost Estimate	–	– –	O	O	–
Environmental Impacts	–	–	+	+ +	– –
Development Potential	+ +	+	+	O	– –
33rd St. Station Transit Access	+ +	+ +	+	+	– –
Bike/Ped. Safety	+	+	–	–	+
Rail Operations	–	+	+	+	O
Consistent w/ Plans and Vision	+ +	+ +	O	–	– –
Community Support	O	–	O	O	–

LEGEND	
+ +	Most favorable
+	Favorable
O	Neutral
–	Unfavorable
– –	Most unfavorable

Commuter Rail Options Screening to Connect Downtown



Option 1A (from existing 33rd St viaduct)

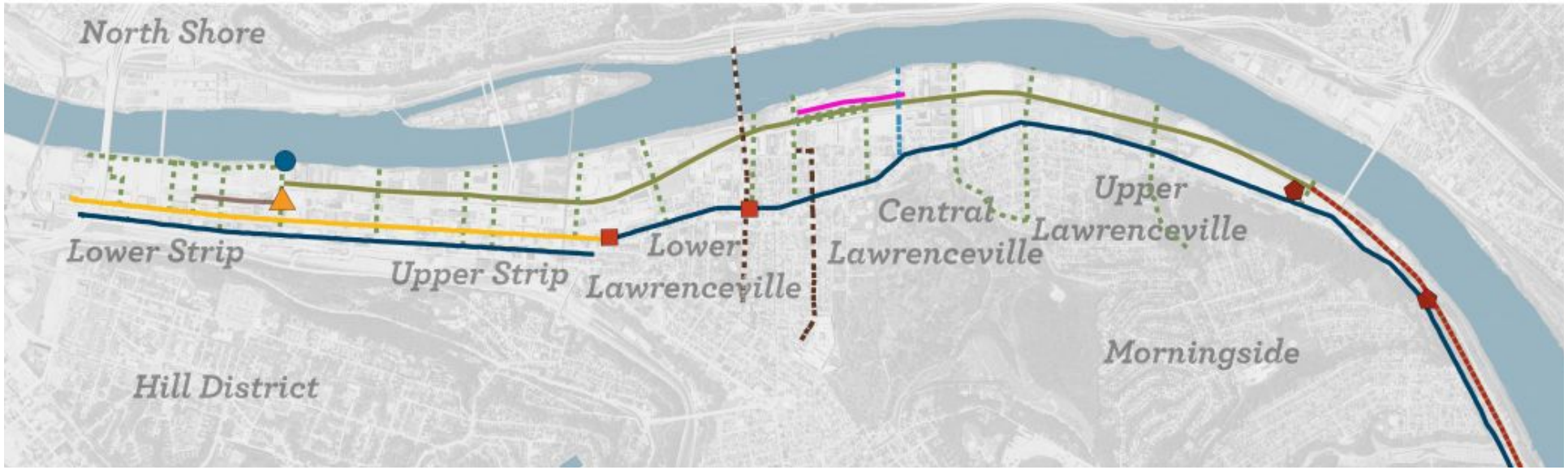
Option 2A (from existing 33rd St viaduct)

Option B (from existing 28th St viaduct)

Option C (from existing 26th St viaduct)

Option D (from existing 26th St viaduct)

Area-wide Transportation Improvements



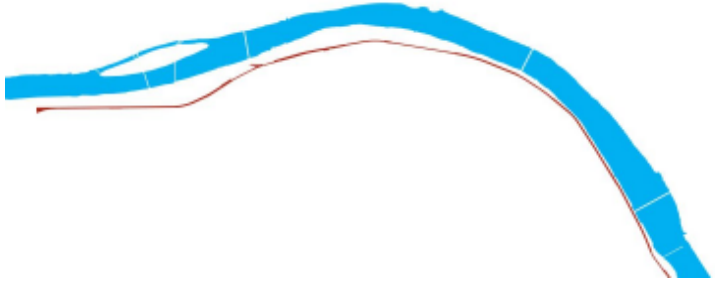
Legend

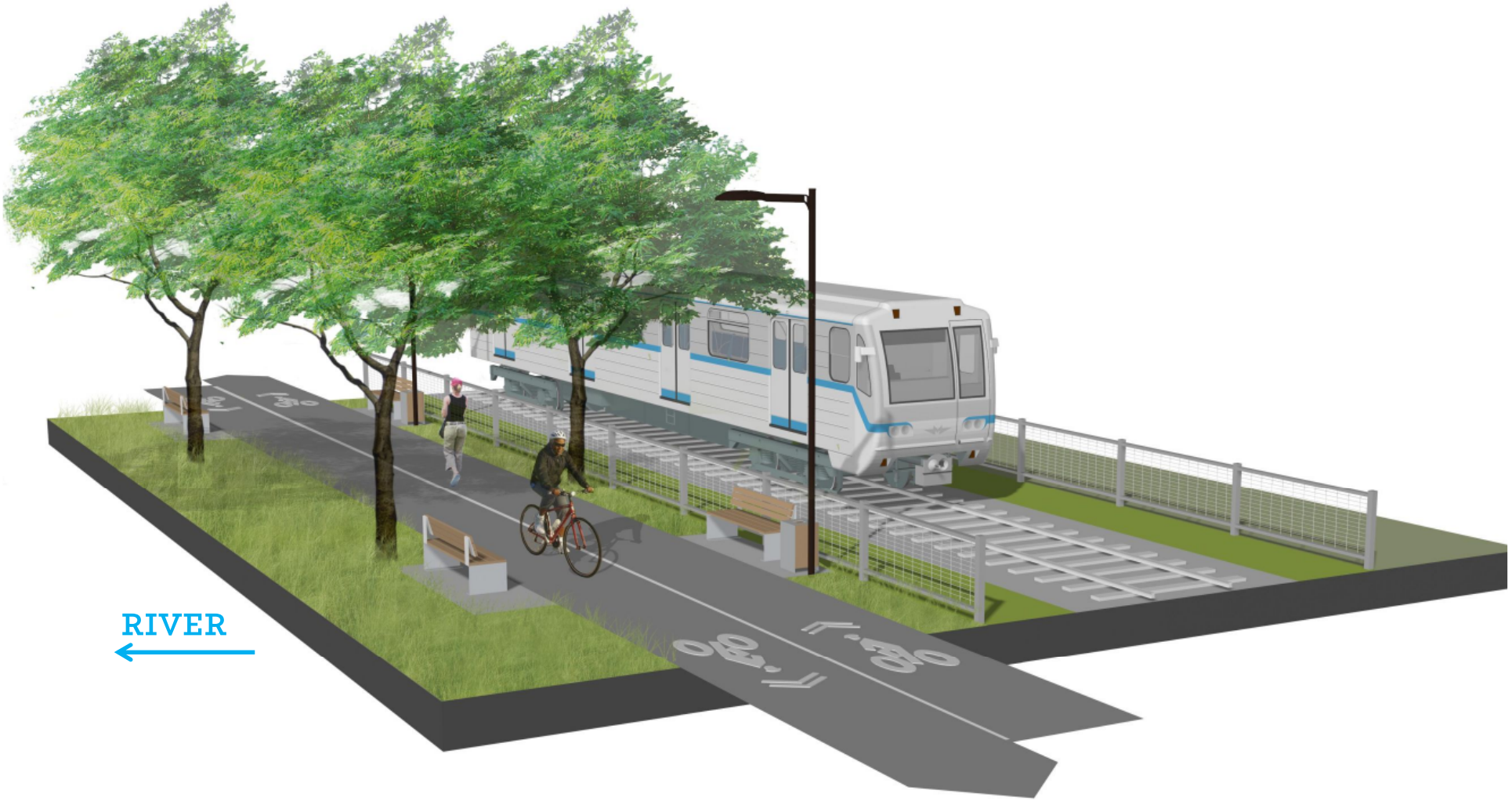
- Bike/Ped Safety Issues
- Congested Intersection
- Potential Water Taxi Connection
- Potential Intermodal/Relocated Freight Railroad Switching
- Congested Corridor
- Congested Corridor / Lack of Definition
- Congested Corridor / Mode Mixing
- Green Blvd (Lack of Access Warning Signage)
- One-Way Trucking Operational Issues / Lack of Signage
- Potential Bike Connection(s) to Hospital Area
- Potential Bike/Ped Connection(s) to River/Green Blvd
- Green Boulevard
- Freight Railroad Switching

0 1,000 2,000 Feet

Multi-Use Path

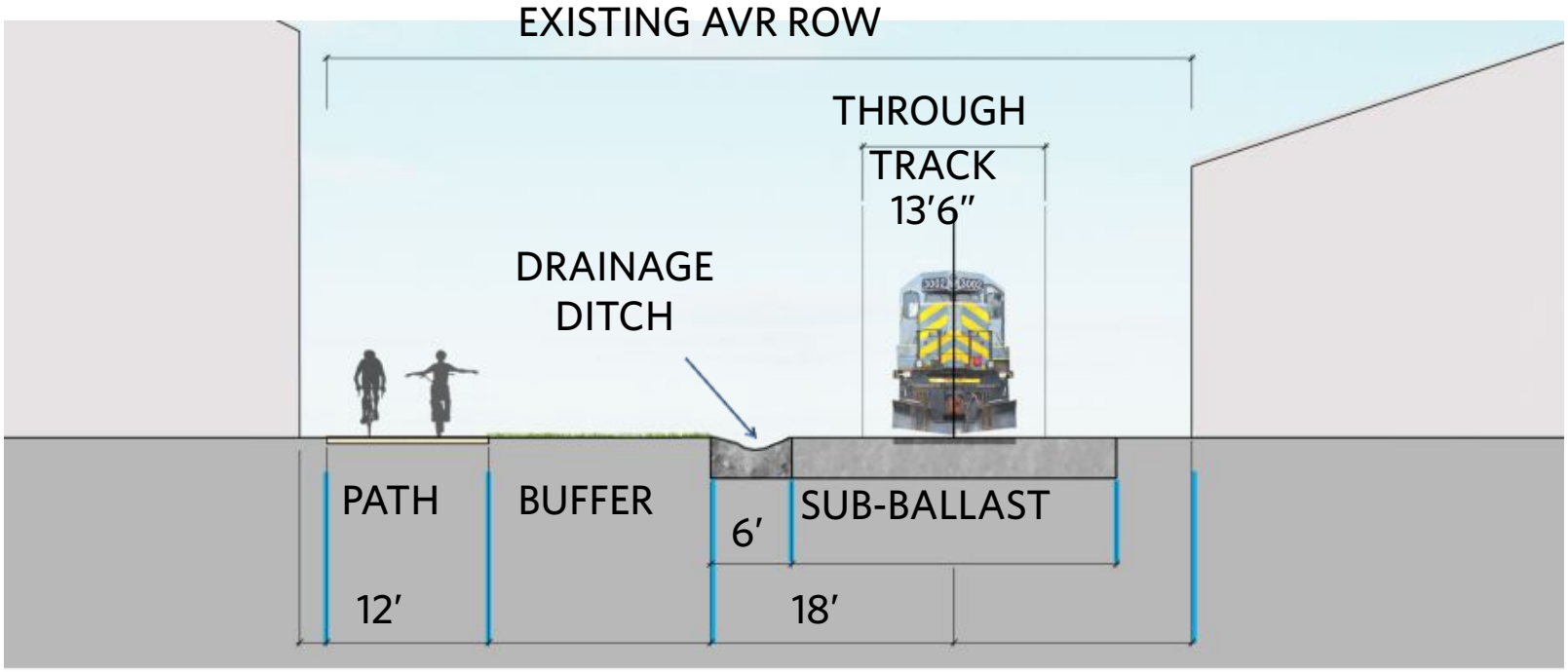
Proposed Condition at 31st and 32nd Streets





Design Steps to Implement the Path

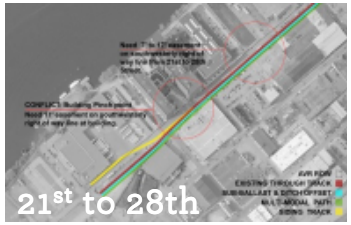
Multi-Modal Path Alignment with Sub-ballast

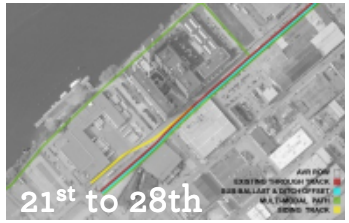


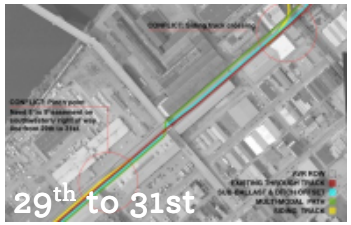
Multi-Modal Path Alignment Principles

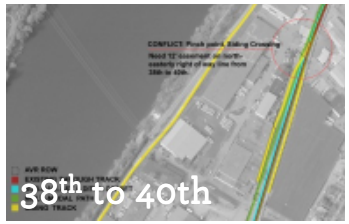
- Maintain existing through track, sidings and AVR corridor boundaries
- Maintain 18′ offset from centerline of through track to accommodate sub-ballast (12′ from centerline) and drainage ditch (6′)
- Push 12′ multi-modal path to edge of AVR ROW

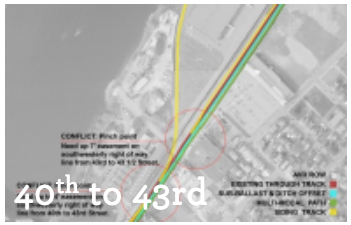
Testing the Multi-Modal Path Alignment

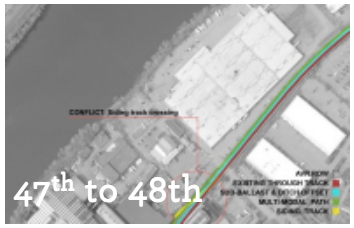


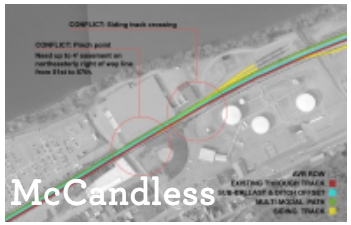


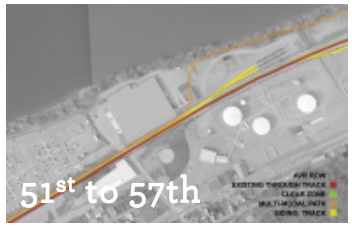


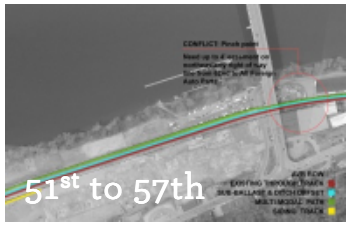


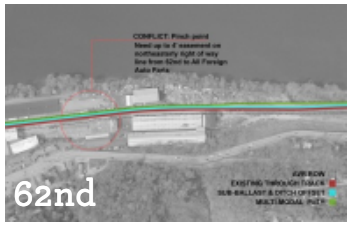


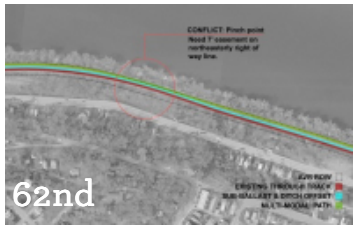


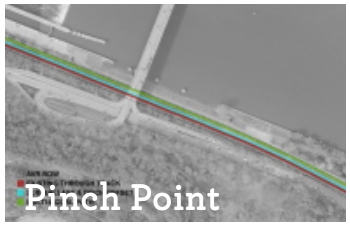




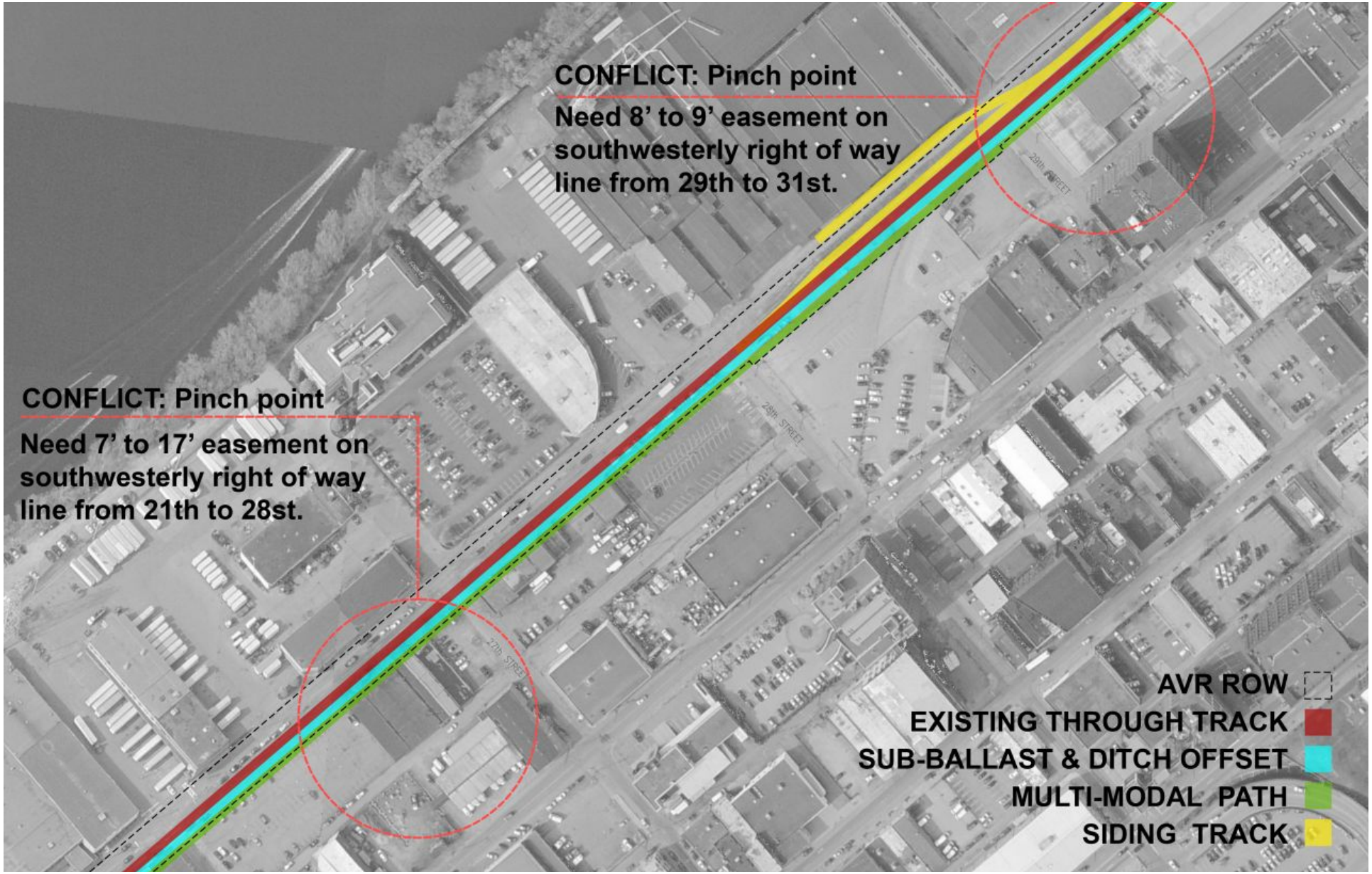






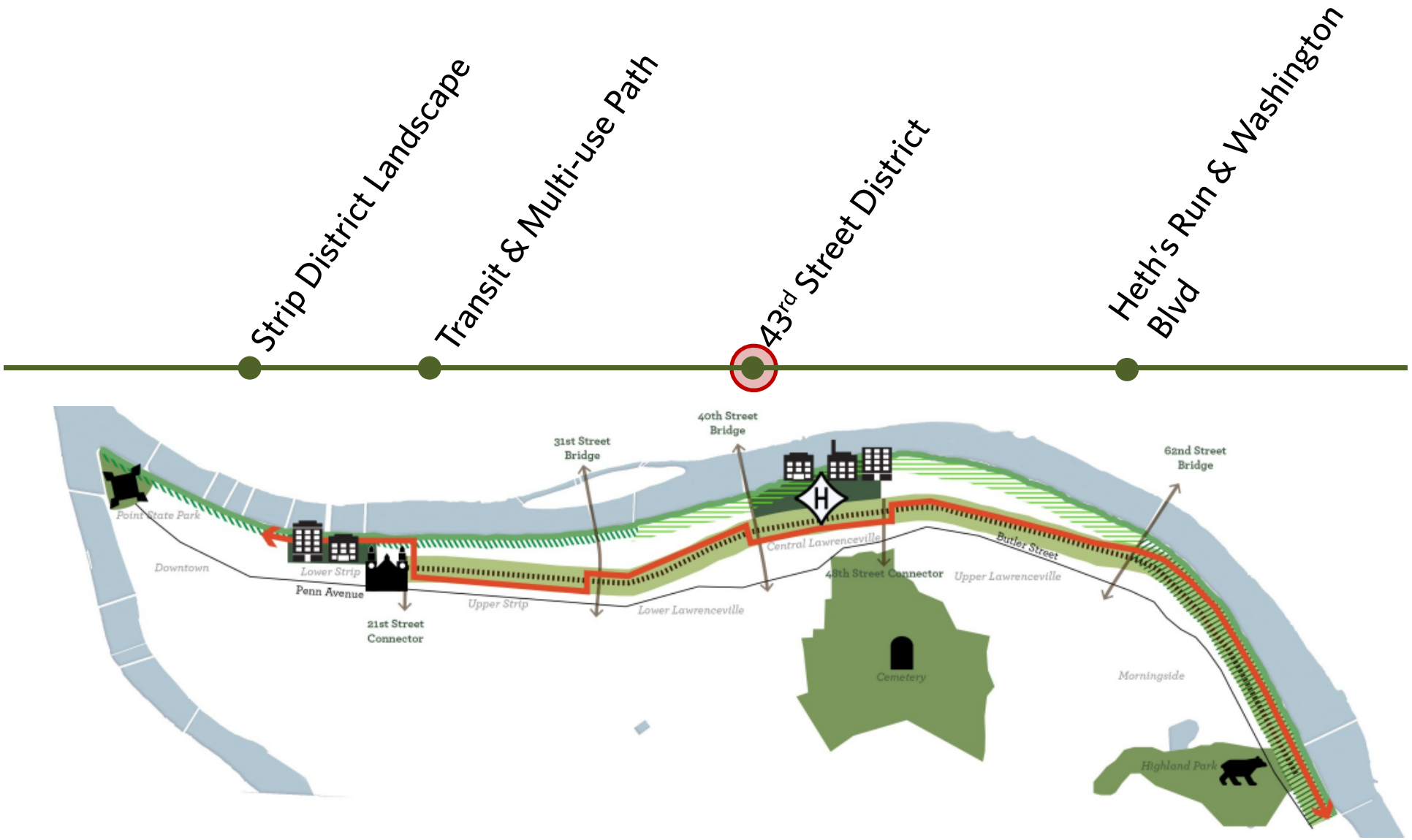


Testing the Multi-Modal Path Alignment



Multi-Use Path – Existing Condition at 43rd Street

Imagine the Multi-Use Path & New Transit Station (@43rd)


Strip District Landscape
Transit & Multi-use Path
43rd Street District
Heth's Run & Washington Blvd
Point State Park
Downtown
Lower Strip
Penn Avenue
21st Street Connector
Upper Strip
31st Street Bridge
Lower Lawrenceville
40th Street Bridge
Central Lawrenceville
48th Street Connector
Upper Lawrenceville
Butler Street
Cemetery
62nd Street Bridge
Morningside
Highland Park

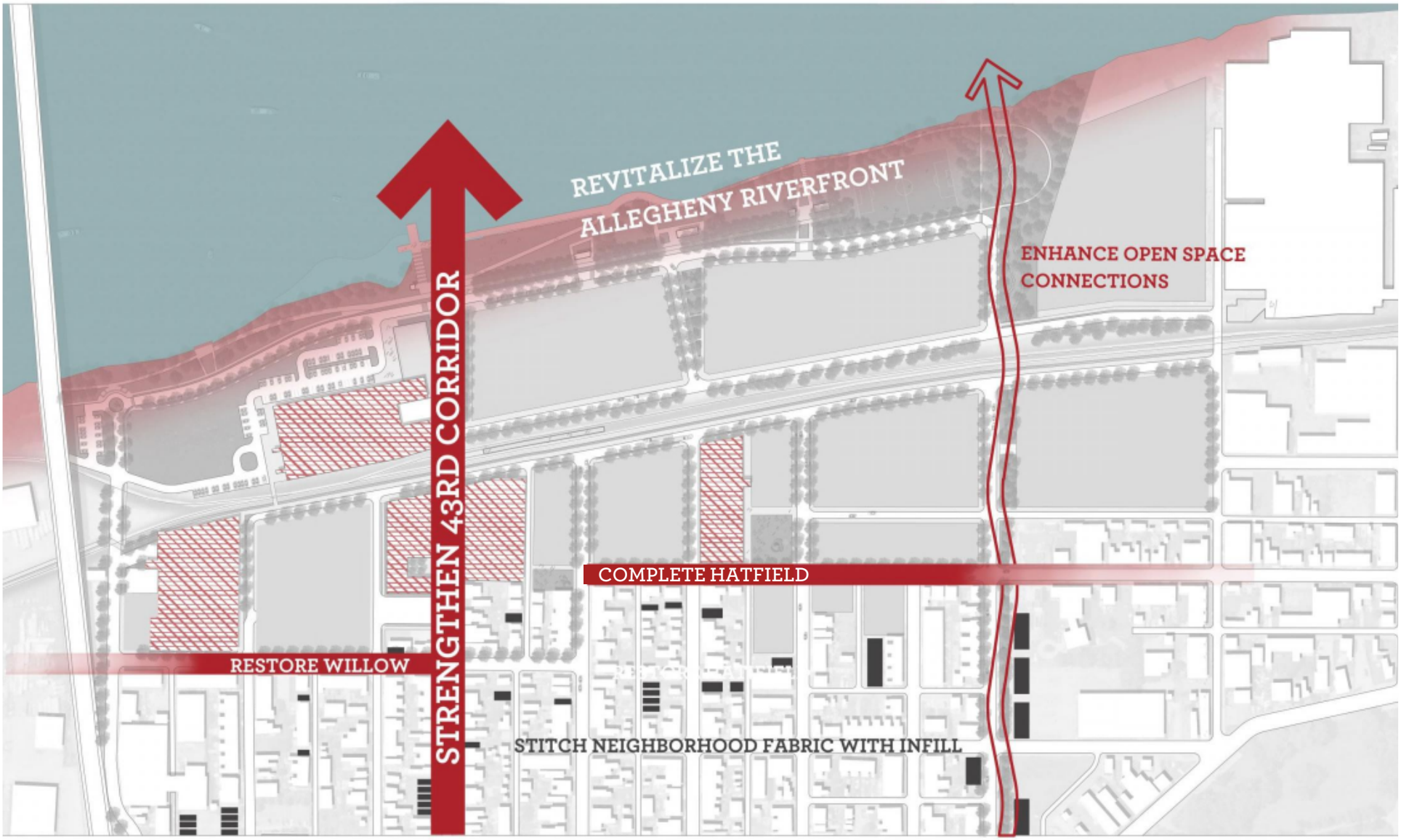
Imagine a New Neighborhood and Landscape along the River

43rd Street District Redevelopment

Existing Conditions

43rd Street District

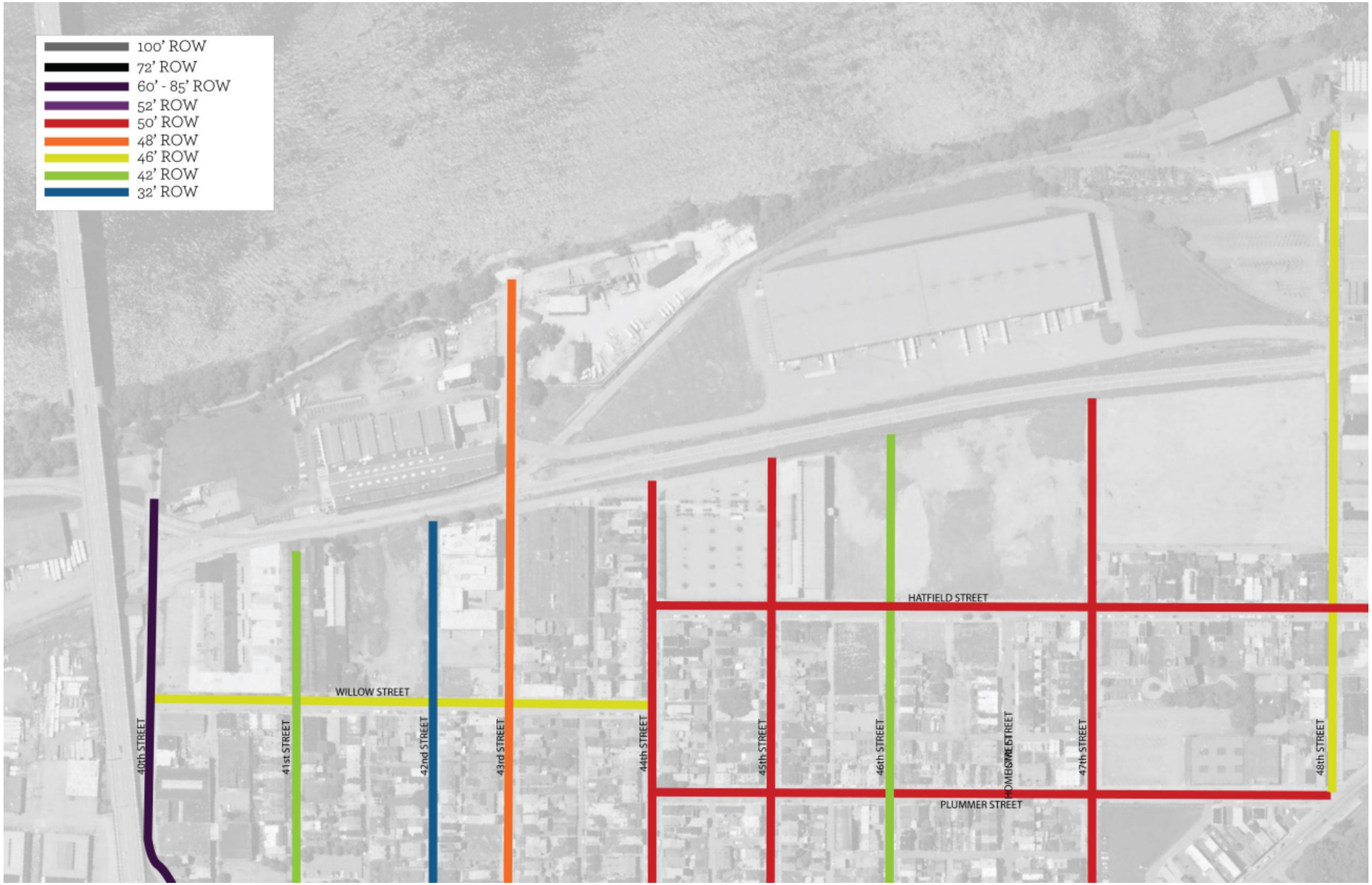
Framework Plan



43rd Street District Redevelopment

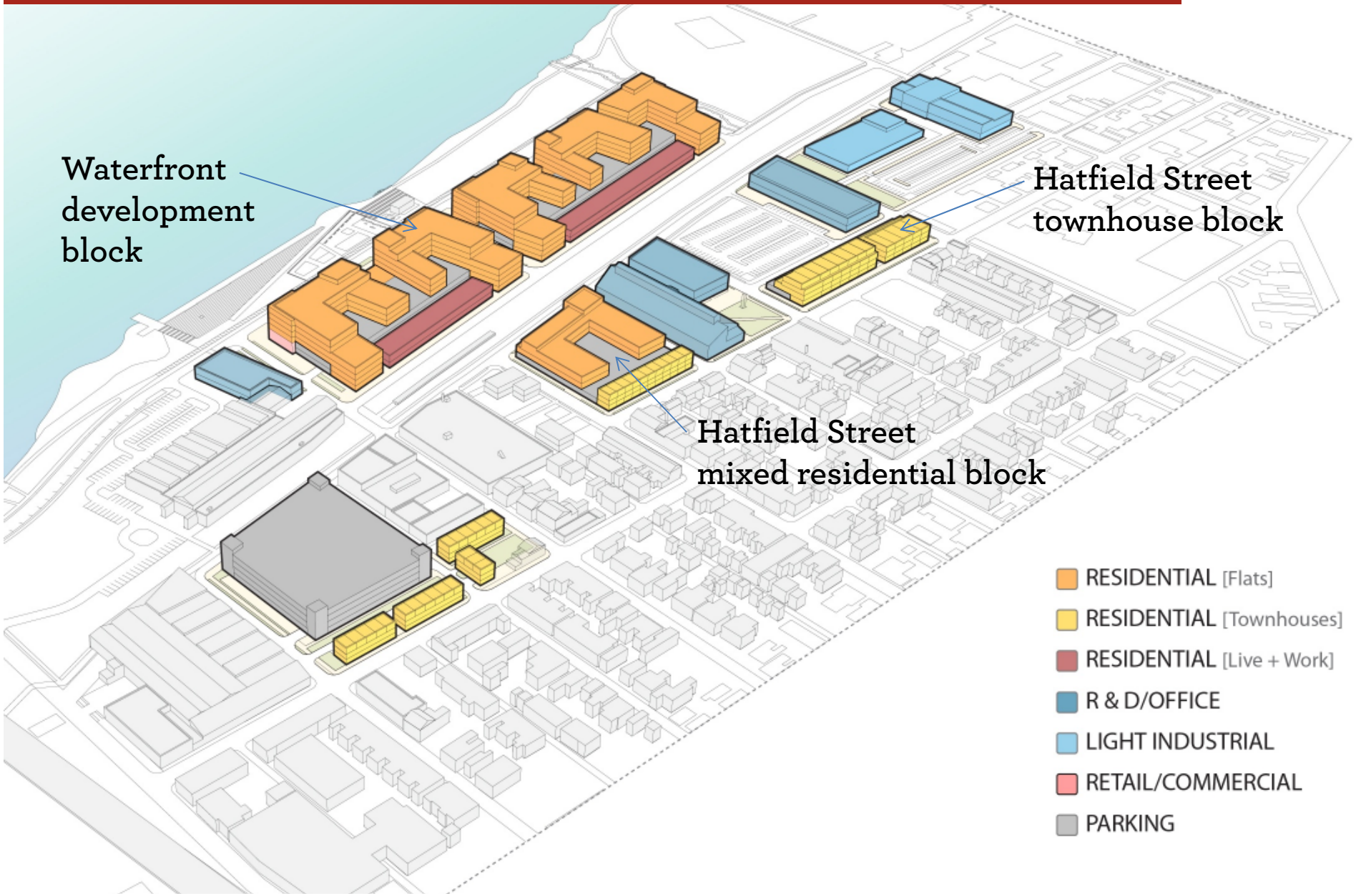
Future Development Plan

43rd Street District Streets

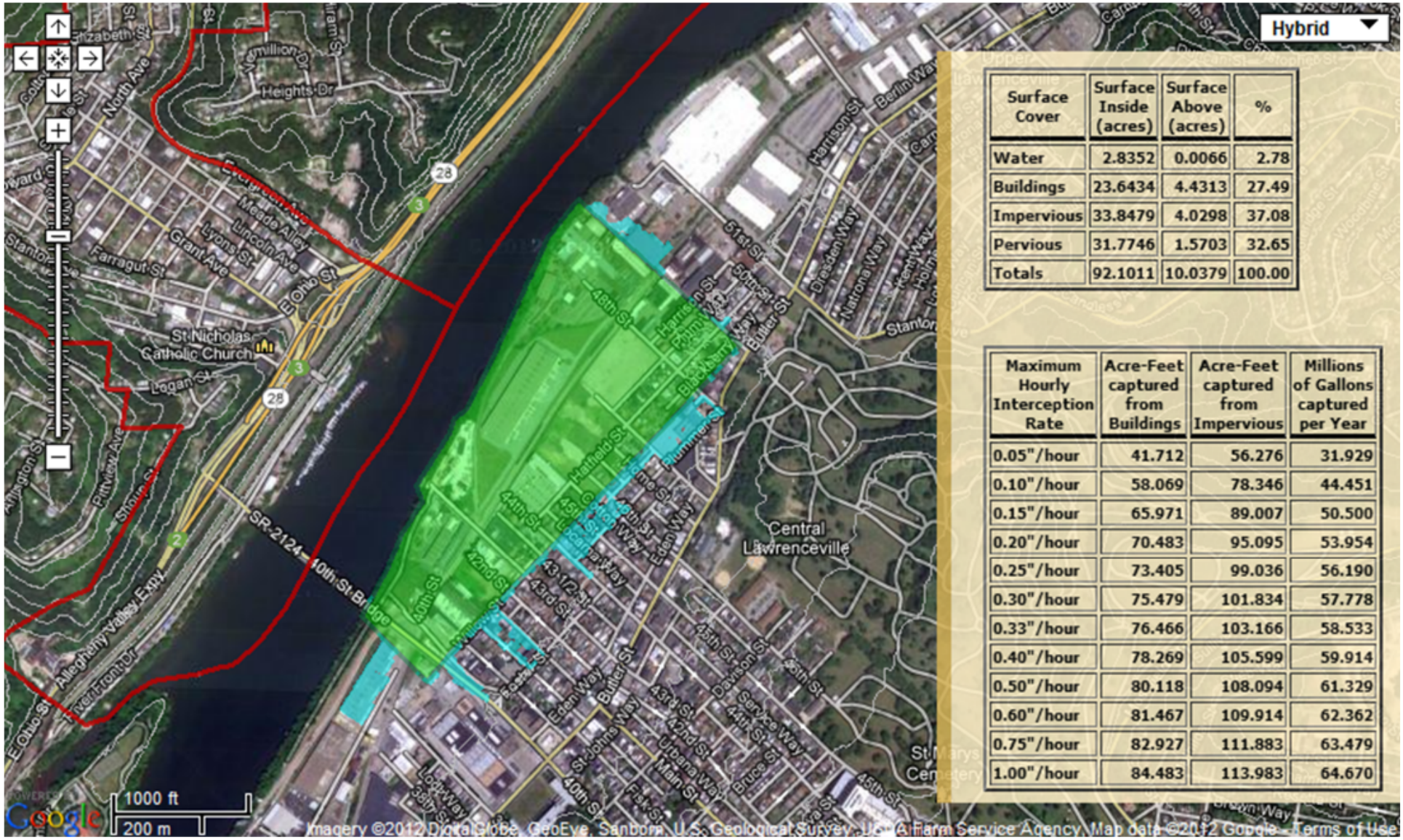


43rd Street District Street Improvements

Guidelines to Implement and Shape Development



43rd Street District Stormwater Management Opportunities



Surface Cover	Surface Inside (acres)	Surface Above (acres)	%
Water	2.8352	0.0066	2.78
Buildings	23.6434	4.4313	27.49
Impervious	33.8479	4.0298	37.08
Pervious	31.7746	1.5703	32.65
Totals	92.1011	10.0379	100.00

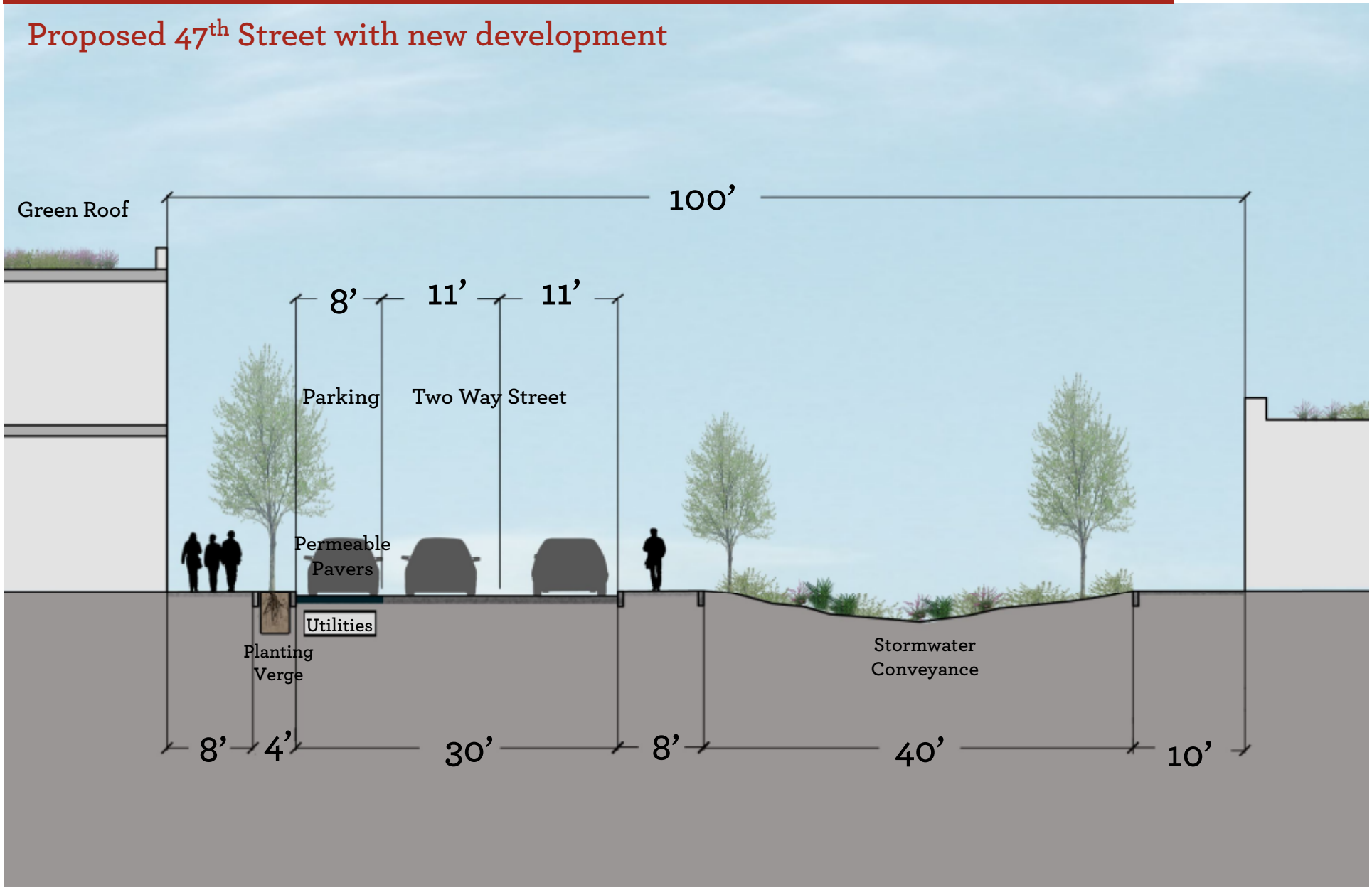
Maximum Hourly Interception Rate	Acre-Feet captured from Buildings	Acre-Feet captured from Impervious	Millions of Gallons captured per Year
0.05"/hour	41.712	56.276	31.929
0.10"/hour	58.069	78.346	44.451
0.15"/hour	65.971	89.007	50.500
0.20"/hour	70.483	95.095	53.954
0.25"/hour	73.405	99.036	56.190
0.30"/hour	75.479	101.834	57.778
0.33"/hour	76.466	103.166	58.533
0.40"/hour	78.269	105.599	59.914
0.50"/hour	80.118	108.094	61.329
0.60"/hour	81.467	109.914	62.362
0.75"/hour	82.927	111.883	63.479
1.00"/hour	84.483	113.983	64.670

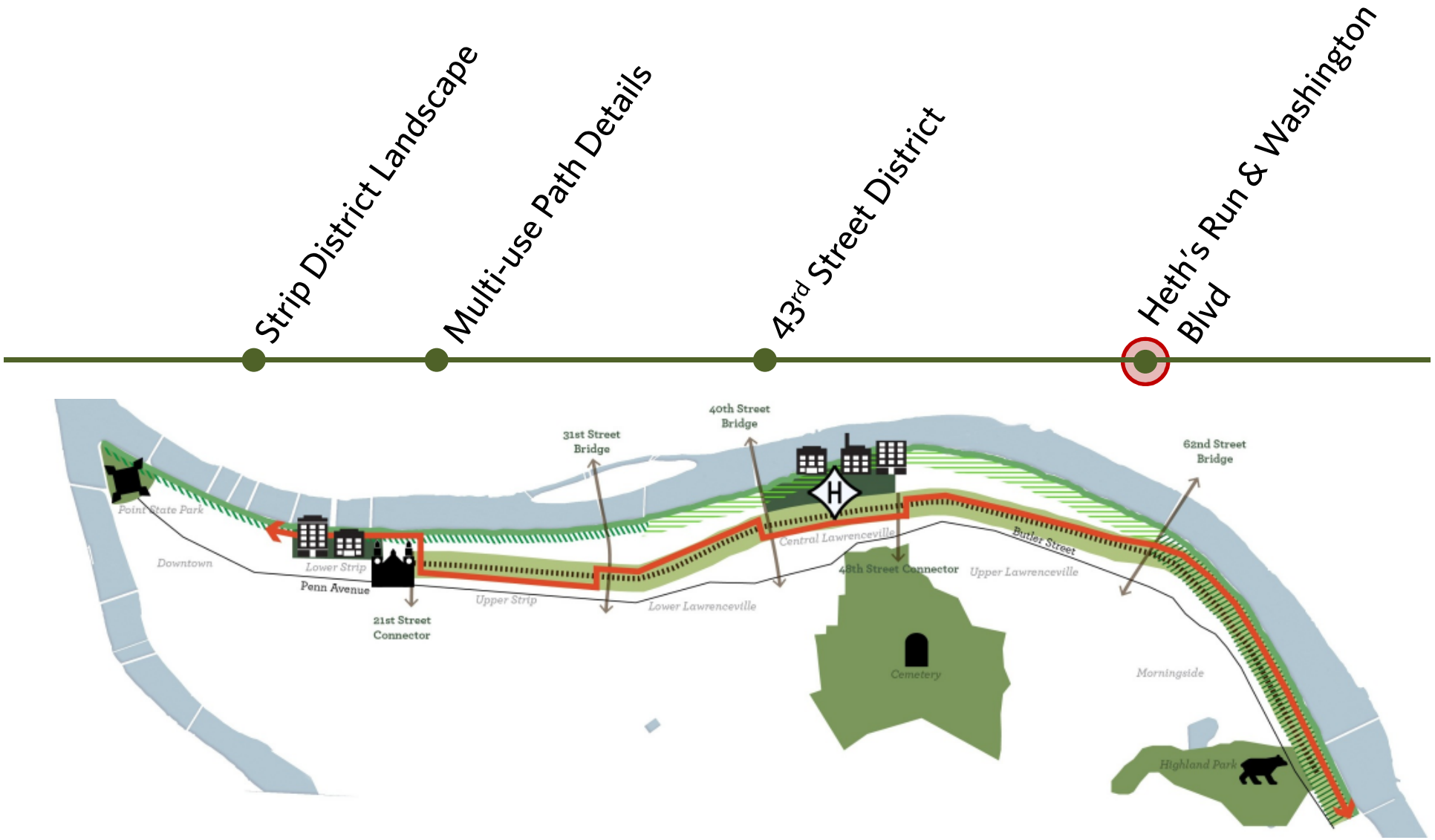
47th Street Landscape Strategy – Existing Condition

Imagine a New Landscape Strategy @47th Street

47th Street Stormwater Streetscape

Proposed 47th Street with new development




Strip District Landscape
Multi-use Path Details
43rd Street District
Heth's Run & Washington Blvd
Point State Park
Downtown
Lower Strip
Penn Avenue
21st Street Connector
Upper Strip
31st Street Bridge
Lower Lawrenceville
40th Street Bridge
Central Lawrenceville
48th Street Connector
Upper Lawrenceville
Butler Street
Cemetery
Morningside
Highland Park
62nd Street Bridge

Heth's Run

River Accessibility , Connectivity, and Stormwater Management

Existing Conditions

Open Space

River Accessibility , Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance

Highland Park + Heth's Run

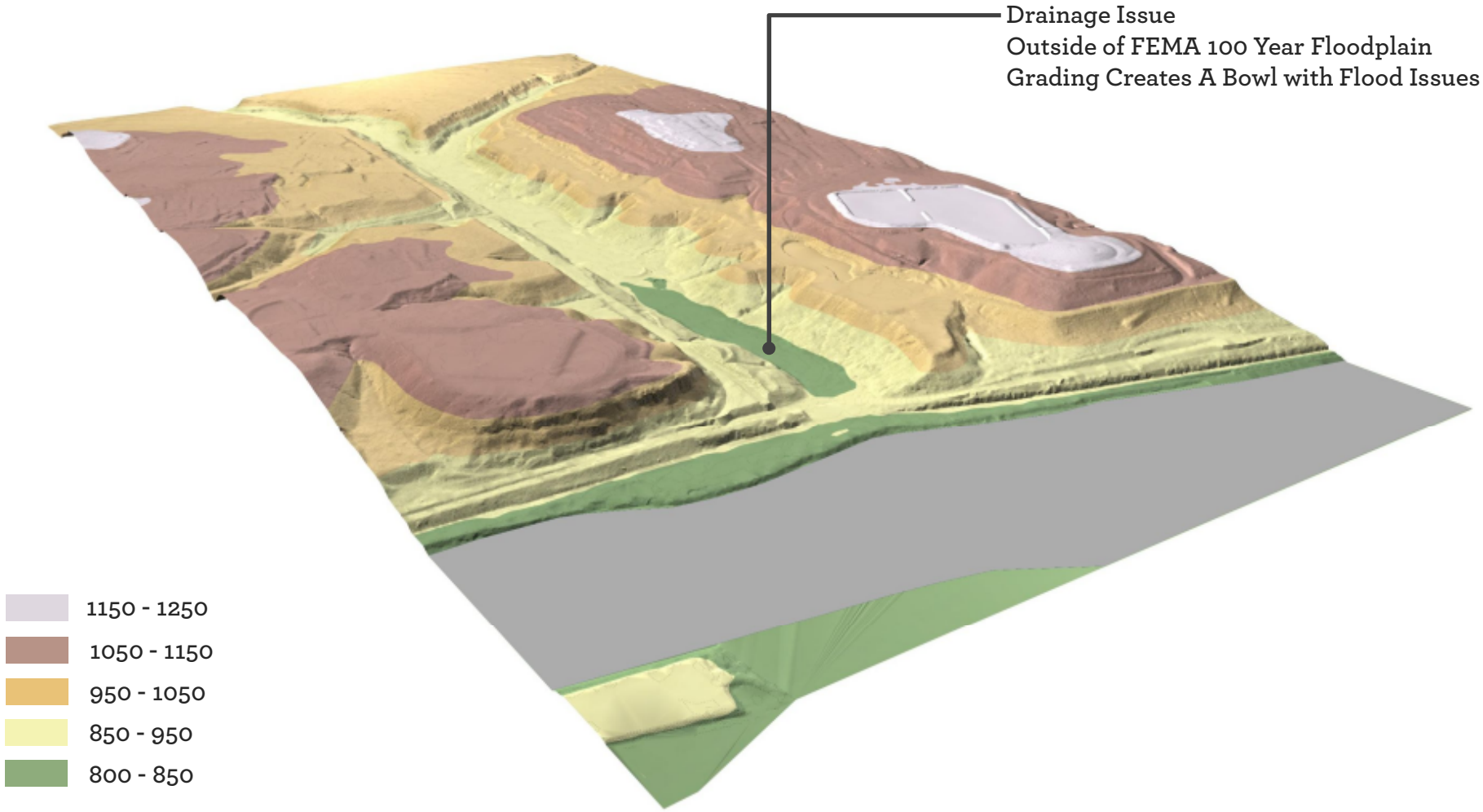
Open Space and Stormwater Conveyance

Washington Boulevard / Negley Run

River Accessibility , Connectivity, and Stormwater Management

Washington Boulevard / Negley Run

River Accessibility , Connectivity, and Stormwater Management



Washington Boulevard / Negley Run

River Accessibility , Connectivity, and Stormwater Management

Open Space and Stormwater Conveyance Conceptual Plan

Washington Boulevard / Negley Run

River Accessibility , Connectivity, and Stormwater Management

Open Space and Stormwater Conveyance Conceptual Plan

Washington Boulevard / Negley Run

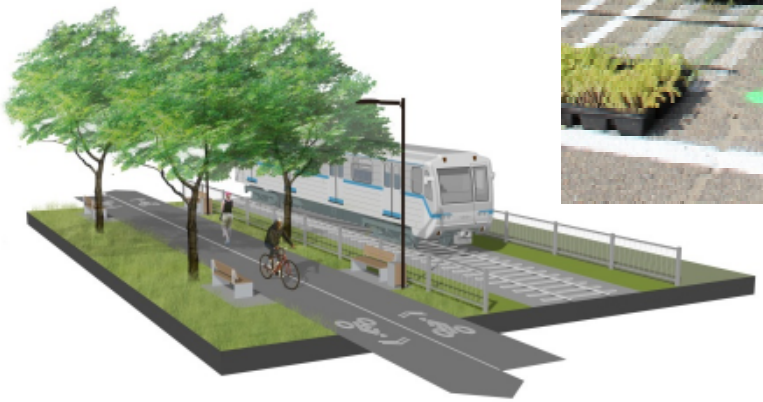
Existing Condition

Washington Boulevard / Negley Run

Existing Condition

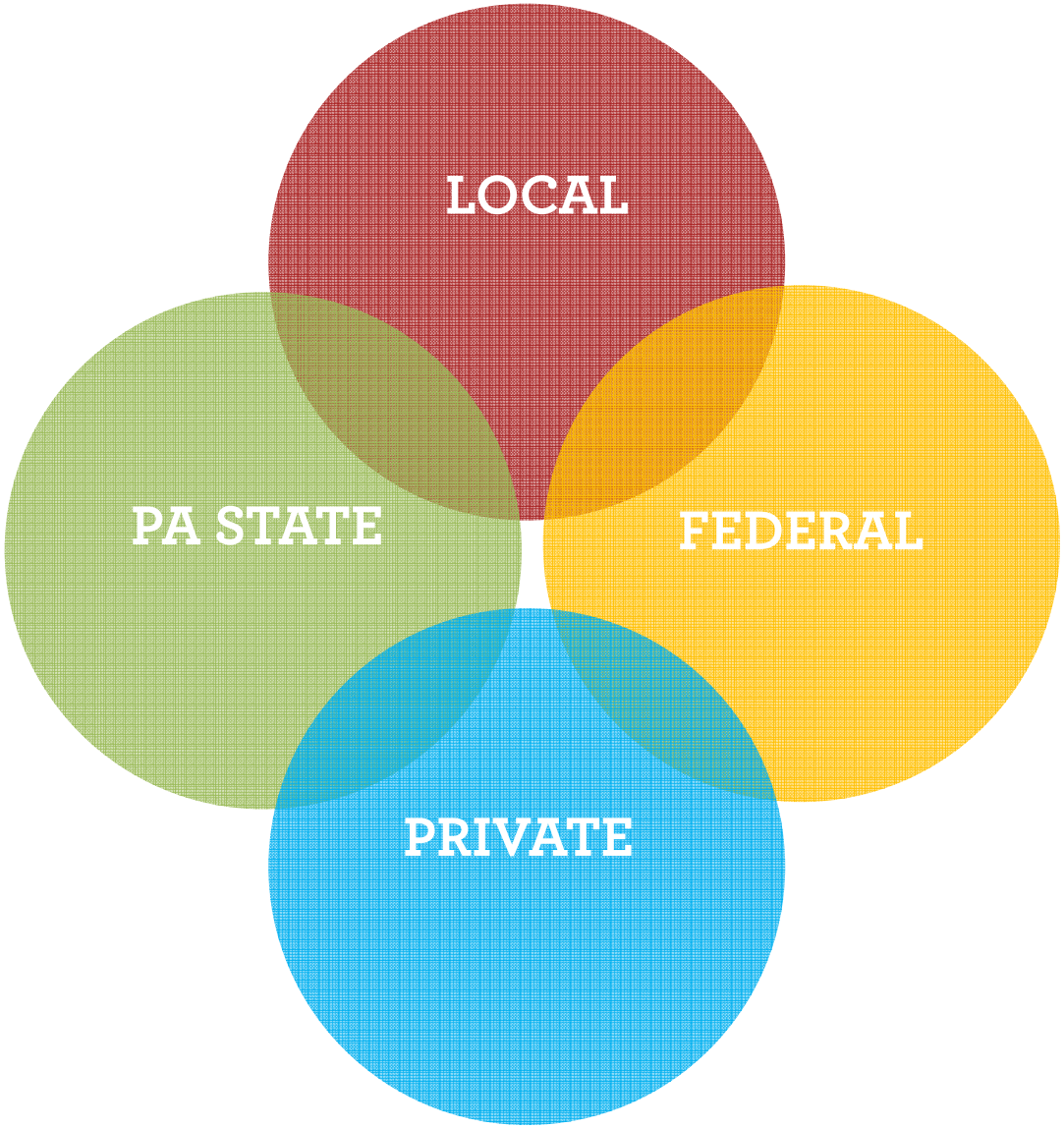
Green Boulevard Plan: Implementation

Allegheny Riverfront
GREEN BOULEVARD



Implementation

Implementation: Funding Grants and Loans



Early Implementation Steps

ACCESSING THE RIVER: Lisa Schroeder, Riverlife

- Riverfront path
- Parks in the Strip and Lawrenceville

UNLOCKING ECONOMIC POTENTIAL: Kryn Hoyer-Winfield, URA

- 43rd Street district development

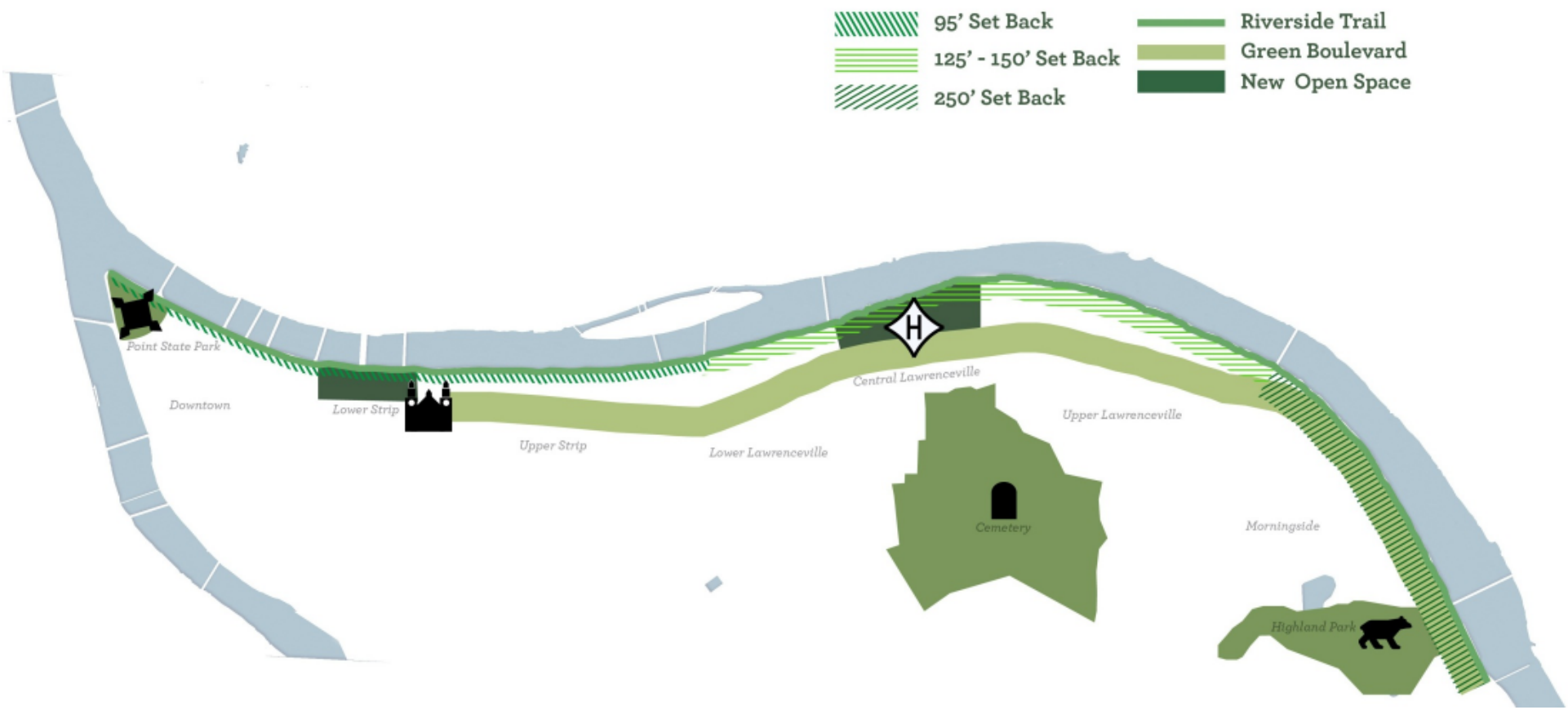
EXPANDING TRANSPORTATION OPTIONS: Matt Galuzzo, Lawrenceville Corp

- Improvements to 43rd and 47th Street and sustainability in Lawrenceville

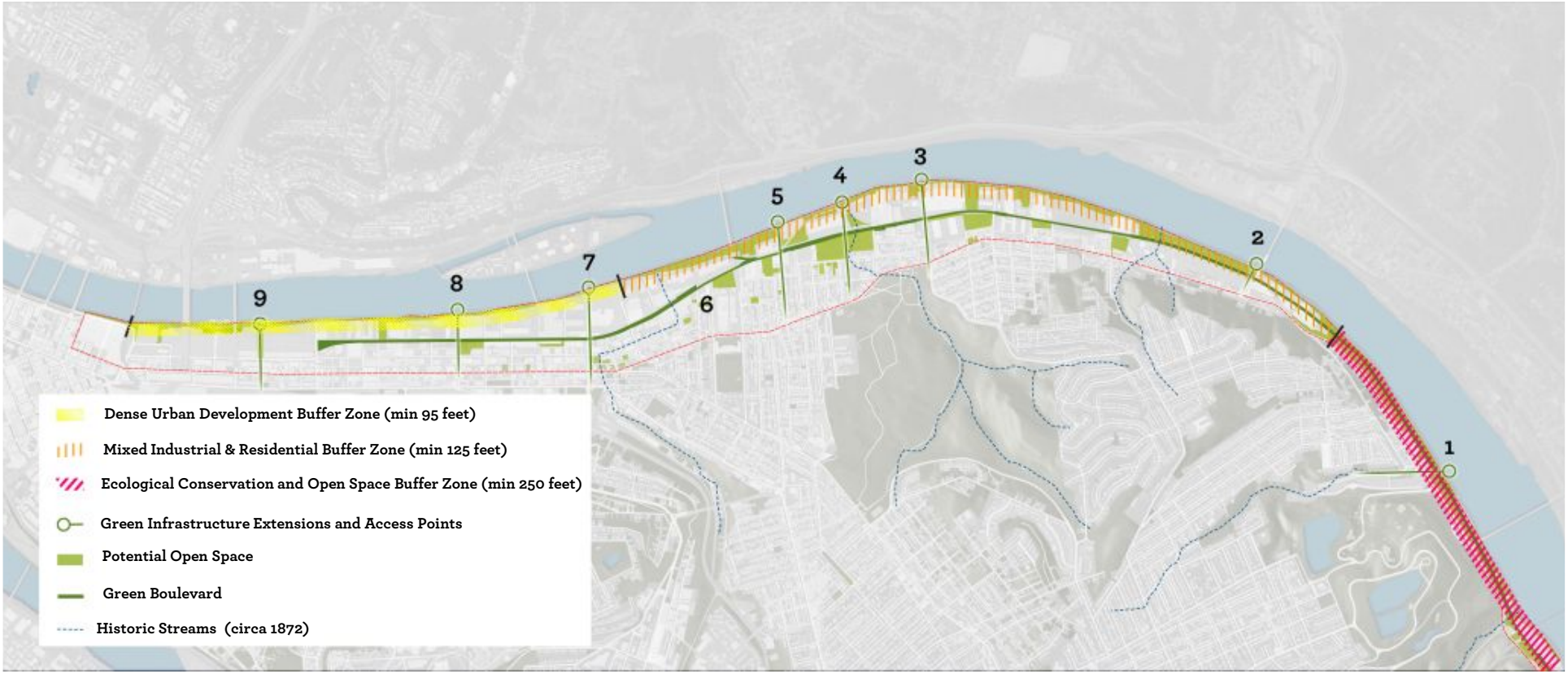
SUSTAINABILITY GOALS: David Hance, Highland Park

- Heth's Run Plan

Open Space


95' Set Back
125' - 150' Set Back
250' Set Back
Riverside Trail
Green Boulevard
New Open Space
Point State Park
Downtown
Lower Strip
Upper Strip
Lower Lawrenceville
Central Lawrenceville
Upper Lawrenceville
Cemetery
Morningside
Highland Park

Living Infrastructure Network



Focus Areas

The following nine focus areas represent opportunities for the living infrastructure network and open space.

1. Heth's Run and Negley Run
2. 62nd Street Marina
3. 51st Street
4. 47th Street
5. 43rd Street
6. 43rd to 36th Street Corridor
7. 33rd Street
8. 28th Street
9. 17th Street

*areas owned by private property owners may be subject to private rights

Open Space Toolbox

Vegetated Stormwater Treatment

Green Streets

Living Shoreline Treatment

Controlled Planting Along Railroad

Green Roofs

Floating Wetlands and Habitat

Stormwater Amenity Design

Productive Landscapes

Wastewater Treatment Wetland

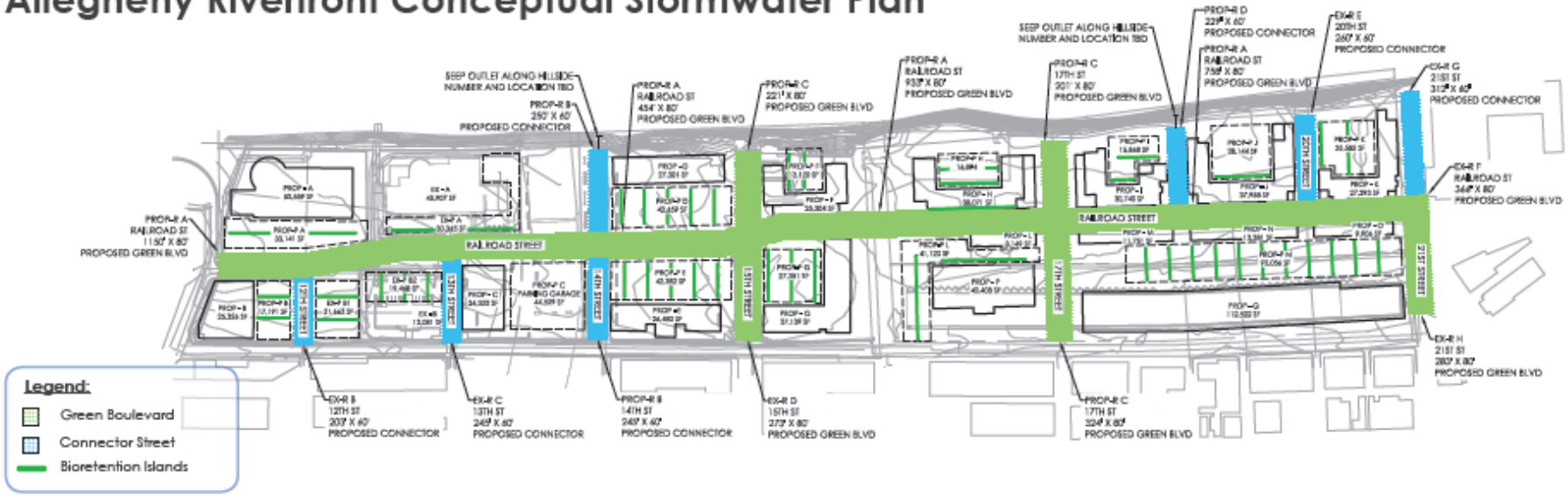
Porous Paving

Stabilized River Edge with Integrated Wetland Habitat

Regenerative Stormwater Conveyance

Strip District Green Infrastructure Plan

Allegheny Riverfront Conceptual Stormwater Plan



Goals:

- Manage 1-inch of runoff from impervious surfaces.
- Provide lateral storage versus deep storage to reduce excavation (Act 2 considerations).
- Management includes lined stone storage and slow-release systems with overflows at points along the riverfront in the features designed to look like natural seeps and create attractive landscape features.
- Streets and sidewalks manage stormwater in stone beds beneath sidewalks and sometimes parking spaces. Building roofleaders can be connected into stone storage beds for management of roof runoff.
- Parking lot stormwater is be managed in bioretention islands between parking stalls without impacting the number of potential parking spaces.
- All systems designed to safely convey large rainfall events to overflows along river

Guiding Principles:

- Due to the Act 2 designation of the site, infiltration is not feasible.
- Runoff from the streets and sidewalks will be treated for water quality in vegetated areas prior to being conveyed to stone beds. Roof runoff is clean and does not require additional treatment.

Assumptions:

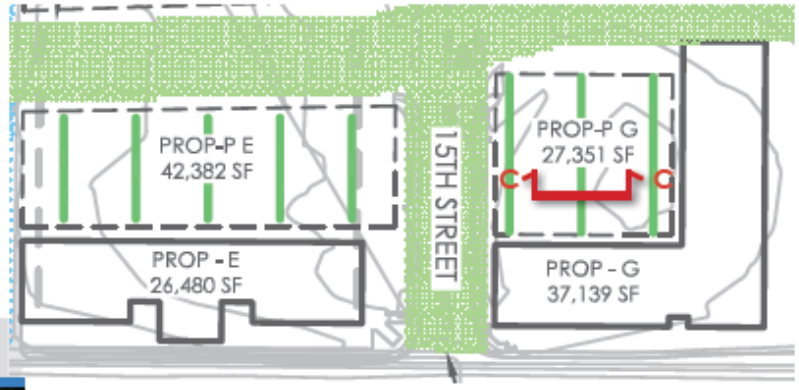
- All stormwater storage will be in soil or stone. There will be no standing water at surface.
- All streets and sidewalks will be newly constructed.
- Parking lots will remain without demolition with only milling and repaving as necessary.

Green Infrastructure Concepts

PARKING LOTS

Managing stormwater in bio-retention islands

- Manage runoff from Parking lots in 5 ft. wide Bioretention islands
- 3 ft of soil and 2 ft ft of stone manage 1-inch of runoff.
- Curbs with curb cuts allow water into islands but protect vegetated areas
- Assumes existing lots remain
- Systems designed for slow release (not Inifiltration) for Act 2 considerations.
- All systems have overflow drains for large storms, and to slowly discharge storms.



Parking Lot Plan

Wilmington, DE
ACME Parking lot

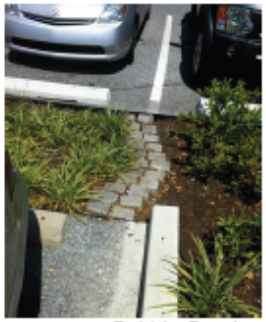
Precedent

Construction of Tree Trench

After

Construction of Bioretention area

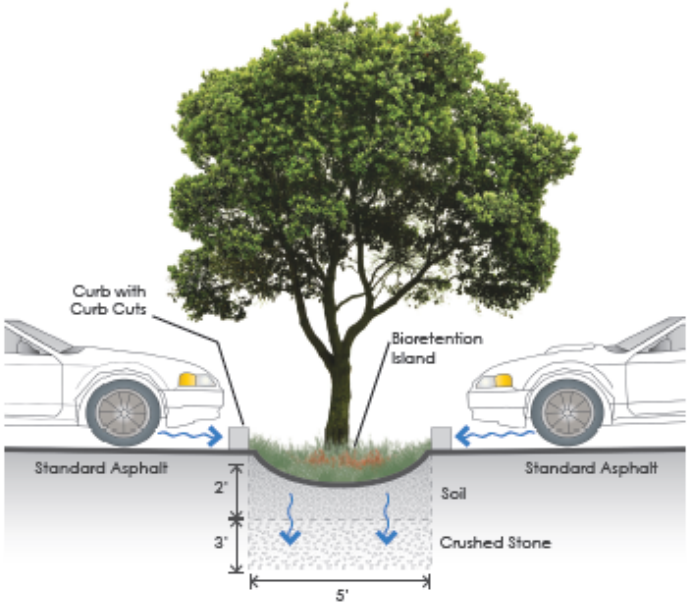
After



Cobble Crossing

Before

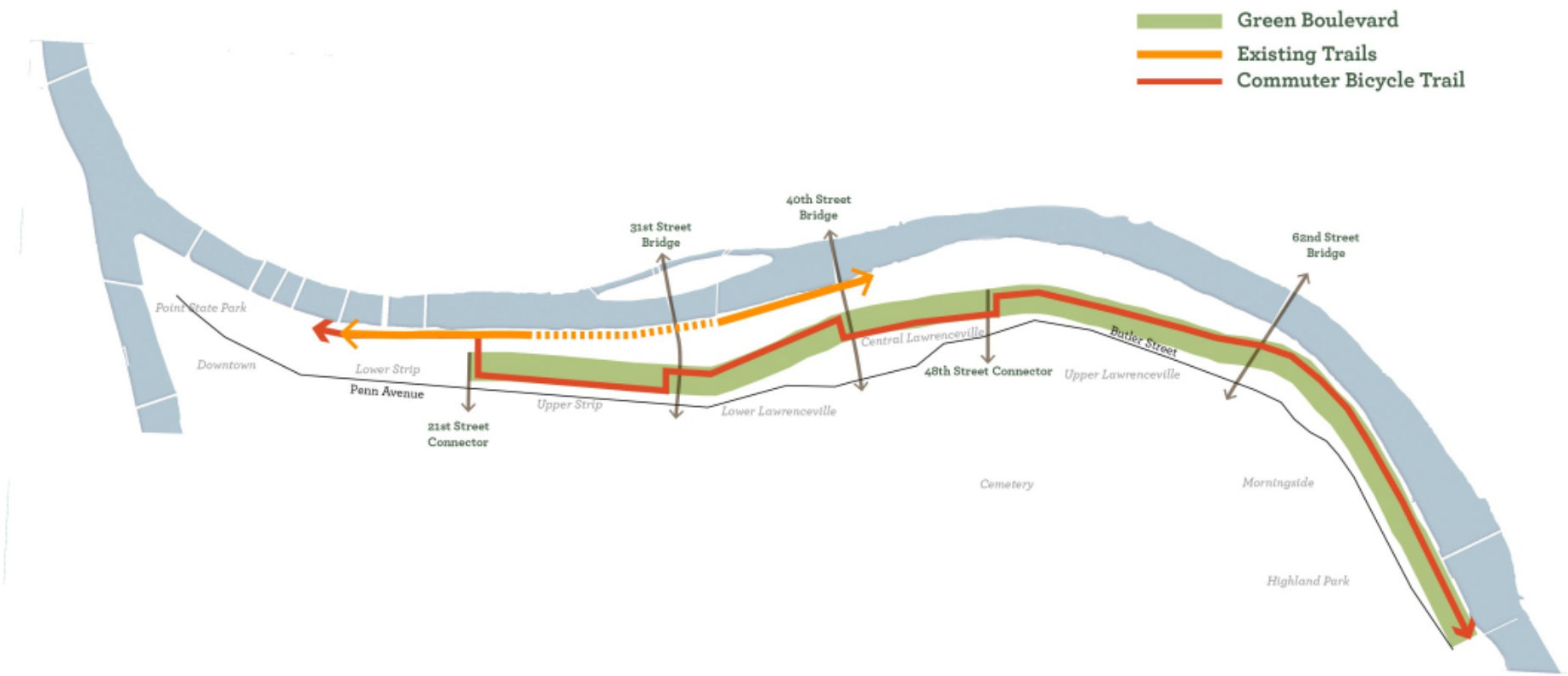
After



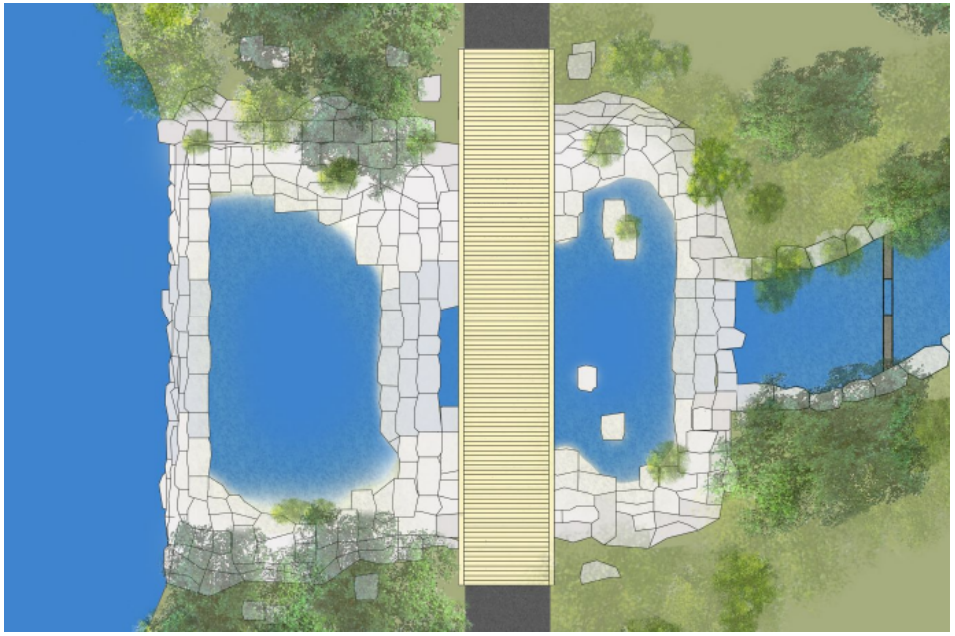
Section C-C of Bioretention Island

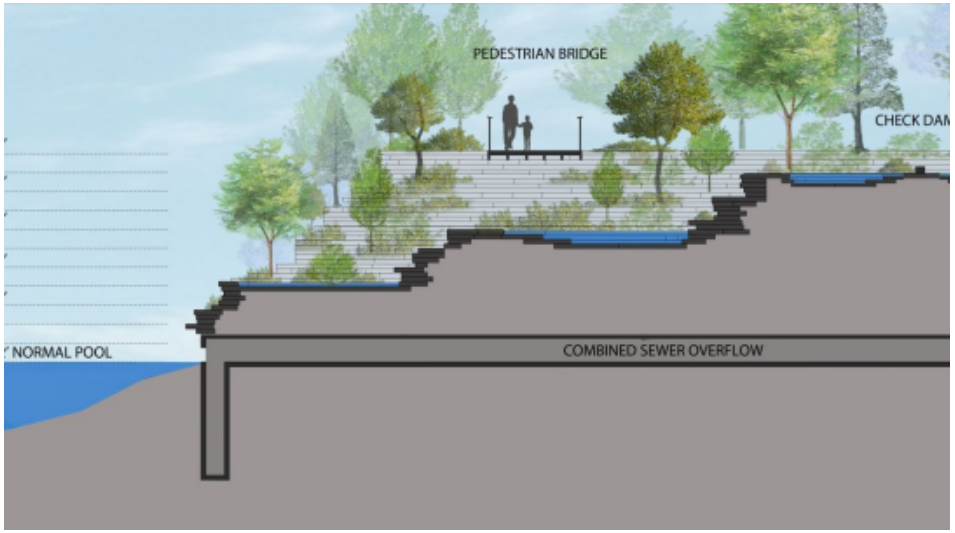
Open Space Creating Value for Development

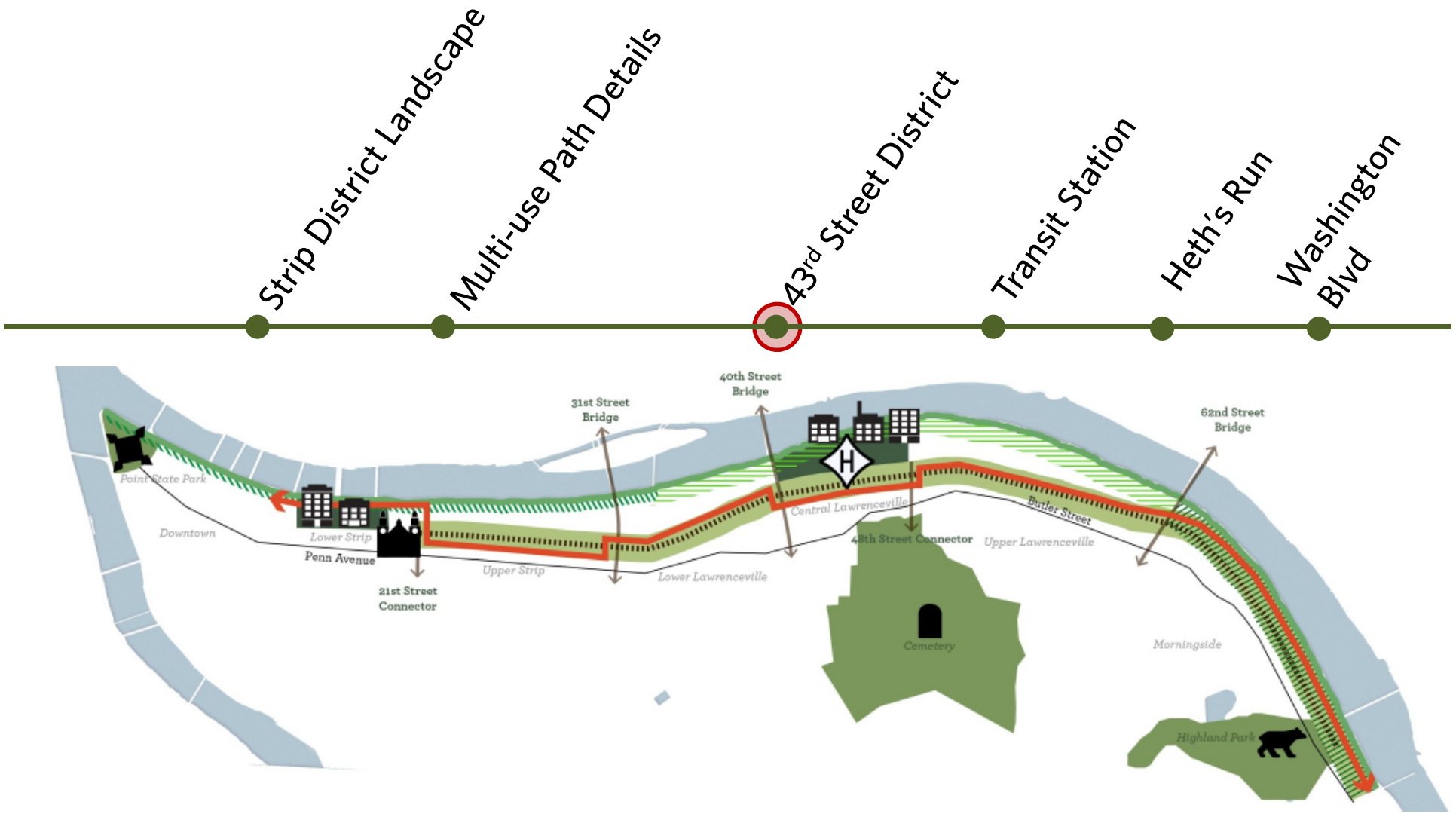
Riverfront Trail Extensions from 24th – 37th & 43rd – 47th



Lawrenceville Riverfront Park at 43rd Street Landing

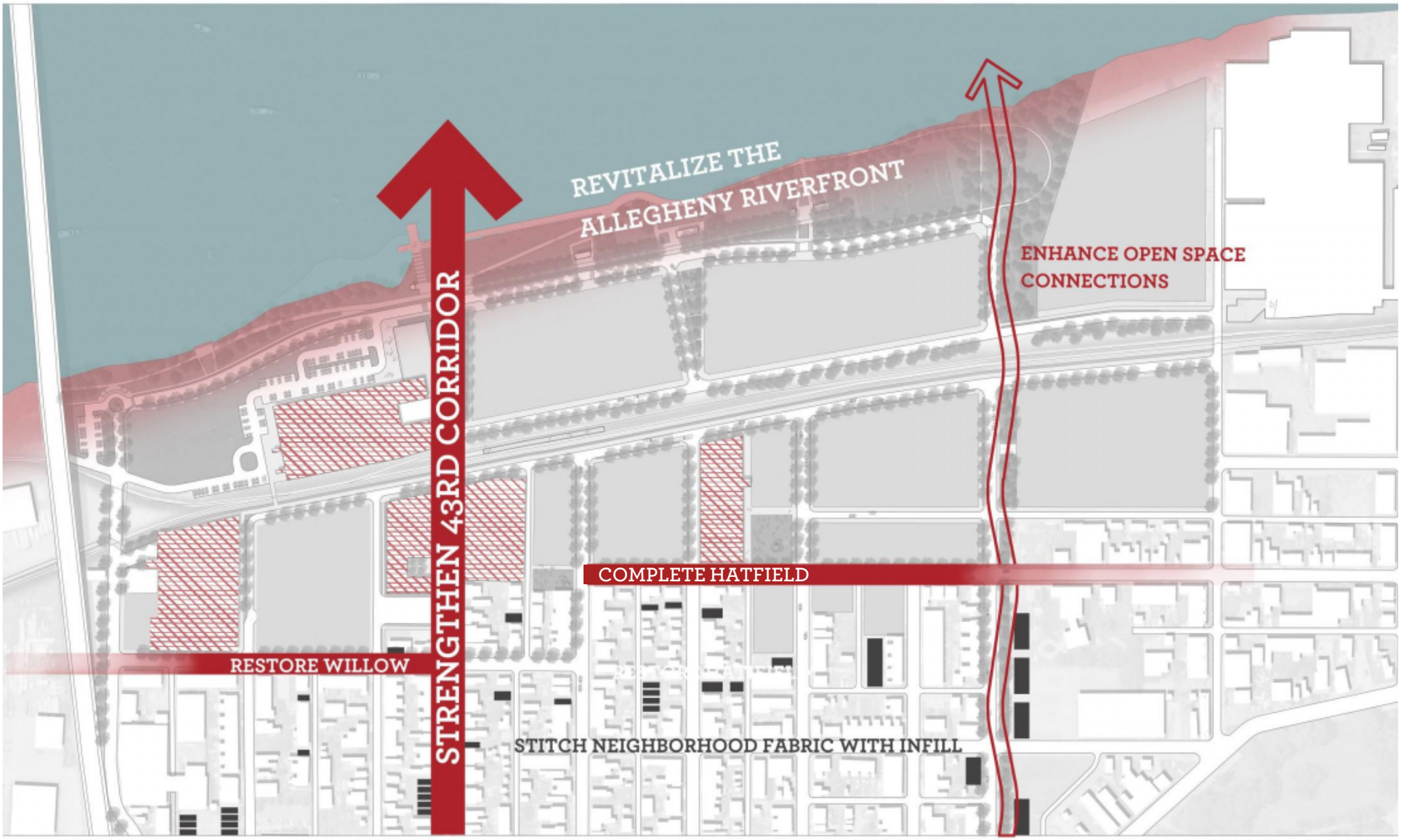





Strip District Landscape
Multi-use Path Details
43rd Street District
Transit Station
Heth's Run
Washington Blvd
40th Street Bridge
31st Street Bridge
62nd Street Bridge
Point State Park
Downtown
Lower Strip
Penn Avenue
21st Street Connector
Upper Strip
Lower Lawrenceville
Central Lawrenceville
48th Street Connector
Upper Lawrenceville
Butler Street
Cemetery
Morningside
Highland Park

43rd Street District

Implementing the Plan



43rd Street District Redevelopment

Initial Framework Plan

43rd Street District Redevelopment

Existing Parcels

43rd Street District Redevelopment

Acquisitions of Triangle Piece

43rd Street District Redevelopment

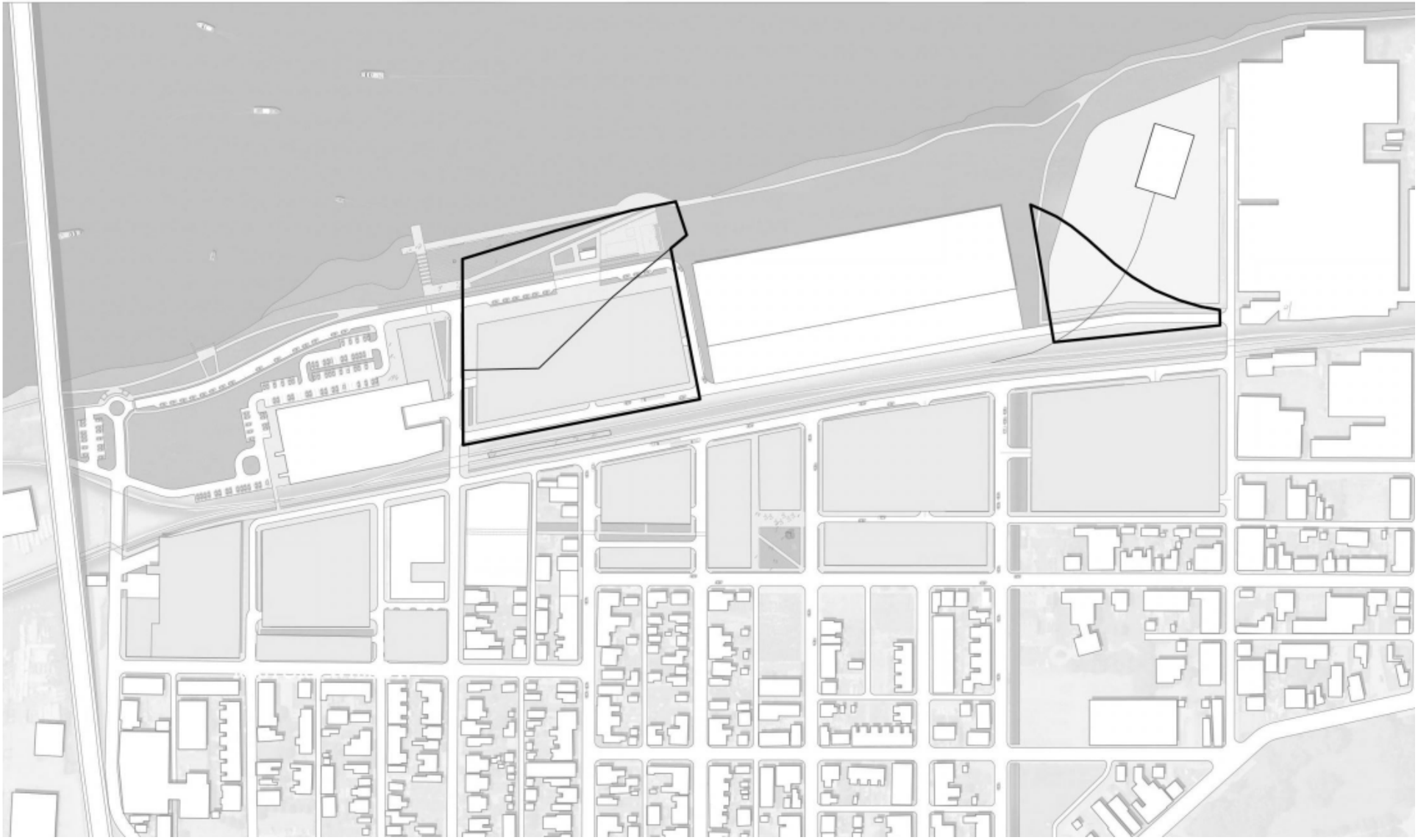
McConway & Torley Side Track Implementation

43rd Street District Redevelopment

Acquisitions of 43rd Street Concrete Co. and Triangle Piece

43rd Street District Redevelopment

Acquisitions with Framework Plan



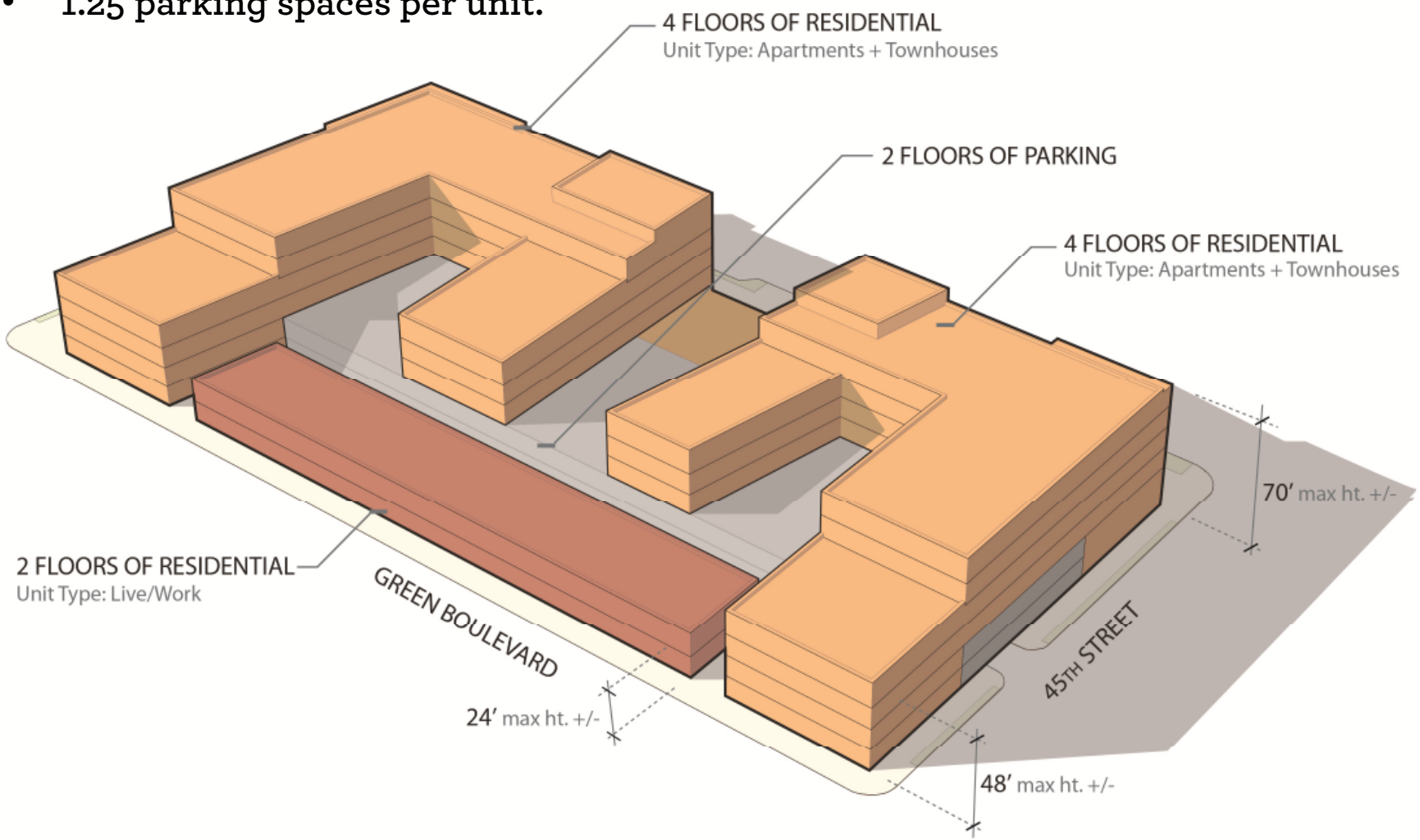
43rd Street District Redevelopment

Phasing Strategy

43rd Street District Redevelopment

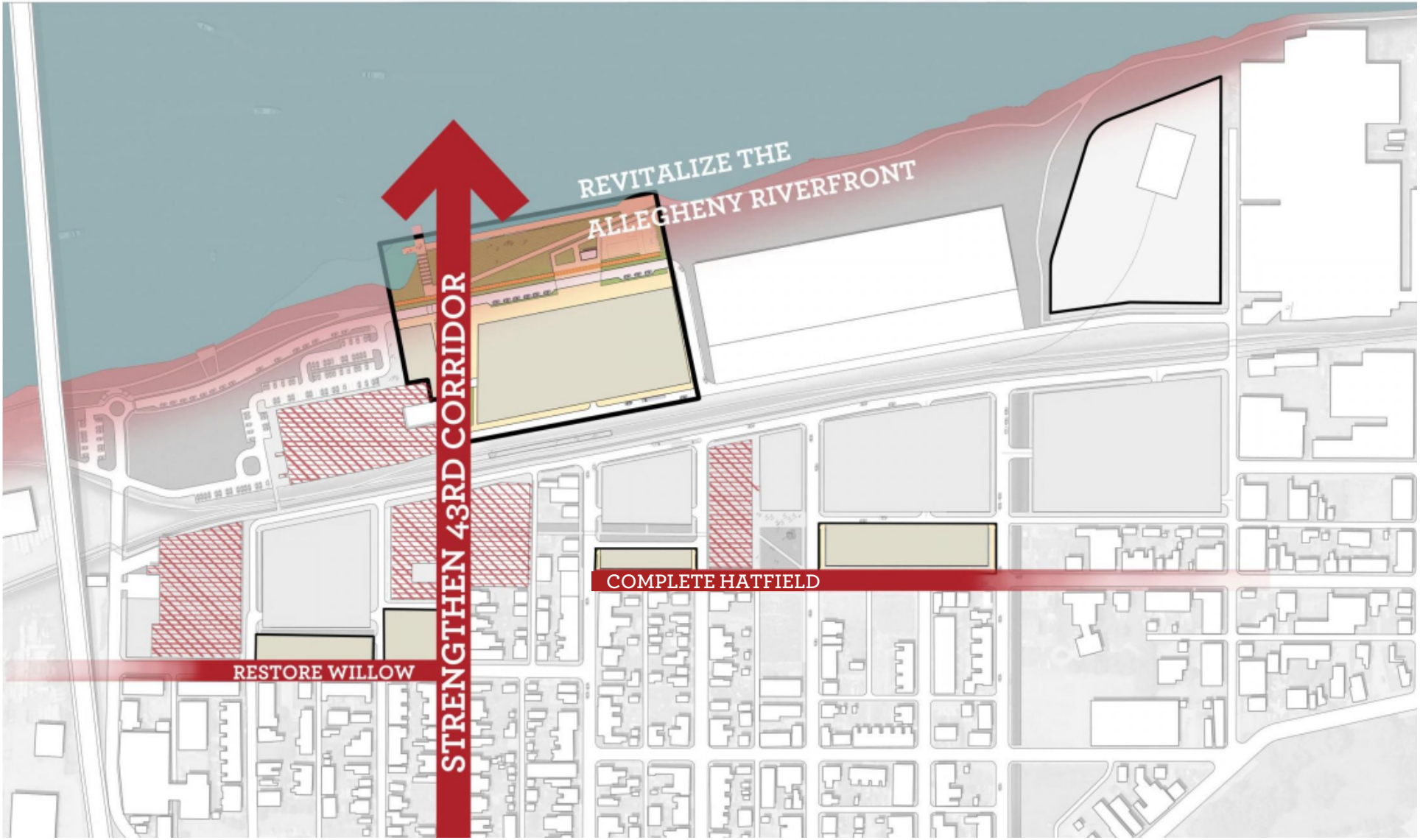
Development Potential – Waterfront Residential and Live/Work Buildings

- Mixed-use with retail corner at 43rd Street & riverfront.
- 1.25 parking spaces per unit.



43rd Street District Redevelopment

Planning Principles



43rd Street District Redevelopment

Illustrative Development Plan

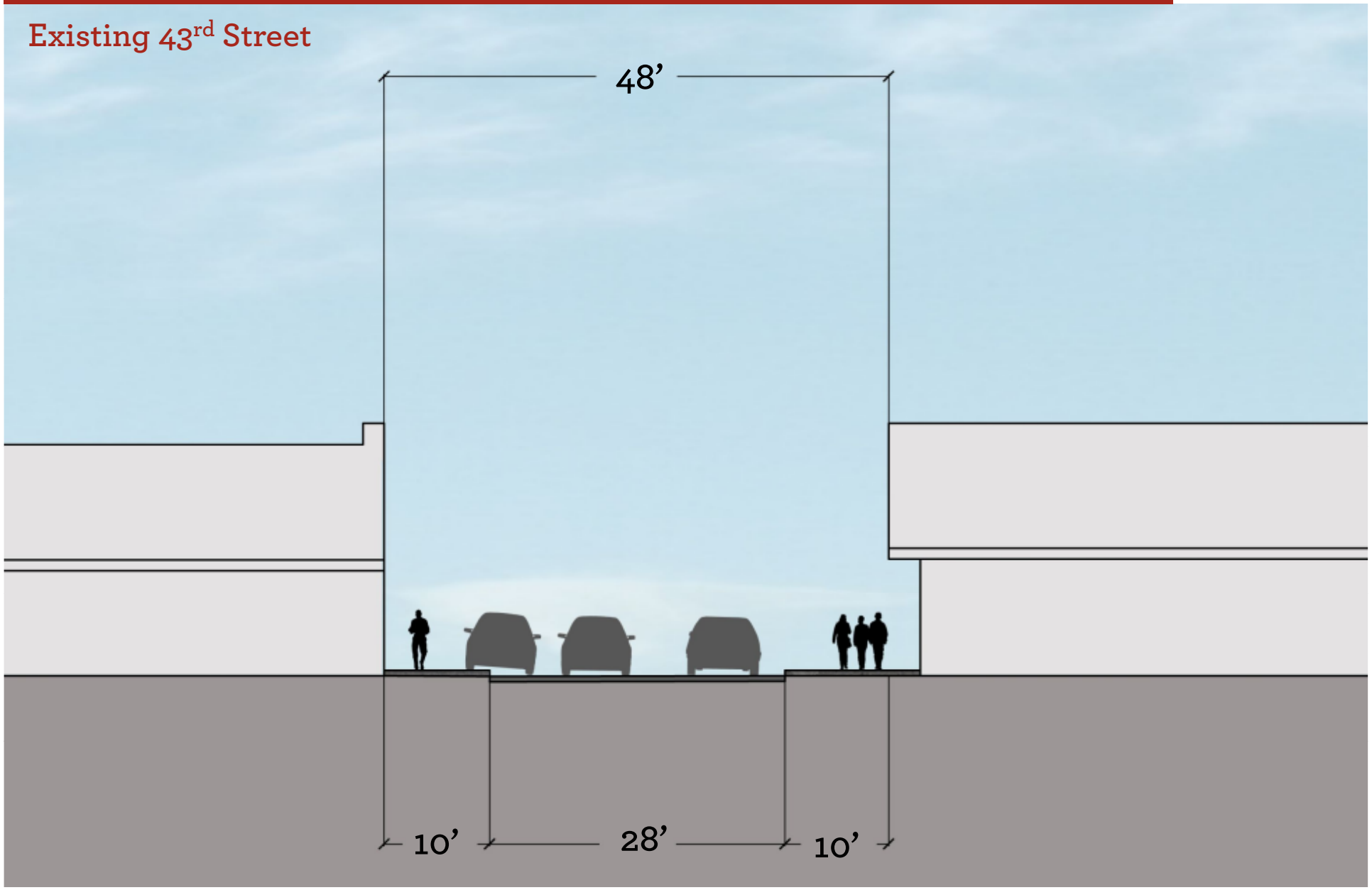
43rd Street District Redevelopment

Existing ROW

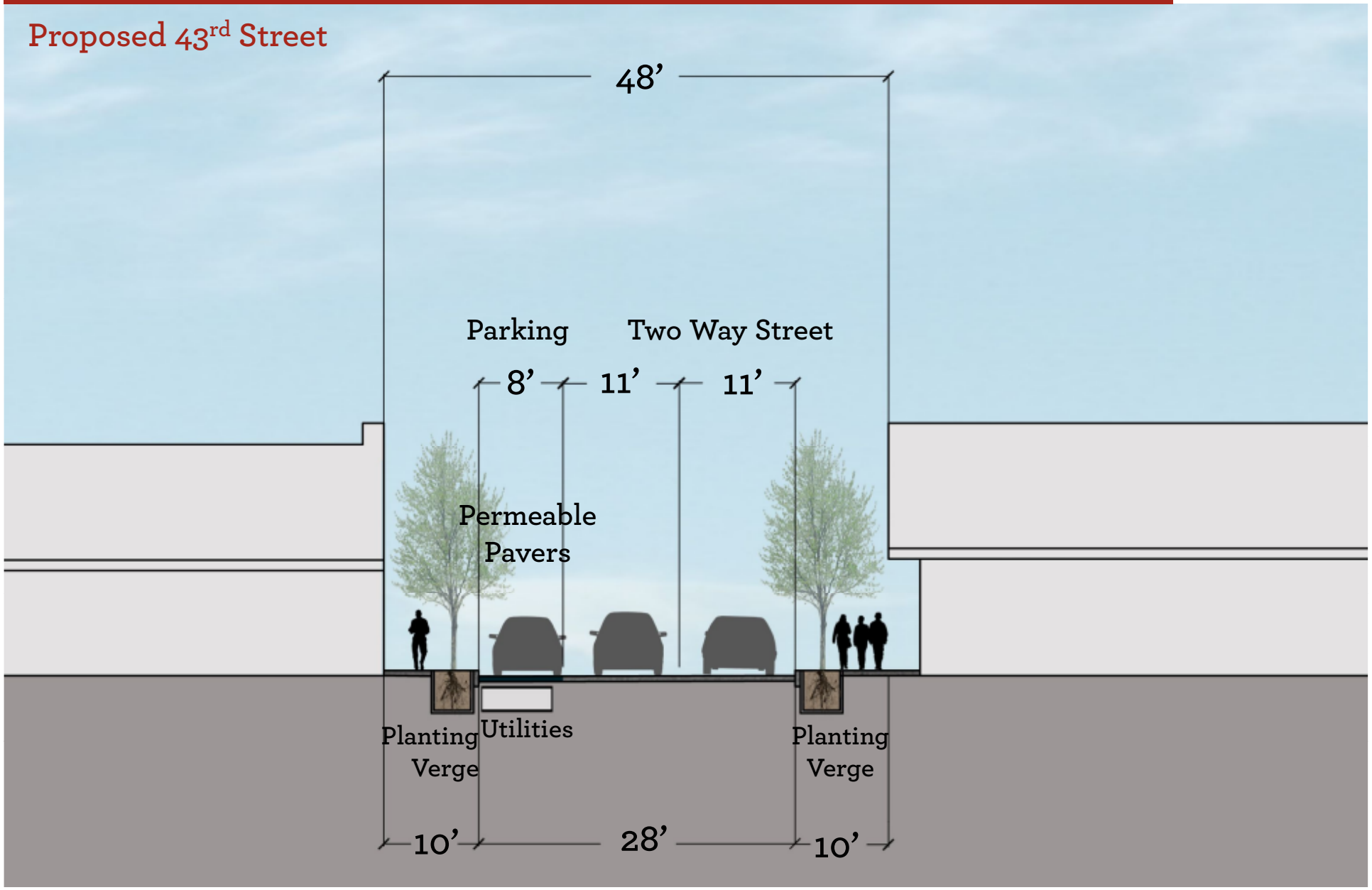
43rd Street District Redevelopment

Proposed ROW

43rd Street District Redevelopment–Street Improvements



43rd Street District Redevelopment–Street Improvements

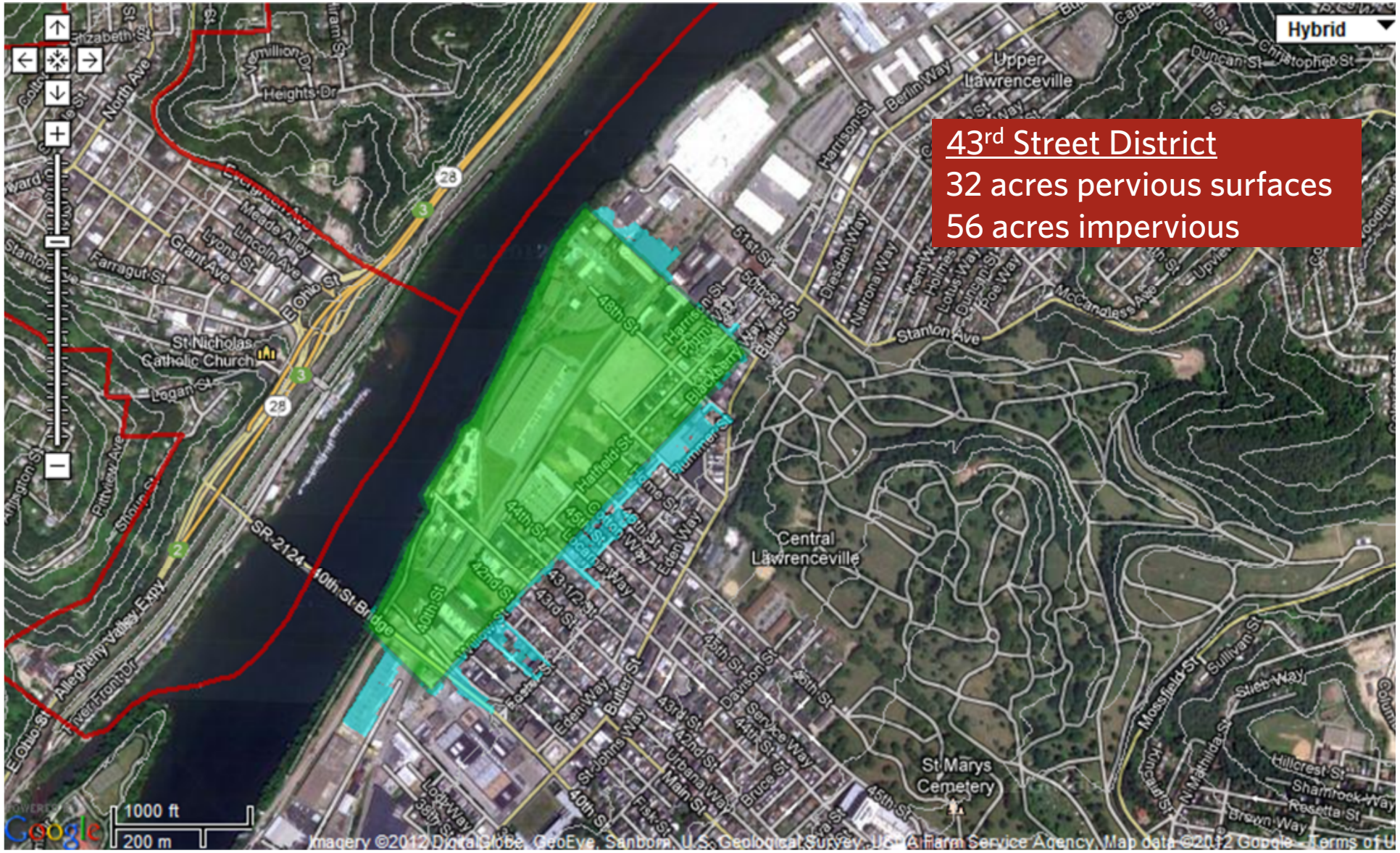


43rd Street District Redevelopment–Street Improvements

Proposed 43rd Street

43rd Street District Stormwater Management Opportunities

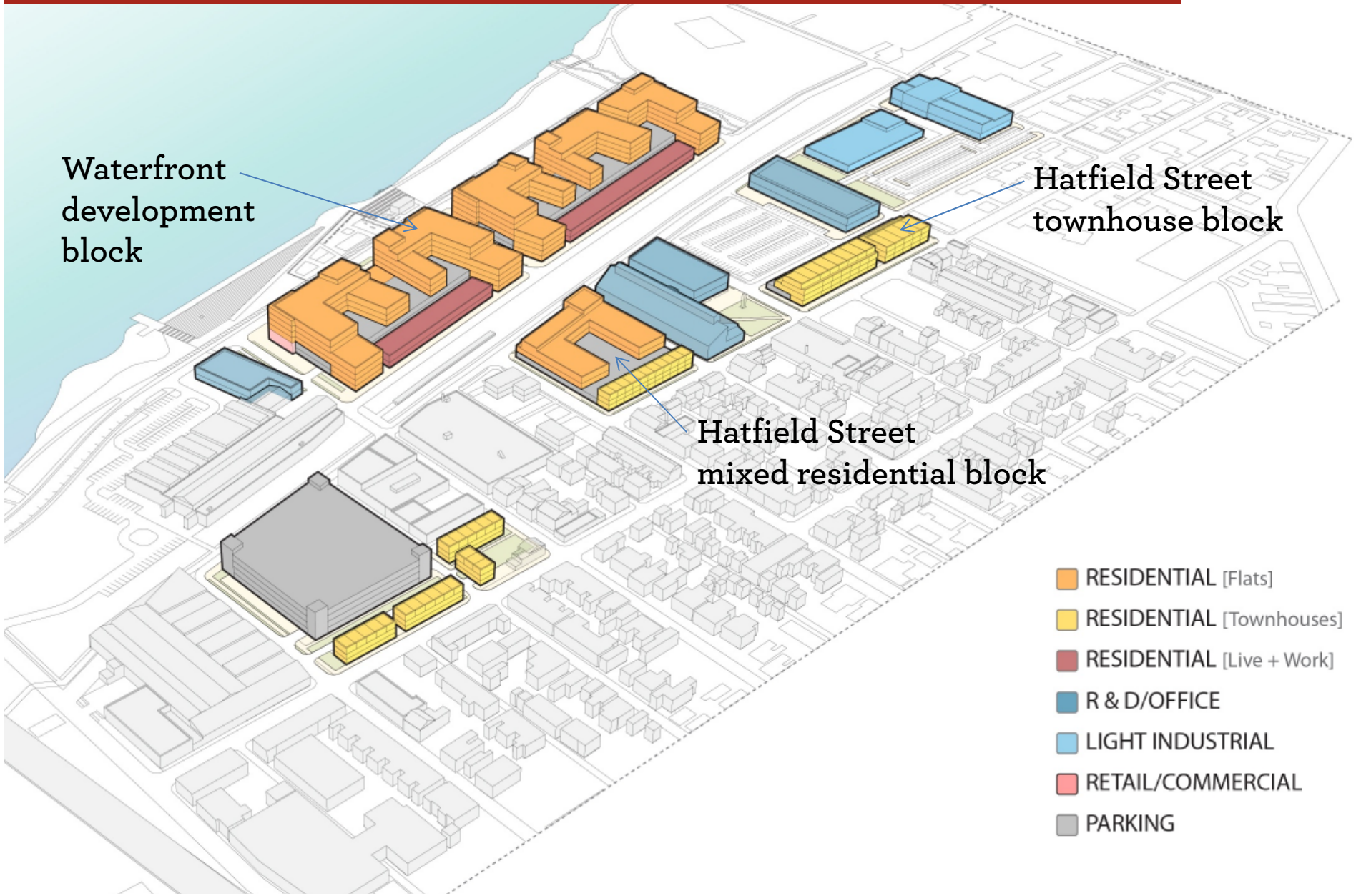
Existing Run-off



47th Street Landscape Strategy – Existing Condition

47th Street Landscape Strategy – Proposed Condition

43rd Street District Redevelopment



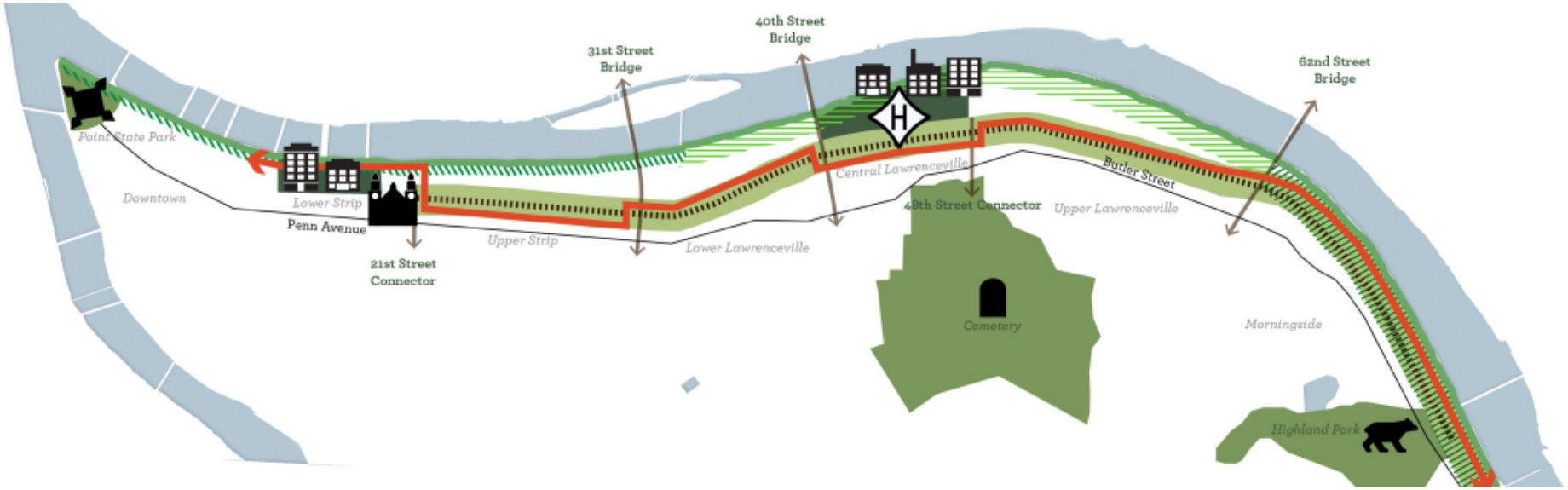
Open Space Network

Heth's Run Analysis and Recommendations

Green Boulevard Plan

Help Us Move the Green Boulevard Towards Reality -

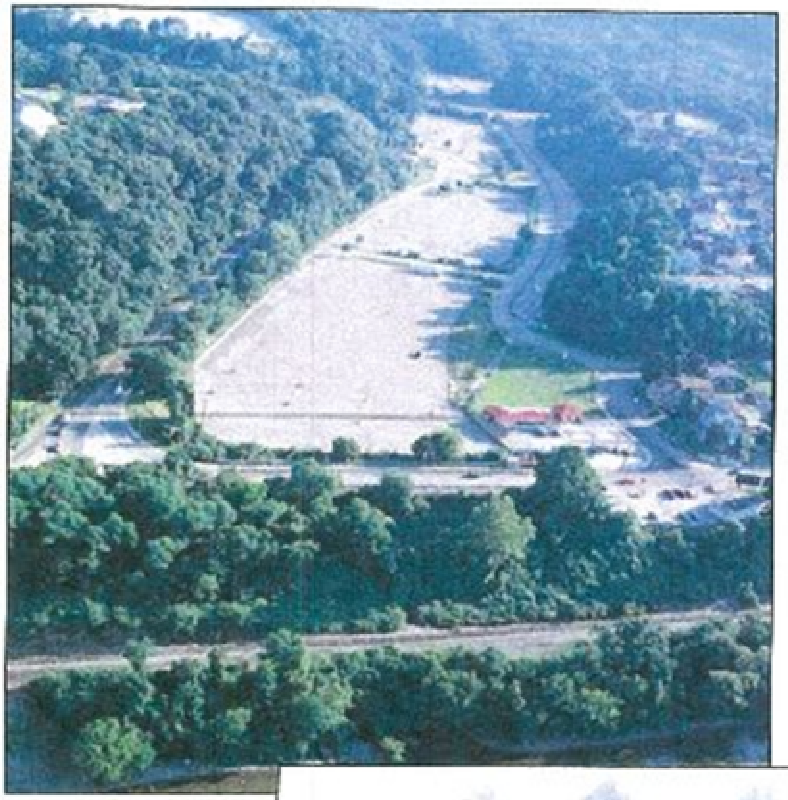
- What parts of the Green Boulevard implementation plan do you support? Are there any priority areas that should are missing?
- Please provide input on the planning process? Has this effort been an effective forum for you to participate?
- Please provide us suggestions on how you can remain involved in the future.



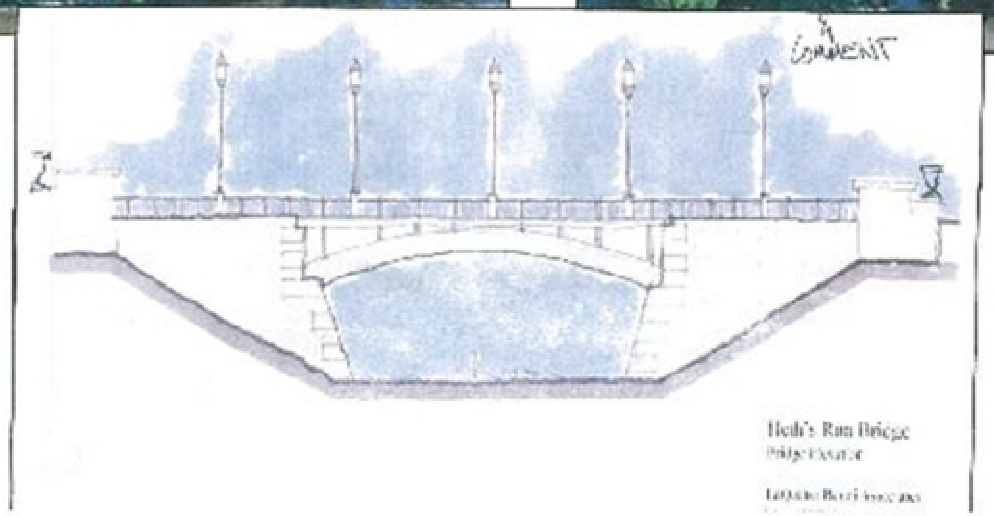
Allegheny Riverfront GREEN BOULEVARD

DISCUSSION

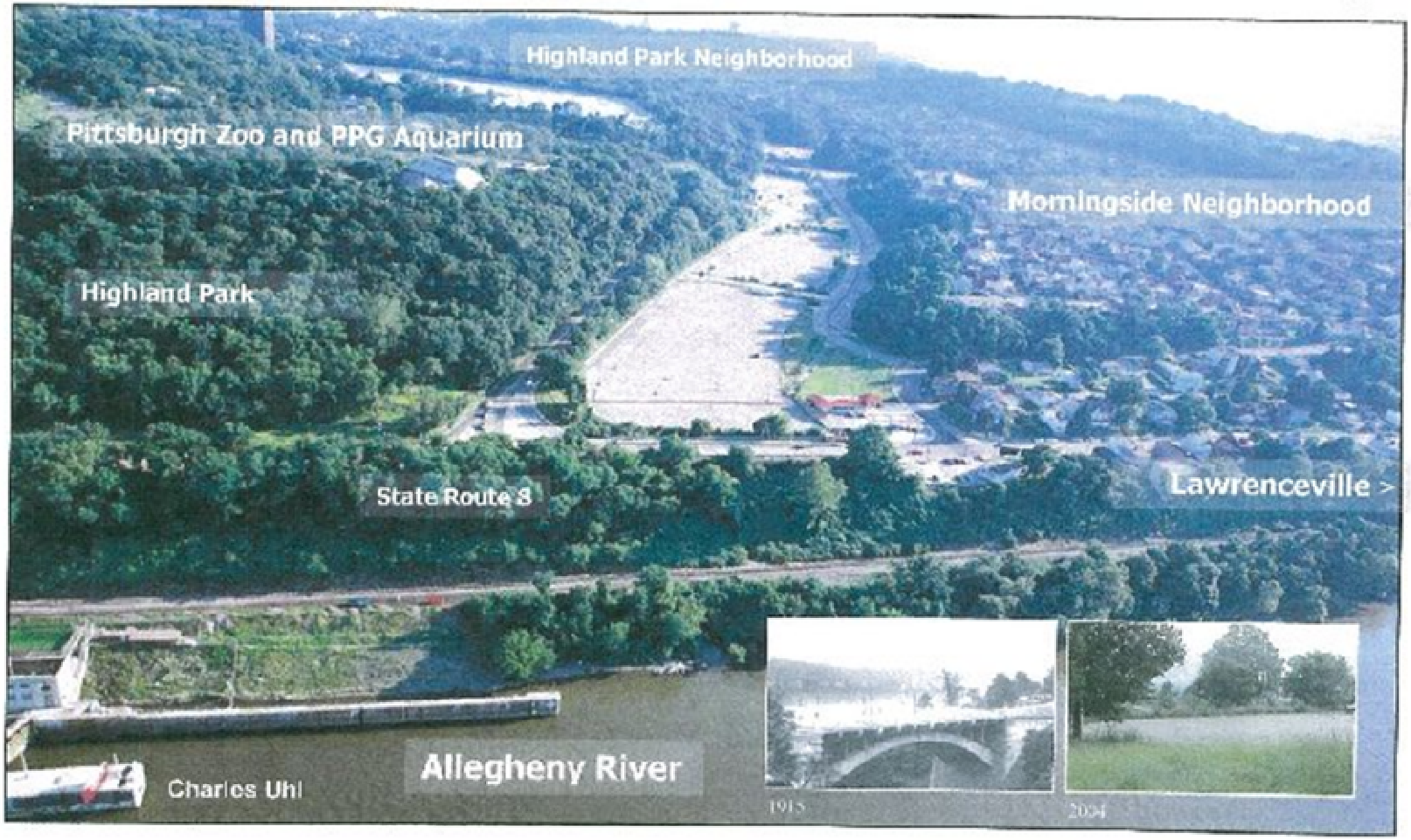
The Heth's Run Ecological and Recreational Restoration Projec



Heth's Run Bridge Replacement



The Heth's Run Ecological and Recreational Restoration Project



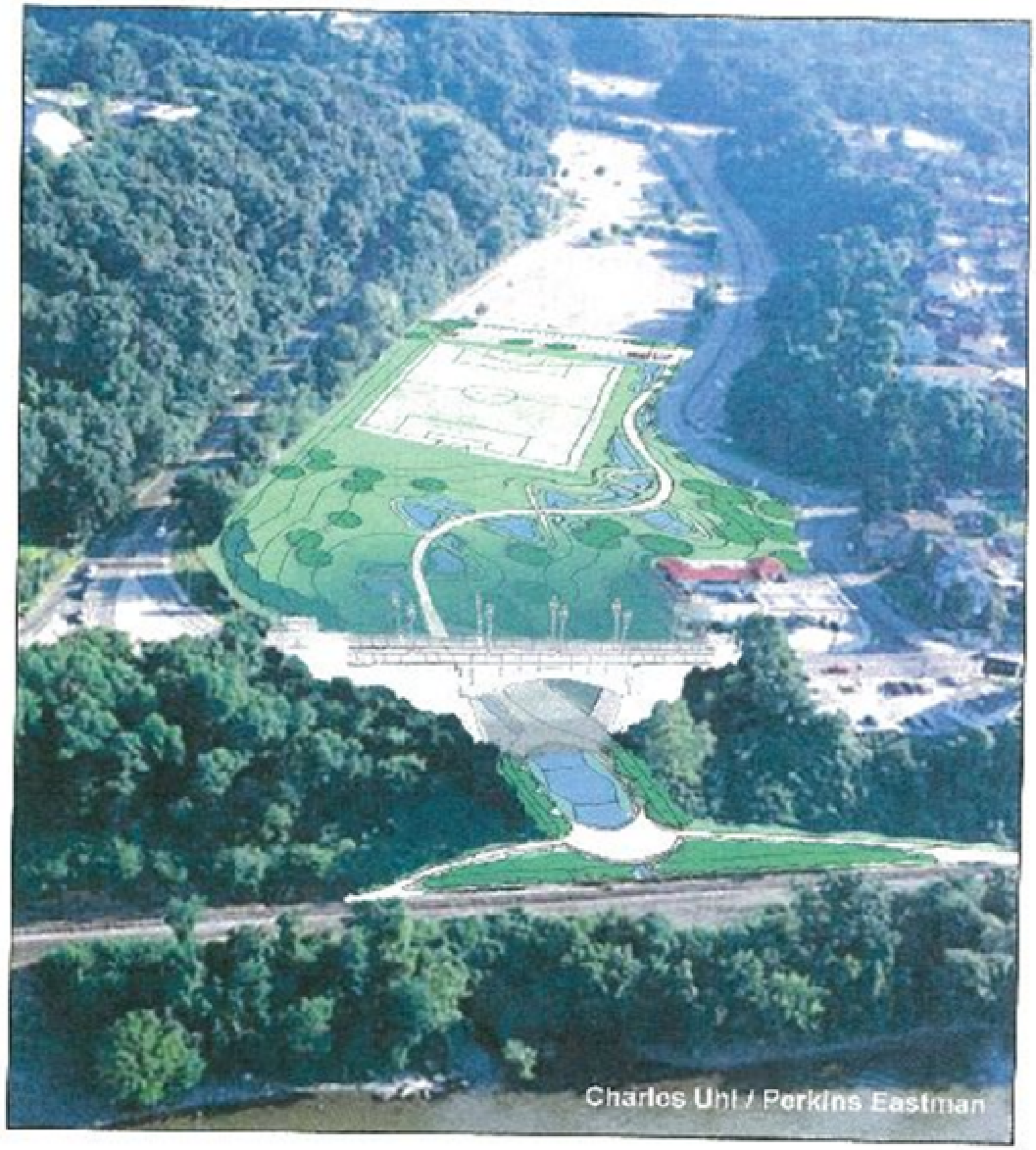
HISTORY

Throughout the early 1900's Heth's Run was back-filled with incinerator ash and slag from nearby industries. The stream was routed into an 84" brick culvert. Today, Heth's Run resembles a glacier of asphalt serving primarily as a parking lot for the nearby Pittsburgh Zoo & PPG Aquarium.

The Heth's Run Ecological and Recreational Restoration Project

THE VISION

Heth's Run is envisioned as an ecological and recreational extension of Highland Park to the Allegheny River. The sea of asphalt would be transformed into a mix of trails, natural and landscaped green spaces, an athletic field complex, enhanced parking and entrance for the zoo, and a pedestrian gateway under a reconstructed Heth's Run Bridge leading to an overlook and riverfront trail. This vision re-establishes Heth's Run as an integral part of Highland Park that provides river access to its visitors and nearby residents.



Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space

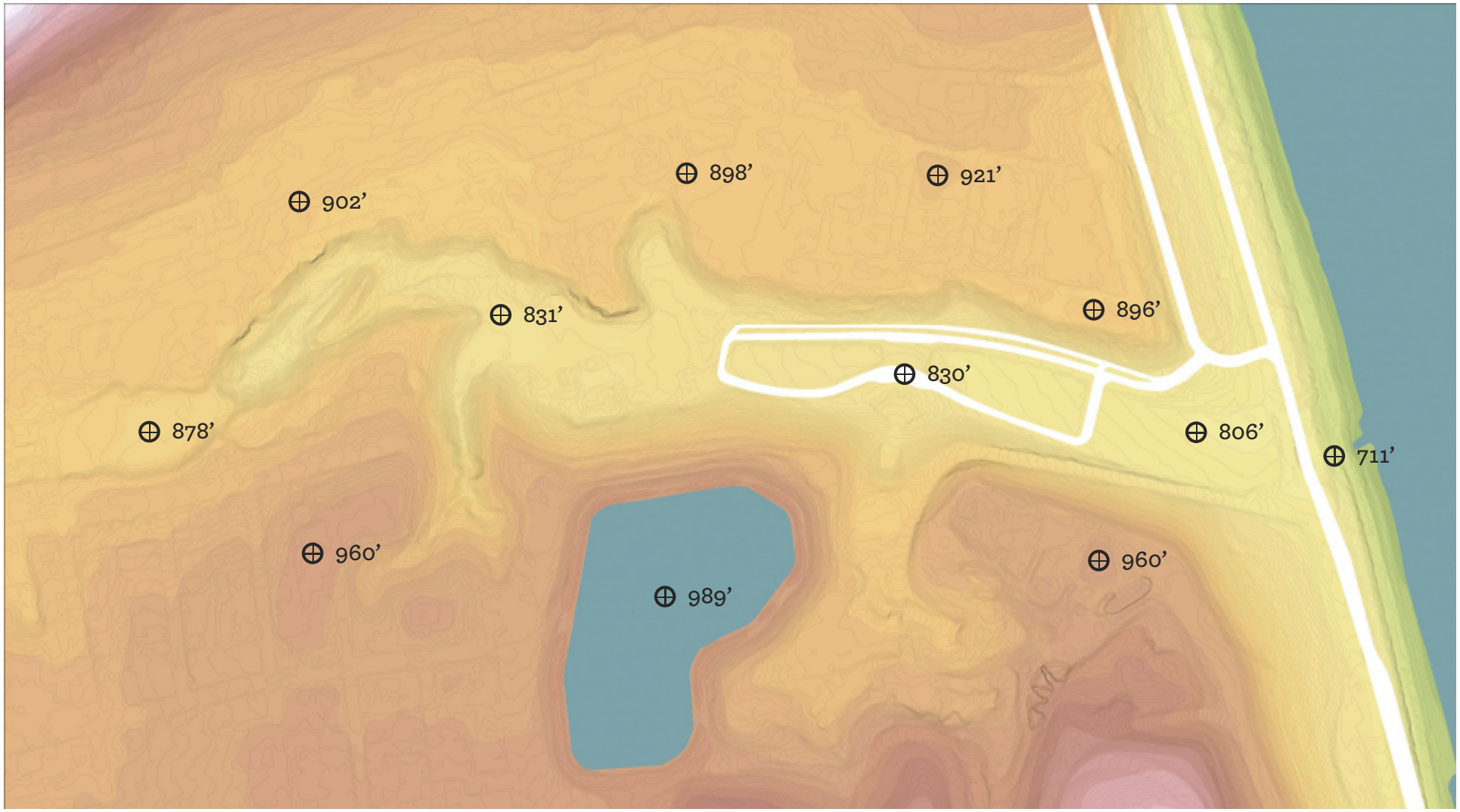
River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Existing Conditions

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

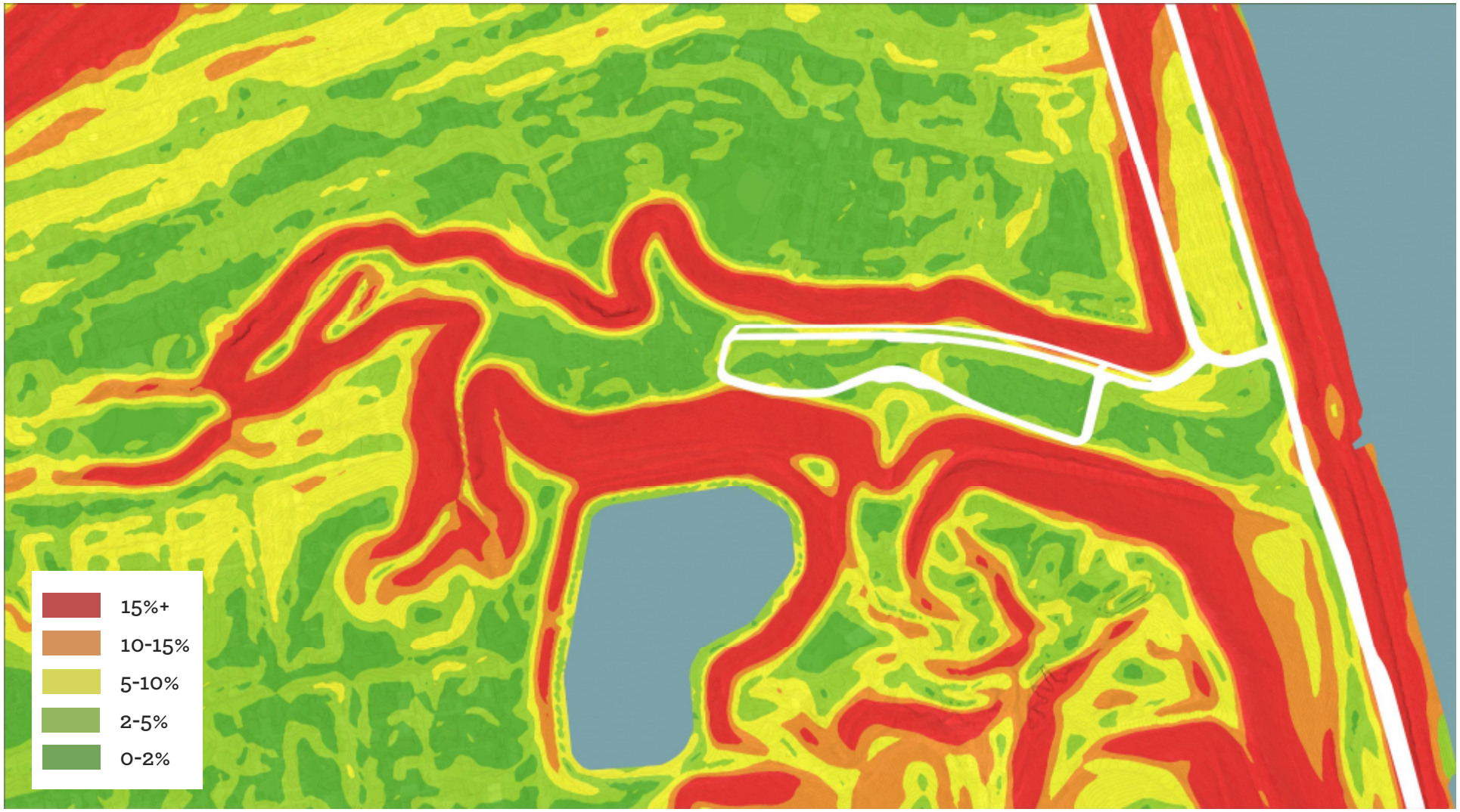
Existing Elevations



Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Existing Slopes



Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

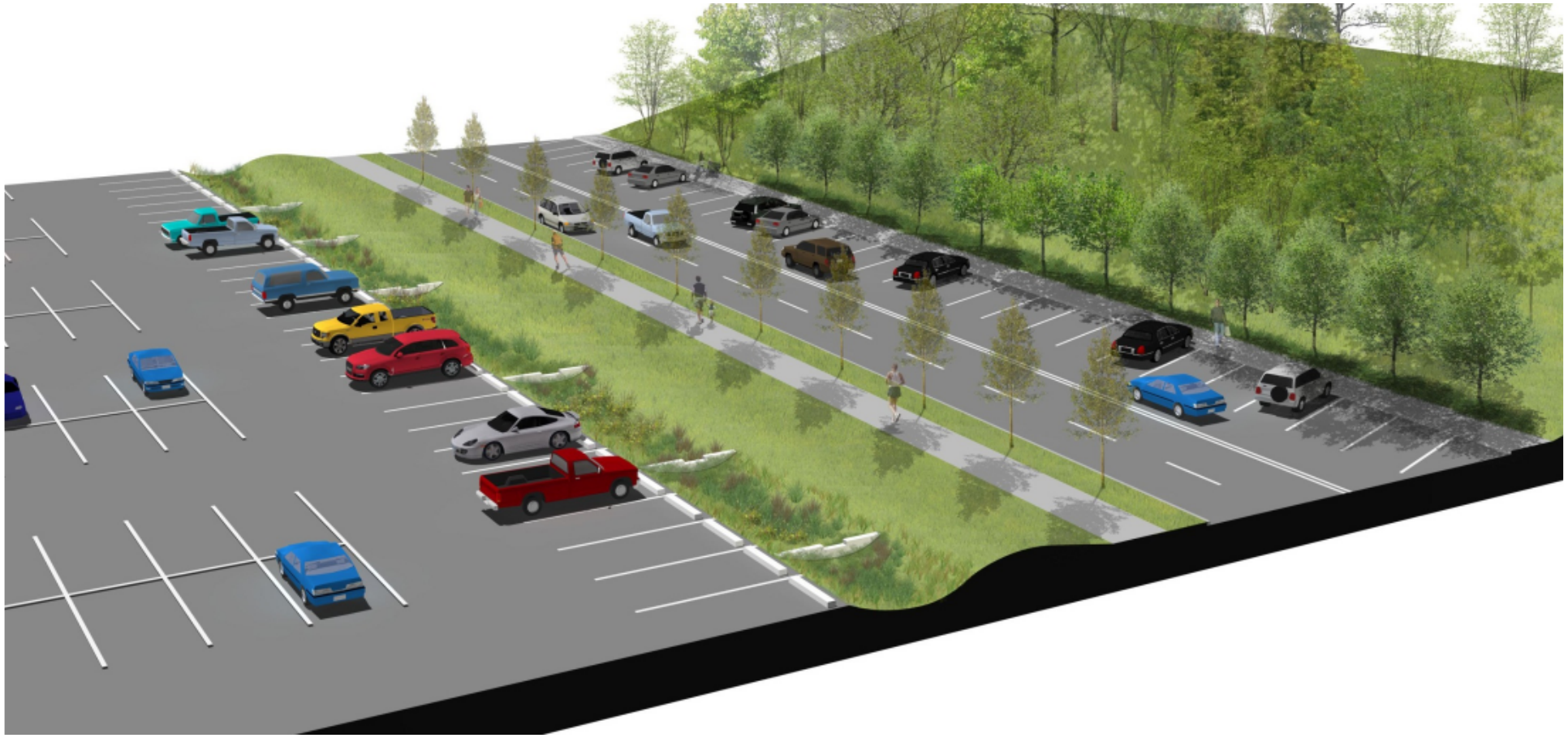
Open Space and Stormwater Conveyance

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance

Open Space

River Accessibility, Connectivity, and Stormwater Management [Heth's Run]

Open Space and Stormwater Conveyance