



RESILIENT NJ PHASE 2: IMPLEMENTATION RARITAN RIVER AND BAY COMMUNITIES

DECEMBER 2024

**Guidance & Visualization:
Reuse of Blue Acres Sites**

 **ARCADIS**

SCAPE



CONTENTS

- Project Introduction 3
- Background 6
- Blue Acres Program 10
- A Framework For Adaptation & Re-Use 15
- Appendices 39
 - Appendix A: Existing Conditions Maps 40
 - Appendix B: Open Space Precedents 54
 - Appendix C: Permeable Material Options 62
 - Appendix D: Funding Opportunities 68



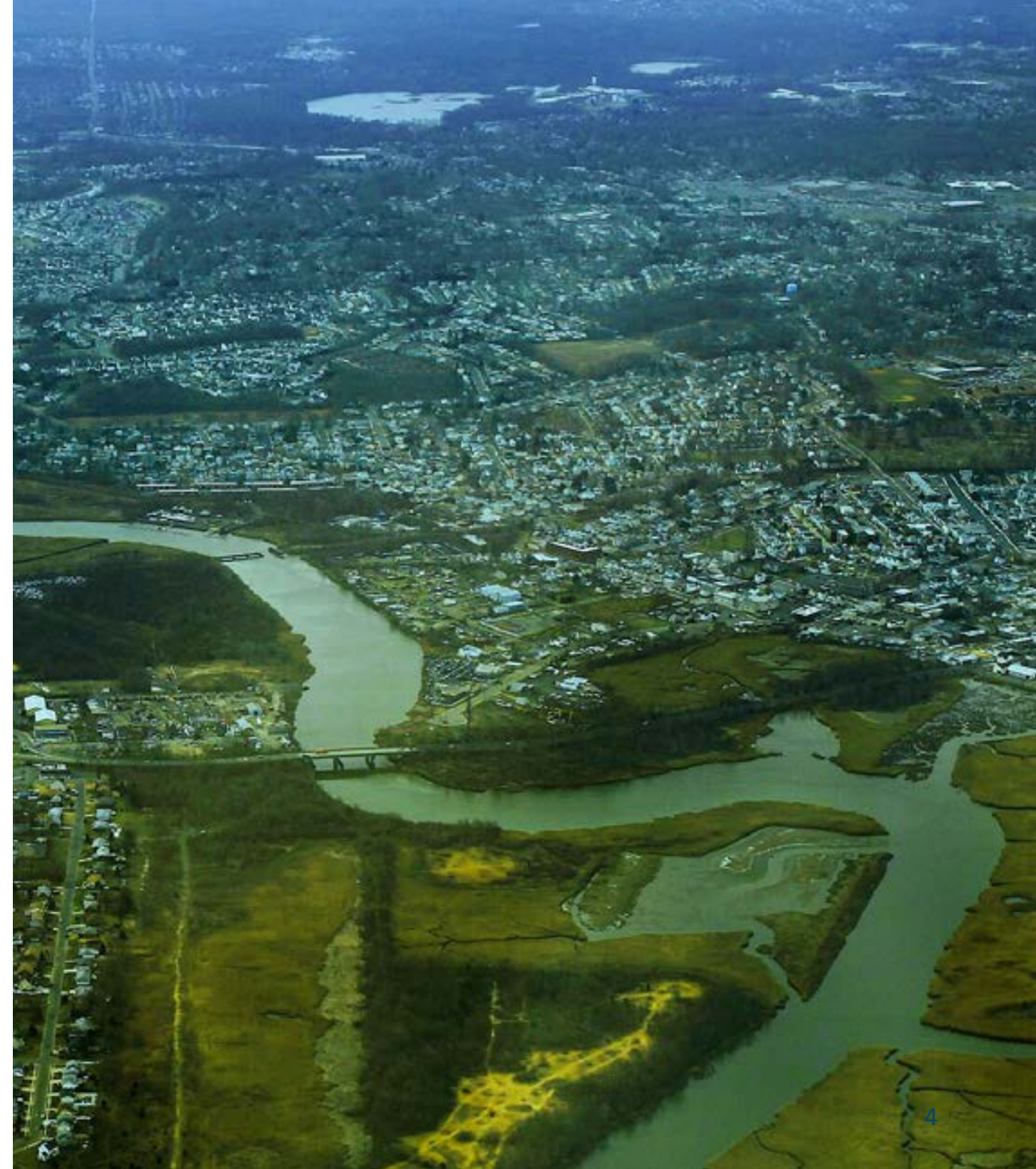
PROJECT INTRODUCTION

PROJECT OVERVIEW

The goal of this project was to advance the adaptive reuse of flood-prone properties acquired through the New Jersey Department of Environmental Protection's (NJDEP) Blue Acres Program in the Borough of South River, NJ in ways that meet the objectives of the Blue Acres program to reduce flood risk and enhance the natural and beneficial uses of the floodplain. The project developed a framework for improvements to Blue Acres properties in the South River Waterfront Revitalization District (WRD) with a focus on two priority sites.

Specific objectives included:

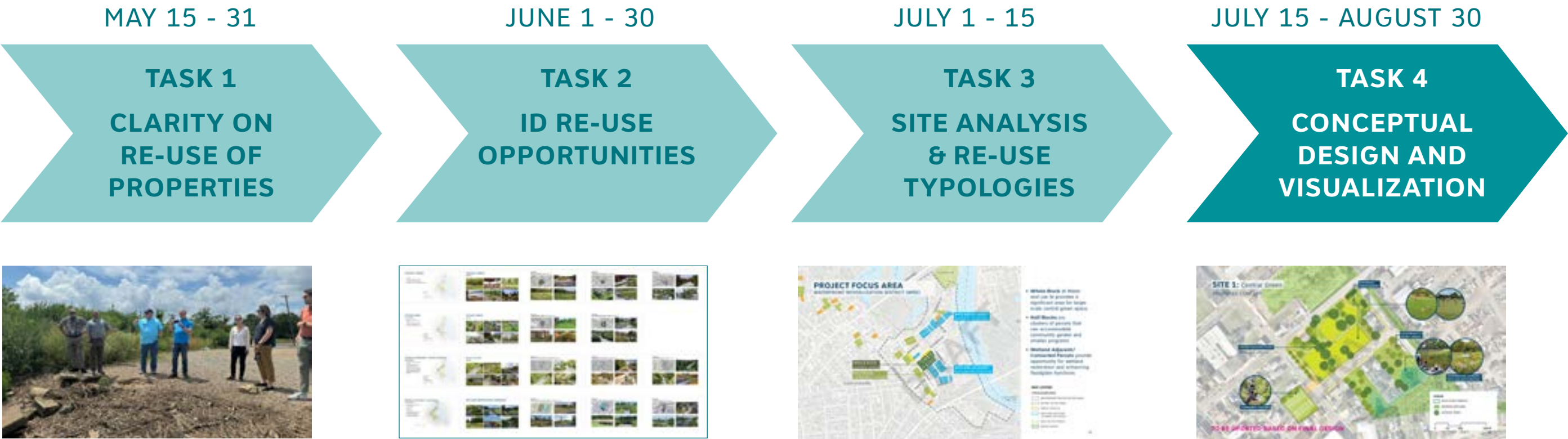
- Provide guidance to municipalities regarding the reuse of Blue Acres acquired parcels.
- Identify and visualize potential reuse scenarios.
- Analyze specific parcels and select priority areas for program recommendations and conceptual design.
- Provide a methodology and framework for recommendations that can be used by other municipalities in the Resilient NJ Raritan River and Bays Communities region.



PROJECT TIMELINE

PROCESS

Throughout each step in the process, the team worked hand-in-hand with NJDEP, county, borough, and community representatives to ensure that the best guidance and most feasible design options were provided, as well as met the RRBC implementation priorities, and community interests.



BACKGROUND

CONTEXT: RARITAN RIVER BAY COMMUNITIES

RESILIENCE ACTION PLAN

The primary goals of the RNJ Phase II program are to:

- Implement actions identified in the [Regional Resilience Action Plan \(RRAP\)](#) released in October 2022
- Establish regional and capacity planning strategies and actions to ensure the continuation of resilience efforts after this portion of the project concludes

Phase II Re-Use of Blue Acres Sites:

Priority 1: Policy & Governance

- Governance Coordination
- Zoning & Land Use Policies: use zoning to limit development along the South River and pursue additional buyouts

Priority 2: Physical & Nature-Based Infrastructure

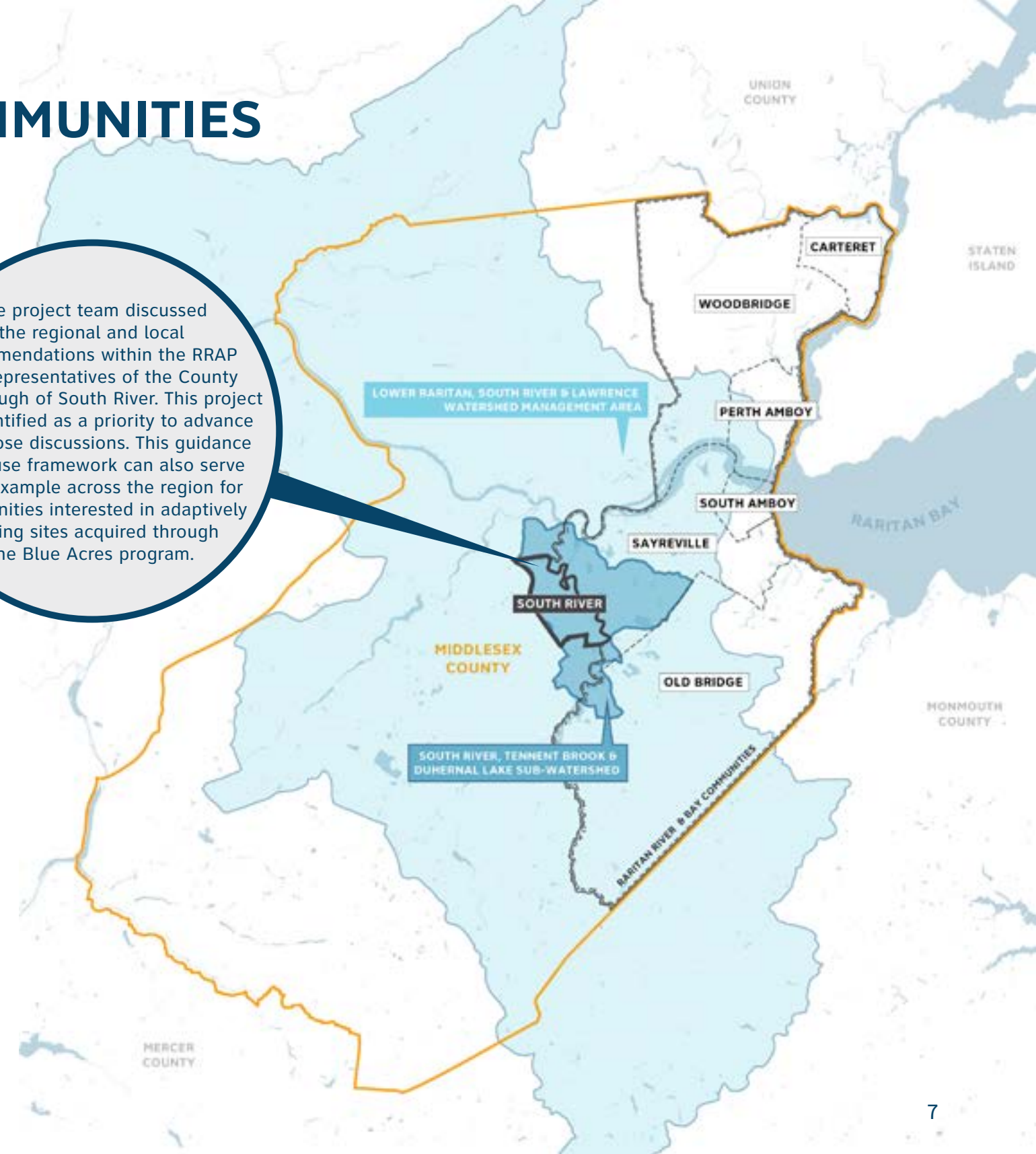
- Explore opportunities for water dependent uses and waterfront access
- Coastal Resilience: Adapt/Protect Critical Facilities & manage stormwater
- Address contaminated sites & Brownfields
- Create resilient mobility systems

Priority 3: Outreach & Capacity Building

- Flood Awareness Outreach Campaign
- Technical Support for Property Owners

Priority 4: Increase Resilience to Additional Climate Hazards

The project team discussed the regional and local recommendations within the RRAP with representatives of the County and Borough of South River. This project was identified as a priority to advance from those discussions. This guidance and reuse framework can also serve as an example across the region for communities interested in adaptively reusing sites acquired through the Blue Acres program.



BACKGROUND

MASTER PLAN AMENDMENT

The 2023 amendment to South River’s Master Plan included a series of development goals for the waterfront revitalization zone. These goals were focused on waterfront access, park areas, recreation, and eventual clean-up and reuse of Brownfields sites for redevelopment. Specific development goals listed in the Amendment include:

Redevelopment & Infrastructure

- Stormwater management infrastructure to advance state resilience goals
- Recreational use of the river (public / private marinas, boat clubs)
- Commercial uses (snack bars, restaurants)
- Elevated multi-family development in select locations

Open Space & Recreation

- Public parks / nature preserves
- Waterfront access
- Recreation (e.g., sports fields, public assembly space, skating)
- Public parking areas, toilets, concession facilities
- Nature / dog walks, bike paths, trails connecting to other areas (e.g., Ferry Street, Main Street)

Site Remediation

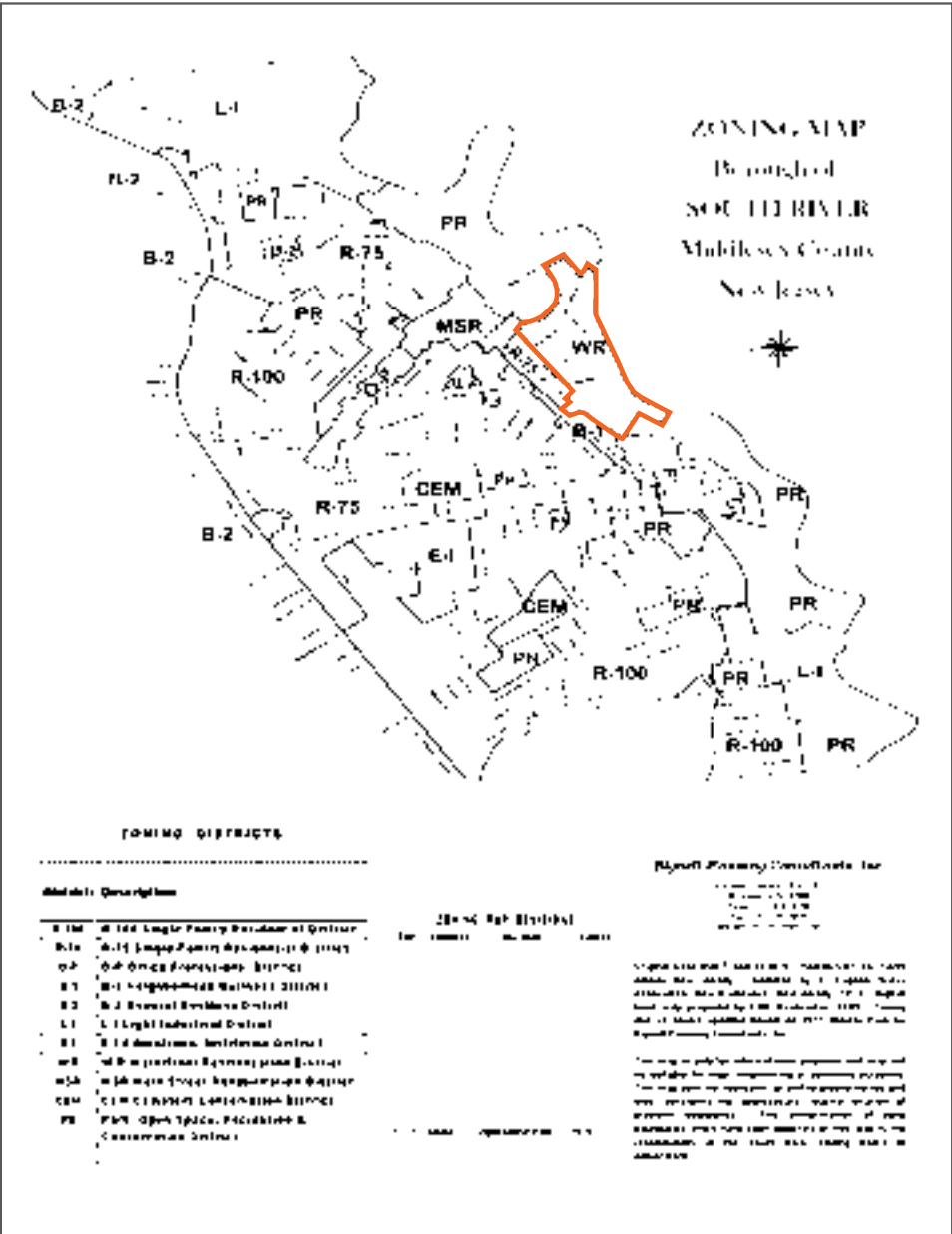
- Elimination / relocation of light industrial uses & unnecessary impervious surfaces
- Environmental and site cleanup

Policy & Governance

- Use of open-space tax monies, green acres, and similar grants/funds to purchase private properties

Natural Resources

- Reforestation and environmental restoration
- Restoration of natural floodplain functions



NJ RESILIENT ENVIRONMENTS AND LANDSCAPES (REAL)

GUIDANCE AND LIMITATIONS FOR REDEVELOPMENT IN THE INUNDATION RISK ZONE (IRZ)



REAL - Facts:

- A targeted regulatory reforms that will modernize the land use rules and focus on increased resilience throughout the State. (Part of the New Jersey Protecting Against Climate Threats initiative - Executive Order 100 Jan. 2020.)
- Timeline:
 - Summer 2024: Proposed Rule to be published in the New Jersey Register
 - Fall/Winter 2024: 3 public hearings & 90-day comment period
 - Summer/Fall 2025: Anticipated adoption
- Rules will apply to:
 - New & redevelopment
 - Substantial improvements to buildings
 - NOT to existing development

Within the Inundation Risk Zone (IRZ) = The portion of a tidal flood hazard area that has been determined to be at significant risk for future permanent or daily inundation and therefore represents a high level of hazard for existing or proposed development or habitation.

- Applicants can use DEP's IRZ map: <https://dep.nj.gov/gis/nj-geoweb/>
- OR Compute it using site-specific topography and NOAA data.



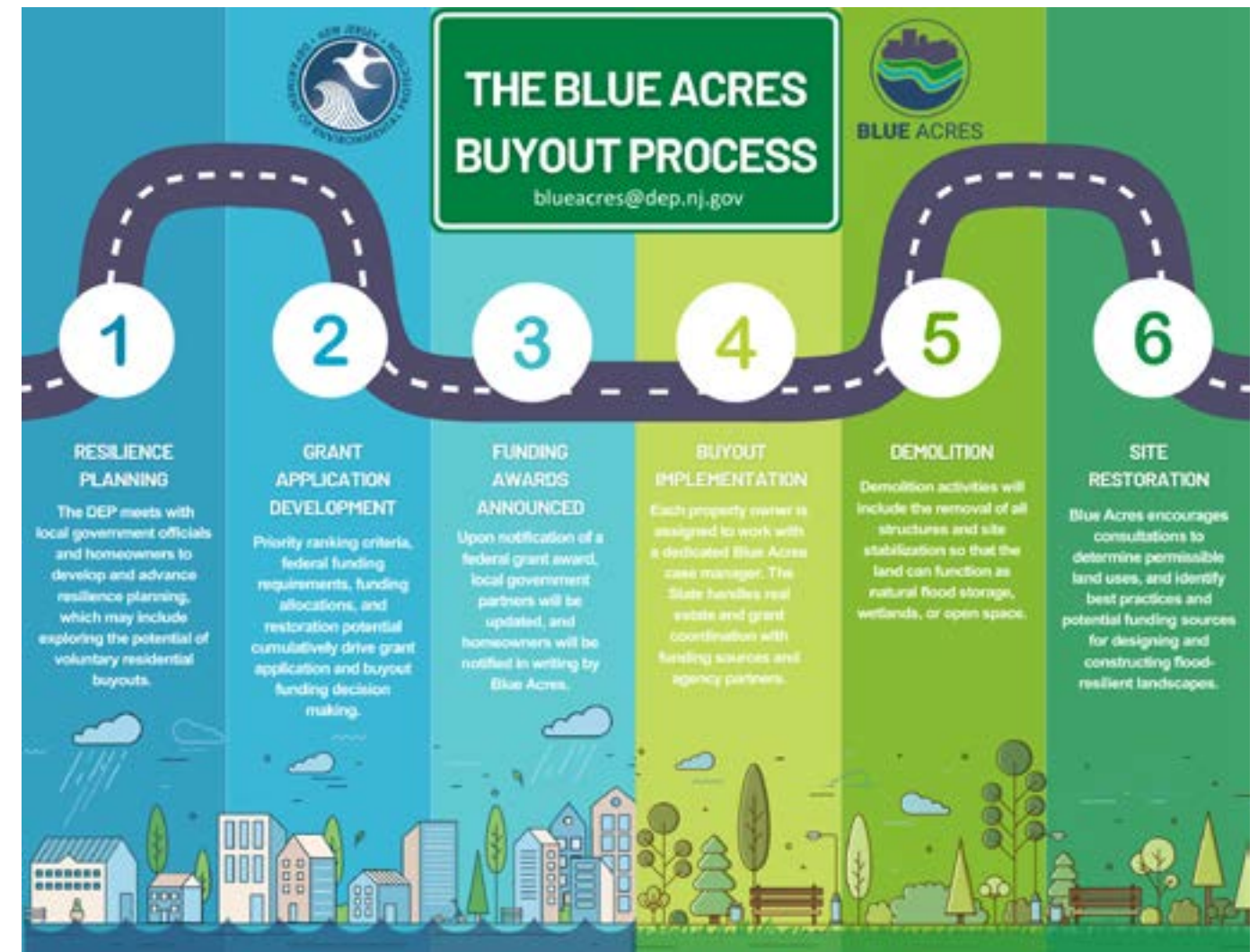
BLUE ACRES PROGRAM

CONTEXT: NJ BLUE ACRES PROGRAM

The NJ Blue Acres Program is an instrumental tool for municipalities to create long-term community resilience. The primary program goals are to protect public safety and the environment by relocating families whose homes are subject to repeated flooding, and acquiring property for use as natural flood storage. Program objectives to meet these goals include:

- **Establish a collaborative process** between NJDEP, municipalities, and property owners to plan and then execute climate resilience measures at acquired properties.
- **Transform vacant flood-prone properties** to create community amenities and optimize floodplain functionality.
- **Provide guidance** through the [“Creating Flood-Resilient Landscapes: A Primer for New Jersey Communities”](#) to plan, design, and implement flood resilience projects.
- **Restore and rehabilitate flood-prone landscapes** to increase community and ecological resilience.

NJDEP administers the program under agreement with the NJ Office of Emergency Management (OEM) and the Federal Emergency Management Agency (FEMA).



BLUE ACRES PROGRAM REQUIREMENTS

LIMITATIONS & NON-COMPLIANT USES

NOTE: If unsure, always consult with NJDEP Blue Acres Program Staff.

There are some restrictions on the re-use of a property acquired through the Blue Acres program – listed below as non-compliant. The Blue Acres program wants to ensure that purchased properties maintain or enhance natural floodplain functions. Therefore, anything not consistent with, or enhancing the function of the floodplain is discouraged or prohibited.

NON-COMPLIANT USES AND RESTRICTIONS:

- Reuse of pre-existing residential structures/outbuildings
- Pavement for parking or infrastructure that inhibits floodwater absorption
- Placement of fill materials that obstruct the natural and beneficial use of the floodplain
- Placement of fill material that will obstruct the natural and beneficial use of the floodplain, unless explicitly required by the buyout funding grant to protect archaeological resources
- Activities that site health, safety, or environmental risk in the floodplain (landfills, toxic material storage, septic systems, subsurface storage, cemeteries, etc.)
- Storage of vehicles, personal property or commercial equipment
- Walled buildings
- Permanent fencing. Temporary fencing cannot be sited in the floodway and fencing that could trap floodwater debris is discouraged.
- Hardened floodwalls, berms or levees
- Partially enclosed and roofed restrooms may be permitted if they are locationally appropriate and consistent with the floodplain site design/use
- Additional inconsistent uses determined through consultation with the State, Federal Grantees, FEMA or HUD as well as activities that could produce a Category G public assistance funding need or request post-disaster.

NOTE: If purchased through the Blue Acres program, the deed restriction on the property prohibits any future aid to these sites. Additionally, boardwalks, fishing docks, or piers are viewed as structures that could create debris during a flood event and/or trap debris, which should be avoided.

Source: www.dep.nj.gov/blueacres and meeting with NJ DEP Blue Acres staff on 07/23/2024

GOALS FOR BLUE ACRE SITE RE-USE

WHAT WE HEARD / UNDERSTAND

County and Borough representatives provided primary and secondary goals for the reuse of the Waterfront Revitalization District (WRD). As described on Page 8, the WRD was created to revitalize the waterfront with a focus on reducing flood risk and restoring natural areas. Many of these objectives are consistent with the goals of the Blue Acres program. Other objectives, such as resilient development, piers, or fishing docks, would be better suited for sites that have not been acquired through the Blue Acres program.

PRIMARY

- **Reduce flood risk** through stormwater management or other means.
- **Create a destination public space** people can and want to visit/use (must include some component of human use/access).
- **Phase out residential and industrial uses** within the Waterfront Revitalization District (WRD) in order to protect public safety and the environment by relocating residents whose homes are subject to repeated climate impacts.
- **Showcase safe, resilient and productive re-use** for Blue Acre lots to spur support and investment in additional development in the WRD.
- **Prioritize nature-based and low maintenance design.**
- **Be feasible and implementable;** and the first phase in the near-term (next 5 years).

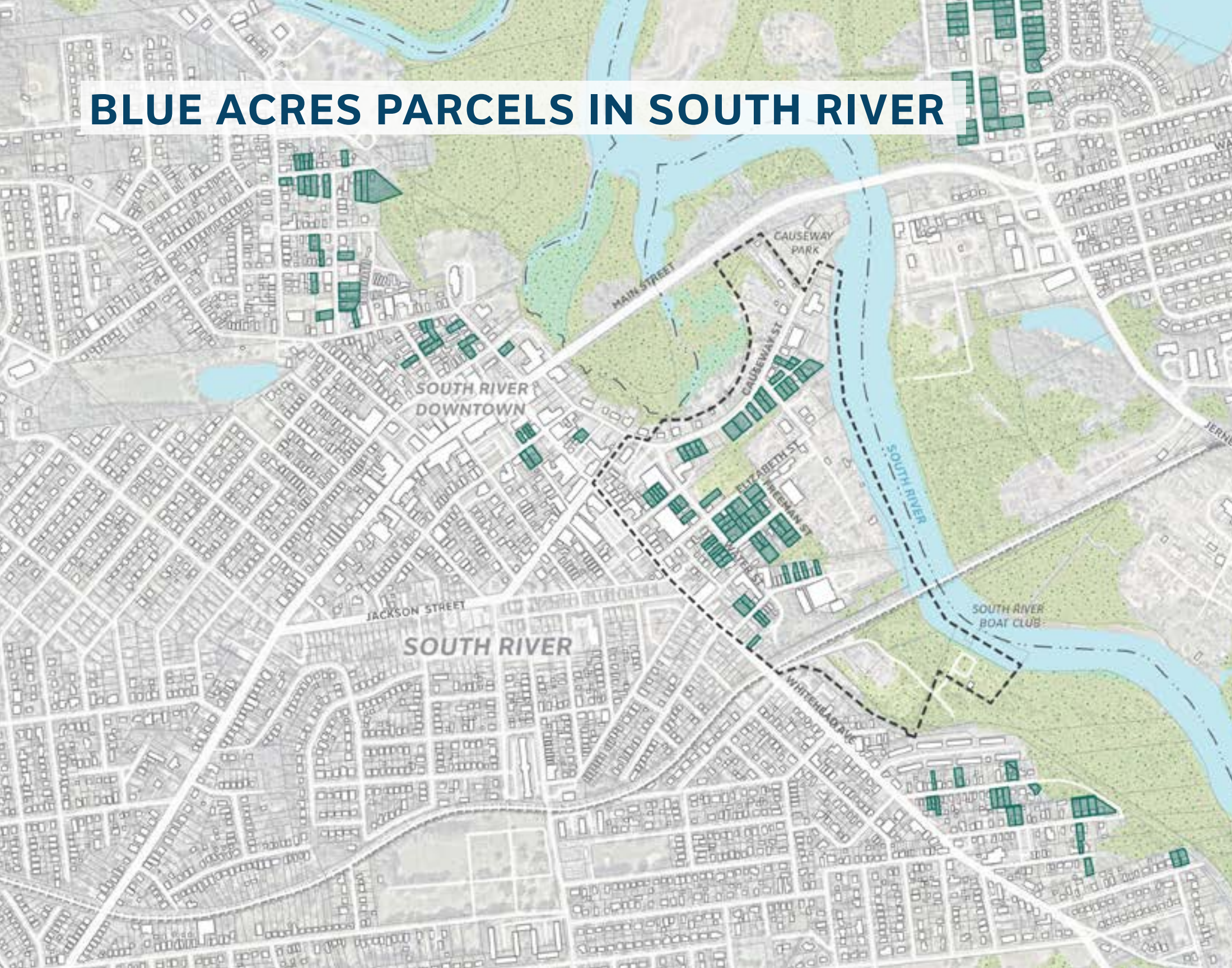
SECONDARY

- Enhance the aesthetic character of the WRD.
- Create recreational opportunities: nature trails & open space.
- Preserve, restore or expand habitat for plants and wildlife.
- Create space for marsh migration.
- Consider multiple complementary uses.
- Reduce infrastructure maintenance costs where practicable and consider decommissioning/demapping streets where feasible and safe.
- Ensure/enable efficient and reliable transportation to/from the WRD.
- Clean up potential brownfields (with funding outside the blue-acres program)

BLUE ACRES PARCELS IN SOUTH RIVER

There are 61 properties within the Waterfront Revitalization Zone (out of 127 properties across the Borough) that have been acquired through the Blue Acres program.

Several of these sites are low-lying and flood-prone industrial sites built on former wetlands; environmental cleanup will be an essential component of restoring natural floodplain functions and improving environmental health.



MAP LEGEND

EXISTING CONDITIONS

- WATERFRONT REVITALIZATION AREA
- BLUE ACRES PROPERTIES
- EXISTING WETLAND

A FRAMEWORK FOR ADAPTATION & RE-USE

FRAMEWORK

EVALUATION PARAMETERS

A **set of parameters** described below provided a way for the project team to characterize different properties and evaluate their potential for feasible reuse that not only meets Blue Acre program requirements but fulfills the County/ Borough’s goals.



PARCEL SIZE
Overall size of a parcel influences feasible potential land use, program, and development opportunities



ACCESS & FRONTAGES
Length of adjacent street frontage and connectivity to surrounding infrastructure influences access and circulation



LAND USE & ADJACENCIES
Land use and ownership of surrounding lots will and should influence potential program and integration with the surrounding neighborhood



WETLAND CONNECTIVITY
Connectivity to existing wetlands influences the magnitude of benefits from restoration, stormwater management and ecological enhancement.



ELEVATION
Relative elevation of the parcel affects how water drains across the coastal and fluvial landscapes that may have poor drainage and become waterlogged



RELATIVE FLOOD EXPOSURE
Closely related to elevation, the frequency and severity of coastal (tidal and storm surge) and fluvial (riverine / precipitation) flooding informs resilient design strategies



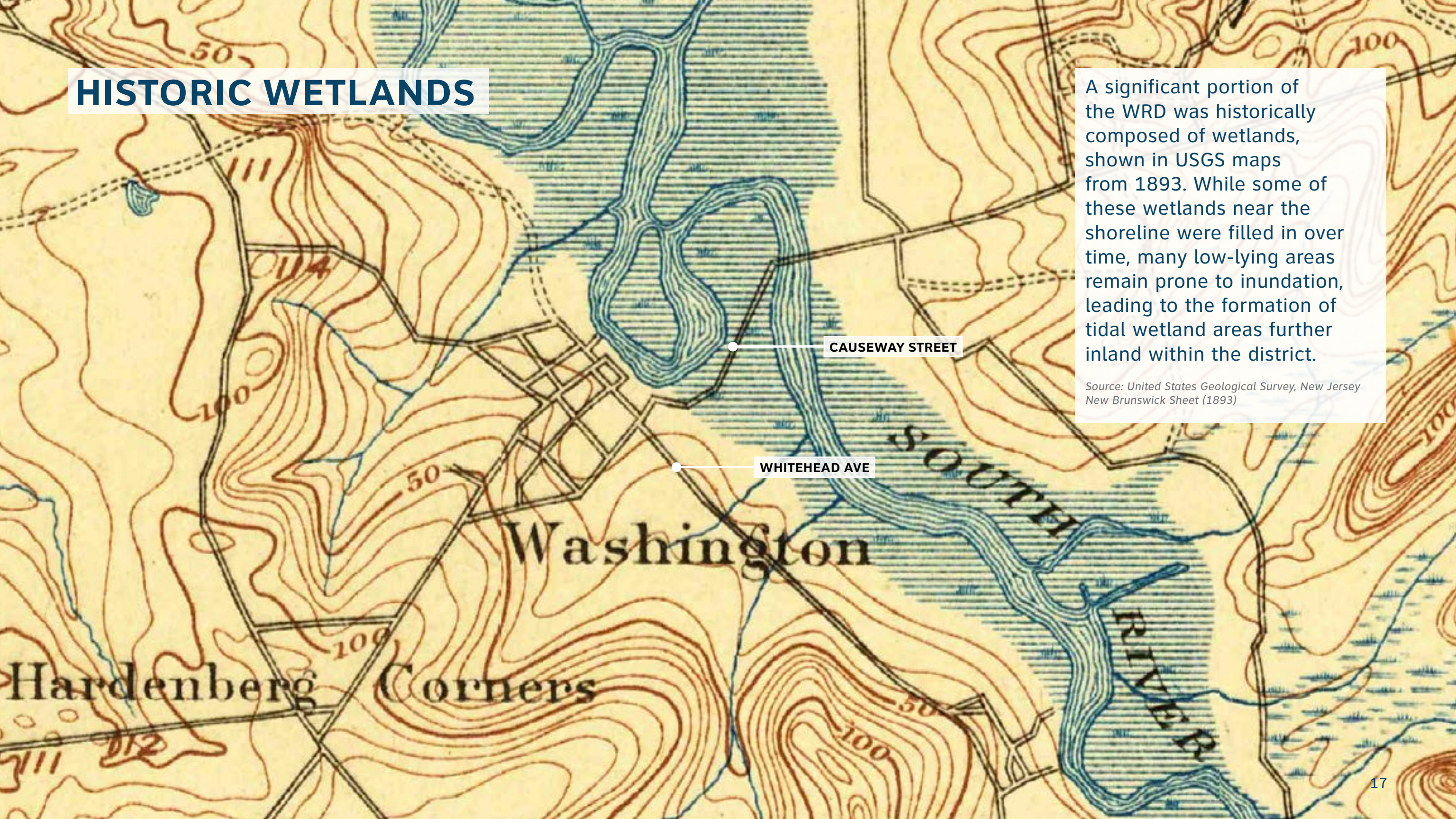
SOILS
Presence or absence of hydric soils and its flood storage capacity are critical in determining suitability for green infrastructure and flood mitigation



HISTORIC WETLANDS

A significant portion of the WRD was historically composed of wetlands, shown in USGS maps from 1893. While some of these wetlands near the shoreline were filled in over time, many low-lying areas remain prone to inundation, leading to the formation of tidal wetland areas further inland within the district.

Source: United States Geological Survey, New Jersey New Brunswick Sheet (1893)



WETLAND BENEFITS



Floodwater Storage

Wetlands absorb and slowly release excess rainfall, acting as natural sponges and reducing flood intensity.



Storm Surge Mitigation

Wetlands serve as a buffer against coastal storm surge by absorbing wave energy and reducing the amount of water that moves further inland.



Water Filtration

Wetlands filter out pollutants, sediments, and chemicals from floodwaters, improving downstream water quality.



Biodiversity Protection

A diverse range of plants and animals rely on wetlands as a crucial habitat and ecosystem.



Carbon Sequestration

Wetlands are carbon sinks, storing carbon in soils and mitigating climate change.

Wetlands play a crucial role in **mitigating the impacts of flooding and storm surge** in South River.

Restoration is a key consideration for the reuse of Blue Acres sites and has the potential to yield many benefits.

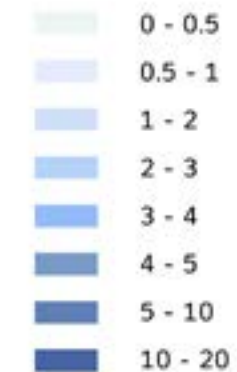
RELATIVE FLOOD EXPOSURE

The NJ REAL Rule defines an Inundation Risk Zone (IRZ) defined by land that would be flooded with water levels at Mean Higher High Water (MHHW)* plus five feet of sea level rise (SLR). Within the IRZ, the NJ REAL rule introduces a new Climate Adjusted Flood Elevation (CAFE), which raises the current required base flood elevation levels by 5 feet. A large part of the WRD is within this IRZ, meaning it is highly exposed to future permanent or frequent flooding. This creates significant risks for current or planned development or habitation.

INUNDATION RISK ZONE

 BLUE ACRES ACQUIRED PROPERTIES

MHHW with 5' of SLR (Flood Depth in Feet)

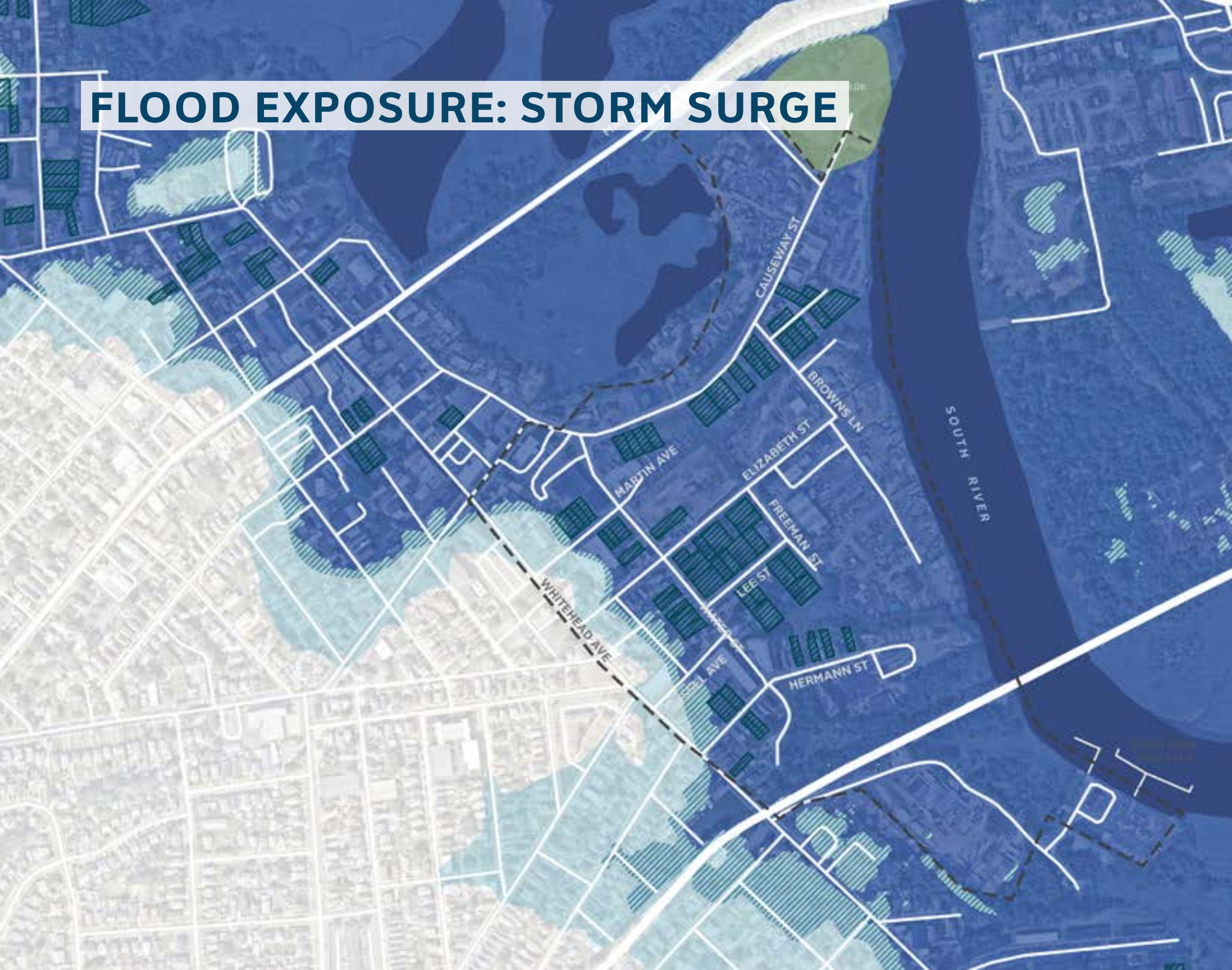


 5ft of Inundation with Low-lying Areas

Source: Sea Level Rise Map Service via NOAA
Office for Coastal Management, NJ Floodmapper
Total Water Level Map Service (accessed 2024)

FLOOD EXPOSURE: STORM SURGE

In addition to tidal flooding from sea level rise, the extent of flooding will increase during storms such as Hurricane Sandy in 2012.” As shown in the map, flooded areas extended inland past Water Street. The FEMA Flood Zones are included as a base reference, showing that storm surge flooding follows a similar path due to low-lying areas.



CURRENT STORM SURGE AND FLOODING EVENT

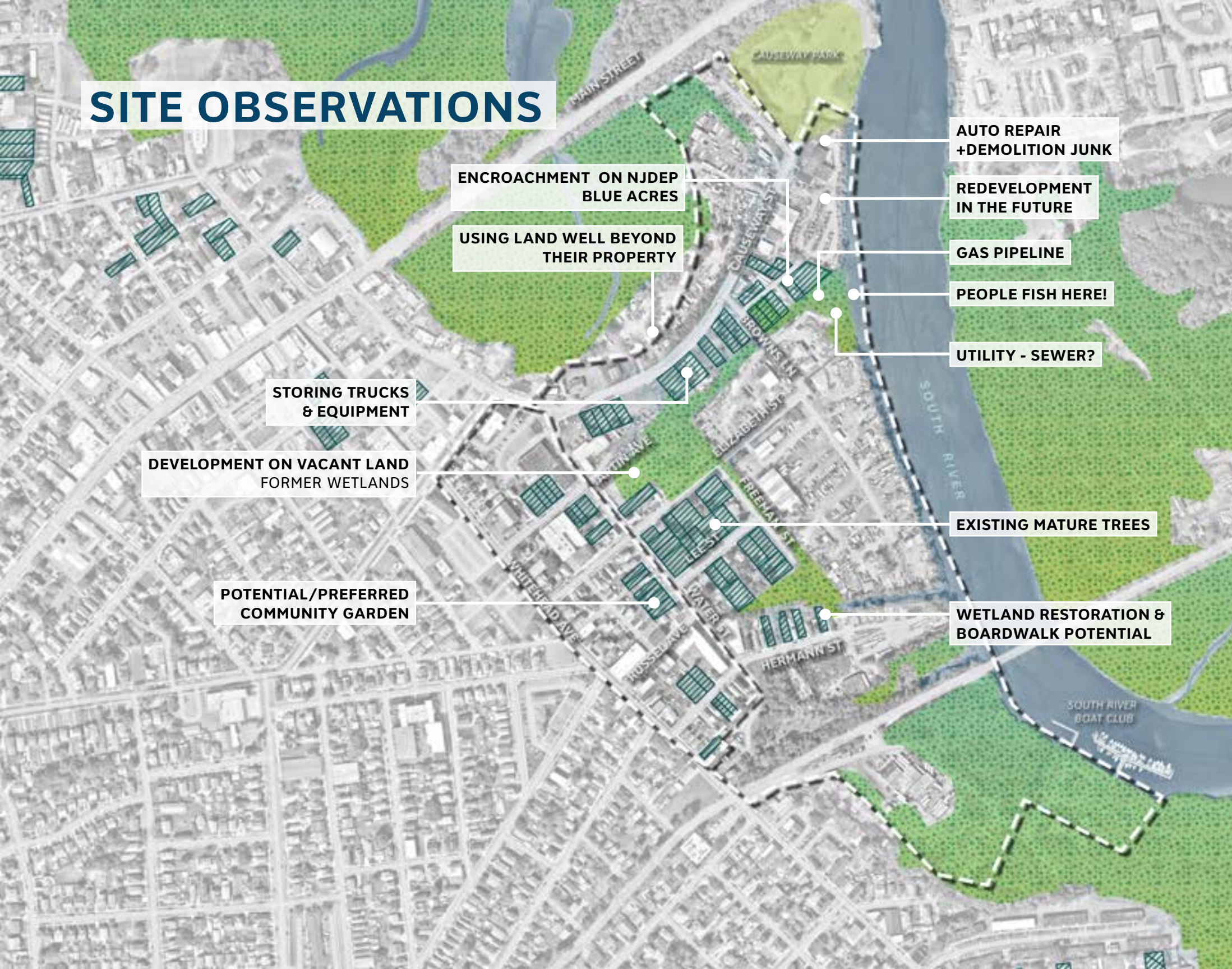
- BLUE ACRES ACQUIRED PROPERTIES
- SANDY STORMSURGE EXTENT

FEMA FLOOD ZONES

- ZONE AE: 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD

Source: The Sandy Surge data were created from field-verified High Water Marks (HWMs) and Storm Surge Sensor data from the USGS through 14-February 2013 via FEMA Modeling Task Force (MOTF)

SITE OBSERVATIONS



A site visit was conducted on July 10, 2024 with the project team, municipal, and county officials to observe and record/confirm existing conditions. Key observations are noted in the map. The team observed significant encroachments on Blue Acres parcels and publicly owned wetlands including trucks and equipment being stored, and an instance of mapped wetlands having been developed and/or paved over. During the site visit, preservation of mature trees and the need to remove subsurface utilities and gas lines was discussed as immediate reuse priorities.

MAP LEGEND

WETLAND

-  BLUE ACRE ACQUIRED PROPERTIES
-  EXISTING WETLAND

SITE RE-USE CONSIDERATIONS

PARCEL & BLOCK TYPES

Whether the purchased parcel was an isolated single lot, a series of adjacent lots, or whole/half blocks and what these were adjacent to (e.g., natural resources or roadways) in conjunction with the other evaluation parameters helped characterize acquired sites and prioritize their re-use. The varying Blue Acres purchased properties included:

- **Single Parcel:** A standalone property ideal for small-scale reuse projects or as part of a larger green infrastructure network.



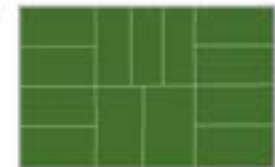
SINGLE PARCEL

- **Half Block:** A cluster of properties spanning half a block, offering opportunities for community-focused green space and gardens or stormwater management.



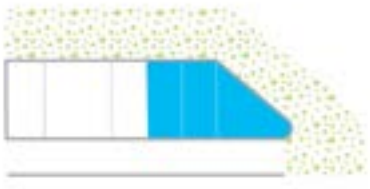
HALF BLOCK

- **Whole Block:** An entire block providing a significant area for larger scale central green spaces or resilience projects.



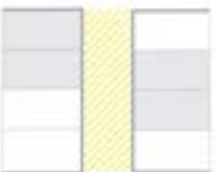
WHOLE BLOCK

- **Wetland Adjacent/Connected Parcel:** A property located near or connected to wetlands, ideal for expanding wetland restoration and enhancing natural floodplain functions.



WETLAND ADJACENT/
CONNECTED PARCEL

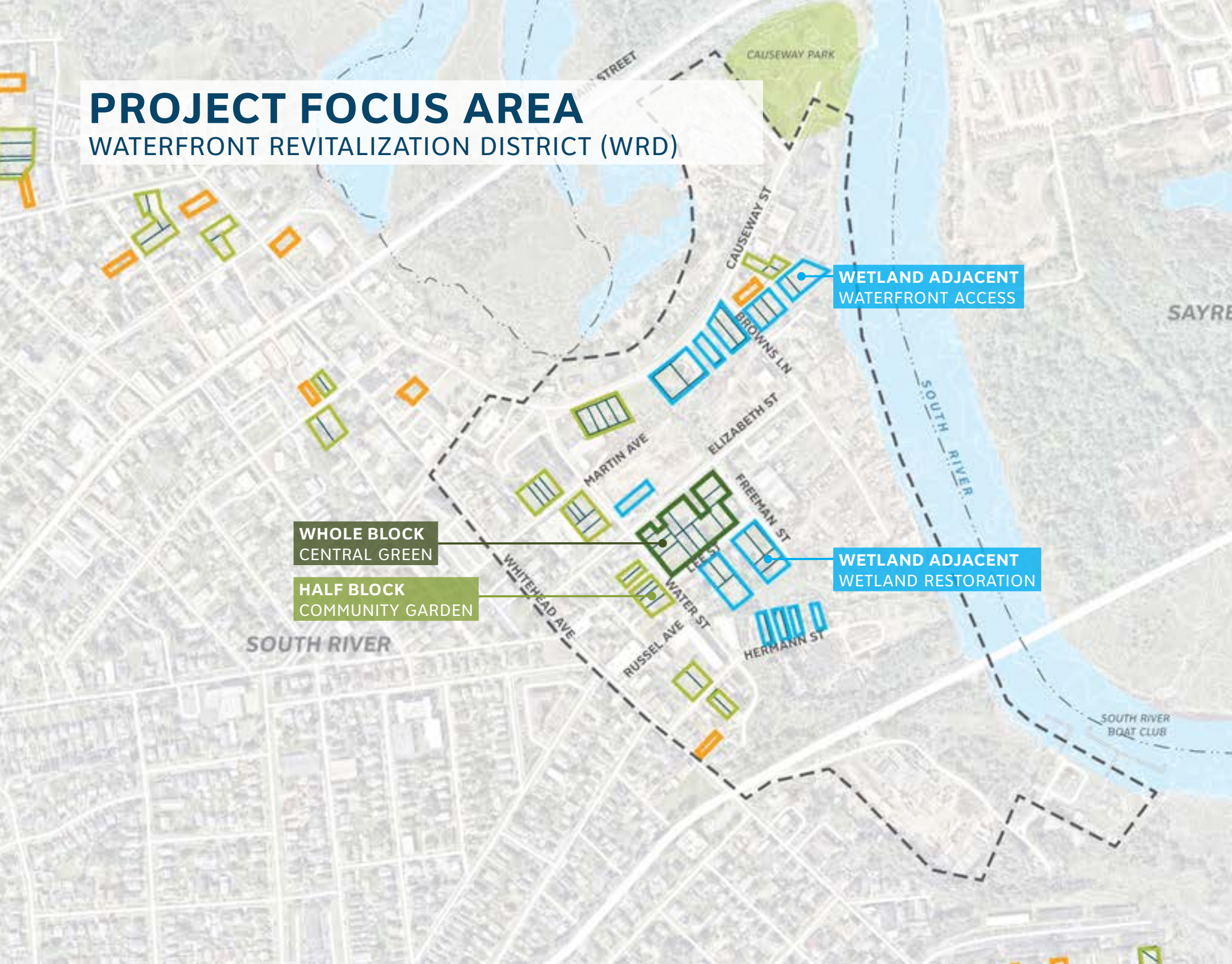
- **Facing Blocks (Street De-mapping):** Properties on both sides of a street that could be transformed by removing the street, creating continuous green space or pedestrianized corridors.



FACING BLOCKS
STREET DE-MAPPING
OPPORTUNITY

PROJECT FOCUS AREA

WATERFRONT REVITALIZATION DISTRICT (WRD)



When the benefits of each parcel type were weighed against the site characteristics, a few primary areas rose to the top for visualizing and conceptualizing property reuse in the near-, mid-, and long-term.

- **Whole Block** at Water and Lee St provides a significant area for larger scale central green space.
- **Half Blocks** are clusters of parcels that can accommodate community garden and smaller programs
- **Wetland Adjacent/Connected Parcels** provide opportunity for wetland restoration and enhancing floodplain functions

MAP LEGEND

TPOLOGIES MAP

- WATERFRONT REVITALIZATION AREA
- BUYOUT STUDY AREA
- SINGLE PARCELS
- WETLAND ADJACENT /CONNECTED PARCEL
- HALF BLOCK PARCEL
- WHOLE BLOCK

FRAMEWORK OVERVIEW

NEAR TERM ➡ LONG-TERM OPPORTUNITIES

A Framework for documenting and managing near-, mid-, and long-term reuse opportunities was prepared by the team, as illustrated below. Near-term reuse of purchased Blue Acres sites comes with its own set of limitations, as well as opportunities, as this guide will illustrate. However, there are additional opportunities for the community to expand their reach into Rights of Way (ROW) and via additional property acquisition in the near-term. Additionally, there are increasing opportunities for long-term use planning at a larger scale, as shown.



**RE-USE CURRENT
BLUE ACRES SITES**



**RE-USE CURRENT BLUE ACRES SITES
+ ADAPT ROW + PRIORITY ACQUISITIONS**



**POTENTIAL LONG-TERM
LAND-USE FRAMEWORK**

NEAR TERM

MID TERM

LONG TERM

PHASE 1 PRIORITY SITES

Strategic Interventions at Blue Acres Lots

PRIORITY SITE 2: CAUSEWAY WATERFRONT

Passive Recreation, Waterfront Access, And Wetland Restoration

REMOVE ENCROACHMENTS
ON PUBLIC LAND

PRIORITY SITE 1: CENTRAL GREEN

Community Park & Garden

Two priority locations and an additional reuse goal were identified by the project team, county, and Borough within the South River Waterfront Revitalization District (WRD):

- Site 1: Central Green and community garden offers a vibrant green space for recreation and social gathering.
- Site 2: Causeway to Waterfront corridor, which would be dedicated to passive recreation and wetland restoration, aimed at enhancing natural habitats and waterfront access.
- Goal: removing encroachments on publicly owned wetland areas north of Causeway Street.

MAP LEGEND

- REMOVE ENCROACHMENTS ON PUBLIC LAND
- PRIORITY BLUE ACRE SITES
- OTHER BLUE ACRE PARCELS
- OTHER PUBLICLY OWNED PARCELS
- RECOMMENDED FOR RESTORATION (ACQUIRE)
- EXISTING WETLAND
- WATERFRONT REVITALIZATION DISTRICT

NEAR-MID TERM

Complementary Catalytic Projects

PROVIDE OFF-STREET PATH +
WETLAND RESTORATION

SECONDARY PRIORITY BLUE ACRE PARCELS

EXPAND WETLAND RESTORATION AND
OPEN SPACE FROM PHASE 1

PROPOSED PRIORITY ACQUISITIONS

POTENTIAL BOAT LAUNCH

WETLAND RESTORATION

Land acquisition choices and improvements adjacent to existing Blue Acre parcels are a target for near-term planning. A series of secondary priority parcels have been identified by the team for land acquisition –whether through Blue Acres or other methods. These acquisitions will also open up possibilities for the creation of a continuous linear green space along Causeway Street. Other key enhancements could include development of a boat launch at Causeway Park, a proposed waterfront walkway connecting to Causeway Park, and streetscape improvements for accessibility and pedestrian safety within the area.

MAP LEGEND

- PH 1 PRIORITY RE-USE
- PH 2 RE-USE
- OTHER BLUE ACRE PARCELS
- OTHER PUBLICLY OWNED PARCELS
- RECOMMENDED PH 2 ACQUISITIONS
OR RE-USE AS PARK OR RESTORATION
- RECOMMENDED PH 2 ACQUISITIONS (NOT BA)
OR RE-USE AS PARK OR RESTORATION
- EXISTING WETLAND
- WATERFRONT REVITALIZATION DISTRICT

LONG TERM

Complementary Catalytic Projects

LONG-TERM PRIORITY ACQUISITIONS
OR RE-DEVELOPMENT ACTIVE OPEN
SPACE & WATERFRONT ACCESS PRIORITY

CREATE WATERFRONT CONNECTIONS

CREATE CONTINUOUS WATERFRONT
CONNECTION FROM MARINA
TO CAUSEWAY PARK

In the long-term, the Borough could consider making connections across the waterfront through the acquisition of strategic parcels such as the large parcels that lie directly on the South River, and properties abutting Water Street. Many of these properties are industrial and potentially contaminated. Therefore, a pre-planning effort should occur to plan for clean-up. The continuation of linear green space from Causeway Street to Water Street and to the future Rail Trail offers mobility to/from and within the WRD. Potential redevelopment within the Water Street-Whitehead Avenue corridor should prioritize resilient/green options.

MAP LEGEND

- PH 1 PRIORITY RE-USE
- PH 2 + 3 RE-USE
- OTHER BLUE ACRE PARCELS
- OTHER PUBLICLY OWNED PARCELS
- RECOMMENDED PH 3 ACQUISITIONS OR REDEVELOPMENT FOR RE-USE AS PARK OR RESTORATION
- RECOMMENDED PH 3 ACQUISITIONS (NON BA) OR REDEVELOPMENT FOR RE-USE AS PARK OR RESTORATION
- EXISTING WETLAND
- WATERFRONT REVITALIZATION DISTRICT

SITE 1 - CENTRAL GREEN

EXISTING CONDITIONS



SITE 1 - CENTRAL GREEN

PROPOSED CONCEPT



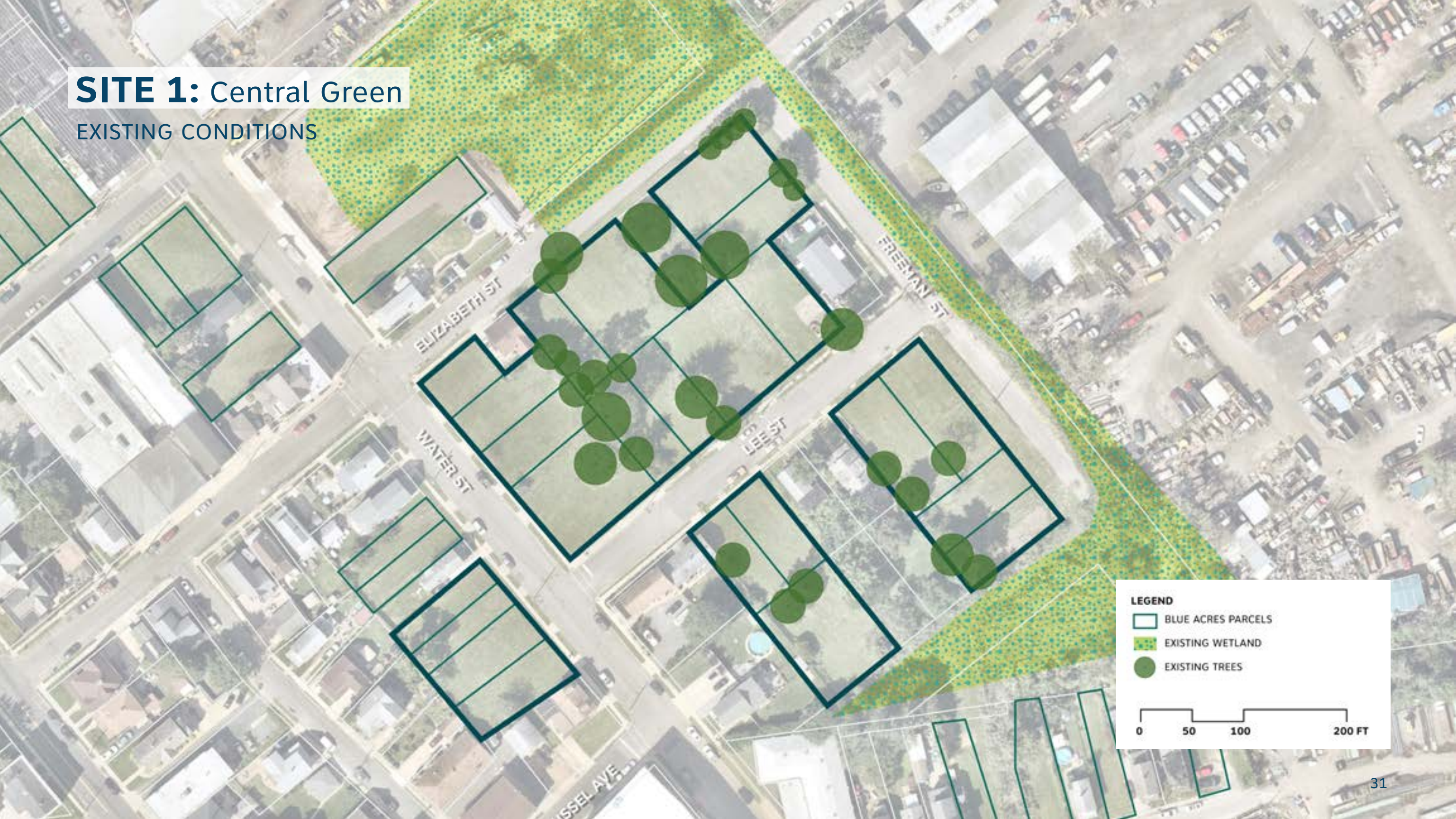
SITE 1 - CENTRAL GREEN

PROPOSED CONCEPT



SITE 1: Central Green

EXISTING CONDITIONS



LEGEND

- BLUE ACRES PARCELS
- EXISTING WETLAND
- EXISTING TREES

0 50 100 200 FT

SITE 1: Central Green

PROPOSED CONCEPT

SHADED WALKING PATHS

Material to be confirmed

BIOSWALE/
RAINGARDENS

FOODTRUCKS &
PICNIC TABLES

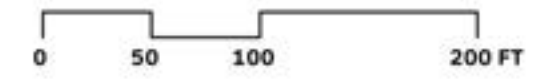
STORMWATER GARDENS/
WETLAND RESTORATION

COMMUNITY GARDEN

Fencing not permitted

LEGEND

- BLUE ACRES PARCELS
- EXISTING WETLAND
- EXISTING TREES



SITE 2 - WATERFRONT PARK

EXISTING CONDITIONS



SITE 2 - WATERFRONT PARK

PROPOSED CONCEPT



BROWN LANE

LITTLE MARTIN ST

CAUSEWAY ST

SOUTH RIVER

SITE 2 - WATERFRONT PARK

PROPOSED CONCEPT



WETLAND RESTORATION

BIOSWALES/
RAIN GARDENS

ADA ACCESSIBLE PATH

LITTLE MARTIN ST

SHADE STRUCTURE

BROWN LANE

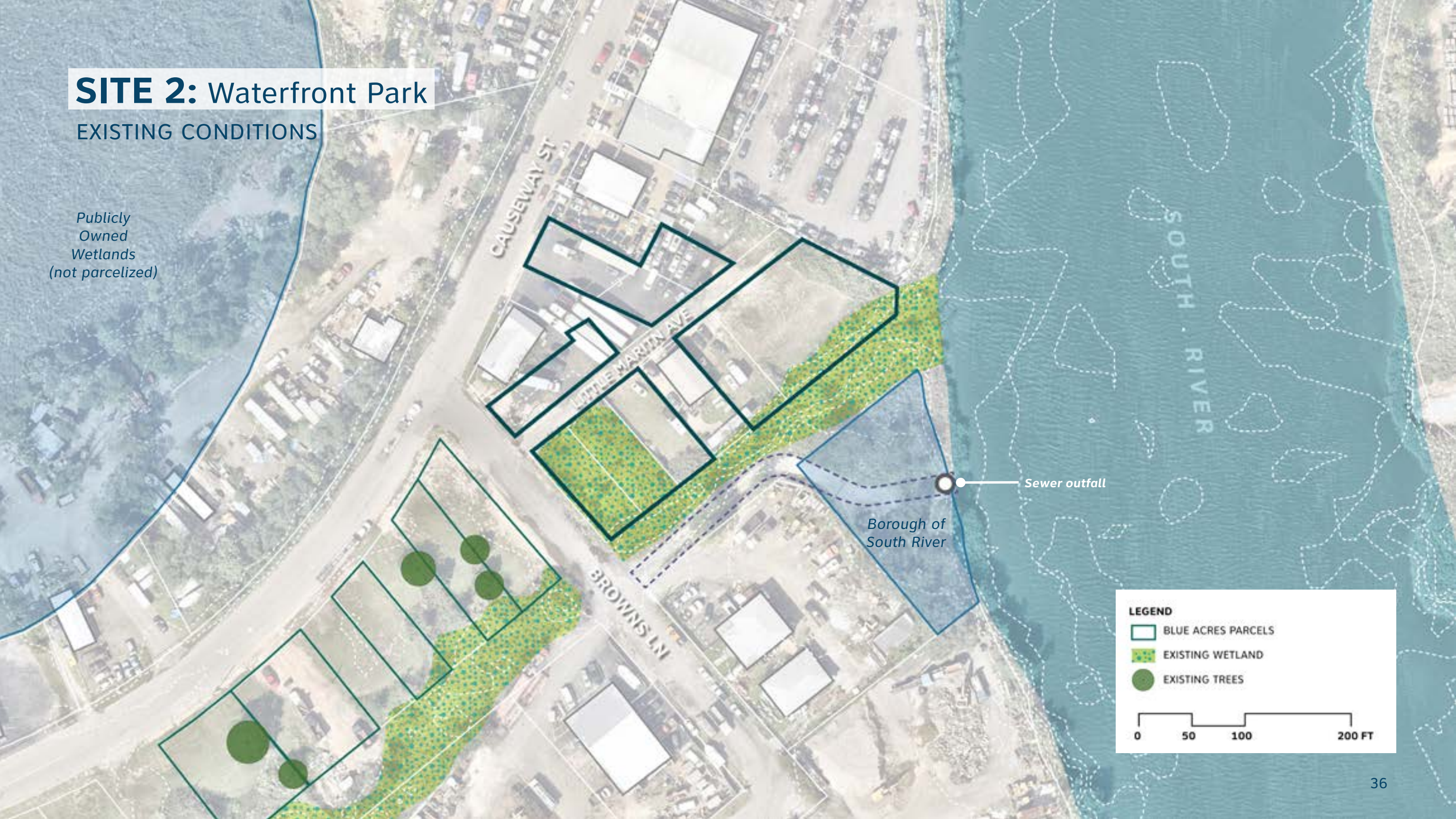
CAUSEWAY ST

SOUTH RIVER

SITE 2: Waterfront Park

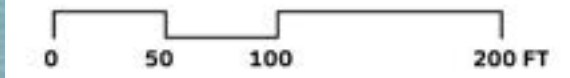
EXISTING CONDITIONS

Publicly
Owned
Wetlands
(not parcelized)



LEGEND

- BLUE ACRES PARCELS
- EXISTING WETLAND
- EXISTING TREES



SITE 2: Waterfront Park

PROPOSED CONCEPT



WETLAND RESTORATION

BIOSWALES/
RAIN GARDENS

ADA ACCESSIBLE PATH

PHASE 1
PARCELS



BOARDWALK



SHADE STRUCTURE

Borough of
South River

LEGEND

- LAWN
- EXISTING WETLAND
- WETLAND EXPANSION/ RESTORATION
- EXISTING TREES
- PROPOSED TREES

0 50 100 200 FEET

IMPLEMENTATION

NEXT STEPS

To advance implementation of the reuse of the Blue Acres sites, the following next steps are recommended:

- Correct any remaining identified encroachments on Blue Acres sites.
- Gather feedback on framework and concepts through community engagement processes and make design adjustments if/as needed.
- Utilize framework and site concept designs to obtain funding for design & construction (see Appendices for more detail).
- Complete preliminary and detailed design for each site utilizing this guide as well as included guidance on precedents and permeable materials (see Appendices)
- Discuss design and obtain approval, from NJDEP Blue Acres, NJOEM, and FEMA

To advance mid- and longer-term concepts, the following next steps are recommend:

- Update Borough Zoning for the WRD to include reference to this guide, and particular uses
- Consider including a zoning overlay for Blue Acres acquired parcels (outside of the WRD) to ensure feasible reuse
- Pursue additional land acquisitions

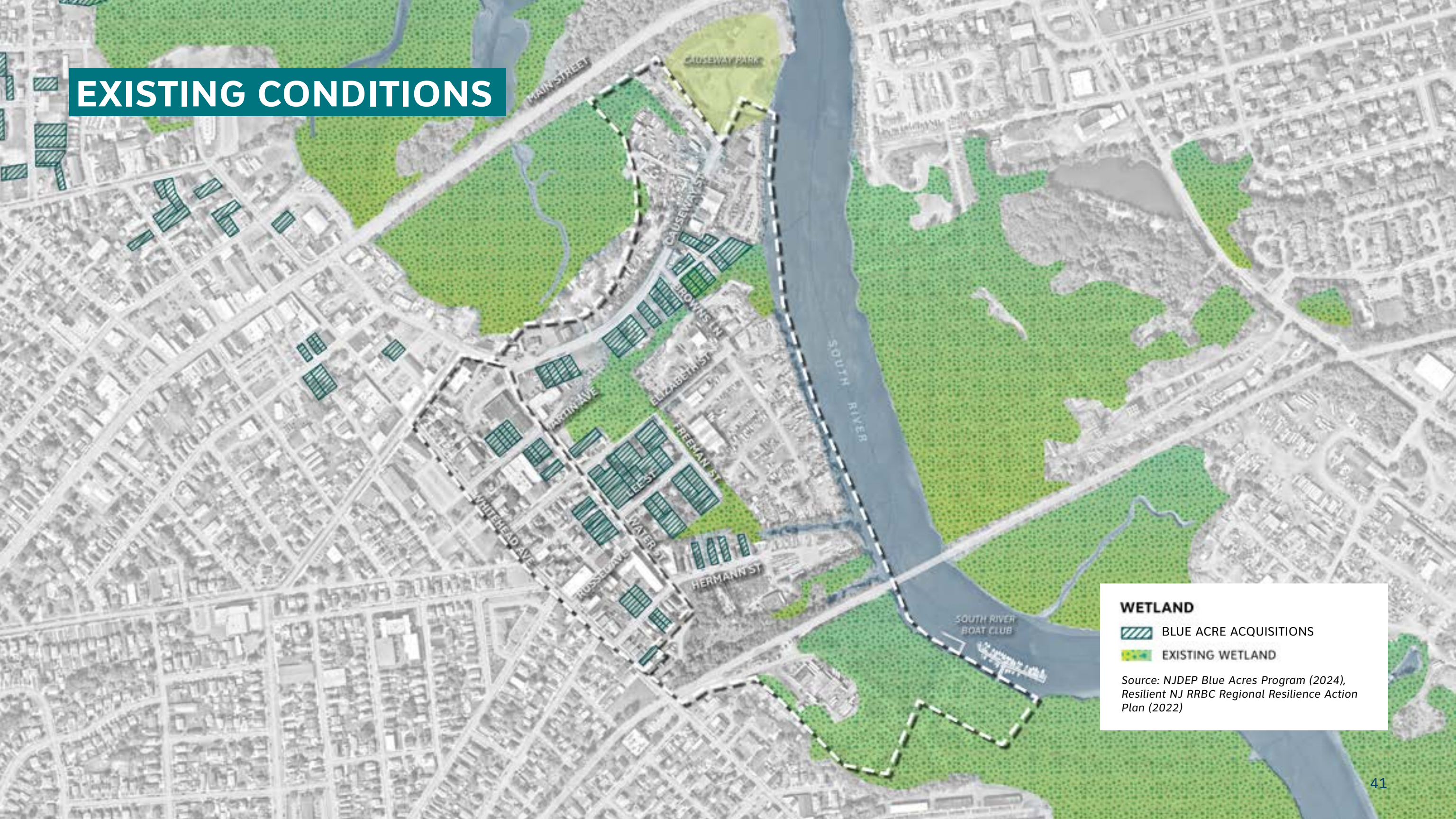


APPENDICES

APPENDIX A EXISTING CONDITIONS MAPS

The following information is provided to the Borough and County as reference data to aid in making decisions regarding future land acquisitions.

EXISTING CONDITIONS



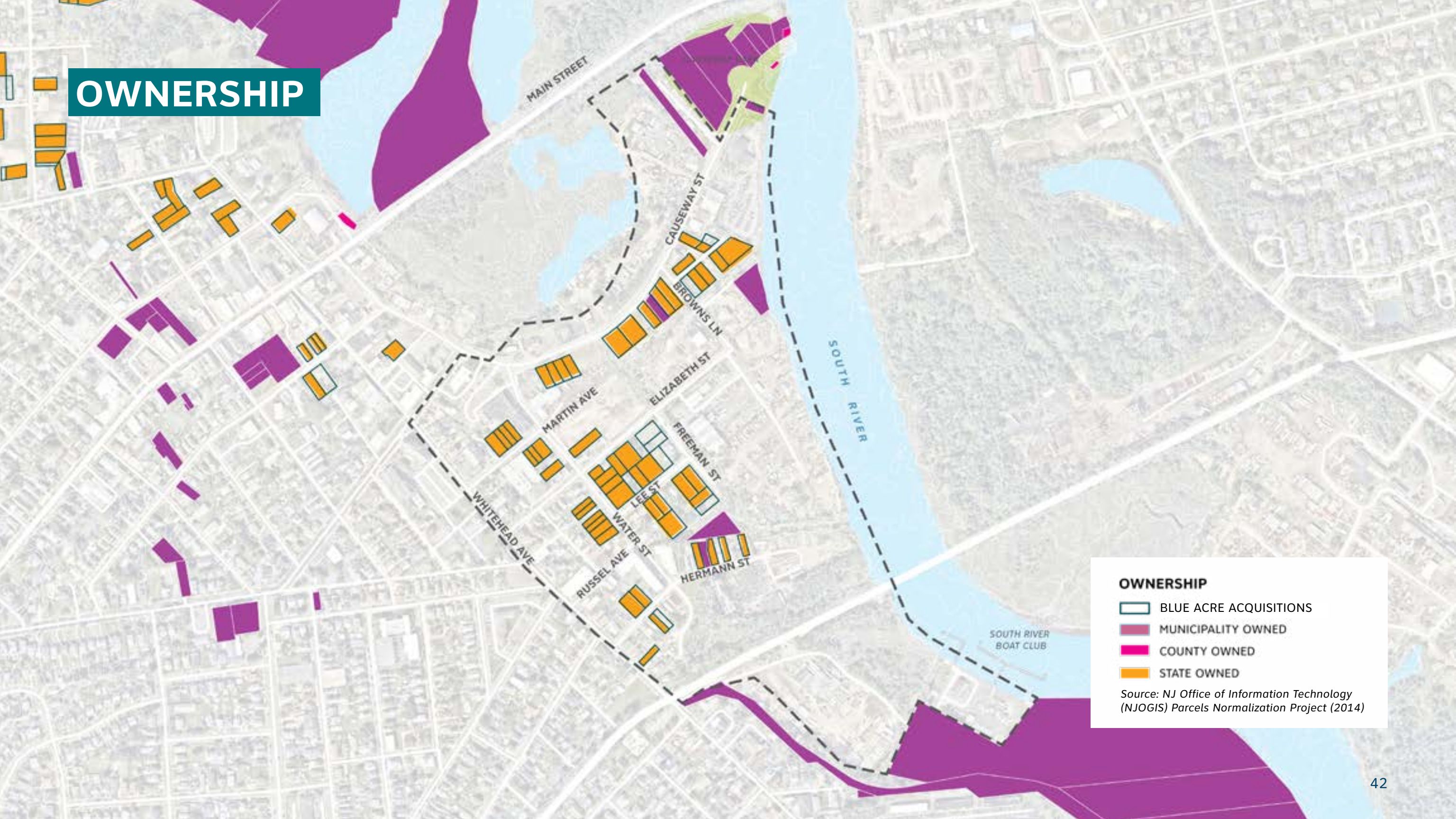
WETLAND

 BLUE ACRE ACQUISITIONS

 EXISTING WETLAND

Source: NJDEP Blue Acres Program (2024),
Resilient NJ RRBC Regional Resilience Action
Plan (2022)

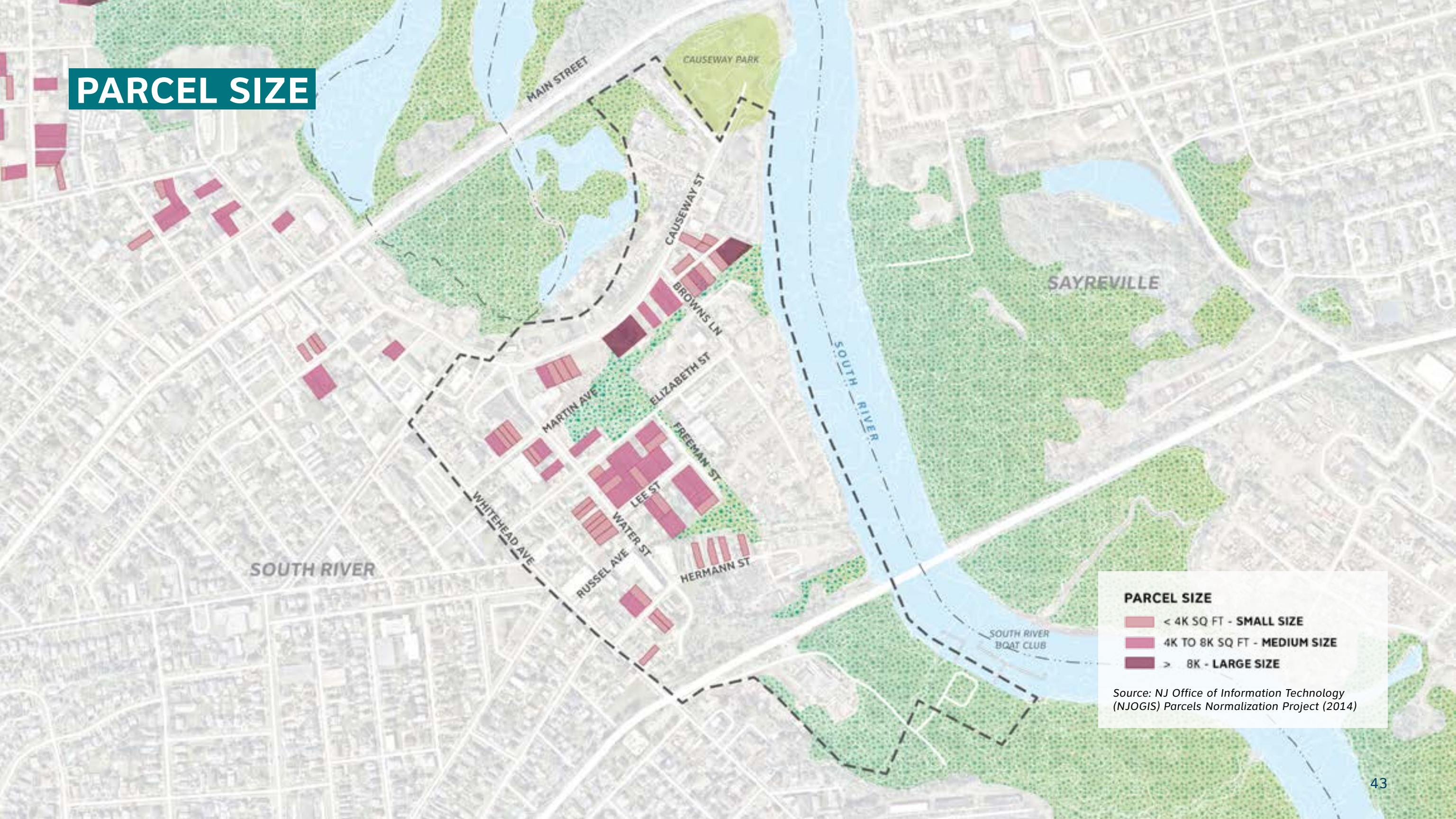
OWNERSHIP



- OWNERSHIP**
- BLUE ACRE ACQUISITIONS
 - MUNICIPALITY OWNED
 - COUNTY OWNED
 - STATE OWNED

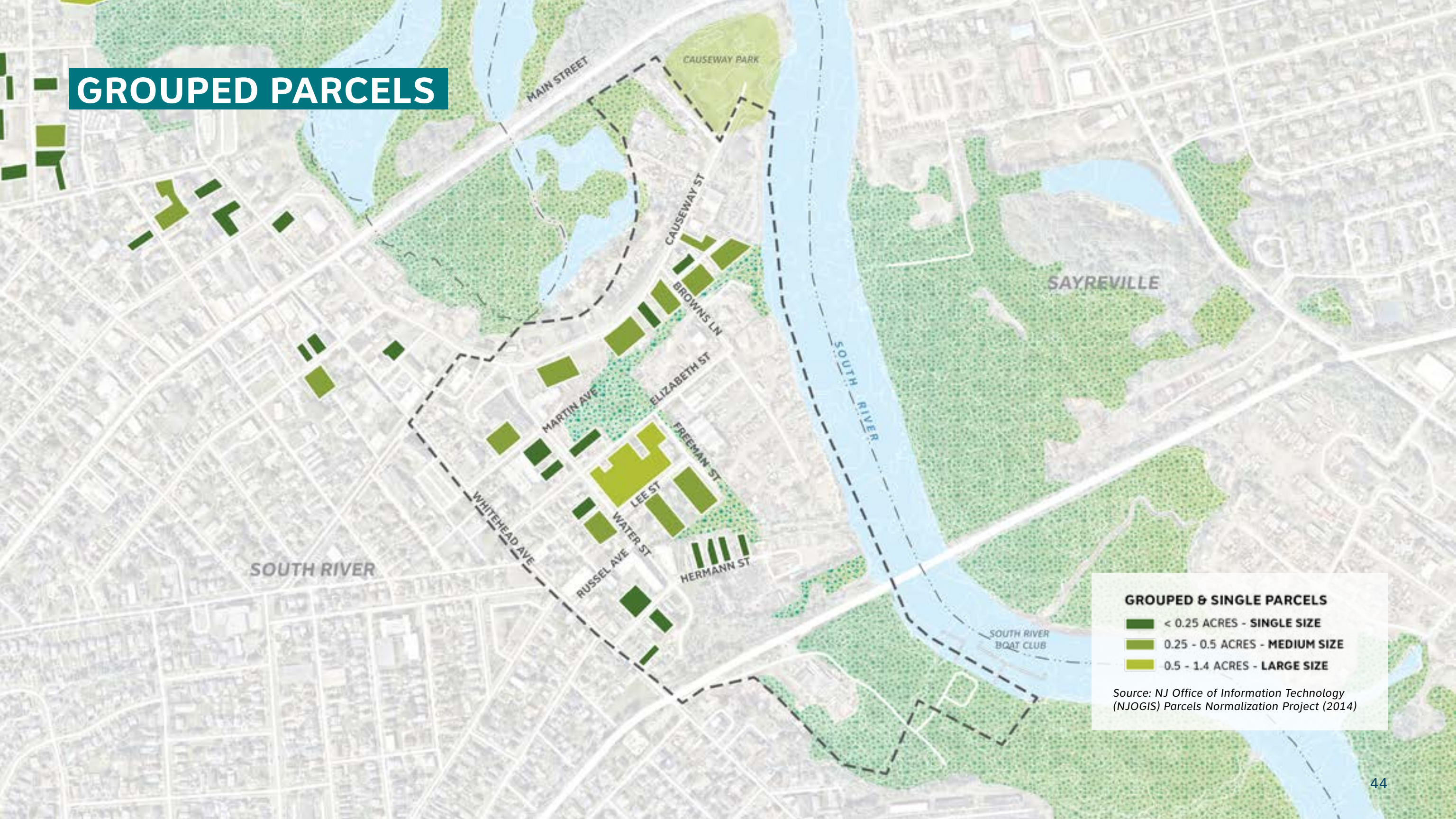
Source: NJ Office of Information Technology
(NJOGIS) Parcels Normalization Project (2014)

PARCEL SIZE

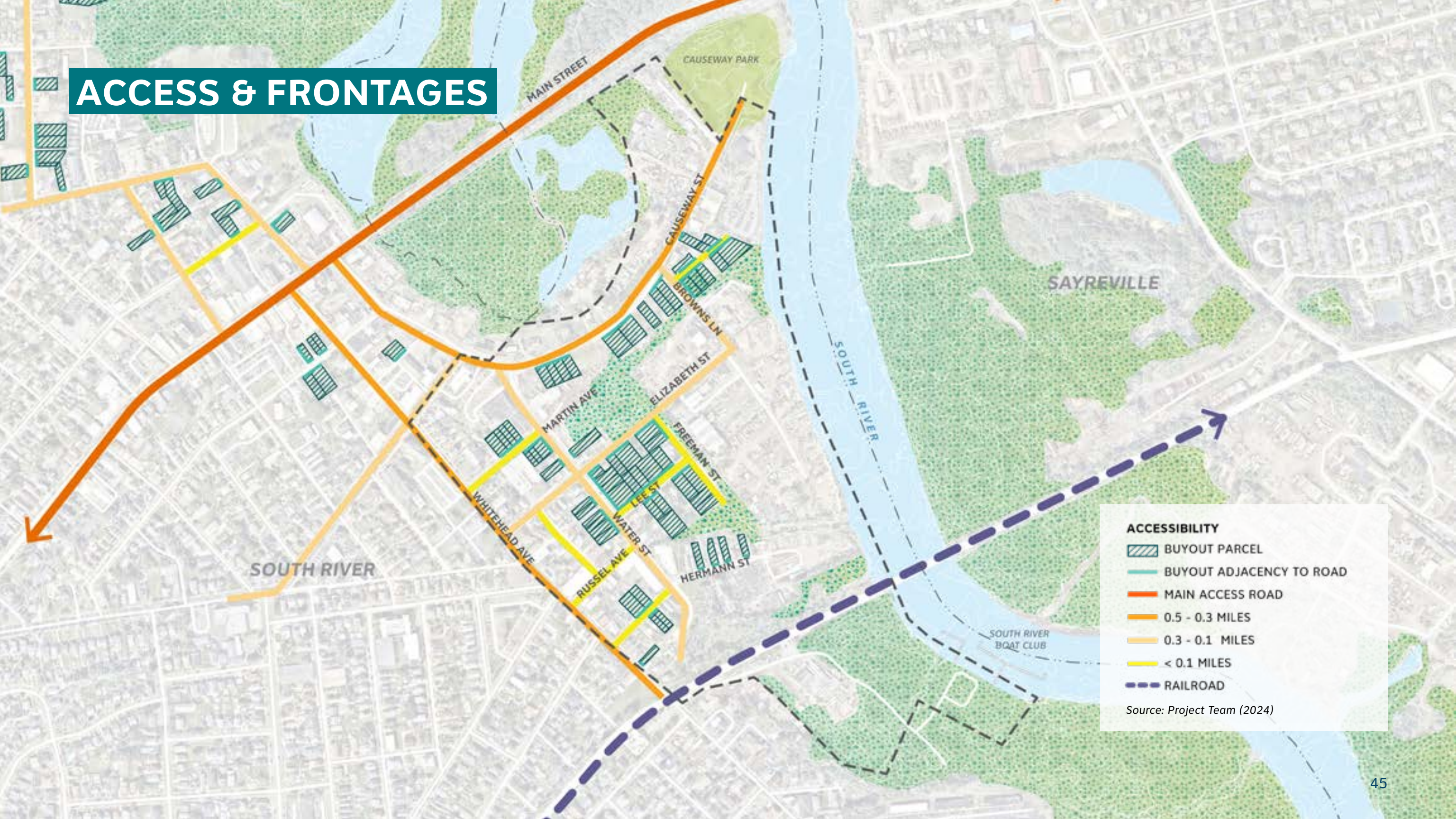


Source: NJ Office of Information Technology
(NJOGIS) Parcels Normalization Project (2014)

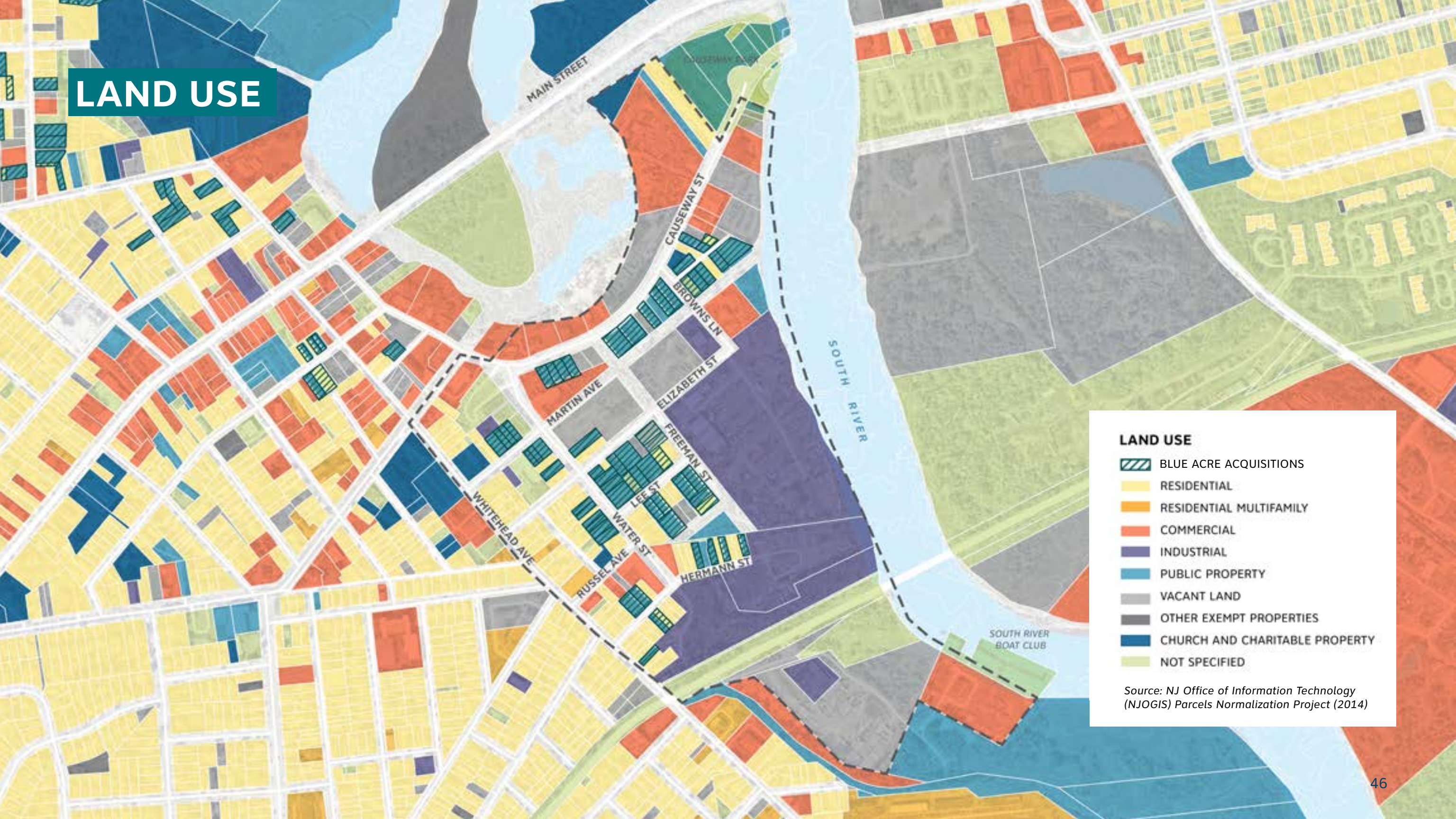
GROUPED PARCELS



ACCESS & FRONTAGES



LAND USE

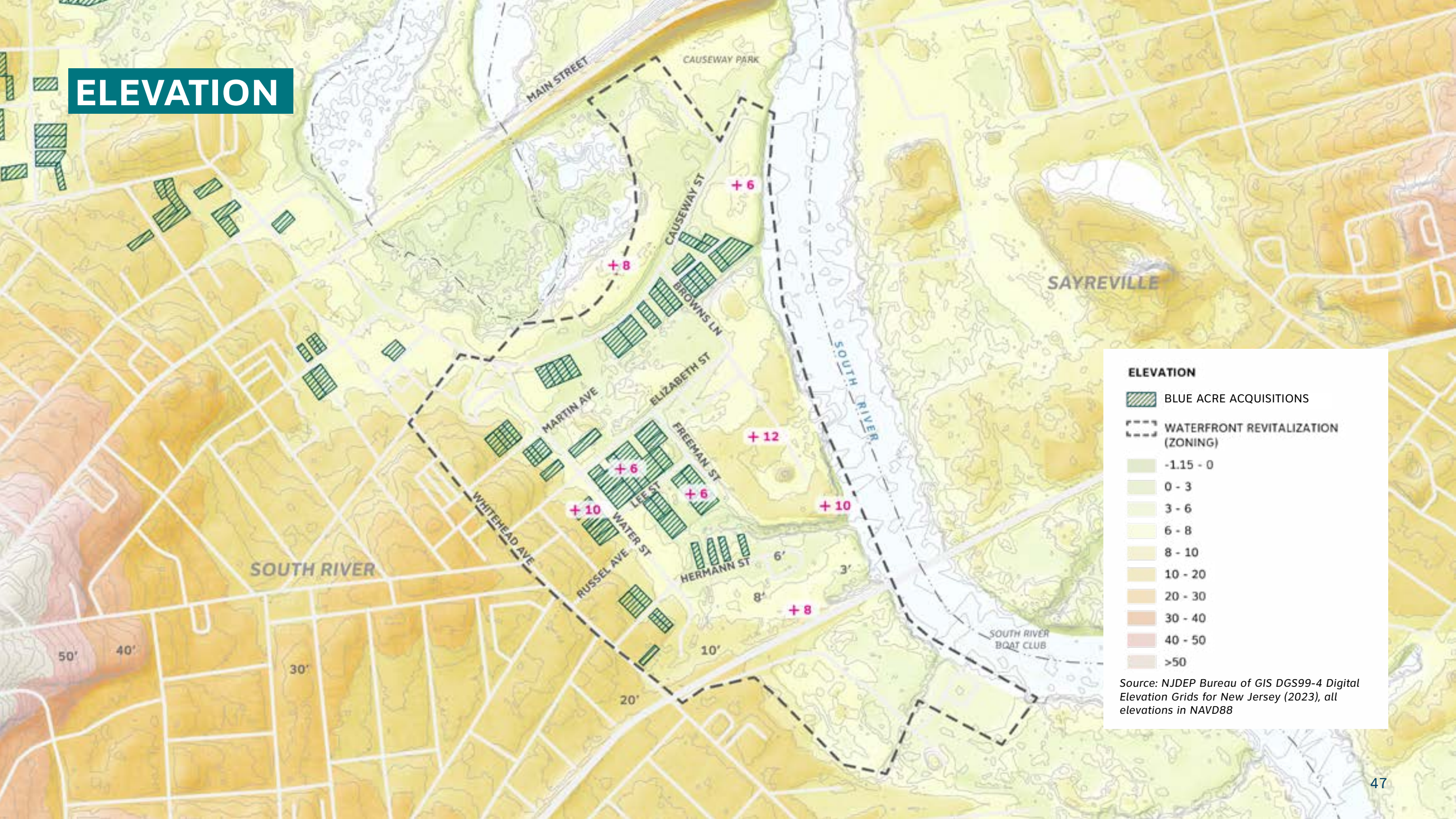


LAND USE

- BLUE ACRE ACQUISITIONS
- RESIDENTIAL
- RESIDENTIAL MULTIFAMILY
- COMMERCIAL
- INDUSTRIAL
- PUBLIC PROPERTY
- VACANT LAND
- OTHER EXEMPT PROPERTIES
- CHURCH AND CHARITABLE PROPERTY
- NOT SPECIFIED

Source: NJ Office of Information Technology (NJOGIS) Parcels Normalization Project (2014)

ELEVATION

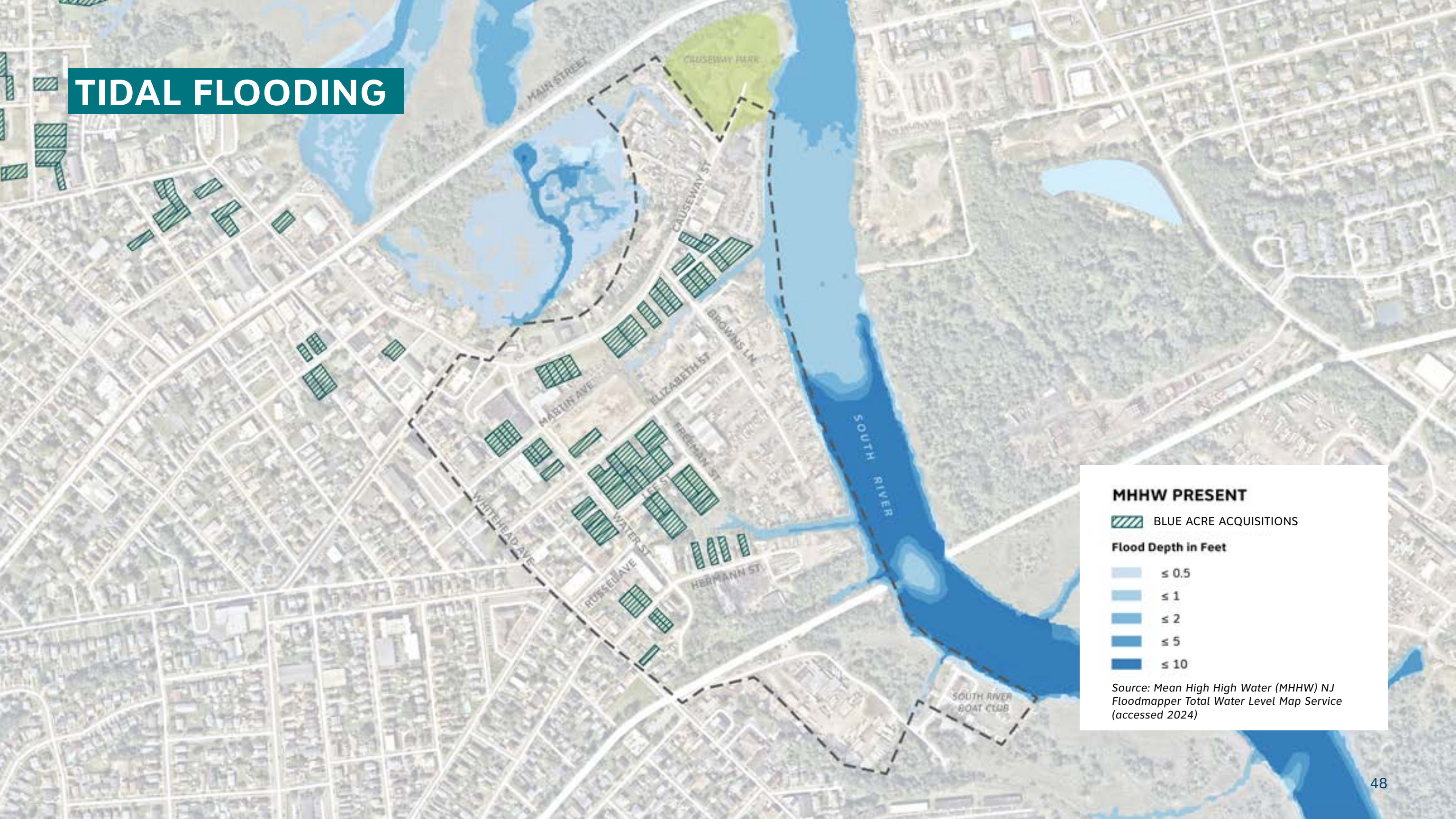


ELEVATION

- BLUE ACRE ACQUISITIONS
- WATERFRONT REVITALIZATION (ZONING)
- 1.15 - 0
- 0 - 3
- 3 - 6
- 6 - 8
- 8 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- >50

Source: NJDEP Bureau of GIS DGS99-4 Digital Elevation Grids for New Jersey (2023), all elevations in NAVD88

TIDAL FLOODING



MHHW PRESENT

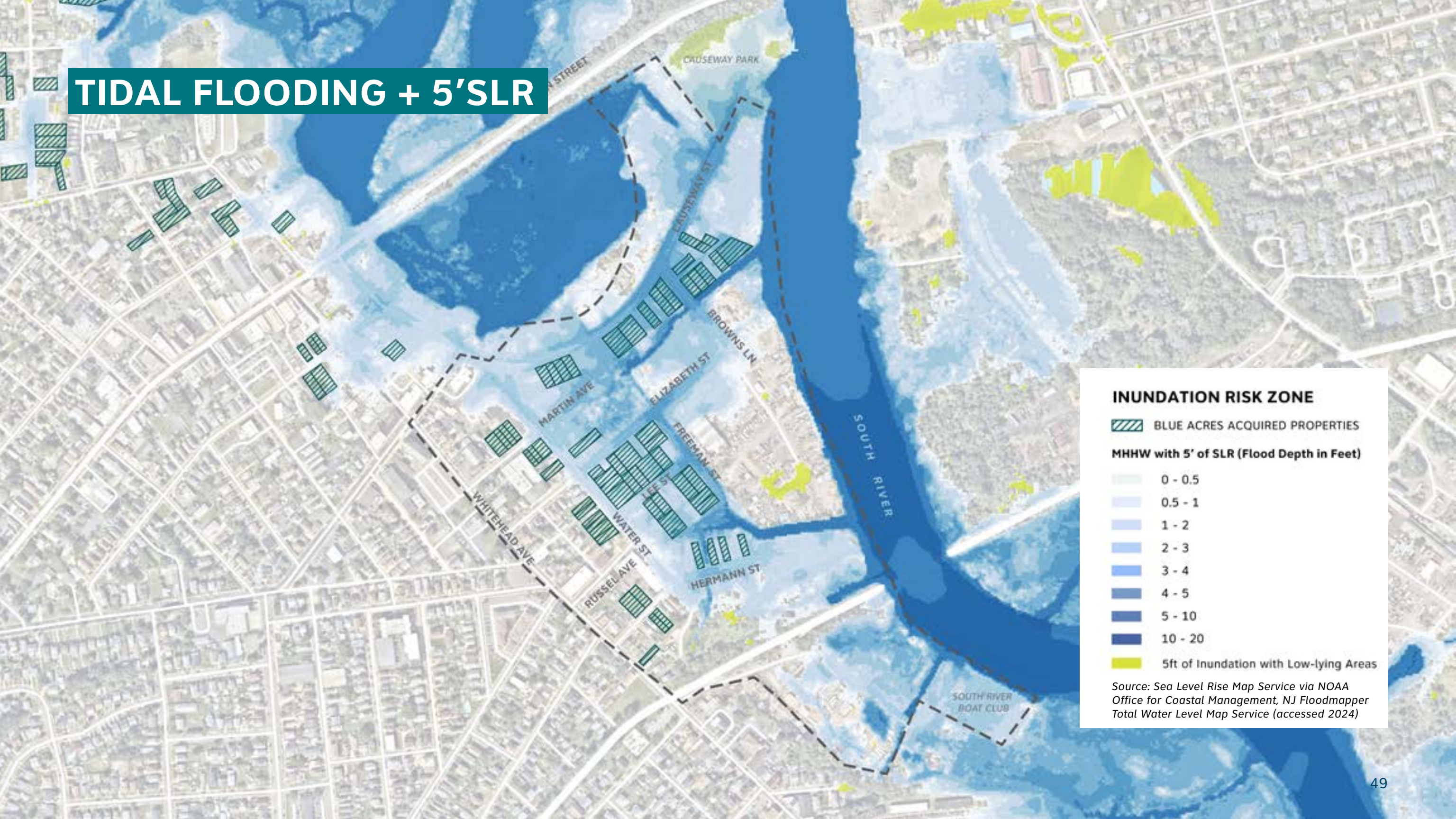
 BLUE ACRE ACQUISITIONS

Flood Depth in Feet

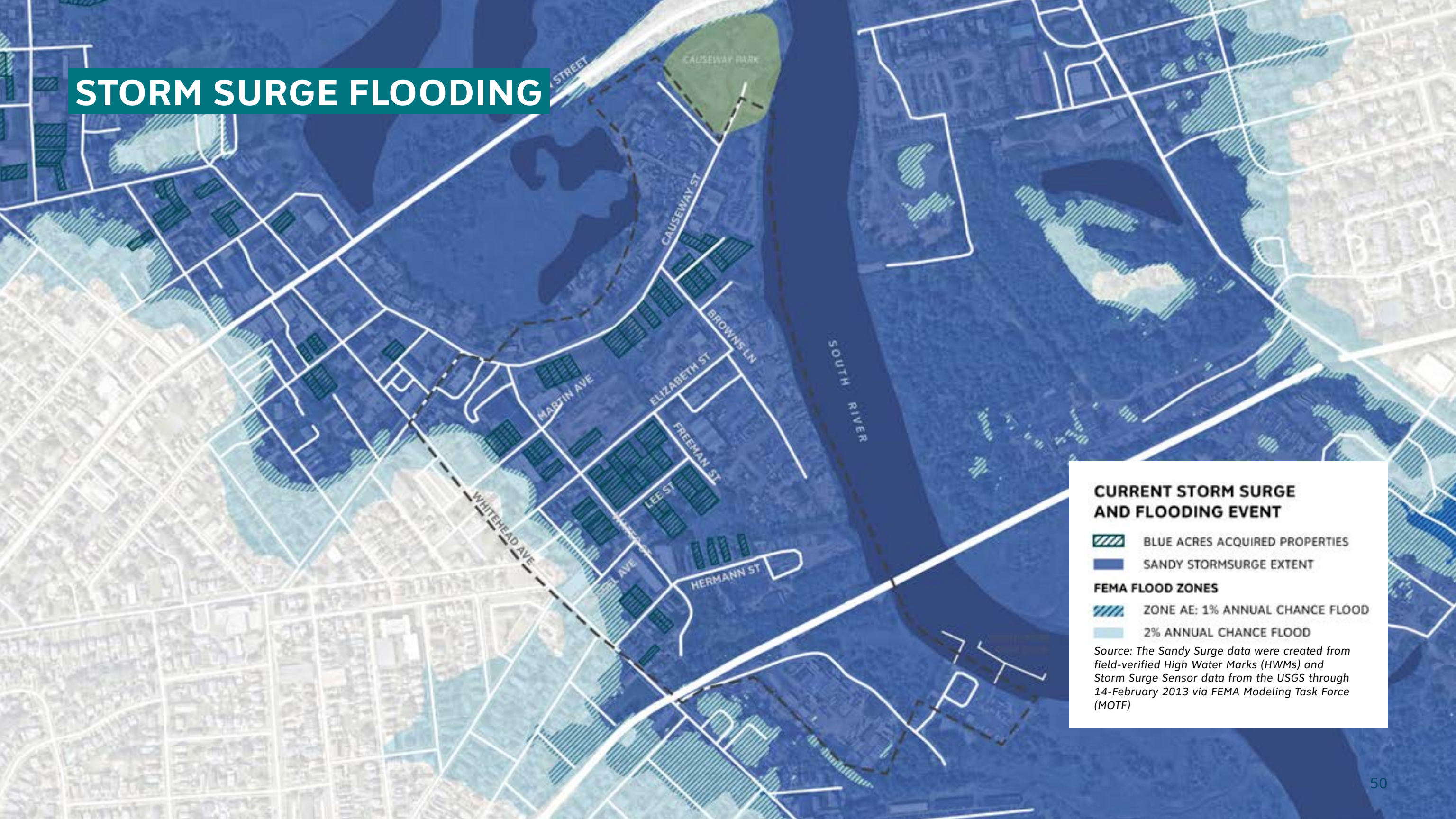
-  ≤ 0.5
-  ≤ 1
-  ≤ 2
-  ≤ 5
-  ≤ 10

Source: Mean High High Water (MHHW) NJ
Floodmapper Total Water Level Map Service
(accessed 2024)

TIDAL FLOODING + 5'SLR



STORM SURGE FLOODING

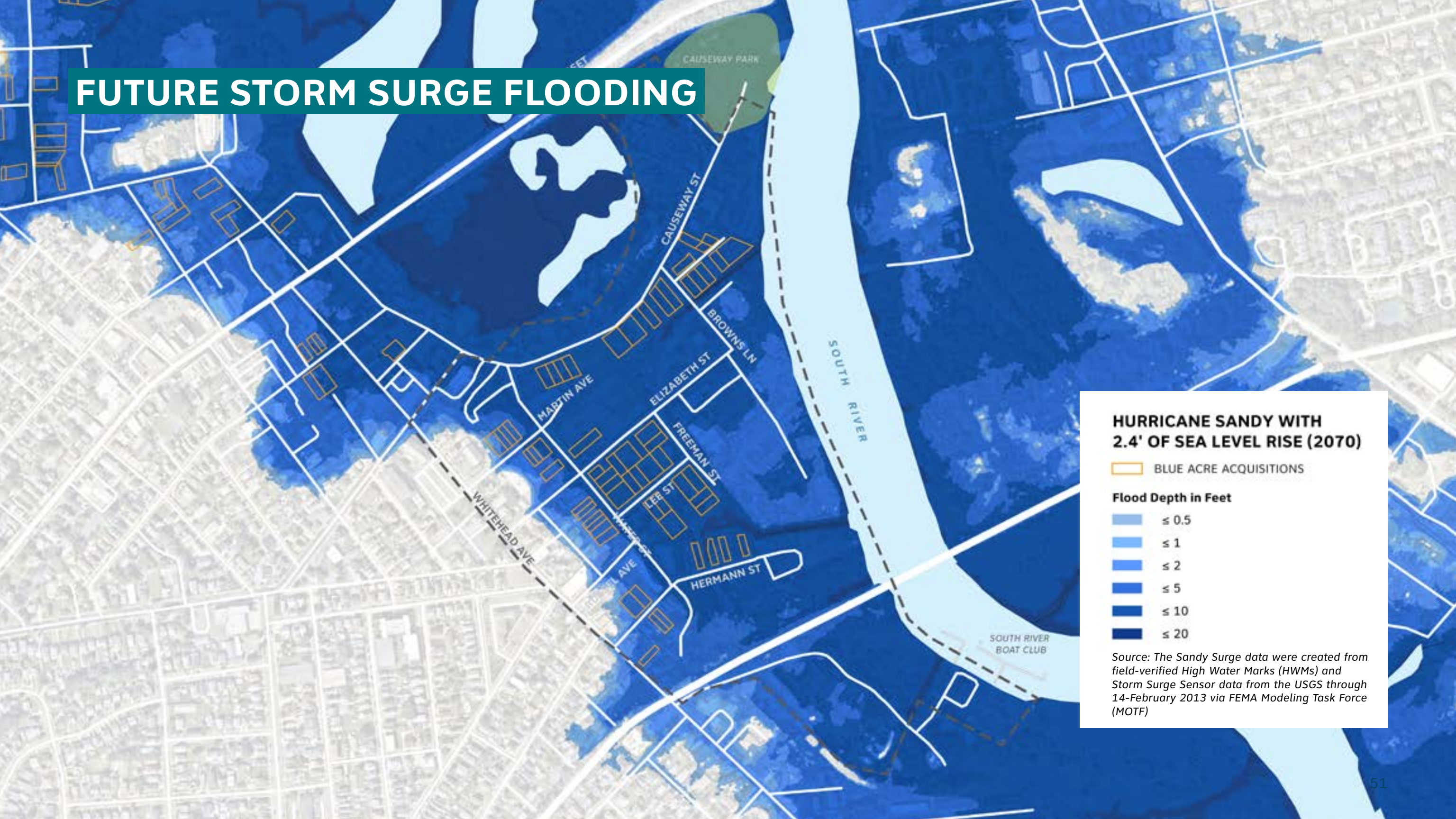


CURRENT STORM SURGE AND FLOODING EVENT

-  BLUE ACRES ACQUIRED PROPERTIES
-  SANDY STORMSURGE EXTENT
- FEMA FLOOD ZONES**
-  ZONE AE: 1% ANNUAL CHANCE FLOOD
-  2% ANNUAL CHANCE FLOOD

Source: The Sandy Surge data were created from field-verified High Water Marks (HWMs) and Storm Surge Sensor data from the USGS through 14-February 2013 via FEMA Modeling Task Force (MOTF)

FUTURE STORM SURGE FLOODING



HURRICANE SANDY WITH 2.4' OF SEA LEVEL RISE (2070)

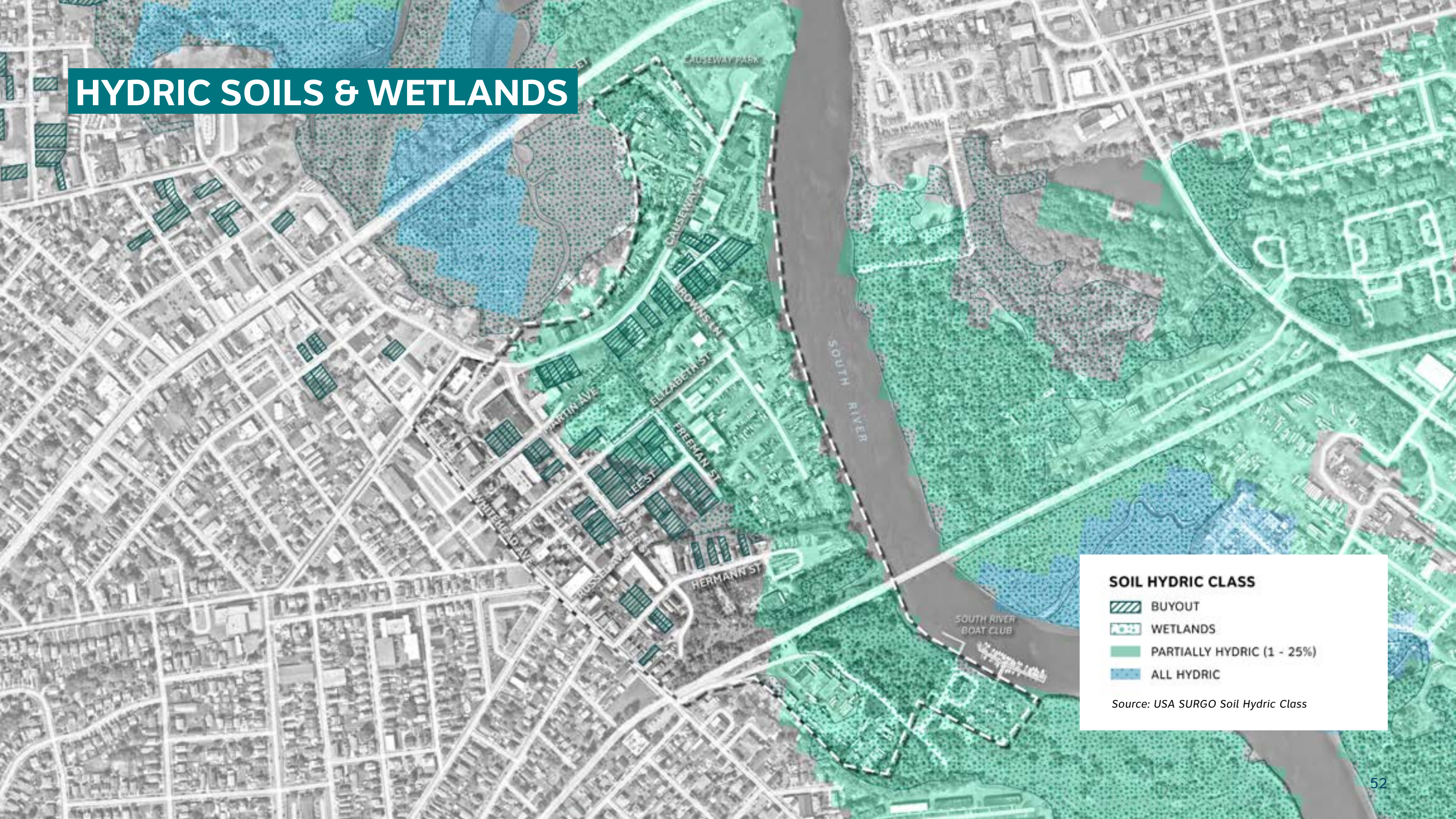
 BLUE ACRE ACQUISITIONS

Flood Depth in Feet

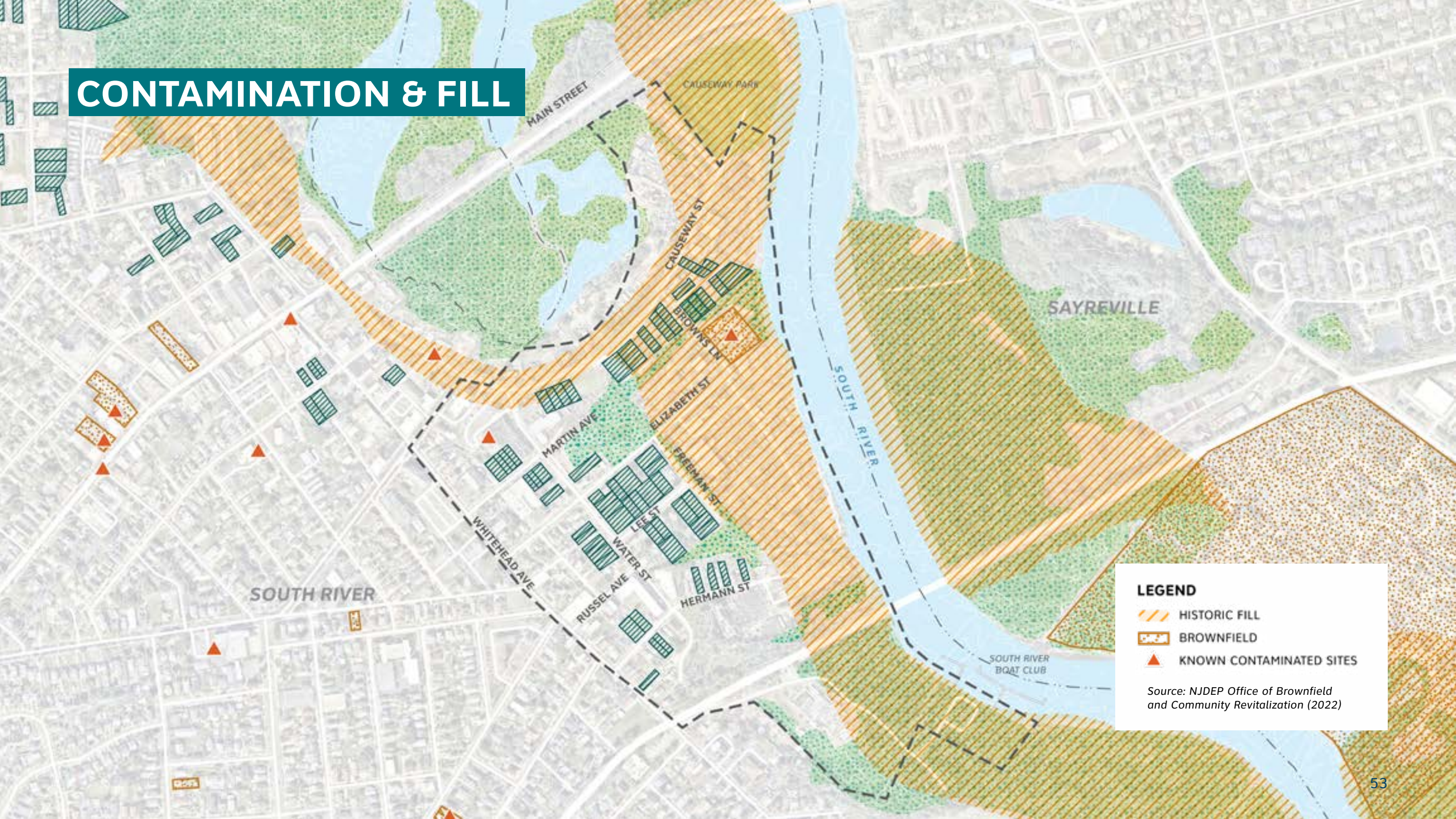


Source: The Sandy Surge data were created from field-verified High Water Marks (HWMs) and Storm Surge Sensor data from the USGS through 14-February 2013 via FEMA Modeling Task Force (MOTF)

HYDRIC SOILS & WETLANDS



CONTAMINATION & FILL



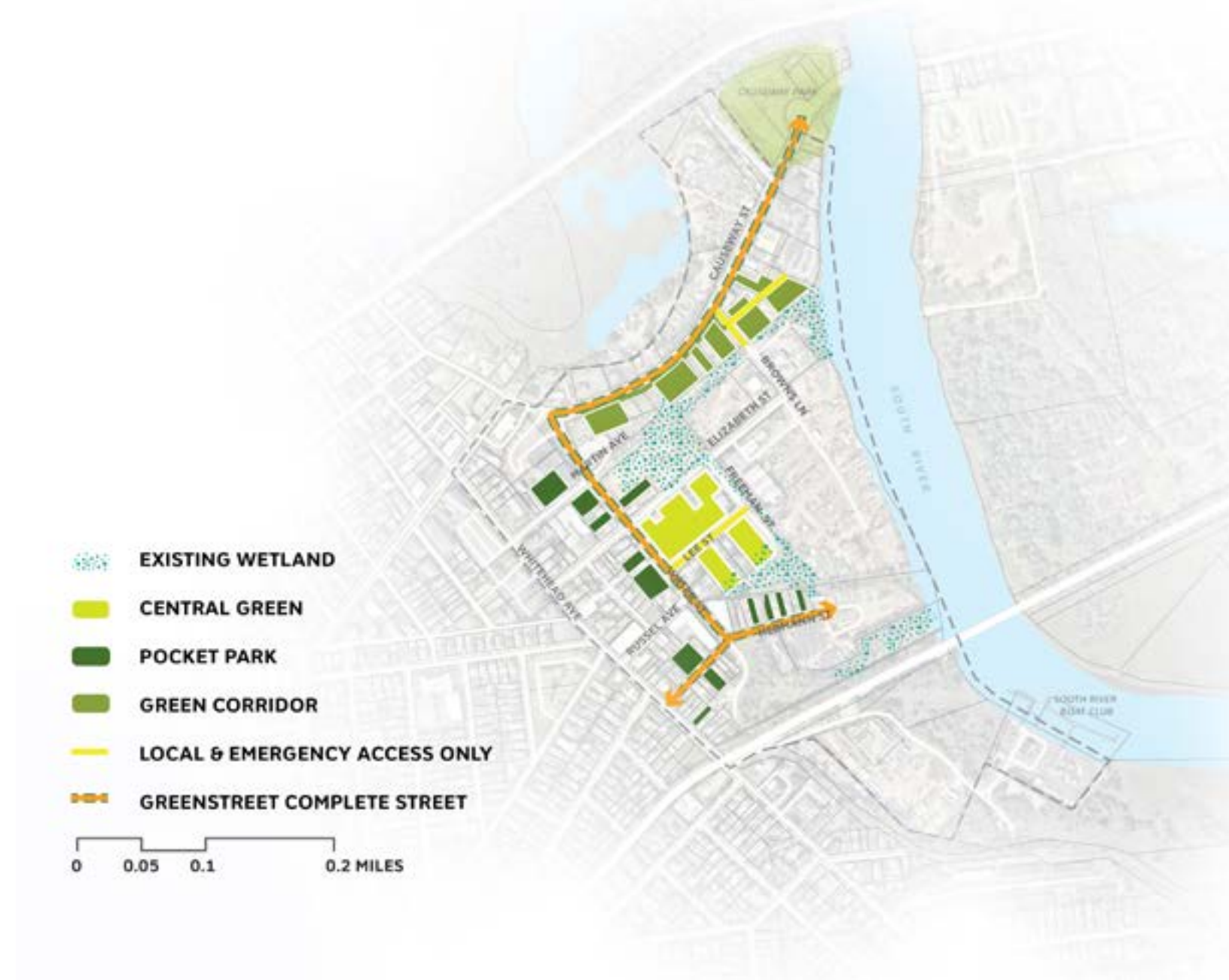
APPENDIX B

OPEN SPACE PRECEDENTS

The following information shown presents options for open space reuses that the County and Borough can consider for future land acquisitions and connections. These precedents are geared towards options that meet the Borough's long-term goals for the WRD.

OPEN SPACE PROGRAMMING CATEGORIES

- **Central Green:** 1-3 acres, a place for community gatherings, a destination for borough residents, can provide multiple recreation opportunities
- **Pocket Park:** Single lot or a few lots (.25-.5 acres), uses can vary based on context., can provide greening, cooling, stormwater management and programming
- **Green Corridor:** 0.25 miles long and few lots wide, Uses: Recreation, commuting, environmental education, Greening: Trees and vegetation, Cooling: Shade and heat reduction, Stormwater Management: Rain gardens, bioswales, permeable surfaces
- **Wetland Restoration & Expansion:** Size may vary depending on the area of extent, Restore habitat, Filter water, Control flooding, Support biodiversity by enhancing native plants and wildlife, Improve water quality through natural filtration of pollutants



CENTRAL GREEN PROGRAMMING



CENTRAL GREEN PROGRAMMING

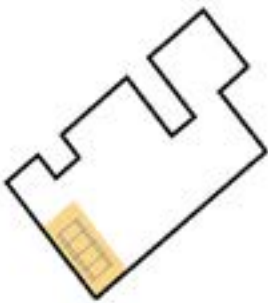
SPORTS COURTS SCALE STUDIES



LITTLE LEAGUE BASEBALL FIELD
1.09 acres



HIGH SCHOOL SOCCER FIELD
1.50 acres



TENNIS COURT
0.07 acres



VOLLEYBALL COURT
0.17 acres



HIGH SCHOOL BASKETBALL COURT
0.17 acres



PICKLEBALL COURT
0.13 acres

0 50 100 200 ft

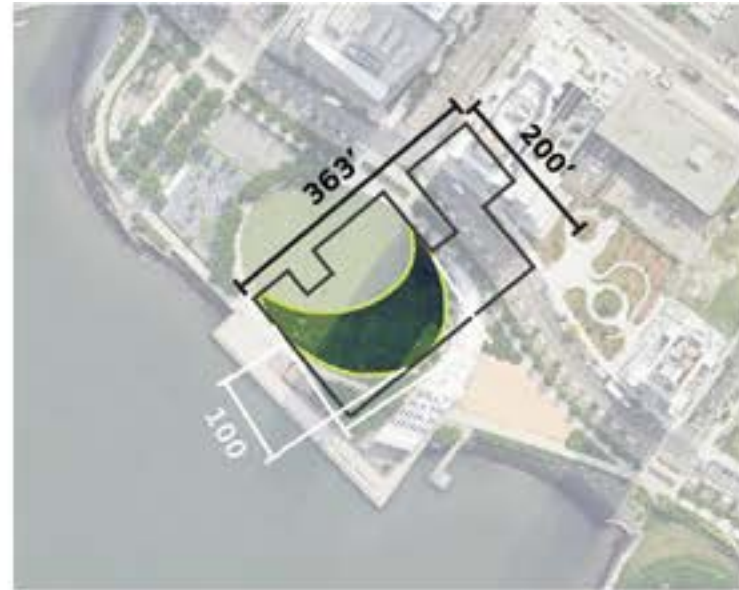
CENTRAL GREEN PROGRAMMING

SPORTS COURTS SCALE STUDIES



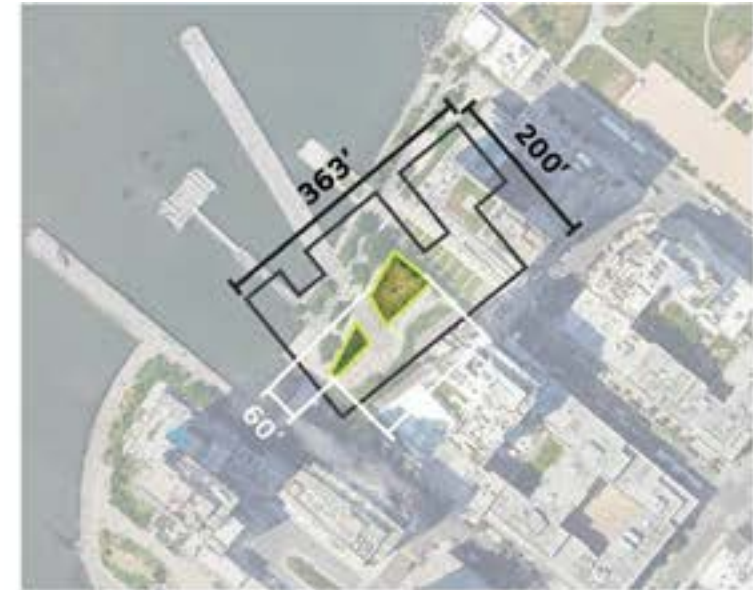
NEWPORT GREEN PARK
Hoboken, New Jersey

0.73 acres



HUNTER'S POINT SOUTH WATERFRONT PARK
New York City, New York

0.47 acres



THE EDGE PARK
New York City, New York

0.13 acres



POCKET PARKS PROGRAMMING



GREEN CORRIDOR PROGRAMMING



WETLAND RESTORATION PROGRAMMING



APPENDIX C

PERMEABLE MATERIAL

OPTIONS

PERMEABLE MATERIALS

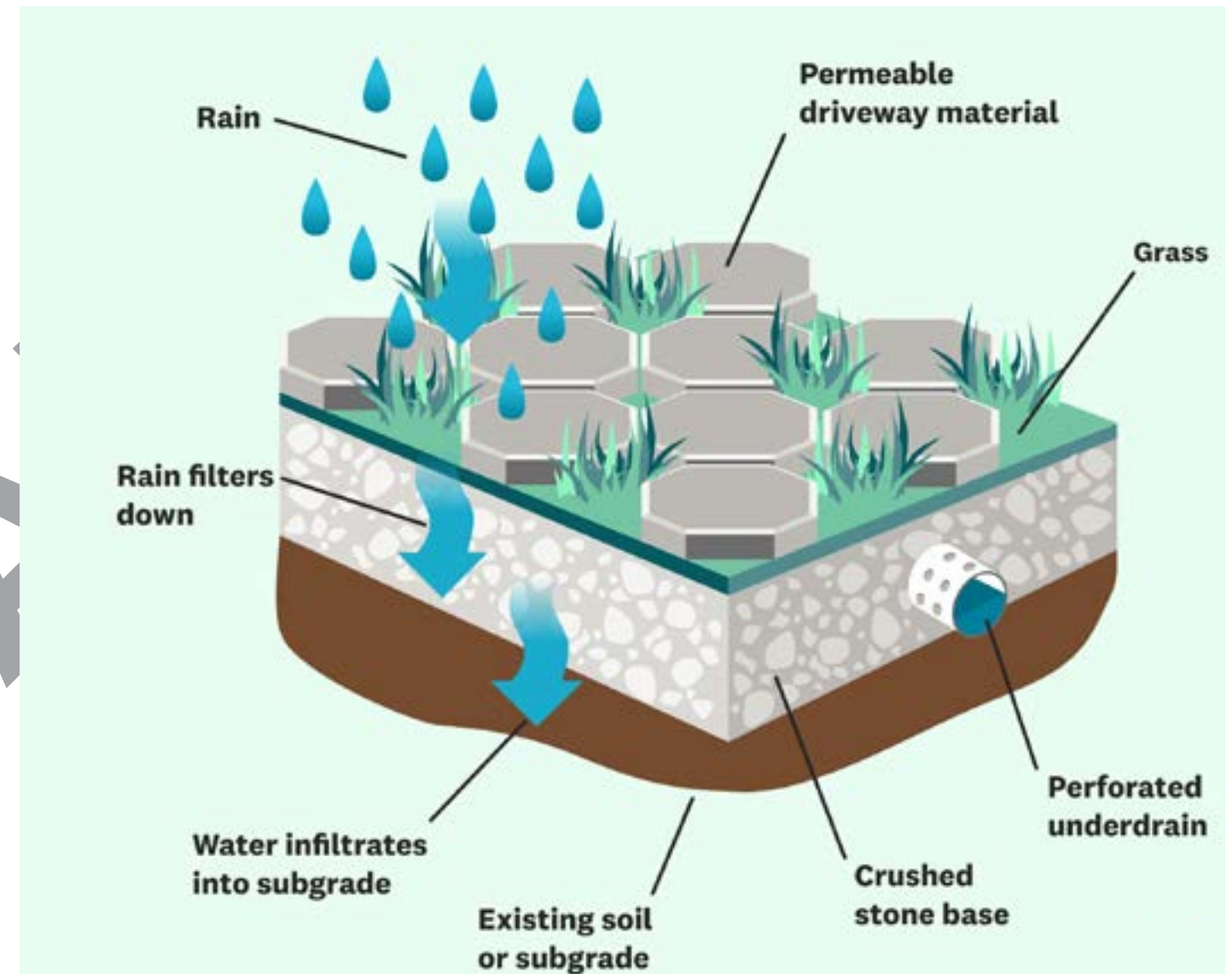
As part of the Borough's goal to include recreational elements into reuse design, it is recommended that permeable materials are considered, whether permeable pavement, walls, decking, or other potential reuses. Utilizing permeable materials instead of traditional impermeable materials will improve stormwater drainage and natural floodplain function.

Considerations for assessing options for permeable materials include:

- Vegetated/non-vegetated surface
- Permeability rates
- Maintenance
- Cost
- ADA accessibility
- Pedestrian and traffic loading
- Feasibility and safety of use in flood-prone areas

The appendix provides guidance regarding permeable pavement options. It is recommended to consult with specific product manufacturers to understand the applicability and specifications for use on sites.

These materials will need to be further vetted with Blue Acres program partners (NJDEP, NJOEM, and FEMA) collectively, before including them in reuse designs on Blue Acres sites. Based on Blue Acres guidance, use of permeable pavements should not result in a net increase in fill material in the floodplain.



Example Permeable material, Source: [Angi](#)

PERMEABLE MATERIALS

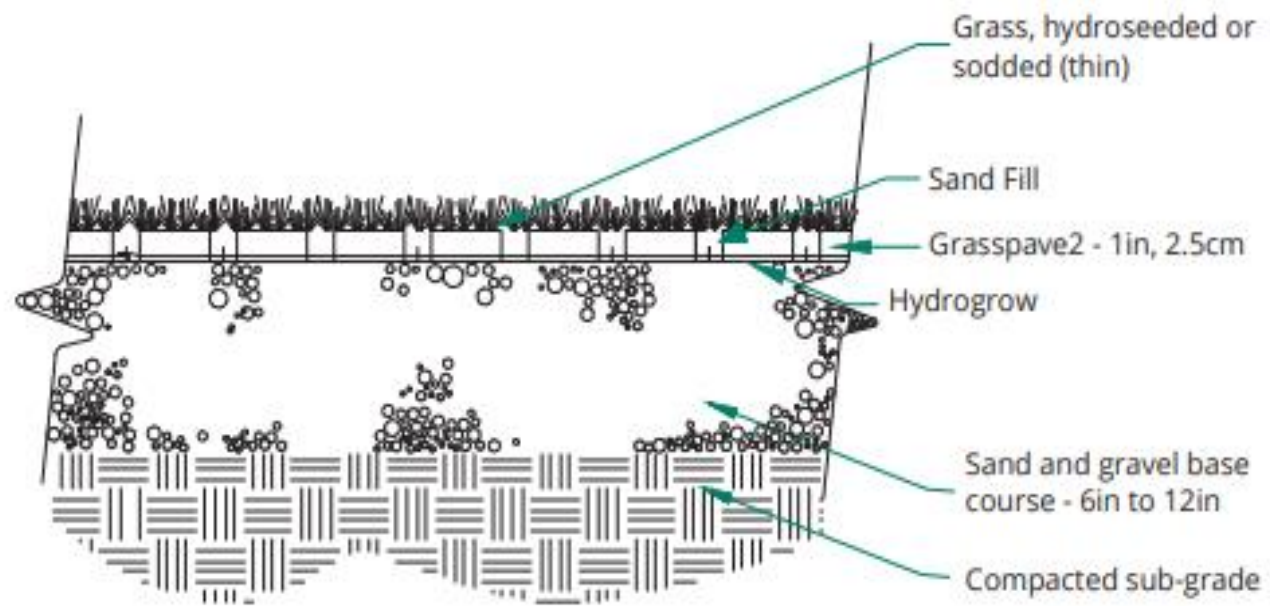
WALKWAY OPTION - GRASS PAVERS

Features

- Easy to install on uneven grades
- Supports vehicular and pedestrian traffic
- Allows 100% grass coverage
- ADA compliant

Applications

- Paths and walkways
- Parking lots
- Stormwater management & drainage



Source: [Invisible Structures, Grasspave2: Permeable Grass Pavers](#)



PERMEABLE MATERIALS

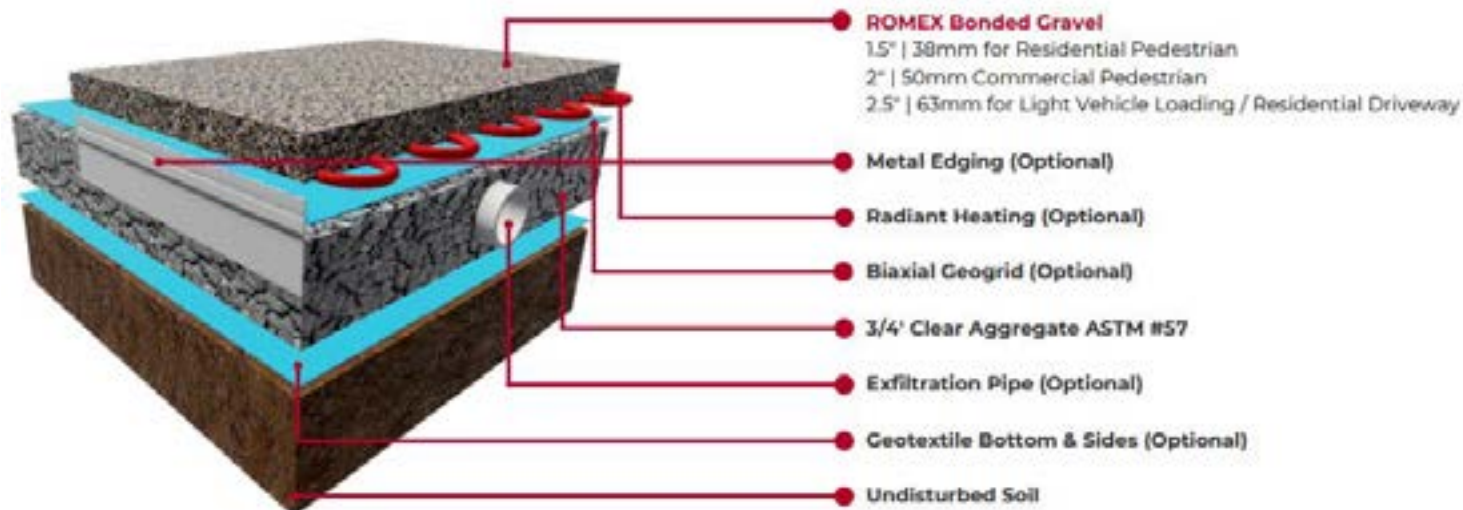
WALKWAY OPTION - BONDED GRAVEL

Features

- Supports light vehicular and pedestrian traffic
- Prevents loose gravel
- Pressure washer safe
- High permeability (varies by grain size)
- Ideal for pathway construction and tree pits
- ADA compliant

Applications

- Paths and walkways
- Tree surrounds
- Driveways
- Stormwater management & drainage



Source: [Romex, Permeable Gravel Binding](#)



PERMEABLE MATERIALS

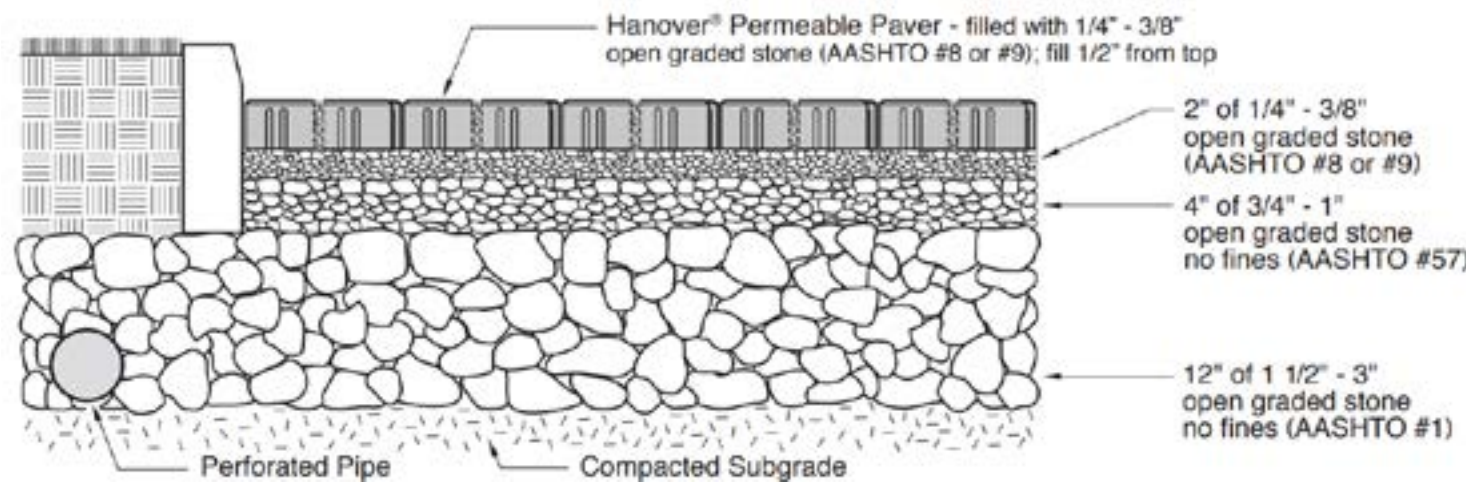
WALKWAY OPTION - CONCRETE PAVERS

Features

- Supports light vehicular and pedestrian traffic
- Pressure washer safe
- Surface openings allow for high permeability
- Flexible design options
- ADA compliant

Applications

- Paths and walkways
- Parking lots
- Stormwater management & drainage



Source: [Hanover, Permeable Paving Units](#)



PERMEABLE MATERIALS

COURT OPTION - COURT TILES ON GRAVEL

Features

- Heavy- to light-duty material w/modular sub-base
- Flexible design options from permeable surface to recycled material surface to grid paving with grass
- Water drains directly through

Applications

- Recreational courts



Source: [SportCourt](#), [SportBase](#)



APPENDIX D

FUNDING

OPPORTUNITIES

FUNDING OPPORTUNITIES

Funding for design and construction, to advance the recommended concepts through full implementation, can be pursued from a variety of local, state, and federal grants.

This appendix provides potential grants that are expected to be available annually, which aligns with the Borough's goals for long-term transformation of the WRD. The following information is provided for each suggested grant and considerations that should be assessed when selecting which funding opportunities to apply for:

- Eligible project phases (e.g., planning, design, construction, etc.)
- Eligible activities
- Award amount
- Local match requirements
- Application timeline

The suggested grants can fund a variety of project components for the proposed work, such as design, construction, and acquisition. It is recommended that the Borough prioritize grants that can fund design and construction for near-term implementation, then grants for acquisition for long-term improvements.



National Coastal Resilience Fund

Funding Source: NFWF, annual

Mission Statement: The National Fish and Wildlife Foundation (NFWF) is pleased to announce the 2024 National Coastal Resilience Fund (NCRF) Request for Proposals (RFP). NFWF will make investments in planning, design, and implementation of natural and nature-based solutions. The goal is to enhance protection for coastal communities from the impacts of storms, floods, and other natural coastal hazards and to improve habitats or fish and wildlife.

FY **24** **25** **26**

Program Details	
NOFO Release	Expected early 2025
Deadline	Pre-Proposal: Typically April Full Proposal: Typically July
Total Funding Available (FY24)	\$140 M
Application Limitations	Varies
Cost Share	None
Partnerships	None
Budget for Grant Management	None
Pre-award costs	None

Opportunity Size

\$\$

Partner Needs

None

Level of Effort



Project Eligibility

Eligible Activities	Evaluation of potential project sites and project alternatives, continued and expanded stakeholder engagement efforts, assessing potential risk reduction benefits of project alternatives, gathering baseline data, conducting cost-benefit analyses, preliminary engagement with permitting agencies, and preparing preliminary project designs
Ineligible Activities	- Procure or obtain equipment, services, or systems (including entering into or renewing a contract) that uses telecommunications equipment or services produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities) as a substantial or essential component, or as critical technology of any system. Refer to Public Law 115-232, section 889 for additional information. - NFWF funds and matching contributions may not be used to support political advocacy, fundraising, lobbying, litigation, terrorist activities or Foreign Corrupt Practices Act violations. - NFWF funds may not be used to support ongoing efforts to comply with legal requirements, including permit conditions, mitigation, and settlement agreements. However, grant funds may be used to support projects that enhance or improve upon existing baseline compliance efforts.
Minimum Award	\$100k
Maximum Award	\$1M
Eligible Project Phases	Community engagement, site investigation and design, final design and permitting, implementation



America the Beautiful Challenge

Funding Source: NFWF, DOI, DOD, USFS and NRCS, annual

Mission Statement: The America the Beautiful Challenge is a public-private grant program for locally led ecosystem restoration projects that invest in watershed restoration, resilience, equitable access, workforce development, corridors and connectivity, and collaborative conservation consistent with the America the Beautiful Initiative.

FY 24 25 26

Program Details	
NOFO Release	Expected early 2025
Deadline	Pre-Proposal: Typically April Full Proposal: Typically July
Total Funding Available (FY24)	\$119 M
Application Limitations	Varies
Cost Share	90%-10%
Partnerships	Not required
Budget for Grant Management	Not specified
Pre-award costs	Not specified

Opportunity Size

\$\$

Partner Needs

None

Level of Effort



Low

Project Eligibility	
Eligible Activities	- Conserving and restoring rivers, coasts, wetlands, and watersheds - Conserving and restoring forests, grasslands and important ecosystems that serve as carbon sinks - Connecting and reconnecting wildlife corridors, large landscapes, watersheds, and seascapes - Improving ecosystem and community resilience to flooding, drought, and other climate-related threats - Expanding access to the outdoors, particularly in underserved communities
Ineligible Activities	- Procure or obtain equipment, services, or systems (including entering into or renewing a contract) that uses telecommunications equipment or services produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities) as a substantial or essential component, or as critical technology of any system. Refer to Public Law 115-232, section 889 for additional information. - NFWF funds and matching contributions may not be used to support political advocacy, fundraising, lobbying, litigation, terrorist activities or Foreign Corrupt Practices Act violations. - NFWF funds may not be used to support ongoing efforts to comply with legal requirements, including permit conditions, mitigation, and settlement agreements. However, grant funds may be used to support projects that enhance or improve upon existing baseline compliance efforts.
Minimum Award	\$250k
Maximum Award	\$1.5M
Eligible Project Phases	Capacity building, community engagement, planning, and project design



Outdoor Recreation Legacy Partnership Program

Funding Source: Great American Outdoors Act, annual

Mission Statement: The Outdoor Recreation Legacy Partnership (ORLP) program was established in 2014 and is funded through the Land and Water Conservation Fund. ORLP is a nationally competitive, dollar-for-dollar matching grant program. It was created to aid disadvantaged, urban communities that lack access to close-by outdoor recreation. Funds can be used for the acquisition and/or development of, or substantial renovation of, public parks and other outdoor recreation spaces.

FY **24** **25** **26**

Program Details	
NOFO Release	Expected November 2024
Total Funding Available (FY23)	\$224M
Application Limitations	Unlimited
Federal Cost Share	50/50 - Each dollar of federal share requested must be matched by a dollar of non-federal share.
Partnerships	Must partner with State Lead Agency
Budget for Grant Management	None
Pre-award costs	None

Opportunity Size

\$\$

Partner Needs

Required

Level of Effort

Medium

Project Eligibility	
Eligible Activities	Projects may include any or all manner of outdoor recreation activities such as hiking, camping, unstructured play, picnicking, cycling, field and court sports, fishing, bird watching, swimming pools, paddling, and skating, as well as for outdoor recreation facilities and some supporting facilities and infrastructure like restrooms/bathhouses, or parking areas, when part of an overall recreation project. Assistance is available for a wide range of outdoor recreation uses and the facilities needed to support the use and enjoyment of these areas. These include, but are not limited to: • community parks, campgrounds, • sports fields and courts, • picnic areas and tracks for walking or biking, • water-based recreation facilities such as for swimming or boating, etc. • pools
Ineligible Activities	• Most indoor recreation and other buildings, such as nature centers or education centers; however, facilities to support the use of the recreating public, such as restrooms, can be eligible • Parks/sites that have received an LWCF grant in the last 7 years
Minimum Award	\$300K
Maximum Award	\$15M
Eligible Project Phases	Construction



NJ Green Acres Program – Traditional/Urban Parks

Funding Source: NJDEP, annual

Mission Statement: The Green Acres Program was created in 1961 to meet New Jersey’s growing recreation and conservation needs. Whether in rural, suburban, or urban areas, Green Acres is committed to preserving New Jersey’s rich natural, historic, and cultural heritage. Together with public and nonprofit partners, as of June 2022 the Green Acres Program has directly protected 681,234 acres of open space and parkland and has funded 1,256 local and nonprofit park development and stewardship projects in communities around the state.

FY **24** **25** **26**

Program Details	
NOFO Release	Expected October 2024
Total Funding Available (FY23)	Est. \$100M
Application Limitations	One request per funding program (one for Traditional and one for Urban Parks)
Cost Share	Varies dependent on location of project (up to 75% matching)
Partnerships	Not Required
Budget for Grant Management	None
Pre-award costs	None

Opportunity Size

\$

Partner Needs

Not Required

Level of Effort

Medium

Project Eligibility	
Eligible Activities	TRADITIONAL Eligible park development projects are those that create, restore, or expand outdoor recreation opportunities. Eligible recreation facilities include, but are not limited to, athletic fields and courts, recreational trails and trail amenities, and facilities for picnicking, fishing, boating, biking, hiking, swimming, camping, nature and historic interpretation, and similar activities. Facilities that support outdoor recreation are also eligible; examples of support facilities include lighting, parking areas, and structures that provide restrooms, concessions, or storage for park equipment. Support facilities or other ancillary project elements (i.e., parking lots, site preparation costs, etc.) should be commensurate with the recreational component of any given project or phase. URBAN PARKS Focuses on overburdened community (OBC) and adversely stressed OBC • Census block with more than 35% HHs qualify as low income; OR • 40% or more of residents identify as minority; OR • 40% or more of HHs have limited English proficiency; AND • OBC is higher than 50th percentile for total environmental/public health stressors
Ineligible Activities	Indoor recreation facilities, community centers, school sports facilities, and facilities that support semi-professional or professional athletics also are not eligible for Green Acres funding.
Minimum Award	None
Maximum Award	Award cap amounts for local government projects are calculated using a base award, adjusted based on the type of applicant. Standard County - 2 x base award \$1,000,000 - \$1,400,000 Highly Populated County - 2½ x base award \$1,250,000 - \$1,750,000 Densely Populated County - 3 x base award \$1,500,000 - \$2,100,000
Eligible Project Phases	Construction



National Coastal Wetlands Conservation Grant Program

Funding Source: U.S. Fish and Wildlife Service’s Wildlife and Sport Fish Restoration Program and Coastal Program, annual

Mission Statement: The National Coastal Wetlands Conservation Grants supports long-term wetland conservation by awarding up to \$1 million for wetland conservation projects. Since 1992, the grant program has provided more than \$400 million to restore and protect wetlands and associated habitats. Between \$18 million and \$23 million are available for projects annually. Established by the Coastal Wetlands Planning, Protection, and Restoration Act of 1990 (Act), funding for the grant program is provided by the Sport Fish Restoration and Boating Trust Fund from taxes paid on sport fishing equipment, electric motors and sonar, import duties on fishing tackle, yachts and pleasure craft, a portion of the gasoline tax attributable to motorboats and small engines, and interest on the fund.

FY **24** **25** **26**

Program Details	
NOFO Release	Expected early 2025
Deadline	Typically June
Total Funding Available (FY24)	\$20 M
Application Limitations	Varies
Cost Share	50-50 or 75-25 if the state has a land conservation program
Partnerships	None
Budget for Grant Management	None
Pre-award costs	Yes

Opportunity Size		Partner Needs		Level of Effort	
\$\$		None		Low	
Project Eligibility					
Eligible Activities	1) Acquisition of a real property interest in coastal lands or waters (coastal wetlands ecosystems) from willing sellers or partners, provided that the terms and conditions will ensure the real property will be managed for long-term conservation; and 2) The restoration, enhancement, or management of coastal wetlands ecosystems, if restoration, enhancement, or management will be administered for long-term conservation. (supports recreation activities)				
Ineligible Activities	1) Projects that primarily benefit navigation, irrigation, flood control, or mariculture; 2) Acquisition, restoration, enhancement or management of lands to mitigate habitat losses; 3) Creation of wetlands where wetlands did not previously exist; 4) Enforcement of fish and wildlife laws and regulations, except when necessary for the accomplishment of approved project purposes; 5) Research; 6) Planning as a primary project focus; 7) Operations and maintenance, including long-term invasive species management; 8) Acquisition and/or restoration of upper portions of watersheds where benefits to the coastal wetlands ecosystem are not significant and direct; and 9) Projects providing less than 20 years of conservation benefits.				
Minimum Award	\$50k				
Maximum Award	\$1M				
Eligible Project Phases	Planning, Assessment, BMPs, Construction, Outreach, Technical Assistance				



Local Recreation Improvement Grant

Funding Source: NJDCA, annual

Mission Statement: The Local Recreation Improvement Grant is a competitive grant that supports improvement and repair of public recreation facilities including local parks, municipal recreation centers, and local stadiums. Ensuring public access to community facilities is imperative given access to outdoor recreation and community resources is critical for mental and physical health, particularly for those residents with limited or no other access to quality outdoor space or private recreational opportunities. Assisting local units confronted with the ongoing financial strain from the COVID-19 pandemic’s effects and aftereffects in achieving unmet recreational obligations addresses these equity considerations, meeting the needs of communities that have been placed under substantial stress due to the lack of quality recreational facilities and spaces. The Local Recreation Improvement Grant will allocate funds to update facilities and recreational spaces to meet this statewide need.

FY **24** **25** **26**

Program Details	
NOFO Release	FY 2024 released
Deadline	Typically April
Total Funding Available (FY24)	\$25 M
Application Limitations	Varies
Cost Share	Encouraged, but not required
Partnerships	No
Budget for Grant Management	Not specified
Pre-award costs	Not specified

Project Eligibility	
Eligible Activities	Support a variety of local government recreational improvement activities including, but not limited to: - Updating community centers, playgrounds, pools, fields, walking or bicycle trails, rail trails, multi-sport courts, and recreational facilities. - Professional services costs (example: engineering and architectural costs). - Equipment (example: cost of playgrounds or bleachers for stadiums or community theatres. - Remediation costs associated with preparing recreation sites for use. - Other directly related costs.
Ineligible Activities	
Minimum Award	None
Maximum Award	\$100k
Eligible Project Phases	Varies

Opportunity Size

\$

Partner Needs

None

Level of Effort

Low



Five Star and Urban Waters Restoration Grant Program

Funding Source: NFWF and EPA, annual

Mission Statement: The Five Star Wetland and Urban Waters Restoration Program is a joint collaboration between the National Fish and Wildlife Federation, EPA, and USDA and provides financial assistance to grassroots partnerships for wetland, forest, riparian and coastal habitat restoration, stormwater management, outreach and stewardship with a particular focus on water quality, watersheds and the habitats they support.

FY **24** **25** **26**

Program Details	
NOFO Release	Typically released in Winter
Deadline	Typically January
Total Funding Available (FY24)	\$225,000
Application Limitations	~50
Cost Share	50-50
Partnerships	Must involve five or more partners (public and private entities)
Budget for Grant Management	Not specified
Pre-award costs	Not specified

Opportunity Size

\$

Partner Needs

None

Level of Effort



Project Eligibility	
Eligible Activities	- Wetland, riparian, in-stream and/or coastal habitat restoration - Meaningful education and training activities - Partnerships - Measurable ecological, educational and community results - sustainability
Ineligible Activities	- Equipment - NFWF funds and matching contributions may not be used to support political advocacy, fundraising, lobbying, litigation, terrorist activities or Foreign Corrupt Practices Act violations. - NFWF funds may not be used to support ongoing efforts to comply with legal requirements, including permit conditions, mitigation and settlement agreements. However, grant funds may be used to support projects that enhance or improve upon existing baseline compliance efforts.
Minimum Award	\$20k
Maximum Award	\$50k
Eligible Project Phases	Planning, BMPs, Restoration Construction, Outreach, Technical Assistance, Monitoring



National Recreation and Park Association

Funding Source: Varies

Opportunity Size

\$

Partner Needs

Varies

Level of Effort



Low

Mission Statement: The National Recreation and Park Association (NRPA) periodically posts information about grant and fundraising opportunities that are available for park and recreation agencies, affiliated friends group, and 501(c)(3) nonprofits. Any opportunities listed under “Current NRPA Grant Opportunities” are sponsored through NRPA. All other resources and opportunities are through outside agencies.

FY **24** **25** **26**

Program Details	
NOFO Release	Varies
Total Funding Available (FY23)	Varies
Application Limitations	Varies
Cost Share	Varies
Partnerships	Varies
Budget for Grant Management	None
Pre-award costs	None

Project Eligibility	
Eligible Activities	NRPA’s Equitable Grantmaking Policy guides the organization’s grantmaking and aims to ensure that our grant opportunities (e.g., funding, training and in-kind donations) positively benefit communities — particularly communities that have historically experienced disinvestment by government and philanthropy.
Ineligible Activities	
Minimum Award	Varies
Maximum Award	Varies
Eligible Project Phases	Varies