



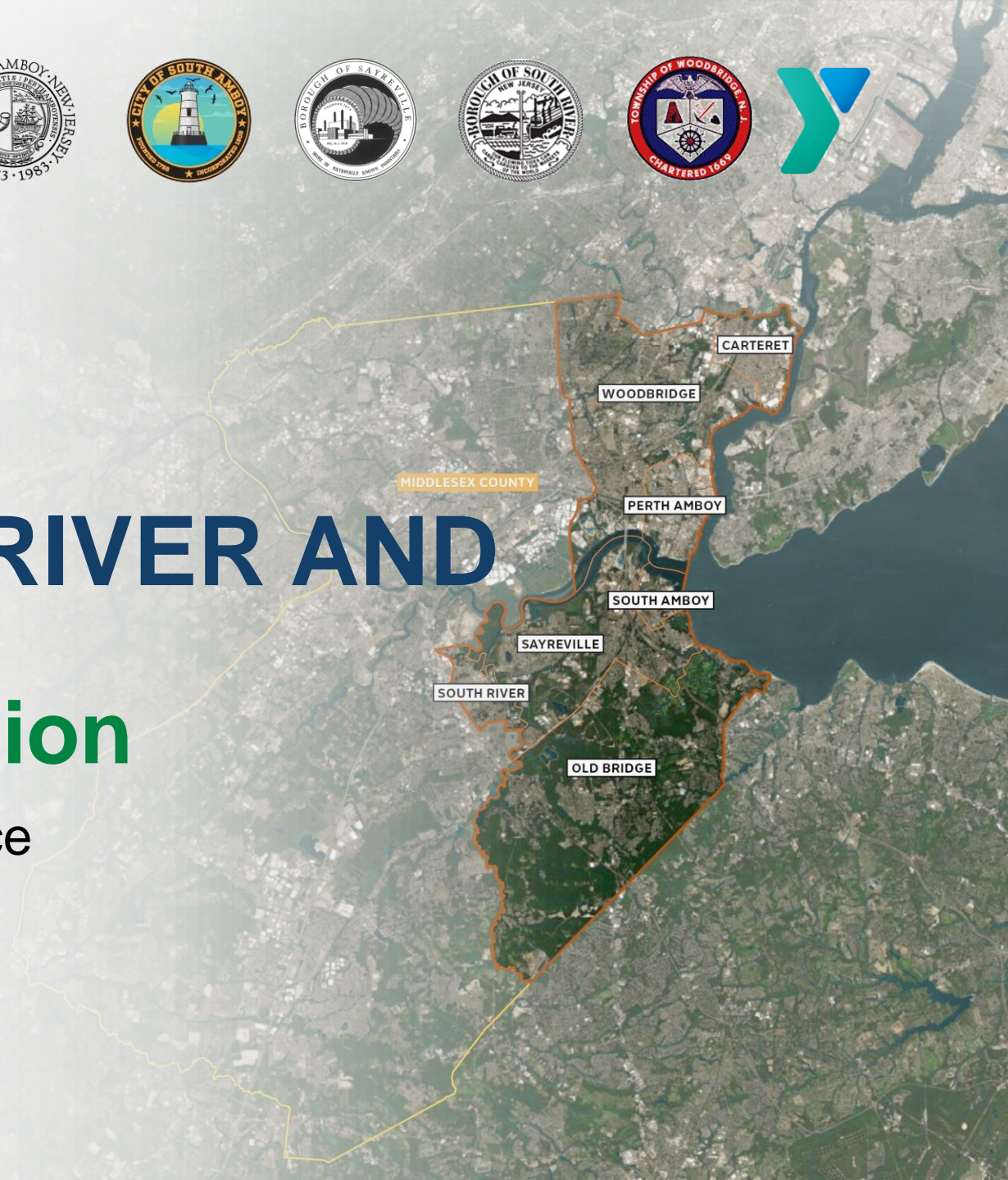
RESILIENT NJ

RESILIENT RARITAN RIVER AND BAY COMMUNITIES

Protect, Restore, Transition

NJ Coastal & Climate Resilience Conference

March 13, 2024



AGENDA

1. Program Overview
2. Regional Planning
3. Implementation



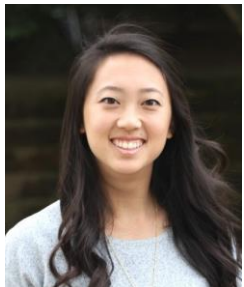
Nick Tufaro

Principal Planner, Resiliency
Middlesex County



Mary Kimball

**Urban and Community
Resilience Lead**
Arcadis



Vicki Chou

Water Resources Engineer
Arcadis



**RESILIENT NEW JERSEY
RARITAN RIVER AND BAY COMMUNITIES
PROGRAM OVERVIEW**

RESILIENT NJ PROGRAM



- Steering Committee with representatives from NJDEP, County, municipalities, YMCA
- Community-based resilience planning
- Address flooding issues and increase resilience



MISSION STATEMENT

The mission of Resilient Raritan River and Bay Communities (Resilient RRBC) is to **“create a watershed-based plan with a clear vision and roadmap for flood risk reduction, resilience, and environmental restoration to help the multi-municipal region survive and thrive.”** In developing this plan, the project team has employed the best available data and inclusive engagement to create social, environmental, and economic benefits and bring value to all who share in the region’s future.



ABOUT THE REGION

CARTERET FLOODING



Source: The Lakewood Scoop

WOODBRIE FLOODING



Source: News 12

SOUTH RIVER FLOODING



Source: Youtube

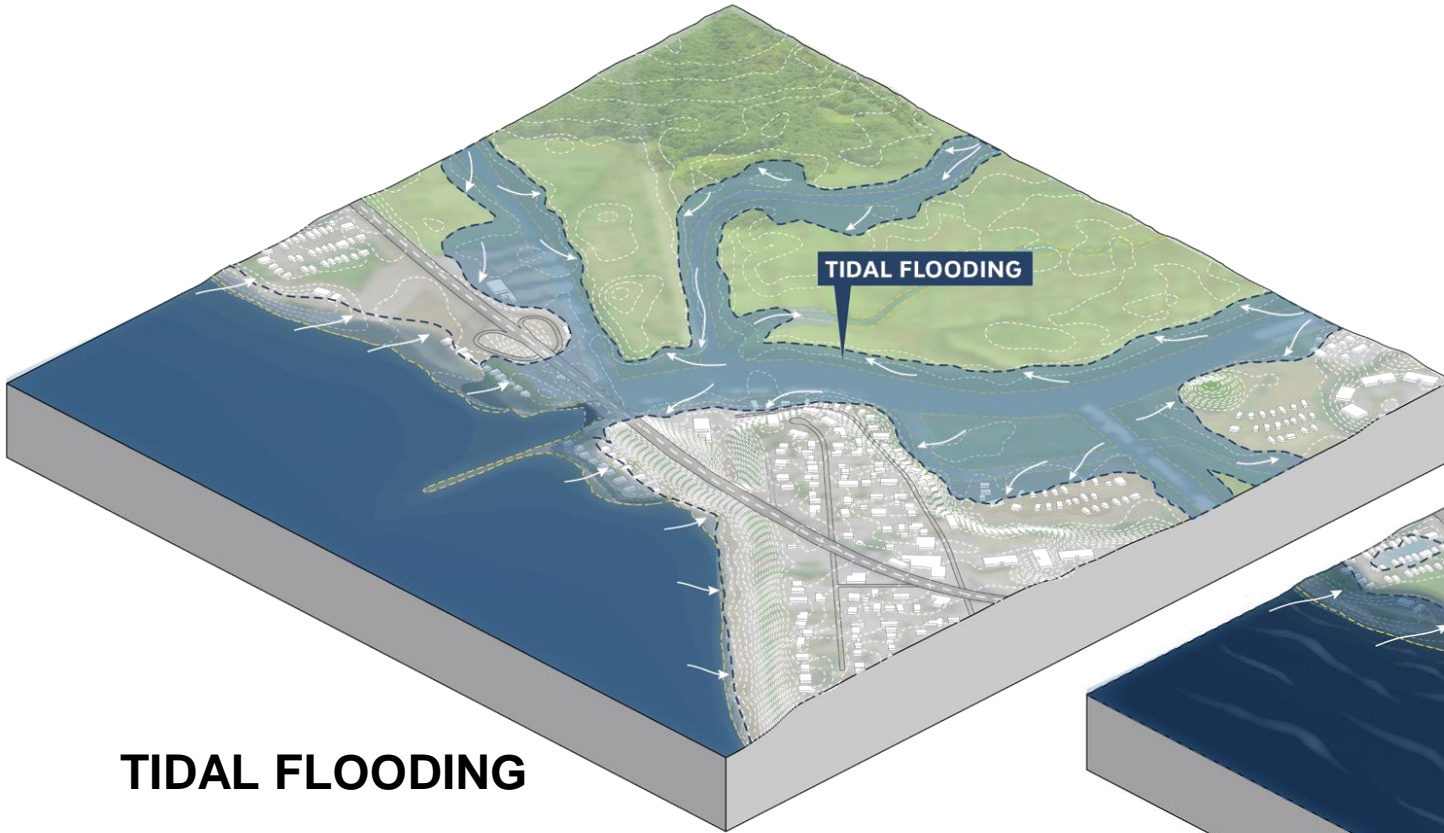
MIDDLESEX COUNTY FLOODING



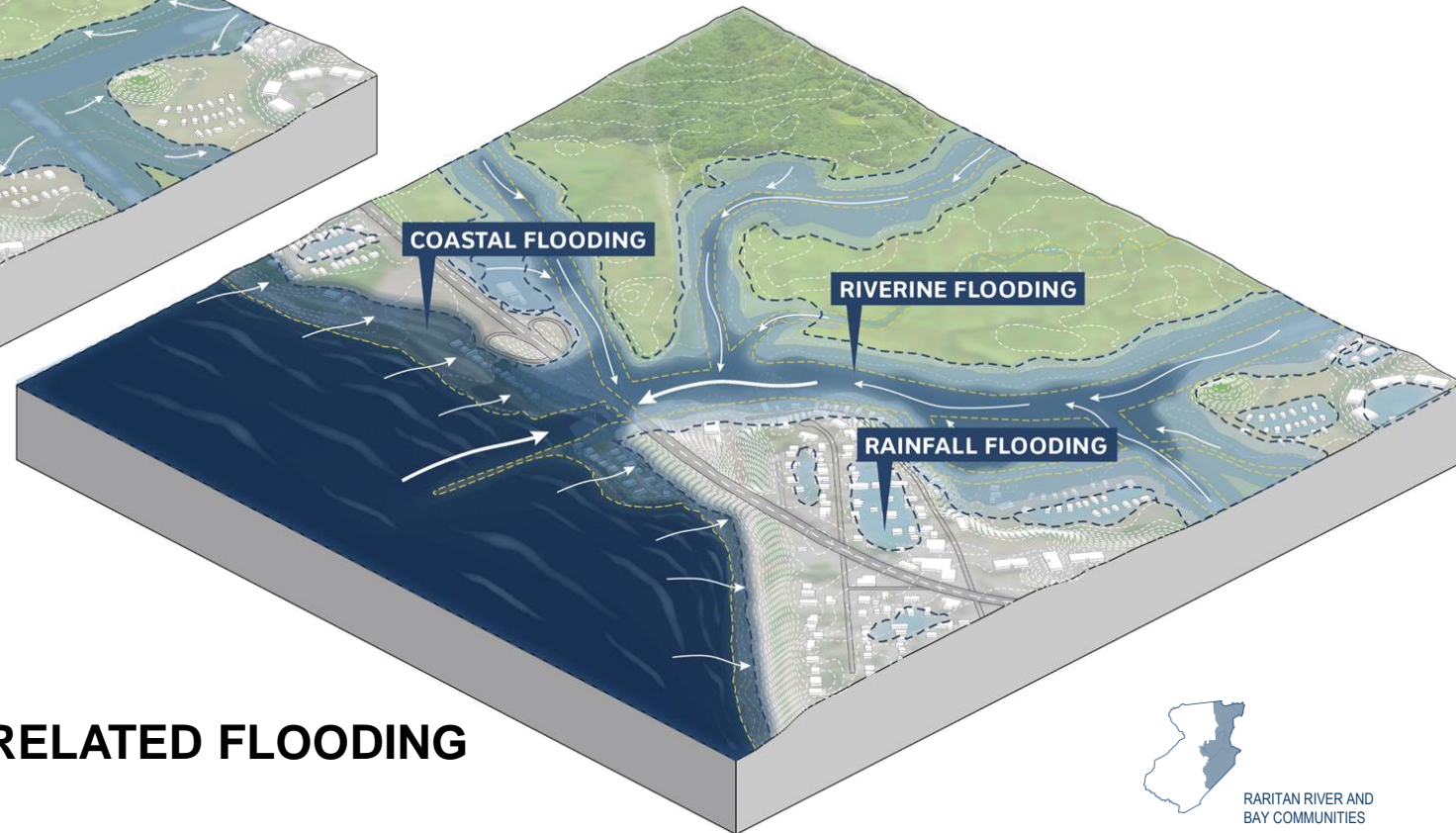
Source: News 12 Bronx | CBS New York



FLOOD HAZARD TYPES AFFECTING RRBC



TIDAL FLOODING



STORM-RELATED FLOODING

EXISTING REGIONAL INITIATIVES

MIDDLESEX COUNTY HAZARD MITIGATION PLAN



Goals:

1. Education and Outreach
2. Data collection, use, and sharing
3. Capabilities, coordination, and opportunities
4. Opportunities for mitigation

DESTINATION 2040

MIDDLESEX COUNTY ♦ NJ STRATEGIC PLAN

20-year outlook and strategic initiatives for Middlesex County, including:

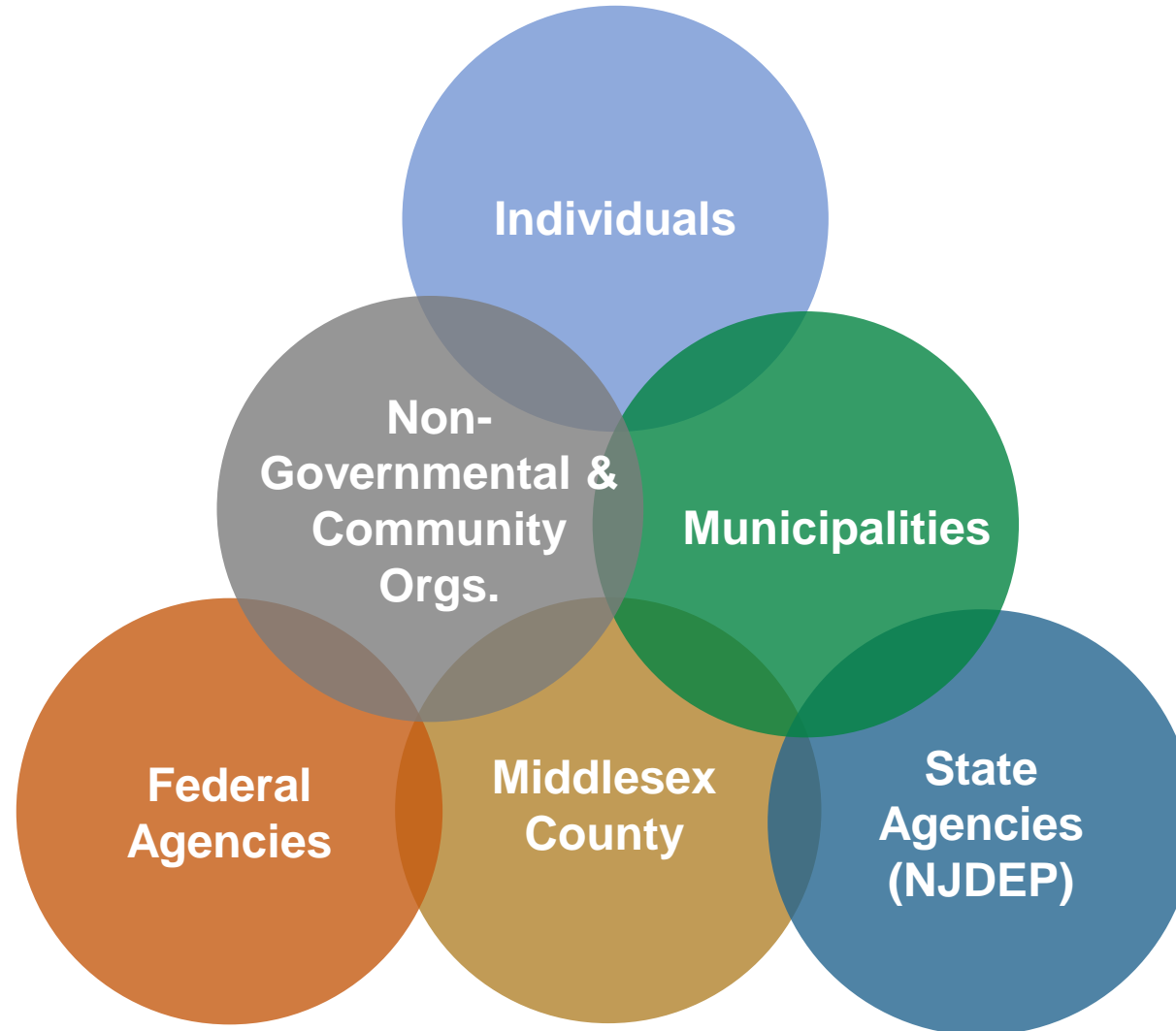
- Economic and workforce development
- Healthy, safe, and inclusive communities
- Land use, development, and housing
- Sustainability and community resilience
- Transportation and mobility



REGIONAL PLANNING

WHO IS INVOLVED?

REGIONAL PLANNING REQUIRES COORDINATED ACTION AT MULTIPLE SCALES



REGIONAL PLANNING PROCESS

Develop a
Regional **Vision**
and Identify
Shared **Priorities**

Analyze **Flood**
Risk

Identify **Tools** to
address risks and
refine based on
Evaluation
Criteria



REGIONAL PLANNING PROCESS

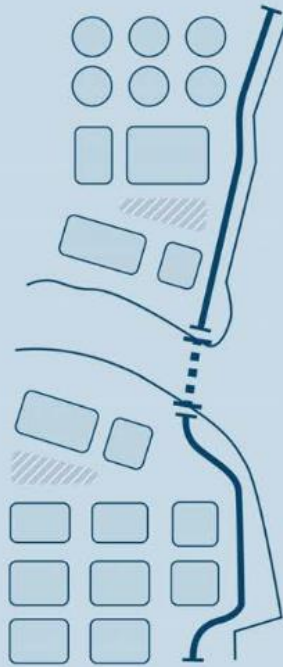
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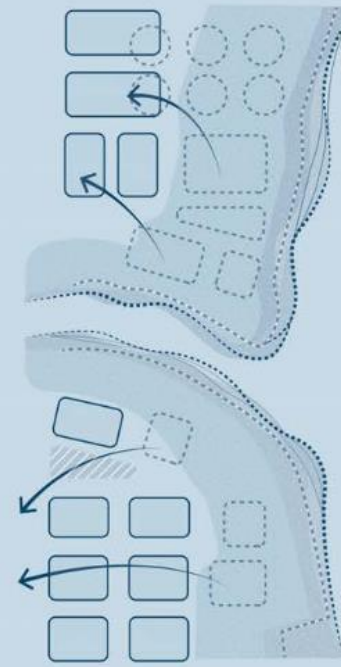
Identify **Tools** to
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Develop
Resilience
Scenarios
based on
Vision,
Risks, and
Tools

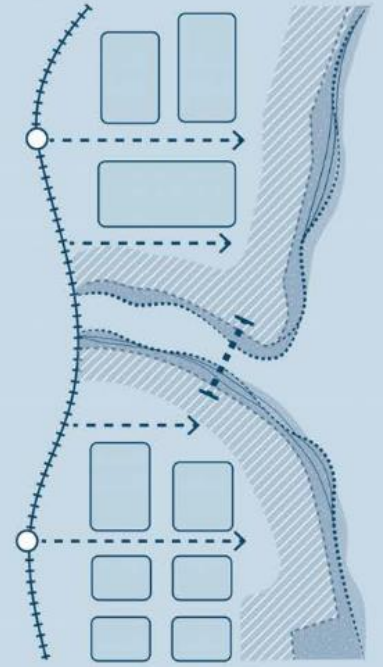
SCENARIO 1: PROTECT
Critical Assets & Economic
Centers



SCENARIO 2: RESTORE
Natural Systems & Minimize
Exposure



SCENARIO 3: TRANSITION
Smart Growth for a New
Economy



REGIONAL PLANNING PROCESS

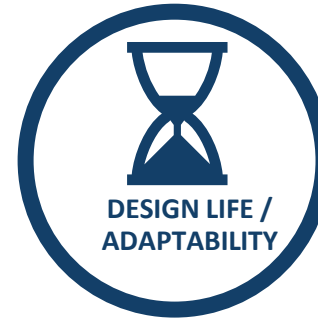
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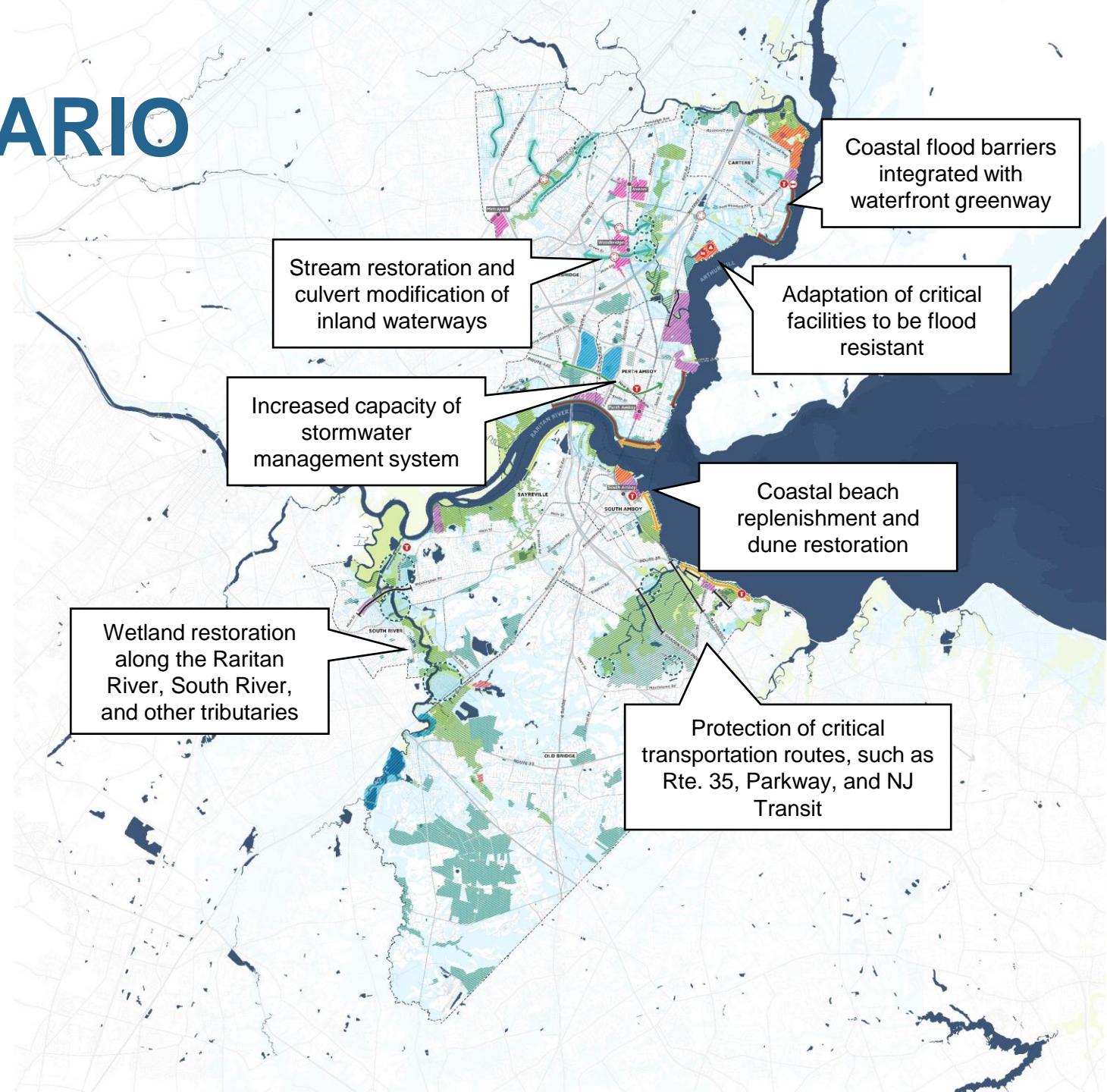
Refine and
develop a
**Preferred
Scenario**
based on
stakeholder
feedback



PREFERRED SCENARIO

PHYSICAL AND NATURE BASED INFRASTRUCTURE STRATEGIES

-  Site or building level adaptation of critical facilities
-  Restore wetlands and riparian zones
-  Create floodable spaces on publicly owned lands
-  Increase stormwater system capacity or diversion upstream
-  Restore or daylight riparian zones
-  Replenish and restore beaches
-  Multi-purpose coastal flood barrier with bike & pedestrian paths
-  Enhance resiliency of mobility systems
-  Tide/Surge Gate
-  Construct new pump station / retrofit existing pump station
-  Culvert modification








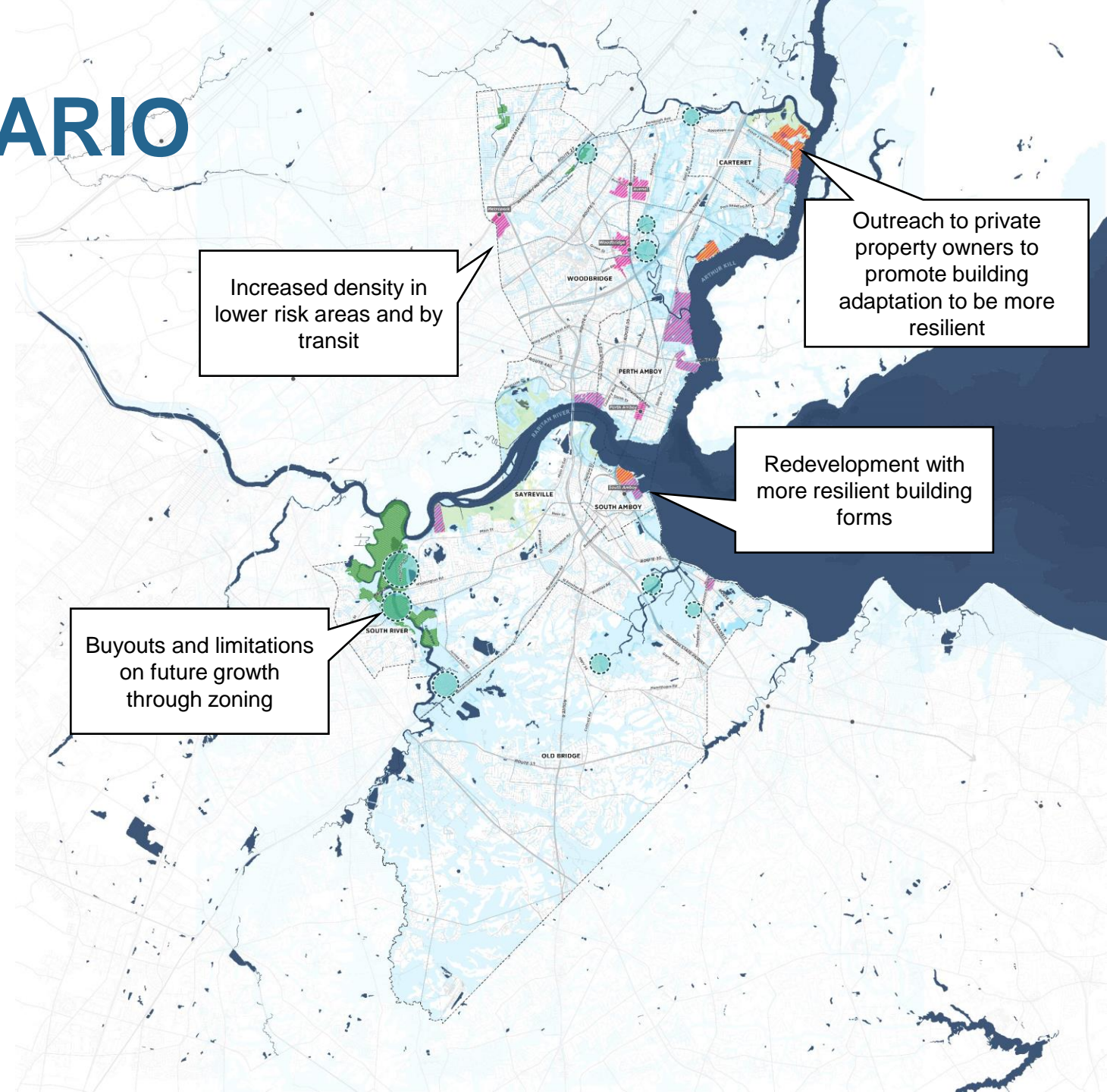
PREFERRED SCENARIO

POLICY AND GOVERNANCE ACTIONS

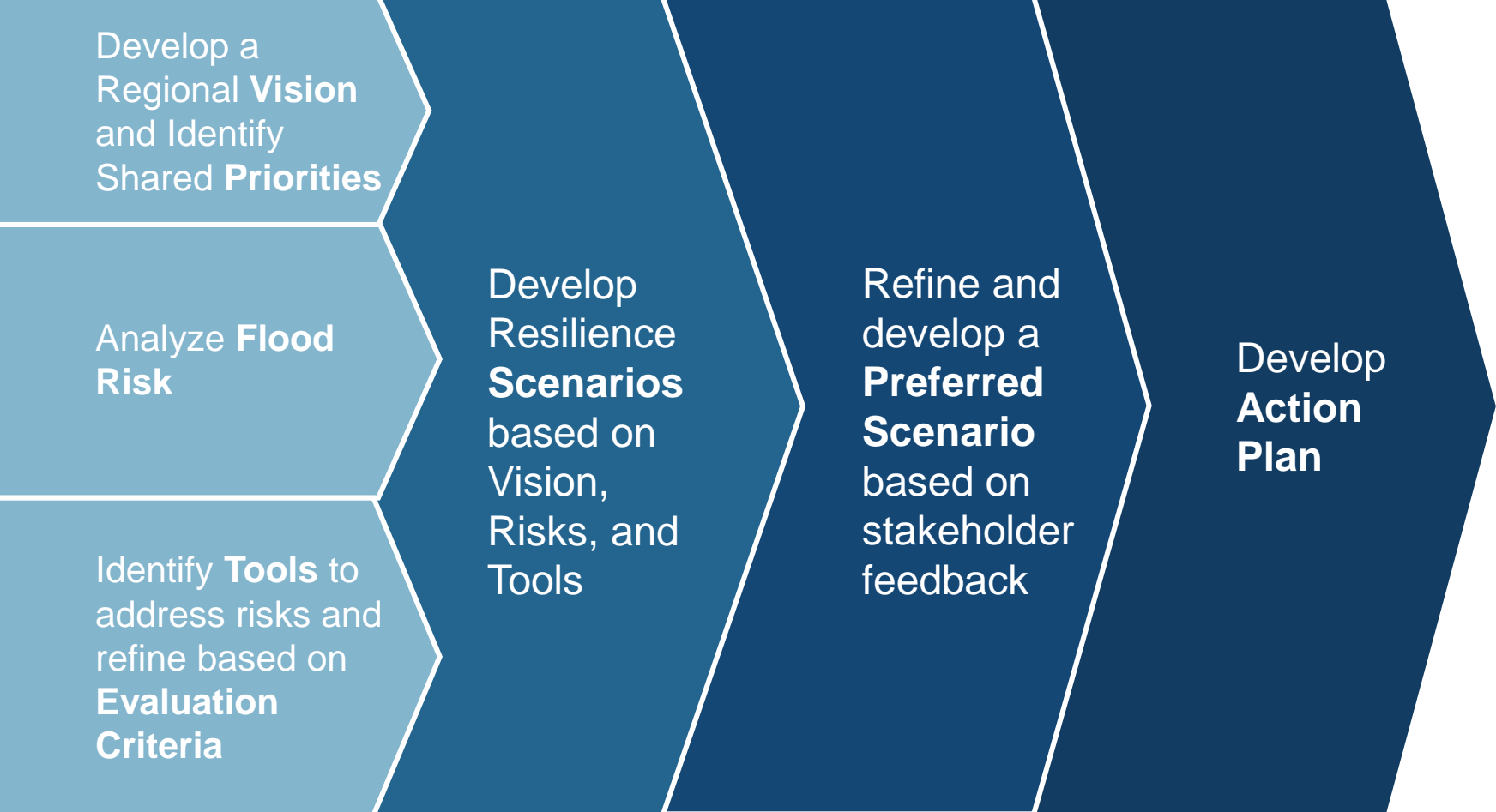
- **Manage growth** by reducing density in highly at-risk areas through strategic buyouts and zoning changes, and increasing density in lower risk areas
- Promote **resilient development** through updating codes and policies
- Provide technical assistance and targeted outreach to property owners to **promote building mitigation and flood insurance**
- Promote regional, **watershed coordination** among municipalities and county

POLICY AND GOVERNANCE ACTIONS

-  Strengthen lower-risk developed areas near transit
-  Resilient Redevelopment
-  Proposed Conservation Zoning (OSCR, OS-C/OS-R, PR)
-  Acquire land through strategic buyouts for flood management
-  Site or building level adaptation of critical facilities



REGIONAL PLANNING PROCESS



Regional Strategies

Sub-Watersheds

Resilience Opportunity Areas



The regional resilience strategies recommended fall under nine strategy types, based on the broad approach:

Policy and Governance

1. Governance and continued coordination
2. Zoning and land use policy

Physical and Nature-Based Infrastructure

3. Adapt or protect critical facilities
4. Resilient mobility systems
5. Stormwater management
6. Coastal resilience
7. Resilient transformation of contaminated sites and brownfields

Outreach, Education, and Capacity Building

8. Flood awareness outreach campaigns
9. Technical support for property owners

The sub-watersheds include the following:

- Arthur Kill Waterfront
- Woodbridge Creek
- Raritan Riverfront and Bay
- South River / Washington Canal
- Cheesequake / Laurence Harbor
- Rahway River and Tributaries

Resilience Opportunity Areas include the following:

- Noe's Creek
(Arthur Kill Waterfront)
- Heards Brook
(Woodbridge Creek)
- Middlesex County Greenway Extension
(Raritan Riverfront and Bay)
- South River and Sayreville Main Street
(South River / Washington Canal)
- Cheesequake Inlet
(Cheesequake / Laurence Harbor)



IMPLEMENTATION



IMPLEMENTATION

POLICY & GOVERNANCE

These strategies will help the region transition to a more resilient future

Implementation Support:

- Recommendations for policy changes at the local, state, and federal level
- Draft proposed regulatory changes
- Review and recommendations for master plans, redevelopment plans, zoning, and ordinances



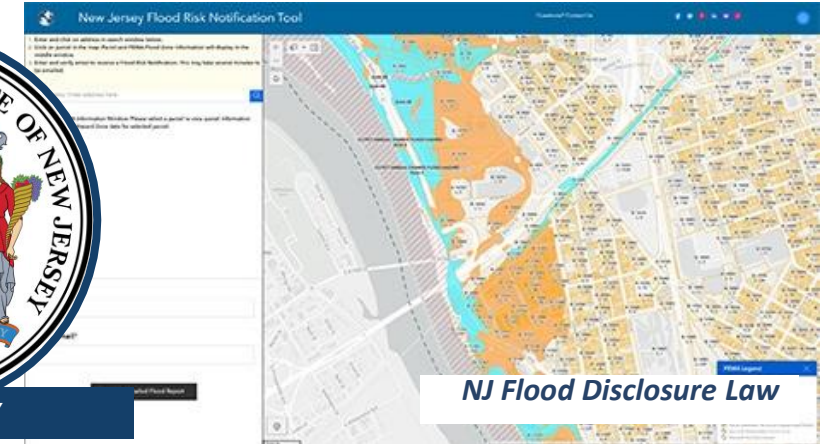
US ARMY CORPS OF ENGINEERS



NY & NJ Harbor & Tributaries Study



NEW JERSEY



NJ Flood Disclosure Law



NJDEP BLUE ACRES



Blue Acres site, Woodbridge, NJ



PHYSICAL AND NATURE BASED INFRASTRUCTURE

These strategies focus on preventing damage and disruption from flooding through nature-based solutions and improved built systems.

Implementation Support:

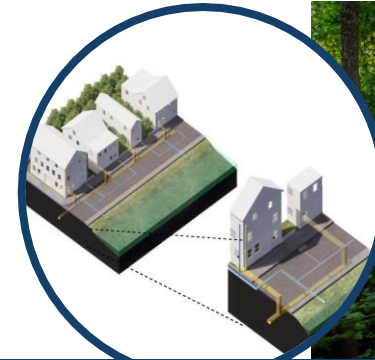
- Developing green infrastructure and stormwater storage concepts
- Assessing flood risks to transportation routes
- Protecting critical facilities
- Identifying and supporting grant applications to fund capital projects



WETLAND RESTORATION



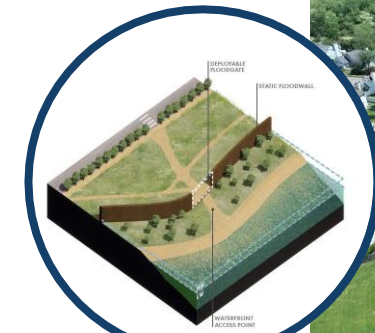
Chevron Wetland Restoration. Perth Amboy, NJ



STORMWATER MANAGEMENT



Middlesex County Greenway



FLOODPROOF/HARDEN



Sayreville Pump Station, Sayreville NJ



IMPLEMENTATION

OUTREACH, EDUCATION, AND CAPACITY BUILDING

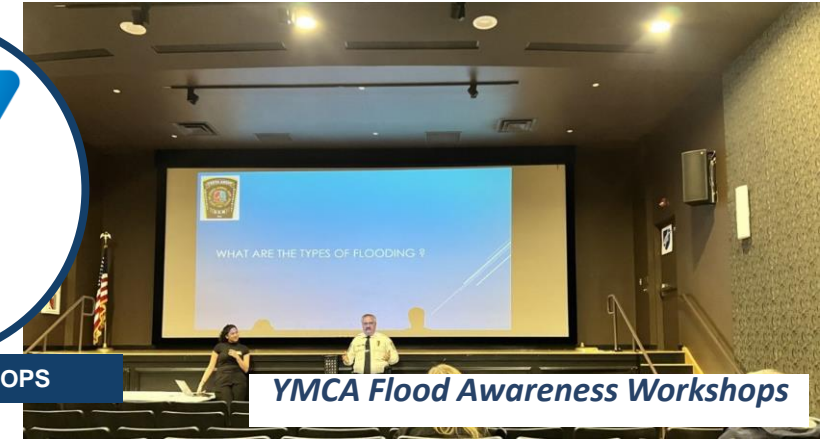
These strategies enhance public involvement and awareness in decision-making processes.

Implementation Support:

- Flood awareness campaign
- Partnerships with community-based organizations
- Targeted outreach to communities vulnerable to flood and climate risks
- Resources for private property owners



COMMUNITY WORKSHOPS



YMCA Flood Awareness Workshops



COMMUNITY TABLING



City of Water Day Tabling



PRIVATE GI PROGRAM REVIEW



Rain Check Program, Philadelphia, PA

**THANK YOU!
QUESTIONS?**



RARITAN RIVER AND
BAY COMMUNITIES



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Facebook, Instagram, X:

@ResilientRRBC