



RESILIENT NORTHEASTERN NJ

RESILIENCE PLANNING INTRODUCTION

HIGH TECH HIGH SCHOOL
JUNE 6 & 13, 2022



AGENDA

- 1 Introductions
- 2 What is resilience planning?
- 3 What is Resilient Northeastern NJ?
- 4 What do possible solutions look like?

What is resilience planning?

What do we mean when we say resilience?

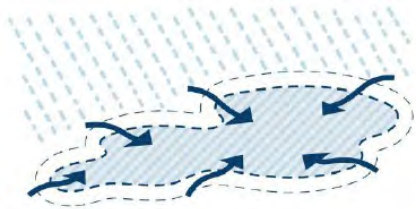
The ability to **adapt to changing conditions** and **grow** in the face of challenges. In the context of flooding, we mean shaping communities that have strong social fabrics and infrastructure that can bounce back after storms.

What is risk?

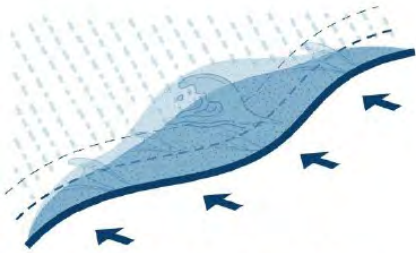
The **potential for a hazard**, such as flooding, **to have negative impacts**. Flood risk is the potential for water to create damage and disruption in our communities. Flood risk increases when the hazard increases, such as by sea level rise or more intense rainfall, or when more people are in harm's way.



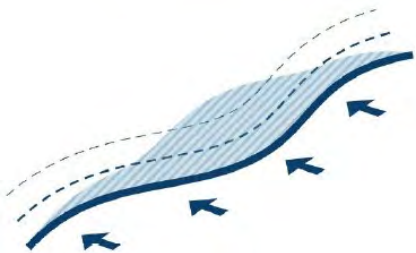
What hazards do we face?



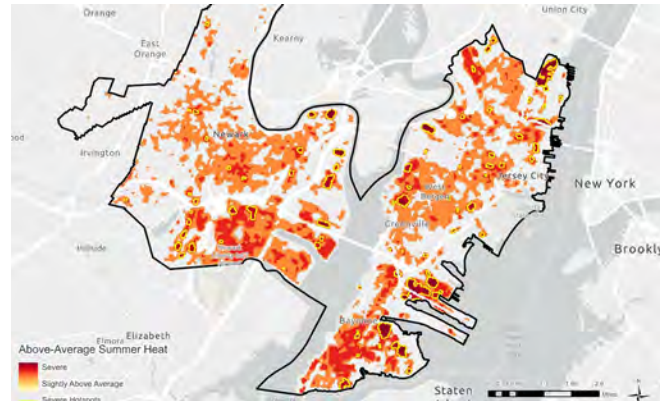
RAINFALL FLOODING



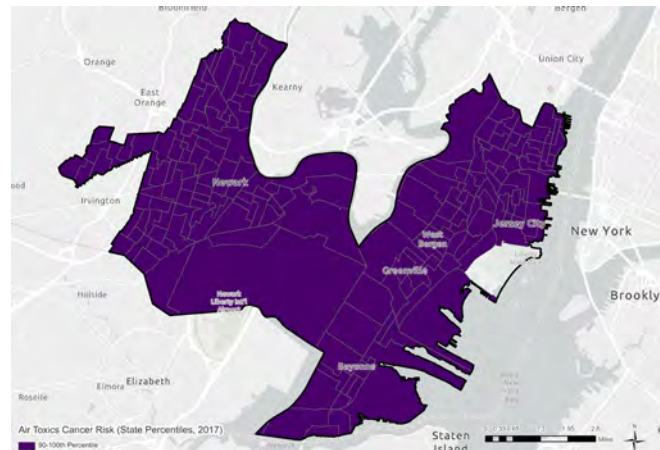
COASTAL STORM SURGE



TIDAL FLOODING



HEAT



POOR AIR QUALITY

HOW DOES CLIMATE CHANGE IMPACT THESE HAZARDS?

WHAT OTHER FACTORS CONTRIBUTE TO FLOODING AND THESE OTHER HAZARDS?

What else?

Flooding already impacts our region today...

HEAVY RAINFALL



Ida flooding in Bayonne

COASTAL STORMS



Sandy flooding in Hoboken

TIDAL FLOODING



Tidal flooding in Hoboken

Have you experienced flooding in your neighborhood?

Images (left to right): 1. Ida flooding in Bayonne, Source: [Bayonne OEM via TAPinto Bayonne](#) 2. Sandy flooding in Hoboken. Source: [accarrino via Flickr](#) 3. Tidal flooding & damage in Hoboken. Source: [outsidenewyork via Instagram](#)

What is at risk from flooding?

WHAT IS AN ASSET?



Things that contribute to the region's identity and future vision



Features within a community that are valued



May be temporal / seasonal



May have regional significance



Places, people, events, systems processes, and things that define communities



Assets can relate to communities in both positive and negative ways

CATEGORIES OF ASSETS



INFRASTRUCTURE

Assets that ensure or impact movement of goods, services, information, and functioning of society on an average day



EMERGENCY RESPONSE

Assets that ensure or impact movement of goods, services, information, and functioning of society in an emergency / time of crisis



BASIC PUBLIC HEALTH, SAFETY, PHYSICAL WELL-BEING

Assets that ensure or impact basic health, safety, and well-being of people not identified as infrastructure or emergency response



QUALITY OF LIFE

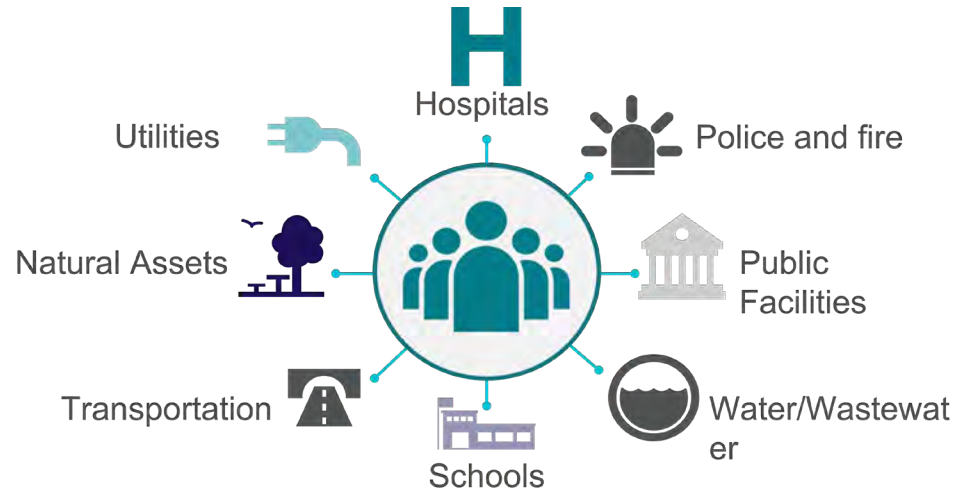
Assets that ensure or impact people's positive relationships with themselves, one another, their community, and their environment



ECOSYSTEM AND ENVIRONMENTAL HEALTH

Assets that ensure or impact the functioning of the natural environment

What happens if our assets flood?



WHAT OTHER PLACES ARE IMPORTANT TO YOU?

IF THESE PLACES FLOOD, WHAT DOES IT MEAN?



Who is responsible for creating resilience?

EVERY GROUP AND PERSON HAS A UNIQUE ROLE TO PLAY



DISCUSSION

Why is resilience important to you?

What changes do you want to see in your community?

Who is most at risk from hazards like flooding or heat waves?

**What is Resilient
Northeastern NJ?**

Project Overview

RESILIENT NORTHEASTERN NEW JERSEY



Resilient Northeastern NJ Project Area



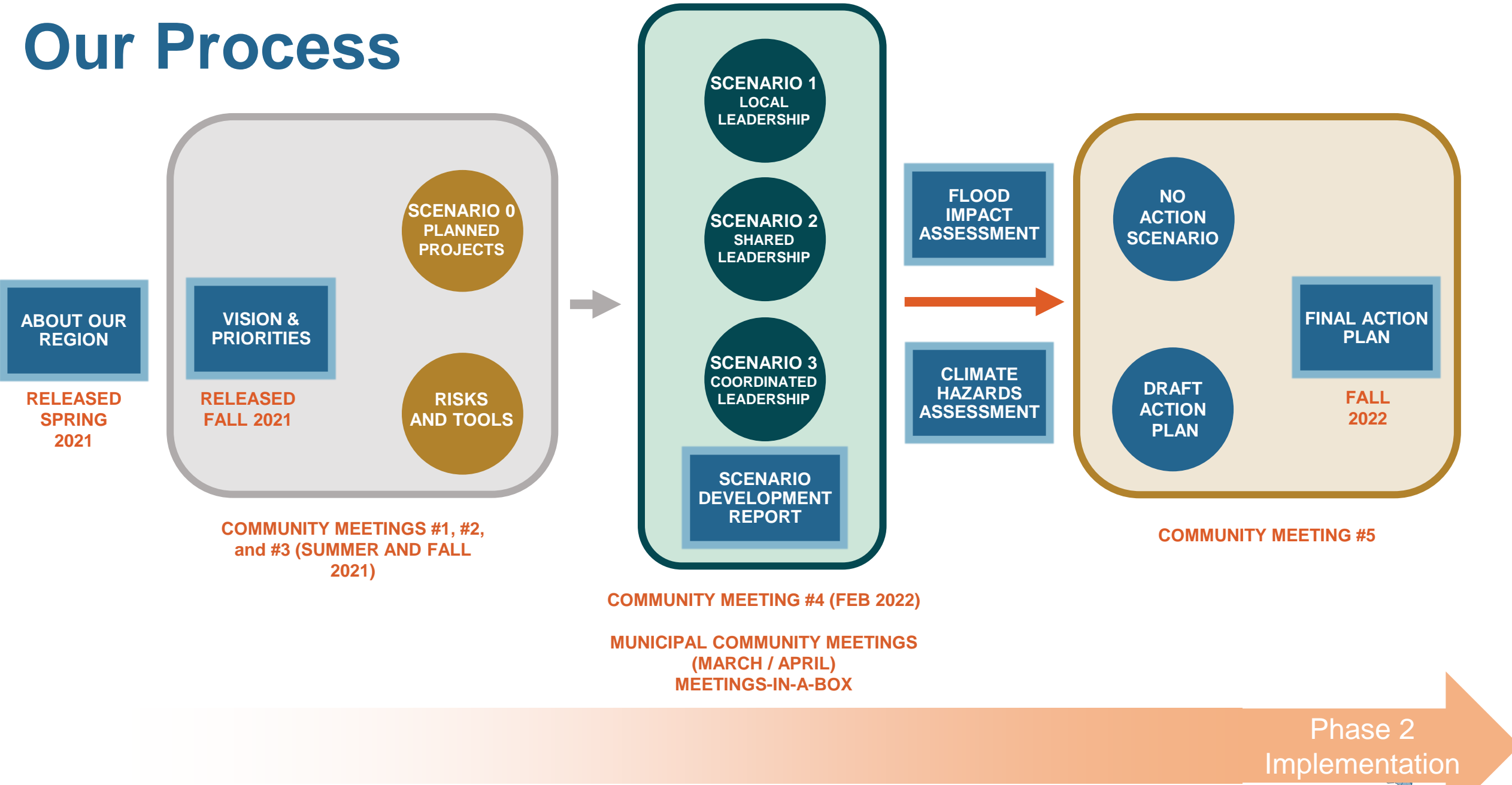
NJDEP administers this program and similar initiatives in three other regions in NJ. The program uses funding from the US Department of Housing and Urban Development (HUD) National Disaster Resilience Competition (NDRC)



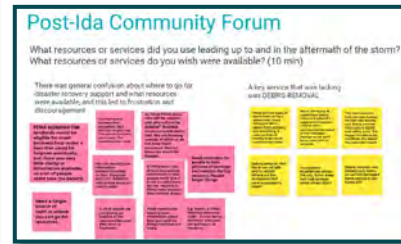
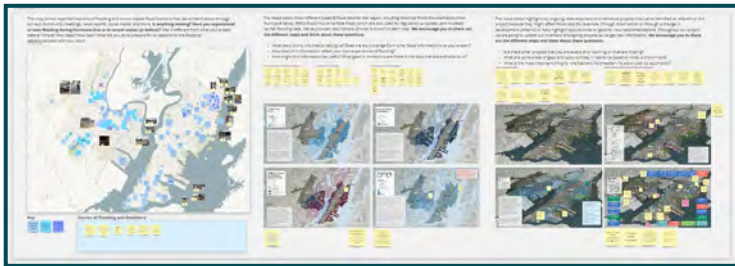
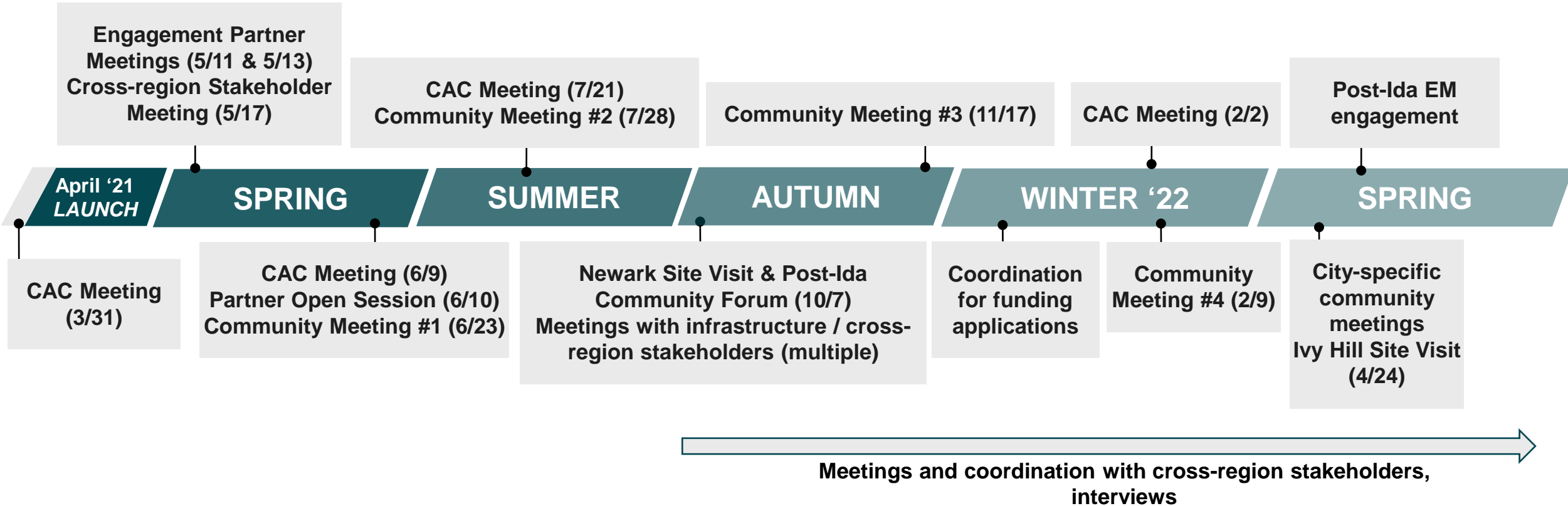
Representatives of the Region Team sit on the Steering Committee

Residents from each city sit on the Community Advisory Council

Our Process



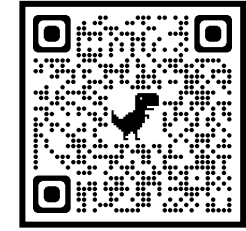
What role does engagement play?



OTHER ENGAGEMENT THROUGHOUT:
Interviews and meetings with Steering Committee, Vision and Priorities survey, Irys App, partner survey, feedback through email, voicemail, social media, and more!

SHARE YOUR THOUGHTS WITH US ANYTIME

through
the app:



iOS devices



Androids



through the website:
www.resilient.nj.gov/nenj

to the project hotline:

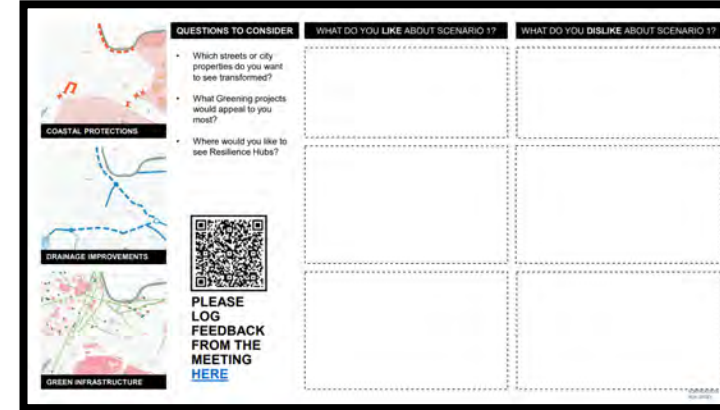
201-275-0861

English, Spanish, Portuguese,
Arabic, Hindi, Polish

by email:

ResilientNENJ@dep.nj.gov

Share feedback on
draft solutions
through our
meetings-in-a-box



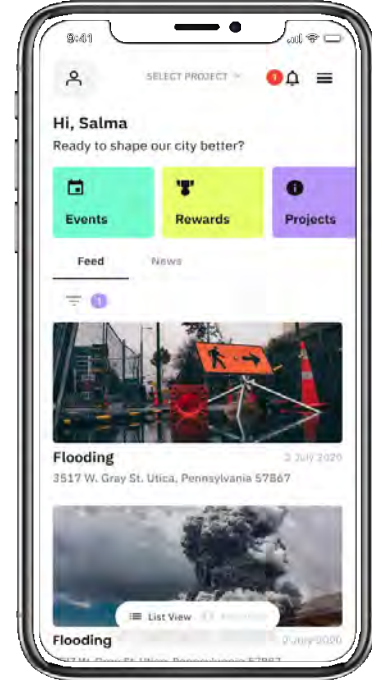
Share artwork by
email or through
social media:



Interact with us on social media:

@ResilientNENJ (twitter / FB)

@Resilient_NENJ (Instagram)



ISSUE EXPERIENCE

WHO HAS BEEN
DIRECTLY IMPACTED BY
FLOODING?

DEMOGRAPHIC RELEVANCE

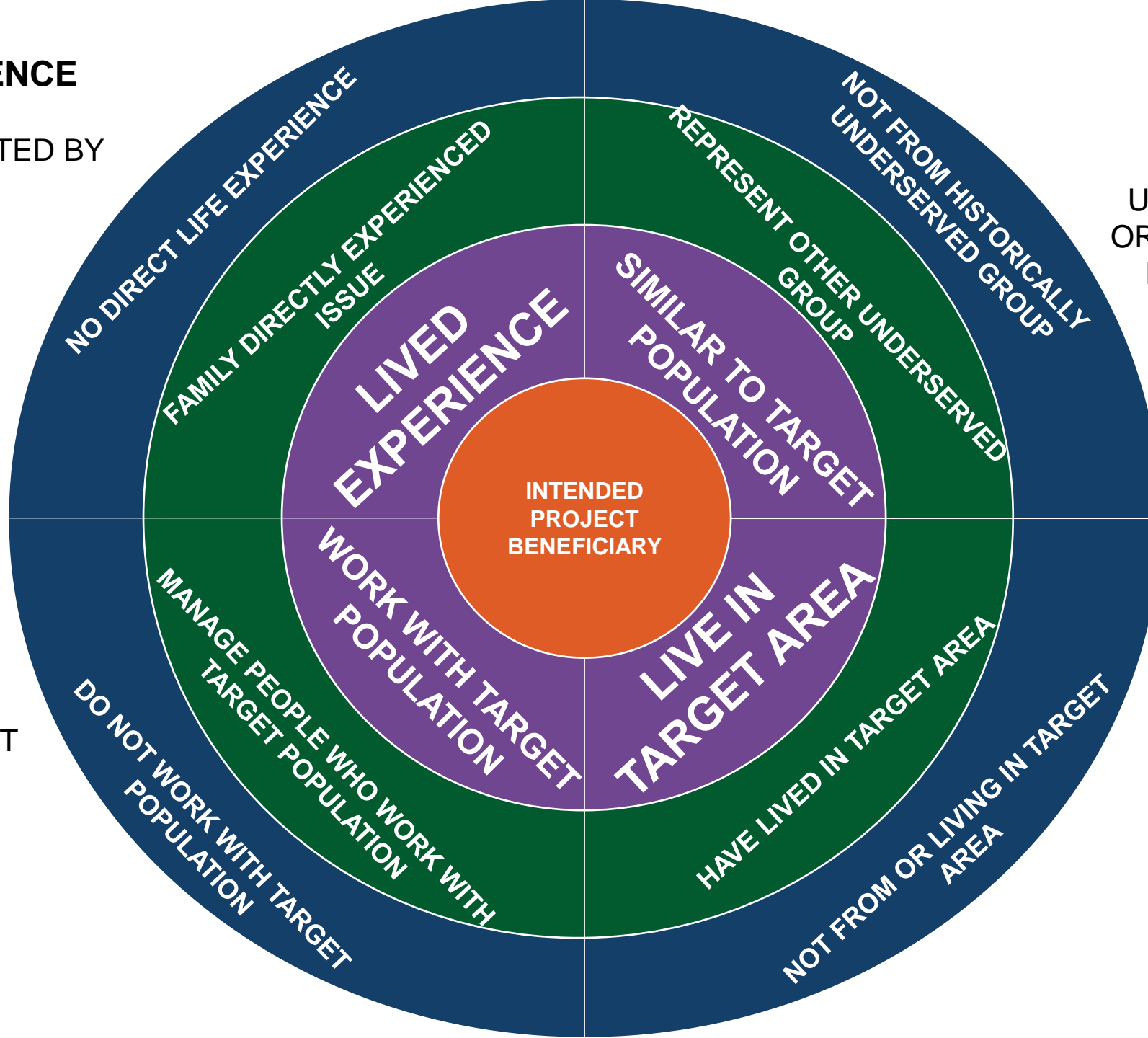
WHO HAS BEEN
UNDERSERVED, HURT,
OR NOT REPRESENTED
BY SIMILAR EFFORTS
IN THE PAST?

WHO WORKS
WITH THE TARGET
POPULATION?

DIRECT ENGAGEMENT

WHO LIVES IN THE
AREAS MOST
AFFECTED?

GEOGRAPHIC RELEVANCE



One example of how we've incorporated community knowledge and input

We asked community members where they've experienced flooding. This information helps **ground truth** our data.

Reported Flood Locations

Community Sourced, By Event

- Reported Flood Locations
- Event Specified in Reporting
 - Hurricane Irene
 - Hurricane Sandy
 - July 17 Severe Thunderstorms
 - Tropical Storm Elsa
 - Tropical Storm Ida

Reported flood locations were pulled from community meetings, the Irys app, the survey, other engagement meetings, social media, news reports, official reports of repeat flood locations, and other resident reports.

It has disrupted our lives, affected our health, and increased our stress levels. It also makes us feel anxious and worried about if we will ever be able to sell our house or if flooding will get worse with climate change.

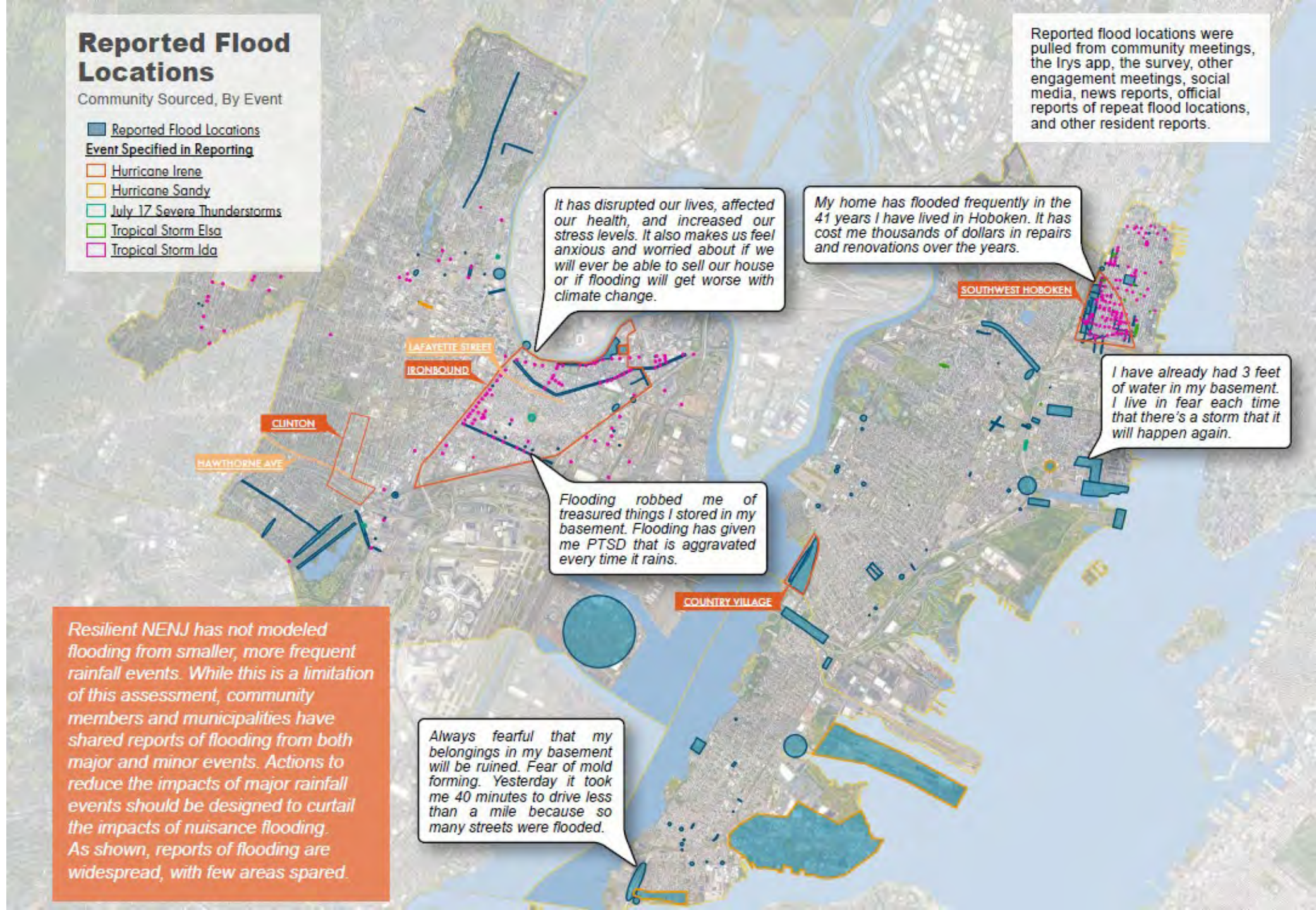
My home has flooded frequently in the 41 years I have lived in Hoboken. It has cost me thousands of dollars in repairs and renovations over the years.

I have already had 3 feet of water in my basement. I live in fear each time that there's a storm that it will happen again.

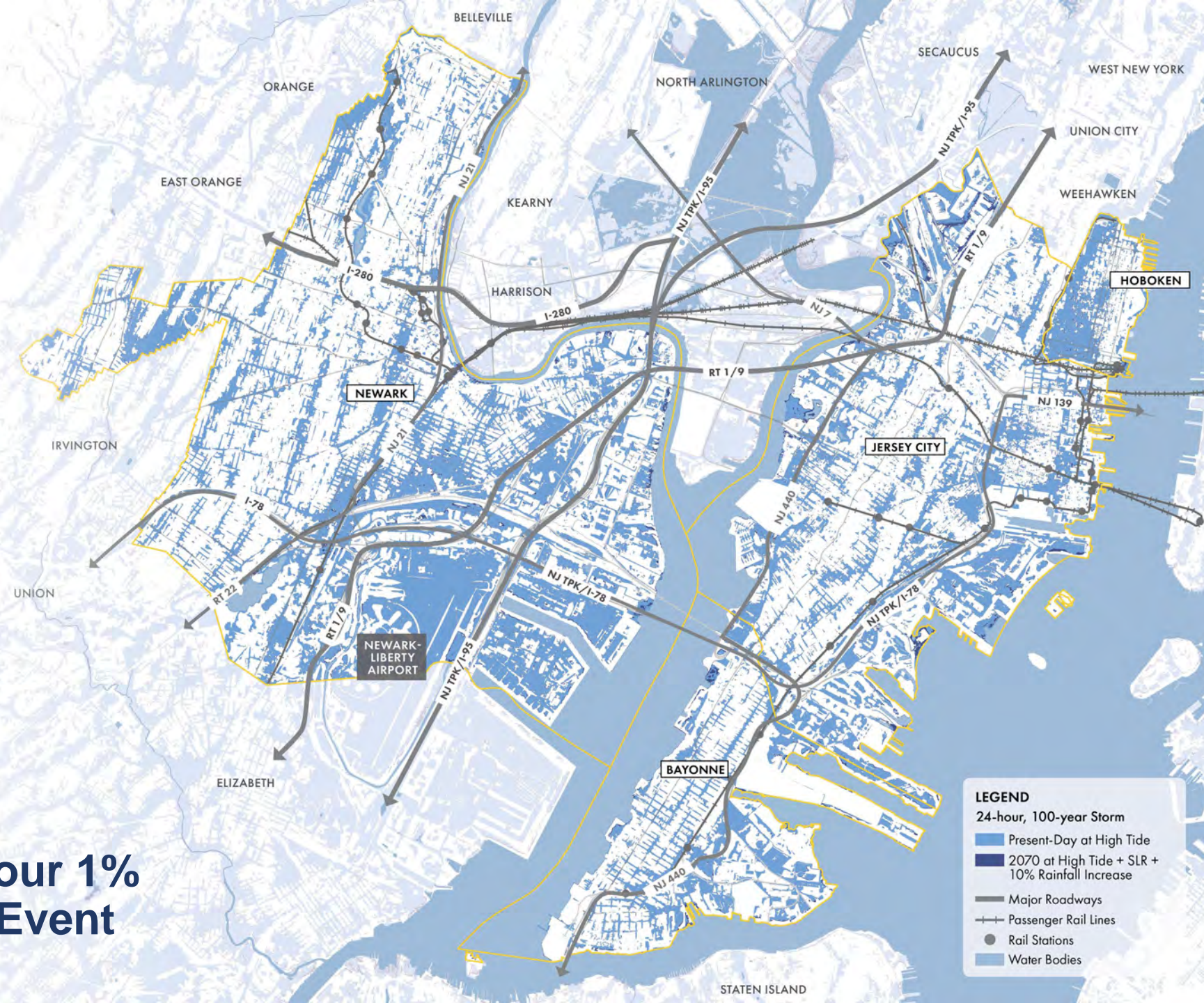
Flooding robbed me of treasured things I stored in my basement. Flooding has given me PTSD that is aggravated every time it rains.

Always fearful that my belongings in my basement will be ruined. Fear of mold forming. Yesterday it took me 40 minutes to drive less than a mile because so many streets were flooded.

Resilient NENJ has not modeled flooding from smaller, more frequent rainfall events. While this is a limitation of this assessment, community members and municipalities have shared reports of flooding from both major and minor events. Actions to reduce the impacts of major rainfall events should be designed to curtail the impacts of nuisance flooding. As shown, reports of flooding are widespread, with few areas spared.

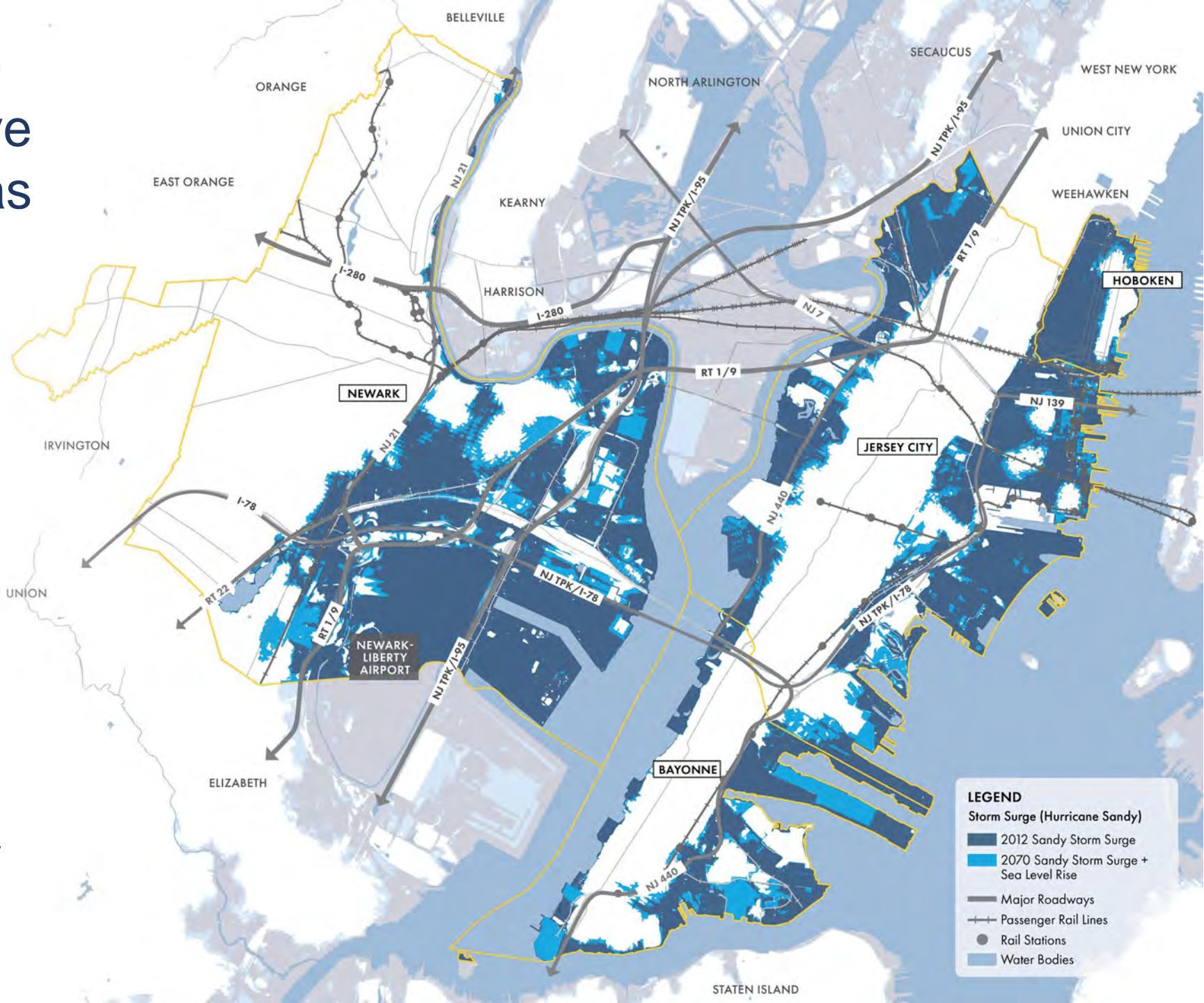


Current and Future 24-hour 1% Annual Chance Rainfall Event



Sandy caused extensive flooding to coastal areas in 2012. Sea level rise will worsen the storm surge associated with similar level storms.

Sandy in 2012 and Sandy projected in 2070



2 of every **5**
residents

**WHO and WHAT
may be impacted
by flooding?**

*Based on
evaluation*

15,000
buildings worth
\$61 B

1,500
acres of park
space

70%
of daily economic
output

What could be the costs of inaction?



DISCUSSION

Why is engagement important to resilience planning?

What concerns you most about the possible impacts of flooding and other hazards?

**What do possible solutions
look like?**

What could this plan include?

TYPES OF SOLUTIONS WE'RE EVALUATING



Physical and
nature-based
solutions

**Example: Conversion
of vacant and
abandoned lots**



Recommended
changes to
policies and
governance

**Example: Incentives
for green
infrastructure**



Outreach,
education, and
capacity building

**Example: Flood
management 101
campaign**



Service and
program
development

**Example:
Resilience hubs**



Emergency
response and
preparedness

**Example: Improved
flood warning
systems**

Image sources

1. Google Maps Streetview
2. Arcadis
3. Arcadis
4. [Urban Sustainability Directors Network](#)
5. [Sea Isle News](#)



FLOOD PROTECTIONS INTEGRATED WITH PUBLIC INFRASTRUCTURE Chicago Riverwalk



INLAND ROAD ELEVATION Miami Beach, Florida



ELEVATED BOARDWALK INTEGRATED WITH NATURE BASED COASTAL PROTECTIONS Pier 26, Hudson River Park New York City



‘SPRING DAM’ Reading, United Kingdom



RIVERWALK INTEGRATED WITH NATURE BASED COASTAL PROTECTIONS Hunter's Point Brooklyn, New York City



RIVERWALK WITH COASTAL PROTECTIONS Newark Riverfront Park



URBAN STORMWATER RETENTION PARK
Qunli Stormwater Wetland Park Haerbin, China



STORMWATER MEDIAN Via Verde Mexico City



STORMWATER SURFACE CONVEYANCE Lick Run Greenway South Fairmont, Cincinnati



URBAN STORMWATER RETENTION PARKS
Venice Island Philadelphia



DEEP TUNNEL STORMWATER CONVEYANCE & STORAGE Indianapolis, IN



BLUE & GREEN INFRASTRUCTURE ELEVATED HIGHWAY Via Verde Mexico City



GREEN INFRASTRUCTURE ON PRIVATELY OWNED SPACES First Avenue Water Plaza
Manhattan, New York City



REGIONAL URBAN GREENWAY The BeltLine
Atlanta, Georgia



GREEN PLAYGROUND P.S. 111
Manhattan, New York City



PERMEABLE PARKING SURFACES TU Delft
Netherlands



R.O.W GREEN INFRASTRUCTURE Queens, NY,
NY



BLUE & GREEN ROOFS Osbourne Association South
Bronx, New York City

DRAINAGE SOLUTIONS *EASE*

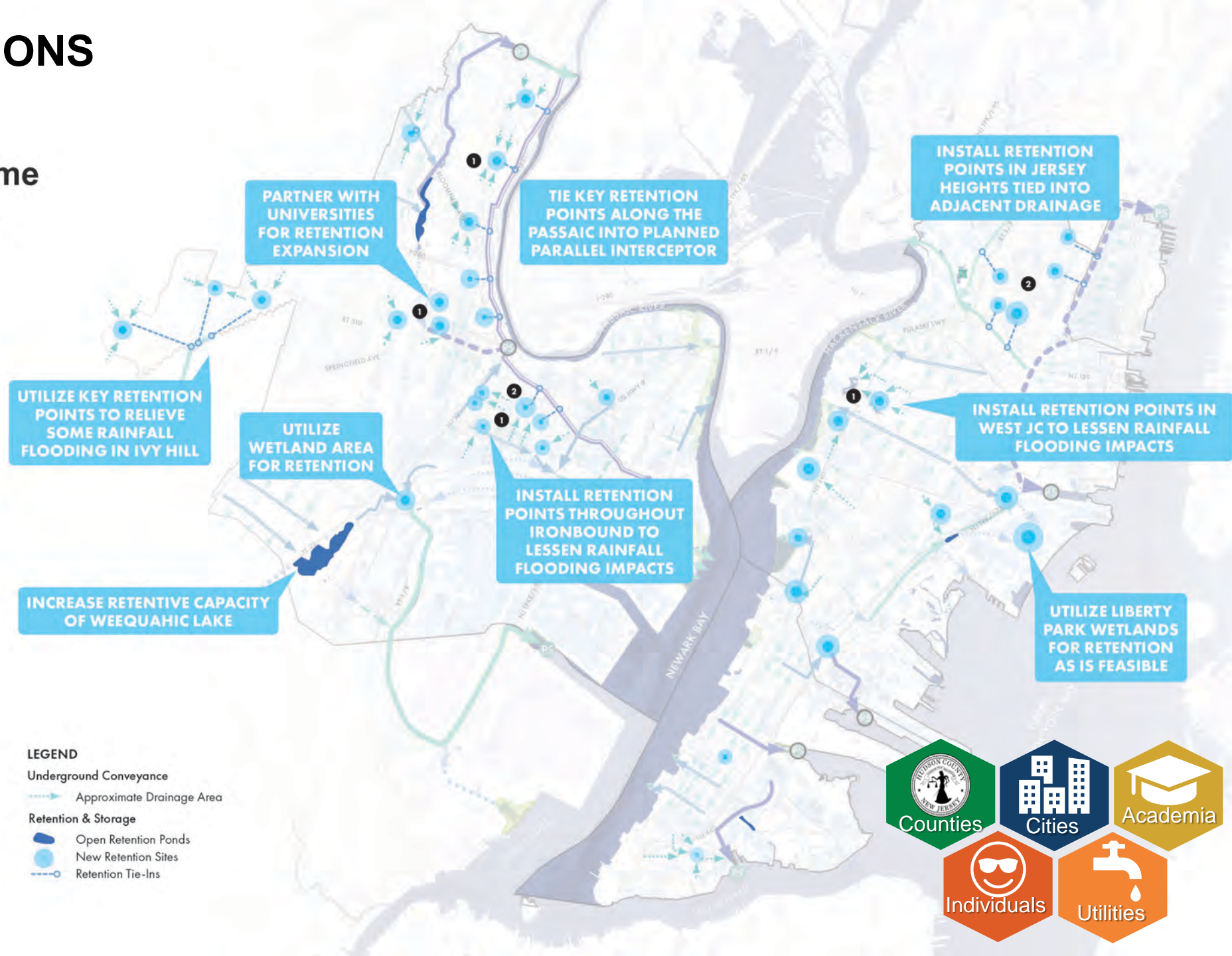
Reduce Stormwater Volume
Through Large Retention
Sites



John W. Cook Academy Schoolyard
Chicago, Illinois



Bentheplein, Water Square
Rotterdam, Netherlands



What are examples from our area?

PROJECTS THAT ARE ALREADY BEING ADVANCED OR HAVE BEEN COMPLETED

**Coastal:
Rebuild by
Design –
Hudson River
in Hoboken**



**Drainage:
Fitzpatrick Park in
Bayonne**



**Drainage and green
infrastructure: Southwest
Park in Hoboken**



**Green infrastructure:
Demonstration projects in
Jersey City**

EXAMPLE STRATEGIES

1. Resilience hubs
2. Community-led resilience planning
3. Workforce development
4. Hiring policies
5. Community benefit agreements
6. Business continuity plans
7. Disaster collectivism
8. Community stewardship of green space

1

RESILIENCE HUBS

More info from the *Urban Sustainability Directors Network*:

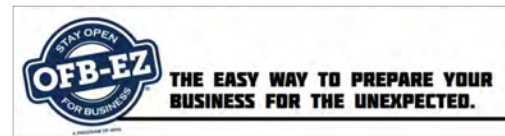
<http://resilience-hub.org/>



2

BUSINESS CONTINUITY PLANS

Example: *Open for Business-EZ*



3

WORKFORCE DEVELOPMENT

Example: *Newark Green Works*



EXAMPLE STRATEGIES

1. Increasing floodplain construction standards
2. Increasing standards for on-site stormwater management
3. Incorporating resilience into land use planning and zoning
4. Incorporating resiliency in Capital Infrastructure Planning
5. Adapting governance to advance resiliency

1

FLOOD RESISTANT CONSTRUCTION STANDARDS

Example: *Hoboken Resilient Building Design Guidelines*



2

STORMWATER MANAGEMENT POLICIES

Example: *Jersey City Flood Overlay Zone*



DISCUSSION

What actions stand out to you most as ones you would like to see in your community and why?

What role do you want to play in implementation of solutions like these?

Do you have any questions?

How do we compare alternatives?

WE USE EVALUATION CRITERIA

IS ANYTHING MISSING? WHAT IS MOST IMPORTANT TO YOU?

