



# RESILIENT NJ NORTHEASTERN NEW JERSEY

IDA AFTER ACTION REPORT: RECOMMENDATIONS FOR  
EMERGENCY MANAGEMENT

SEPTEMBER 2022

**Doremus Corridor**

Image Source: City of Newark Office of Planning & Zoning



RESILIENT  
NORTHEASTERN  
NEW JERSEY

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Please visit our website at [www.resilient.nj.gov/nenj](http://www.resilient.nj.gov/nenj) to learn more about the project and what we've done so far.

**We also welcome you to share your thoughts on the broader project:**

- BY EMAIL: ResilientNENJ@dep.nj.gov
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- THROUGH OUR WEBSITE: [www.resilient.nj.gov/nenj](http://www.resilient.nj.gov/nenj)
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Resilient Northeastern New Jersey (Resilient NENJ) is developing a regional action plan to address current and future flood and climate-related risks and improve quality of life in Jersey City, Newark, Hoboken, and Bayonne. The project is a partnership between the four cities, Hudson County, Ironbound Community Corporation, and HOPES CAP, Inc (the Region Team). Representatives from each sit on the Steering Committee that leads the project. Resilient NENJ is part of the Resilient New Jersey program, administered by the New Jersey Department of Environmental Protection (NJDEP) and funded by the U.S. Department of Housing and Urban Development (HUD).

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**Thank you to the many community members, community-based organizations, agencies, and regional stakeholders that have contributed to the Resilient NJ process to date.**



# RESILIENT NJ

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# ABOUT THIS REPORT

Resilient NJ is a state planning program that brings together resilience experts, local leaders, community organizations, residents, and regional infrastructure entities to discuss climate change and flood-related issues and develop effective solutions to reduce flood risk and build resilience. The program is administered by the New Jersey Department of Environmental Protection (NJDEP) and funded by the U.S. Department of Housing and Urban Development (HUD). The Resilient Northeastern New Jersey (Resilient NENJ) team addresses these goals in the region that includes Jersey City, Newark, Hoboken, and Bayonne.

Resilient NENJ develops actions to address current and future climate-related risks that build toward long-term social, economic, and physical resilience. These actions include physical actions, like green infrastructure and building improvements, and non-physical actions like policies and programs. Resilient NENJ began with a focus on flood hazard, and the program has been expanded in response to community feedback to include other climate-related hazards.

Resilient NENJ launched in the Spring of 2021 with a visioning phase in which residents shared their current and future priorities and goals for their communities. The project team also gathered initial feedback about possible tools to increase resilience, including different physical and nature-based projects and policy and governance actions. In late summer 2021, the region was affected by several heavy rain events. For many communities, the remnants of Hurricane Ida were the most devastating.

Following feedback from the community, municipalities, counties, and State of New Jersey, the Resilient NENJ team had conversations with community members and local and state emergency managers to reflect on the storms that took place in 2021. The tools, or solution types, for the project were expanded to include emergency preparedness and response. This report serves multiple purposes:

- Summarizes engagement and analyses completed in response to the storms of 2021, including data collected by local emergency managers
- Summarizes the outcomes of the remnants of Hurricane Ida, challenges and successes in response and recovery, and recommendations for the future
- Provides broader recommendations about best practices for emergency management in the region that arose through engagement and analysis of data. The Resilient NENJ [Action Plan](#) integrates recommendations from this report

This report will follow the Federal Emergency Management Agency's (FEMA) four phases of a disaster (see Definitions): preparedness, response, recovery, and mitigation.

# DEFINITIONS

**100-Year Flood** – A commonly used term often referring to a 1-percent annual chance event. This terminology is misleading, as it implies that a sized event should only happen once every 100 years, which is not the case. Today’s 1-percent annual chance event has nearly a 40-percent chance of occurring at least once in the next 50 years.

**Annual Exceedance Probability** – The annual exceedance probability is the probability that a flood or rainfall event of a given size might be met or exceeded in any given year. It is based on long-term statistics of observed storms in the area.

**After Action** – A document intended to capture observations of an event or exercise and make recommendations for improvements.

**Areal Flooding** – Areal floods occur when flooding develops more gradually and comes from sustained rainfall over a longer period. The Resilient NENJ models use around 8 to 9 inches over 24 hours, which is similar to Ida or Irene, depending on the area.

**Flash Flooding** – Flash floods occur when there is a significant amount of rainfall over a short period of time. The Resilient NENJ models use around 3.5 inches over two hours, which is a little worse than Floyd (1999), Irene (2011), and Henri (2021) in most places and not nearly as heavy as the worst of Ida in 2021.

**Flood Watch** – A Flood Watch is issued when conditions are favorable for a specific hazardous weather event to occur. It does not mean flooding will occur, but it is possible.

**Flash Flood Warning** – A Flash Flood Warning is issued when a flash flood is imminent or occurring. If you are in a flood-prone area, move immediately to high ground. A flash flood is a sudden violent flood that can take from minutes to hours to develop. It is even possible to experience a flash flood in areas not immediately receiving rain.

**Flash Flood Emergency** – Life threatening inundation is occurring in a highly/densely populated area.

**Future Flooding** – In the modeling done for Resilient NENJ, future flooding represents potential conditions in 2070; however, due to changing understanding of the rate of climate change, this may occur sooner. This future modeled event incorporates both sea level rise and increasing rainfall.

**Mitigation** – The goal of mitigation is to, “reduce the loss of life and property by lessening the impact of future disasters.”<sup>1</sup>

**Preparedness** – A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action to ensure effective coordination during incident response.

**Present Day Flooding** – In the modeling done for Resilient NENJ, the present day is represented by conditions without sea level rise.

**Response** – The response occurs during and immediately following a disaster and is the ability to, “respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident.”<sup>1</sup>

**Recovery** – The recovery phase, depending on the severity and scale of a disaster is the longest phase taking months to years. Recovery is defined as the “focus on the timely restoration, strengthening and revitalization of infrastructure, housing and a sustainable economy, as well as the health, social, cultural, historic and environmental fabric of communities affected by a catastrophic incident.”<sup>1</sup>

<sup>1</sup>“Mission Areas and Core Capabilities.” FEMA.gov, [www.fema.gov/emergency-managers/national-preparedness/mission-core-capabilities](http://www.fema.gov/emergency-managers/national-preparedness/mission-core-capabilities).



Debris Clean-up in Jersey City  
Source: Jennifer Brown / City of Jersey City

# REMNANTS OF HURRICANE IDA – EVENT SUMMARY

This section provides an overview of the remnants of Hurricane Ida (Ida). Ida provided multiple meteorological hazards that affected New Jersey, but this report focuses on flood-related hazards.

# REMNANTS OF HURRICANE IDA – EVENT SUMMARY

## RECORD-BREAKING RAINFALL <sup>2</sup>

2021 was the 9th wettest year on record in Newark, a dataset which began in 1932 and is representative of rainfall across the Resilient NENJ region. It was the 10th wettest August on record with 7.19 inches recorded, 2.89 inches above average. This wet August came on the heels of the third wettest July on record with 8.91 inches of rain. August 21-22 was the wettest 48-hour stretch of the month, recording 3.79 inches of rain. Prior to flash flooding caused by Ida, there were three other noteworthy flash flood events in Northeastern New Jersey earlier that summer – July 2, July 17, and August 21-22 (Tropical Storm Henri). Tropical Storm Elsa also caused flooding in the region on July 8, which was exacerbated by the recent rainfall on July 2, but the National Weather Service (NWS) did not register Elsa as a flash flood event within the region.

Out of the top-10 greatest 24-hr rainfalls at KEWR (Newark Airport), 5 events have occurred since 2007. This statistic shows that these extreme events are becoming more frequent. Ida topped the top-10 list with a 24-hr rainfall amount of 8.41 inches, exceeding the second greatest amount by 1.68 inches.

Newark Airport is the only location of a NWS Automated Surface Observation Station (ASOS) rainfall gauge within the region, although there are other rainfall gauges that supplement this official data.

## IDA'S TIMELINE

Ida made landfall along the Louisiana coast on Sunday, August 29 as a major Category 4 hurricane. The storm moved through the Ohio River Valley, weakened to a tropical depression, and continued to move eastward through the Mid-Atlantic and New England.

The National Oceanic and Atmospheric Administration's (NOAA) Weather Prediction Center predicted the three days leading up to September 2 would be "Moderate Risk," "High Risk," and "High Risk," respectively for flooding.

Leading into the remnants of Hurricane Ida, forecast confidence began to increase during the day of August 29, 2021. NOAA issued

a Flash Flood Watch for the entire region at 3:58 PM on August 30 for Wednesday afternoon (September 1) through early Thursday afternoon (September 2).

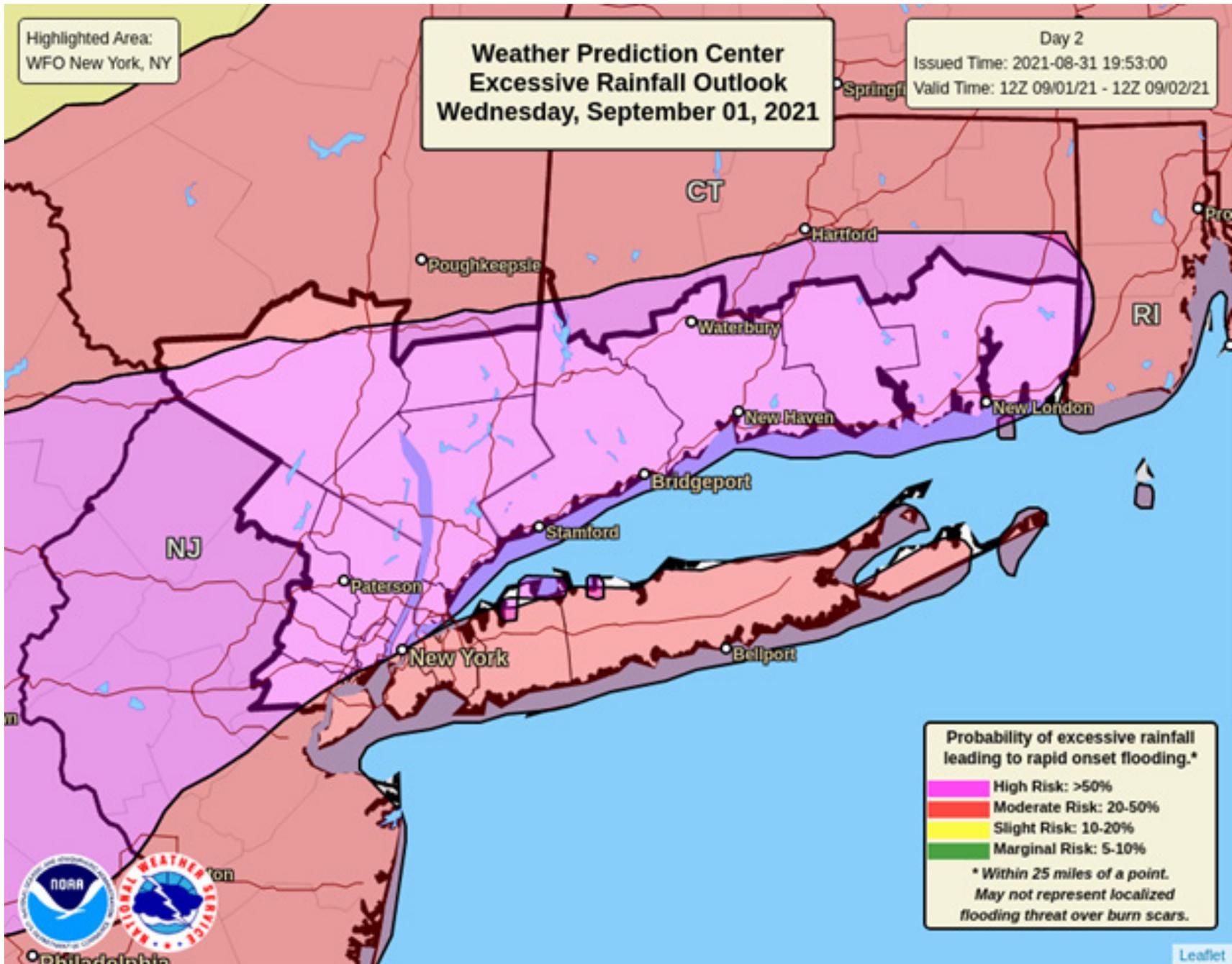
Rain began during the afternoon on September 1 and picked up in intensity through the evening. Peak rainfall rates of up to 0.12" per minute happened between 8 and 9 PM on September 2. Rainfall intensity began to wane after 10 PM. A widespread 4 to 9 inches of rain fell across Essex and Hudson counties.

At 5:54 PM, NOAA issued a Flash Flood Warning for the region. NOAA escalated the warning at 7:34 PM with, "life threatening flash flooding." A little more than an hour later at 8:41 PM, NOAA upgraded the warning once again to a Flash Flood Emergency. At that point, between 2 and 5 inches of rain had already fallen, depending on the area, with an additional 1.5 to 3 inches possible.

NOAA's Weather Prediction Center (WPC) issues excessive rainfall outlooks daily for Days 1, 2 and 3. "High Risk Days" are correlated to significant damage and fatalities. Two out of 5 (roughly 44-percent) of all flood-related fatalities occur during "High Risk Days" and these days have also accounted for 86-percent of total US flood-related damages. High Risk Days are rare, not only regionally, but nationally. Over the course of an entire year, only 4-percent of the days in a year are highlighted as "High Risk Days."

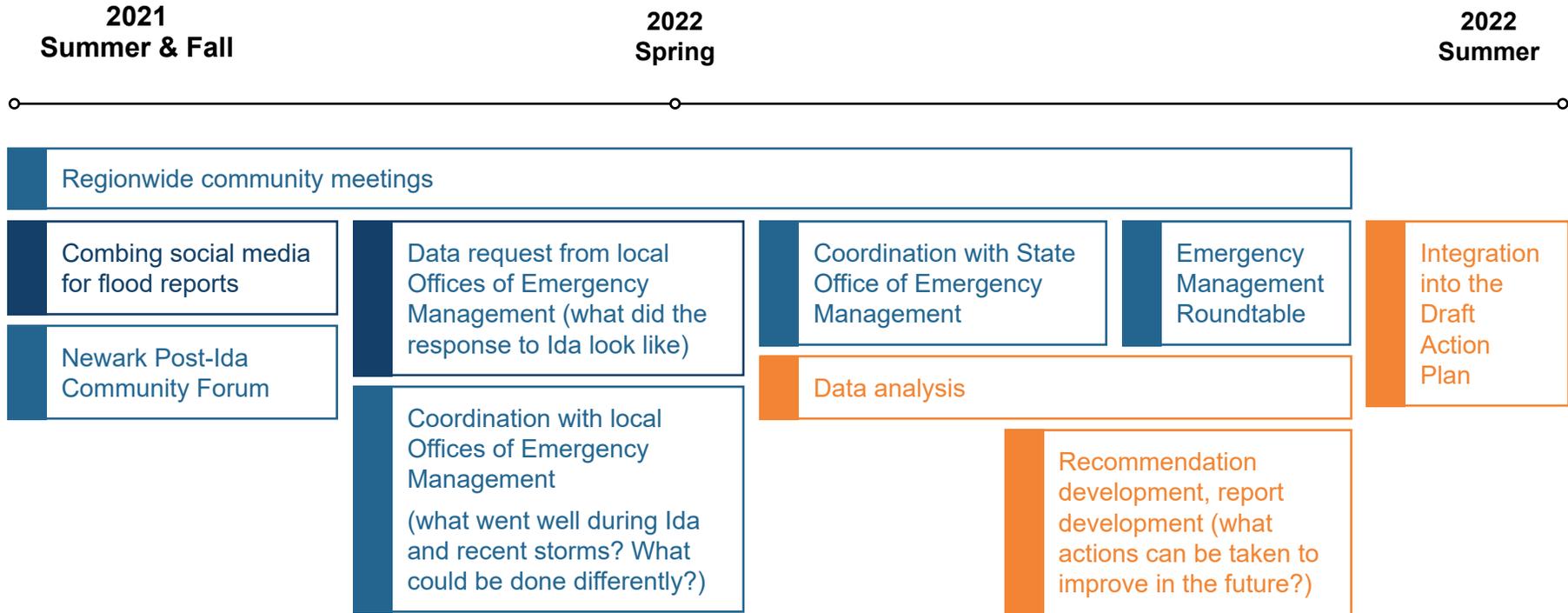
<sup>2</sup>xmACIS. Applied Climate Information System, Web. 18 June 2022. <[xmaccis.rcc-acis.org](http://xmaccis.rcc-acis.org)>.

<sup>3</sup>National Weather Service New York, NY. (2021, November 30). Post tropical depression Ida. ArcGIS StoryMaps. <https://storymaps.arcgis.com/stories/2bb3162ec37e43e791020d9d8f093bbf>



This shows the NOAA Weather Prediction Center outlook for the region as High Risk on Day 2

# OVERVIEW OF RESILIENT NENJ'S IDA AFTER ACTION PROCESS

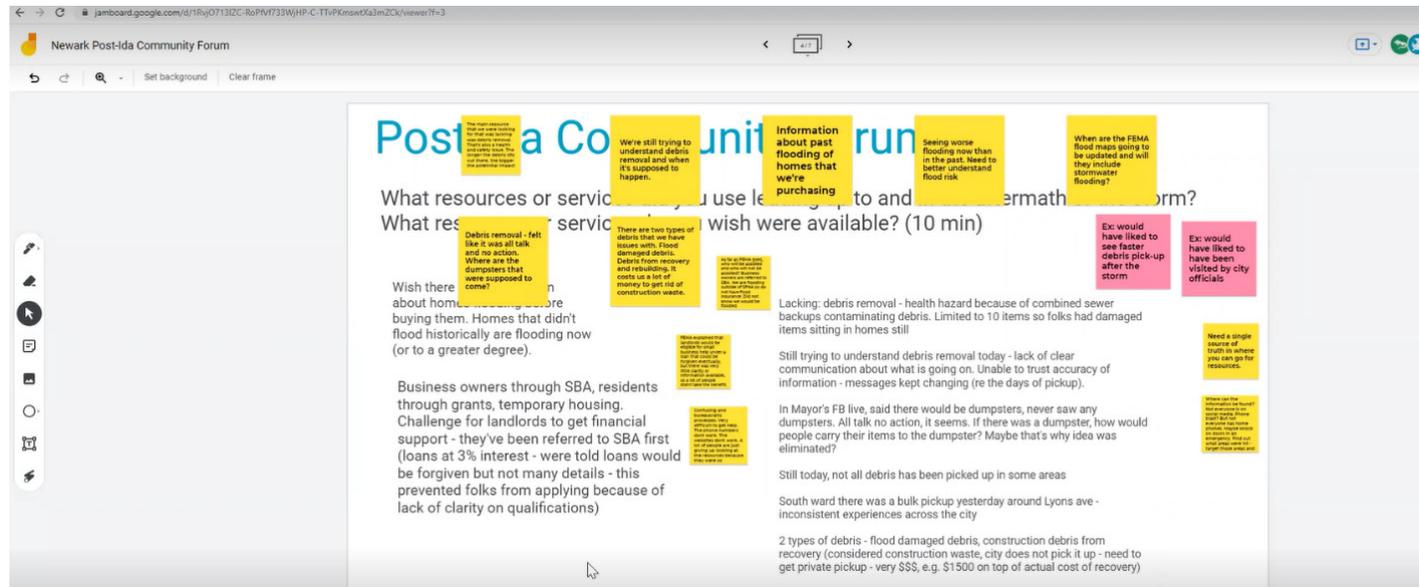


**KEY**

<p><b>ENGAGEMENT</b></p> <p>to understand what went well and did not go well during Ida, what people would like to have happened differently</p>	<p><b>INFORMATION GATHERING</b></p> <p>to understand where flooding occurred and what the response looked like</p>	<p><b>ANALYSIS</b></p> <p>to compile feedback, understand the data, and develop recommendations</p>
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# IDA AFTER ACTION PROCESS

# IDA AFTER ACTION PROCESS



*Newark Community Forum in October 2021 discussing the impacts post-Ida*

## ENGAGEMENT PROCESS

Resilient NENJ engaged community members, local Offices of Emergency Management (OEM departments), and the New Jersey Office of Emergency Management (NJOEM) to gather feedback from both the public and first responders about the impacts of Ida, communications leading up to the storm, and management of response and recovery.

Resilient NENJ conducted a Newark-focused Post-Ida Community Forum in October 2021 and a regionwide community meeting in November 2021. During these meetings, residents shared stories of the damages from Ida and reflections about warnings,

response, and challenges accessing recovery resources (raw feedback from the Newark Post-Ida Community Forum is in Appendix D). The other regional municipalities and the State also had community feedback sessions. The recommendations in this report integrate feedback from these community meetings.

Local OEM departments are responsible for leading the response to storms like Ida, including planning for storms, managing alert systems, and deploying first responders and resources to help rescue people in danger. Each of the four cities has its own OEM department, and these departments work closely with the Hudson County or Essex County OEM departments, which in turn coordinate with NJOEM. If resources

are exhausted at the state level, federal resources are available upon an emergency declaration made by the Governor's office. On September 5, 2021, President Biden signed a Major Disaster Declaration for the State of New Jersey for remnants of Hurricane Ida from September 1-3, 2021, which unlocked additional federal funding and support toward disaster recovery and mitigation.

Resilient NENJ engaged local, county, and State OEM departments in the winter and spring of 2022, and these groups came together for an Emergency Management Roundtable meeting in April 2022 to share best practices and reflect on Ida.

## DATA COLLECTION

Analysts used flooding location information and response and resource deployment details from Ida to support recommendation development. Resilient NENJ obtained flooding location data from reports from community meetings and the Post-Ida Community Form, from lists provided by affected cities and their offices of emergency management (OEM), and by combing social media. Analysts compiled these data to create an inventory of flood locations and then overlaid with other collected data.

Resilient NENJ requested the following data from the OEM directors in Jersey City, Newark, Hoboken, and Bayonne:

- 9-1-1 call logs from 3 PM September 1, 2021, to 12 AM September 2, 2021, with personal details omitted
- Staffing numbers: this information helped analysts understand if/when off-duty firefighters needed to be recalled and if mutual aid was used
- Messaging sent via text alert, reverse 9-1-1 activation, or social media
- List of any public works-related calls for infrastructure issues
- Dash cam / body cam footage of the response
- What equipment/resources were used during the response

Resilient NENJ requested additional data indicating damage and restoration costs

expended and submitted to FEMA for reimbursement as part of the Ida Major Disaster Declaration. Resilient NENJ sent the requests to FEMA, the State OEM, and the municipalities. Tables showing documented damages are included in the Findings section.

Analysts conducted phone interviews with emergency managers from the local municipalities and discussions from the roundtable helped build out the list of recommendations presented herein.

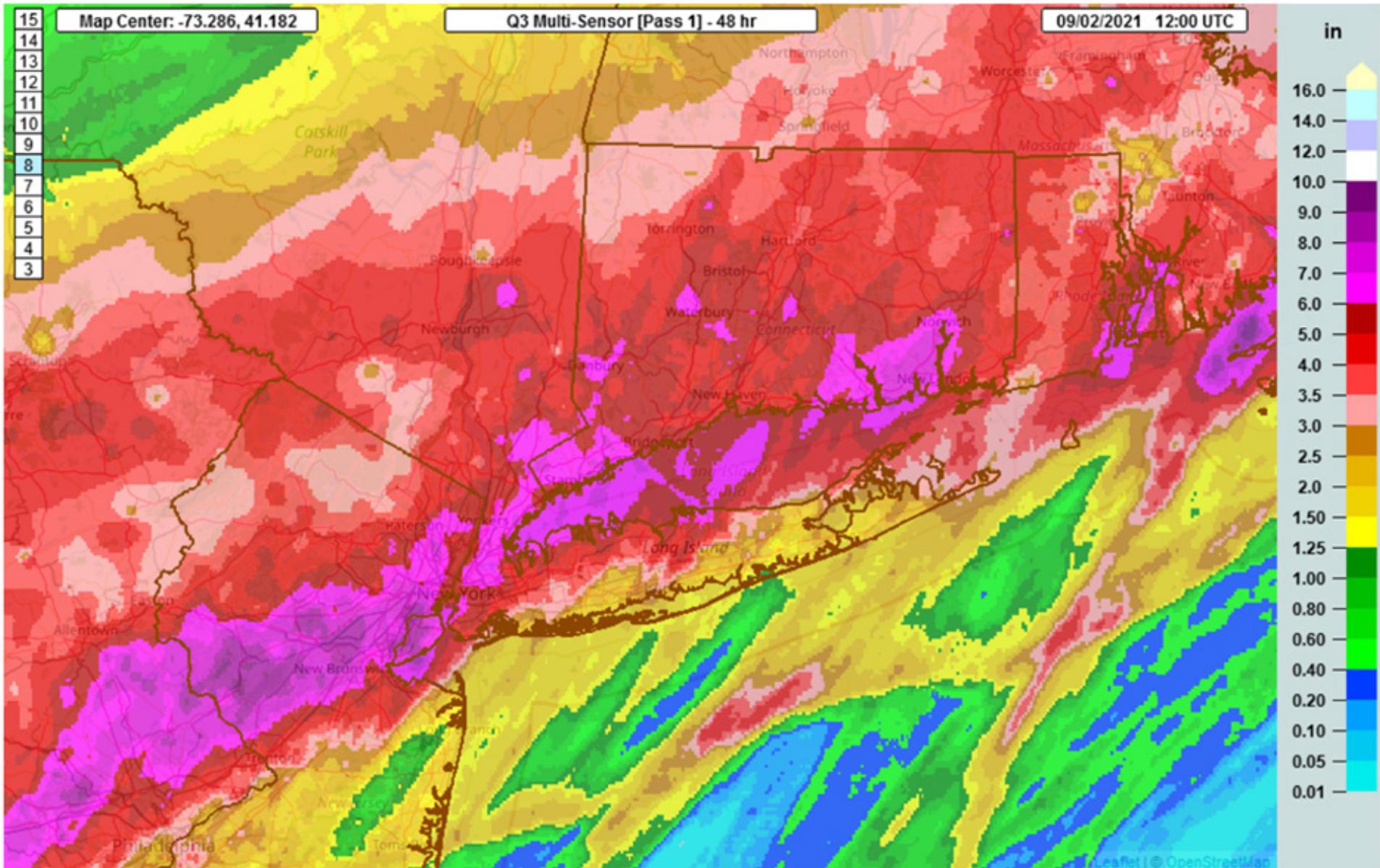
## DATA PROCESSING

Resilient NENJ analysts cross-referenced the 9-1-1 call data provided by local OEM departments with the rainfall intensity graph from Newark Airport. The data showed a positive correlation between increased density and frequency of flood-related emergency calls and the heaviest rainfall rates. The timing of increased call volume also aligned with the National Weather Service upgrading the language of their flash flood warnings and eventually flash flood emergency.

Resilient NENJ analysts also overlaid the geolocation of the 9-1-1 calls on new flood maps developed by NJDEP for Resilient NENJ, including modeled flash flood (3.4 and 3.7 inches over 2 hours statewide) and areal flood (8.41 and 9.2 inches over 24-hours statewide) events. Ida could be considered comparable to the modeled events,

though the models include uniform rainfall statewide. Using the Newark Airport rainfall data for Ida as a go-by, the present and future flash flood models were lower than peak rainfall at Newark Airport, but Newark Airport saw 8.41 inches of rainfall during Ida over 24-hours, which is comparable to the lower areal flood model. Overlaying these data is helpful to understand how the dispatch locations during Ida aligned with predicted areas of severe flooding (the maps cited here are in Appendix A).

<sup>4</sup>According to rainfall records reported in *Ida Remnants Strike New Jersey*, Dr. David A Robinson, Rutgers University, <http://climate.rutgers.edu/stateclim/?section=menu&target=Ida>



National Weather Service doppler radar estimates for the region.

...Essex County...

Maplewood	8.39 in	0800 AM	09/02	COCORAHS
Orange Reservoir	8.32 in	0400 PM	09/02	IFLOWS
Montclair	7.54 in	0800 AM	09/02	COCORAHS
West Caldwell Twp 1.3 NE	7.10 in	0900 AM	09/02	COCORAHS
Essex Fells	7.08 in	0600 AM	09/02	Unknown
Newark	6.96 in	0415 PM	09/02	AWS
West Orange	6.66 in	0605 AM	09/02	CWOP
0.6 SW Caldwell	6.64 in	0345 PM	09/02	IFLOWS
West Caldwell	6.63 in	0605 AM	09/02	CWOP
Bloomfield	6.47 in	0605 AM	09/02	CWOP
Livingston Twp 2.0 NNE	6.28 in	0700 AM	09/02	COCORAHS
Caldwell	6.21 in	0353 PM	09/02	ASOS
Verona	5.82 in	0840 AM	09/02	COCORAHS
Glen Ridge	5.70 in	1119 AM	09/02	AWS
Livingston	5.59 in	0600 AM	09/02	CWOP

...Hudson County...

Harrison	8.72 in	0700 AM	09/02	COOP
Kearny	7.91 in	0600 PM	09/02	Cocorahs
Jersey City	6.57 in	0415 PM	09/02	AWS
1 ENE Jersey City	5.68 in	0415 PM	09/02	AWS
Secaucus	5.63 in	0415 PM	09/02	AWS
1 SW Jersey City	5.54 in	0415 PM	09/02	AWS
Weehawken	5.07 in	0415 PM	09/02	AWS
Hoboken	4.93 in	0607 AM	09/02	CWOP

*National Weather Service Public Information Statement. The National Weather Service list of observed storm total rainfall for Essex and Hudson counties*



**Doremus Corridor**

Image Source: City of Newark Office of Planning & Zoning

# FINDINGS

Although response measures seemed to mostly function as designed during Ida, the storm was an extreme event that exceeded the capacities of these systems. Lessons learned from Ida can help us grow and become better prepared for future storms of varying scales. This section provides a highlight of Ida's impacts, including experiences during Ida, damages, and rescues that took place, based on feedback received through the engagement process, as well as findings based on data collection and analysis.

# FINDINGS

## EXPERIENCES AND IMPACTS FROM IDA

Through surveys, interviews, social media, and meetings, Resilient NENJ heard from community members about their experiences during Ida. Leading up to the storm, many of the cities issued warnings to residents through social media, Nixle, or phone calls. Despite these communications, many residents expressed feeling that they did not know that they were at risk, especially because their homes were not within FEMA's mapped regulatory flood zones.

Due to the excessive rainfall, many residents reported flooding in their homes that caused thousands of dollars in damages, in some cases making them uninhabitable and displacing them. Some participants expressed that flooding was made worse by large vehicles, such as garbage trucks, passing through flooded streets. They reported that this caused a wake, or waves of water, that further damaged homes and materials that residents had moved into garages while cleaning after the storm. Residents in the Ironbound community reported this as a particular issue.

Many vehicles were totaled or abandoned because water blocked streets which, in many cases, left local OEM departments

responsible for clearing these vehicles after the storm. Some municipalities resorted to using payloaders and forklifts to clear vehicles because of the limited availability of tow trucks and the urgency to clear transportation paths. People were also concerned about health and safety hazards from a several-day boil water advisory in Jersey City and Hoboken, flooding associated with sewer backups, and flood debris left in or around homes due to delays in debris removal, likely the result of the scale of impacts.

Flooding also impacted transportation and infrastructure. Terminal B at Newark Liberty International Airport was temporarily closed due to flooding, and baggage areas and equipment at the airport were damaged. NJ TRANSIT rail, light rail, and PATH train lines experienced loss of services and suspended or disrupted travel for people across the region.

In the aftermath of the storm, residents were eligible to apply for assistance from FEMA due to the federal disaster declaration. Many residents expressed not knowing how to access resources and apply for funding or having issues with websites and phone numbers that were publicized, despite several virtual town halls that were organized by the municipalities, the State, and other

organizations. Many community members had not been able to receive support several months after Ida, and for some, the federal documentation requirements proved a barrier to receiving reimbursement. Resilient NENJ also heard from landlords about their confusion with the process of applying for funding through the Small Business Administration.

In response to feedback from the community during the rain-soaked summer of 2021, Resilient NENJ structured regionwide community meeting #3 to include representatives from FEMA, NJOEM, the Small Business Administration, and subject matter experts to help inform participants and answer questions about resources available to those impacted by Ida and other recent storms, as well as what residents can do to protect their homes and businesses from future flooding and prepare for storms. Resilient NENJ published the videos and materials from the meeting so that they could provide a continued resource to community members. These materials are on the [Resilient NENJ website](#).<sup>7</sup>

Ida flooded areas not known to be prone to flooding and many considered the storm to be an unprecedented event. It was one of several storms during the summer of 2021, and some residents reported flooding

<sup>5</sup>See Taylor's [NY Times article](#) and other news articles for more on flooding at Newark Liberty International Airport.

<sup>6</sup>See Higgs' [nj.com](#) article and other news articles for more on disruptions to public transportation.

# FINANCIAL SUPPORT AND PREPAREDNESS BREAKOUT



Name	Company / Agency	Topic
Bryan Miller	FEMA	Individual Assistance
Jack Camp	US SBA	Small Business Administration Funding
Andrew Farrell	Risk Reduction Plus Group	Flood Insurance
Sgt. Clint Pagano	NJOEM	NJOEM and Preparedness

2021-11-17 18:58:39

## Virtual regionwide community meeting #3

multiple times between June and September. Many residents are already accustomed to flooding and shared information about flood preparation measures they have taken such as making emergency supply kits, tracking weather reports, and elevating belongings off basement levels or first floors. Resilient NENJ

also heard from many community members about feelings of anxiety anytime it rains, and the long-term toll repeat flooding has on their well-being.

Additional documentation of feedback received about the impacts of flooding, specifically from Ida, is included as Appendix C. A summary

of the Newark Post-Ida Community Forum is attached as Appendix D and includes feedback about preparations before the storm, impacts from flooding, response, and resources in the aftermath of the storm.

<sup>7</sup><https://www.resilient-nj.com/check-out-what-we-heard-about-flooding-and-priorities-at-community-meeting-2-2/>

## DOCUMENTED DAMAGES FROM IDA

There are various types of federal funding that can support governments, non-profits, businesses, and individuals in recovery following a disaster. Support from FEMA and the U.S. Small Business Administration (SBA) is triggered for federally declared disasters such as Ida. Eligible applicants must provide documentation of damages within a certain timeframe to receive reimbursement. This page provides preliminary information about requested and allocated funding support from several federal programs to demonstrate the impacts of Ida. However, actual losses are likely to be higher than what is reflected on this page due to several factors. The process for submitting and approving reimbursement requests takes a long time, and the amounts shown here do not reflect funding not yet approved as of the writing of this report. Furthermore, there are typically people who are left out of Individual Assistance or Small Business Administration support because they do not have proper documentation of damages (see later in this report and in the Action Plan for Resilient NENJ's recommendations related to improving access to financial assistance).

### Public Assistance (PA) Grants

FEMA provides Public Assistance grants to government entities and non-profit organizations to support recovery from disasters. This table provides estimated values of reimbursement requests by each of the region's cities to support recovery from Ida. In addition to the total shown in the table, the Jersey City Municipal Utilities Authority (JCMUA), the water and sewer utility for Jersey City, estimated \$52,474,200 in damages for PA reimbursement from Ida. This table also does not reflect damages from other public entities such as the North Hudson Sewerage Authority, which is the sewer utility for Hoboken in addition to Union City, Weehawken, and West New York.

ESTIMATED PUBLIC ASSISTANCE AMOUNTS REQUESTED <sup>8</sup>				
Jersey City	Newark	Hoboken	Bayonne	Total Estimate for NENJ Municipalities
\$ 426,000	\$ 3,900,400	\$ 478,500	\$ 83,000	<b>\$ 4,887,900</b>

ESTIMATED PUBLIC ASSISTANCE AMOUNTS OBLIGATED <sup>9</sup>				
Jersey City	Newark	Hoboken	Bayonne	Total Estimate for NENJ Municipalities
\$ 0	\$ 450,400	\$ 67,200	\$ 222,200	<b>\$ 739,800</b>

<sup>8</sup>Data Source: Cities of Jersey City, Newark, Hoboken, and Bayonne, respectively, as of August 2022. Does not include data for the Jersey City Municipal Utilities Authority (JCMUA) or North Hudson Sewerage Authority (NHSA), which serves Hoboken as well as Union City, Weehawken, and West New York, or other public entities

<sup>9</sup>Data Source: FEMA Public Assistance Program, as of July 2022

## Individual Assistance (IA) Grants

FEMA provides Individual Assistance services to eligible individuals and households affected by a disaster, which have uninsured or underinsured necessary expenses and serious needs. This table provides estimated values of reimbursement requests by individuals in each of the region's cities to support recovery from Ida, as of July 2022.

ESTIMATED INDIVIDUAL ASSISTANCE AMOUNTS REQUESTED <sup>10</sup>				
Jersey City	Newark	Hoboken	Bayonne	Total Estimate for NENJ Municipalities
\$ 4,178,900	\$ 8,072,200	\$ 725,400	\$ 2,206,900	<b>\$ 15,183,400</b>

## Small Business Administration (SBA) Grants

The U.S. Small Business Administration (SBA) offers low-interest disaster loans to homeowners and renters in a declared disaster area. These loans are **not** only for business owners. These loans are intended to help disaster survivors return their disaster-damaged homes or businesses to their pre-disaster condition or better. Support for small-scale landlords to recover rental properties is also typically provided through SBA loans.

ESTIMATED SBA LOAN AMOUNTS APPROVED <sup>11</sup>				
Jersey City	Newark	Hoboken	Bayonne	Total Estimate for NENJ Municipalities
\$ 6,444,100	\$ 8,248,700	\$ 661,700	\$ 3,085,400	<b>\$ 18,439,900</b>

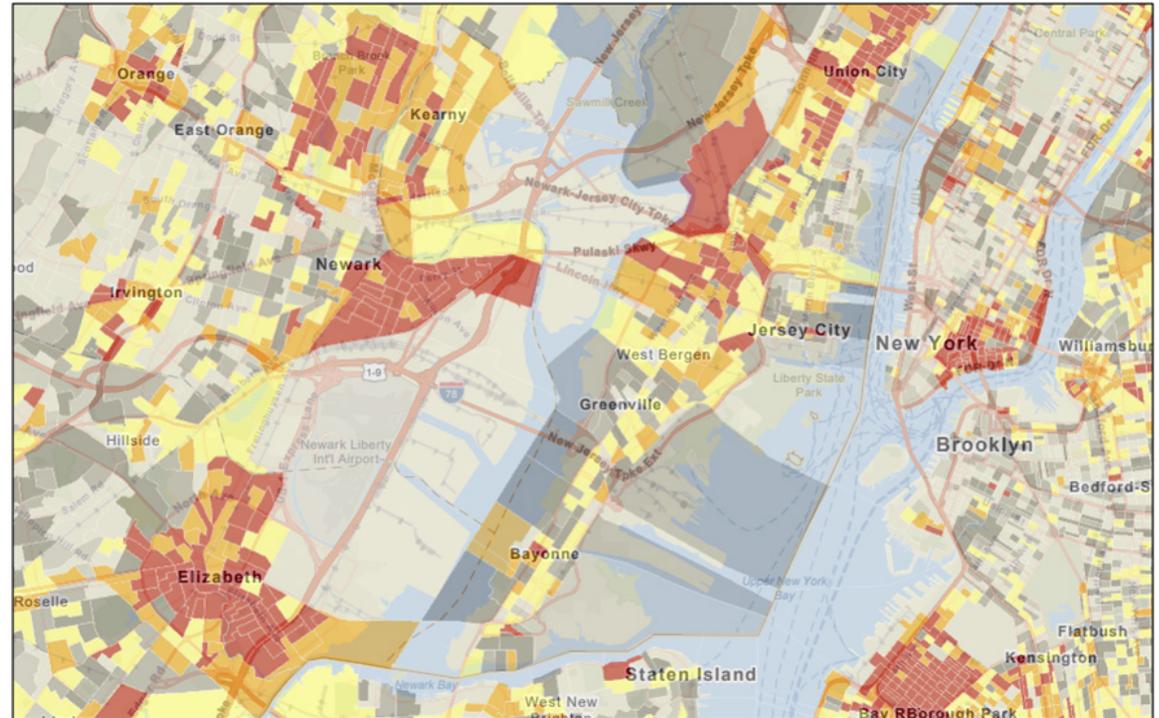
<sup>10</sup>Data Source: FEMA Individual Assistance Program, as of July 2022

<sup>11</sup>Data Source: US Small Business Administration, as of July 2022

## CHALLENGES AND OPPORTUNITIES ASSOCIATED WITH IDA PREPAREDNESS, RESPONSE, AND RECOVERY

The below includes challenges and opportunities associated with emergency management during Ida, as revealed through discussions with community members and emergency managers, as well as data review. The next section provides a list of associated recommendations.

- Flood warnings are disseminated through various communication channels. While these techniques are effective, they are limited in their ability to reach at-risk and vulnerable community members. For example, Newark reported having issues connecting with Deaf and Hard of Hearing residents. There are also significant language barriers for warnings and communications, as demonstrated by the high levels of linguistic isolation in the region.
- Staffing was sufficient for emergency response during Ida according to local OEMs. There was one exception noted - Bayonne was dispatched to a mutual aid call for a roof collapse at a USPS facility in Kearny, New Jersey. Bayonne resources were also requested for an Urban Search and Rescue call following a single-family home explosion in Linden. According to Bayonne's Emergency Management Coordinator, this was a major strain on resources



7/6/2022  
 1:144,448  
 NYC OpenData, New Jersey Office of GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NPS, USDA

- This image is from the EPA EJ Screen Mapper. It shows many neighborhoods in the region are ranked in the 95-100 percentile nationally in linguistic isolation.*
- According to Jersey City OEM, there were approximately 1,500 abandoned vehicles state-wide. Many municipalities had an issue finding tow trucks to clear vehicles off roadways, which created obstacles once water receded
    - Even in cases where roadways were barricaded, OEMs said motorists repeatedly disregarded the closures and frequently needed rescuing
    - Abandoned vehicles seemed to overwhelm towing capacity. Newark used forklifts in some cases to remove abandoned vehicles to clear critical roadways
  - A lack of waterborne vehicles slowed the response in some communities. There were instances of inaccessibility where flood waters made it impossible to reach equipment designed to handle high water

- Residents and small business owners frequently had issues applying for Small Business Administration loans and Individual Assistance grants
- Many community members expressed concern about how long it took to remove residential debris throughout the region

## PLANNING BASED ON NEW NJDEP FLOOD MODELS

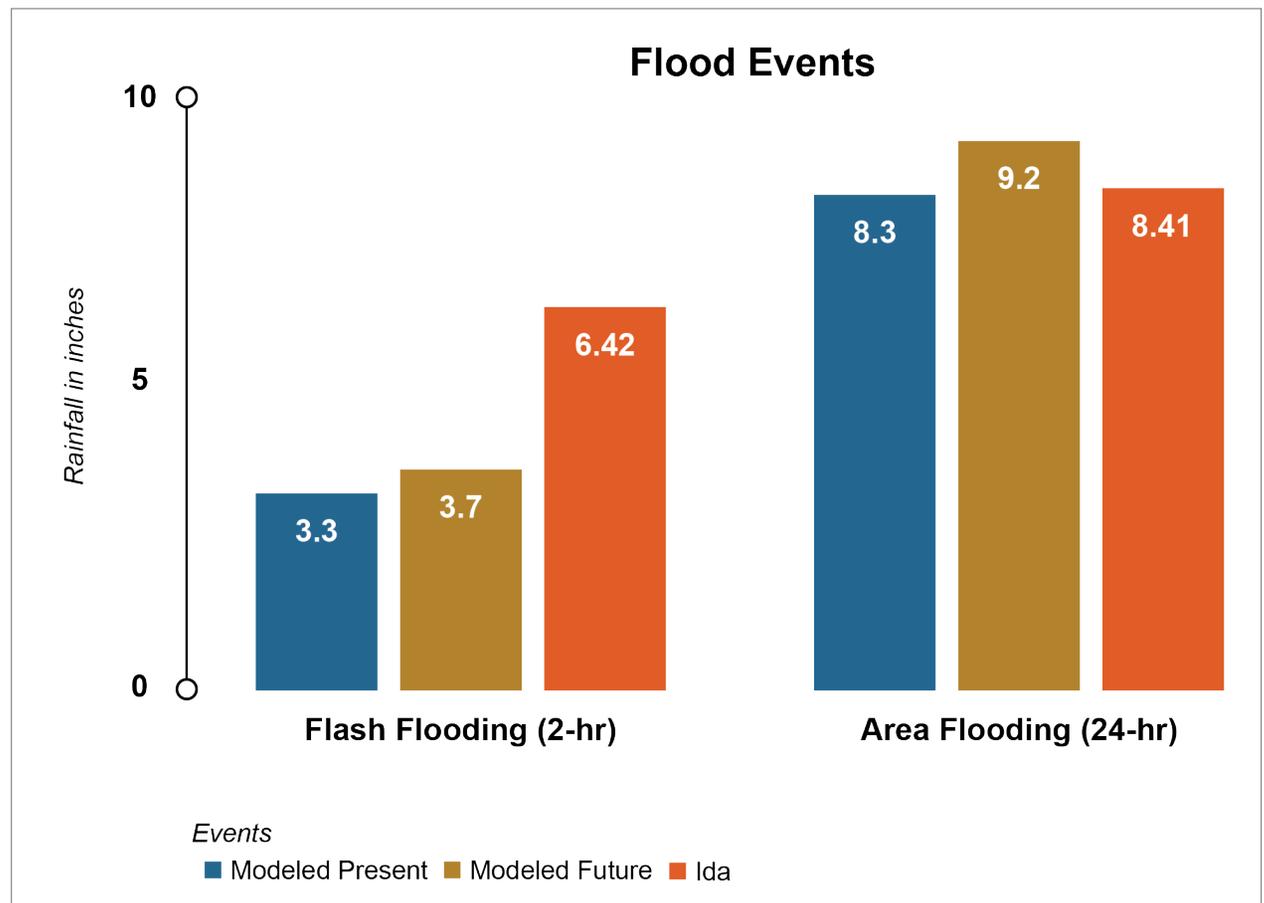
The maps in Appendix A show the locations of the 9-1-1 calls with Resilient NENJ flood mapping overlaid. Local OEM departments already use inventories of repeat flooding locations to plan emergency response, to varying extents. The new flood mapping can expand or support OEMs in detecting problem areas before an impending flood event so they might adjust current responses, operations, and evacuation plans as needed.

The flood data include two types of flood events (areal and flash flooding) with different rainfall amounts and sea level conditions. The models were developed by NJDEP to support planning for heavy rainfall events.

Analysis revealed a positive correlation between 9-1-1 call locations during Ida and the new NJDEP flood models used by Resilient NENJ, meaning that emergencies experienced during Ida aligned with the flood models' predicted flood areas.

### NJDEP rainfall flood models used for Resilient NENJ

Model Name	Rainfall amount	Time period	Sea level rise
Present Day Flash Flooding	3.3 inches	2 hours	None (Year 2000)
Future Flash Flooding	3.7 inches	2 hours	2.4 feet (Year 2070)
Present Day Areal Flooding	8.3 inches	24 hours	None (Year 2000)
Future Areal Flooding	9.2 inches	24 hours	2.4 feet (Year 2070)



*This bar graph shows how the rainfall during Ida stacks up with the NJDEP flood models for present and future conditions. Ida rainfall amounts are from the National Weather Service (NWS) Automated Surface Observing Systems (ASOS) station at Newark Liberty International Airport.*



Lexington Ave

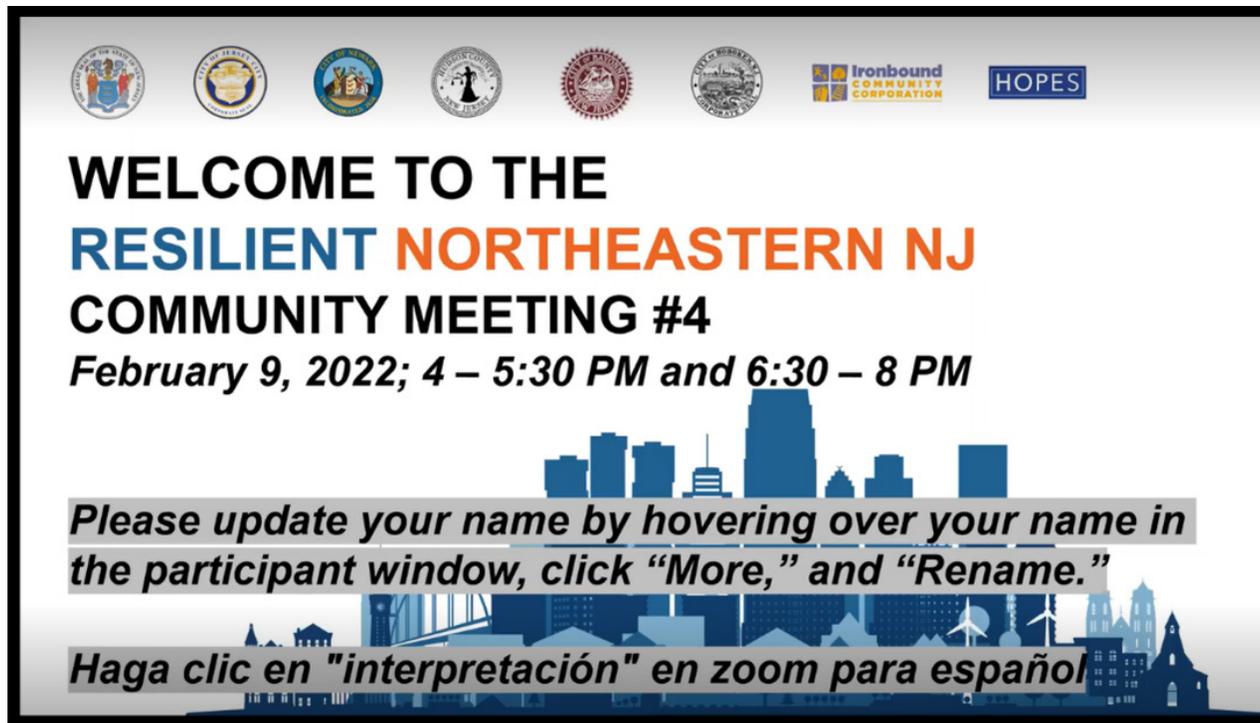
Image Source: @jj\_2989 via Twitter

# RECOMMENDATIONS

This section provides recommended actions related to Emergency Preparedness & Response developed through the engagement and data analyses. The actions include highlights of current best practices from within and outside of the region. These recommendations are one category of the larger set of recommendations that Resilient NENJ is developing, which also include actions that affect the built and natural environment, as well as other actions that will affect the way people in the region work together, such as policy and governance, outreach, education, and capacity building, and service and program development. The *Action Plan* includes more information about these other types of solutions.

# RECOMMENDATIONS

As with the other types of solutions (see the [Scenario Development](#) report for more detail), the recommendations are divided into three “scenarios,” or suites of actions, based on the level of coordination and complexity needed to implement each action.



**WELCOME TO THE  
RESILIENT NORTHEASTERN NJ  
COMMUNITY MEETING #4**  
*February 9, 2022; 4 – 5:30 PM and 6:30 – 8 PM*

***Please update your name by hovering over your name in the participant window, click “More,” and “Rename.”***

***Haga clic en “interpretación” en zoom para español***

*Community Meeting #4 discussed new flood models that help tell the story of current and future flooding, and discussed possible solutions and their implications for our communities.*

## THREE SCENARIOS

**Scenario 1, Individual Action**, includes actions that municipalities or other entities might be able to do on their own, or drive independently (with local or external funding support).

**Scenario 2, Shared Responsibility**, includes actions that would require coordination and partnership across groups, such as the private sector, community-based organizations, or municipalities working together.

**Scenario 3, Regional Coordination**, includes higher complexity projects that require significant coordination, possibly by a regional coordinating entity.

# Scenario 1: Individual Action

## Maximize use of existing available resources that can support emergency preparedness and response

Resilient NENJ identified the following example resources that could be maximized to support emergency preparedness and response in the region, with further explanation below:

- NJ Register Ready
- NWS Chat
- LESO 1033

## USE NJ REGISTER READY AS A TOOL TO IDENTIFY AND HELP THOSE WITH ADDITIONAL NEEDS

Certain people may have greater risk of harm from emergencies because of challenges with mobility or accessing resources, and many have historically been left out of planning processes. Planning for unique needs can ensure that provisions are made to protect the lives and well-being of everyone. NJ Register Ready allows New Jersey residents with disabilities or access and

functional needs and their families, friends, caregivers, and associates an opportunity to provide information to emergency response agencies so emergency responders can better plan to serve them in a disaster or other emergency. Responding agencies can also enter information for residents that they know about. Local or County OEM departments can begin, continue, or expand use of NJ [Register Ready](#)<sup>12</sup> to plan for those with additional needs. Such planning might include prioritizing door-to-door notification of evacuation needs, targeting different types of communications for different people depending on their needs, for example.

***"Lack of accessibility to residents with disability"***

*- Resilient NENJ emergency management leader*

<sup>12</sup><https://www13.state.nj.us/SpecialNeeds/Signin?ReturnUrl=%2fSpecialNeeds%2f>

<sup>13</sup><https://nj.gov/njoem/programs/leso-1033-program.shtml>

## JOIN NWS CHAT

Local or County OEM departments can join NWSChat (NWS stands for National Weather Service). NWSChat is an Instant Messaging program utilized by NWS operational personnel to share critical warning decision expertise and other types of significant weather information essential to the NWS's mission of saving lives and property. This information is exchanged in real-time with the media and emergency response community, who in turn play a key role in communicating the NWS's hazardous weather messages to the public.

## LESO 1033 PROGRAM

This program is used by both Jersey City and Hoboken. While there is an issue with availability, each of the cities were able to secure a high-water rescue vehicle for the fire department. Other communities may want to explore the possibility of using the Law Enforcement Support Organization (LESO) - [1033 Program](#)<sup>13</sup> to support acquisition of response equipment. According to NJOEM, "the U.S. Department of Defense (DoD) 1033 Program permits the Secretary of Defense of the United States of America to transfer excess DoD supplies and equipment to state, county, and local law enforcement agencies across the country for use in performing their law enforcement duties."

## Explore providing more options for emergency shelters which allow pets

Resilient NENJ received feedback that residents would like to see more options available for pet owners in times of emergencies. For many pet owners, pets are family. When asked to evacuate, the safety and wellbeing of their pet is often top of mind. For example, in situations where pets are excluded from shelters, some residents have decided to stay behind, leaving themselves in a potentially dangerous situation.<sup>14</sup> Rutgers maintains an interactive map of resources for pet owners during disasters, including pet-friendly hotels, veterinary hospitals, and animal shelters,<sup>15</sup> and the New Jersey Department of Agriculture Animal Emergency site provides additional resources for disaster planning for pet owners.<sup>16</sup>

## Increase pre-storm barricading

In advance of storms, public works or police could barricade streets that repeatedly flood. Barricading streets can prevent vehicles from traveling onto roadways that may be impassible and could lead to vehicle damage or require the vehicle to be abandoned. This can also prevent the reported phenomenon of trucks driving through flooded streets and creating waves that flood nearby properties. Hoboken and Jersey City both proactively barricade flood-prone roads. Appendix A includes some of these chronic flood areas based on 9-1-1 call locations and flood map data.

***At the end of Manufacturer's Place street - when the street floods, there are tractor trailers that come through and create wakes and flood our homes even worse. We need all the help we can get.***

*- Resilient NENJ community member in Newark*

## Consider installing rain gauge sensors for real-time data on flooded areas

There is a network of outstanding Wunderground privately-owned weather stations in the NENJ region. Weather stations, which include rain gauges, can prove to be an invaluable data source during a heavy rain event.

An example of a city that installed a network of rain gauges is Milwaukee, Wisconsin. This network is operated by the Milwaukee Metropolitan Sewerage District (MMSD). It is a regional government agency that provides

water reclamation and flood management services for about 1.1 million people in 28 communities in the Greater Milwaukee Area. This system is critical in the maintenance of their combined sewer/storm water system. A similar system can help in heavy rain events, highlighting areas that could be flooding.<sup>17</sup>

Hoboken and Jersey City are both running pilots for these sensors and researchers at the Stevens Institute of Technology are in the process of developing improved low-cost sensors that could be deployed widely to gather rainfall and water level data.

<sup>14</sup>"Pets Are Like Family, So Why Do They Get Left Behind During Disasters?" Gizmodo, 15 May 2019, [gizmodo.com/pets-are-like-family-so-why-do-they-get-left-behind-du-1834715712](https://gizmodo.com/pets-are-like-family-so-why-do-they-get-left-behind-du-1834715712).

<sup>15</sup>[https://tessera.rutgers.edu/animal\\_emergency/](https://tessera.rutgers.edu/animal_emergency/)

<sup>16</sup><https://nj.gov/agriculture/animalemergency/your-pets/>

<sup>17</sup>"Milwaukee Area Rainfall Data." MMSD - Milwaukee Metropolitan Sewerage District, [www.mmsd.com/about-us/rain\\_gauge\\_data](http://www.mmsd.com/about-us/rain_gauge_data).

# Scenario 2: Shared Responsibility

## Educational course on flooding through the National Disaster Preparedness Training Center

Individually or in coordination with each other, the local OEM departments could continue to expand trainings for staff to improve their effectiveness in preparedness and response. For example, the National Disaster Preparedness Training Center at the University of Hawaii offers FEMA-certified virtual trainings that are targeted for emergency managers and first responders, such as the Flooding Hazards: Science & Preparedness (AWR-362) course that aims to provide awareness-level training. Cranford, New Jersey registered for this class and opened it up to surrounding municipalities, the county, and state partners.

## Capacity building around insurance

One of the common themes raised during the regional Emergency Management Round Table was the lack of insurance coverage. For example, there was significant flooding on Bayonne's Avenue A in areas where many residents lacked coverage because they were not in a FEMA-designated flood zone. This issue was also echoed by residents in the Ironbound neighborhood of Newark. Every homeowner can purchase flood insurance,

even if their home isn't mapped in a flood zone. An educational campaign may be appropriate for homeowners in areas not considered a flood risk, informing them of affordable flood insurance options. This could also include education to raise awareness with renters on their flood insurance options.

## Build Public/Private Partnerships to support emergency response and preparedness

Leveraging public-private partnerships can be beneficial during a disaster the size and scope of Ida, such as the following examples:

- To address the widespread issues with vehicle damage and motorist rescues during heavy rainfall, Hoboken partners with private garages to allow residents to park in garages to protect their vehicles leading up to storms.
- The municipalities could develop mutual aid agreements with private tow truck operators to make sure they are available following a flood. Many communities had to get creative in clearing vehicles off the roadway once the water receded from Ida.
- The municipalities could encourage or require coordination between industrial stakeholders on emergency

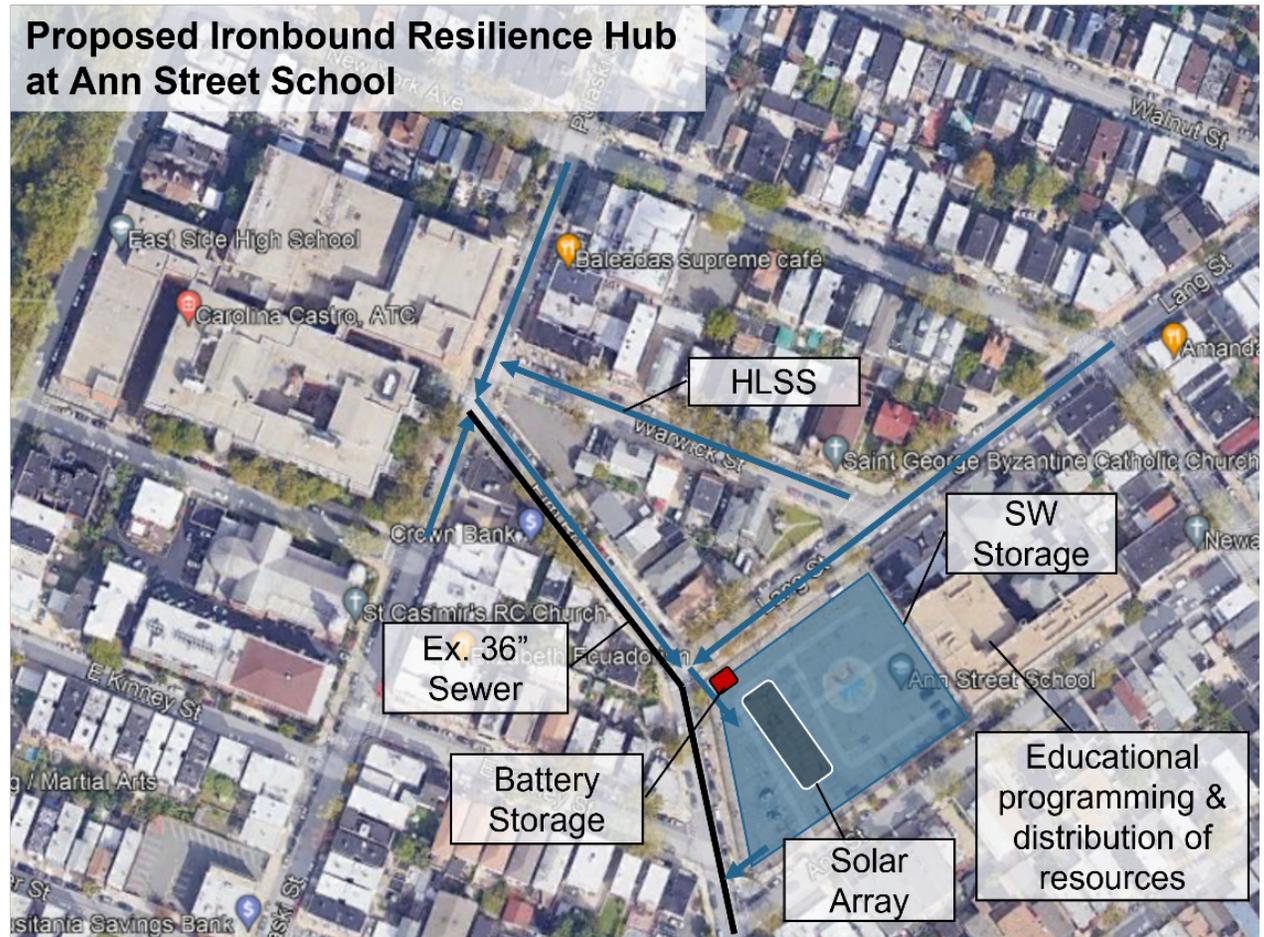
planning so that their processes do not conflict

- Municipalities could establish post-disaster funding support contracts to have resources in place to develop funding applications
- OEM departments could partner with community-based organizations (CBOs) to conduct door knocking in targeted areas to alert people about potential flooding in advance of severe storms and work with the NJ Register Ready program
- OEM departments could work with local civic groups and mutual aid networks to conduct preparedness capacity building, train disaster response networks, establish spaces for civic organizing and advocacy to advance immediate actions, and provide additional community resources
- Municipalities could provide guidelines for building management to make sure critical infrastructure is elevated out of the flood zone. This would make vertical evacuations and sheltering in place a safer option

## Create resilience hubs in high-priority areas for provision of relief and resources during extreme events

A resilience hub is a multifunctional place for people to access information and go during and after climate events, such as to shelter from flooding or extreme heat. Depending on the site, resilience hubs can also directly reduce hazards by providing stormwater storage or increasing green infrastructure and green space. The hubs themselves must be hardened against hazards to ensure that they can effectively serve as safe spaces during disasters.

The municipalities could create resilience hubs and partner with CBOs or other organizations to manage them and distribute preparedness information in advance of storms and resources following disasters. The hubs could also serve as or be expansions of emergency shelters so that people can seek refuge during flooding.



### Ironbound Resilience Hub

In January 2022, Resilient NENJ partnered with Newark Public Schools to develop a funding application for the design and construction of the Ironbound Resilience Hub at Ann Street School. The resilience hub will include stormwater storage beneath the school's parking lot, solar panels on the school, changes to allow the school to act as a cooling center, and related educational programming at the school. The hub can act both as a place that community members go during extreme heat and flooding while directly addressing flooding, heat, and increasing the capacity for the community to withstand flood or heat events. The Federal Emergency Management Agency (FEMA), the funding administrator, advanced this project for funding. Resilient NENJ is looking for opportunities to expand this concept to other locations.

# Scenario 3: Regional Coordination

## Enhance the Early Warning Strategy

Early warnings for events should continue to leverage multiple forms of media to ensure that the highest-risk people are reached.

Examples of key strategies include:

- To transcend language barriers, the municipalities could consider adding early warning systems with sirens to get people out before events hit. Sirens can reach people who may not use internet/mobile devices.
- Communication channels can include social media, phone calls, text messages/Nixle alerts, radio, and through in-person means (see Scenario 2 recommendation for door-knocking through partnerships).
- Expand engagement and emergency warning strategies for the Deaf and Hard of Hearing community; this may include expanding NJ Register Ready, text alerts, and door knocking programs. Consider an engagement strategy in collaboration with the local chapters of the National Association for the Deaf and other organizations to ensure local needs are well-understood and solutions are developed in collaboration with the community they serve.

Develop a training exercise with municipal, county, and state first responders and emergency managers, NGOs, CBOs to practice disaster response

This is an opportunity to build on the recommendations for expanded trainings that are included under Scenario 2. Develop an exercise program, possibly at the regional scale, to practice response to major disasters. The exercises could involve:

- Start with an assessment of the needs and current capabilities. Review the risk assessment and program performance objectives.
- Conduct a walkthrough or orientation session to get team members acquainted with preparedness plans and mutual aid agreements. Review roles and responsibilities and make sure everyone is familiar with incident management.
- Come up with the probable scenarios for emergencies and business disruption. Use these scenarios as the basis for the exercise. As the program matures, consider holding a functional exercise. A function exercise is defined as an exercise that, “simulates an emergency in the most realistic manner possible, short of moving resources to an actual site.”

A recommended starting point is to use the maps attached in Appendix A to develop the exercise. Facilitators can develop a scenario to test response to a high-end regional flood event. Following the exercise, perform a hotwash to help build skillset and preparedness.

## Re-evaluate emergency evacuation routes based on Ida and new flood model data

A major event like Ida is an opportunity to reflect on evacuation infrastructure. Ida was an extreme event and a look into our future. As our planet warms and holds more moisture, the increased moisture manifests in the form of torrential rain. Newark discussed the possibility of using the flood data in Appendix A to reevaluate their evacuation routes. According to their OEM, this data highlighted areas not previously known to flood. Knowing these new vulnerabilities can help first responders take the proactive steps necessary to keep life and property safe during an extreme event.

<sup>14</sup>“Exercises.” [www.fema.gov/emergency-managers/national-preparedness/exercises](http://www.fema.gov/emergency-managers/national-preparedness/exercises).

**Improve clarity around resources for residents, and ensure that resources are available and consistent across platforms including webpages, social media, and paper materials**

Community members reported being overwhelmed by different messaging, sometimes inconsistent, leading up to and following flood events. Streamlining of messaging and information on platforms (at local, regional, state, and federal levels) could be one aspect of creation of a “single source of truth” to provide authoritative sources on information and improve communications. The authoritative materials could be distributed through a Resilience 101 campaign, which is part of Resilient NENJ’s Outreach, Education, and Capacity building recommendations (see the [Action Plan](#) for more detail on these concepts).



Bayonne

Image Source: Bayonne Police Department



Hoboken

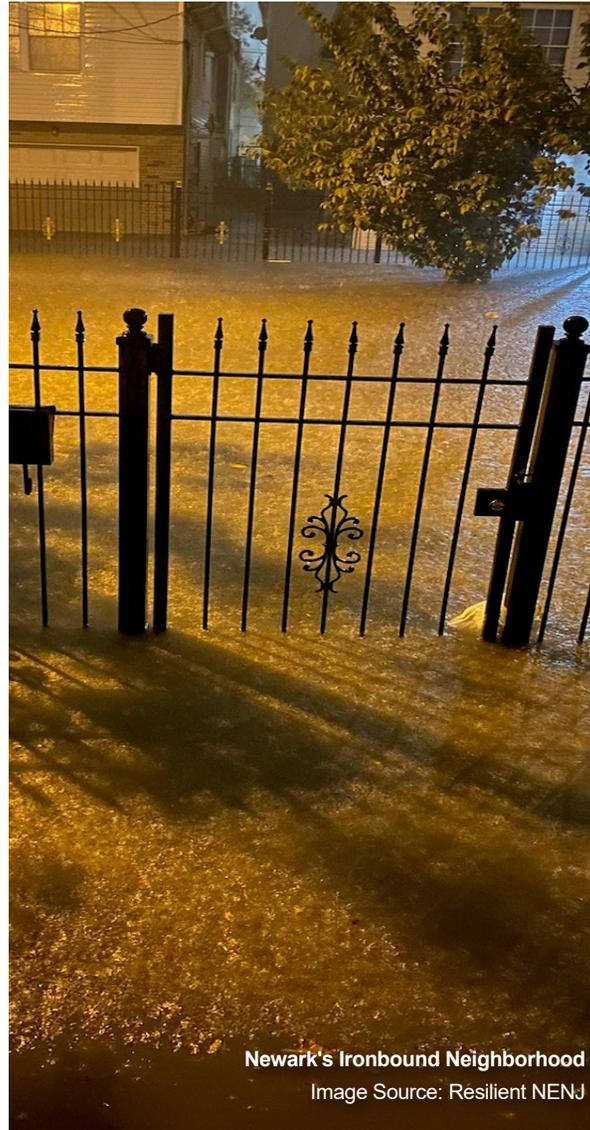
Image Source: Carter Craft / Outside New York™

# NEXT STEPS

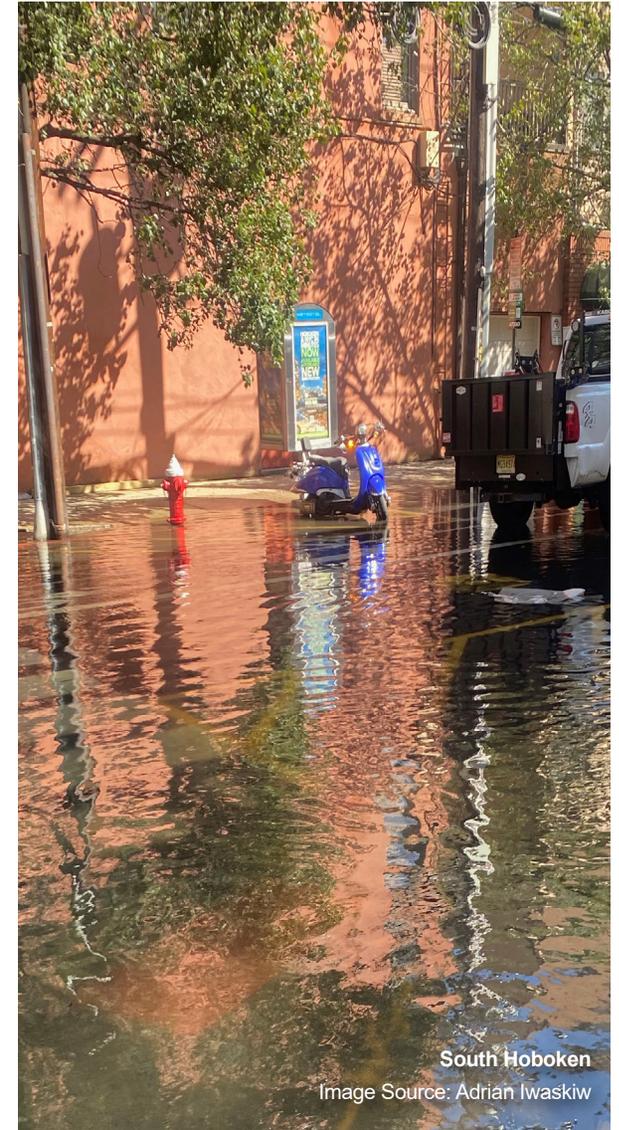
# NEXT STEPS

This report presents recommendations for strengthening emergency management practices and improving consistency across the Resilient NENJ region based on engagement with community members, local leaders, and emergency managers. These recommendations are focused on preparedness, response, recovery, and mitigation of severe storms that cause flooding. The recommendations are divided into three scenarios based on who would be responsible for implementing each action. Additional recommendations related to emergency management are included in the [Climate Hazards Assessment](#), which proposes actions that could address climate-related hazards in the region.

The [Draft Action Plan](#) integrates recommendations of this report. It includes a timeline for implementation and identifies funding opportunities for projects and parties responsible for leadership.



Newark's Ironbound Neighborhood  
Image Source: Resilient NENJ



South Hoboken  
Image Source: Adrian Iwaskiw



High Water Marks-Ironbound Newark



Hoboken

Image Source: Carter Craft / Outside New York™

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# REFERENCES

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Water distribution in Jersey City following the boil water advisory due to aqueduct damage  
Image Source: Jennifer Brown / City of Jersey City



Hoboken

Image Source: Carter Craft / Outside New York™

# APPENDICES

**APPENDIX A:** Ida Mapping

**APPENDIX B:** Example Documentation of Ida Warning Communications

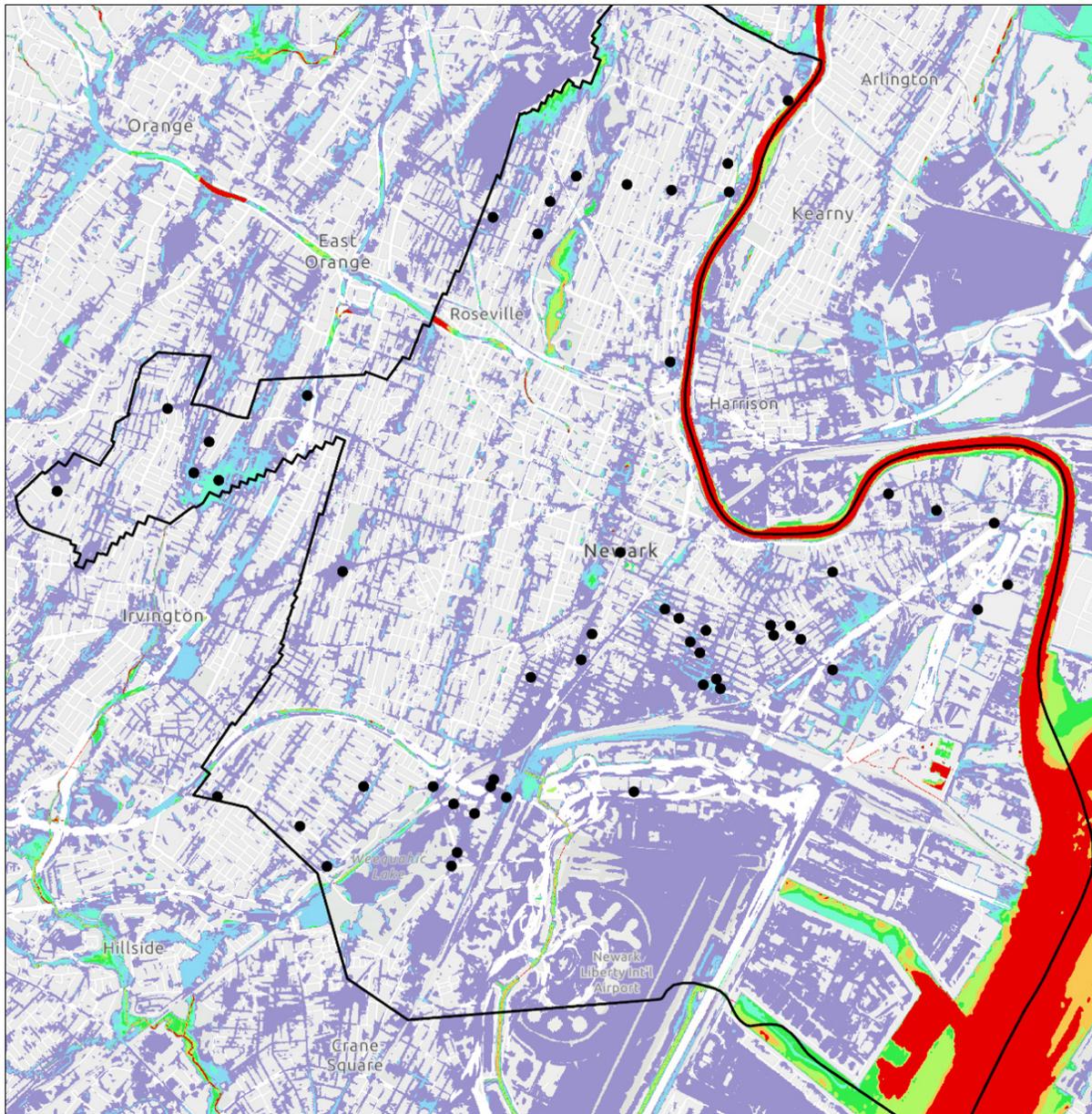
**APPENDIX C:** Example Feedback About Impacts From Ida

**APPENDIX D:** Newark Post-Ida Community Forum Notes

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# APPENDIX A: IDA MAPPING

# How did Ida Dispatch Locations Align with Predicted Flood Areas in Newark?



□ Municipality Boundary

● Ida Emergency Dispatch Locations (based on municipal records)

Modeled Flood Depth, in Feet, From a Future Area Flooding Event (9.2 inches over 24 hours, 2.4 feet of sea level rise)

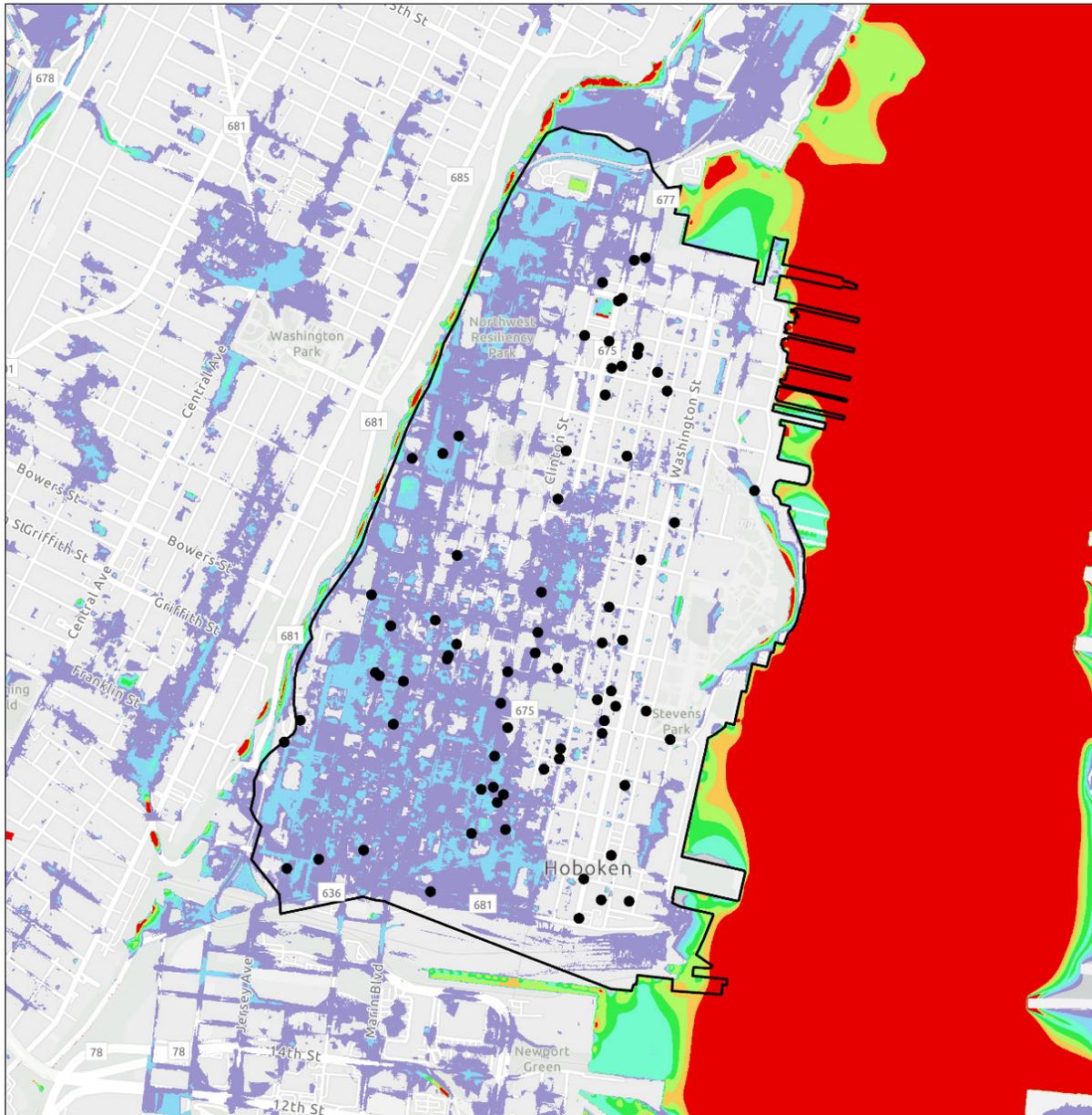


*Emergency dispatch locations are one representative measure that we can use to identify areas of most significant flooding. The Ida dispatch locations align with areas that we might expect to have significant flooding, based on modeling developed by NJDEP for Resilient NENJ.*

0 3,000 6,000 Ft



# How did Ida Dispatch Locations Align with Predicted Flood Areas in Hoboken?



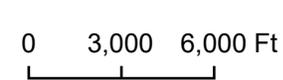
▭ Municipality Boundary

● Ida Emergency Dispatch Locations (based on municipal records)

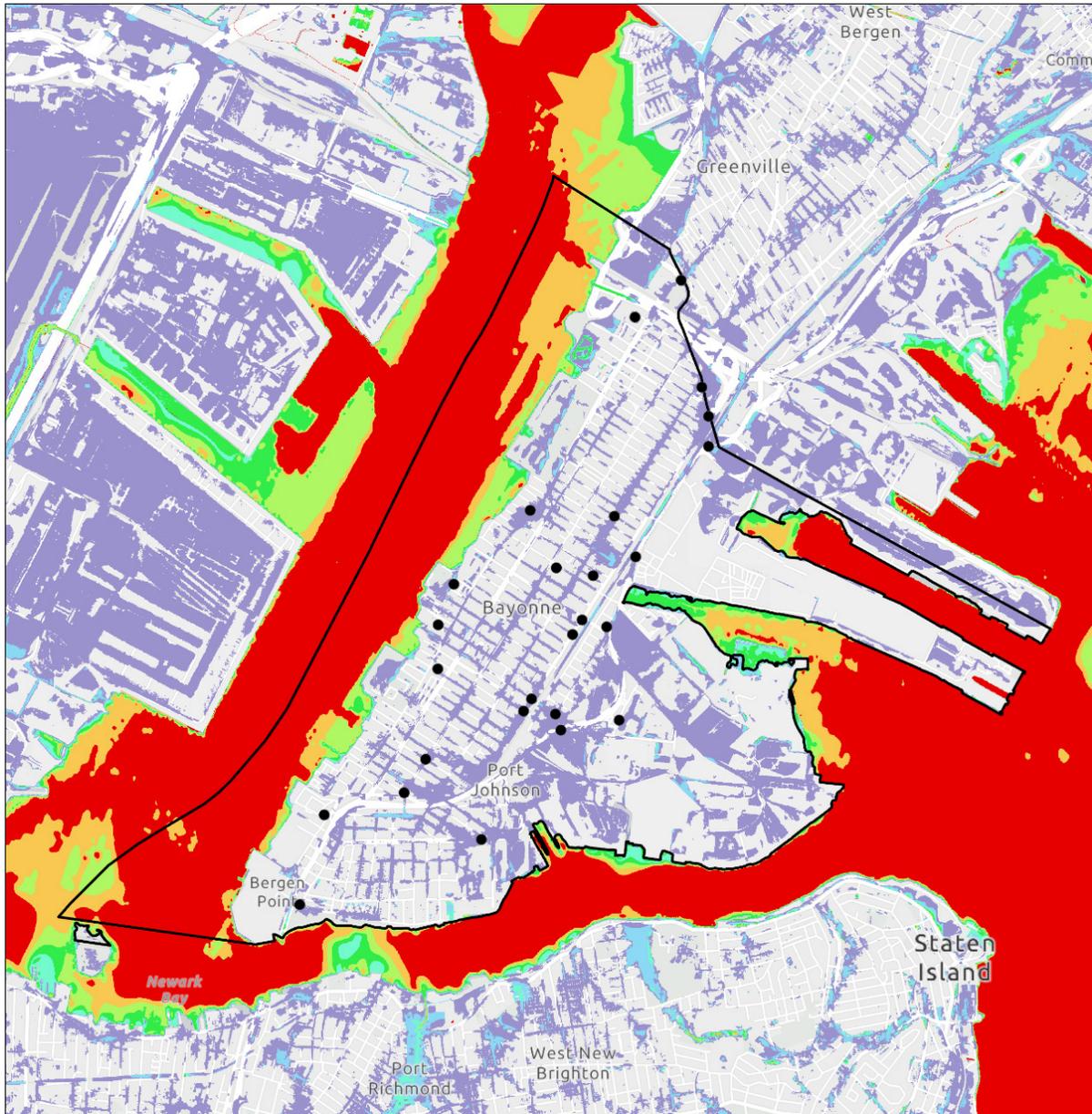
Modeled Flood Depth, in Feet, From a Future Area Flooding Event (9.2 inches over 24 hours, 2.4 feet of sea level rise)



***Emergency dispatch locations are one representative measure that we can use to identify areas of most significant flooding. The Ida dispatch locations align with areas that we might expect to have significant flooding, based on modeling developed by NJDEP for Resilient NENJ.***



# How did Ida Dispatch Locations Align with Predicted Flood Areas in Bayonne?



□ Municipality Boundary

● Ida Emergency Dispatch Locations (based on municipal records)

Modeled Flood Depth, in Feet, From a Future Area Flooding Event (9.2 inches over 24 hours, 2.4 feet of sea level rise)



*Emergency dispatch locations are one representative measure that we can use to identify areas of most significant flooding. The Ida dispatch locations align with areas that we might expect to have significant flooding, based on modeling developed by NJDEP for Resilient NENJ.*

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**APPENDIX B:**  
**EXAMPLE DOCUMENTATION OF**  
**IDA WARNING COMMUNICATIONS**

## **Weather Emergency – Robo Call Script: Tropical Depression Ida**

This is an important message from the City of Newark.

Weather forecasts for Wednesday, September 1st and Thursday, September 2<sup>nd</sup>, 2021 call for thunderstorms and heavy rain due to Tropical Depression Ida.

Intermittent showers and thunderstorms are expected Wednesday afternoon. Heavy rain with gusty winds of up to 30 miles per hour are predicted for Wednesday night.

For Thursday, rain is expected in the morning with wind gusts of up to 30 miles per hour.

Drivers can become stranded by traveling through flooded streets.

The public is strongly discouraged from driving through any streets that are flooded, have high water or are believed to be flooded.

For a list of streets that should be avoided due to the potential for flooding, visit the Newark Police Division's website at: [www.newarkpd.org](http://www.newarkpd.org). Click the Police Division's tab, followed by the Media tab, which leads to the Weather page.

The Department of Public Safety is coordinating responses to burglar alarms, flooding conditions and other weather-related incidents through the combined use of the Newark Police and Fire Divisions, as well as the Office of Emergency Management.

For fire safety, please utilize flashlights, instead of candles, should you lose electricity due to this weather event.

For non-emergency, weather-related emergencies, please call: 973-733-6000. For emergencies, dial 911.

Receive alerts from your local agencies

...or text your ZIP CODE to 888777 for mobile alerts

Full Notification



City of Hoboken, NJ

Tuesday August 31st, 2021 :: 11:42 a.m. EDT

Advisory **National Weather Service issues flash flood watch advisory; discounted parking available**

Please be advised that the National Weather Service has issued a flash flood watch for Hudson County and the surrounding area beginning at 1 p.m. on Wednesday, September 1 through the afternoon of Thursday, September 2.

Moderate rainfall causing flash flooding is likely, with 2-6 total inches of rain predicted by the National Hurricane Center, with the majority of the storm event occurring overnight Wednesday. Any intense rainfall of greater than 0.8 inches per hour may result in flash flooding in low-lying areas.

Residents are urged to move cars from flood-prone areas and avoid travel once the storm begins.

Residents should also secure all loose objects outside or bring them inside, especially on balconies. Outdoor tents should be taken down depending on wind load.

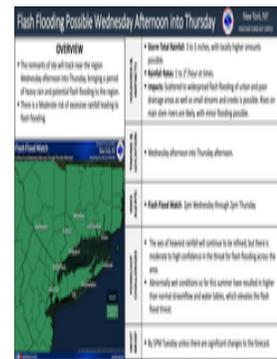
Damaging winds could blow down trees and power lines, resulting in power outages.

Please report power outages and downed wires to PSEG at <https://nj.myaccount.pseg.com/mysevicepublic/outagepublic>

**Avoid flood-prone areas**

Flooding is expected at low-lying, [flood-prone intersections](#). Residents should avoid flooded areas as floodwaters can contain rainwater and sewage. The Office of Emergency Management is posting "No Parking Signs" in these areas, which should be taken as advisories. Cars will not be towed. Barricades will be deployed near flood-prone intersections. **Please do not drive around barricades.** These intersections include:

- 1st and Marshall
- 1st and Harrison
- 2nd and Harrison
- 3rd and Harrison
- 4th and Harrison
- 4th and Monroe
- 3rd and Jackson
- 4th and Jackson
- 7th and Willow
- 9th and Monroe
- 9th and Madison
- 10th and Madison
- 1st and Clinton
- 3rd and Clinton
- Henderson and Newark



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Enter a town, zip code or address

- Grove and Newark

**Please report flooded intersections and clogged drain inlets by calling the NHTSA Hotline at (866) 689-3970.**

**Discounted parking**

Residents are encouraged to move their cars from flood-prone areas. Due to the predicted storm, a special rate of \$5 per 24-hour period is being offered in Garages B (28 2nd Street) and D (215 Hudson Street) to residents with a valid Resident On-Street Parking Permit or Temporary Parking Permit, beginning at **9 a.m. on Wednesday, September 1 through 5 p.m. Thursday, September 2**. In addition, Hoboken residents with either handicapped license plates or hangtags can park in the Midtown garage at 371 4th Street at the same reduced rate, but the City recommends parking in Garage B and Garage D as access to the Midtown garage will be limited at certain times on Wednesday due to ongoing milling operations. Garage space is available on a first-come, first-served basis. Regular rates apply at other times.

Street sweeping will occur as scheduled on Wednesday but it will be suspended on Thursday.

Residents should monitor local forecasts for additional advisories, watches, and warnings. Residents are also encouraged to monitor the City’s Twitter ([twitter.com/cityofhoboken](https://twitter.com/cityofhoboken)) and Facebook ([facebook.com/hoboken](https://facebook.com/hoboken)) or sign up to receive email or text updates by visiting [www.hobokennj.gov/alerts](http://www.hobokennj.gov/alerts).

Learn [how Hoboken and NHTSA prepare for, respond to, and recover from intense rainfall storms](#). Learn about [Hoboken’s efforts to mitigate rainfall flooding](#).

**Address/Location**  
[City of Hoboken, NJ](#)  
 94 Washington St  
 Hoboken, NJ 07030

**Contact**  
 Emergency: 9-1-1  
 Non-emergencies: 201-420-2000

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Message and data rates may apply. Message frequency varies. [Terms](#) and [privacy](#).

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# APPENDIX C: EXAMPLE FEEDBACK ABOUT IMPACTS FROM IDA

This appendix provides additional summaries and direct quotes about impacts of Ida that Resilient NENJ received through community and stakeholder feedback.

# EXAMPLE FEEDBACK ABOUT IMPACTS FROM IDA

See the [Vision and Priorities](#) report for additional feedback about flooding impacts across the region.

## Regional

- Vehicle damage was widespread, with people trapped in vehicles or leaving their vehicles stranded in streets with deep flooding
- Due to the severity of rainfall, many areas flooded that were not previously known to flood in recent history, including areas where people are not required to purchase flood insurance

## Jersey City

- *I am a resident on Coles Street and new to Jersey City. We had basement flooding during Ida for the third time in three months, also with impacts to hot water in the building. We do not know who to contact for information and resources*
- “My entire basement, garage and home office got flooded. The water came from drainers, the street so quick that I didn’t have a chance to save anything. I got 1ft of water, I lost almost everything I had in the basement including a computer that I use for work. My boiler got damaged and I [am] currently dealing with mold issues. This was a [disaster]!”

- “I leave nothing on the floor of my basement level studio. I have flooded multiple times- but never quite like this time with Ida.”
- “Henri and Ida each flooded my entire basement. We lost carpeting, furniture, personal items, pictures, the list continues. Walls have been cut away to mitigate mold. Ida was very frightening. We used sandbags to secure the doors facing the Service Road and the water was simply too high. I'm facing 10,000 dollars in repairs or replacements. I cannot do that each time it storms.”
- “I can’t rent out my garden level apartment [because] it floods, I can’t use it either. Since we have a [combined sewer system] it’s sewage water every time. It wasn’t just Ida it’s every heavy rain and I’m on top of Bergen hill.”
- “Boil water requirement for 3 days... Seems every time there’s a storm, our water supply is affected.”
- “My wife and I live in a basement apartment of a large building. Storm water and sewage flooded with high pressure out of our bathtub, toilet, and sink while the walkway outside the building’s basement where we live flooded with storm water up to our

- knees as we evacuated: [it] is on two declines bringing water in from the street to the building. We’ve lost over \$500 of possessions and our renter’s insurance does not cover flooding. The unit is not safe, the building and landlord are not making repairs necessary to keep the apartment habitable nor are they engaging in any repairs of the floor and walls. We cannot exit our lease for another 6 months, while we continue to be vulnerable to future flooding from rain and other storms. It is not safe nor acceptable that we have no recourse outside of prohibitively expensive legal representation.”
- “We had to boil water for several days. I was not alerted directly by SUEZ because I am a renter. I only found out about the boil water advisory because I was alerted by a local restaurant owner via social media. I had already consumed water that was contaminated for over 24 hrs due to the lack of alert. It’s also worth noting that SUEZ was not providing enough



details about the water testing, and timing, especially during a holiday weekend.”

- “My brand new car was totaled due [to flooding] from the storm and sewer [system]”
- “My boyfriend’s truck went dead in the water with the latest flood, my basement has little sprouting plants cause it’s so wet... oh, and we’ve had to boil water 3 times in the past 1.5 years. Thankfully everyone is alive, but I’m in the Heights and this makes a huge difference. I would love to move closer to work! But the odds that my house will end up under water puts me off even more than cost.”
- JCOEM deployed pre-positioned barricades in two areas prone to flooding in downtown, and reportedly people drove around the barriers during the storm

## Newark

- Over 400 people were rescued, according to Newark OEM
- *People didn’t realize that they were at risk. We need to make sure people understand the risk every day through every possible way so that people know and understand they are at risk and what they need to do*
- “Lost all my first floor due to Ida”
- *Manufacturer’s PI is a disaster zone right now. Everyone’s retaining wall collapsed. Cost is \$10-15k to fix,*

*received \$1600 from FEMA. Call City often to ask for the catch basin to be cleaned. Clean it myself*

- *Manufacturer’s Place area in Ironbound, Newark. We just purchased a home in July and were told it was not a flood zone. Since July it flooded 3 times. My car flooded twice.*
- *With Ida, the garage and first floor flooded. Water seeped into the first floor. The retaining wall in the backyard collapsed.*
- *Water was on South Street for 2 days*
- *At the end of Manufacturer’s Place street - when the street floods, there are tractor trailers that come through and create wakes and flood our homes even worse. We need all the help we can get.*
- *Basement was destroyed in South Ward. Landlord had to buy her own dumpster because the city did not come for bulk pick up*
- *Ida flooded my basement with at least 3 feet of water and caused loss of my vehicle. I had at least \$5,000 in costs due to sump pump failure (covered by insurance). I’m concerned about loss of personal items and time. – Ivy Hill resident*
- “Ida flooded my basement with over 24 inches of water, it came in from the street. There was also water coming out of the toilet & sink in the basement

– contaminated sewer pipe water. Insurance only covered structural issues, not any of our personal property that was contaminated or destroyed.” – Ivy Hill resident

- “Ida damaged all belongings in basement including furnace, hot water heater, freezer, flooring, walls. Estimate \$40,000 in lost items and repair.” – Ivy Hill resident

## Hoboken

- Suez, the water utility for Hoboken and Jersey City, issued a boil water advisory for both cities that lasted several days as a result of a damaged supply aqueduct.

## Bayonne

- “During tropical storm Ida, our street was entirely flooded, and we got water in our basement. It impacted us financially and we have a constant worry that it will happen again.”

NOTE: ITALICS ARE PARAPHRASED QUOTES.



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# APPENDIX D: NEWARK POST-IDA COMMUNITY FORUM NOTES

This appendix provides feedback, received through the community forum, about response and resources in the aftermath of Ida.

<https://tinyurl.com/Nwk-Ida-Forum-Notes>

# Resilient Northeastern NJ



Newark Community Forum:  
Preparedness & Resilience After Ida  
Thursday, October 7, 2021 6 - 7 PM

## Welcome to our jamboard!

We will be taking notes directly within this jamboard during our meeting. Feel free to add in your own notes during or after the meeting.



# Forum

Where did you experience flooding or hear about flooding occurring during the remnants of Hurricane Ida? How did the flooding impact you or your friends and family? (10 min)

Manufacturer's Place area in Ironbound, Newark. We just purchased a home in July and were told it was not a flood zone. Since July it flooded 3 times. My car flooded twice.

With Ida, the garage and first floor flooded. Water seeped into the first floor. The retaining wall in the backyard collapsed.

At the end of Manufacturer's Place street - when the street floods, there are tractor trailers that come through and create wakes and flood our homes even worse. We need all the help we can get.

Basement was destroyed in South Ward. Landlord had to buy her own dumpster because the city did not come for bulk pick up

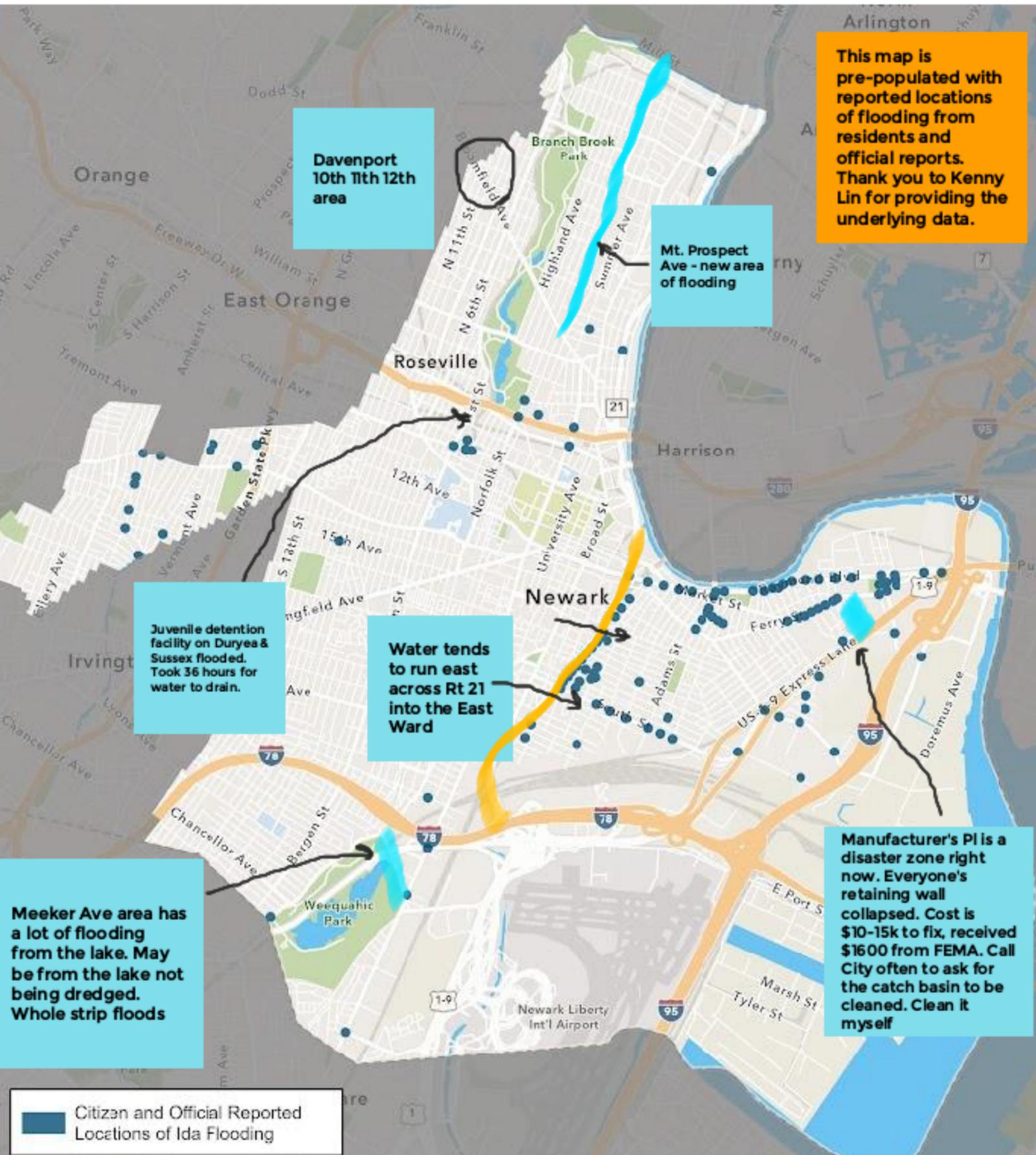
Manufacturer's PI was previously industrial, homes shouldn't have been built there. Not enough catch basins in the area.

I live on Hansbury Ave in the South Ward. By the grace of God, we did not experience anything like that. We had minor complications. It was nothing major, but further down in Hillside, it looked like a war zone.

In Hillside on Harvard Ave, Yale Ave, Bloy Street, there was terrible damage. Furniture flooded and in the streets.

Water was on South Street for 2 days

I had a friend in the North Ward that was displaced from the damage and had to leave to Detroit for weeks and wants to come home.



# Post-Ida Community Forum

What information did you receive about the storm in advance?

What, if anything, did you find yourself wishing you would've known ahead of time in order to adequately prepare? How could communication have been improved? (10 min)

Information people received before the storm:

Received phone calls from city (robocalls) in advance saying to stay off of streets. These were great

Some received the robocalls but the message listed menu options, not an actual message

Suggestions for communication:

Suggest using the radio to share information (WBGO, WBAI)

People didn't realize that they were at risk. We need to make sure people understand the risk every day through every possible way so that people know and understand they are at risk and what they need to do

Wish there was information about homes flooding before buying them. Homes that didn't flood historically are flooding now (or to a greater degree).

Information about past flooding of homes that we're purchasing

Use the same messaging approach for emergency alerts to let people know what resources available.

City has been great about communicating over social media, but need to use multiple ways to contact people in the community

Where can the information be found? Not everyone is on social media. Phone blast? But not everyone has home phones.

Maybe knock on doors in an emergency. Find out what areas were hit - target those areas and reach out directly

# Post-Ida Community Forum

What resources or services did you use leading up to and in the aftermath of the storm?  
What resources or services do you wish were available? (10 min)

There was general confusion about where to go for disaster recovery support and what resources were available, and this led to frustration and discouragement

FEMA explained that landlords would be eligible for small business help under a loan that could be forgiven eventually, but there was very little clarity or information available, so a lot of people didnt take the benefit.

Confusing and bureaucratic processes. Very difficult to get help. The phone numbers dont work. The websites dont work.

As far as FEMA goes, who will be assisted and who will not be assisted? Business owners are referred to SBA. We are flooding outside of SFHA so do not have flood insurance. Did not know we would be flooded.

The city should have information constantly posted on their Facebook AND CITY WEBSITE with simple steps on how to apply.

If FEMA texts, they should also provide information to help people verify that it is not a scam (some did not respond to FEMA texts because they seemed shady).

Need reminders for people to take pictures of damage and receipts during recovery. People forget things.

Need a single source of truth in where you can go for resources.

A lot of people are just giving up looking at the resources because they were so frustrated.

FEMA needs to be sharing more information about their part and the things that they are doing

E.g. there's a FEMA meeting tomorrow (10/8) - it's not being shared to everyone, not getting to all residents

A key service that was lacking was DEBRIS REMOVAL

There are two types of debris that we have issues with. Flood damaged debris. Debris from recovery and rebuilding. It costs us a lot of money to get rid of construction waste.

We're still trying to understand debris removal & when it's supposed to happen. Lack of clear communication about it: the messages change so we don't know what info is accurate

The main resource that we were looking for that was lacking was debris removal. That's also a health and safety issue. The longer the debris sits out there, the bigger the potential impact

Debris removal - felt like it was all talk and no action. Where are the dumpsters that were supposed to come?

Inconsistent experiences across the city. Some areas had bulk pickups while others didn't

Debris removal was limited to 10 items so we had damaged items sitting in our home still

# Post-Ida Community Forum

Do you have any other feedback about what could have happened differently in relation to the storm? (10 min)

Key takeaway: the response to the storm was insufficient

Weeks after people are still feeling uneasy, don't know where to turn. Ida was something major that city should have addressed. Felt it wasn't given as much attention as other city events

**Need to block flooded streets**

We had a 24 hours of peace event in Newark. There was a lot more attention for that event than for Ida. I don't need to see videos of the mayor doing pull ups. We are weeks out and the city should be focusing on this

Feedback about communication, education, and getting information out

The network of district leaders would be a good opportunity for sharing information in the community

**RNJ should post information about reliable resources on the website**

This is a good opportunity for us to reach out to the community about climate change and global warming. This is only the beginning and will not be going away.

General feedback about flooding, impacts from new construction, and flood maps

The neighbors on Manufacturers place said that flooding in the area got worse after the Newark Riverfront Park construction. (Something for the engineers to look into: how did the park affect drainage?)

Seeing worse flooding now than in the past. Need to better understand flood risk

If the City knows what areas flood frequently (they have list of streets that flood), why aren't they addressing it?

When we think about updating parks, we need to integrate flood resilience into the design

When are the FEMA flood maps going to be updated and will they include stormwater flooding? Not expected before 2023, will not include stormwater

**Leverage existing meetings and CBO groups to get information out, NJ Transit bus stops for information sharing. More signage.**

Door to door conversations are a way for us to talk about global warming. Information should include ways for people to be empowered to help create change

**Climate change is happening now. We need to be more connected with organizations & more funding for advocacy organizations to coordinate and communicate with residents**