



## 17. NORTH BERGEN MUNICIPAL UTILITIES AUTHORITY

This jurisdictional annex to the Hudson County Hazard Mitigation Plan (HMP) provides information to assist public and private sectors in the participating special districts with reducing losses from future hazard events. This annex is not guidance of what to do when a disaster occurs; its focus is on actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex presents a general overview of North Bergen Municipal Utilities Authority (NBMUA), describes who participated in the planning process, assesses NBMUA's risk, vulnerability, and capabilities, and outlines a strategy for achieving a more resilient community.

### 17.1 Hazard Mitigation Planning Team

The North Bergen Municipal Utilities Authority identified primary and alternate HMP points of contact and developed this plan over the course of several months, with input from many County departments. The executive director represented the NBMUA on the Hudson County HMP Planning Partnership and Steering Committee and supported the local planning process by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

Table 17-1 summarizes the NBMUA officials who participated in the development of the annex and in what capacity. Additional documentation of the NBMUA's planning activities through Planning Partnership meetings is included in Volume I.

**Table 17-1. Hazard Mitigation Planning Team**

Primary Point of Contact	Alternate Point of Contact
Name/Title: Frank Pestana, Executive Director Address: 6200 Tonnelle Ave, North Bergen, NJ 07047 Phone Number: 201-422-0100 Email: fpestana@nbmua.com	Name/Title: Carlos Torres, Director of Operations & Maintenance Address: 6200 Tonnelle Ave, North Bergen, NJ 07047 Phone Number: 201-422-0100, ext 289 Email: ctorres@nbmua.com
<b>National Flood Insurance Program Floodplain Administrator</b>	
Please see Chapter 10, the Town of North Bergen Annex	
<b>Additional Contributors</b>	
Name/Title: David Ricigliano, OEM Coordinator Method of Participation: Participated in the planning process and provided information for requested worksheets.	
Name/Title: Bernard Mirandi, PE, CME, Consulting Engineer Method of Participation: Participated in the planning process and provided information for requested worksheets.	
Name/Title: Giselle Diaz, PE, Consulting Engineer Method of Participation: Participated in the planning process and provided information for requested worksheets.	
Name/Title: Method of Participation:	
Name/Title: Method of Participation:	



Name/Title:  
Method of Participation:

## 17.2 Community Profile

The North Bergen Municipal Utilities Authority (NBMUA) wastewater department is responsible for the collection of wastewater from the Townships of North Bergen, Guttenberg and a small portion of Union City. Approximately 3 million gallons a day from Guttenberg as well as the north-eastern portion of North Bergen is treated at the Woodcliff Treatment Plant in North Bergen and discharged into the Hudson River in accordance with our New Jersey Department of Environmental Protection (NJDEP) permit. The remainder of the Township's wastewater, approximately 7 million gallons a day, is pumped to the Passaic Valley Sewerage Commission in Newark for final treatment. The NBMUA maintains four pump stations as well as nine CSO Netting Facilities throughout the municipality that capture and remove approximately 35 tons per year of sanitary and street litter that would otherwise wash into the rivers during rain events, also in accordance with our NJDEP permit (NBMUA 2025).

The NBMUA services an area of 5.82 square miles, (North Bergen and Guttenberg) with a population of 75,378 (2020 U.S. Census).

NBMUA facilities are located on approximately 10 acres of NBMUA owned land. The NBMUA owns and operates approximately 80 miles of combined and separate sewer system, ranging in size from 6" to 72" diameter, 25 static regulators and 11 dynamic regulators. This critical infrastructure is valued at approximately \$100 million.

## 17.3 Jurisdictional Capability Assessment and Integration

NBMUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume I describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment for this annex includes analyses of the following:

- Planning and regulatory capabilities
- Development and permitting capabilities
- Administrative and technical capabilities
- Fiscal capabilities
- Education and outreach capabilities
- Classification under various community mitigation programs
- Adaptive capacity to withstand hazard events

For a jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into day-to-day local government operations. As part of the hazard mitigation analysis, planning and /policy documents were reviewed and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. Development of an updated mitigation strategy provided an opportunity for NBMUA to identify opportunities for integrating mitigation concepts into ongoing County procedures.



### 17.3.1 Planning and Regulatory Capability and Integration

Table 17-2 summarizes the planning and regulatory tools that are available to the North Bergen Municipal Utilities Authority.

*Table 17-2. Planning and Regulatory Capability and Integration*

	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>CODES, ORDINANCES, &amp; REGULATIONS</b>				
<b>Building Code</b> How has or will this be integrated with the HMP and how does this reduce risk? The Township of North Bergen enforces the New Jersey State Codes as listed below.  Building Code: <ul style="list-style-type: none"> <li>• Uniform Construction Code – N.J.A.C. 5:23</li> <li>• International Residential Code – N.J. 2021 EDITION</li> <li>• International Building Code – N.J. 2021 EDITION</li> </ul> Plumbing: <ul style="list-style-type: none"> <li>• National Standard Plumbing Code – 2021 EDITION</li> <li>• International Fuel Gas Code – 2021 EDITION</li> <li>• International Mechanical Code – 2021 EDITION</li> <li>• ICC/ANSI – 2017 (Accessibility)</li> </ul> Electric: <ul style="list-style-type: none"> <li>• National Electrical Code – 2020 EDITION</li> </ul> Fire Prevention / Uniform Fire Code: <ul style="list-style-type: none"> <li>• International Fire Code New Jersey Edition - 2021</li> </ul> Property Maintenance:           International Property Maintenance Code – 2021 EDITION	Yes	NJAC 5.3 (2009)	State and Local	Building Department
<b>Zoning/Land Use Code</b>  Part of North Bergen ordinance, the jurisdiction reviews the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use.	Yes	Title 1.1, Zoning Ordinance Ap. 6/99.	Local	Building Department
<b>Subdivision Code</b>  <i>Consider the following:</i> <ul style="list-style-type: none"> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</li> <li>• Do the regulations allow density transfers where hazard areas exist?</li> </ul>	Yes	69-84, Site Plan Review Requirements (12/6/84).	Local	Engineering Department
<b>Site Plan Code</b>  Part of North Bergen's code – please refer to the township's jurisdictional annex.	Yes	69-84, Site Plan Review Requirements (12/6/84).	Local and County	Engineering Department



	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Stormwater Management Code</b>	Yes	1013-05 Stormwater Control (4/27/05).	Local	Engineering Department
Part of North Bergen's code – please refer to the township's jurisdictional annex.				
<b>Post-Disaster Recovery/ Reconstruction Code</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				



	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Real Estate Disclosure Requirements</b>	Yes	Senate Bill 3110; P. L. 2023, c. 93, July 3, 2023	State	Sellers and Landlords of commercial or residential property
<p>How has or will this be integrated with the HMP and how does this reduce risk?</p> <p>For leases, the law amends the New Jersey Truth-in-Renting Act, N.J.S.A. 46:8-43 et seq., to require every landlord to notify in writing each of the landlord's tenants, prior to lease signing or renewal, whether the property is located in the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area ("100-year floodplain") or Moderate Risk Flood Hazard Area ("500-year floodplain") and if the landlord has actual knowledge that the rental premises or any portion of the parking areas of the real property containing the rental premises has been subjected to flooding. The law does not apply to (1) landlords who lease commercial space or residential dwellings for less than one month, (2) residential dwellings in a premises containing not more than two units, (3) owner-occupied premises containing not more than three units, or (4) hotels, motels, or other guest houses serving transient or seasonal guests for a period of less than 120 days.</p> <p>The model notice is to contain the heading "Flood Risk" and questions for the landlord to answer regarding the landlord's actual knowledge of past flooding of the property. The questions regarding the property being in a FEMA Special or Moderate Risk Flood Hazard Area shall not contain the option for "unknown." To determine how the questions are to be answered, FEMA's current flood insurance rate maps for the leased premises area must be consulted. The landlord will be required to answer whether the rental premises or any portions of the parking areas of the real property containing the rental premises ever experienced any flood damage, water seepage, or pooled water due to a natural flood event and, if so, the number of times that has occurred.</p> <p>The notice to residential tenants must also indicate that flood insurance may be available to renters through FEMA's National Flood Insurance Program to cover their personal property and contents in the event of a flood and that standard renter's insurance does not typically cover flood damage.</p> <p>For sales, the law also amends the New Jersey Consumer Fraud Act, N.J.S.A. 56:8-1 et seq., to require sellers of real property to disclose, on the property condition disclosure statement, whether the property is located in the FEMA Special or Moderate Risk Flood Hazard Area and any actual knowledge of the seller concerning flood risks of the property to the purchaser before the purchaser becomes obligated under any contract for the purchase of the property.</p> <p>The disclosure statement must contain the heading "Flood Risk" and ask the seller the following questions:</p> <ul style="list-style-type: none"><li>• Is any or all of the property in the Special Flood Hazard Area ("100-year floodplain") or a Moderate Risk Flood Hazard Area ("500-year floodplain") according to FEMA's current flood insurance rate maps?</li><li>• Is the property subject to any requirement under federal law to obtain and maintain flood insurance on the property? Properties in the Special Flood Hazard Area with mortgages from federally regulated or insured lenders are required to obtain and maintain flood insurance.</li><li>• Have you ever received assistance from, or are you aware of any previous owners receiving assistance from FEMA, the U.S. Small Business Administration, or any other federal disaster flood assistance for flood damage on the property? For properties that have received flood disaster assistance, the requirement to obtain flood insurance passes down to all future owners.</li><li>• Is there flood insurance on the property? A standard homeowner's insurance policy typically does not cover flood damage.</li><li>• Is there a FEMA elevation certificate available for the property? If so, it must be shared with the buyer. An elevation certificate is a FEMA form, completed by a licensed surveyor or engineer, that provides critical information about the flood risk of the property and is used by flood insurance providers to determine the appropriate insurance rating for the property.</li><li>• Have you ever filed a claim for flood damage to the property with any insurance provider? If the claim was approved, what was the amount received?</li><li>• Has the property experienced any flood damage, water seepage, or pooled water due to a natural flood event, such as heavy rainfall, coastal storm surge, tidal inundation, or river overflow? If so, how many times?</li></ul> <p>Not all provisions of this law have become effective at the time of the writing of this plan.</p>				



	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Growth Management</b>	Yes	Master Plan 4/99	Local	Township Administration
Part of North Bergen's capabilities – please refer to the township's jurisdictional annex.				
<b>Environmental Protection Ordinance(s)</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Flood Damage Prevention Ordinance</b>	Yes	1065-06 (6/14/06)	Federal, State, County and Local	Engineering Department
Part of North Bergen's ordinance – please refer to the township's jurisdictional annex.				
<b>Wellhead Protection</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Emergency Management Ordinance</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Climate Change Ordinance</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Other</b>	-	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>PLANNING DOCUMENTS</b>				
<b>General/Comprehensive/Master Plan</b>	Yes	Master Plan 4/99	Local	Building Department
How has or will this be integrated with the HMP and how does this reduce risk? The Master Plan was first adopted in 1987 and updated in 1994. A reexamination report was conducted in 2003 and 2009. The Housing Element and Fair Share Plan was added and adopted in 2009. The goals of the reexamination report are similar to those of the County's Hazard Mitigation Plan (ensure that any prospective development and/or redevelopment is responsive to North Bergen's environmental features). To achieve this goal, the Township's reviewing agencies undertake substantive reviews of all development applications to ensure that environmental impacts of proposed developments are scrutinized and addressed. During the next master plan update, the Township should review the County HMP and incorporate hazard areas into the plan.				
<b>Capital Improvement Plan</b>	Yes	Master Plan 4/99	Local	Township Administration
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Disaster Debris Management Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				



	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Stormwater Management Plan</b>	Yes	Municipal Stormwater Management Plan, 2/2007	Local	Engineering Department
<p>How has or will this be integrated with the HMP and how does this reduce risk?</p> <p>The goals of the plan include reducing flood damage including damage to life and property; minimize any increase in stormwater runoff from any new development; reducing soil erosion from any development or construction project; and maintain the integrity of stream channels for their biological functions as well as for drainage. The Township is working on incorporating several non-structural stormwater strategies into the zoning and site plan ordinances. These non-structural strategies will help reduce flooding and damage to life and property associated with flooding. To minimize stormwater runoff, the Residential Site Improvement Standards require a reduction in runoff during all rain events for residential developments. Commercial developments are required to follow NJAC 7:8 and 7:15. To reduce soil erosion, all development projects must obtain approval from the Bergen County Soil Conservation District if their area of disturbance is over 5,000 square feet. There are several maps that are part of the plan and include freshwater wetlands/water land uses, and floodplains.</p>				
<b>Stormwater Pollution Prevention Plan</b>	Yes	Municipal Stormwater Pollution Prevention Plan, 05/21/2020	Local	Engineering Department
Part of North Bergen's capabilities - please refer to the township's jurisdictional annex.				
<b>Open Space Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Urban Water Management Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Habitat Conservation Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Economic Development Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Community Wildfire Protection Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Community Forest Management Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Transportation Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Agriculture Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Climate Action/Resilience/Sustainability Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Tourism Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				



	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Business/ Downtown Development Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Other: Shoreline Management Plan</b>	Yes	Township of North Bergen Shoreline Management Plan	State, Local	Building Department
Plan is prepared by the Township of North Bergen – please refer to the township’s jurisdictional annex.				
<b>RESPONSE/RECOVERY PLANNING</b>				
<b>Emergency Operations Plan</b>	Yes	Emergency Response Plan	Local	Community Affairs and Office of Emergency Management
<p>How has or will this be integrated with the HMP and how does this reduce risk?</p> <p>The OEM has detailed information covering preparedness, response, mitigation and recovery from a disaster that may occur within the Township. The North Bergen Township Emergency Operations Plan is approved by the New Jersey State OEM and focuses on the following areas:</p> <ul style="list-style-type: none"> <li>01. Alerting and Warning</li> <li>02. Fire and Rescue activities</li> <li>03. Law Enforcement activities</li> <li>04. Public Health awareness</li> <li>05. Emergency Medical Services</li> <li>06. Evacuation procedures</li> <li>07. Shelter Reception and Care</li> <li>08. Social Services</li> <li>09. Resource Management</li> <li>10. Coordination with the media</li> <li>12. Department of Public Works activities</li> <li>13. Emergency Operations Center coordination</li> <li>14. Damage Assessments of public infrastructure and buildings</li> <li>15. Handling of Hazardous Materials</li> <li>16. Terrorism Incidents</li> <li>17. Radiological Protection</li> </ul>				
<b>Continuity of Operations Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Substantial Damage Response Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Threat and Hazard Identification and Risk Assessment</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Post-Disaster Recovery Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				





	Jurisdiction has this? (Yes/No)	Citation and Date (code chapter or name of plan, date of enactment or plan adoption)	Authority (local, county, state, federal)	Responsible Person, Department or Agency
<b>Public Health Plan</b>	No	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				
<b>Other</b>	-	-	-	-
How has or will this be integrated with the HMP and how does this reduce risk?				

### 17.3.2 Development and Permitting Capability

Table 17-3 summarizes the capabilities of the NBMUA to oversee and track development.

*Table 17-3. Development and Permitting Capability*

	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If you issue development permits, what department is responsible?</li> <li>If you do not issue development permits, what is your process for tracking new development?</li> </ul>	Yes	The Township issues building permits through the Building Department. It should be noted that part of the Township makes up NJSEA. For development within NJSEA boundaries, any proposed development needs to be approved first by NJSEA then the Township.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	The Township currently does not have the ability to track permits by hazard area.
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If you have a buildable land inventory, please describe</li> </ul>	Yes	
Describe the level of buildout in your jurisdiction.	N/A	The Township has a buildable lands inventory. This is done through the master plan and the administration department

### 17.3.3 Administrative and Technical Capability

Table 17-4 summarizes potential staff and personnel resources available to the NBMUA and their current responsibilities that contribute to hazard mitigation.



**Table 17-4. Administrative and Technical Capabilities**

<b>Resources</b>	<b>Available? (Yes/No)</b>	<b>Comment (available staff, responsibilities, support of hazard mitigation)</b>
<b>ADMINISTRATIVE CAPABILITY</b>		
Planning Board	Yes	Planning Board
Zoning Board of Adjustment	Yes	Board of Adjustment
Planning Department	No	Planning responsibilities are handled by Jill Hartman (L & C Design Consultants, PA)
Mitigation Planning Committee	Yes	Local Emergency Planning Committee
Environmental Board/Commission	Yes	The Township of North Bergen Green Team is derived of township officials, DPW, Sanitation, Health, Police, and schools. The Green Team conducts education, actions, and efforts to address energy and sustainability.
Open Space Board/Committee	No	
Economic Development Commission/Committee	No	
Public Works/Highway Department	Yes	Public Works is responsible for street sweeping, salting, pothole repair, and sewerage and stormwater system maintenance.
Construction/Building/Code Enforcement Department	Yes	Building/Code Enforcement/Zoning
Emergency Management/Public Safety Department	Yes	<p>The Department of Public Safety is responsible for police protection. The department is also responsible for the overall planning and coordination of programs related to the protection of the public, including, but not limited to, various educational programs and administration of grants relating to law enforcement.</p> <p>The North Bergen Office of Emergency Management focuses on the protection of life and property for all residents, businesses, visitors and the traveling public. OEM provides protection through the latest body of knowledge and current Emergency Management practices as set forth in federal, state, and county regulations. OEM personnel provide protection through study, planning and application of all phases of Emergency Management, while concentrating on mitigation, preparedness, response and recovery.</p> <p>OEM fosters the "TEAM" approach through education, coaching and partnering with each member. Members include municipal officials, the Emergency Management Council, the Local Emergency Planning Committee, emergency services and all municipal departments as outlined in the Townships Emergency Operations Plan.</p> <p>OEM will provide direction and obtain resources to members of the TEAM in events such as natural and technological disasters. OEM will provide coordination and assistance to police, fire, rescue, emergency medical and municipal government.</p>
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	General maintenance of roads, trees, catch basins, etc. to help reduce storm impacts and damages. The Township retrofits all



Resources	Available? (Yes/No)	Comment (available staff, responsibilities, support of hazard mitigation)
		existing inlets with NJDEP approved curb pieces to help limit debris in the stormwater system and prevent blockages.
Mutual aid agreements	Yes	Surrounding municipalities, Hudson County, UASI
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	
Other	No	-
<b>TECHNICAL/STAFFING CAPABILITY</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Boswell Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Boswell Engineering
Planners or engineers with an understanding of natural hazards	Yes	Boswell Engineering
Staff with expertise or training in benefit/cost analysis	Yes	Township of North Bergen, CFO, Contract support
Professionals trained in conducting damage assessments	Yes	Boswell Engineering
Personnel skilled or trained in GIS and/or Hazus applications	Yes	Boswell Engineering
Staff that work with socially vulnerable populations or underserved communities	Yes	Karen Pianese
Environmental scientists familiar with natural hazards	Yes	Boswell Engineering
Surveyors	Yes	Boswell Engineering
Emergency manager	Yes	David Ricigliano
Grant writers	Yes	Millennium Strategies
Resilience Officer	No	
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

### 17.3.4 Fiscal Capability

Table 17-5 summarizes financial resources available to the NBMUA.



**Table 17-5. Fiscal Capabilities**

<b>Financial Resources</b>	<b>Accessible or Eligible to Use? (Yes/No)</b>
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvement project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other: Municipal Aid Grants each year; apply for LFIF (local infrastructure); Safe Streets to School program; pedestrian crossing grants as well; Board of Education receives grants as well	Yes

### 17.3.5 Education and Outreach Capability

Table 17-6 summarizes the education and outreach resources available to the NBMUA.

**Table 17-6. Education and Outreach Capabilities**

<b>Outreach Resources</b>	<b>Available? (Yes/No)</b>	<b>Comment</b>
Public information officer or communications office	Yes	Full time staff member
Personnel skilled or trained in website development	Yes	Township staff and contractors
Hazard mitigation information available on your website	Yes	Located on the OEM section of the Township website. Information includes hurricane warnings online, develop safety kits, etc.
Social media for hazard mitigation education and outreach	Yes	The Township uses Facebook and Twitter
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Township Office of Emergency Management



Outreach Resources	Available? (Yes/No)	Comment
Warning systems for hazard events	Yes	Everbridge, reverse 911, the police department uses digital message boards, County has air horns that are used during emergencies as well. The Township is looking into a Nixle-type program for traffic conditions. They will use this program to issue traffic warnings during flood events, road repairs, and construction.
Natural disaster/safety programs in place for schools	Yes	Township Emergency Operations Plan
Organizations that conduct outreach to socially vulnerable populations and underserved populations	Yes	Hispanic Affairs Community Service Program
Public outreach mechanisms / programs to inform citizens on natural hazards, risk, and ways to protect themselves during such events	Yes	North Bergen (NB) Connect Notification System which enables the Township of North Bergen to provide critical information quickly in a variety of situations, such as severe weather, unexpected road closures, missing persons, and evacuation of buildings or neighborhoods.

### 17.3.6 Community Classifications

Table 17-7 summarizes classifications for community programs available to the NBMUA.

**Table 17-7. Community Classifications**

Program	Participating? (Yes/No)	Classification	Date Classified
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	IBC	2015
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
National Weather Service StormReady Certification	No	-	-
Firewise Communities classification	No	-	-
Sustainable Jersey	Yes	Bronze	9/12/2023
Other: Organizations with mitigation focus (advocacy group, non-government)	No	-	-

N/A = Not applicable

— = Unavailable

### 17.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2022). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and



changing risk. Table 17-8 summarizes the adaptive capacity for each identified hazard of concern and the North Bergen Municipal Utilities Authority's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement

**Table 17-8. Adaptive Capacity**

Hazard	Adaptive Capacity - Strong/Moderate/Weak
Dam/Levee	Moderate
Drought	Moderate
Extreme Temperatures	Moderate
Flood	Strong
Geologic Hazards	Moderate
Severe Weather	Moderate
Severe Winter Weather	Moderate
Wildfire	Moderate

## 17.4 National Flood Insurance Program Compliance

The NBMUA does not participate in the NFIP. For NFIP compliance with the Town of North Bergen, please refer to the Town's annex (Chapter 10).

## 17.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. Recent and expected future development trends, including major residential/commercial development and major infrastructure development, are summarized in Table 17-9 through Table 17-11.

**Table 17-9. Number of Building Permits for New Construction Issued Since the Previous HMP**

	New Construction Permits Issued			
	Single Family	Multi-Family	Other (commercial, mixed-use, etc.)	Total
The North Bergen Municipal Utilities Authority is not responsible for permitting new construction. Permitting is the responsibility of the Town of North Bergen.				



**Table 17-10. Recent Major Development and Infrastructure from 2019 to Present**

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
None Identified					

**Table 17-11. Known or Anticipated Major Development and Infrastructure in the Next Five Years**

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zones*	Description / Status of Development
None Identified					

## 17.6 Jurisdictional Risk Assessment

The hazard profiles in Volume I provide detailed information regarding each planning partner's vulnerability to the identified hazards, including summaries of the North Bergen Municipal Utilities Authority's risk assessment results and data used to determine the hazard ranking. Key local risk assessment information is presented below.

### 17.6.1 Hazard Area

Hazard area maps illustrate the probable hazard areas impacted within the County, to include NBMUA. These hazard maps are shown in Volume 1 of this plan within the hazard profiles. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps are provided only for hazards that can be identified clearly using mapping techniques and technologies and for which Hudson has significant exposure. The maps show the location of potential new development, where available.



## 17.6.2 Hazard Event History

The history of natural and non-natural hazard events in the NBMUA is detailed in Volume I, where each hazard profile includes a chronology of historical events that have affected the County and its municipalities. Table 17-12 provides details on loss and damage in the NBMUA during hazard events since the last hazard mitigation plan update.

**Table 17-12. Hazard Event History in Hudson**

Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses in North Bergen
February 25, 2019	Strong Wind, High Wind	No	Widespread damaging wind gusts occurred as storms moved through Hudson County. Wind gusts reached an estimated 58 miles per hour. Damages from these strong, damaging winds totaled over \$50,000 across the County.	The MUA did not have any reported damages or claims to their assets and facilities.
January 20, 2020 – May 11, 2023	Covid-19 Pandemic (EM-3451-NJ, DR-4488-NJ)	Yes	As of March 4, 2023, Hudson County accounts for 219,191 positive cases of COVID-19 in the State of New Jersey, and 2,671 of the reported deaths. A total of 1,565,233 vaccinations have been delivered in the County to both residents and non-residents.	The MUA did not have any reported damages or claims to their assets and facilities.
February 7, 2020	Strong Wind, High Wind	No	Widespread damaging wind gusts occurred as storms moved through Hudson County. Wind gusts reached an estimated 53 miles per hour. Damages from these strong, damaging winds totaled over \$50,000 across the County.	The MUA did not have any reported damages or claims to their assets and facilities.
April 13, 2020	Strong Wind, High Wind	No	Widespread damaging wind gusts occurred as storms moved through Hudson County. Wind gusts reached an estimated 58 miles per hour. Damages from these strong, damaging winds totaled over \$50,000 across the County.	The MUA did not have any reported damages or claims to their assets and facilities.
August 4, 2020	Tropical Storm Isaias (DR-4574-NJ)	Yes	The remnants of Hurricane Ida produced heavy rainfall, flash floods, widespread wind damage, and power outages. There were multiple disruptions to mass transit and road closures due to downed power lines and trees were noted, with numerous water systems having to move to alternate power. One person was injured in Hudson County because of this event.	The MUA did not have any reported damages or claims to their assets and facilities.
November 15, 2020	Heavy Rains and Tornado	No	Buildings damaged, fences and trees flattened.	The MUA did not have any reported damages or claims to their assets and facilities.





Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses in North Bergen
September 1-3, 2021	Remnants of Hurricane Ida (EM-3573-NJ, DR-4614-NJ)	Yes	Extremely heavy rainfall associated with the remnants of Hurricane Ida overspread northeast New Jersey during the evening of September 1 and continued through the early morning hours of September 2. Rainfall totals ranged from 5-8+ inches across much of the region, with much of that rain falling in just a few hours. This resulted in widespread flash flooding leading to numerous road closures and water rescues in addition to extensive river flooding. One fatality and seven injuries occurred in Hudson County as a result of this storm.	The MUA did not have any reported damages or claims to their assets and facilities.
January 28-29, 2022	Winter Storm	No	A Nor'easter brought snow and gusty winds. Wind gusts of 40 mph were reported. Snow and blowing snow impacted Hudson County, with snow totals amounting to 8.5 inches in Hudson County.	The MUA did not have any reported damages or claims to their assets and facilities.
February 24, 2022	Winter Storm	No	Snow and winds forecast required a township delayed opening.	The MUA did not have any reported damages or claims to their assets and facilities.
November 11, 2022	Remnants of Hurricane Nicole	No	Heavy winds and rain.	The MUA did not have any reported damages or claims to their assets and facilities.
December 23, 2022	Forecast Heavy Rains/ Flooding	No	Storm prompted the Hackensack/PGH hospital to activate command center.	The MUA did not have any reported damages or claims to their assets and facilities.
April 30, 2023	Heavy Rains and Winds	No	Storm caused an uptown power outage.	The MUA did not have any reported damages or claims to their assets and facilities.
June 7, 2023	Canadian Wildfires	No	Poor air quality.	The MUA did not have any reported damages or claims to their assets and facilities.
September 29, 2023	Heavy Rains	No	Numerous roads flooded and closes, motorists stranded and rescued.	The MUA did not have any reported damages or claims to their assets and facilities.
December 13, 2023	Landslide	No	Rock collapse on the Palisades requiring evacuations.	The MUA did not have any reported damages or claims to their assets and facilities.
January 9, 2024	Heavy Rains	No	Numerous road closures, trees and wires down, flooding	The MUA did not have any reported damages or claims to their assets and facilities.



Dates of Event	Event Type (Disaster Declaration)	County Designated?	Summary of Event	Summary of Damage and Losses in North Bergen
March 23, 2024	Heavy Rains	No	Roadways flooded and closed; motorists stranded.	The MUA did not have any reported damages or claims to their assets and facilities.
April 3, 2024	Heavy Rain and Winds	No	Multiple trees and wires down, building damage.	The MUA did not have any reported damages or claims to their assets and facilities.
April 5, 2024	Earthquake	No	Tremors felt in the tri-state area during a 4.7 earthquake event in New Jersey.	The MUA did not have any reported damages or claims to their assets and facilities.

EM = Emergency Declaration (FEMA)

FEMA = Federal Emergency Management Agency

DR = Major Disaster Declaration (FEMA)

N/A = Not applicable

## 17.6.3 Hazard Ranking and Vulnerabilities

The hazard profiles in Volume I have detailed information regarding each planning partner's vulnerability to the identified hazards. The following presents key risk assessment results for the NBMUA.

### 17.6.3.1 HAZARD RANKING

The participating jurisdictions have differing degrees of vulnerability to the hazards of concern, so each jurisdiction ranked its own degree of risk to each hazard. The community-specific hazard ranking is based on problems and impacts identified by the risk assessment presented in Volume I. The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; community capabilities to address the hazard; and changing future climate conditions. The North Bergen Municipal Utilities Authority reviewed the County hazard ranking and individual results to assess the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the NBMUA indicated the following:

- Geological hazards changed from low to medium. The Town of North Bergen indicated that there have been a few rockslides along the Palisades Cliffs down towards properties fronting River Rd.

Table 17-13 shows Hudson's final hazard rankings for identified hazards of concern. Mitigation action development uses the ranking to target hazards with the highest risk.

**Table 17-13. Hazard Ranking**

Hazard	Rank
Dam/Levee Failure	Low
Drought	Medium
Extreme Temperature	Low
Flood	High
Geological Hazards	Medium



Hazard	Rank
Severe Weather	High
Severe Winter Weather	Medium
Wildfire	Low

*Note: The scale is based on the hazard rankings established in Volume I, modified as appropriate based on review by the jurisdiction*

### 17.6.3.2 CRITICAL FACILITIES

Table 17-14 identifies critical facilities in the community located in the 1 percent and 0.2 percent annual chance floodplains.

**Table 17-14. Critical Facilities Flood Vulnerability**

Name	Type	Vulnerability	
		1% Annual Chance Event	0.2% Annual Chance Event
61St St Ps (Controls)-PS03	Wastewater Pump	-	X
61St St Ps (Pumps)-PS03	Wastewater Pump	-	X
61St St Ps (Wet Well)-PS03	Wastewater Pump	-	X
61St St Ps-PS03	Wastewater Pump	-	X
8Th Street Fm Air Release-PS02	Wastewater Pump	-	X
8Th Street Ps-PS02	Wastewater Pump	X	X
Central Ps-PS01	Wastewater Pump	X	X
Meter (Central Ps)-PS01	Wastewater Pump	X	X
Woodcliff P.S (River Rd)-PS01W	Wastewater Pump	X	X
Woodcliff Sewage Treatment Plant	Wastewater Treatment	X	X

*Source: Hudson County; HIFLD; NJGIN*

### 17.6.4 Identified Issues

- After review of the NBMUA's hazard event history, hazard rankings, hazard location, and current capabilities, Hudson identified the following vulnerabilities within the community:
- Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave.
- West 91<sup>st</sup> Street constantly floods during rain and storm events.
- The 8th Street Pump Station #2 is located within the 1% annual chance flood area and susceptible to flood damage. The station is identified as a critical facility and lifeline as it provides services to North Bergen Township.



- The area around Tonnelle Avenue and 83<sup>rd</sup> to 85th Streets experiences frequent flooding and combined sewer overflows during heavy rain events, leading to public health risks, property damage, and service disruptions.
- The area around West Side Avenue and 43rd Street experiences frequent combined sewer overflows during heavy rainfall, leading to localized flooding, environmental contamination, and public health concerns.

## 17.7 Mitigation Strategy and Prioritization

This section discusses the status of mitigation actions from the previous HMP, describes proposed hazard mitigation actions, and prioritizes actions to address over the next five years.

### 17.7.1 Past Mitigation Action Status

Table 17-15 indicates progress on the County's mitigation strategy identified in the 2020 HMP. Actions that are still recommended but not completed or that are in progress are carried forward and combined with new actions as part of the mitigation strategy for this plan update. Previous actions that are now ongoing programs and capabilities are indicated as such and are presented in the capability assessment earlier in this annex.

### 17.7.2 Additional Mitigation Efforts

In addition to the mitigation actions completed in Table 17-15, Hudson identified the following mitigation efforts completed since the last HMP:

- None Identified

Since the adoption of the County's first HMP, Hudson has made significant mitigation progress in the following areas:

- None Identified



Table 17-15. Status of Previous Mitigation Actions

Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2025 HMP or Discontinue 2. If including action in the 2025 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2020-NBMUA-001	Tide gate pump station Fairview Ave./Railroad Ave	Coastal Storm, Severe Weather, Flood, Severe Winter Weather	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	<b>Problem:</b> Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave.  <b>Solution:</b> To mitigate flooding hazards caused by rain/storm events along the north western quadrant of the municipality. Install a pump station along West Side Avenue incorporating backflow preventers. Tide gates installed at Fairview Ave. / Railroad Ave. intersection and dredging of Bellman's Creek to prevent surcharge upstream between 91 <sup>st</sup> Street and Railroad Ave. to reduce flooding in the area.	1.No Progress 2. -	1. Include 2. No change 3. N/A



Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2025 HMP or Discontinue 2. If including action in the 2025 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2020-NBMUA-002	Proposed stormwater diversion along culvert south of 91 <sup>st</sup> Street	Coastal Storm, Severe Weather, Flood, Severe Winter Weather	<u>North Bergen Engineering</u> , <u>North Bergen MUA</u> with support from Hudson County Engineering	<b>Problem:</b> West 91 <sup>st</sup> Street constantly floods during rain and storm events.  <b>Solution:</b> Upsize approximately 1600 feet of stormwater piping to 91st Street.	1.No Progress 2. -	1. Include 2. No change 3. N/A



Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2025 HMP or Discontinue 2. If including action in the 2025 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2020-NBMUA-003	Pump station and tide gate along northwestern municipal quadrant	Coastal Storm, Severe Weather, Flood, Severe Winter Weather	<u>North Bergen Engineering, North Bergen MUA</u> with support from Hudson County Engineering	<b>Problem:</b> Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave. <b>Solution:</b> To mitigate flooding hazards caused by rain/storm events along the north western quadrant of the municipality. Install a pump station along West Side Avenue incorporating backflow preventers. Tide gates installed at Fairview Ave. / Railroad Ave. intersection and dredging of Bellman's Creek to prevent surcharge upstream between 91 <sup>st</sup> Street and Railroad Ave. to reduce flooding in the area.	1. - 2. -	1. Discontinue 2. - 3. This is the same action as 2020-NBMUA-001. This was listed twice in the last HMP. Will remove.



Project Number	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Action Review 1. Status (In Progress, Ongoing Capability, No Progress, Complete) 2. Provide a narrative to describe progress or obstacles that have prevented implementation	Next Steps 1. Project to be included in the 2025 HMP or Discontinue 2. If including action in the 2025 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
2020-NBMUA-004	Critical Facility – 8 <sup>th</sup> Street Pump Station #2	Flood, Coastal Storm, Severe Storm	<u>North Bergen MUA</u>	<b>Problem:</b> The 8 <sup>th</sup> Street Pump Station #2 is located within the 1% annual chance flood area and susceptible to flood damage. The station is identified as a critical facility and lifeline as it provides services to North Bergen Township.  <b>Solution:</b> Install floodproof doors and elevate equipment, as necessary, to protect the pump station from flood damage.	1.No Progress 2. -	1. Include 2. No change 3. N/A





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### 17.7.3 Proposed Hazard Mitigation Actions for the HMP Update

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Hudson participated in the mitigation strategy workshop for this HMP to identify appropriate actions to include in a local hazard mitigation strategy. Its comprehensive consideration of all possible activities to address hazards of concern included review of the following FEMA documents:

- FEMA 551 “Selecting Appropriate Mitigation Measures for Floodprone Structures” (March 2007)
- FEMA “Mitigation Ideas—A Resource for Reducing Risk to Natural Hazards” (January 2013).

The action worksheets included at the end of this annex list the mitigation actions that Hudson would like to pursue in the future to reduce the effects of hazards. The actions are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in County priorities.

Table 17-16 indicates the range of proposed mitigation action categories. The four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Volume I identifies 14 evaluation criteria for prioritizing the mitigation actions. To assist with rating each mitigation action as high, medium, or low priority, a numeric rank is assigned (-1, 0, or 1) for each of the evaluation criteria. Table 17-17 provides a summary of the prioritization of all proposed mitigation actions for the HMP update.



**Table 17-16. Analysis of Mitigation Actions by Hazard and Category**

Hazard	Actions That Address the Hazard, by Action Category									
	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam and Levee Failure										
Drought										
Extreme Temperatures										
Flood		X			X	X		X	X	X
Geological Hazards										
Severe Weather		X			X	X		X	X	X
Severe Winter Weather										
Wildfire										

*Local Plans and Regulations (LPR)*—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.

*Structure and Infrastructure Project (SIP)*—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct structures to reduce the impact of hazards.

*Natural Systems Protection (NSP)*—These are actions that minimize damage and losses and preserve or restore the functions of natural systems.

*Education and Awareness Programs (EAP)*—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

*Preventative Measures (PR)*—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.

*Property Protection (PP)*—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

*Public Information (PI)*—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.

*Natural Resource Protection (NR)*—Actions that minimize hazard loss and preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

*Structural Flood Control Projects (SP)*—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.

*Emergency Services (ES)*—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities



**Table 17-17. Summary of Prioritization of Actions**

Project Number	Project Name	Scores for Evaluation Criteria															High / Medium / Low
		Life Safety	Property Protection	Cost-Effectiveness	Political	Legal	Fiscal	Environmental	Social Vulnerability	Administrative	Hazards of Concern	Climate Change	Timeline	Community Lifelines	Other Local Objectives	Total	
2025-NBMUA-001	Tide Gate Pump Station	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-NBMUA-002	Stormwater Piping	0	1	1	1	1	0	0	1	1	1	1	1	1	0	10	Medium
2025-NBMUA-003	Critical Facility – 8 <sup>th</sup> Street Pump Station #2	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2025-NBMUA-004	CSO Tank – Tonnelle Ave & 83 <sup>rd</sup> Street	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High
2025-NBMUA-005	CSO Tank – West Side Ave & 43 <sup>rd</sup> Street	1	1	1	1	1	0	1	1	1	1	1	1	1	0	12	High

*Note: Volume I, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-6), Medium (7-10), High (11-14).*



### Action 2025-NBMUA-001. Tide Gate Pump Station

Lead Agency:	North Bergen Engineer	
Supporting Agencies:	NBMUA	
Hazards of Concern:	Flood, Severe Weather, Severe Winter Weather	
Description of the Problem:	Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave.	
Description of the Solution:	To mitigate flooding hazards caused by rain/storm events along the north western quadrant of the municipality. West Side Avenue incorporating backflow preventers. Tide gates installed at Fairview Ave. / Railroad Ave. intersection and dredging of Bellman's Creek to prevent surcharge upstream between 91 <sup>st</sup> Street and Railroad Ave. to reduce flooding in the area.	
Estimated Cost:	High	
Potential Funding Sources:	FEMA HMGP, Municipal and County Budget	
Implementation Timeline:	1-5 years	
Goals Met:	2,6	
Benefits:	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events.	
Impact on Socially Vulnerable Populations:	This action will enhance safety and accessibility for socially vulnerable populations who may have limited resources to recover from flood-related damages, thereby improving community resilience.	
Impact on Future Development:	The implementation of flood mitigation infrastructure will support sustainable future development by reducing flood risk in a key area, encouraging investment and long-term planning in safer, more resilient locations.	
Impact on Critical Facilities/Lifelines:	By mitigating flooding near West Side Avenue and surrounding areas, the project helps protect nearby critical facilities and lifelines, such as transportation routes and emergency services, ensuring continued functionality during storm events.	
Impact on Capabilities:	This action enhances local flood management capabilities by incorporating engineered solutions such as backflow preventers and tide gates, and by improving waterway capacity through dredging, thereby strengthening the municipality's overall hazard mitigation strategy.	
Climate Change Considerations:	The project addresses anticipated increases in storm intensity and tidal influence under expected future conditions, making the area more resilient to evolving environmental stressors and reducing the likelihood of future flood-related disruptions.	
Mitigation Category	Structure and Infrastructure Project	
CRS Category	Property Protection, Structural Flood Control Projects, Natural Resource Protection	
Priority	High	
Alternatives	Action	Evaluation
	No Action	-
	Elevating roadways and infrastructure	Costly
	Constructing large retention basin or pond	Would not address the full issue



### ***Action 2025-NBMUA-002. Stormwater Piping***

<b>Lead Agency:</b>	North Bergen Engineer	
<b>Supporting Agencies:</b>	NBMUA	
<b>Hazards of Concern:</b>	Flood, Severe Weather, Severe Winter Weather	
<b>Description of the Problem:</b>	West 91 <sup>st</sup> Street constantly floods during rain and storm events.	
<b>Description of the Solution:</b>	Upsize approximately 1600 feet of stormwater piping to 91st Street.	
<b>Estimated Cost:</b>	High	
<b>Potential Funding Sources:</b>	FEMA PDM, Municipal and County Budgets	
<b>Implementation Timeline:</b>	1-5 years	
<b>Goals Met:</b>	2,3,6	
<b>Benefits:</b>	Reduce loss and vulnerability to flooding in commercial section of Township.	
<b>Impact on Socially Vulnerable Populations:</b>	Improved stormwater infrastructure will reduce flood-related disruptions and property damage in the area, benefiting socially vulnerable populations who may have limited capacity to recover from such events.	
<b>Impact on Future Development:</b>	Enhanced drainage capacity supports future development by reducing flood risk, making the area more attractive and viable for residential and commercial investment.	
<b>Impact on Critical Facilities/Lifelines:</b>	This action will help maintain access and operational continuity during storm events for critical facilities and lifelines.	
<b>Impact on Capabilities:</b>	The project strengthens municipal stormwater management capabilities by upgrading aging infrastructure to meet current and projected needs.	
<b>Climate Change Considerations:</b>	The upsized stormwater system is designed to accommodate more intense and frequent rainfall events expected under future environmental conditions, enhancing long-term resilience.	
<b>Mitigation Category</b>	Structure and Infrastructure Project	
<b>CRS Category</b>	Property Protection	
<b>Priority</b>	Medium	
<b>Alternatives</b>	<b>Action</b>	<b>Evaluation</b>
	No Action	-
	Installing permeable pavement	Not sufficient for managing a large volume of water during heavy rain events.
	Stormwater retention basin	Requires significant open space; may not provide timely relief



**Action 2025-NBMUA-003. Critical Facility – 8<sup>th</sup> Street Pump Station #2**

<b>Lead Agency:</b>	NBMUA	
<b>Supporting Agencies:</b>	-	
<b>Hazards of Concern:</b>	Flood, Severe Storm	
<b>Description of the Problem:</b>	The 8th Street Pump Station #2 is located within the 1% annual chance flood area and susceptible to flood damage. The station is identified as a critical facility and lifeline as it provides services to North Bergen Township.	
<b>Description of the Solution:</b>	Install floodproof doors and elevate equipment, as necessary, to protect the pump station from flood damage.	
<b>Estimated Cost:</b>	Medium	
<b>Potential Funding Sources:</b>	FEMA HMGP, MUA Budget	
<b>Implementation Timeline:</b>	1-5 years	
<b>Goals Met:</b>	3,6	
<b>Benefits:</b>	Continuity of operations, protection from flood damage	
<b>Impact on Socially Vulnerable Populations:</b>	Protection of critical facilities provides an opportunity for first responders and emergency managers to maintain critical services that socially vulnerable populations rely on.	
<b>Impact on Future Development:</b>	The risk of significant damage occurring to the structure will be reduced, which will allow critical operations to be maintained or only briefly interrupted in severe events. This provides continued support to both current and future development in the service area.	
<b>Impact on Critical Facilities/Lifelines:</b>	This action will protect 8 <sup>th</sup> Street Pump Station #2 which is a critical facility, maintaining the critical services that it provides.	
<b>Impact on Capabilities:</b>	This action improves continuity of operations during a flood event, allows for a more rapid return to pre-disaster capabilities after a flood event, and faster deployment of post disaster capabilities.	
<b>Climate Change Considerations:</b>	Future environmental conditions are expected to increase both the frequency and intensity of extreme weather events, including heavy rainfall and coastal or tidal flooding.	
<b>Mitigation Category</b>	Structure and Infrastructure Project	
<b>CRS Category</b>	Property Protection, Emergency Services	
<b>Priority</b>	High	
<b>Alternatives</b>	<b>Action</b>	<b>Evaluation</b>
	No Action	-
	Relocating the pump station to higher ground	Costly, logistically complex
	Building a perimeter floodwall around the station	May not be sufficient during extreme flood events



**Action 2025-NBMUA-004. CSO Tank – Tonnelle Ave & 83rd Street**

<b>Lead Agency:</b>	NBMUA	
<b>Supporting Agencies:</b>	-	
<b>Hazards of Concern:</b>	Flooding, Severe Weather	
<b>Description of the Problem:</b>	The area around Tonnelle Avenue and 83 <sup>rd</sup> to 85th Streets experiences frequent flooding and combined sewer overflows during heavy rain events, leading to public health risks, property damage, and service disruptions.	
<b>Description of the Solution:</b>	Install a new Combined Sewer Overflow (CSO) storage tank at the corner of Tonnelle Avenue and 83rd Street. The project also includes the installation of new stormwater piping along Tonnelle Avenue, 84th Street, and 85th Street, as well as a new flow regulator at the intersection of Tonnelle Avenue and 84th Street to manage stormwater and reduce overflow incidents.	
<b>Estimated Cost:</b>	High	
<b>Potential Funding Sources:</b>	FEMA HMGP, MUA Budget	
<b>Implementation Timeline:</b>	1-5 years	
<b>Goals Met:</b>	1,2,6	
<b>Benefits:</b>	The project will reduce combined sewer overflows, improve public health and water quality, enhance stormwater capacity, and protect nearby infrastructure and properties from flood damage.	
<b>Impact on Socially Vulnerable Populations:</b>	Reduces exposure to flood-related health hazards and property damage in densely populated, lower-income neighborhoods that may lack resources for recovery.	
<b>Impact on Future Development:</b>	Improved stormwater infrastructure supports safe and sustainable development in the area by reducing flood risk and increasing system capacity.	
<b>Impact on Critical Facilities/Lifelines:</b>	Helps maintain access and functionality of nearby transportation routes and utility services during storm events.	
<b>Impact on Capabilities:</b>	Strengthens municipal stormwater and wastewater management capabilities through modernized infrastructure and improved flow control.	
<b>Climate Change Considerations:</b>	The project is designed to accommodate increased rainfall intensity and frequency expected under future climate conditions, enhancing long-term resilience.	
<b>Mitigation Category</b>	Structure and Infrastructure Project	
<b>CRS Category</b>	Preventative Measures	
<b>Priority</b>	High	
<b>Alternatives</b>	<b>Action</b>	<b>Evaluation</b>
	No Action	-
	Install green infrastructure	Insufficient capacity during heavy rain events
	Temporary mobile or modular tanks	Not reliable long-term



**Action 2025-NBMUA-005. CSO Tank – West Side Ave & 43<sup>rd</sup> Street**

<b>Lead Agency:</b>	NBMUA	
<b>Supporting Agencies:</b>	-	
<b>Hazards of Concern:</b>	Flooding, Severe Weather	
<b>Description of the Problem:</b>	The area around West Side Avenue and 43rd Street experiences frequent combined sewer overflows during heavy rainfall, leading to localized flooding, environmental contamination, and public health concerns.	
<b>Description of the Solution:</b>	Install a new Combined Sewer Overflow (CSO) storage tank at the corner of West Side Avenue and 43rd Street to increase system capacity and reduce the frequency and severity of overflow events during storm conditions.	
<b>Estimated Cost:</b>	High	
<b>Potential Funding Sources:</b>	FEMA HMGP, MUA Budget	
<b>Implementation Timeline:</b>	1-5 years	
<b>Goals Met:</b>	1,2,6	
<b>Benefits:</b>	The project will reduce combined sewer overflows, improve public health and water quality, enhance stormwater capacity, and protect nearby infrastructure and properties from flood damage.	
<b>Impact on Socially Vulnerable Populations:</b>	Reduces exposure to flood-related health hazards and property damage in densely populated, lower-income neighborhoods that may lack resources for recovery.	
<b>Impact on Future Development:</b>	Improved stormwater infrastructure supports safe and sustainable development in the area by reducing flood risk and increasing system capacity.	
<b>Impact on Critical Facilities/Lifelines:</b>	Helps maintain access and functionality of nearby transportation routes and utility services during storm events.	
<b>Impact on Capabilities:</b>	Strengthens municipal stormwater and wastewater management capabilities through modernized infrastructure and improved flow control.	
<b>Climate Change Considerations:</b>	The project is designed to accommodate increased rainfall intensity and frequency expected under future climate conditions, enhancing long-term resilience.	
<b>Mitigation Category</b>	Structure and Infrastructure Project	
<b>CRS Category</b>	Preventative Measures	
<b>Priority</b>	High	
<b>Alternatives</b>	<b>Action</b>	<b>Evaluation</b>
	No Action	-
	Install green infrastructure	Insufficient capacity during heavy rain events
	Temporary mobile or modular tanks	Not reliable long-term