

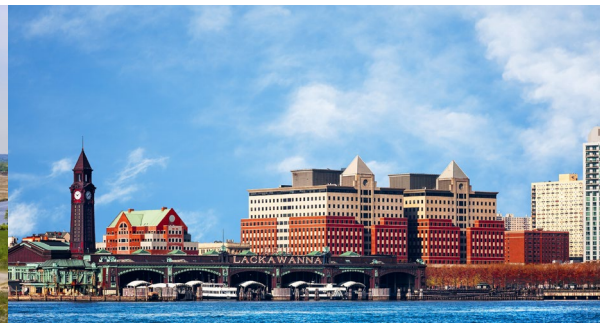


HUDSON COUNTY HAZARD MITIGATION PLAN



2020 Update

Volume II



Prepared for:
Hudson County Office of Emergency Management
Authorized by Hudson County Executive
Tom DeGise and Board of Chosen Freeholders



Prepared by:
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Parsippany, NJ 07054

**Hudson County Hazard Mitigation Plan
2020 Update**

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APRIL 2020



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TETRA TECH

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6 Century Drive, Suite 300

Parsippany, NJ 07054



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SECTION 8. PLANNING PARTNERSHIP

2020 HMP Changes

- The 2020 HMP update maintained the two-volume approach with each jurisdiction having an individual annex (Section 9). Enhancements to the annex subsections is described below and in further detail in this section.
 - Reorganization of information
 - Expanded capability assessment to include integration in the tables and a subsection on adaptive capacity
 - A streamlined presentation of the hazard ranking
 - The mitigation of repetitive and severe repetitive flood loss properties is listed
 - Problem statement is summarized in the updated mitigation strategy table
 - A subsection dedicated to staff and local stakeholder involvement in annex development

This section provides a description of the Hudson County’s HMP update planning partnership, their responsibilities throughout the planning process, and the jurisdictional annexes developed as a result of their plan update efforts.

8.1 Background

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. All participating jurisdictions must meet the requirements of Chapter 44 of the Code of Federal Regulations (44 CFR):

“Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan” [Section 201.6a(4)]

For the Hudson County HMP update, a Planning Partnership was formed to leverage resources and to meet requirements for the federal Disaster Mitigation Action of 2000 (DMA) for as many eligible governments as possible. Members of the Planning Partnership consisted of representatives from each jurisdiction. The DMA defines a local government as follows:

Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Each participating planning partner has prepared a jurisdictional annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume.

8.2 Initial Solicitation and Letters of Intent

Hudson County solicited the participation of 2015 plan participants (municipalities and Municipal Utility Authorities) in the County at the commencement of this project. All jurisdictions interested signed a “Letter of Intent to Participate” committing their participation and resources to the development of the Hudson County HMP update (Appendix B).





Hudson County and all local jurisdictions that submitted a Letter of Intent to Participate participated in the update process and have met the minimum requirements of participation as established by the County and Steering Committee.

8.3 Planning Partner Expectations

The Steering Committee developed the following list of planning partner expectations, which were confirmed at the kick-off meeting held on May 29, 2019 (see Appendix C [Meeting Documentation] for details):

- Complete administrative tasks:
 - Complete a letter of intent to participate and return to the Hudson County OEM
 - Designate points of contact
- Provide representation at planning partnership meetings;
- Provide information about jurisdictional assets (critical facilities, plans/ordinances, hazard events/damages, new development, etc.) as requested;
- Support public outreach efforts within the jurisdictions, including posting of notices and plan links on websites and local media sources, advertising and supporting public meetings, and supporting outreach to NFIP repetitive loss and severe repetitive loss property owners, where applicable;
- Solicit and encourage the participation of regional agencies, a range of stakeholders, and citizens in the HMP development process;
- Assist with the identification of stakeholders within the jurisdiction that should be informed and potentially involved with the planning process;
- Prepare and submit a jurisdictional annex.
 - Attend mitigation workshop
 - Perform a capability assessment
 - Review the risk assessment
 - Involve local NFIP Floodplain Administrator in the planning process and have them complete the NFIP portion of the annex
 - Review the 2015 mitigation strategies and provide a status of each
 - Identify jurisdiction-specific mitigation strategies to address each of the natural hazards posing a risk to the jurisdiction;
- Review draft plan sections when requested and provide comment and input as appropriate;
- Ensure the HMP update meets the requirements of the DMA 2000, and FEMA and NJOEM guidance;
- Adopt the plan by resolution of local governing body after FEMA conditional approval;
- Provide information regarding progress on identified initiatives as requested by the County Hazard Mitigation Planning Coordinator; and
- Participate, as able, in additional opportunities:
 - Attend local jurisdiction support meetings
 - Participate in and advertise the public review and comment period prior to adoption.

By adopting this plan, each planning partner also agrees to the plan implementation and maintenance protocol established in Volume I. As described in Volume I, Section 7 (Plan Maintenance) it is intended that the planning partnership remain active beyond the regulatory update to support plan maintenance. Regarding the composition of the Steering Committee and Planning Partnership, it is recognized that individual commitments change over time, and





it shall be the responsibility of each jurisdiction and its representatives to inform the HMP Coordinator of any changes in representation.

8.4 Jurisdictional Annex Preparation Process

As in the 2015 HMP, the jurisdictional annexes were maintained and updated for the 2020 HMP. The jurisdictional annexes continue to provide a unique, stand-alone guide to mitigation planning for each jurisdiction.

8.4.1 DATA COLLECTION

Each jurisdiction was paired with a contract consultant mitigation planner to work with the primary POC, alternate POC, NFIP Floodplain Administrator and the mitigation team to update their annexes. Each jurisdiction was asked to participate in a kick-off meeting, held on May 29, 2019 to review participant expectations and the updated information needed to support the annex update. It was made clear that the annexes are sections of the plan that can be enhanced if more information is available to further customize any and all aspects of mitigation planning.

A concerted effort was made to have all plan participants document areas of flooding outside of the floodplain. This information was captured at individual meetings held with the contract consultant; as well as displayed on poster-sized maps available at the October 2019 risk assessment meeting and January 2020 mitigation strategy workshop for review and update.



Exhibit 8-1. Participants Working at the Risk Assessment Meeting

8.4.2 HAZARD RANKING EXERCISE

The presentation of the risk assessment and hazard ranking for each jurisdiction was conducted on October 18, 2019. At this meeting, the consultant presented the overall risk assessment for the hazards of concern and distributed jurisdiction-specific handouts with risk assessment results relevant to each plan participant. In addition, each planning partner was asked to review the ranked hazards specific for its jurisdiction. Refer to Section 4.4 (Hazard Ranking) for the methodology of the hazard ranking process. The calculated ranking was presented to each jurisdiction and they were asked to review the ranking and revise based on history of events, probability of occurrence, and the potential impact on people, property, and the economy. In addition, each jurisdiction was asked to rank their adaptive capacity for each hazard. Refer to Appendix B (Participation Documentation) for the input submitted by each jurisdiction. The objectives of this exercise were to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes and to help prioritize types of mitigation actions that should be considered. Hazards that were ranked as “high” for each jurisdiction as a result of this exercise were considered to be priorities for identifying appropriate mitigation actions, although jurisdictions also identified actions to mitigate “medium” or “low” ranked hazards as appropriate.





8.4.3 STRENGTHS WEAKNESSES OBSTACLES AND OPPORTUNITIES (SWOO) EXERCISE

After the draft risk assessment results were presented and hazard ranking exercise conducted, attendees at the October 18, 2019 meeting participated in a facilitated SWOO session to identify strengths, weakness or challenges, obstacles and opportunities in hazard mitigation for the County's high-ranked hazards. Then, each jurisdiction was asked to complete a SWOO worksheet to document strengths, weaknesses, obstacles and opportunities relevant to their jurisdiction for their high-ranked hazards. All SWOO results were compiled and provided as a resource to plan participants at the Mitigation Strategy Workshop in January 2020. Refer to Appendix B (Participation Documentation) which provides the information captured by meeting participants during the SWOO session.

8.4.4 MITIGATION STRATEGY WORKSHOP

A mitigation strategy workshop was conducted by the contracted planning consultant on January 9, 2020, for all participating jurisdictions to support the development of the updated mitigation strategy. To assist with the identification of implementable and action-oriented mitigation actions, a three-step process was followed for the 2020 HMP update: 1) Assemble a 'mitigation toolbox'; 2) Identify problem statements through 'mitigation brainstorming' and 3) Update the mitigation action plan. The purpose of this workshop was to guide the planning partnership in completing this portion of the planning process and discuss how projects that are well developed and documented are more quickly identifiable for selection when grants become available. The nearly 100% participation of the planning partners reflects the excellent outreach and dedication of the planning team.

At the workshop, the Planning Partnership focused on developing problem statements based on the impacts of hazards in the County and their communities. The results of the updated risk assessment, challenges and opportunities identified during the capability assessment update and SWOO sessions, and information gathered from the citizen survey were used to inform problem statement development. At the workshop, the Planning Partnership broke up into small groups and round-table discussions took place so jurisdictions could understand each other's problem statements and share either what others have done to address the problem or help brainstorm what the best mitigation action is to address. The NJOEM mitigation unit was also present and worked with local jurisdictions to formulate focused mitigation actions.

As a result, problem statement worksheets were developed to detail the problems/challenges/gaps/identified vulnerabilities the jurisdiction faces, then mitigation alternatives evaluated to best reduce future risk and address the identified problem. These problem statements were intended to provide a detailed description of the problem area, including impacts to the jurisdiction, past damages, and loss of service. These problem statements helped form a bridge between the hazard risk assessment, which quantifies impacts to each community, with the development of achievable mitigation strategies.

Information gathered from the stakeholder workshop in February 2020 were later shared with the Planning Partnership to further inform the updated mitigation strategy development. This information was discussed via email and/or individual jurisdiction/County meetings (in-person or via conference call).

8.4.5 JURISDICTION SUPPORT MEETINGS

In addition to the Planning Partnership kick-off meeting, local support meetings were held throughout the planning process. At these support meetings, the consultant worked one-on-one with the planning partners to complete their





jurisdictional annexes. Each section of the annex was discussed to ensure accuracy and completeness. This included, but not limited to, the following:

- Reviewing the calculated hazard ranking for the jurisdiction and provide input to adjust the ranking as necessary.
- Inspecting the list of critical facilities located in the jurisdiction and their exposure to the 1% flood hazard area. For those critical facilities located in the Special Flood Hazard Area, each jurisdiction was requested to document whether the asset is already mitigated or identify an action to mitigate future flood impacts. By reviewing the list, jurisdictions were able to identify additional mitigation actions related to the critical facilities.
- Identify mitigation initiatives that have reasonable potential to be accomplished within the lifespan of the County HMP (five years), including both FEMA-eligible projects and those projects using funds from non-FEMA sources.

8.4.5.1 JURISDICTIONAL ANNEXES

While the jurisdictional annex format is designed to document and assure local compliance with the DMA 2000 regulations, its greater purpose and function includes:

- Providing a locally-relevant synthesis of the overall mitigation plan that can be readily presented, distributed, and maintained;
- Facilitating local understanding of the community's risk to natural hazards;
- Facilitating local understanding of the community's capabilities to manage natural hazard risk, including opportunities to improve those capabilities;
- Facilitating local understanding of the efforts the community has taken, and plans to take, to reduce their natural hazard risk;
- Facilitating the implementation of mitigation strategies, including the development of grant applications;
- Providing a framework by which the community can continue to capture relevant data and information for future plan updates.

It is recognized that each jurisdiction's annex is a "living" document and will continue to be improved as resources permit. As such, its design is intended to promote and accommodate continued efforts to maintain the annex to be current and to improve the effectiveness of the annex as the key tool, reference and guiding document by which the jurisdiction will implement hazard mitigation locally.

The following provides a description of the various elements of the jurisdictional annex.

Cover Page: A new addition to each annex is a dashboard that summarizes the jurisdiction. It does not summarize all risk assessment results; it only highlights a few hazards to provide an example of potential impacts. It also summarizes the 2020 mitigation action plan described in further detail in 9.X.7.

Section 9.X.1: Hazard Mitigation Planning Team: Identifies the hazard mitigation planning primary and alternate(s) contacts and Floodplain Administrators as identified by the jurisdiction.

Section 9.X.2: Jurisdiction Profile: Provides an overview and profile of the jurisdiction.

Section 9.X.3: Growth/Development Trends: Identifies of areas of known and anticipated future development and the vulnerability of those areas to the hazards of concern.





Section 9.X.4: Capability Assessment: This subsection provides an inventory and evaluation of the jurisdiction’s tools, mechanisms and resources available to support hazard mitigation and natural hazard risk reduction. Within the jurisdictional annexes, tables provide an inventory of the jurisdiction's planning and regulatory, administrative and technical, and fiscal, capabilities, respectively. Further, another table identifies the jurisdiction's level of participation in state and federal programs designed to promote and incentivize local risk reduction efforts. Further information regarding Federal, State and local capabilities may be found in the Capability Assessment portion of Section 5.

- **Adaptive Capacity:** A new addition to the capability assessment is a summary of the jurisdiction’s adaptive capacity to each hazard.
- **National Flood Insurance Program (NFIP):** This subsection documents the NFIP as implemented within the jurisdiction. This summary was based on questions prepared by, and/or interviews conducted with, the NFIP Floodplain Administrators for each NFIP-participating community in the County. This subsection also identifies actions to enhance implementation and enforcement of the NFIP within the community.
- **National Flood Insurance Program (NFIP) Summary:** Provides NFIP summary statistics for the jurisdiction.
- **Integration of Hazard Mitigation into Existing and Future Planning Mechanisms:** This subsection identifies how the jurisdiction has integrated hazard risk management into their existing planning, regulatory and operational/administrative framework (“integration capabilities”), and/or how they intend to promote this integration (“integration actions”). This is included as a new column in the planning/regulatory table and described in narrative at the end of this subsection.

Section 9.X.5: Hazard Event History Specific to the Jurisdiction: Identifies hazard events that have caused significant impacts within the jurisdiction, including a summary characterization of those impacts as identified by the jurisdiction. The documentation of events and losses is critical to supporting the identification and justification of appropriate mitigation actions, including providing critical data for benefit-cost analysis. It is recognized that this “inventory” of events and losses is a work-in-progress and may continue to be improved as resources permit. As such, the lack of data or information for a specific event does not necessarily mean that the jurisdiction did not suffer significant losses during that event.

Section 9.X.6: Jurisdiction-Specific Vulnerabilities and Hazard Ranking: This subsection provides information regarding each plan participant’s vulnerability to the identified hazards. New to the 2020 HMP is a table summarizing the risk assessment results for the jurisdiction. Full data and information on the hazards of concern, the methodology used to develop the vulnerability assessments, and the results of those assessments that serve as the basis of these local risk rankings may be found in Section 4.

- **Repetitive Flood Losses:** A summary of the repetitive and severe repetitive loss properties in the jurisdiction is documented. In addition, the number of properties mitigated has also been documented as recorded by NJOEM.
- **Critical Facility and Lifeline Flood Risk:** Identifies potential flood losses to critical facilities in the jurisdiction, based on the flood vulnerability assessment process presented in Section 4 (Risk Assessment). If a mitigation action is identified, this is specified in the table.
- **Identified Issues:** Presents other specific hazard vulnerabilities as identified by the jurisdiction.
- **Hazard Extent and Location:** Each annex includes a map (or series of maps) illustrating identified hazard zones, critical facilities, and areas of NFIP Repetitive Loss/Severe Repetitive Loss (RL/SRL). Further, these maps show areas





of known or anticipated future development, as available and provided by the jurisdiction. These maps may be found at the end of the annex.

- **Hazard Risk Ranking:** The Hudson County HMP update identifies and characterizes the broad range of hazards that pose risk to the entire planning area; however, each jurisdiction has differing degrees of risk exposure and vulnerability aside from the whole. The local risk ranking serves to identify each jurisdiction's degree of risk to each hazard as it pertains to them, supporting the appropriate selection and prioritization of initiatives that will reduce the highest levels of risk for each community.

Section 9.X.7: Mitigation Strategy and Prioritization: This section discusses and provides the status of past mitigation actions and status, describes proposed hazard mitigation initiatives, and prioritization.

- **Past Mitigation Initiative Status:** Where applicable, a review of progress on the jurisdiction's prior mitigation strategy is presented, identifying the disposition of each prior action, project or initiative in the jurisdiction's updated mitigation strategy. Other completed or on-going mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this sub-section as well.
- **Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy:** Other completed or on-going mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this subsection as well.
- **Proposed Hazard Mitigation Initiatives for the Plan Update:** Table 9.X-16 presents the jurisdiction's updated mitigation strategy. Table 9.X-17 provides a summary of the local mitigation strategy prioritization process discussed in Section 6 (Mitigation Strategy). Table 9.X-18 summarizes the mitigation action types identified by hazard in the jurisdiction.

Section 9.X.8: Staff and Local Stakeholder Involvement in Annex Development: A wide range of departments, stakeholders, and persons familiar with the jurisdiction should be involved in the development of the jurisdictional annexes. This section provides details on which departments were involved throughout the development of the jurisdictional annex. Further detail is provided in Section 2 (Planning Process), Section 9 (jurisdictional annexes) and Appendix B (Participation Matrix).

Action Worksheets: FEMA-eligible mitigation actions, projects and initiatives are further documented on an Action Worksheet which provides details on the project identification, evaluation, prioritization and implementation process.

8.4.5.2 ANNEX SIGNATURE PAGES

Workshops and additional meetings (via in person, email and/or teleconference) to complete the jurisdictional annexes were held with the Steering and Planning Committees throughout the planning process. In preparation for the draft plan public review, each jurisdiction was asked to have their 'mitigation team' review their annex to ensure it was complete and accurate for posting to the Hudson County OEM's mitigation website. To demonstrate broad and comprehensive review and input, each jurisdiction collected signatures from these representatives prior to submitting the draft plan to NJOEM and FEMA for review. Refer to Appendix B (Participation Documentation) to review the annex signature pages.

In summary, all participating jurisdictions and the County completed the planning partner expectations and annex-preparation process. Details regarding these meetings are described further in Sections 2 (Planning Process) and 6 (Mitigation Strategy). Completed jurisdictional annexes are presented in Section 9.





8.5 Coverage Under the Plan

All jurisdictions met the participation requirements specified by the Steering Committee. Table 8-1 lists the status of each jurisdiction, whether or not they submitted letters of intent to participate, and their ultimate status in this plan update. Refer to Appendix B (Participation Matrix) and Appendix C (Meeting Documentation) for details on participation and meeting attendance.

Table 8-1. Jurisdictional Status

Jurisdiction	Letter of Intent to Participate	Attended Workshops and/or Meetings and Project Calls	Provided Update on Past Projects	Submitted Mitigation Actions for Current Plan	Seeking Approval for Adoption (meets all previous requirements) (to be completed)
Bayonne	X	X	X	X	
East Newark	X	X	X	X	
Guttenberg	X	X	X	X	
Harrison	X	X	X	X	
Hoboken	X	X	X	X	
Jersey City	X	X	X	X	
Kearny	X	X	X	X	
North Bergen	X	X	X	X	
Secaucus	X	X	X	X	
Union City	X	X	X	X	
Weehawken	X	X	X	X	
West New York	X	X	X	X	
Jersey City MUA	X	X	X	X	
North Bergen MUA	X	X	X	X	
North Hudson SA	X	X	X	X	
Secaucus MUA	X	X	X	X	
Kearny MUA	X	X	X	X	
Hudson County	-	X	X	X	

NA = Not applicable. The Hudson County OEM is the HMP Coordinator and managed the project and grant and served as Steering Committee chair. A letter of intent to participate was not required for Hudson County.

Workshops and additional meetings (via in person, email and/or teleconference) to complete the jurisdictional annexes were held with the Steering and Planning Committees throughout the planning process. In summary, all participating communities and the County completed the planning partner expectations and annex-preparation process. Details regarding these meetings are described further in Section 2 (Planning Process) and Section 6 (Mitigation Strategy). Completed jurisdictional annexes are presented in Section 9.





SECTION 9. JURISDICTIONAL ANNEXES

Section 201.6.a(4) of Chapter 44 of the Code of Federal Regulations (44CFR) states: “Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.” One component of each participating jurisdiction’s involvement in the planning process of this HMP was to prepare an annex that focuses specifically on the natural hazards facing their community and the mitigation actions they propose to reduce their exposure and losses to these hazards.

Hudson County and each participating jurisdiction completed an annex that outlines the following information: natural hazard event history, hazard ranking and vulnerability, capabilities, progress on past mitigation actions and an updated mitigation strategy specific to the County or that jurisdiction. Once complete, the County and each participating jurisdiction reviewed and approved their final annex prior to submission to the NJOEM and the FEMA Region 2. Each jurisdiction’s annex itself may be found in Sections 9.1 through 9.18.

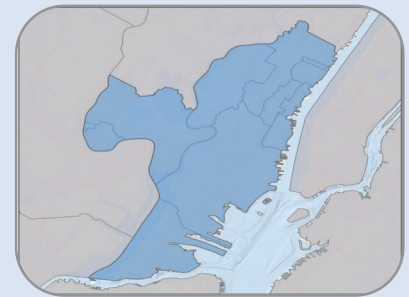




HUDSON COUNTY

COUNTY AT A GLANCE

Total Population: 679,756
 Total Land Area: 51.54 sq. mi
 Total Number of Buildings: 76,828



Hurricane Storm Surge*



Population



Buildings

Category 1**

94,006

9,468

Category 2**

147,197

16,218

**Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss*



\$88,086,878

Potential Building Damages

1% Annual Chance Flood*



98,288

Population residing in floodplain

9,417

Persons that may seek shelter



10,377

Buildings in floodplain

\$3,569,635,644

Potential building damages



2

Critical facilities in floodplain

NFIP Statistics*



715 # NFIP Policies

19,372 # WYO Policies

396 # RL Properties (excludes SRL)

37 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Natural Systems Protection, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Flood, Severe Storm, Severe Winter Storm

*Countywide total estimates



9.1 Hudson County

This section presents the jurisdictional annex for Hudson County. The annex includes a general overview of the County; an assessment of the County’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.1.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the County’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.1-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Francesca Giarratana, PP, AICP, Division Chief Hudson County Division of Planning 830 Bergen Avenue, Suite 6A Jersey City, NJ 07306 Phone: (201) 217-5137 Ex. 4443 fgiarratana@hcnj.us	James Woods, Coordinator Hudson County Office of Emergency Management 830 Bergen Avenue, Suite 2B Jersey City, NJ 07306 (201) 369-5200 jwoods@hcnj.us

9.1.2 COUNTY PROFILE

Section 3 (County Profile), Volume I of this HMP includes details on Hudson County’s population, location, climate, history, growth, and development.

9.1.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. The jurisdictional annexes for each municipality summarize recent and expected future development trends, including major residential/commercial development and major infrastructure development. The Hudson County’s Planning Board, with staff support from the Division of Planning plays a vital role in reviewing all subdivision applications in the County and site plan applications for development along County roads that may affect traffic and drainage facilities. The Planning Board promotes sustainability and environmentally friendly development through their Land Development Regulations.

9.1.4 CAPABILITY ASSESSMENT

An inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies was developed for the County. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities





- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The County’s adaptive capacity for the impacts of climate change

Areas where mitigation is currently integrated are summarized in this Capability Assessment. Hudson County identified specific integration activities that will be incorporated into procedures are included in the updated mitigation strategy.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools in the County and where hazard mitigation has been integrated.

Table 9.1-2. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	No	State, Local	Yes	No	-
<i>Comment: NJAC 5:23-3, 14; enforced at the local level. The local municipality enforces the building code. Hudson County Land Development Regulations 2016</i>					
Zoning Code	No	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Enforced at the local level.</i>					
Subdivisions	No	Local	Yes	No	-
<i>Comment: According the NJ County Planning Act, County Planning Boards have jurisdiction to review all subdivision applications in the County. Subdivisions along or abutting County Roads or County Property are reviewed for compliance with the “Hudson County Land Development Regulations”.</i>					
Stormwater Management	No	Local	Yes	No	-
<i>Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8)</i>					
Post-Disaster Recovery	Yes	County	-	Yes	-
<i>Comment: The Hudson County Division of Planning, in partnership with other County Divisions and Offices, including OEM, has the staff and technical capability to prepare recovery reports. It is the intention to do so for the short-term and long-term recovery of the COVID-19 Pandemic.</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	Yes	County	Yes	Yes	-
<i>Comment: See Hudson County Master Plan and Comprehensive Economic Development Strategy (CEDS) Reports and Annual Updates</i>					
Shoreline Development	Yes	State	Yes	-	-
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ’s Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes	Local	Yes	Yes	-
<i>Comment: The County’s Planning Board, with staff support from the Division of Planning review, reviews all applications for development along County roads that may affect traffic and drainage facilities. The Planning Board promotes sustainability and environmentally friendly development through their Land Development Regulations, which includes refined Green Stormwater Infrastructure (GSI) techniques and design and construction standards, along with descriptive text for techniques.</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Environmental Protection	No	Local	Yes	-	
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 30 Stormwater Control. Chapter 33 Planning and Development Regulations.</i>					
Flood Damage Prevention	Yes	Local	Yes		-
<i>Comment: Executive Order 11988; floodplain management enforced at the local level</i>					
Wellhead Protection	-	-	-	-	-
<i>Comment:</i>					
Emergency Management	-	-	-		-
<i>Comment:</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Steep Slopes	Yes	County and Local	No	TBD	-
<i>Comment: County Steep Slope Ordinance in 2008</i>					
Other					
<i>Comment:</i>					
Planning Documents					
Master Plan	Yes	County	Yes	Yes	-
<i>Comment: Hudson County Master Plan 2002; Re-Examination of the Master Plan February 2017. Site Plan and Subdivision Regulations pursuant to N.J.A.C. 17:27-6 et. seq. The plan summarizes impacts from Superstorm Sandy and displays floodplain and storm surge maps. The plan emphasizes the importance of resiliency planning to mitigate County vulnerability to natural hazards. This plan identifies recommended mitigation and resilience actions that align with the 2015 and 2020 HMPs.</i>					
Capital Improvement Plan	Yes	Local	Allowed		
<i>Comment: Per N.J.A.C. 17:27-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six-year planning horizon. Capital Improvements are identified within the local budget and administered locally.</i>					
Disaster Debris Management Plan	Yes	County	No	Yes	-
<i>Comment: The Hudson County Disaster Debris Management Plan, adopted in 2017, addresses the jurisdiction's coordinated response to manage debris following a debris-generating event.</i>					
Floodplain or Watershed Plan	Yes	Local	No	No	-
<i>Comment: Hackensack Meadowlands Floodplain Management Plan, 2005; discusses flood hazard areas; recommended actions</i>					
Stormwater Management Plan	No	Local and State	Yes	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.).</i>					
Stormwater Pollution Prevention Plan	Yes/No		Yes	Yes/No	Yes/No
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Habitat Conservation Plan	No	-	No	-	-
Comment:					
Economic Development Plan	Yes	Federal, Local	No	Yes	-
Comment: Comprehensive Economic Development Strategy – 5 year plan 2015-2019, updated in 2016. To be updated in 2020 for the new 5-year CEDS report 2020-2024.					
Shoreline Management Plan		Local	No	No	-
Comment:					
Community Wildfire Protection Plan	No	-	No	-	-
Comment:					
Community Forest Management Plan	Yes	County, Local	No	Yes – plan and associated initiatives are assist with improving the effect of urban heat islands (extreme temperature hazard in the HMP).	-
Comment: Hudson County Community Forestry Plan, December 2017. This plan establishes a plan and guidelines for proper maintenance and expansion of the County’s urban forestry program and resources, is in compliance with the NJ Shade Tree and Community Forestry Assistance Act which provides liability protection and affords the County access to the Community Stewardship Incentive Program and associated grant opportunities.					
Transportation Plan	Yes	County	No	Yes	-
Comment: The Circulation Element of the Hudson County Master Plan provides an overview of transportation in Hudson County, sets goals and objectives based on current patterns and potential future trends, and includes recommendations to address the current issues, and improve the safety, mobility, and accessibility of the county’s transportation system. The Circulation Element includes a section detailing the damage to the County’s transportation network from Hurricane Sandy and other storm events, and the new goals and objectives include resiliency priorities.					
Agriculture Plan	No	-	No	-	-
Comment:					
Climate Action Plan	No	-	No	-	-
Comment:					
Tourism Plan	No	-	No	-	-
Comment:					
Business Development Plan	Yes	-	No	-	-
Comment: Comprehensive Economic Development Strategy – 5-year plan 2015-2019, updated in 2016 – see above					
Recreational and Open Space Inventory	No	-	No	-	-
Comment: The Recreational and Open Space Inventory (2017) lists all Green Acres-funded properties as well as all other lands held for conservation and/or recreation purposes.					
Open Space Plan	Yes	County		Yes	
Comment: The 2013 Open Space Re-examination Report documents Superstorm Sandy damages to Liberty State Park (\$20 million), County Parks (\$500,000 and to municipal parks.					
Parks Master Plan	Yes	County			
Comment: The 2016 Hudson County Parks Master Plan outlines a 5-year plan for capital improvements in the nine County Parks. The Hudson County Master Plan Re-examination Community Facilities element works in conjunction with the Parks Master Plan.					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	Yes	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<p>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years.</p> <p>ESF #6 (Mass Care) has just been updated in coordination with the American Red Cross, Hudson County Health and Human Services and Hudson County Office of Emergency Management. This document as standard practice for prevention, mitigation, preparedness, response, and recovery during emergency operations. ESF #6 references the Multi-Jurisdictional Hazard Mitigation Plan.</p>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
<p>Comment:</p>					
Post-Disaster Recovery Plan	Yes	Local	No	Yes	
<p>Comment: Hudson County Strategic Recovery Report (February 2014). Several mitigation actions were identified in VII Action Plan in the report that aligned with the 2015 Hudson County Hazard Mitigation Plan. The Hudson County Division of Planning, in partnership with other County Divisions and Offices, including OEM, will pursue a recovery planning process for the short-term and long-term recovery of the COVID-19 Pandemic.</p>					
Continuity of Operations Plan	Yes	County	No	Yes	-
<p>Comment: The plan provides a guide to assess the impact of a variety of disasters on the County government, and that essential services and facilities remain operational or are recovered as soon as possible.</p>					
Public Health Plan	No	-	No	-	-
<p>Comment:</p>					
Emergency Response Plan	Yes	-	No	-	-
<p>Comment: Hudson County OEM, 2012</p>					
Other	Yes				
<p>Hudson County Complete Streets Policy, 2012 – provides safe and convenient access for all users by designing and operating a comprehensive, integrated, connected, multi-modal network of transportation options. The policy directs Complete Streets practices to be integrated into the planning, design, construction, maintenance and operation of County roads, bridges, parks and building projects funded by the County’s Capital Improvement Plan, to the extent possible. Part D of the Policy states that “Complete Street Policies shall support the goals of the Hudson County Master Plan.”</p> <p>Wastewater Management Plan and Update - NJDEP provided planning funding to develop/update the County wastewater management plans with new regulations.</p>					

Table 9.1-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Hudson County Planning Board reviews and approves all developments abutting County roads
Does your jurisdiction have the ability to track permits by hazard area?	Hudson County Planning Board Application Form requires applicants to identify whether the property for proposed development is located within the flood hazard area. An additional analysis of geographic locations of applications would determine proximity of any other developments to hazards.
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Draft NJSEA Master Plan indicates a build-out analysis has been performed Hudson County Division of Planning has prepared a GIS analysis of vacant parcels throughout the county. However, this does not cover redevelopment of existing buildings.





ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the County.

Table 9.1-4. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Division of Planning manages the County’s Planning Board
Mitigation Planning Committee	No	There is no committee outside the HMP update process
Environmental Board / Commission	Yes	Hudson County Economic Development Strategy Committee (CEDs)
Open Space Board / Committee	Yes	Hudson County Open Space Board with local representatives
Economic Development Commission / Committee		-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse 911, website, social media, etc.
Maintenance program to reduce risk	Yes	Tree trimming, sewer and catch basin cleaning
Mutual aid agreements	Yes	With municipal fire and police departments, Port Authority of NY/NJ, FDNY, NYPD and Staten Island
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Hudson County Planning and Engineering Departments
Engineers or professionals trained in building or infrastructure construction practices	Yes	Hudson County Planning and Engineering Departments
Planners or engineers with an understanding of natural hazards	Yes	Hudson County Planning and Engineering Departments
Staff with training in benefit/cost analysis	TBD	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Hudson County Planning Department – GIS Section; serves as the data warehouse for municipalities, excluding Jersey City.
Scientist familiar with natural hazards in local area	Yes	Hudson County Office of Emergency Management
Emergency manager	Yes	Hudson County Office of Emergency Management
Grant writers	Yes	Francesca Giarratana (Planning), Charlene Burke, Millennium Strategies, LLC (under contract)
Resilience Officer	No	
Other	No	Kevin Force(Planning) attended Community Planning for Economic Recovery course led by National Center for Disaster Preparedness in July 2019

FISCAL CAPABILITY

The table below summarizes financial resources available to the County.

Table 9.1-5. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes





Financial Resource	Accessible or Eligible to Use?
User Fees for Water, Sewer, Gas or Electric Service	Yes - Only county-imposed user fee is for solid waste management
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes, Shore Protection Fund from DEP, Office of Natural Resource damage funds, Local Aid grants, Environmental Infrastructure Trust fund, NJ EDA grants, NJ DCA grants
Development Impact Fees for Homebuyers or Developers	Yes, County Planning Board fee schedule based on increase in impervious coverage and new parking spaces.
Other	<p>Open Space, Recreation and Historic Preservation Trust Fund – for partnerships between municipalities and nonprofit groups</p> <p>Penhorn Pump Station - developments contributing stormwater are assessed a fee to pay for pump station upgrades</p> <p>Passaic Avenue - developments contributing to an increase in traffic on Passaic Avenue in East Newark and Kearny are assessed a fee to pay for street widening and upgrades</p>

EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the County.

Table 9.1-6. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes, Public Information Officer
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes, Hudson County Office of Emergency Management
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, Hudson County Office of Emergency Management - various social media outlets are utilized to share information
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Social media
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes, County siren system, Reverse 911, website, social media, etc.

COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the County.

Table 9.1-7. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Not applicable	-	-





Program	Participating?	Classification	Date Classified
Public Protection (Fire ISO Protection Class)	Not applicable	-	-
Storm Ready Certification	Not participating	-	-
Firewise Community Classification	Not participating	-	-
Sustainable Jersey	Not applicable	-	-

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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from, or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the County have access to resources to determine the possible impacts of climate change? *Yes, the County works with NJTPA which recently conducted a climate study on extreme temperature and flood and transportation asset vulnerability to these hazards of concern.*
- Is the administration supportive of integrating climate change in policies or actions? *Yes*
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the County? *Yes – Hudson County Planning Board promotes sustainability and environmentally friendly development through the Hudson County Land Development Regulations. Applicants to the Hudson County Planning Board are required to implement sustainable site design practices. Proposed changes to the Land Development Regulations, to be presented for adoption in the near future, would refine these requirements to more directly address stormwater runoff.*

The table below summarizes the County’s adaptive capacity ratings for each hazard of concern.

Table 9.1-8. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low-Medium
Coastal Storm	Medium-High
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Low-Medium
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.





NATIONAL FLOOD INSURANCE PROGRAM

Management and regulation of the regulatory floodplains are done at the local level. Refer to the individual jurisdictional annexes for details on the NFIP for each municipality.

9.1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For any jurisdiction to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below for Hudson County. In addition, the County identified specific integration activities that will be incorporated into procedures, which is also indicated below.

9.1.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the County made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy.

The Hudson County Strategic Recovery Report (SRR), published in February 2014, was led by the Department of Planning, to summarize losses and vulnerabilities evidenced by Superstorm Sandy throughout the County, and identifies a series of mitigation projects and initiatives. Projects identified in the SRR have been completed (e.g., HC-7 Paterson Plank Road flood project, also identified in the 2015 HMP) and some of which have not been completed and are included in the updated mitigation strategy (Table 9.1-12).

With grant funding from the New Jersey Department of Community Affairs' Post-Sandy Planning Assistance Grant Program, the Hudson County Division of Planning launched the "Engaging and Strengthening Hudson County Planning Initiative". This initiative was an inclusive strategic planning process that involved a collaboration of professional planners, engineers, government officials, businesses, organizations, and the general public. The initiative establishes goals, objectives and guiding principles to create a unified vision for planning and resiliency in Hudson County. Four planning documents were the result of this larger effort that integrate natural hazard risk and emphasizes resiliency:

1. *Hudson County Master Plan Re-Examination, 2017* - The goal of the Hudson County Master Plan Re-examination is to help the County and municipalities incorporate smart growth and sustainable community approaches into their development plans, regulations, and hazard mitigation goals and objectives, particularly to increase their flood resilience. The County emphasizes that this plan must address not only the probability of flooding and the vulnerability of its structures and infrastructure, but the consequences of those hazard to populations and their communities. The plan included actions identified in the 2015 Hudson County HMP. In addition, the plan has recommendation checklists with additional mitigation and resilience actions (e.g., Table 16 – Infrastructure Recommendation Checklist). Refer to 9.1-12 below for actions identified in the Master Plan and the 2020 HMP.
2. *Hudson County Parks Master Plan* - The Hudson County Parks Master Plan will serve the recreation needs of residents and visitors and simultaneously prepare a parks system that is resilient to future storm events. The Plan will include a five-year plan for the recovery of Hurricane Sandy-damaged park facilities taking into account safety concerns, areas most vulnerable to potential storm damage, etc.
3. *Comprehensive Economic Development Strategy (CEDS) update (2015 to 2019)* – The CEDS creates an economic roadmap to diversify and strengthen the County's economy and enable the County to apply for investment





assistance under the U.S. Department of Commerce, Economic Development Administration (EDA) Public Works or Economic Adjustment Assistance Programs. In addition, the update explored short- and long-term impacts associated with Superstorm Sandy, as well as the vulnerabilities that event had exposed.

4. *Hudson County Capital Improvement Plan (CIP)* update - A typical five-year CIP is an effective tool for properly planning for capital investments in County facilities and equipment to build community resiliency. The projects and strategies identified in the CIP will come from a variety of sources, including the *Hudson County All Hazard Mitigation Plan*, the *Hudson County Strategic Recovery Report*, and other planning documents, as well as interviews with the County OEM, and outreach to municipal stakeholders and the public.

A project website for this initiative (PlanHudCo.com) was launched to keep the public apprised of the planning efforts including public meetings, questionnaires, and interactive crowd sourcing map survey and other means to receive comments and feedback from residents.

Post-Sandy Hudson County also applied for additional grant funding to develop the *Community Rating System (CRS) Action Plan and Debris Management Plan*. The CRS Baseline Assessment and Potential Impact Report was completed for each municipality in the County, with approval from the New Jersey Department of Community Affairs in 2017.

Land Use Planning: The Planning Department supports all aspects of local planning and seeks to integrate consideration in natural hazard risk and support mitigation project identification and implementation through its planning programs, resources and Office of Emergency Management.

The Division of Planning reviews all subdivision applications in the County and site plan applications for development along County roads that may affect traffic and drainage facilities. The Hudson County Planning Board promotes sustainability and environmentally friendly development through the Hudson County Land Development Regulations. All site plans that are approved must have met the minimum requirement of two green techniques outlined by the County's Best Management Practices list (e.g., bike racks, porous pavers, green roofs) – geared to limiting flows to drainage system and reduce runoff (meeting NJDEP Stormwater management reduction standards); no connection fees or assessments.

The Hudson County Planning Board received NJTPA grant funding to update the Hudson County Land Development Regulations for Smart Growth and Sustainable Development. The study was completed in June 2016 and is available online to review. The Hudson County Land Development Regulations establish standards for site plans and subdivision applications to the County Planning Board. This update reflects an increased focus on resiliency and complete streets including green technique requirements for private developers; post-Sandy green stormwater infrastructure regulations and consideration of FEMA building standards and latest best management practices; recognizes flood hazard area lines established by the NJDEP. The 2016 Land Development Regulations, with subsequent updates, will refine the requirements to more directly address stormwater runoff, and are to be presented to the Board of Chosen Freeholders for adoption in the near future.

The Hudson County Division of Planning reviewed the New Jersey Sports and Exposition Authority (NJSEA) plan and provided comments to the NJSEA.

Through the Open Space, Recreation and Historic Preservation Trust Fund, created in 2003, the County can acquire new land for open space and improve parks. The County awards grants to municipalities and non-profit organizations through the Trust Fund for these purposes. This is a capability of the County as opportunities present themselves.





The Division of Planning meets annually with the municipalities regarding the Open Space Trust Fund and their open space and park priorities. These meetings take place before the fund opens up and the Division of Planning works with municipalities to develop projects.

Hudson County has a Shade Tree Initiative that has led to the planting of new trees along County roads and the approval of the County's first Community Forestry Plan. The goals of the Shade Tree Initiative are to enhance the environment, improve human health and wellbeing, reduce stormwater runoff through retention, combat the urban heat island effect, improve the aesthetic appearance of the County's streetscape, and improve quality of life for residents. The Planning Board has a shade tree requirement, where one street tree must be provided for every 30 feet of street frontages along a County road.

The Hudson County Planning Board has several policies that promote smart growth. One example is the Low Impact Development Checklist, which encourages the use of nonstructural stormwater management strategies and provides guidance in their incorporation in land development projects. The Checklist complements the NJDEP Stormwater Management Rules with additional oversight on vegetation, circulation, pollution prevention and consistency with the Hudson County Master Plan.

Integration of Hazard Mitigation into Regional Plans: Hudson County has a liaison for each NJTPA subregion. Hudson County was a member of the NJTPA Technical Advisory Committee formed to develop the Passaic River Basin Climate Resilience Planning Study (2019).

Integration of Improved Hazard Information into Existing Emergency Management Plans: The County continues to develop, enhance and implement existing emergency response plans to utilize new and developing technology/information as it becomes available. As per this plan, the County critical facility inventory was updated, lifelines were identified, and new facilities were added via geo-coding to have one spatial data set for future analysis.

Public Education/Outreach Programs/Training: Hudson County has regularly scheduled meetings with Emergency Managers from each community. Training and equipment for all Community Emergency Response Teams (CERT) within the County is provided. The County also has a county CERT team which consists of county employees. Local Emergency Planning Committee (LEPC) meetings include agency representatives from public, private, utilities, non-profits and educational institutions are conducted four times a year. At the LEPC meetings, pre disaster planning is discussed for future natural hazard events.

The Division of Planning currently has online maps that are publicly available. The ArcGIS Online Interactive Mapping Initiative allows residents to view flood insurance maps and the flood hazard area. Additional maps will be developed through the Online Mapping Initiative to further track sustainability, environmental, and climate change issues and to aid the public in disaster mitigation and recovery.

Continuity of Operations/Continuity of Government (COOP/COG): The County has developed a COOP/COG which is intended to provide a guide to assess the impact of a variety of disasters on the county government, and response appropriately to maintain and restore capabilities, essential facilities, and services. The plan prioritizes the necessity of functions, departments, and key staff members and leadership for all county departments. The plan outlines operational mandates, which are legally required government functions, to guide prioritization and restoration. It also identifies critical resources such as vital files, equipment, and utilities which are needed for vital functions, as well as alternative facilities if relocations are necessary. It intends to provide a clear chain of command for implementing the





plan and focuses on Recovery Time Objectives which are timelines for restoring government functions. The plan also specifies that After Action Reports be written following any implementation of the plan as documentation of actions taken and does include a guide on updating and maintenance of the plan.

Future Planning Mechanisms: According to the Division of Planning, future capital improvement projects will be evaluated to determine if they meet hazard mitigation goals and objectives. When developing upcoming transportation improvement programs, hazard mitigation actions will be funded as budget allows. In addition, the County identified specific integration activities that will be incorporated into procedures and are included in their updated mitigation strategy.

The Division of Planning applied for and received grant funding from the North Jersey Transportation Planning Authority (NJTPA) as part of the Subregional Studies Program to conduct a Ferry Service Expansion Assessment study. This study will examine opportunities to expand existing ferry service or to create new passenger ferry service within Hudson County. The study will explore market feasibility for intracounty, inter-county, and inter-state ferry service. Passenger ferry service can support emergency operations during a hazard event. Ferries and other watercraft helped evacuate people from lower Manhattan on 9/11 and brought in help from New Jersey. Adding in-service ferry vessels supports resiliency and provides redundancy during emergencies and other transit networks failures. Ferries allow the transportation of passengers safely and efficiently under most conditions. The study is anticipated to be completed in spring 2021.

Wastewater Management Plan update – NJDEP provided planning funding to develop/update the County wastewater management plans with new regulations.

9.1.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the County will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- *Hudson County Master Plan Re-Examination, 2017* - The plan included actions identified in the 2015 Hudson County HMP. In addition, the plan has recommendation checklists with additional mitigation and resilience actions (e.g., Table 16 – Infrastructure Recommendation Checklist). Several recommendations appear in the County updated 2020 mitigation strategy including:
 - Identify county utilities that need to be upgraded to meet current and future demand (updated actions 2020-Hudson County-011 and -015);
 - Establish a Hudson County FEMA CRS Users Group (updated action 2020- Hudson County -003);
 - Explore the potential to relocate critical utility infrastructure from areas that are vulnerable to future storms and flooding (updated actions 2020- Hudson County -002, -005, -006, -011);
 - Mapping all County-owned and controlled infrastructure, including stormwater catch basis and create a database of this data (updated action 2020- Hudson County -011);





- Increase capacity of stormwater drainage on county roadways with emphasis on evacuation routes (updated actions 2020- Hudson County -009, -010);
- Relocate County DPW garage located at the end of Duncan Avenue, Jersey City (updated action 2020- Hudson County-002).
- *Hudson County Parks Master Plan* - The plan includes an overall statement that recommendations for each park will serve as a “targeted implementation plan to create a parks system that is less vulnerable to the potential damages of “Sandy” type storms in the future.” The plan includes additional goals and objectives related to resiliency, including:
 - Initiate a system of maintenance guidelines to help mitigate against potential future storm damage.
 - Acquire areas prone to flood damage where feasible and convert to open space/parks
- *Hudson County Capital Improvement Plan (CIP)* update - from the introduction, the Capital Improvement Plan states that the purpose of the plan is to assess capital projects from a resiliency standpoint following Hurricane Sandy and other similar flooding events. Resiliency-focused capital projects can include the elevation of public facilities or generators above flood hazard elevations, relocation of facilities out of flood zones, repair and upgrades of existing infrastructure, drainage capacity improvements, emergency equipment acquisitions, retrofitting buildings, and many others. The projects and strategies identified in the CIP comes from a variety of sources, including the Hudson County All Hazard Mitigation Plan, the Hudson County Strategic Recovery Report and other planning documents, as well as interviews with the County OEM and outreach to municipal stakeholders and the public. Capital Improvement Plan includes a map of the County identifying areas of flooding risk, lists critical facilities which are vulnerable to flooding during a storm event, and includes projects and costs for mitigation and reducing risk.
- *COVID-19*
 - Hudson County is facing the COVID-19 pandemic concurrent with this planning process. Immediate and longer-term economic needs have been identified: 1) protecting against loss of housing, food insecurity, etc.; 2) job creation, investment
 - The Division of Planning has identified the following integration opportunities relative to the pandemic:
 - Look at previous strategic recovery reports (Hurricane Sandy recovery) and create a new one to address the COVID- Pandemic
 - Comprehensive Economic Development Strategy (CEDS)
 - Currently underway
 - Revise plan outline; COVID-19 crisis as guide for economic development activity for the County
 - Data collection via consultant
 - What kind of data has been collected?
 - Use collected data and CEDS as a baseline to compare economic conditions pre, during, and post COVID-19.
 - Collaboration with OEM, Hudson Regional Health Commission, Division of Housing and Community Development, Hudson County Economic Development Corporation (EDC), the Workforce Development Board, etc.

9.1.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan.





9.1.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the County. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the County. These properties are not owned by the County; therefore, the County has no jurisdiction to mitigate however supports local mitigation projects to address repetitive flooding. Refer to Section 4.3.7 (Flood) for more detailed information on NFIP statistics by municipality, and the municipal annexes in Sections 9.2 through 9.13 for details on the number of mitigated properties in each municipality.

- Number of repetitive loss (RL) properties: 417
- Number of severe repetitive loss (SRL) properties: 19

CRITICAL FACILITIES

The table below identifies critical facilities owned by the County and located in the 1-percent and 0.2-percent floodplains.

Table 9.1-9. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Mitigation Action?
		1% Event	0.2% Event	
County Garage/DPW (Jersey City)	Critical facility	X		2020-Hudson-002
USS Juneau Building	Critical Facility	X		2020-Hudson-006

ADDITIONAL IDENTIFIED VULNERABILITIES

The County identified the following vulnerabilities:

- County-owned roads that flood
- County Jail vulnerable to flood and storm surge
- Power outages impacting continuity of operations at critical facilities and lifelines
- Insufficient shelter capacity

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the County that illustrate the probable areas impacted. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes (Section 4.3).

HAZARD RANKING

The hazard ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.





As discussed in Section 4.4 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential hazards across Hudson County. The Steering Committee and Planning Committee reviewed the Hudson County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the County. During the review of the hazard ranking, the calculated rankings were adjusted to incorporate the perceived adaptive capacity with respect to the relevant hazard.

During the review of the hazard ranking, the Steering Committee agreed that flood should be a high-ranked hazard. It was noted as a medium-ranked hazard in 2015; however, flood impacts continue to be high and with the addition of climate change the Steering Committee agreed high is the best ranking to reflect risk across the County.

Table 9.1-10. Hudson County Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Dam/Levee Failure	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Low	Medium	Medium	Medium	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire
Low	High	High	Medium

9.1.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.1.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex. Refer to Appendix F for all attributes associated with the 2015 HMP mitigation strategy.

Table 9.1-11. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
HC-1: Koppers Out-Parcel Ditch: Replacement of the ditch with a drainage pipe and replacement of the tide gate at the Hackensack River to reduce flooding of Rt. 7 and	Hudson County Improvement Authority	Hudson County Improvement Authority applied for HMGP DR-4086 funding; however, the	Placeholder	





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
adjacent properties due to clogging of the ditch/gate (identified in HCSRR)		project was not awarded by FEMA.		
HC-2: Emergency Access to Correctional Facility: Building of an emergency access road to the facility--currently only one access route (identified in HCSRR.)	Hudson County Department of Corrections	Hudson County Department of Corrections no longer wants to pursue this project. Remove from plan.		
HC-3: Emergency Vehicle Auto-Lift: Installation of auto-lift to prevent flood damage to emergency vehicles (identified in HCSRR.).	Hudson County Department of Corrections	Hudson County Department of Corrections is still pursuing the implementation of this project.	Yes	2020-Hudson County-019
HC-4: Identify potential mitigation project(s), and work to secure funding for selected project(s) to address the overall flood vulnerability of the County Jail and Juvenile Facility (South Kearny), which had storm surge flooding into the first flood level during Sandy (6-7' of storm surge in this area). This facility houses more than 2,000 inmates.	Hudson County Department of Corrections	The juvenile facility closed approximately 3 years ago. Hudson County Department of Corrections is still pursuing the implementation of this project for the County Jail.	Yes	2020-Hudson County-020
HC-5: Generator Elevations: Elevate four (4) backup generators at the Hudson County Correctional Center (Main Building – 2; E-Pod – 1; Modular Units – 1).	Hudson County Department of Corrections; Hudson County Roads and Public Property	The generator at the main building was replaced as part of the Energy Savings Improvement Project and elevated 1.5-feet. This portion of the project is complete. The other generators still need to be elevated and potentially replaced/upgraded.	Yes – elevate the remaining generators.	2020-Hudson County-11
HC-6: Initiate corrective actions to prevent coastal erosion along the Hudson, Passaic and Hackensack Rivers. County Engineering is hardening Sinatra Drive in Hoboken to prevent coastal erosion. Meadowland Commission is also taking actions to address erosion on Hackensack River. See Action Worksheet for more detailed information.	County Engineering; Meadowlands Commission; USACE	Improvements have been made on Sinatra Drive. The project is was funded through NJDOT with County aid and bridge funding. Complete.		
HC-7: Continue to investigate slope failure areas and implement slope stabilization projects as specific projects are identified and funded. Slope failures could impact roads along and below the Palisades, including River Road. These areas include:	Hudson County Engineering Department YES	Paterson Plank Road retaining walls and parapets project in Jersey City and North Bergen is complete. Manhattan Avenue retaining wall improvements in Union City - The County received	Hudson County Engineering Department will work with NJTPA to address slow failure areas along Boulevard East along the Palisades. High	2020-Hudson County-012





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
<p>Paterson Plank Road retaining walls and parapets in Jersey City and North Bergen. A 200' long section along Paterson Plank Road, failed recently and is being repaired by the County.</p> <p>Manhattan Avenue retaining wall improvements in Union City</p> <p>County Engineering recently submitted an application to NJTPA to do a concept development study on this project; waiting on NJTPA currently. This effort continues from the 2008 PMK study of slope stability and stabilization along the Palisades, and subsequent Maser study which had more focus on constructing retaining walls along the Palisades.</p> <p>Implementation of such projects is complicated by private property ownership in many of these areas along the Palisades. The State would likely need to be involved to secure funding and private property access.</p>		<p>funding from NJTPA and going into Preliminary Design. Estimated \$50 Million; high priority</p>	<p>cost. Medium priority.</p> <p>The County will evaluate the preliminary design and alternatives identify, select and implement project on Manhattan Avenue in Union City to address potential collapse. Estimated \$50 Million; High priority</p>	
<p>HC-8: Cedar Creek Pump Station Mitigation: Continue to work towards the development of, and county support of, a Task Force including PATH, Amtrak, NJ Transit, and the US Postal Service to address the Cedar Creek Pump Station upgrade and repair. This is a critical project affecting many critical stakeholders in the area, however the pump station is located on PATH and/or Amtrak property and this effort must be led by PATH and/or Amtrak. This project would likely include the rebuild/construction of a modern pump station, culvert upgrade under all railroad tracks, and bulkhead along PATH in the area. Meadowlands Commission has some jurisdiction in this project area as well.</p> <p>This project would help to mitigate flooding in the Cedar Marsh, which is a very large area which includes the many railroad lines in the area</p>	<p>HC Engineering supporting PATH and/or Amtrak and other stakeholders to lead the project</p>	<p>The Cedar Creek pump station is not operational; a wall was built to protect the tracks with back-flow preventor. Hudson County is not the lead; PATH and/or Amtrak are the lead agencies.</p> <p>This is not within the jurisdiction of Hudson County.</p>		





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
<p>(NJ Transit, Amtrak, PATH), State Route 7 and County Route 508 which includes the US Postal facility and many large warehousing operations.</p> <p>This is considered a highly needed project and technically feasible, but also very complicated with respect to jurisdictional authority, permitting and financing.</p>				
<p>HC-9: Initiate a program for the county-wide coordination of traffic lights along major roads to facilitate evacuations and other emergency situations. There are some 300 signals in the County. The main traffic route of concern is Kennedy Boulevard. Traffic signals along this route are up to current standards, however newer technology is available including “adaptive signal systems” that automatically adjust, or can be remotely adjusted, to better facilitate traffic flow in emergency situations.</p>	<p>HC Engineering; Meadowlands Commission</p>	<p>No progress. HC Engineering applied and was approved for funding for CMAQ (Congestion Mitigation and Air Quality Program) funding through NJDOT; however, this project was moved to the secondary list because there was not enough funding.</p>	<p>Yes, medium priority; HC Engineering remains as the lead. An interactive system on JFK Blvd can accomplish this. Estimated cost \$3 Million.</p>	<p>2020-Hudson County-013</p>
<p>HC-10: Install portable generator back up power for signaling at critical county traffic roadway intersections.</p>	<p>County Engineering, Roads and Public Property, coordinating with PSE&G</p>	<p>No progress. There are no generators or battery backups maintained on traffic signals. A funding source needs to be identified to implement.</p>	<p>As retrofit signals, need to increase size of box, consider battery backup. County Engineering the lead.</p>	<p>2020-Hudson County-014</p>
<p>HC-11: Secure funding for needed equipment and resources to support a comprehensive preventative maintenance program of storm water drainage infrastructure on State, County and municipal roads with particular emphasis on evacuation routes, to include the following: Charlotte Circle, Jersey City; Harrison Avenue, Harrison; Schuyler Avenue, Harrison and Kearny; Frank Rogers Blvd/Kearny Avenue, Harrison, East Newark and Kearny; Hook Road, Bayonne; Passaic Avenue, Harrison, East Newark and Kearny; West Side Avenue, North Bergen; Tonnelle Circle, Jersey City; Route 7, Kearny and Harrison; Kennedy Boulevard at First Street, Bayonne; River Road, Weehawken, West New York,</p>	<p>Hudson County Roads and Public Property; HC Engineering</p>	<p>This is project as written is maintenance. Revised into a project with greater benefits for 2020 HMP update.</p>	<p>Yes Develop a comprehensive study of all drainage facilities in the County. Evaluate condition and look at the long-term capital and maintenance plan to identify potential projects and prioritize next steps which may include ; purchase of equipment (e.g., trucks, pumps), investigate areas for more pump stations, find out where to replace pipes and</p>	<p>2020-Hudson County-015</p>





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
Guttenberg and North Bergen, Boulevard East, Guttenberg. Division of Roads conducts routine “as-needed” cleaning but lacks the equipment and resources to implement a program of preventative cleaning.			where repave so it can be done at the same time. Locations to consider: Secaucus Road County Road Pump stations NJDOT and FEMA HMA funding; medium priority	
HC-12: Relocate County Garage/DPW, currently located within a floodplain at the end of Duncan Avenue in Jersey City.	Hudson County Roads and Public Property	No progress. Still need to relocate.	Relocate County Garage/DPW, currently located within a floodplain at the end of Duncan Road in Jersey City.	2020-Hudson County-02
HC-13: 830 Bergen Avenue Backup Power: Procure a new 1,000 kW generator for a new facility at 830 Bergen Avenue, Jersey City. This facility will house County OEM offices and other agencies.	Hudson County Roads and Public Property	Project completed with FEMA grant funding		
HC-14: Initiate program to encourage participation in the Community Rating System (CRS) program, including the following specific activities: Work with FEMA Region II, ISO and other relevant non-profits to hold local informative CRS workshops (year one)	HCOEM; with support from HC Division of Planning	CRS Study conducted and Action Plan developed for all Hudson County municipalities leveraging the SRPR funding through the New Jersey Department of Community Affairs (DCA) – this was accepted by DCA in 2017. County Planning was the lead with OEM support for this project.	Include an updated project to increase/enhance flood education/awareness to residents and continue to expand and enhance CRS participation: Hold informative CRS workshops to increase participation in the County Build upon the Action Plan developed Start a County CRS Users Group; attend other NJ County User Group meetings to assist with this Expand ArcGIS Online services to include high water marks and storm surge inundation	2020-Hudson County-03





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
			Division of Planning the lead with OEM support; Low priority	
HC-15: Develop and exercise a coordinated evacuation plan to be used in the event of an evacuation of all, or a significant portion of, Hudson County, to include signage on designated evacuation routes.	HCOEM; with support of HC Division of Planning/GIS	Study started October 2018 and the County continues to work with NJDOT and FEMA to complete. The State is still working on evacuation modeling. The County has hurricane evacuation zones but we still waiting on FEMA to provide a written document approving the methodology.	Yes – Update to include project regarding finalizing the document. Include additional evacuation routes since this study focused on east/west travel and to Staten Island and need to consider evacuation north to Bergen County. Install updated evacuation signage once study finalized. High priority.	2020-Hudson-10
HC-16: Develop a coordinated plan for the use of mass transit to evacuate all, or a significant portion, of the population of Hudson County. This plan would include consideration of: Methods of transportation (ferries, rail including light rail, buses; Assembly points; and Destinations (shelters and sheltering areas)	HCOEM; HC Regional Health	No progress to date.	Include in the 2020 HMP update.	2020-Hudson County-018
HC-17: Installation of a backflow preventer to prevent backflow of water through the Lincoln Park lake outfall pipe, which caused flooding of the park lake and a section of NJ Rt. 1&9 during Hurricane Sandy.	Hudson County Division of Parks	Hudson County Division of Parks applied for two FEMA HMGP DR-4086 grant applications for a Lincoln Park Stormwater System Upgrade and Lincoln Park Maintenance Building Elevation. The project was not awarded by FEMA. According to HC Engineering, the golf course has been elevated. Drainage that comes out of Lincoln Park crosses NJ Routes 1&9, snow through a series of ponds and cascade down into the river which flow by gravity. This is no longer needed.		
HC-18: As part of public hazard awareness and education program, initiate steps to better publicize NFIP floodplain and other hazard mapping, including online mapping.	HC Planning and GIS; HCOEM; local building departments	Complete. Division of Planning – GIS coordinates with OEM on GIS tasks. County currently has online mapping apps that are		





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
The Hudson County Division of Planning, in cooperation with the Office of Emergency Management, is in the process of implementing the ArcGIS Online Interactive Mapping Initiative. With an initial focus on emergency management and planning, this platform is going to be an added tool to be used by OEM in their Emergency Operations Center. The ability to provide real-time information and mapping will aid the decision-making process in the fast paced environment associated with any disaster event.		publicly available. The ArcGIS Online Interactive Mapping Initiative allows residents to view flood insurance maps. Additional maps will be developed through the Online Mapping Initiative to further track sustainability, environmental, and climate change issues and to aid the public in disaster mitigation and recovery. The County continues to expand their ArcGIS Online services to include high water marks, display SLOSH and additional hazard data. Refer to the CRS action 2020-Hudson-003.		
HC-19: Roc Harbor shoreline stabilization and infrastructure	HC Dept. of Engineering	To date HC Engineering has cleaned out piping and installed new inlets. An outfall and shoreline stabilization is still needed.	Roc Harbor shoreline stabilization and infrastructure Medium to Low priority. HC Engineering to remain the lead.	2020-Hudson-016
HC-20: Encourage the use of higher regulatory standards in codes (e.g. Local Floodplain Management Ordinance, Zoning Ordinances)	HC Division of Planning	This is considered a capability and is being removed from the action plan. Division of Planning encourages the CRS.		
HC-21: Develop a protocol for municipal reporting of hazard data to include flood high water marks and road closures	HC Division of Planning, working with HCOEM	Planning helps OEM with mapping; E-Teams is used. There are no plans to develop this protocol for use at the local level. ArcGIS Online services will continue to expand including the inclusion of high-water marks. Refer to updated project 2020-Hudson-003		
HC-22: Complete geo-coding of sewer outfalls, previously mapped	Local MUAs; with support of HC Division of Planning/GIS	The State has a dataset of Combined Sewer Overflows. The County GIS does not have any other dataset at this time. Include as a project for 2020.	Planning/GIS would geocode and may require some investigative field work to determine locations. Planning GIS and Engineering to support this project. Medium priority.	2020-Hudson County-011
HC-23: This plan will be used as a guide for the next master plan update to review the natural	HC Division of Planning, working with HCOEM	Complete. The Division of Planning will continue to update plans in alignment		





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
environment and to identify areas in the County that need protection.		with HMP updates. This is considered a capability and removed from the action plan.		
HC-24: Encourage environmental resiliency by protecting and strengthening areas of critical open space resources, including wetlands, floodplains, steep slopes, wildlife habitat, open waters, and waterfronts	HC Division of Planning, working with HCOEM	This is considered a capability by the Division of Planning and is removed from the action plan. This is described further in the integration section above.		
HC-25: Initiate study to develop plume modeling around hazardous material facilities based on various levels of release and weather conditions so as to determine extent of areas affected by varying events for the purpose of developing action plans for evacuation and/or shelter-in-place.	HC Regional Health; with support of HC Division of Planning	County has three HAZMAT teams with capabilities to conduct plume modeling. This is considered a capability and removed from the action plan.		
HC-26: Redundant Data Service: Hosting of redundant data services in alternate facilities in case of damage to main facility	Hudson County MIS	There is a redundant location in southern New Jersey. The County is working on a new plan to implement redundant data solutions for all County data. Remove from action plan.		
HC-27: Purchase and obtain a new Digital Mobil Radio (DMR) system to support both daily and emergency communication needs	Hudson County MIS	The County is investing in a new radio system (Sherriff, Prosecutors Office, OEM) to issue and test through Motorola. This is a self-funded project by the County in progress.		2020-Hudson County-016
HC-28: Enhance Bruin Stadium capabilities to include generators and back-up power. The Stadium is anticipated to be used as a triage for county-wide coordination and helicopter access.	HCOEM	No progress to date.	Yes	2020-Hudson County-004
HC-29: River Road Flood Mitigation Phase 1: Engineering studies to evaluate viability of project elements for the one-mile stretch along River Road. Phase 2: System of locks to keep water out of the area, with pump stations and backflow preventers	County Engineering with support from North Bergen Twp.	River Road flood mitigation is being led by the Township. Refer to Section 9.9 for additional information on this project in their updated mitigation strategy.	Yes	
HC-30: Tide gate pump station installed at the Fairview Ave/Railroad Ave intersection and dredging of Bellman's Creek to	County Engineering with support from North Bergen Twp.	The Township of North Bergen is leading this project. It is not complete. Refer to Section 9.9 for	Yes	2020-North Bergen-003





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Yes/No	Enter 2020 HMP Action #
prevent surcharge upstream between 91st St. and Railroad Ave. to reduce flooding in the area.		additional information on this project in their updated mitigation strategy.		

In addition to the above progress, the County has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- Installation of a generator at the Jersey City Campus Shelter, Hudson County School of Technology through a FEMA HMGP grant (DR-4086).
- Installation of a generator at 830 Bergen Avenue led by the Hudson County Roads and Public Property, funded through a FEMA HMGP grant (DR-4086).
- County buildings have been retrofitted to withstand and recover from wind and water including auxiliary power units to critical facilities as noted above.
- A Fire Boat Task Force was established in the region to increase capacity to fight fires.
- Water Tender training was hosted at Kean University and attended by municipalities in the County
- Member of the Technical Advisory Team for the Passaic River Basin Climate Resilience Planning Study
- Hudson County OEM and Hudson Regional Health participated in a State emergency exercise that focused on the emergency delivery of medicine for distribution.
- Lincoln Park West Wetland Restoration – Restored approximately 34 acres of wetlands and 11 acres of wetland transition area along the Hackensack River in Jersey City; funded by NOAA, Harbor Spill Restoration Committee and Office of Natural Resource Restoration. The project was a partnership with NJDEP, NOAA, USACE, Hudson County Parks Department, Hudson County Improvement Authority, Port Authority NY/ NJ and US Fish and Wildlife has restored the area’s native salt marsh community to enhance the overall ecological health of the Hackensack River ecosystem, improving the tidal hydrology and increasing public access and recreation to a restored urban ecological oasis.
- Hudson County OEM is participating in a trans-Hudson evacuation exercise Spring 2020 to cooperation with the Coast Guard and New York.

9.1.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The County participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The County participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.1-12 summarizes the comprehensive range of specific mitigation initiatives the County would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this





plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.1-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.





Table 9.1-12. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-HUDSON COUNTY-001	Increase shelter capacity	Problem: There is insufficient sheltering capacity in Hudson County.	Solution: Expand medical sheltering capacity at the Hudson County VOTECH on Montgomery Street; Purchase additional equipment and PODs to send to shelters with 5 days of supplies to each shelter	Existing	All hazards	1, 6	<u>Hudson County OEM</u>	FEMA HMA	High	High	Short	High	SIP	ES
2020-HUDSON COUNTY-002 (Previous HC-12)	Relocate the County Garage/DPW and Prosecutor’s Office buildings.	Problem: The County Garage/DPW and Prosecutor’s Office (24/7 operation) are located in the floodplain and vulnerable to flood impacts.	Solution: Relocate the County Garage/DPW and Prosecutor’s Office located at the end of Duncan Ave, Jersey City, out of the floodplain. New property needs to be identified for this relocation.	Existing	Flood	1,2,6	<u>Hudson County Roads and Public Property</u>	FEMA HMA	High	High	Short	Medium	SIP	PP
2020-HUDSON COUNTY-003	Enhance CRS participation	Problem: High flood and storm surge vulnerability in the County		Existing	Flood, Coastal Storm	1, 2, 5	<u>Hudson County Division of Planning;</u>	County	High	Med	Long	Med-Low	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<p>Solution: Expand and enhance the County and municipal CRS participation. The following actions have been identified to support this strategy:</p> <ol style="list-style-type: none"> 1. Hold informative CRS workshops to increase municipal participation in the County 2. Build upon the CRS Action Plan developed to support and enhance participation 3. Start a County CRS Users Group; attend other NJ County User Group meetings to assist with this 4. Expand ArcGIS Online services to include high water marks and storm surge inundation 					Hudson County OEM							
2020-HUDSON COUNTY-004	Installation of Generators at Critical Facilities	<p>Problem: No backup power at 12 community shelters identified as lifelines.</p> <p>Solution: Apply for FEMA HMA grant funding; purchase and install generators at the following critical facilities:</p> <ol style="list-style-type: none"> 1. Shelters, six identified to date still need generators installed 2. Bruins Stadium - triage for county-wide coordination and helicopter access. 		Existing	All hazards	1, 2, 6	Hudson County OEM	FEMA HMA	High	Medium	Short	High	SIP	PP
2020-HUDSON COUNTY-005	Microgrids	<p>Problem: Lack of continuous electrical power at critical facilities and lifelines</p> <p>Solution: Establish a Public Private Partnership with BPU and coordinate with the Town of Secaucus to set up a microgrid to ensure continuity of operations at the following critical facilities and lifelines:</p>		Existing	All hazards	1, 2, 6	Hudson County Department of Roads and Private Property; Town of Secaucus; BPU	BPU -- Greener by Design Grant	High	High	Short	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category	
		<ol style="list-style-type: none"> Meadowview Campus (Hudson County Prosecutors Office; Police and Fire Training Facility; Psychiatric Hospital) Nursing Home Senior Residents Housing Town of Secaucus Municipal Hall Library Fire Station 													
2020-HUDSON COUNTY-006	Reduce flooding on South Hackensack Road, Kearny	<p>Problem: Critical facility and lifeline USS Juneau Building which serves as the County Emergency Operations Center (South Hackensack Road in Kearny) is located in the floodplain and vulnerable to storm surge (e.g., impacted by storm surge during Hurricane Sandy).</p> <p>Solution: Hudson County to coordinate with the Town of Kearny and the private developer (Kearny Point). The current proposed solution is a public private partnership, obtain a US EDA grant, elevate the road and increase drainage capacity/address drainage along South Hackensack Road. To date, a \$3 Million grant has been awarded by US EDA.</p>		Existing	Flood, Coastal Storm	1, 2, 6	Hudson County OEM; Kearny Point (private developer) ; Town of Kearny	\$3 Million grant from US EDA in partnership with the Town of Kearny	High	High	Short	High	SIP	PP	
2020-HUDSON COUNTY-007	Replace bridges that cross the Passaic River	<p>Problem: There are three bridges that cross the Passaic River that are owned with Essex County: 1. Clay Street; 2. Jackson Street, 3. Harrison Ave. These bridges serve as evacuation routes and increased capacity is needed in addition to addressing issues with erosion/pilings.</p> <p>Solution: Hudson County to work with Essex County to replace these bridges in coordination with the New Jersey Transportation Authority (NJTPA) and U.S. Federal Highway Administration</p>		Existing	All hazards	1, 2, 6	Hudson County Roads and Public Property; Essex County Engineering	FHWA; County	High	High \$30-\$80 Million to replace each bridge	Short	High	SIP	PP	





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		(FHWA). Erosion control and upgrade of pilings is included. To date the local concept development has been completed; design phase is scheduled for the next 6-8 months. \$30-80 Million to replace each bridge. Funded in part by FHWA.												
2020-HUDSON COUNTY-008	Streambank restoration at Laurel Hill County Park	Problem: Erosion and flooding have impacted Laurel Hill County Park Solution: Seek NJDEP Green Acres Funding and Hudson County Open Space Trust Fund funding to conduct a multi-phase project to stabilize the shorelines and restore the streambank at Laurel Hill County Park.		Existing	Coastal Erosion, Coastal Storm, Flood	1, 4	<u>Hudson County Parks;</u> <u>Hudson County Planning</u>	NJDEP Green Acres; Hudson County Open Space Trust Fund	Med-Low	Med-Low	Short	Low	SIP	NR
2020-HUDSON COUNTY-009	County Road Drainage Project	Problem: Insufficient drainage capacity on County Road from Tonnele Ave and County Ave causes roadway flooding Solution: Reconstruct County Road and increase drainage capacity, from Tonnele Ave and County Ave		Existing	Coastal Storm, Flood	1	<u>Hudson County Roads and Public Property</u>	NJDOT Local Freight Impact Fund; County Funding	High	High	Short	High	SIP	PP
2020-HUDSON COUNTY-010 (Previous HC-15)	Evacuation Zones	Problem: The coastal storm and flood evacuation study is not complete and does not include north-south evacuation to Bergen County. Solution: Finalize the Hudson County emergency evacuation route study in coordination with the State and FEMA. Include additional evacuation routes since this study focused on east/west travel and to Staten Island and need to consider evacuation north to Bergen County. Install updated evacuation signage once study finalized. This study identifies tiered evacuation zones relative to flood and storm surge.		Both	Coastal Storm, Flood	1, 2, 5	<u>Hudson County Planning – GIS Division;</u> FEMA; State	FEMA, NJDOT, County	High	Medium	Short	High	EAP	PI





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-HUDSON COUNTY-011 (Previous HC-22)	Geocode storm sewers	Problem: There is no complete spatial inventory of sewer systems; State has combined sewer overflow locations, but County needs a complete inventory. Solution: Planning/GIS would geocode and may require some investigative field work to determine locations. Planning GIS and Engineering to support this project. Medium priority.		Existing	Coastal Storm, Flood	2	<u>Hudson County Engineering</u> ; Hudson County Planning – GIS Division	County	High	Low	Short	Medium	EAP	PI
2020-HUDSON COUNTY-011 (Previous HC-5)	Elevate Generators at Hudson County Correctional Center	Problem: There are four generators at the Hudson County Correctional Center; only one has been elevated. Solution: Elevate the three generators at the Hudson County Correctional Center (E-Pod and Modular Units)		Existing	All hazards	1, 6	<u>Hudson County Department of Corrections</u> ; Hudson County Roads and Public Property	FEMA HMA	High	Medium	Short	Medium	SIP	PP
2020-HUDSON COUNTY-012 (Previous HC-7)	Mitigate slope failure	Problem: Slope failures along Boulevard East and Manhattan Ave along the Palisades. Slope failures could impact roads along and below the Palisades. Solution: Hudson County Engineering Department will work with NJTPA to address slope failure areas along Boulevard East along the Palisades. The County will evaluate the preliminary design and alternatives identify, select and implement project on Manhattan Avenue in Union City to address potential collapse.		Existing	Geological	1, 2	Hudson County Engineering Department	NJTPA, County	High	High \$50 M	Short	High	SIP	PP
2020-HUDSON	Interactive Traffic Signals	Problem: There is no interactive system to control traffic lights along		Existing	All	1, 6	<u>Hudson County</u>	FHWA CMAQ	High	High	Short	Medium	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
COUNTY-013 (Previous HC-9)		major roads during evacuation or other emergency situations Solution: Initiate a program for the county-wide coordination of traffic lights along major roads to facilitate evacuations and other emergency situations. There are some 300 signals in the County. The main traffic route of concern is Kennedy Boulevard. Install “adaptive signal systems” that automatically adjust, or can be remotely adjusted, to better facilitate traffic flow in emergency situations. Example could be the recent completion of interactive system along JFK Boulevard.					Engineering Department	(Congestion Mitigation and Air Quality Program) funding						
2020-HUDSON COUNTY-014 (Previous HC-10)	Backup power for traffic signals	Problem: There are no generators or battery backups maintained on traffic signals. Solution: As the County retrofits signals, install portable generator backup power for signaling at critical county traffic roadway intersections.		Existing	All hazards	1, 6	Hudson County Engineering	County	High	Medium	Short	Medium	SIP	ES
2020-HUDSON COUNTY-015 (Previous HC-11)	Inventory Drainage Needs and Increase Capacity	Problem: There is no prioritized inventory to address equipment needs and increased drainage needs. Solution: Develop a comprehensive study of all drainage facilities in the County. Evaluate condition and look at the long-term capital and maintenance plan to identify potential projects and prioritize next steps which may include; purchase of equipment (e.g., trucks, pumps), investigate areas for more pump stations, find out where to replace pipes and where repave so it can be done at the same time. Locations to consider: • Secaucus Road		Existing	Coastal Storm, Flood	1, 2	Hudson County Roads and Public Property; HC Engineering	NJDOT, FEMA HMA, County	High	High	Short	Medium	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<ul style="list-style-type: none"> County Road Pump stations 												
2020-HUDSON COUNTY-016 (Previous HC-27)	Emergency Radios	<p>Problem: Updated technology and increased number of radios are needed to support daily and emergency operations.</p> <p>Solution: Purchase and obtain a new radio system (Sheriff, Prosecutor’s Office and OEM) to support both daily and emergency communication needs.</p>		N/A	All Hazards	1, 6	Hudson County MIS	UASI, County	High	High	Short	High	SIP	ES
2020-HUDSON COUNTY-017 (Previous HC-19)	Roc Harbor shoreline stabilization and infrastructure	<p>Problem: Roc Harbor shoreline is in need of stabilization and installation of a new outfall.</p> <p>Solution: Stabilize shoreline and install a new outfall.</p>		Existing	Coastal Erosion, Flood	4	Hudson County Engineering	County	High	High	Short	Medium	NSP	NR
2020-HUDSON COUNTY-018	Mass Transit Evacuation Plan	<p>Problem: There are many Hudson County residents that do not own and car and may need to evacuate.</p> <p>Solution: Develop a coordinated plan for the use of mass transit to evacuate all, or a significant portion, of the population of Hudson County. This plan would include consideration of: Methods of transportation (ferries, rail including light rail, buses; Assembly points; and Destinations (shelters and sheltering areas)</p>		Existing	All hazards	1	Hudson County OEM ; coordination with transportation sector	County	High	Low	Short	High	LPR	PR
2020-HUDSON COUNTY-019 (Previous HC-3)	Emergency Vehicle Auto-Lift	<p>Problem: Emergency vehicles are subject to flood damage</p> <p>Solution: Emergency Vehicle Auto-Lift: Installation of auto-lift to prevent flood damage to emergency vehicles (<i>identified in HCSRR.</i>).</p>		Existing	All hazards	1, 2	Hudson County Department of Corrections	FEMA; County	High	High	Short	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-HUDSON COUNTY-020 (Previous HC-4)	County Jail Flood Mitigation	Problem: County Jail is susceptible to flooding and impacted by storm surge during Hurricane Sandy; houses vulnerable population.	Solution: Identify potential mitigation project(s), and work to secure funding for selected project(s) to address the overall flood vulnerability of the County Jail and Juvenile Facility (South Kearny), which had storm surge flooding into the first flood level during Sandy (6-7' of storm surge in this area). This facility has the capability to house more than 2,000 inmates as their census regular fluctuates especially due to recent bail reform law, government contracts to house ICE detainees, and the release of certain prisoners due to the current health emergency.	Existing	Coastal Storm, Flood	1, 2	Hudson County Department of Corrections	FEMA; County	High	High	Short	High	SIP	PP

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- **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 9.1-13. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HUDSON COUNTY-001	Increase shelter capacity	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2020-HUDSON COUNTY-002	Relocate the County Garage/DPW and Prosecutor’s Office buildings.	1	1	1	1	1	1	0	0	0	0	1	0	1	1	9	Medium
2020-HUDSON COUNTY-003	Enhance CRS participation	1	1	1	0	0	1	0	0	1	0	1	1	1	0	8	Low
2020-HUDSON COUNTY-004	Install Generators at Critical Facilities	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HUDSON COUNTY-005	Microgrids	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2020-HUDSON COUNTY-006	Reduce flooding on South Hackensack Road, Kearney	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2020-HUDSON COUNTY-007	Replace bridges that cross the Passaic River	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2020-HUDSON COUNTY-008	Streambank restoration at Laurel Hill County Park	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	High
2020-HUDSON COUNTY-009	County Road Drainage Project	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2020-HUDSON COUNTY-010	Evacuation Study	1	0	1	1	1	1	1	0	1	1	1	1	1	1	12	High
2020-HUDSON COUNTY-011	Elevate Generators at Hudson County Correctional Center	1	1	1	1	0	1	0	0	1	1	1	0	0	0	8	Medium
2020-HUDSON COUNTY-012	Mitigate slope failure	1	1	1	1	1	1	0	1	0	1	1	1	1	1	12	High
02020-HUDSON COUNTY-013	Interactive Traffic Signals	1	0	1	1	1	1	0	0	1	1	1	1	0	0	10	Medium





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HUDSON COUNTY-014	Backup power for traffic signals	1	0	1	1	1	1	0	0	1	1	1	1	0	0	10	Medium
2020-HUDSON COUNTY-015	Inventory Drainage Needs and Increase Capacity	1	1	1	1	1	1	0	0	0	1	1	0	1	1	10	Medium
2020-HUDSON COUNTY-016	Emergency Radios	1	1	1	1	1	1	1	0	0	1	1	1	1	1	12	High
2020-HUDSON COUNTY-017	Roc Harbor shoreline stabilization and infrastructure	0	1	1	1	1	1	0	1	0	0	1	0	1	0	9	Medium
2020-HUDSON COUNTY-018	Mass Transit Evacuation Plan	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2020-HUDSON COUNTY-019	Emergency Vehicle Auto-Lift	0	1	1	1	1	1	0	0	0	1	1	1	1	1	10	High
2020-HUDSON COUNTY-020	County Jail Flood Mitigation	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): General guidelines for evaluation thresholds as follows; however, the County may change in accordance to implementation priority: Low (0-4), Medium (5-8), High (9-14).





Table 9.1-14. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilience	Community Capacity Building
Coastal Erosion and Sea Level Rise	-001, -004, -005, -013, -014, -018			-008, -017	-001, -004, -005, -010, -011, -016, -018	-006, -007, -008, -011	-008	
Coastal Storm	-001, -004, -005, -010, -011, -013, -014, -018	-002, -006, -008, -009, -015, -019, -020	-003	-008, -017	-001, -004, -005, -010, -011, -016, -018, -019	-006, -007, -008, -009, -011, -015	-008	-003, -011, -018
Dam and Levee Failure	-001, -004, -005, -013, -014, -018				-001, -004, -005, -011, -016, -018	-011		
Drought	-001, -004, -005, -013, -014, -018				-001, -004, -005, -011, -016, -018	-011		
Earthquake	-001, -004, -005, -010, -013, -014, -018				-001, -004, -005, -011, -016, -018	-011		
Extreme Temperature	-001, -004, -005, -013, -018				-001, -004, -011, -016-018	-011		
Flood	-001, -004, -005, -010, -011, -013, -014, -018	-002, -006, -008, -009, -015, -019, -020	-003	-008, -017	-001, -004, -005, -010, -011, -016, -018, -019	-006, -007, -008, -009, -011, -015	-008	-003, -011, -018
Geologic	-001, -004, -005, -013, -014, -018	-012		-012	-001, -004, -005, -011, -016, -018	-012		
Severe Weather	-001, -004, -005, -010, -011, -013, -014, -018	-009, -015, -019, -020			-001, -004, -005, -010, -011, -016, -018, -019	-009, -011, -015		-011, -018
Severe Winter Storm	-001, -004, -005, -013, -014, -018				-001, -004, -005, -011, -016, -018	-011		
Wildfire	-001, -004, -005, -013, -014, -018				-001, -004, -005, -011, -016, -018	-011		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking





9.1.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The County followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.1-15. Contributors to the Annex

Name	Title	Method of Participation
James Woods	Coordinator, OEM	HMP Coordinator; Member of the Steering Committee; Attended all meetings; Reviewed sections of the plan; Contributed to the County annex
Peter Nevins	OEM	Attended all meetings; Member of the Steering Committee; Reviewed sections of the plan; Contributed to the County annex
George Johns	OEM	Attended all meetings; Member of the Steering Committee; Contributed to the County annex
Francesca Giarratana	Director, Department of Planning	Member of the Steering Committee; Attended all meetings; Reviewed sections of the plan; Contributed to the County annex
Kevin Force	Department of Planning	Reviewed and updated the County annex
Daryl Krasnuk	GIS Specialist, Department of Planning	Member of the Steering Committee; Attended all meetings; Provided spatial data for the risk assessment; Contributed to the County annex
Tom Malavasi	County Engineer	Member of the Steering Committee; Attended meetings; Contributed to the County annex
Ralph Sax	Deputy Director, Roads and Private Property	Member of the Steering Committee; Attended meetings; Contributed to the County annex
Angela DeQuina	Hudson County Regional Health Commission	Member of the Steering Committee; Attended meetings; Contributed to the County annex
Alyssa Berdnik	Hudson County Regional Health Commission	Member of the Steering Committee; Attended meetings; Contributed to the County annex
Carrie Nawrocki	Hudson County Regional Health Commission	Member of the Steering Committee; Attended meetings; Contributed to the County annex
Randi Moore	Division Chief, Hudson County Division of Housing and Community Development	Attended a meeting; Contributed to the County annex
Marc D. Martins	Lieutenant, Hudson County Department of Corrections	Contributed to the mitigation strategy





Action Worksheet			
Project Name:	Increase shelter capacity		
Project Number:	2020-HUDSON COUNTY-001		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	There is insufficient sheltering capacity in Hudson County.		
Action or Project Intended for Implementation			
Description of the Solution:	Expand medical sheltering capacity at the Hudson County VOTECH on Montgomery Street; Purchase additional equipment and PODs to send to shelters with 5 days of supplies to each shelter.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 6
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA HMA
Responsible Organization:	Hudson County OEM	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Mutual Aid Agreements		Legal/financial issues with sheltering in other counties post-Sandy
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Increase shelter capacity	
Project Number:	2020-HUDSON COUNTY-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Relocate the County Garage/DPW and Prosecutor's Office buildings.		
Project Number:	2020-HUDSON COUNTY-002 (Previous HC-12)		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The County Garage/DPW and Prosecutor's Office (24/7 operation) are located in the floodplain and vulnerable to flood impacts.		
Action or Project Intended for Implementation			
Description of the Solution:	Relocate the County Garage/DPW and Prosecutor's Office located at the end of Duncan Ave, Jersey City, out of the floodplain. New property needs to be identified for this relocation.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1,2,6
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA HMA
Responsible Organization:	Hudson County Roads and Public Property	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Relocate the County Garage/DPW and Prosecutor’s Office buildings.	
Project Number:	2020-HUDSON COUNTY-002 (Previous HC-12)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	Enhance CRS participation		
Project Number:	2020-HUDSON COUNTY-003		
Risk / Vulnerability			
Hazard(s) of Concern:			
Description of the Problem:	High flood and storm surge vulnerability in the County		
Action or Project Intended for Implementation			
Description of the Solution:	Expand and enhance the County and municipal CRS participation. The following actions have been identified to support this strategy: 5. Hold informative CRS workshops to increase municipal participation in the County 6. Build upon the CRS Action Plan developed to support and enhance participation 7. Start a County CRS Users Group; attend other NJ County User Group meetings to assist with this 8. Expand ArcGIS Online services to include high water marks and storm surge inundation		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	
Useful Life:		Goals Met:	1, 2, 5
Estimated Cost:		Mitigation Action Type:	EAP
Plan for Implementation			
Prioritization:	Low	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:		Potential Funding Sources:	
Responsible Organization:	Hudson County Division of Planning, Hudson County OEM	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Enhance CRS participation	
Project Number:	2020-HUDSON COUNTY-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	0	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	0	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Low	





Action Worksheet			
Project Name:	Installation of Generators at Critical Facilities		
Project Number:	2020-HUDSON COUNTY-004		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	No backup power at 12 community shelters identified as lifelines.		
Action or Project Intended for Implementation			
Description of the Solution:	Apply for FEMA HMA grant funding; purchase and install generators at the following critical facilities: 3. Shelters, six identified to date still need generators installed 4. Bruins Stadium - triage for county-wide coordination and helicopter access.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2, 6
Estimated Cost:	Medium	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA HMA
Responsible Organization:	Hudson County OEM	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Installation of Generators at Critical Facilities	
Project Number:	2020-HUDSON COUNTY-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Reduce flooding on South Hackensack Road, Kearney		
Project Number:	2020-HUDSON COUNTY-006		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Coastal storm		
Description of the Problem:	Critical facility and lifeline USS Juneau Building which serves as the County Emergency Operations Center (South Hackensack Road in Kearney) is located in the floodplain and vulnerable to storm surge (e.g., impacted by storm surge during Hurricane Sandy).		
Action or Project Intended for Implementation			
Description of the Solution:	Hudson County to coordinate with the Town of Kearney and the private developer (Kearny Point). The current proposed solution is a public private partnership, obtain a US EDA grant, elevate the road and increase drainage capacity/address drainage along South Hackensack Road. To date, a \$3 Million grant has been awarded by US EDA.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2, 6
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	\$3 Million grant from US EDA in partnership with the Town of Kearny; FEMA HMA
Responsible Organization:	Hudson County OEM; Kearny Point (private developer); Town of Kearny	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate EOC	High	More expensive than original project
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Reduce flooding on South Hackensack Road, Kearney	
Project Number:	2020-HUDSON COUNTY-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	County Road Drainage Project		
Project Number:	2020-HUDSON COUNTY-009		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	Insufficient drainage capacity on County Road from Tonnele Ave and County Ave causes roadway flooding		
Action or Project Intended for Implementation			
Description of the Solution:	Reconstruct County Road and increase drainage capacity, from Tonnele Ave and County Ave		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	NJDOT Local Freight Impact Fund; County Funding; FEMA HMA
Responsible Organization:	<u>Hudson County Roads and Public Property</u>	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	County Road Drainage Project	
Project Number:	2020-HUDSON COUNTY-009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Evacuation Zones		
Project Number:	2020-HUDSON COUNTY-010 (Previous HC-15)		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	The coastal storm and flood evacuation study is not complete and does not include north-south evacuation to Bergen County.		
Action or Project Intended for Implementation			
Description of the Solution:	Finalize the Hudson County emergency evacuation route study in coordination with the State and FEMA. Include additional evacuation routes since this study focused on east/west travel and to Staten Island and need to consider evacuation north to Bergen County. Install updated evacuation signage once study finalized. This study identifies tiered evacuation zones relative to flood and storm surge.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2, 5
Estimated Cost:	Medium	Mitigation Action Type:	EAP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA, NJDOT, County
Responsible Organization:	FEMA, NJDOT, County	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Evacuation Zones	
Project Number:	2020-HUDSON COUNTY-010 (Previous HC-15)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Elevate Generators at Hudson County Correctional Center		
Project Number:	2020-HUDSON COUNTY-011 (Previous HC-5)		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	There are four generators at the Hudson County Correctional Center; only one has been elevated.		
Action or Project Intended for Implementation			
Description of the Solution:	Elevate the three generators at the Hudson County Correctional Center (E-Pod and Modular Units)		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 6
Estimated Cost:	Medium	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA HMA
Responsible Organization:	Hudson County Department of Corrections; Hudson County Roads and Public Property	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Elevate Generators at Hudson County Correctional Center	
Project Number:	2020-HUDSON COUNTY-011 (Previous HC-5)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	Inventory Drainage Needs and Increase Capacity		
Project Number:	2020-HUDSON COUNTY-015 (Previous HC-11)		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	There is no prioritized inventory to address equipment needs and increased drainage needs.		
Action or Project Intended for Implementation			
Description of the Solution:	Develop a comprehensive study of all drainage facilities in the County. Evaluate condition and look at the long-term capital and maintenance plan to identify potential projects and prioritize next steps which may include; purchase of equipment (e.g., trucks, pumps), investigate areas for more pump stations, find out where to replace pipes and where repave so it can be done at the same time. Locations to consider: <ul style="list-style-type: none"> • Secaucus Road • County Road • Pump stations 		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	NJDOT, FEMA HMA, County
Responsible Organization:	Hudson County Roads and Public Property; HC Engineering	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Seek University assistance		
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Inventory Drainage Needs and Increase Capacity	
Project Number:	2020-HUDSON COUNTY-015 (Previous HC-11)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	Emergency Vehicle Auto-Lift		
Project Number:	2020-HUDSON COUNTY-019 (Previous HC-3)		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	Emergency vehicles are subject to flood damage		
Action or Project Intended for Implementation			
Description of the Solution:	Emergency Vehicle Auto-Lift: Installation of auto-lift to prevent flood damage to emergency vehicles <i>(identified in HCSRR.)</i> .		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA; County
Responsible Organization:	<u>Hudson County Department of Corrections</u>	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Emergency Vehicle Auto-Lift	
Project Number:	2020-HUDSON COUNTY-019 (Previous HC-3)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	County Jail Flood Mitigation		
Project Number:	2020-HUDSON COUNTY-020 (Previous HC-4)		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	County Jail is susceptible to flooding and impacted by storm surge during Hurricane Sandy; houses vulnerable population.		
Action or Project Intended for Implementation			
Description of the Solution:	Identify potential mitigation project(s), and work to secure funding for selected project(s) to address the overall flood vulnerability of the County Jail and Juvenile Facility (South Kearny), which had storm surge flooding into the first flood level during Sandy (6-7' of storm surge in this area). This facility houses more than 2,000 inmates.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	High
Useful Life:		Goals Met:	1, 2
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	FEMA; County
Responsible Organization:	<u>Hudson County Department of Corrections</u>	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	County Jail Flood Mitigation	
Project Number:	2020-HUDSON COUNTY-020 (Previous HC-4)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





CITY OF BAYONNE

MUNICIPALITY AT A GLANCE

Total Population: 66,719
 Total Land Area: 7.69 sq. mi
 Total Number of Buildings: 6,802



Hurricane Storm Surge



Population

Category 1* **2,735**

Category 2* **9,125**



Buildings

964

1,805

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$8,644,814

Potential Building Damages

1% Annual Chance Flood



3,882

Population residing in floodplain



1,124

Buildings in floodplain



43

Critical facilities in floodplain

397

Persons that may seek shelter

\$505,471,218

Potential building damages

NFIP Statistics



32 # NFIP Policies

290 # WYO Policies

8 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Natural Systems Protection, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Flood, Severe Storm, Severe Winter Storm



9.2 City of Bayonne

This section presents the jurisdictional annex for the City of Bayonne. The annex includes a general overview of the City of Bayonne; an assessment of the City of Bayonne’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.2.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the City of Bayonne’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.2-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Edoardo Ferrante Jr, OEM Coordinator Address: 630 Avenue C Bayonne, NJ 07002 Phone Number: 201-522-7563 Email: eferrante@bayonnefire.org	Name / Title: Keith Weaver, BFD Chief of Department Address: 630 Avenue C Bayonne, NJ 07002 Phone Number: 201-858-6008 Email: chiefweaver@bayonnefire.org
NFIP Floodplain Administrator	
Name / Title: Richard Bielinski, Construction Code Official Address: 630 Avenue C Bayonne, NJ 07002 Phone Number: 201-858-6069 Email: rbielinski@baynj.org	
Additional Points of Contact	
<u>Planning & Zoning</u> Name / Title: Suzanne Mack, PP AICP CTP, Division Head Phone number: 201-858-6138 Email: bayonneplaner@gmail.com	
<u>Public Works Department</u> Name / Title: Thomas Cotter, Director Phone Number: 291-858-6066 Email: tcotter@baynj.org Name / Title: Gary Chimelewski, Management Analyst Phone Number: 201-858-6165 Email: publicworks@baynj.org	
<u>Engineering Division</u> Name / Title: Robert Russo, P.E. Municipal Engineer, CME Phone Number: 732-727-7182 Email: Rrusso@cmeusa1.com	
<u>Administration Department</u> Name/Title: Terrance Malloy, Business Administrator Phone Number: 201-858-6137 Email: tmalloy@baynj.org Name/Title: Andrew Raichle, Special Projects Engineer: Matrix New World Phone Number: 908-229-6303 Email: araichle@matrixnewworld.com	
<u>Municipal Services</u> Name/Title: Tim Boyle, Suez Liaison, Director Phone Number: 201-858-6112 Email: tboyle@baynj.org	





9.2.2 JURISDICTION PROFILE

The City of Bayonne is located at the southern tip of Hudson County’s peninsula where Newark Bay, the Kill van Kull, and New York Bay meet. The City is bordered to the north by Jersey City. This area has very little elevation, and generally sits at sea level. The location of the City makes it prone to flooding.

Bayonne was founded in the 1800s as basically a farming community. Due to its proximity to New York Harbor it evolved during the late 19th and early 20th century to a predominantly industrial community with a majority of its industry involving petro-chemicals. In the 1940s at the beginning of the Second World War the Navy established a supply depot on the eastern side of the City. This base played significant roles in all the subsequent military actions from World War II to Desert Storm in the early 1990s under both Navy and Army control. However, in 1995 the Federal Government decided to close the base and turn it over to the City. This industrial trend continued up to the 1950s when major oil companies began to leave the community for more modern facilities. The decline continued into the 1980s when the community became predominantly residential with light industry.

According to the U.S. Census, the 2010 population for the City of Bayonne was 63,024. The estimated 2017 population was 66,719, which is a 5.9 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 6.3 percent of the City population is five years of age or younger, and 14.1 percent is 65 years of age or older. 14.4 percent of the population speaks English less than “very well”. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

The City of Bayonne is governed by a Mayor and Council. This governing body will be responsible for the adoption and implementation of this plan.

9.2.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.2-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.2-1 at the end of this annex which illustrates the geographically-delineated hazard areas and the location of potential new development, where available.





Table 9.2-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	1
Multi-Family	1	0	2	1	2
Other (commercial, mixed-use, etc.)	0	1	3	6	1
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Bayonne Bay Developers, LLC	Residential Redevelopment	900 Residential Units	Need		2017-2019 (15 year build out)
Skye Management	Residential redevelopment	38 residential units	Broadway and 14 th Street	NEHRP Class C, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4	2017
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
230-250 Avenue E, LLC	Redevelopment	One hundred and ninety (190) residential units, ninety-six (96) off-street parking space	Block 454, Lot 2 and Block 446, Lot 1	SLOSH Category 3, SLOSH Category 4	Construction of two (2) proposed mixed-use commercial and residential structures consisting of approximately 2,433 square feet of commercial space, one hundred and ninety (190) residential units, ninety-six (96) off-street parking spaces, and related improvements. DATE TBD
525 Avenue E, LLC	Redevelopment	TBD	Block 140, Lots 21-25, located at 517-531 Avenue E	NEHRP Class C, SLOSH Category 3, SLOSH Category 4	DATE TBD





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Bergen Brass Foundary	Reuse Commercial Redevelopment	TBD	East 22 nd Street Gateway Shopping Center Rt 440	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4	TBD
50 Oak Street Foundary	Residential Redevelopment	TBD	50 Oak Street	NEHRP Class C, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4	TBD
Peninsula View	TBD	TBD	Route 440 and 32 nd Street	NEHRP Class C, SLOSH Category 4	TBD
662 Avenue C	Residential Redevelopment	33 residential units and structured parking	Clock 163, Lot 45 (commonly referred to as 662-666 Avenue C	NEHRP Class C	TBD
Duraport Realty Four LLC	TBD	TBD	East 5 th Street	NEHRP Class C, SLOSH Category 3, SLOSH Category 4	TBD
195 East 22 nd Street Urban Renewal, LLC	Retail Redevelopment	TBD	Block 425.01 Lots 1, 2, and 9	None	TBD
Duraport Realty Four LLC and Port Johnson Realty LLC	TBD	TBD	85 East 2 nd Street Block 476.01, Lots 10.01 and 10.02	None	TBD
Bayonne Equities, LLC	TBD	TBD	471 Broadway; as Block 204, Lots 2 and 3, and Block 203, Lot 4	NEHRP Class C	TBD
Bayonne Partners Urban Renewal, LLC	TBD	850 Market Rate Residential Units and up to 10,000 square feet of retail venues or related amenities	Block 830, Lot 1	None	TBD





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Pier View Lofts, LLC	Residential redevelopment	65 residential units	Block 402, Lots 4-7, located at 676-688 Avenue E	NEHRP Class C, SLOSH Category 4	TBD
BB Bayonne, LLC	Residential redevelopment	254 residential	140-138 44 th Street	NEHRP Class C	TBD
JMF Properties	TBD	TBD	Block 720, Lot 1, Block 791, Lot 1m and Block 700, Lot 1	None	TBD
Maidenform/Silklofts	Commercial redevelopment	TBD	Ave E at 18 th Street	NEHRP Class C, SLOSH Category 4	TBD
Mahalaxmi Bayonne, LLC	TBD	TBD	Portion of Harbor Station South, which property is shown as proposed Block 751, Lot 1	None	TBD
Parkview Realty Holdings	Mixed Use redevelopment	6 story mixed use building consisting of 180 residential units, 189 parking spaces, and 3,000 square feet of retail space	Block 445, Lots 1-5, and 7	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D & E, Wildfire Risk	TBD
PSIP Avenue A, LLC	Commercial and light industrial use redevelopment	TBD	Block 301.01, Lot 7; Block 310, Lots 1-13 (Lot 1- "Bay"); Block 311.01, Lot 1 ("39-55 Bayview CT"); Block 333.01, Lots 3-6 (Lot 4- "22-46 Bayview CT," Lot 5- "97-103 Avenue A," Lot 6- "Avenue A"); and Block 333.02, Lot 1 ("97-103 Avenue A"). Pending Block 333.01, Lots 1-2.	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, Coastal Erosion, NEHRP Class D & E, Sea Level Rise – 1ft Sea Level Rise – 3ft	TBD





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Skyline Harbor, LLC	TBD	TBD	Block 700, Lot 1; Block 720, Lot 1; Block 730, Lot 1; Block 731, Lot 1; Block 751, Lot 1; Block 770, Lot 1; Block 780, Lot ; Block 790, Lot 1; and Block 730, Lot 2	None	TBD
19 East Ingerman Properties	TBD	140 residential units	Block 221, Lots 1-5, 15-19, 24, and 26	SLOSH Category 3, SLOSH Category 4	TBD
Skye Management	Residential redevelopment	90 residential units	230-250 Avenue E	NEHRP Class C, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4	TBD
Skye Management	Residential redevelopment	100 residential units	252-268 Avenue E	NEHRP Class C, SLOSH Category 3, SLOSH Category 4	2019-2021
Metro Management Properties	TBD	TBD	186-194 Broadway	NEHRP Class C, SLOSH Category 3, SLOSH Category 4	TBD

* Only location-specific hazard zones or vulnerabilities identified.
TBD = To be determined and provided.

9.2.4 CAPABILITY ASSESSMENT

The City of Bayonne performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change





9.2.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the City of Bayonne.

Table 9.2-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	State, Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 15 of Building and Housing. Adopted Uniform Const. Code. Administered by Building Department.</i>					
Zoning Code	Yes	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 35, Zoning Regulations. Administered by the Zoning Department.</i>					
Subdivisions	Yes	Local	Yes	No	-
<i>Comment: Subdivision Ordinance. Chapter 33 Planning and Development Regulations. Administered by the Zoning Department.</i>					
Stormwater Management	Yes	Local	Yes	No	-
<i>Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter 30 Stormwater Control. Administered by Zoning/Engineering.</i>					
Post-Disaster Recovery	Yes	Local	-	No	-
<i>Comment: Post Disaster Recovery Plan. Administered by the Bayonne Office of Emergency Management.</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	Yes	Local	Yes	Yes	-
<i>Comment: State mandated at local level; Chapter 33 Planning and Development Regulations. Administered by the Zoning/Planning Departments.</i>					
Shoreline Development	Yes	State	Yes	Yes	-
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes	Local	Yes	No	-
<i>Comment: Chapter 33 Planning and Development Regulations. Administered by the Zoning, Engineering, and Planning Departments.</i>					
Environmental Protection	Yes	Local	Yes	No	-
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 30 Stormwater Control. Chapter 33 Planning and Development Regulations. Administered by the Planning, Zoning, and Engineering Departments.</i>					
Flood Damage Prevention	Yes	Local	Yes	No	2020-Bayonne-005
<i>Comment: Chapter 29, Flood Damage Prevention ordinance. Administered by the Zoning and Engineering Departments. The ordinance lacks the state mandated freeboard requirement.</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					
Emergency Management	Yes	Local	-	-	-
<i>Comment: The Bayonne Office of Emergency Management (O.E.M.) is organized under Chapter 2-28 of the Code of the City of Bayonne pursuant to New Jersey State Statute.</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
<i>Comment: The 2000 Master Plan was reexamined in August 2017. The Reexamination report discusses the impact of coastal storms on aging infrastructure, discusses the impacts of flood insurance reform, notes the need to protect natural resources and prevent steep slope failures. The Master Plan is administered by the Planning Department.</i>					
Capital Improvement Plan	Yes	Local	Allowed	Yes	-
<i>Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. Capital Improvements are identified within the municipal budget and administered by the DPW and Administration.</i>					
Disaster Debris Management Plan	No	-	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	Yes	Local	No	No	-
<i>Comment: Chapter 30 Stormwater Control. Administered by the Zoning and Engineering Department.</i>					
Stormwater Management Plan	Yes	Local and State	Yes	Yes	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). Chapter 30 Stormwater Control. Administered by the Zoning and Engineering Department.</i>					
Stormwater Pollution Prevention Plan	No	-	Yes	-	-
<i>Comment: City is preparing the Long Range Control Plan which will include Stormwater Pollution Prevention Plan.</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	No	-	-
<i>Comment:</i>					
Economic Development Plan	Yes	Federal, Local	No	No	-
<i>Comment: Bayonne is included in the Urban Enterprise Zone. The Economic Development Plan is administered by the Bayonne Economic Development Corporation.</i>					
Shoreline Management Plan	Yes	Local	No	No	-
<i>Comment: The Shoreline Management Plan is administered by the United States Army Corps of Engineers.</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Transportation Plan	Yes	Local	No	Yes	-
Comment: Element of 2017 Master Plan, numerous NJDOT Highway Access Permits.					
Agriculture Plan	No	-	No	-	-
Comment:					
Climate Action Plan	No	-	No	-	-
Comment:					
Tourism Plan	No	-	No	-	-
Comment:					
Business Development Plan	No	-	No	-	-
Comment:					
County Master Plan Reexamination	Yes	County	Yes	Yes	-
Comment: The County Master Plan Re-Examination Report of 2017 reviewed municipal plans throughout the County and referenced the Hudson HMP.					
Long Term Control Plan	Yes	Yes	Yes	Yes	-
Comment: The Long Term Control Plan (LTCP) is a system wide evaluation of the sewage infrastructure, and the hydraulic relationship between the sewers, precipitation, treatment capacity and overflows. As part of the LTCP, the permittee must evaluate alternatives that will reduce or eliminate the discharges and develop a plan and implementation schedule to do so. LTCPs are created to identify the most cost-effective manner to regulate CSOs to meet water quality standards. The permittee (Bayonne). In 2015, the NJDEP issued requirements that all CSO dischargers in New Jersey develop Long-Term CSO Control Plans (LTCP) by June 2020.					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The Emergency Management Plan is administered by the Bayonne Office of Emergency Management.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
Comment:					
Post-Disaster Recovery Plan	Yes	Local	No	No	No
Comment: The Post-Disaster Recovery Plan is administered by the Bayonne Office of Emergency Management.					
Continuity of Operations Plan	No	-	No	-	-
Comment:					
Public Health Plan	No	-	No	-	-
Comment:					
Other	No	-	No	-	-
Comment:					





Table 9.2-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes, Planning and Zoning
- If no, who does? If yes, which department?	
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes, through locations identified as available for redevelopment, vacant lots, etc.

9.2.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the City of Bayonne.

Table 9.2-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Environmental Commission
Open Space Board / Committee	Yes	Hudson County Open Space Board; City has a representative
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse 911, sirens, website, social media, etc.
Maintenance program to reduce risk	Yes	Tree trimming, sewer and catch basin cleaning
Mutual aid agreements	Yes	Bayonne Fire Dept. with County, Police Dept. with County, Hudson County and City Parks, Port Authority with City, FDNY, Staten Island, NYPD
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	City Planning
Engineers or professionals trained in building or infrastructure construction practices	Yes	CME, Matrix New World Engineering, City Planning
Planners or engineers with an understanding of natural hazards	Yes	Suzanne Mack PP AICP CTP, City Planner
Staff with training in benefit/cost analysis	Yes	Business Administrator, CFO
Surveyors	Yes	Contract services
Personnel skilled or trained in GIS applications	Yes	Suez personnel, tax assessors
Scientist familiar with natural hazards in local area	Yes	Tim Boyle, Municipal Services Director, liaison with NJDEP
Emergency manager	Yes	OEM Coordinator
Grant writers	Yes	Millennium (contractor), CME, Matrix New World, and City Planning
Resilience Officer	Yes	CME, Matrix New World, City Planning
Other	No	-





9.2.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the City of Bayonne.

Table 9.2-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes, Shore Protection Fund from DEP, Office of Natural Resource Damage funds, DOT Freight Roadway grant, Environmental Infrastructure trust fund
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes, Green Acres, Hudson County Open Space, NJDOT, NJDEP

9.2.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the City of Bayonne.

Table 9.2-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes, Public Information Officer
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes, link to County site on City website
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, various social media outlets are utilized to share information
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Social media, reverse telephone call ups
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes, Reverse 911, sirens, website, social media, etc.

9.2.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the City of Bayonne.

Table 9.2-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-





Program	Participating?	Classification	Date Classified
Public Protection (Fire ISO Protection Class)	Yes	2	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	none	3/17/2011

9.2.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

The table below summarizes the adaptive capacity for the hazards of concern for the jurisdiction.

Table 9.2-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	High
Coastal Storm	High
Drought	Low
Earthquake	Low
Extreme Temperature	Medium
Flood	High
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	Low
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.2.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.2-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction
Who is your floodplain administrator? (name, department/position)	Rich Bielenski, Construction Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2006
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> If exceeds, in what ways? 	Meet minimum requirements





Criterion	Response
When was the most recent Community Assistance Visit or Community Assistance Contact?	2017
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> If so, state what they are. 	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> If so, state what they are. 	FEMA remapping of SFHA
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> If no, state why. 	Disagreed with last mapping, maps were appealed through NYC, FEMA remapping.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	Yes Training through the NJ Association of Floodplain Managers
Does your jurisdiction participate in the Community Rating System (CRS)? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	No. Not interested in joining at this time but may be interested in the future if SFHA is expanded.
How many flood insurance policies are in force in your jurisdiction?*	<ul style="list-style-type: none"> 347 policies in force \$102,209,800 insurance in force \$275,954 premium in force
How many total loss claims have been filed in your jurisdiction?*	104 total loss claims, 5 open 30 closed without pay, \$1,892,178.47 total payments for losses.
Do you maintain a list of properties that have been damaged by flooding?	No, but could initiate
Do you maintain a list of property owners interested in flood mitigation?	No, but could initiate

*According to FEMA statistics as of 9/30/2018

9.2.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.2.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the City of Bayonne made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- Division of Administration:** The Division of Administration directs, facilitates and assists municipal departments and agencies in the delivery of services in the most cost effective and efficient manner to serve residents, businesses and visitors. The Department makes municipal budget recommendations and continually analyzes the financial operations of the City. The Administrator's Office is responsible for the day to day operations of the City. The Administrator coordinates and supervises department-wide, the policies and procedures established by the City of Bayonne, the Municipal Council, and the State of New Jersey. This Division is also responsible for overseeing the operation of all municipal departments and employees. Special Projects Engineer responsible for Shoreline and FEMA V Zone redevelopment issues, and Maritime issues reports to Administration Department.





- **Engineering Services Division:** Located in the Department of Public Works, the Engineering Services Division provides engineering assistance to construction programs and reviews design and detail plans for various projects. The focus of the Division includes new construction, repair of buildings, landscaping, service and maintenance of construction equipment, and liaison with construction and architecture-related consulting services.
- **Forestry Division:** Located within the Department of Public Works, the Forestry Division is responsible for maintaining, protecting, and managing the forest resources of the City of Bayonne.
- **Roads and Bridges Division:** Located in the Department of Public Works, the Roads and Bridges Division is responsible for maintaining and repairing all roads and City owned bridges as well as street sweeping.
- **Fire Department:** The City of Bayonne Fire Department protects a city of approximately 70,000 residents in an area of about 3 square miles. Another 2.5 square miles is occupied by heavy industry and the Peninsula at Bayonne Harbor. This area is made up of high density housing, a dry dock, a cruise port and other commercial facilities. A four group system is employed, and the members work a 24 hours on/72 hours off schedule (42 hour work week). Five (5) engine companies, three(3) ladder companies, one (1) Rescue Company, and one (1) Battalion Chief are strategically spread among 5 fire stations for suppression operations. In addition to fire suppression the department is also responsible for fire prevention and education, origin and cause investigations, hazardous materials response, and all technical rescue situations. In an effort to augment the municipal emergency medical service, all Engine and Ladder Companies and Rescue Company 1 are CFR-D (Certified First Responder-Defibrillator) companies and respond as CFR-D companies.
- **Office of Emergency Management:** The mission of Bayonne O.E.M. is to prepare for and activate operations during the occurrence of disasters and emergencies of unprecedented size and destructiveness resulting from enemy attack, sabotage or other hostile action, or from fire, flood, earthquake or other natural causes. Additionally, to ensure the preparations of this City will be adequate to deal with such disasters, and generally to provide for the common defense and to protect the public peace, health and safety, and to preserve the lives and property of the people of the City.
- **Bayonne Housing Authority:** The mission of the Bayonne Housing Authority is to provide decent housing, safe suitable living environments for economically impeded persons, disabled persons and senior citizens without discrimination and to provide home ownership opportunities when available. The Authority continues to improve living conditions through capital grants and continues to market properties within the community to ensure access to assisted housing.
- **Planning and Zoning Division:** The Planning and Zoning Division consists of the Planning Board and the Zoning Board of Adjustment. The Division reviews all plans for development and coordinates all grants. Special projects engineer contract Matrix New World Engineering handles all FEMA V Zone and shoreline issues and CME Engineering handles all local flooding issues. The City Planner assists in all reports and grant preparation as well as coordination with County, State, and Federal resources. The Division prepares redevelopment plans with assistance from CME Engineering on sustainable issues.
 - The Planning Board, made up of nine members, is guided by the powers and duties assigned to it by the municipal Land Use Law. The Board is responsible for:
 - Making and adopting the Master Plan
 - Administering the Land Subdivision Ordinance
 - Reviewing site plans
 - Approving conditional use applications
 - Preparing a municipal capital budget





- The Zoning Board of Adjustment is comprised of seven members and reviews all applications for construction or signage which do not meet the requirements of the zoning ordinance, limiting schedule or Bayonne Master Plan. Further responsibilities of the Board include:
 - Hearing and deciding appeals in the enforcement of the Zoning Code
 - Hearing and deciding requests in interpretation of the Zoning Code
 - Ruling on applications for variances
 - Granting variances to allow departure from land use regulations

9.2.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the City of Bayonne will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- The City could update the Flood Damage Prevention Ordinance to include freeboard.

9.2.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The City of Bayonne’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.2-11 provides details regarding municipal-specific loss and damages the City experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.2-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm, Blizzard, Coastal Erosion	Yes, DR-4264	Low pressure on Saturday January 23rd, brought heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and	New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	
September 25, 2018	Severe Flooding	No	Heavy rainfall event.	St. Little Lambs Preschool had to be evacuated on 22nd Street. A do not drive order was issued after the Fire Department had to rescue stranded vehicles. 11 persons were rescued under the HBLRT overpass at 22 nd Street. Residents were rescued at 308 Avenue C.
November 15, 2018	Snowstorm	No	Moderate to heavy wet snowfall significantly impacted the evening rush hour with 1-2 inch per hour snowfall rates. Hundreds of trees, tree limbs, and branches were brought down by the weight of the snow, which caused many power outages.	The Bayonne Bridge between Bayonne and Staten Island, NY was shut down.
2019	Transformer	No	A transformer fire occurred.	The fire resulted in electrical power being shut down in City Hall.

Notes: The City also experienced multiple severe flooding events: June 17, 2017; June 24, 2017; August 14, 2019; July 22, 2019; April 16, 2018; October 29, 2017.

9.2.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the City of Bayonne. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.2-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	371	CEHA:	74	CEHA:	\$59,099,671	High
		SLR +1ft:	0	SLR +1ft:	5	SLR +1ft:	\$53,954,742	
		SLR +3ft:	0	SLR +3ft:	7	SLR +3ft:	\$54,651,700	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	2,735	Category 1:	964	100-year Wind Loss:	\$8,644,814	High
		Category 2:	9,125	Category 2:	1,805			
		Category 3:	16,772	Category 3:	2,466	500-year Wind Loss:	\$71,179,206	
		Category 4:	28,019	Category 4:	3575			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	1,266	NEHRP D&E:	1,080	100-year Loss:	\$83,150	High
		Liquefaction Class 4:	2,460	Liquefaction Class 4:	622	500-year Loss:	\$24,836,873	
						2,500-year Loss:	\$334,452,644	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	9,389	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	10,475					
Flood	100- and 500-Year Mean Return Period Event	100-year	3,882	100-year	1,124	100-year Loss:	\$505,471,218	High
		500-year	6,393	500-year	1,478			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	77	Wildfire:	16	Wildfire:	\$110,767,153	Moderate





9.2.7.1 REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the City of Bayonne.

- Number of repetitive loss (RL) properties: 8
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: None

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.2.7.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.2-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Mitigation Action Status
		1% Event	0.2% Event	
City of Bayonne Fire Department Station 7*	Fire	X	X	Protected from flooding
City of Bayonne Fire Department Station 1*	Fire	X	X	Protected from flooding
International Matex Tank Terminal*	Fire	X	X	2020-Bayonne-004
Beacon Christian Academy	School	X	X	2020-Bayonne-004
Beacon Christian Academy	Child Care	X	X	2020-Bayonne-004
Little Lamb Preschool	Child Care	X	X	2020-Bayonne-004
Beof Bayonne Headstart	Child Care		X	
E. 34Th St.	Rail		X	
Bayonne Golf Club, Site A	Heliport	X	X	2020-Bayonne-004
Peninsula at Bayonne Harbor	Ferry	X	X	2020-Bayonne-004
Bayonne Energy Center*	Electric Power	X	X	2020-Bayonne-004
Elco Boat Basin	Marina	X	X	2020-Bayonne-004
Cape Liberty Cruise Port	Marina	X	X	2020-Bayonne-004
Amerada Hess Corp. Bayonne Terminal	Hazmat	X	X	2020-Bayonne-004
Amerada Hess Corp. Bayonne Terminal	Hazmat	X	X	2020-Bayonne-004
Amerada Hess Corp. Bayonne Terminal	Hazmat	X	X	2020-Bayonne-004
Bayonne Lubricants Plant	Hazmat	X	X	2020-Bayonne-004
Bayonne Lubricants Plant	Hazmat	X	X	2020-Bayonne-004
Bayonne Lubricants Plant	Hazmat	X	X	2020-Bayonne-004
Cogen Techs. NJ Venture L.P.	Hazmat	X	X	2020-Bayonne-004
Cogen Techs. NJ Venture L.P.	Hazmat	X	X	2020-Bayonne-004
Ag Fluoropolymers Usa Inc. - Bayonne Sit	Hazmat	X	X	2020-Bayonne-004
Ag Fluoropolymers Usa Inc. - Bayonne Sit	Hazmat	X	X	2020-Bayonne-004
Ag Fluoropolymers Usa Inc. - Bayonne Sit	Hazmat	X	X	2020-Bayonne-004
Ag Fluoropolymers Usa Inc. - Bayonne Sit	Hazmat	X	X	2020-Bayonne-004
Muralo Co. Inc. Norton & Son Div.	Hazmat	X	X	2020-Bayonne-004
Muralo Co. Inc. Norton & Son Div.	Hazmat	X	X	2020-Bayonne-004
Muralo Co. Inc. Norton & Son Div.	Hazmat	X	X	2020-Bayonne-004
Muralo Co. Inc. Norton & Son Div.	Hazmat	X	X	2020-Bayonne-004
Muralo Co. Inc. Norton & Son Div.	Hazmat	X	X	2020-Bayonne-004
Imtt International Matex Tank Terminal	Oil Facility		X	
Bergen Point Substation*	Electric Substation		X	
Bayonne Industries*	Electric Substation	X	X	2020-Bayonne-004
Bayonne Sub and Switch*	Electric Substation	X	X	2020-Bayonne-004
Constable Hook Sub.*	Electric Substation		X	
M.O.T. East*	Electric Substation	X	X	2020-Bayonne-004





Name	Type	Exposure		Mitigation Action Status
		1% Event	0.2% Event	
M.O.T. West*	Electric Substation	X	X	2020-Bayonne-004
I.C.I. America*	Electric Substation		X	
Bayonne Gen.*	Electric Power	X	X	2020-Bayonne-004
Cogen Technologies NJ Venture Lp*	Electric Power	X	X	2020-Bayonne-004
PSE&G/Bayonne*	Electric Power	X	X	2020-Bayonne-004
Peninsula Pumping Station No. 3*	Wastewater Pump	X	X	2020-Bayonne-003
Peninsula Pumping Station No. 2*	Wastewater Pump	X	X	2020-Bayonne-003
Peninsula Pumping Station No. 1*	Wastewater Pump	X	X	2020-Bayonne-003
Peninsula Pumping Station No. 1A*	Wastewater Pump	X	X	2020-Bayonne-003
Avenue J Pumping Station*	Wastewater Pump	X	X	2020-Bayonne-003
Oak Street Pumping Station*	Wastewater Pump	X	X	2020-Bayonne-003
5Th Street Pumping Station*	Wastewater Pump	X	X	2020-Bayonne-003
1St Street Pumping Station*	Wastewater Pump	X	X	2020-Bayonne-003

Note: *Identified lifeline

9.2.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- The backup generator at City Hall is unable to fully power the building and has been in danger of failure for several years. Replacement parts are obsolete. Replacing generator in current location is not feasible due to cost for installation (would need to be disassembled then reassembled). Generator servicing contractor has encouraged replacement for the last 10 years.
- The 5th Street Pump Station is in need of mitigation.
- The City has a large number of critical facilities located in the 100-year floodplain.
- The City has identified the following flooding locations:
 - Avenue E 7 19th Street
 - Avenue E & 14th Street
 - Avenue C 7 9th Street
 - Avenue C 7 12th Street
 - Cottage Street & Hobart Avenue
 - JFK & 1st Street
 - Avenue E & 52nd Street
 - Broadway & 55th Street
 - All underpasses
 - 21st Street , 22nd Street, Linnet, Broadway Down, Avenue C Down & Up, JFK Up
 - Avenue E & E 27th Street
 - Hook Road entry
 - 5th Street Connection
 - Park Road

9.2.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Bayonne that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards





that can be clearly identified using mapping techniques and technologies, and for which the City of Bayonne has significant exposure. Hazard area extents are illustrated on Figures 9.2-1 and 9.2-2.

9.2.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Bayonne. The City of Bayonne has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the City agreed with the calculated hazard rankings.

Table 9.2-14. City of Bayonne Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	Medium	Medium	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

9.2.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.2.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex. Note, the City of Bayonne is also reporting progress on the City of Bayonne MUA’s actions documented in the last plan; but has since dissolved and is no longer a participant.





Table 9.2-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
CB-1: Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: <ul style="list-style-type: none"> •Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. •Including natural hazard risk and risk reduction information through social media channels and email blast systems. •Posting of flyers and other readily available NFIP informational materials at City Hall or distributing at regular civic meetings. •Preparation, distribution and analysis of public surveys. •Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. •Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts. 	OEM	Ongoing capability		
CB-2: Enlarge storm sewer systems in the flood-prone areas of: <ul style="list-style-type: none"> •10th Street/Avenue A •9th Street •Hook Road 	Bayonne MUA	In Progress. Hooke Road being funded by NJDOT Freight Grant		
CB-3: Critical Infrastructure Improvements to be identified by Modeling Analysis and Stormwater Master Plan	Bayonne Engineering	In Progress. Modeling completed. Long Range Control Plan in progress	X	2020-Bayonne-006
CB-4: Support retrofitting, purchase, or relocation of assets / structures located in hazard-prone areas to protect structures from flood damage. Implementation of this initiative is supported by CB-1 above.	Bayonne OEM	In progress. Long Range Control Plan in progress.	X	2020-Bayonne-006
CB-5: Install riprap at coastline areas to reduce coastal flooding.	Bayonne Engineering	In progress as part of Long Range Control Plan.		
CB-6: Firehouse Emergency Generator Project – Install	Bayonne OEM	Complete	-	-





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
emergency generators and hardware at: •Engine Company #2, Tower 1 •Engine Company #4, Rescue 1 •Engine Company #6, Ladder 3				
CB-7: Installation of emergency generators at several schools throughout the Bayonne school district to include Henry Harris School at 4th Street and Avenue C and Washington Community School at 48th Street and Avenue B.	Bayonne Board of Education	In progress. High School complete.	X	2020-Bayonne-007
CB-8: Installation of emergency generators at Senior Citizen Housing facilities: •East 21st Street Complex (\$1 million) •West 2nd Street Complex (\$1.2 million) •East 50th Street Complex (\$2 million) •East Avenue A Complex (\$3.7 million)	Bayonne Housing Authority	Complete	X	
CB-9: The HMP will be used as a guide to include hazard mitigation for the next Master Plan update.	Bayonne OEM	Ongoing capability		
BMUA-1: 10th Street/ Avenue A Storm Sewer Upgrades: The existing 18" Storm Sewer will be replaced by a new 42 inch Storm Sewer and the system expanded to intercept flow before it gets to the area currently flooding.	BMUA - Engineering	In progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-2: 9th Street Stormwater Extension: Extension of existing stormwater system north on 9th Street to eliminate flooding presently occurring at low point at mid-block.	BMUA - Engineering	In progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-3: Hook Road Retrofit: Retrofit of existing drainage pipes/swales to allow transport of additional stormwater and elimination of street flooding.	BMUA - Engineering	In Progress. In design, NJ DOT Freight Grant awarded in 2019.		
BMUA-4: Sewer Model Expansion and Stormwater Master Plan: Expansion of existing Infoworks CS model for feasibility/design analysis of area currently flooding to evaluate and formulate a Stormwater Master Plan. This Modeling Analysis and Stormwater Master Plan will service to identify critical infrastructure improvements, including mitigation.	BMUA	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
BMUA-5: MOTBY Pump Station #3 Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In progress.		
BMUA-6: MOTBY Pump Station #2 Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-7: MOTBY Pump Station #1 Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-8: Avenue J Pump Station Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-9: MOTBY Pump Station #1A Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-10: 1st Street Pump Station Project: Elevate electrical controls; elevate emergency generator and Automatic Transfer Switch (ATS). Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-11: New Hook Road Pump Station Project: Elevation of precast concrete control building and associated electrical equipment. Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan.	X	2020-Bayonne-006
BMUA-12: 5 th Street Pump Station Project: Construction of a flood wall with vehicle access gate and a flow control gate on the influent sewer. Project identified in HCSRR.	BMUA - Engineering	In Progress as part of Long Range Control Plan	X	2020-Bayonne-006
BMUA-13: Oak Street Pump Station Project: Construction of flood wall with vehicle access gate and a flow control gate on the influent sewer. Project identified in HCSRR.	BMUA - Engineering	In Progress. Reevaluating solution before Sandy Dike was suggested. Currently reevaluating this project.		
BMUA-14: 63rd St. Pump Station Project: Addition of an emergency generator. Project identified in HCSRR.	BMUA - Engineering	Complete		

The City of Bayonne did not identify any mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy.





9.2.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The City of Bayonne participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The City of Bayonne participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.2-16 summarizes the comprehensive-range of specific mitigation initiatives the City of Bayonne would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.2-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.2-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-001	Generator for City Hall	The backup generator at City Hall is unable to fully power the building and has been in danger of failure for several years. Replacement parts are obsolete. Replacing generator in current location is not feasible due to cost for installation (would need to be disassembled then reassembled). Generator servicing contractor has encouraged replacement for the last 10 years.	Purchase and install new generator. Generator to be installed outside of mayor's office. Provide and install 600kW diesel generator, outdoor nema3r, sound attenuated with 24 hour subbase fuel tank ul listed, block heater, remote annunciator, 2000 amp service entrance rated automatic transfer switch. Generator will be placed on new concrete pad, in a new fence.	Existing	All hazards	1, 6	Public Works	HMGP, Municipal budget	Continuity of operations at City Hall maintained	\$331,400	6 months	High	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-002	22nd St. Underpass Flood Mitigation	This is a city-owned street that is subject to frequent serious flooding. There have been numerous times that motorists and pedestrians (from the light rail station) have been rescued by boat.	Construct a road/culvert modification to alleviate the flood hazard and integrate green infrastructure as part of the solution. During a flash flood, it is necessary to close and evacuate the light rail station	Existing	Flood, Severe Weather	1, 2	<u>Department of Public Works</u>	HMA grants, municipal budget	Reduction in flood risk	\$15,000	3 years	High	SIP	SP
2020-Bayonne-003	Pump Station Flood Mitigation	There are 8 wastewater pump stations in the City that are located in the regulatory flood plain. These pump stations have been inundated at times and need flood mitigation as they are lifeline facilities. These are also in the repetitive loss areas of the City.	Floodproof the pump stations to at or above the 500-year flood elevation. Phases for this project include determination of the required elevation, determination if the facility should be elevated or floodproofed, application of grant funding, project implementation.	Existing	Flood	2, 6	<u>Bayonne MUA, Engineering</u>	HMA and EDA grants	Reduction of flooding, decrease of contaminated water impacting community, continuity of lifeline services.	\$15,000	3 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-004	Conduct outreach to hazard prone critical facility operators	Numerous critical facilities are not owned by the City and are prone to flooding.	The City will conduct outreach to operators of critical facilities to educate them on their hazard exposure and possible mitigation actions.	Existing	Flood	1, 2, 6	FPA	Municipal budget	Facilit y owner s educa ted on expos ure and possib le mitiga tion action s	Staff time	Within 1 year	High	EAP	PI
2020-Bayonne-005	Update the Flood Damage Prevention Ordinance	The ordinance needs to be updated with the state’s freeboard mandate.	The city will update the ordinance to include freeboard.	New	Flood	2, 3	Administr ation	Municipal budget	Meet state standa rds	Staff time	Within 6	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-006	Long Term Control Plan	In 2015, the NJDEP issued requirements that all CSO dischargers in New Jersey develop Long-Term CSO Control Plans (LTCP) by June 2020	The Long Term Control Plan (LTCP) is a system wide evaluation of the sewage infrastructure, and the hydraulic relationship between the sewers, precipitation, treatment capacity and overflows. As part of the LTCP, the permittee must evaluate alternatives that will reduce or eliminate the discharges and develop a plan and implementation schedule to do so. LTCPs are created to identify the most cost-effective manner to regulate CSOs to meet water quality standards.	Existing	Flood, Severe Storm	1, 2, 4	Administration	NJ DEP, Municipal budget	Meet state standards	TBD	Within 1 year	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-007	Generator for Washington Community School	The Washington Community School lacks a backup power source	Installation of emergency generators at Washington Community School at 48th Street and Avenue B.	Existing	All hazards	1, 6	<u>Bayonne Board of Education</u>	HMGP, Board of Education budget	Continuity of operations at School maintained	\$30,000	6 months	High	SIP	ES
2020-Bayonne-008	Enlarge storm sewer systems in flood prone areas	Storm sewer systems are undersized in the following areas: •10th Street/Avenue A •9th Street •Hook Road	Enlarge storm sewer systems in the flood-prone areas of: •10th Street/Avenue A •9th Street •Hook Road	Existing	Flood	1, 2	<u>Bayonne MUA, Engineering</u>	HMA and EDA grants, NJ DOT	Reduction of flooding	TBD	2 years	High	SIP	SP
2020-Bayonne-009	Coastal Wetland Enhancement / Living Shorelines	This City shoreline requires additional protection from erosion and flooding.	The City will explore the use of coastal wetlands and living shorelines to provide natural protective systems on the shoreline.	Existing	Coastal Storm, Flood	1, 2, 4	<u>Department of Public Works</u>	NJ DEP grants, City budget	Reduction in flood risk	TBD	3 years	High	NSP	NR
2020-Bayonne-010	Collins Park Shoreline Stabilization	The Collins Park shoreline is eroding. The park is highly utilized.	The City will build upon the existing rock revetment and include a living shoreline component.	Existing	Coastal Storm, Flood	1, 2, 4	<u>Department of Public Works</u>	NJ DEP grants, City budget	Reduction in flood risk, erosion	TBD	6 months	High	NSP	NR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-011	Ferry Terminal	The City lacks a ferry terminal for emergency waterborne access.	The City will construct a ferry terminal.	New	All hazards	1, 2	<u>Engineering & Administration</u>	City budget	Emergency access	High	5 years	High	SIP	ES
2020-Bayonne-012	OEM High Water Rescue Vehicle	OEM requires a High Water Rescue Vehicle to support emergency response in flood prone areas.	The City will purchase a High Water Rescue Vehicle.	N/A	Flood	1	<u>OEM</u>	City budget	Emergency response	High	6 months	High	LPR	ES
2020-Bayonne-013	Elevation of City-Wide Park Buildings in Flood Zones	City Park buildings are prone to being damaged. This includes facilities that include bathrooms that could result in sewage releases and the Maintenance building which contains chemicals.	The City will conduct a feasibility assessment to determine the number of facilities that need to be elevated, apply for funding support, and elevate the appropriate buildings.	Existing	Flood	1, 2, 4	<u>Department of Public Works</u>	NJ DEP grants, City budget	Reduction in flood risk	TBD by feasibility assessment	6 months	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Bayonne-014	Repetitive Loss Mitigation	Areas within the floodplain are prone to flood damages. Some of these areas are residential and the City currently has 8 repetitive loss properties as documented by paid NFIP claims.	Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/evacuating residential homes in the flood prone areas that experience frequent flooding (high risk areas).	Existing	Flood, Severe Weather, Coastal Storm	1, 2	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1.5 million+	Within 5 years	High	SIP, EAP	PI, PP

Notes:

Acronyms and Abbreviations:

Potential FEMA HMA Funding Sources:

Timeline:





CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency
 FPA Floodplain Administrator
 HMA Hazard Mitigation Assistance
 N/A Not applicable
 NFIP National Flood Insurance Program
 OEM Office of Emergency Management

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.2-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Bayonne-001	Generator for City Hall	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Bayonne-002	22nd St. Underpass Flood Mitigation	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2020-Bayonne-003	Pump Station Flood Mitigation	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2020-Bayonne-004	Conduct outreach to hazard prone critical facility operators	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Bayonne-005	Update the Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Bayonne-006	Long Term Control Plan	1	1	1	0	1	1	0	1	1	1	1	1	1	1	12	High
2020-Bayonne-007	Generator for Washington Community School	1	0	1	1	1	0	0	1	1	1	1	1	1	1	11	High
2020-Bayonne-008	Enlarge storm sewer systems in flood prone areas	1	1	1	0	1	1	0	1	1	1	0	1	1	1	11	High
2020-Bayonne-009	Coastal Wetland Enhancement / Living Shorelines	0	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2020-Bayonne-008	Enlarge storm sewer systems in flood prone areas	1	1	1	0	1	1	0	1	1	1	0	1	1	1	11	High
2020-Bayonne-009	Coastal Wetland Enhancement / Living Shorelines	0	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Bayonne-010	Collins Park Shoreline Stabilization	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Bayonne-011	Ferry Terminal	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2020-Bayonne-012	OEM High Water Rescue Vehicle	1	0	1	1	1	1	1	0	1	1	0	1	1	1	11	High
2020-Bayonne-013	Elevation of City-Wide Park Buildings in Flood Zones	0	1	1	1	1	1	1	0	1	1	0	1	1	1	11	High
2020-Bayonne-014	Repetitive Loss Mitigation	1	1	1	1	0	0	0	0	1	1	1	0	1	0	8	High

Note (1): Refer to Section 6, which conveys guidance on evaluating and prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.2-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Coastal Storm		2020-Bayonne-014	2020-Bayonne-014	2020-Bayonne-009, 2020-Bayonne-010	2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Dam and Levee Failure					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Drought					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Earthquake					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Extreme Temperature					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Flood	2020-Bayonne-005	2020-Bayonne-003, 2020-Bayonne-013, 2020-Bayonne-014	2020-Bayonne-004, 2020-Bayonne-014	2020-Bayonne-009, 2020-Bayonne-010, 2020-Bayonne-012	2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011	2020-Bayonne-002, 2020-Bayonne-008, 2020-Bayonne-014		
Geologic					2020-Bayonne-001, 2020-Bayonne-			





Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
					007, 2020-Bayonne-011			
Severe Weather		2020-Bayonne-014	2020-Bayonne-014		2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011	2020-Bayonne-002		
Severe Winter Storm					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			
Wildfire					2020-Bayonne-001, 2020-Bayonne-007, 2020-Bayonne-011			

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.2.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The City of Bayonne followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.2-19. Contributors to the Annex

Entity	Title	Method of Participation
Edoardo Ferrante Jr	OEM Coordinator	Primary POC, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Keith Weaver	BFD Chief of Department	Secondary POC, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Rob Russo	City Engineer	NFIP FPA, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Suzanne Mack	Planner	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy, reviewed the draft annex





Entity	Title	Method of Participation
Marcella Traina	Intern, Planning Department	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Gary Chmielewski	Management Specialist	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Thomas Cotter	DPW Director	Attended plan participant meetings, provided impact data, contributed to the mitigation strategy





Figure 9.2-1. City of Bayonne Hazard Area Extent and Location Map

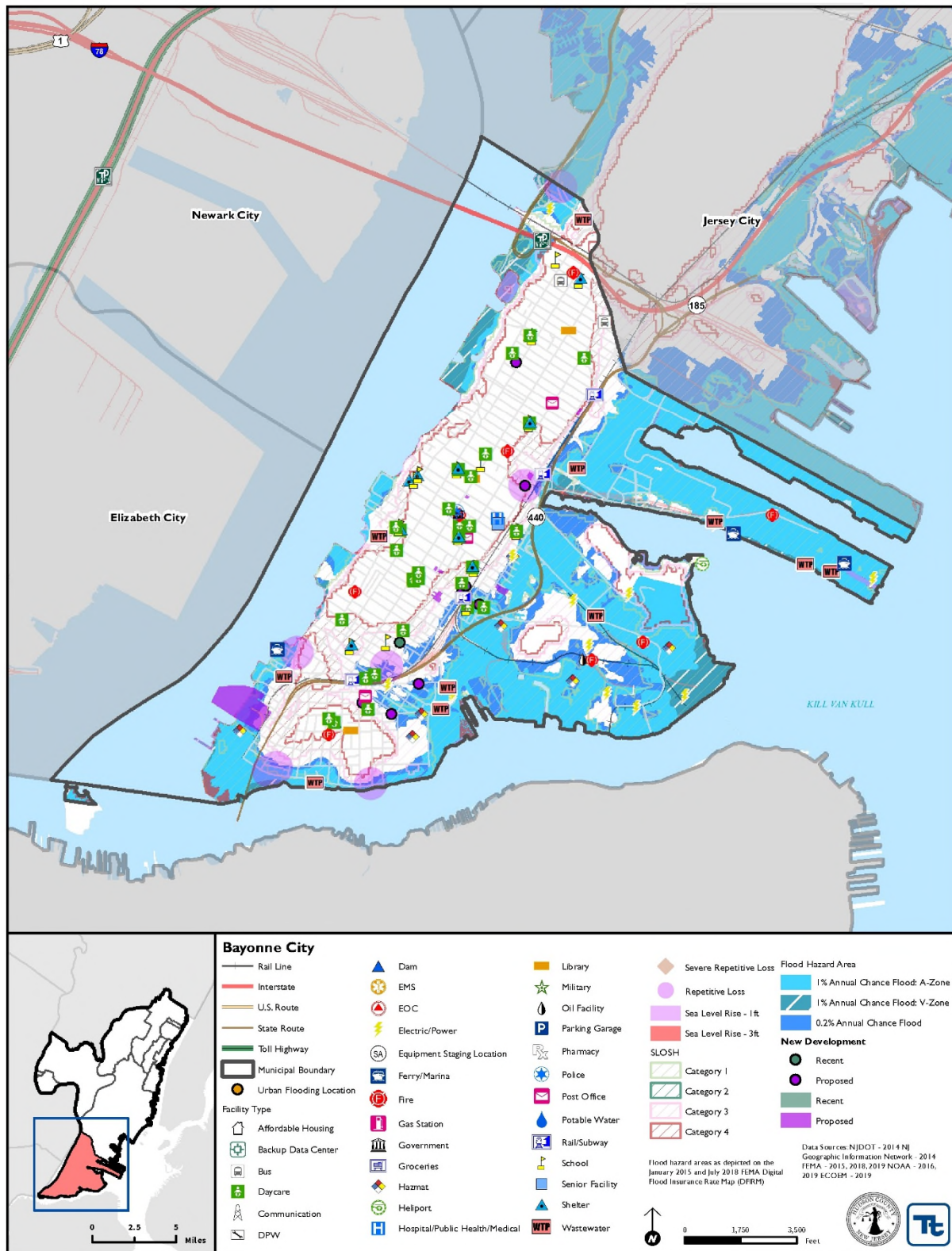
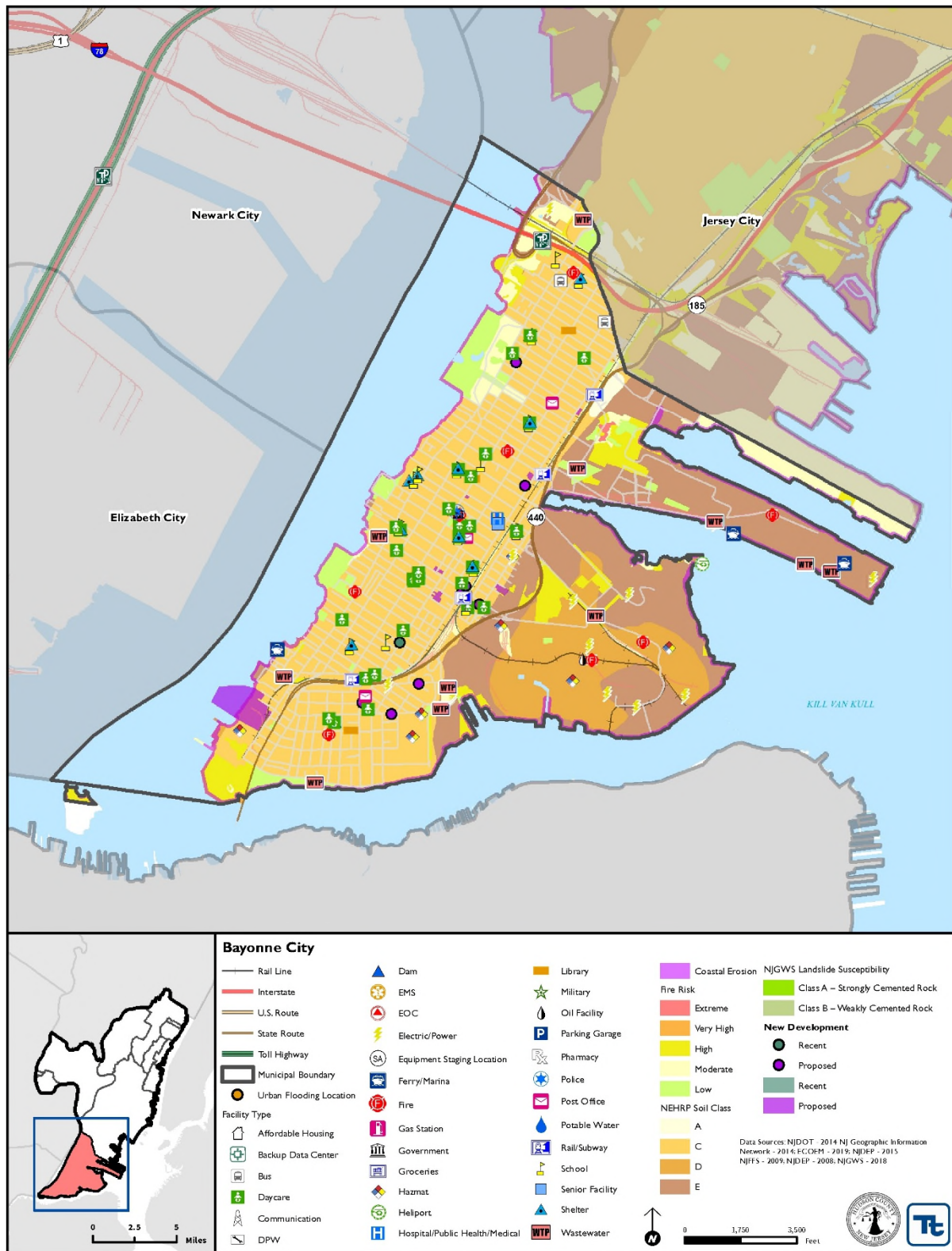




Figure 9.2-2. City of Bayonne Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Generator for City Hall		
Project Number:	2020-Bayonne-001		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	The backup generator at City Hall is unable to fully power the building and has been in danger of failure for several years. Replacement parts are obsolete. Replacing generator in current location is not feasible due to cost for installation (would need to be disassembled then reassembled). Generator servicing contractor has encouraged replacement for the last 10 years.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install new generator. Generator to be installed outside of mayor's office. Provide and install 600kW diesel generator, outdoor nema3r, sound attenuated with 24 hour subbase fuel tank ul listed, block heater, remote annunciator, 2000 amp service entrance rated automatic transfer switch. Generator will be placed on new concrete pad, in a new fence.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	Power maintained	Estimated Benefits (losses avoided):	Continuity of operations maintained at City Hall
Useful Life:	5 years	Goals Met:	1, 6
Estimated Cost:	\$331,400	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	HMGP, Municipal budget
Responsible Organization:	Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Capital improvements, hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Natural gas generator	\$451,150	costly
	Solar Panels	\$200,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Generator for City Hall	
Project Number:	2020-Bayonne-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services to protect life during hazard events
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	Project has been analyzed and costs have been determined
Political	1	
Legal	1	The City has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	Continuity of operations
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	22 nd St. Underpass Flood Mitigation		
Project Number:	2020-Bayonne-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	This is a city-owned street that is subject to frequent serious flooding. There have been numerous times that motorists and pedestrians (from the light rail station) have been rescued by boat.		
Action or Project Intended for Implementation			
Description of the Solution:	Construct a road/culvert modification to alleviate the flood hazard and integrate green infrastructure as part of the solution. During a flash flood, it is necessary to close and evacuate the light rail station.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	however, it impacts the use of the light rail station.
Level of Protection:	100-year flood	Estimated Benefits (losses avoided):	Reduction in flood risk
Useful Life:	30 years	Goals Met:	1, 2
Estimated Cost:	\$15,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	HMA grants, municipal budget
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate Overpass and Road	N/A	Technically infeasible
	Close Road	\$0	Not an option as it is a connector to 440.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	22 nd St. Underpass Flood Mitigation	
Project Number:	2020-Bayonne-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects pedestrians from flood damage
Property Protection	1	Reduce flooding for new housing on north side (Madison Hill)
Cost-Effectiveness	1	
Technical	1	
Political	1	Strong support for improvements
Legal	1	
Fiscal	0	Requires funding support
Environmental	1	May include green infrastructure aspects
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	
Agency Champion	1	The Mayor is supportive
Other Community Objectives	0	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Pump Station Flood Mitigation		
Project Number:	2020-Bayonne-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	There are 8 wastewater pump stations in the City that are located in the regulatory flood plain. These pump stations have been inundated at times and need flood mitigation as they are lifeline facilities. These are also in the repetitive loss areas of the City.		
Action or Project Intended for Implementation			
Description of the Solution:	Floodproof the pump stations to at or above the 500-year flood elevation. Phases for this project include 1. Determination of the required elevation, determination if the facility should be elevated or floodproofed, application of grant funding, project implementation.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	500-year flood	Estimated Benefits (losses avoided):	Reduction of flooding, decrease of contaminated water impacting community, continuity of lifeline services.
Useful Life:	50 years	Goals Met:	2, 6
Estimated Cost:	\$15,000 per pump station floodproofing	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	HMA and EDA grants
Responsible Organization:	Bayonne MUA and Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	\$250,000	Not technically feasible
	Elevate facility	\$100,000	Higher cost and feasibility concerns.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Pump Station Flood Mitigation	
Project Number:	2020-Bayonne-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduce flooding for properties in the vicinity
Cost-Effectiveness	1	
Technical	1	
Political	1	Strong support for improvements
Legal	1	The City has the legal authority to complete the project.
Fiscal	1	
Environmental	1	Reduce the potential for water contamination
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	1	The Mayor is supportive
Other Community Objectives	0	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Generator for Washington Community School		
Project Number:	2020-Bayonne-007		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	The Washington Community School lacks a backup power source. The school would serve as a sheltering location for students during a hazard event.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install generator and necessary electrical components.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	Power maintained	Estimated Benefits (losses avoided):	Continuity of operations maintained at School
Useful Life:	5 years	Goals Met:	1, 6
Estimated Cost:	\$30,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	HMGP, Board of Education budget
Responsible Organization:	Bayonne Board of Education	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Natural gas generator	\$451,150	costly
	Solar Panels	\$200,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Generator for Washington Community School	
Project Number:	2020-Bayonne-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services to protect life during hazard events
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The City does not have the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	1	Board of Education
Other Community Objectives	1	Continuity of operations
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Enlarge storm sewer systems in flood prone areas		
Project Number:	2020-Bayonne-008		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Storm sewer systems are undersized in the following areas: <ul style="list-style-type: none"> •10th Street/Avenue A •9th Street •Hook Road 		
Action or Project Intended for Implementation			
Description of the Solution:	Enlarge storm sewer systems in the flood-prone areas of: <ul style="list-style-type: none"> •10th Street/Avenue A •9th Street •Hook Road 		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD	Estimated Benefits (losses avoided):	Reduction in flooding
Useful Life:	50 years	Goals Met:	1, 2
Estimated Cost:	TBD	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMA and EDA grants, NJ DOT
Responsible Organization:	Bayonne MUA, Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation, Stormwater planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install pump stations	N/A	Does not solve problem
	Buyout space for detention basins	\$Millions	Not enough available space
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Enlarge storm sewer systems in flood prone areas	
Project Number:	2020-Bayonne-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect will reduce flooding risk to life
Property Protection	1	Project will reduce flooding damages
Cost-Effectiveness	1	
Technical	0	
Political	1	
Legal	1	The City has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	1	Bayonne MUA, Engineering
Other Community Objectives	1	Reduction in flooding
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Coastal Wetland Enhancement / Living Shorelines		
Project Number:	2020-Bayonne-009		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	This City shoreline requires additional protection from erosion and flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	The City will explore the use of coastal wetlands and living shorelines to provide natural protective systems on the shoreline.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD	Estimated Benefits (losses avoided):	Reduction in flood risk
Useful Life:	TBD by selected green infrastructure	Goals Met:	1, 2, 4
Estimated Cost:	TBD	Mitigation Action Type:	Natural Systems Protection
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	NJ DEP grants, City budget
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan, Open Space Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Bulkhead replacement	\$millions	Not environmentally friendly
	Retreat from shoreline areas	N/A	Not an option
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Coastal Wetland Enhancement / Living Shorelines	
Project Number:	2020-Bayonne--009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Buffering of coastal storms and shoreline protection
Cost-Effectiveness	1	Low-cost relative to structural solutions
Technical	1	Proven technology within the watershed
Political	1	Strong support for improvements
Legal	1	The City has the legal authority to complete the project.
Fiscal	0	Project requires funding support
Environmental	1	Preserves and enhances the limited coastal natural areas in the City
Social	1	Public open space element incorporated into project
Administrative	1	City has strong administrative infrastructure
Multi-Hazard	1	Coastal Storm, Flood
Timeline	0	Project requires extensive regulatory approvals
Agency Champion	1	The Mayor is supportive
Other Community Objectives	1	Implements City's open space and ecological goals
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Collins Park Shoreline Stabilization		
Project Number:	2020-Bayonne-010		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	The Collins Park shoreline is eroding. The park is highly utilized.		
Action or Project Intended for Implementation			
Description of the Solution:	The City will build upon the existing rock revetment and include a living shoreline component.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD	Estimated Benefits (losses avoided):	Reduction in flood risk
Useful Life:	TBD by selected green infrastructure	Goals Met:	1, 2, 4
Estimated Cost:	TBD	Mitigation Action Type:	Natural Systems Protection
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	NJ DEP grants, City budget
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan, Open Space Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install bulkhead	\$200,000	Not environmentally friendly option
	Retreat from shoreline areas	\$0	Not an option as the park needs to be preserved
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Collins Park Shoreline Stabilization	
Project Number:	2020-Bayonne--010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Eroding shoreline affects highly utilized waterfront park
Property Protection	1	Buffering of coastal storms and shoreline protection
Cost-Effectiveness	1	Plan utilizes existing rock revetment and builds upon that
Technical	1	Sections of the project are already designed
Political	1	Strong support for improvements
Legal	1	The City has the legal authority to complete the project.
Fiscal	0	Project requires funding support
Environmental	1	Includes living shoreline component
Social	1	Protects and preserves a highly utilized public park
Administrative	1	City has strong administrative infrastructure
Multi-Hazard	1	Coastal Storm, Flood
Timeline	1	6 months. Portions of the project are already designed
Agency Champion	1	The Mayor is supportive
Other Community Objectives	1	Implements City's open space and ecological goals
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Elevation of City-Wide Park Buildings in Flood Zones		
Project Number:	2020-Bayonne-013		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	City Park buildings are prone to being damaged. This includes facilities that include bathrooms that could result in sewage releases and the Maintenance building which contains chemicals.		
Action or Project Intended for Implementation			
Description of the Solution:	The City will conduct a feasibility assessment to determine the number of facilities that need to be elevated, apply for funding support, and elevate the appropriate buildings.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by feasibility assessment	Estimated Benefits (losses avoided):	Reduction in flood risk
Useful Life:	TBD by feasibility assessment	Goals Met:	1, 2, 4
Estimated Cost:	TBD by feasibility assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	NJ DEP grants, City budget
Responsible Organization:	Department of Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan, Open Space Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove buildings	N/A	Not a feasible option. Structures need to remain in place at parks.
	Purchase mobile flood barriers	\$5,000 per device	Require deployment
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Elevation of City-Wide Park Buildings in Flood Zones	
Project Number:	2020-Bayonne--013	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects vulnerable structures
Cost-Effectiveness	1	Standard methodology
Technical	1	Standard designs
Political	1	Strong support for improvements
Legal	1	The City has the legal authority to complete the project.
Fiscal	1	Eliminates flood damage potential
Environmental	0	Eliminates potential sewage discharges and Maintenance Building discharges
Social	1	Supports a growing City population in flood prone areas
Administrative	1	City has strong administrative infrastructure
Multi-Hazard	0	Flood
Timeline	1	Standard procurement
Agency Champion	1	The Mayor is supportive
Other Community Objectives	1	Implements City's readiness objectives and quickly restores park use
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-Bayonne-014		
Project Number:	Repetitive Loss Mitigation		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather, Coastal Storm		
Description of the Problem:	Areas within the floodplain are prone to flood damages. Some of these areas are residential and the City currently has 8 repetitive loss properties as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to the flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement the best mitigation option.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	N/A	Goals Met:	1, 2
Estimated Cost:	\$1.5 million+	Mitigation Action Type:	SIP, EAP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Floodplain Administrator	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevate properties	\$1 million+	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$1 million+	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-Bayonne-014	
Project Number:	Repetitive Loss Mitigation	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce impacts of flooding on the population
Property Protection	1	Reduce flood damage to structures
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	
Political	0	
Legal	0	The City does not have legal authority to elevate the homes; need homeowners support
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Coastal Storm
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	High	





BOROUGH OF EAST NEWARK

MUNICIPALITY AT A GLANCE

Total Population: 2,725
Total Land Area: 0.11 sq. mi
Total Number of Buildings: 403



Hurricane Storm Surge



Population



Buildings

Category 1*

0

2

Category 2*

252

52

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$217,923

Potential Building Damages

1% Annual Chance Flood



0

Population residing
in floodplain



7

Buildings in
floodplain



1

Critical facilities
in floodplain

n/a

Persons that may
seek shelter

\$738,537

Potential building
damages

NFIP Statistics



0 # NFIP Policies

1 # WYO Policies

0 # RL Properties
(excludes SRL)

0 # SRL Properties
(excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

n/a

Project Types

n/a

High Ranked Hazards



Coastal Storm, Earthquake, Extreme
Temperature, Severe Storm, Severe
Winter Storm



9.3 Borough of East Newark

This section presents the jurisdictional annex for the Borough of East Newark. The annex includes a general overview of the Borough; an assessment of the Borough of East Newark’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.3.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Borough of East Newark identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.3-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Dina Grilo, Mayor Address: 34 Sherman Avenue, East Newark NJ 07029 Phone Number: (973)-481-2902 ext. 226 Email: dinagriloen@gmail.com	Name / Title: Anthony Monteiro, Chief of Police Address: 34 Sherman Avenue, East Newark, NJ 0729 Phone Number: (973) 481-2902 ext. 223 Email: amonteiroenpd@hotmail.com
NFIP Floodplain Administrator	
Name / Title: Anthony Chisari, Construction Officer and Zoning Official Address: 34 Sherman Avenue, East Newark NJ 07029 Phone Number: (973) 481-2902 ext. 232 Email: constructiondepartment@boroughofeastnewark.com	

9.3.2 JURISDICTION PROFILE

The Borough of East Newark was formed from a portion of Kearny Township by referendum on July 2, 1895. The Borough of East Newark is located along the eastern bank of the Passaic River in the western portion of the County. It shares its boundaries with Town of Kearny to the north, Town of Harrison to the east and south and County of Essex to the west.

According to the “River for the People: Lower Access Plan for the Lower Passaic River Plan” it estimated East Newark’s population in 2012 was 2,441 residents with a median age of 36.5 to 40 years.

The Borough of East Newark is governed by a Mayor and Borough Council made up of six members. This governing body will be responsible for the adoption and implementation of this plan. According to the U.S. Census, the 2010 population for the Borough of East Newark was 2,406

9.3.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.3-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to the figures at the end of this annex which illustrate the geographically delineated hazard areas and the location of potential new development, where available.





East Newark has an adopted “East Newark Redevelopment Plan.” The plan was adopted on March 14, 2007 and subsequently amended via ordinance in 2014 and 2017. The plan identifies two (2) areas in Need of Redevelopment – Area I and Area II. The plan also identifies Area III as an area in Need of Rehabilitation. Within the three (3) areas the plan identifies four (4) land use sub-districts.

First district is the Riverside District, consisting of Block 17, Lot 1 which is slated among other uses for a hotel and waterfront walkway with all amenities consistent with New Jersey Department of Environmental.

Second district is the Thread Mill District, consisting of Block 12, Lot 1 which designate the rehabilitation and re-adaptive use of the formal Thread Mill property. The Plan also identified office space, ground floor retail and restaurants as permitted used. Currently, a developer a submitted a development application for 616 dwelling units.

Third district is the School House district comprised of the Block 2, Lots 1, 7, 8 and 9. The Plan identified conversion of the schoolhouse into studio and one-bedroom lots and an elementary school.

Lastly, the fourth district is identified as the Public Facilities District, consisting of Block 8, Lots 22, 24, 25, 26 and 27; Block 4, Lots 9, 10, 11 and Block 10, Lot 44. The district’s permitted uses are a public school, parks, open space and other public facilities.

Table 9.3-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	0
Multi-Family	1	1	1	4	6
Other (commercial, mixed-use, etc.)	0	0	0	0	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Tops Diner	New commercial building (restaurant/diner)	1	500 Passaic Ave.	None	Currently under construction
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
East Newark Town Center	Mixed Use	616 apartments with retail below	Central Avenue	1% floodplain	Proposed.
Riverside District	Mixed Use & Waterfront Walkway	Hotel, Retail, Open Space	Block 17, Lot 1	1% floodplain	Proposed
Thread Mill District	Town Center, Office Space & Ground Floor Retail, Restaurants	616 apartments with mixed use.	Block 12, Lot 1	1% floodplain	Proposed
School House District	Conversion of a School building into residential	TBD	Block, Lots 1,7,8 & 9	1% floodplain	Proposed
Public Facilities District	Schools, open space & other public facilities	TBD	See above.	1% floodplain	Proposed

* Only location-specific hazard zones or vulnerabilities identified.





9.3.4 CAPABILITY ASSESSMENT

The Borough of East Newark performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.3.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Borough of East Newark.

Table 9.3-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	State, Local – Building Department	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 15 of Building and Housing. Adopted Uniform Const. Code. Borough of East Newark Building Code, Chapter XIV.</i>					
Zoning Code/Ordinance	Yes	Local – Building Department	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Borough of East Newark Zoning Ordinance, Chapter XXXIII.</i>					
Subdivisions	Yes	Local – Building Department	Yes	No	-
<i>Comment: Borough of East Newark Subdivision Ordinance, Chapter XXXI.</i>					
Stormwater Management	Yes	Local	Yes	No	-
<i>Comment: Borough of East Newark Stormwater Management Ordinance, Chapter XXI</i>					
Post-Disaster Recovery	No	Local	-	No	-
<i>Comment:</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	No	Local	Yes	Yes/No	Yes/No





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment: State mandated at local level; Chapter 33 Planning and Development Regulations. Administered by the Zoning/Planning Departments.</i>					
Shoreline Development	No		Yes	Yes/No	Yes/No
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes	Local	Yes	No	-
<i>Comment:</i>					
Environmental Protection	Yes	Local	Yes	No	
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 30 Stormwater Control. Chapter 33 Planning and Development Regulations.</i>					
Flood Damage Prevention	No		Yes	No	
<i>Comment:</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					
Emergency Management	No	Local	-	-	-
<i>Comment:</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local – Clerk and Council	Yes	Yes	-
<i>Comment: Borough of East Newark Master Plan, Adopted March 2014. Redevelopment Plan Adopted 2007, Amended 2017.</i>					
Capital Improvement Plan	No	Local	Allowed	Yes	Yes/No
<i>Comment: Per N.J.S.A. 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. Capital Improvements are identified within the municipal budget and administered by the DPW and Administration.</i>					
Disaster Debris Management Plan	Yes	County	No	Yes	-
<i>Comment: The Hudson County Disaster Debris Management Plan, adopted in 2017, addresses the jurisdiction's coordinated response to manage debris following a debris-generating event.</i>					
Floodplain or Watershed Plan	No	Local	No	No	-
<i>Comment:</i>					
Stormwater Management Plan	Yes	County and State	Yes	-	Yes/No
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>East Newark is included in Hudson County Stormwater Plan – Passaic Avenue</i>					
Stormwater Pollution Prevention Plan	No		Yes	Yes/No	Yes/No
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	No	-	-
<i>Comment:</i>					
Economic Development Plan	Yes	Federal, Local	No	No	-
<i>Comment: Master Plan and Reexamination Reports contain Economic Development Elements. Hudson County Comprehensive Economic Development includes initiatives for East Newark.</i>					
Shoreline Management Plan	Yes	Local	No	No	-
<i>Comment: The Shoreline Management Plan is administered by the United States Army Corps of Engineers.</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					
Transportation Plan	No	-	No	-	-
<i>Comment:</i>					
Agriculture Plan	No	-	No	-	-
<i>Comment:</i>					
Climate Action Plan	No	-	No	-	-
<i>Comment:</i>					
Tourism Plan	No	-	No	-	-
<i>Comment:</i>					
Business Development Plan	No	-	No	-	-
<i>Comment:</i>					
County Master Plan Reexamination	Yes	County	Yes	Yes	-
<i>Comment: The County Master Plan Re-Examination Report of 2017 reviewed municipal plans throughout the County and referenced the Hudson HMP.</i>					
Lower Eight Mile Plan	Yes	Federal	Yes		
<i>Comment: This Proposed Plan describes options for cleaning up the highly contaminated sediments of the lower 8 miles of the Lower Passaic River and identifies the preferred cleanup option. It was developed by EPA in partnership with NJDEP, USACE, NOAA and USFWS.</i>					
Other Redevelopment Plan	Yes	-	No	-	-
<i>Comment: adopted: 3/14/ 2007 Ordinance # 03-07</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local - OEM	Yes	No	No
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. Emergency Response Plan (updated annually)</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	Yes	Local	No	No	No
<i>Comment: The Post-Disaster Recovery Plan/Debris Management Plan is administered by the HC Office of Emergency Management & HC Improvement Authority.</i>					
Continuity of Operations Plan	No	-	No	-	-
<i>Comment:</i>					
Public Health Plan	No	-	No	-	-
<i>Comment:</i>					
Other	No	-	No	-	-
<i>Comment:</i>					

Table 9.3-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	Construction Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes, County has a GIS Department that can support this effort.
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes

9.3.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Borough of East Newark.

Table 9.3-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Zoning Board (Land Use Board)
Mitigation Planning Committee	No	-
Environmental Board / Commission	No	-
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse 911





Staff/Personnel Resource	Available?	Department/Agency/Position
Maintenance program to reduce risk	Yes	Catch basin clearing
Mutual aid agreements	Yes	Surrounding Communities, County, State
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Remington & Vernick Engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	Remington & Vernick Engineers
Planners or engineers with an understanding of natural hazards	Yes	Remington & Vernick Engineers
Staff with training in benefit/cost analysis	No	-
Surveyors	No	-
Personnel skilled or trained in GIS applications	No	-
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Anthony Monteiro, Chief of Police/OEM Coordinator
Grant writers	No	Request for Proposal Pending
Resilience Officer	No	-
Other	No	-

9.3.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Borough of East Newark.

Table 9.3-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes - Hudson County
Capital Improvements Project Funding	Yes - Limited funding available
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes – sewer, water
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

9.3.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Borough of East Newark.

Table 9.3-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes (Consultant)





Criterion	Response
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes NWS, Harrison Weather
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes Mayor’s Page, Facebook
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes Reverse 911 System

9.3.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Borough of East Newark.

Table 9.3-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	NP	N/A
Public Protection (Fire ISO Protection Class)	No	NP	N/A
Storm Ready Certification	No	NP	N/A
Firewise Community Classification	No	NP	N/A

NP = Not participating

9.3.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the Borough’s adaptive capacity ratings for each hazard of concern.

Table 9.3-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	High
Drought	High
Earthquake	Low
Extreme Temperature	High
Flood	Medium





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Geological Hazards	High
Severe Storm	High
Winter Storm	Medium
Wildfire	Low
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.3.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.3-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction Code Enforcement
Who is your floodplain administrator? (name, department/position)	Anthony Chisari, Construction Official and Zoning Officer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2006
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> If exceeds, in what ways? 	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	Date unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> If so, state what they are. 	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> If so, state what they are. 	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> If no, state why. 	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	No -
Does your jurisdiction participate in the Community Rating System (CRS)? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	No
How many flood insurance policies are in force in your jurisdiction?*	0 NFIP policies; 1 Write Your Own Policy
How many total loss claims have been filed in your jurisdiction?*	0 NFIP claims; 1 Write Your Own Claim = \$22,488
<ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	
<ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	





Criterion	Response
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation?	No

*According to FEMA statistics as of July 2019

9.3.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.3.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Borough of East Newark made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- Currently the Borough has a stormwater management plan and a stormwater management ordinance.
- During the permit review process, the Borough considers hazards such as flood hazard zones and hazard-resistant construction materials in their project application review.

9.3.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the Borough of East Newark will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- To continue implementing mitigation in day-to-day operations, the Borough will develop a public outreach program to educate the community on hazards.
- The Borough works closely with the local school district regarding public outreach for pre and post disaster materials.

9.3.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Borough of East Newark’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.3-11 provides details regarding municipal-specific loss and damages the Borough experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.





Table 9.3-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion	DR-4264	Low pressure moving across the deep South on Thursday January 21st and Friday January 22nd intensified and moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in and out of airports lagged through Monday January 25th as airlines pre-emptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	Overtime was needed for response and cleanup.
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey	Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.

9.3.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the Borough of East Newark. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level





of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.3-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	4	CEHA:	\$2,708,869	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	0	Category 1:	2	100-year Wind Loss:	\$217,923	High
		Category 2:	252	Category 2:	52			
		Category 3:	589	Category 3:	116	500-year Wind Loss:	\$1,994,578	
		Category 4:	1,211	Category 4:	199			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	2,573	NEHRP D&E:	384	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	2	500-year Loss:	\$785,069	
						2,500-year Loss:	\$11,129,058	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	247	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	354					
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	7	100-year Loss:	\$738,537	High
		500-year	50	500-year	24			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





9.3.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Borough of East Newark.

- Number of repetitive loss (RL) properties: 0
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: N/A

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.3.7.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.3-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Mitigation Action
		1% Event	0.2% Event	
No critical facilities located in floodplain				

*Identified lifeline

9.3.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Like other municipalities in Hudson County, the Borough of East Newark is working to address and ultimately separate its combined sewer overflow system (CSO).
- Numerous properties along the riverfront are flood prone.
- Numerous critical facilities are in need of backup power.
- The Borough website is in need of upgrade for outreach and continuity of operations.
- Community facilities need to be upgraded to allow for increased sheltering and emergency response.

9.3.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Borough of East Newark that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Borough of East Newark has significant exposure. Refer to Figures 9.3-1 and 9.3-2.

9.3.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.





As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of East Newark. The Borough of East Newark has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Borough agreed with the calculated hazard rankings.

Table 9.3-13. Borough of East Newark Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	High	High	Medium

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

9.3.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.3.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.3-14. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	Purchase and install gas powered generators as back- up power supply for critical facilities and emergency response capabilities	East Newark OEM	The Borough has 2 portable generators and installed one gas powered generator that is capable of providing power to the municipal building. 2 Portables were purchased as well	X	2020-East Newark-005
	Develop and implement an enhanced all-hazards, public outreach / education /	East Newark OEM	Public Outreach system active through the	X	2020-East Newark-006





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: <ul style="list-style-type: none"> • Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. • Posting of flyers and other readily available NFIP informational materials at Borough Hall or distributing at regular civic meetings. • Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. • Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts. 		reverse 9-1-1 system. All other actions are currently being addressed. Website needs upgrade to allow for better outreach and continuity of operations during times of emergency or social distancing.		

The Borough of East Newark did not identify any mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy.

9.3.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Borough of East Newark participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Borough of East Newark participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.3-15 summarizes the comprehensive-range of specific mitigation initiatives the Borough of East Newark would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each





of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.3-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.3-15. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-East Newark-001	Increase capacity of CSO line	Problem: The Borough’s CSO system needs to be modified to reduce risk of overflow.	Increase the capacity of the CSO line to prevent overflow	Existing	Flood, Severe Storm	2, 4	Administration, Building and Construction	FEMA HMGP, PDM, NJ DEP, EPA	Reduction in flooding, environmental damage.	TBD	Within 5 years	High	SIP	SP
		Solution: Increase the capacity of the CSO line to prevent overflow												
2020-East Newark-002	Install tank for stormwater storage	Problem: The Borough’s CSO system needs to be modified to reduce risk of overflow.	Install a large storage tank for stormwater to prevent flooding and stormwater overflow.	Existing	Flood	2, 4	Administration, Building and Construction	FEMA HMGP, PDM, NJ DEP, EPA	Reduction in flooding, environmental damage.	TBD	Within 5 years	High	SIP	SP
		Solution: Install a large storage tank for stormwater to prevent flooding and stormwater overflow.												
2020-East Newark-003	Upgrade Borough facilities to allow for emergency response and sheltering/medical capabilities	Problem: The Borough is situated to provide emergency response facilities for the County.	Remodel the following facilities to allow for sheltering and medical response: Recreational Center, Senior Center, Old Borough Hall, New Borough Hall	Existing	All Hazards	1, 6	Administration, Police	FEMA HMGP, PDM, BRIC	Increase regional emergency capabilities	TBD	Within 5 years	High	SIP	PP, ES
2020-East Newark-004	Restore natural floodplain function	Problem: Numerous riverfront properties are flood prone.		Existing	Flood	2, 4	Administration	HMGP, PDM, FMA, BRIC, NJ	Restoration of natural floodplai	TBD	Within 3 years	High	SIP, NSP	PP, NR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
	along Passaic Avenue	Solution: Pursue buyout of flood prone properties and establish open space.						DEP Blue Acres, Lower 8 Mile Action Plan	n function,					
2020-East Newark-005	Backup generator for critical facilities	Problem: Several critical facilities lack backup power: Recreation center, Senior Center, New Borough Hall, School	Solution: Purchase and install backup generators at critical facilities.	Existing	All hazards	1, 2, 6	<u>Administration</u> , Engineer	FEMA HMGP and PDM, USDA Community Facilities Grant Program, EMPG, Municipal Budget	Continuity of Operations	\$50K per generator	Within 1 year	High	SIP	PP, ES
2020-East Newark-006	Increase outreach capabilities of the Borough	Problem: The website and other outreach options for the Borough are outdated.	Solution: Update website and train staff on electronic communication methods	Existing	All hazards	5, 6	<u>Administration</u>	Municipal budget	Increased outreach and continuity of operations	\$5,000	Within 1 year	High	EAP	PI
2020-East Newark-007	Participation in the CRS and scheduling the CAV.	Problem: Borough to coordinate with the County and State CRS programs.	Solution: Reduce the number of repeatedly-loss properties and lower insurance rates.	No	Flooding	New Goal	<u>Administration</u> , Engineer, HCOEM	FMA, HMGP, PDM & LOCAL	Public outreach and education, Reduction in property losses,	Staff time	Within a 1 year	High	EAP	PI





Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential Funding Sources:

FMA	FEMA Flood Mitigation Assistance Grant Program
HMGP	FEMA Hazard Mitigation Grant Program
PDM	FEMA Pre-Disaster Mitigation Grant Program
EMPG	Emergency Management Performance Grants

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *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 manmade 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

CRS Category:

- *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 9.3-16. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-East Newark-001	Increase capacity of CSO line	0	1	0	1	1	1	0	1	1	1	1	0	1	1	10	High
2020-East Newark-002	Install tank for stormwater storage	0	1	0	1	1	1	0	1	1	1	1	0	1	1	10	High
2020-East Newark-003	Upgrade Borough facilities to allow for emergency response and sheltering/medical capabilities	1	0	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2020-East Newark-004	Restore natural floodplain function along Passaic Avenue	0	1	1	1	1	0	0	1	1	1	0	1	1	1	10	High
2020-East Newark-005	Backup generator for critical facilities	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-East Newark-006	Increase outreach capabilities of the Borough	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.3-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Coastal Storm		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Dam and Levee Failure		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Drought		2020-East Newark-003	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Earthquake		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Extreme Temperature		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Flood		2020-East Newark-003, 2020-East Newark-004, 2020-East Newark-005	2020-East Newark-006	2020-East Newark-004	2020-East Newark-003, 2020-East Newark-005	2020-East Newark-001, 2020-East Newark-002		2020-East Newark-006
Geologic		2020-East Newark-003, 2020-East	2020-East Newark-006		2020-East Newark-003, 2020-East			2020-East Newark-006





Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
		Newark-005			Newark-005			
Severe Weather		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-001, 2020-East Newark-002		2020-East Newark-006
Severe Winter Storm		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006
Wildfire		2020-East Newark-003, 2020-East Newark-005	2020-East Newark-006		2020-East Newark-003, 2020-East Newark-005			2020-East Newark-006

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.3.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Borough of East Newark followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.3-18. Contributors to the Annex

Entity	Title	Method of Participation
Dina M. Grilo, Mayor	Mayor	Attended Mitigation Strategy workshop; contributed to the annex update
Anthony Monteiro	Chief of Police	Attended the Mitigation Strategy workshop; attended the Regional Stakeholder workshop; contributed to the annex update
Massiel Ferrara	Engineer	Contributed to the annex update and mitigation strategy
Jordan Cecinini	Engineer	Contributed to the annex update and mitigation strategy





Figure 9.3-1. Borough of East Newark Hazard Area Extent and Location Map #1

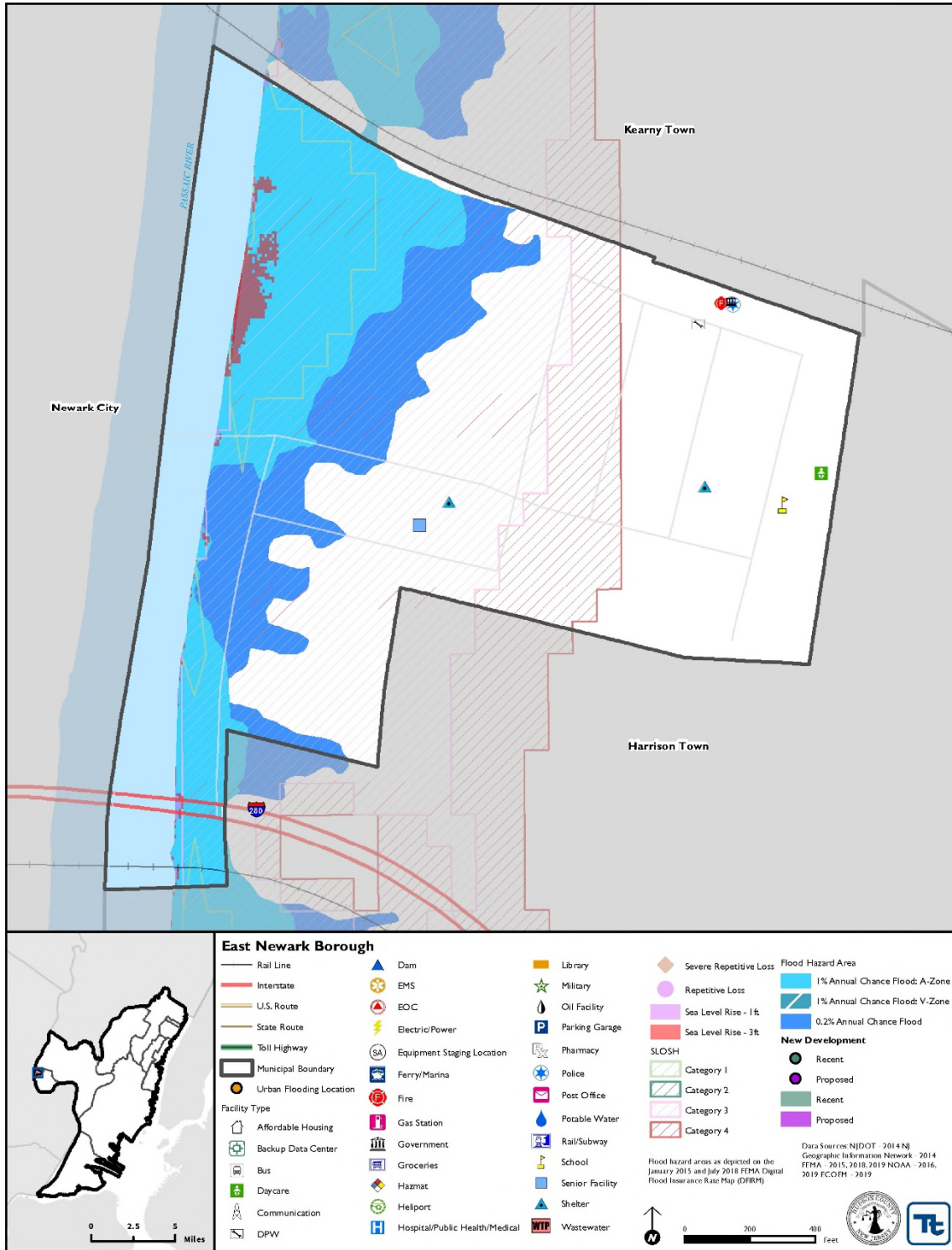
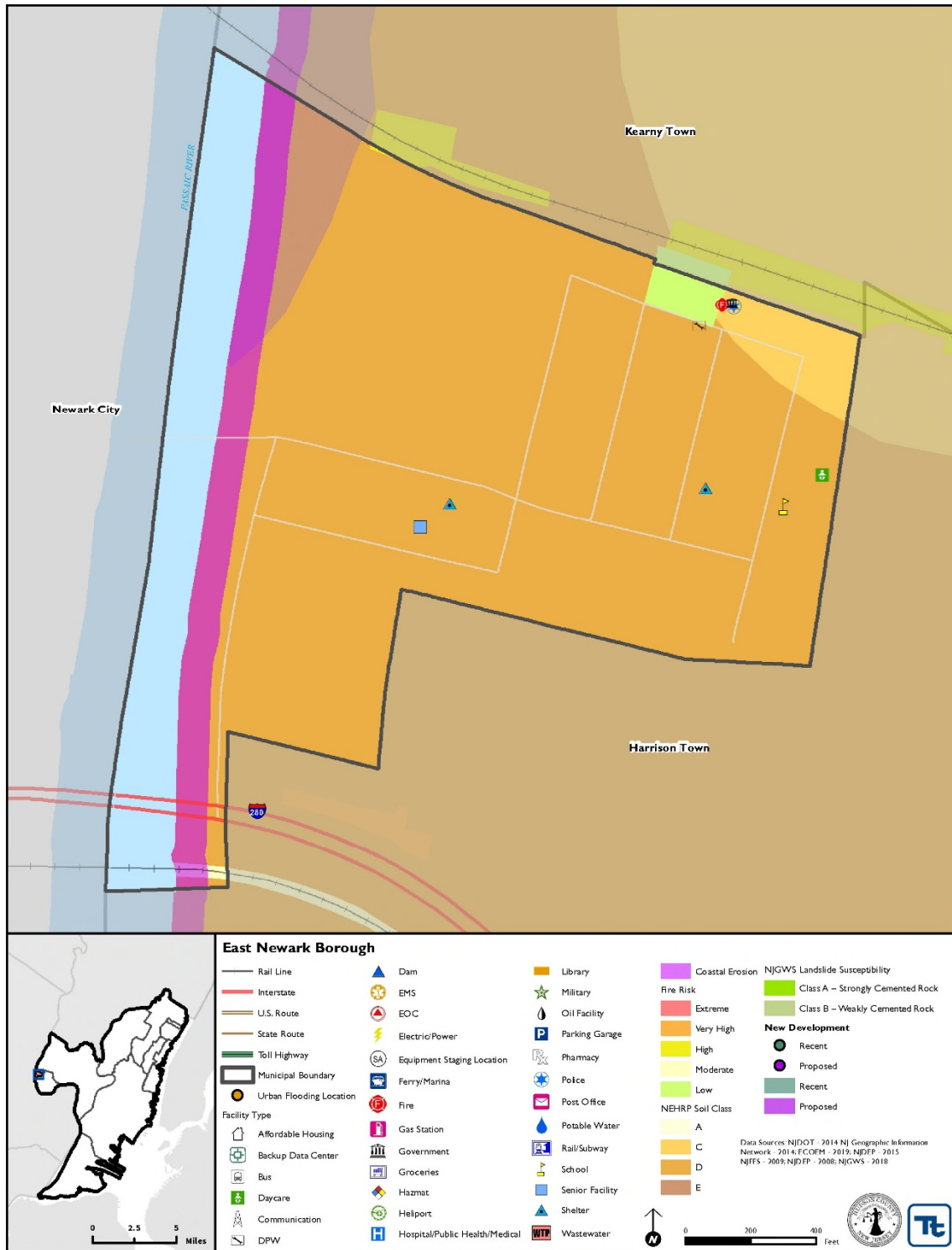




Figure 9.39.3-2. Borough of East Newark Hazard Area Extent and Location Map #2





Action Worksheet			
Project Name:	Increase capacity of CSO line		
Project Number:	2020-East Newark-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Borough's combined sewer overflow (CSO) system needs to be modified to reduce risk of overflow. At a certain volume, the CSO system releases untreated sewage into local waterways and flooding can occur due to backup.		
Action or Project Intended for Implementation			
Description of the Solution:	Increase the capacity of the CSO line to prevent overflow.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	13 Acres of Partial Separation. Additional capacity for stormwater runoff during rain events.	Estimated Benefits (losses avoided):	Reduction in flooding and environmental damage.
Useful Life:	50 years	Goals Met:	2, 4
Estimated Cost:	\$3.9M	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	Within 3 years	Potential Funding Sources:	FEMA HMGP, PDM, NJ DEP, EPA
Responsible Organization:	Administration, Building and Construction	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation, stormwater management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Separate full stormwater system from sewer line	\$10's of millions	Costly
	Build new sewer facility	\$25 million	Costly
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Increase capacity of CSO line	
Project Number:	2020-East Newark-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project protects properties from flooding
Cost-Effectiveness	0	
Technical	1	
Political	1	There is public support for the project
Legal	1	
Fiscal	0	Project requires funding support
Environmental	1	Protects aquatic environment from sewage overflow
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	Administration, Building and Construction
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Install tank for stormwater storage		
Project Number:	2020-East Newark-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Borough's combined sewer overflow (CSO) system needs to be modified to reduce risk of overflow. At a certain volume, the CSO system releases untreated sewage into local waterways and flooding can occur due to backup.		
Action or Project Intended for Implementation			
Description of the Solution:	Install a large storage tank for stormwater to prevent flooding and stormwater overflow.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	.04 MG Storage Tank at EN001	Estimated Benefits (losses avoided):	Reduction in flooding and environmental damage.
Useful Life:	50 years	Goals Met:	2, 4
Estimated Cost:	\$1.5M	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	Within 3 years	Potential Funding Sources:	FEMA HMGP, PDM, NJ DEP, EPA
Responsible Organization:	Administration, Building and Construction	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation, stormwater management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Separate full stormwater system from sewer line	\$10's of millions	Costly
	Build new sewer facility	\$25 million	Costly
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Install tank for stormwater storage	
Project Number:	2020-East Newark-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project protects properties from flooding
Cost-Effectiveness	0	
Technical	1	
Political	1	There is public support for the project
Legal	1	
Fiscal	0	Project requires funding support
Environmental	1	Protects aquatic environment from sewage overflow
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	Administration, Building and Construction
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Upgrade Borough facilities to allow for emergency response and sheltering/medical capabilities		
Project Number:	2020-East Newark-003		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The Borough is situated to provide emergency response facilities for the County but Borough facilities do not currently have the capability to provide proper response		
Action or Project Intended for Implementation			
Description of the Solution:	Remodel the following facilities to allow for sheltering and medical response: <ul style="list-style-type: none"> • Recreational Center, Block 13 Lot 3 • Senior Center, Block 13 Lot 21 • Old Borough Hall, Block 4 Lot 9 • New Borough Hall, Block 4 Lot 1 Remodeling of the facilities will include stockpiling adequate sheltering equipment and installation of HVAC systems to allow for negative pressure for medical response in disease outbreak.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Emergency facilities for sheltering, medical response established for regional use.
Useful Life:	25 years	Goals Met:	1, 6
Estimated Cost:	TBD	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP, PDM, BRIC
Responsible Organization:	Administration, Police	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation, emergency management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Purchase multi-use trailers	\$1M per trailer	Require deployment, limited space
	Purchase mobile hospitals	\$1M per mobile hospital	Require deployment, require significant open space
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Upgrade Borough facilities to allow for emergency response and sheltering/medical capabilities	
Project Number:	2020-East Newark-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provides sheltering and medical services for the region
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Borough has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	Project would benefit and serve the region
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	Within 5 years
Agency Champion	1	Administration, Police
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Restore natural floodplain function along Passaic Avenue		
Project Number:	2020-East Newark-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages in the Passaic River along Passaic Avenue.		
Action or Project Intended for Implementation			
Description of the Solution:	<p>Conduct outreach to property owners to discuss possibilities of buyout. After interested owners are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition of properties in the flood prone areas that experience frequent flooding (high risk areas).</p> <p>Convert acquired properties to natural floodplain function.</p>		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	Properties removed from flood prone areas.	Estimated Benefits (losses avoided):	Eliminates flood damage to properties, creates open space for the municipality increasing flood storage.
Useful Life:	Lifetime	Goals Met:	2, 4
Estimated Cost:	\$3Million	Mitigation Action Type:	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Three years	Potential Funding Sources:	HMGP, PDM, FMA, BRIC, NJ DEP Blue Acres, Lower 8 Mile Action Plan
Responsible Organization:	NFIP Floodplain Administrator, supported by homeowners	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate properties	\$5M	When this area floods, the entire area is impacted; elevating buildings would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$1M	Elevated roadways would not protect the adjacent buildings from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			





Update Evaluation of the Problem and/or Solution:	
--	--

Action Worksheet		
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Project Name:	Restore natural floodplain function along Passaic Avenue
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Project Number:	2020-East Newark-004
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Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Properties removed from high-risk flood areas.
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	0	The Borough will require the cooperation of property owners
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would create open space for public use.
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	1	Administration
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup generator for critical facilities		
Project Number:	2020-East Newark-005		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	Several critical facilities in the Borough lack backup power: <ul style="list-style-type: none"> • Recreational Center, Block 13 Lot 3 • Senior Center, Block 13 Lot 21 • New Borough Hall, Block 4 Lot 1 • East Newark School These facilities are planned to be used for sheltering and other regional needs during emergencies.		
Action or Project Intended for Implementation			
Description of the Solution:	The Borough Engineer will research what size generator is necessary to supply backup power critical facilities which are lacking backup power. The Borough will then purchase and install generators at the following critical facilities:		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides shelter for residents
Useful Life:	20 years	Goals Met:	1, 2, 6
Estimated Cost:	\$50,000 per generator	Mitigation Action Type:	Structure and Infrastructure Projects
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Administration, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed, not enough space
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup generator for critical facilities	
Project Number:	2020-East Newark-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of critical facilities
Property Protection	1	Project will protect critical facilities from power loss
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Borough has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	Facilities can serve regional needs for sheltering, emergency response, and medical response
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Administration, Engineer
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





TOWN OF GUTTENBERG

MUNICIPALITY AT A GLANCE

Total Population: 11,733
 Total Land Area: 0.19 sq. mi
 Total Number of Buildings: 1,227



Hurricane Storm Surge



Population



Buildings

Category 1*	0	12
Category 2*	0	12

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$1,835,342

Potential Building Damages

1% Annual Chance Flood



0

Population residing in floodplain



6

Buildings in floodplain



0

Critical facilities in floodplain

12

Persons that may seek shelter

\$112,839

Potential building damages

NFIP Statistics



0 # NFIP Policies

17 # WYO Policies

0 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Education and Awareness Programs

High Ranked Hazards



- Severe Storm
- Severe Winter Storm



9.4 Town of Guttenberg

This section presents the jurisdictional annex for the Town of Guttenberg. The annex includes a general overview of the Town of Guttenberg; an assessment of the Town of Guttenberg’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.4.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Town of Guttenberg’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.4-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Richard Delafuente, OEM Coordinator Address: 6808 Park Avenue, Guttenberg NJ 07093 Phone Number: 516-286-2245 Email: rdelafuente@myguttenberg.com	Name / Title: Justin Mack, Deputy OEM Coordinator Address: 6808 Park Avenue, Guttenberg NJ 07093 Phone Number: 917-750-5194 Email: mrjustinmack@gmail.com
NFIP Floodplain Administrator	
Name / Title: Jorge Gonzalez, Construction Code Official Address: 6808 Park Avenue, Guttenberg NJ 07093 Phone Number: 201-868-2315 x 149	

9.4.2 JURISDICTION PROFILE

The Town of Guttenberg is located in northern Hudson County and is approximately 0.2 square miles. It is four blocks north and south and 12 blocks east and west. The most eastern portion of the Town is located on the banks of the Hudson River. The Town is one mile west of New York City across the Hudson River. Founded in 1859, the town was originally known for its many brewers and is named after the inventor of the printing press. Post WW II, the town was the site of many embroidery factories, which contributed to making Hudson County the Embroidery Capital of the World. Today the town is predominantly residential.

As of the 2010 U.S. Census, the Town of Guttenberg was considered to be the most densely populated municipality in the U.S. with 11,176 people living in 0.196, making the population density 57,020.41 persons per square mile. The estimated 2017 population was 11,733, which is a 5.0 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 6.1 percent of the Town population is five years of age or younger, and 13.0 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

The governing body of the town consists of the mayor, and five council members. This governing body will be responsible for the adoption and implementation of this plan.





9.4.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.4-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figures 9.4-1 and 9.4-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.4-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	0
Multi-Family	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	1	0	0	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Anne Klein School – Annex Building	School	1	Hudson Avenue between 68th and 69th Streets	None	Complete
Guttenberg Community Center- Annex Building	Municipal	1	Hudson Avenue between 68th and 69th Streets	None	Complete
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
CSO Separation	Separation of CSO system	N/A	Town-wide	Flood	Planned

* Only location-specific hazard zones or vulnerabilities identified.

9.4.4 CAPABILITY ASSESSMENT

The Town of Guttenberg performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.4.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of Guttenberg.





Table 9.4-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 11-1.1 of the municipal code, administered by Code Enforcement</i>					
Zoning Code	Yes	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 28-1.1 of the municipal code. Administered by Code Enforcement.</i>					
Subdivisions	Yes	Local	Yes	No	-
<i>Comment: Chapter 27-1 of the municipal code. Administered by the Planning Board.</i>					
Stormwater Management	Yes	Local	Yes	No	-
<i>Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter 17-1.1 of the municipal code. Administered by Public Works.</i>					
Post-Disaster Recovery	Yes	Local	-	No	-
<i>Comment: Chapter 25-1.3 of the municipal code, administered by Public Safety.</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	Yes	Local	Yes	No	-
<i>Comment: State mandated at local level; Chapter 11-1.1 of the municipal code, administered by the Planning Board.</i>					
Shoreline Development	No	-	Yes	-	-
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes/No	Local	-	No	-
<i>Comment: Chapter 27-1 of the municipal code, administered by the Planning Board.</i>					
Environmental Protection	Yes	Local	Yes	-	-
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 22 Waterfront Regulations of the municipal code establishes methods for waterfront cleanup and prevention of floating drift or debris. Administered by Public Works.</i>					
Flood Damage Prevention	Yes	Local	Yes	Yes	2020-Guttenberg-007
<i>Comment: Chapter 21-2 of the municipal code. Administered by the Construction Code Official. The ordinance lacks the state required 1 foot freeboard requirement.</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					
Emergency Management	No	-	-	-	-
<i>Comment:</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	Yes	Local	-	No	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment: Chapter 25-1.3 of the municipal code, administered by Public Safety.</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	No	-
<i>Comment: Chapter 2-54 of the municipal code, Reexamination Report and Land Use Plan Element Amendment, June 15, 2009. Administered by the Planning Board.</i>					
Capital Improvement Plan	Yes	Local	Allowed	No	-
<i>Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. Chapter 27-4 of the municipal code, administered by the Planning Board.</i>					
Disaster Debris Management Plan	No	-	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	No	-	-
<i>Comment:</i>					
Stormwater Management Plan	No	Local and State	Yes	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).</i>					
Stormwater Pollution Prevention Plan	No	-	Yes	-	-
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	Yes	Local	No	No	-
<i>Comment: Chapter 2-42.3 of the municipal code, administered by the Planning Board.</i>					
Economic Development Plan	Yes	Local	No	No	-
<i>Comment: Chapter 2-42.3 of the municipal code, administered by the Planning Board.</i>					
Shoreline Management Plan	No	-	-	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	-	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	-	-	-
<i>Comment:</i>					
Transportation Plan	No	-	-	-	-
<i>Comment:</i>					
Agriculture Plan	No	-	-	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Climate Action Plan	No	-	-	-	-
<i>Comment:</i>					
Tourism Plan	No	-	-	-	-
<i>Comment:</i>					
Business Development Plan	No	-	-	-	-
<i>Comment:</i>					
County Master Plan Reexamination	Yes	County	Yes	Yes	-
<i>Comment: The County Master Plan Re-Examination Report of 2017 reviewed municipal plans throughout the County and referenced the Hudson HMP.</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	-
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. Chapter 21-3.2 of the municipal code, administered by Public Safety.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	Yes	Local	No	No	-
<i>Comment: Chapter 25-1.3 of the municipal code, administered by Public Safety.</i>					
Continuity of Operations Plan	No	-	-	-	-
<i>Comment:</i>					
Public Health Plan	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-

Table 9.4-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No





9.4.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of Guttenberg.

Table 9.4-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	
Environmental Board / Commission	No	
Open Space Board / Committee	No	
Economic Development Commission / Committee	No	
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse 911
Maintenance program to reduce risk	Yes	
Mutual aid agreements	Yes	
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Outside Contractor, Boswell Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Outside Contractor, Boswell Engineering
Planners or engineers with an understanding of natural hazards	Yes	Outside Contractor, Boswell Engineering
Staff with training in benefit/cost analysis	Yes	Outside Contractor, Bruno Associates
Surveyors	Yes	Zoning Official
Personnel skilled or trained in GIS applications	Yes	Outside Contractor, Boswell Engineering
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	
Grant writers	Yes	Public Safety Director
Resilience Officer	No	
Other	No	

9.4.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Town of Guttenberg.

Table 9.4-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No





Financial Resource	Accessible or Eligible to Use?
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

9.4.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of Guttenberg.

Table 9.4-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes; Fire prevention education
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes; CERT Team
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes; CERT Team
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes; Reverse 911

9.4.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of Guttenberg.

Table 9.4-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	No	-	-

9.4.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the jurisdiction’s adaptive capacity for the hazards of concern and climate change.





Table 9.4-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Weather	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use;

Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.4.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.4-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction
Who is your floodplain administrator? (name, department/position)	Jorge Gonzalez, Construction Code Official
Are any certified floodplain managers on staff in your jurisdiction?	Outside Contractor, Remington & Vernick Engineers
What is the date that your flood damage prevention ordinance was last amended?	2006
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes General training
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction? * • What is the insurance in force? • What is the premium in force?	Flood insurance policies: 147





Criterion	Response
How many total loss claims have been filed in your jurisdiction?*	Total loss claims: 4
<ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	Claims open or closed without payment: Total payments for losses: \$50,935.53
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation?	No

*According to FEMA statistics as of 9/30/2018

9.4.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.4.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Town of Guttenberg made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- **Joint Planning/Zoning Board:** The Planning Board has nine members and four alternate members. The Planning Board’s primary function is to generate and update a community Master Plan. Other functions involve subdivision and site plan review, creation of the officiation maps, and associated zoning ordinances.
- **Fire Prevention Department:** The Guttenberg Fire Prevention Department provides enforcement of state and local fire codes. Primary functions include:
 - Fire Awareness Education
 - Smoke Detector/CO Detector Inspections
 - Fire Extinguisher Information and Inspections
 - Annual Life Hazard and Non-Life Hazard Inspections
- **Department of Public Works:** The DPW is responsible for maintenance and improvements of the Town and the Town's parks. Other primary functions include:
 - Street cleaning
 - Snow removal & salting of roadways
 - Maintenance of all municipal properties
 - Street sign repair, removal or replacement

9.4.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the Town of Guttenberg will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:





- The Town can update the Flood Damage Prevention Ordinance to include freeboard.

9.4.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Town of Guttenberg’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.4-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.4-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (DR-4264)	Yes	Low pressure moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in and out of airports lagged through Monday January 25th as airlines pre-emptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	Overtime costs for snow removal.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 9, 2019	Water main break	N/A	A water main broke on John F. Kennedy Boulevard and 71 st Street.	The water main break disrupted residents in not only Guttenberg, but West New York and North Bergen as well. Ferry Road was undermined by water that ran downhill for roughly 5 hours. The lower floors of one of the Galaxy Towers was flooded.

9.4.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the Town of Guttenberg. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.4-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	0	CEHA:	4	CEHA:	\$16,745,907	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	0	Category 1:	12	100-year Wind Loss:	\$1,835,342	High
		Category 2:	0	Category 2:	12			
	Category 1 through Category 4 SLOSH	Category 3:	553	Category 3:	13	500-year Wind Loss:	\$14,119,218	
		Category 4:	553	Category 4:	13			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	0	NEHRP D&E:	12	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	12	500-year Loss:	\$1,494,173	
						2,500-year Loss:	\$23,193,507	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,528	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	1,971					
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	6	100-year Loss:	\$112,839	High
		500-year	0	500-year	12			
Geological	High Landslide Susceptibility Areas	Class A:	1659	Class A:	4	Class A:	47379965.48	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





9.4.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Town of Guttenberg.

- Number of repetitive loss (RL) properties: 0
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: None

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.4.7.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.4-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
None identified				

9.4.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Many of the mains in the Town can be at least 100 years old. The age and new construction with road work often prove to be too much for the pipes that end up bursting. Natural hazard events increase the risk for road work.
- Ferry Road is an urban flooding location.
- Some generators may not have appropriate fuel supply to provide continual service during extended power outages from large severe storms or winter storms.
- The Senior Care Center has an outdated air conditioning system.

9.4.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of Guttenberg that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Guttenberg has significant exposure. Figure 9.4-1 and 9.4-2 illustrate the hazard area extents and locations in the Town of Guttenberg.

9.4.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.





As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Guttenberg. The Town of Guttenberg has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town agreed with the calculated hazard rankings.

Table 9.4-14 Town of Guttenberg Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Medium	Low	Medium	Medium

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Medium	High	High	Medium	N/A

9.4.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.4.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.4-15. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
TOG-1:	Develop a database of information on residents most likely to be impacted in a disaster.	Guttenberg OEM	Completed		
TOG-2:	Construct the Guttenberg Community Center and shelter	Town of Guttenberg	Completed		
TOG-3:	Purchase generator for Anna L. Klein School and shelter	Town of Guttenberg	Completed		
TOG-4:	Separate sewers throughout the town which would alleviate flooding along Boulevard East	Town Engineer	In progress	X	2020-Guttenberg-003
TOG-5:	Installation of back-up power at Town Hall/EOC/PD and DPW	Town Engineer	Completed		





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
TOG-6:	Purchase emergency operations mobile command unit or trailer	Police Department	Completed		
TOG-7:	Upgrade capacity of police desk with modern technology to more efficiently handle emergency situations	Police Department	Completed		
TOG-8:	The Hazard Mitigation Plan will be used as a resource for the development of future Fire Plans through the Fire Prevention Office.	OEM	Completed		

The Town of Guttenberg did not identify any additional mitigation projects/activities completed but that were not identified in the 2015 HMP mitigation strategy.

9.4.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of Guttenberg participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Town of Guttenberg participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.4-16 summarizes the comprehensive-range of specific mitigation initiatives the Town of Guttenberg would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.4-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.4-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Guttenberg-001	TRANSCO Pipeline protection	The TRANSCO gas pipeline is a 36" pipeline that runs from Texas to New York City. The pipeline passes through Guttenberg. The pipeline is exposed in certain areas in the Town. Natural hazards and non-natural hazards could damage the pipeline and cause a major leak.	The Town will work with TRANSCO to conduct a feasibility assessment to determine the best methods to secure the TRANSCO Pipeline where it is exposed in the Town. The Town will partner with TRANSCO to implement any identified mitigation actions.	Existing	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Storm, Winter Storm, Wildfire	1, 2, 3, 4	TRANSCO, Town of Guttenberg Administration	TRANSCO, Homeland Security	Pipeline protected from leaks	TBD by identified mitigation actions	TBD by identified actions.	High	SIP	PP
2020-Guttenberg-002	Ferry Road Drainage	Ferry Road experiences stormwater flooding. Ferry Road is the only drainage point of Guttenberg to River Road. In the past, flooding has flooded the	The Town will conduct a feasibility assessment to determine how to best rectify the flooding issues on Ferry Road	Existing	Flood, Severe Storm	1, 2	Public Works	Municipal budget	Flooding reduced, properties along Ferry Road protected from	\$100,000	Within 1 year for assessment.	High	SIP	SP





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Galaxy Garage and caused damage to curbing and adjacent properties.	and allow sewers to handle the high volume of water. The Town will adjust the curbing to ensure the curbs are not damaged by the speed of water flowing downhill.						floodin g damage s.					
2020-Guttenberg-003	CSO Separation	The Town has a CSO system which can be overwhelmed by heavy rainfall	The Town will support the MUA efforts to separate the CSO system	Existing	Flood	1, 2	MUA, Engineer	FEMA HMGP and PDM, EPA	Reducti on in floodin g, pollutio n	TBD	5 years	High	SIP	NR, PP
2020-Guttenberg-004	Explore converting GTCA Movie Theater into shelter	The GTCA Movie Theater is a large abandoned space (roughly 25,000 to 30,000 square feet). The space is mainly located underground. With the Town's proximity to NYC and being a densely populated	The Office of Emergency Management will explore the possibility of converting the GTCA Movie Theater into a large shelter. If feasible, the OEM will conduct an assessment	Existing	All hazards	1, 6	OEM	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program	Ensures continu ity of operati ons; provide s a shelter for residen ts	TBD by asses men t of spac e	5 years	High	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		municipality, there is a need for large sheltering space.	of the space and the costs for conversion. If appropriate, the OEM will begin the process of converting the space to a shelter including purchasing and installing a generator and other necessary supplies.											
2020-Guttenberg-005	Outreach regarding severe storms and winter storms	Some generators for large residential structures may not have appropriate fuel supply for long term outages caused by severe storms and winter storms.	The Town will conduct outreach to facilities with generators to encourage larger backup fuel supplies for generators.	Existing	Severe Storm, Winter Storm	1, 5, 6	OEM	Municipal budget	Facility managers aware of need for backup fuel supply	\$250	Within 6 months	High	EAP	PI
2020-Guttenberg-006	Replace air conditioning units at Guttenberg Care Center	The Guttenberg Care Center houses a large number of seniors. The air conditioning	Work with the Guttenberg Care Center to find grant funding	Existing	Extreme Temperature	1	Guttenberg Care Center, Administration	Staff time	Care Center air conditioning suppos	\$200	Within 6 months	High	EAP	ES, PI





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		units are outdated.	support to replace outdated air conditioning units.						e grants identified.					
2020-Guttenberg-007	Update water infrastructure during sewer work	The town's water mains are nearly 100 years old and prone to breaking.	The town will evaluate water mains during sewer work and make necessary upgrades and improvements as necessary.	Existing	Extreme Temperature	1, 2	Public Works	Municipal budget	Reduces water main break risk from extreme temperature.	\$100K or more depending on level of need.	Within 5 years	High	SIP	PP
2020-Guttenberg-008	Update Flood Damage Prevention Ordinance	The town's Flood Damage Prevention Ordinance does not include the state's freeboard requirement.	Update the Flood Damage Prevention Ordinance to include the state mandated 1-foot freeboard requirement.	New	Flood	1, 2	Administration, FPA	Staff time	Reduces future flood risk	Staff time	Within 6 months	High	LPR	PR

Notes:

Acronyms and Abbreviations:

CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency
 FPA Floodplain Administrator

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:





HMA Hazard Mitigation Assistance
 N/A Not applicable
 NFIP National Flood Insurance Program
 OEM Office of Emergency Management

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *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 manmade 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*

CRS Category:

- *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 9.4-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Guttenberg-001	TRANSCO Pipeline protection	1	1	0	0	1	0	0	1	1	1	1	0	1	1	9	High
2020-Guttenberg-002	Ferry Road Drainage	1	1	0	0	1	1	0	1	1	1	1	1	1	1	11	High
2020-Guttenberg-003	CSO Separation	0	1	0	0	1	0	0	1	1	1	0	0	1	1	7	Medium
2020-Guttenberg-004	Explore converting GTCA Movie Theater into shelter	1	0	0	1	1	0	0	1	1	1	1	1	1	1	10	High
2020-Guttenberg-005	Outreach regarding severe storms and winter storms	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2020-Guttenberg-006	Replace air conditioning units at Guttenberg Care Center	1	0	1	1	1	0	1	1	1	1	0	1	1	1	11	High
2020-Guttenberg-007	Update water infrastructure during sewer work	0	1	1	1	1	1	1	1	1	1	0	0	1	1	11	High
2020-Guttenberg-008	Update Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.4-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise					2020-Guttenberg-004			
Coastal Storm					2020-Guttenberg-004			
Dam and Levee Failure					2020-Guttenberg-004			
Drought					2020-Guttenberg-004			
Earthquake		2020-Guttenberg-001	2020-Guttenberg-006		2020-Guttenberg-004, 2020-Guttenberg-006			
Extreme Temperature		2020-Guttenberg-001, 2020-Guttenberg-007, 2020-Guttenberg-007			2020-Guttenberg-004			
Flood	2020-Guttenberg-007	2020-Guttenberg-001		2020-Guttenberg-003	2020-Guttenberg-004	2020-Guttenberg-002, 2020-Guttenberg-003		
Geologic					2020-Guttenberg-004			
Severe Weather		2020-Guttenberg-001	2020-Guttenberg-005		2020-Guttenberg-004	2020-Guttenberg-002		
Severe Winter Storm		2020-Guttenberg-001	2020-Guttenberg-005		2020-Guttenberg-004			
Wildfire		2020-Guttenberg-001			2020-Guttenberg-004			

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking





9.4.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Town of Guttenberg followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.4-18. Contributors to the Annex

Entity	Title	Method of Participation
Richard Delafuente	OEM Coordinator	Primary POC, reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy.
Justin Mack	Deputy OEM Coordinator	Secondary POC, reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy.
Remington & Vernick Engineers	Paul Cray, Town Engineer	Reviewed annex.
Remington & Vernick Engineers	Massiel M. Ferrara, Planning Manager	Attended plan participant Meetings, reviewed annex.





Figure 9.4-1. Town of Guttenberg Hazard Area Extent and Location Map

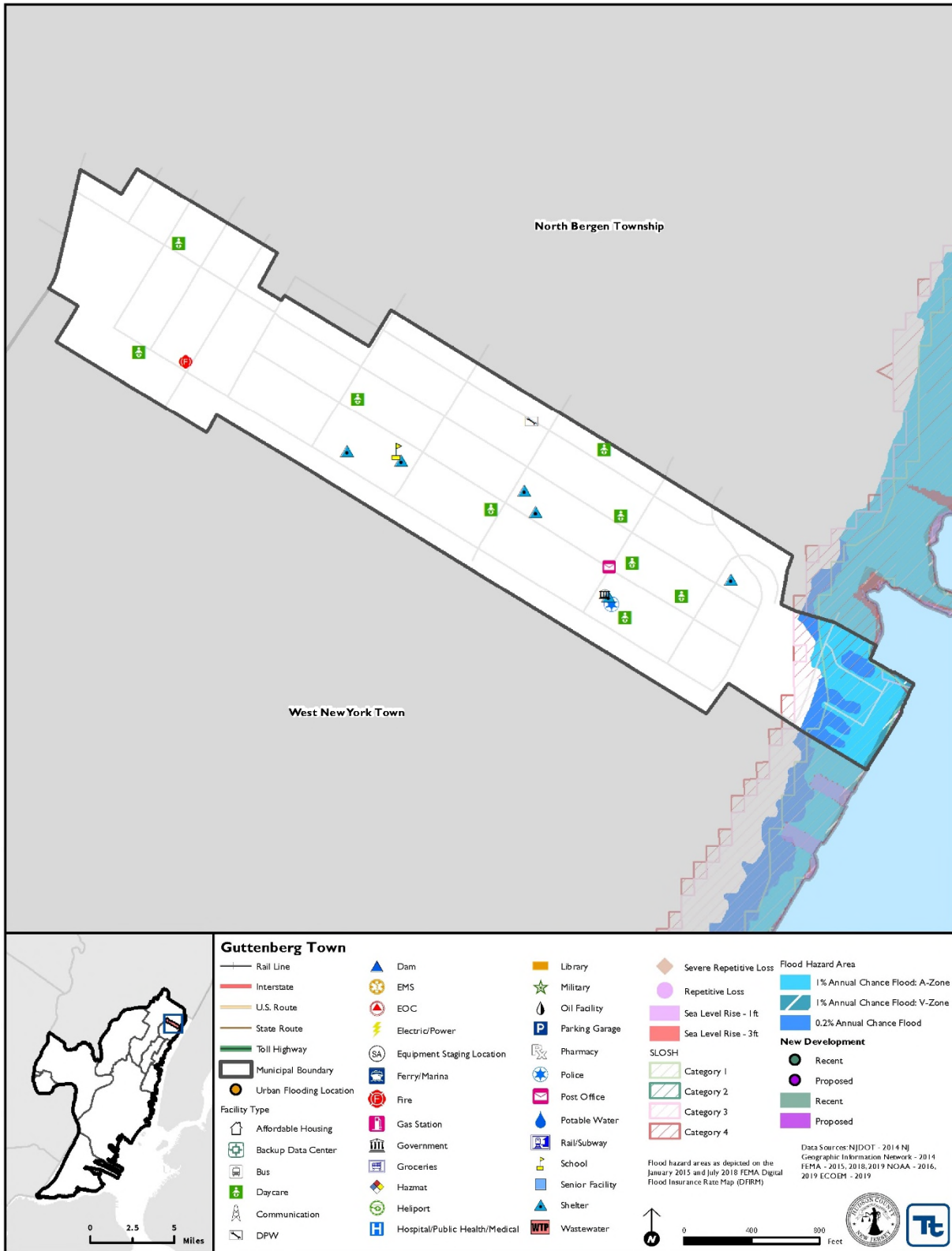
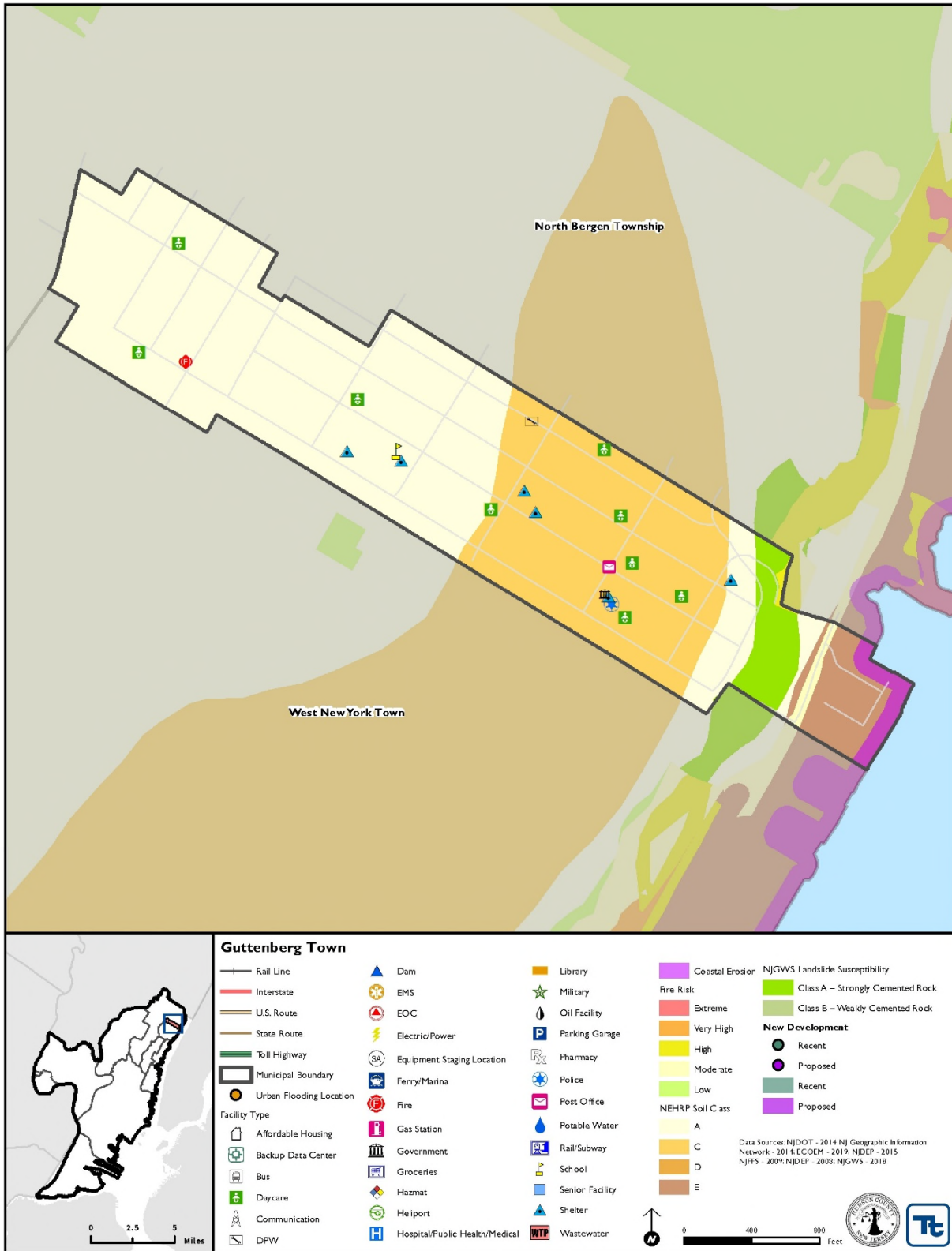




Figure 9.4-2. Town of Guttenberg Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	TRANSCO Pipeline protection		
Project Number:	2020-Guttenberg-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Earthquake, Extreme Temperature, Flood, Geological Hazards, Severe Storm, Winter Storm, Wildfire		
Description of the Problem:	The TRANSCO gas pipeline is a 36" pipeline that runs from Texas to New York City. The pipeline passes through Guttenberg. The pipeline is exposed in certain areas in the Town. Natural hazards and non-natural hazards could damage the pipeline and cause a major leak.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will work with TRANSCO to conduct a feasibility assessment to determine the best methods to secure the TRANSCO Pipeline where it is exposed in the Town. The Town will partner with TRANSCO to implement any identified mitigation actions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by identified mitigation actions	Estimated Benefits (losses avoided):	Pipeline protected from leaks
Useful Life:	TBD by identified mitigation actions	Goals Met:	1, 2, 3, 4
Estimated Cost:	TBD by identified mitigation actions	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Feasibility assessment to take 2 years. Actions TBD by identified mitigation actions
Estimated Time Required for Project Implementation:	Feasibility assessment to be implemented within 5 years. Actions TBD by identified mitigation actions	Potential Funding Sources:	TRANSCO, Homeland Security
Responsible Organization:	TRANSCO with Town of Guttenberg supporting	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Buyout properties surrounding pipeline	\$ Millions	Legal issues, large cost due to location of the pipeline through Town
	Bury the pipeline	\$ Millions	Would have to knock down existing buildings and destroy existing infrastructure to complete.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	TRANSCO Pipeline protection	
Project Number:	2020-Guttenberg-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Lives protected from pipeline leaks.
Property Protection	1	Pipeline protected from damage from hazards. Property protected from pipeline leaks.
Cost-Effectiveness	0	
Technical	0	
Political	1	
Legal	0	Project can only be conducted with partnership of TRANSCO.
Fiscal	0	Project requires funding support
Environmental	1	Protects from gas leaks
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	Administration
Other Community Objectives	1	Homeland security
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Ferry Road Drainage		
Project Number:	2020-Guttenberg-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Ferry Road experiences stormwater flooding. Ferry Road is the only drainage point of Guttenberg to River Road. In the past, flooding has flooded the Galaxy Garage and caused damage to curbing and adjacent properties.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will conduct a feasibility assessment to determine how to best rectify the flooding issues on Ferry Road and allow sewers to handle the high volume of water. The Town will adjust the curbing to ensure the curbs are not damaged by the speed of water flowing downhill.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by identified mitigation actions	Estimated Benefits (losses avoided):	Flooding reduced, properties along Ferry Road protected from flooding damages.
Useful Life:	TBD by identified mitigation actions	Goals Met:	1, 2
Estimated Cost:	\$100,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Feasibility assessment to take 6 months. Actions TBD by identified mitigation actions. Curbing to take 1 month.
Estimated Time Required for Project Implementation:	Feasibility assessment to be implemented within 1 year. Actions TBD by identified mitigation actions	Potential Funding Sources:	Municipal budget
Responsible Organization:	Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Create buffer rain gardens along roadway	N/A	Private property, angle of hillside prevents rain gardens from being effective
	Address curbing only	\$25,000	Does not address flooding.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Ferry Road Drainage	
Project Number:	2020-Guttenberg-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Lives protected from hazardous flooding
Property Protection	1	Property protected from flooding damages.
Cost-Effectiveness	0	
Technical	0	
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	Within 1 year for feasibility assessment. Additional actions likely to be completed within 2 years.
Agency Champion	1	Public Works
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Explore converting GTCA Movie Theater into shelter		
Project Number:	2020-Guttenberg-004		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The GTCA Movie Theater is a large abandoned space (roughly 25,000 to 30,000 square feet). The space is mainly located underground. With the Town's proximity to NYC and being a densely populated municipality, there is a need for large sheltering space.		
Action or Project Intended for Implementation			
Description of the Solution:	The Office of Emergency Management will explore the possibility of converting the GTCA Movie Theater into a large shelter. If feasible, the OEM will conduct an assessment of the space and the costs for conversion. If appropriate, the OEM will begin the process of converting the space to a shelter including purchasing and installing a generator and other necessary supplies.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	30 years	Goals Met:	1, 6
Estimated Cost:	TBD by assessment of space	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	2 years
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program
Responsible Organization:	OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Expand sheltering in other locations	N/A	No equivalently sized spaces exist
	Establish mutual aid agreements with neighboring towns	N/A	Neighboring towns do not have additional sheltering capacity
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Explore converting GTCA Movie Theater into shelter	
Project Number:	2020-Guttenberg-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will provide large scale sheltering.
Property Protection	0	
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	0	The Town can only complete the project if the space is purchased
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	2 years
Agency Champion	1	OEM
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	

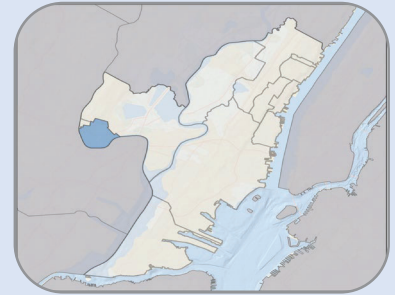




TOWN OF HARRISON

MUNICIPALITY AT A GLANCE

Total Population: 15,898
 Total Land Area: 1.33 sq. mi
 Total Number of Buildings: 2,537



Hurricane Storm Surge



Population



Buildings

Category 1*	734	137
Category 2*	1,676	312

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$1,787,209

Potential Building Damages

1% Annual Chance Flood



1,095

Population residing in floodplain



187

Buildings in floodplain



8

Critical facilities in floodplain

55	\$91,581,730
Persons that may seek shelter	Potential building damages

NFIP Statistics



7 # NFIP Policies

233 # WYO Policies

3 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

Coastal Storm, Flood, Severe Weather

Project Types

Structure and Infrastructure Projects, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm



9.5 Town of Harrison

This section presents the jurisdictional annex for the Town of Harrison. The annex includes a general overview of the Town of Harrison; an assessment of the Town of Harrison’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.5.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Town of Harrison’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.5-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Harold Stahl, Harrison Fire Director/OEM Coordinator Address: 634 Sussex Street, Harrison NJ 07029 Phone Number: (973) 483-3039 Email: hstahl@townofharrison.com	Name / Title: Rocco Russomanno, Construction Official/Town Engineer Address: 318 Harrison Avenue, Harrison, NJ 07029 Phone Number: (973) 268-2446 Email: rrussomanno@townofharrison.com
NFIP Floodplain Administrator	
Name / Title: Rocco Russomanno, Construction Official/Town Engineer Address: 318 Harrison Avenue, Harrison, NJ 07029 Phone Number: (973) 268-2446 Email: rrussomanno@townofharrison.com	

9.5.2 JURISDICTION PROFILE

The Town of Harrison was established in 1840 and is named for President William Henry Harrison. The Town of Harrison is located along the Passaic River in western Hudson County. It is bordered by the Borough of East Newark and the Town of Kearny to the North, and the Passaic River forms the western and southern border. The governing body of the Town consists of a mayor and town council. This governing body will be responsible for the adoption and implementation of this plan.

9.5.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.5-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.5-1 and 9.5-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.





Table 9.5-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	0
Multi-Family	16	12	22	9	23
Other (commercial, mixed-use, etc.)	3	4	3	5	1
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Block E Redevelopment	Residential	286 Units	1200 Rodgers Boulevard South & 450 Cape May Street	SLOSH Category 4, NEHRP Class D&E	Completed 2018
Harrison Commons Buildings 5 & 6	Residential/Retail	410/270	777 & 799 South 3 rd Street	SLOSH Category 4, NEHRP Class D&E	Buildings 5 & 6 Completed in 2018
Parcel F		280 Units	1200 So. 5th St.	SLOSH Category 4, NEHRP Class D&E	Complete 2019
1 Harrison Ave	Multi-family residential	256 Units	1 Harrison Avenue	0.2% Annual Chance Flood, Coastal Erosion, NEHRP Class D&E, Sea Level Rise - 1ft, Sea Level Rise - 3ft	Complete 2019
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Harrison Commons – Building 4	Residential/Retail	381 Units	200-240 Angelo Cifeli Drive	NEHRP Class D&E	Under Construction
Parcel D	Mixed Use		Riverbend Drive & 5th Street	SLOSH Category 4, NEHRP Class D&E	No Progress, Planning Bid Approval
The Hub at Harrison Station	Retail and Multifamily Residential	92 & 117 Units	600 Frank E. Rodgers Boulevard South	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under Construction
Harrison Hotel Project	Hotel with associated amenities & restaurant/retail		1000 Rodgers Boulevard South	0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	No Progress - Planning Bid Approval
First & Bergen	Residential	242 & 310 Units	1 Bergen & 555 1st St.	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 3ft	Under Construction

* Only location-specific hazard zones or vulnerabilities identified.





9.5.4 CAPABILITY ASSESSMENT

The Town of Harrison performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.5.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of Harrison.

Table 9.5-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Town of Harrison State Uniform Construction Code Enforcement, Title 15 Chapter 04, as amended during 1997 codification. Administered by the Construction and Engineering Department.</i>					
Zoning Code	Yes	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Town of Harrison Zoning Code, Title 17, Article IV, as amended by Ordinance No. 1192, effective 2008.</i>					
Subdivisions	Yes	Local	Yes	Yes	-
<i>Comment: Town of Harrison Subdivision Requirements, Title 17, Article III, Chapter 69.1, as amended by Ordinance No. 987, effective 1998. The Subdivision Ordinance requires a site description and map of of wetland areas, wetland buffers, and floodplains located on site to be provided for Site Plan Review for Subdivisions. Negative impacts from potential development must also be discussed to include flooding and floodplain disruption, and soil erosion and sedimentation.</i>					
Stormwater Management	Yes	Local	Yes	Yes	-
<i>Comment: Town of Harrison Stormwater Management Code, Title 17, Article VIII, as amended by Ordinance 1168, effective 2007. The Town has identified minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.</i>					
Post-Disaster Recovery	No	-	No	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Real Estate Disclosure	Yes	State	Yes	No	-
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	No	-	No	-	-
Comment:					
Shoreline Development	No	-	Yes	-	-
Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.					
Site Plan Review	Yes	Local	No	Yes	-
Comment: Town of Harrison Subdivision Requirements, Title 17, Article III, Chapter 69.1, as amended by Ordinance No. 987, effective 1998. The Subdivision Ordinance requires a site description and map of wetland areas, wetland buffers, and floodplains located on site to be provided for Site Plan Review for Subdivisions. Negative impacts from potential development must also be discussed to include flooding and floodplain disruption, and soil erosion and sedimentation.					
Environmental Protection	No	-	Yes	No	Yes/No
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code.					
Flood Damage Prevention	Yes	Yes	Yes	Yes/No	
Comment: Town of Harrison Flood Damage Prevention Ordinance, Title 15 Chapter 24, as amended by Ordinance No. 1275, effective 05-07-2013. The Flood Damage Prevention Ordinance requires a development permit to be obtained before construction or development begins including placement of manufactured homes, within the Special Flood Hazard Area. The Town Engineer administers					
Emergency Management	No	-	No	No	-
Comment:					
Climate Change	No	-	No	No	-
Comment:					
Disaster Recovery Ordinance	No	-	No	No	-
Comment:					
Disaster Reconstruction Ordinance	No	-	No	No	-
Comment:					
Other Long-Term Control Plan (CSO Planning) In Progress. Alternatives Analysis being submitted to NJDEP.	Yes	Yes	Yes	No	Yes/No
Comment: Passaic Valley Sewerage Commission Regional Planning, 9 CSO Communities. This plan will be a way of mitigating the amount of flow that enters into the sewer system by using new and sustainable technologies. Examples of such technology includes a storage system within the pipes to control the overflow, additional holding tanks, and treatment plant expansions. Additional green infrastructure techniques will be considered, such as pervious paving, bioretention basis, and vegetated swales. Harrison's Long-Term Control Plan will be completed by June 2020 (Information from Master Plan Reexamination, P. 15). Due to COVID – 19 submission of the LTCP extended to October 2020.					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment: Town of Harrison Master Plan. 2007. Accessed 2019. Prepared by Heyer, Gruel, and Associates. The Reexamination Report discusses changes and updates of community planning objectives from the 2007 Master Plan to now. Discussion of 2008 and 2015 Hudson County Hazard Mitigation Plan Initiatives are included in the plan to track and monitor mitigation initiatives.</i>					
Capital Improvement Plan	Yes	Yes	Allowed	No	-
<i>Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six-year planning horizon. Capital Improvement Planning is included as a line item to the Town's annual budget.</i>					
Disaster Debris Management Plan	No	-	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	No	-	-
<i>Comment:</i>					
Stormwater Plan	Yes	Yes	Yes	No	-
<i>Comment: Stormwater Management Plan related to NJDEP Stormwater Permit. Administered by Town Engineer.</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	No	-	-
<i>Comment:</i>					
Economic Development Plan	No	-	No	-	-
<i>Comment:</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					
Transportation Plan	Yes	Local	No	No	-
<i>Comment: Emergency Evacuation Plan and Circulation Element to Master Plan</i>					
Agriculture Plan	No	-	No	-	-
<i>Comment:</i>					
Climate Action Plan	No	-	No	-	-
<i>Comment:</i>					
Tourism Plan	No	-	No	-	-
<i>Comment: Municipal planning and procedures are in place which are related to NY Red Bulls Events.</i>					
Business Development Plan	No	-	No	-	-
<i>Comment:</i>					
Other: Harrison Waterfront Redevelopment Plan	Yes	Yes	No	Yes	yes





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<p>Comment: Amended Harrison Waterfront Redevelopment Plan 2012. Adopted April 3, 2012. Accessed 2019. Prepared by Heyer, Gruel and Associates. The Waterfront Redevelopment Plan discussed supporting the U.S. Army Corps of Engineer's Passaic River Flood Control Project for the Waterfront Area. The flood control project in Harrison, known as the South 1st Street levee/flood system, is a combination of floodwalls and levees. The system will provide protection to development from tidal floods from the Jackson Street Bridge to the NJ Transit rail bridge just south of the Route 280 bridge. The entire Redevelopment Area will be protected from the 100 Year Flood. The authorized plan proposes a total of 7,450 linear feet of levee and floodwall with eight enclosures. According to the U.S. Army Corps of Engineers, the levees will total 1,750 feet in length with an average height of 6.5 feet and an average base-width of 50 feet. The floodwall portion will be 5,700 feet in length and will have an average height of 6.2 feet. A continuous line of protection would be provided through gated structures at several sites adjacent to the Passaic River and Frank E. Rodgers Boulevard (see the Environmental Constraints-Flooding map.) The project design memorandum has been completed, and the project team is working on engineering and design of the project. A Limited Reevaluation Report is being prepared to reaffirm the viability of the project. The NJDEP has provided a letter of support. Current funding is being utilized to update hydrology and hydraulics.</p>					
Other: RCA Development Plan	Yes	Yes	No	Yes	No
<p>Comment: RCA Redevelopment Plan. May 2014. Accessed 2019. Prepared by Heyer, Gruel and Associates. Specific discussion of open space preservation and flood mitigation within the plan.</p>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Local	Yes/No	Yes/No	Yes/No
Comment: Town of Harrison Emergency Operations Plan. Dated 11/3/13					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
Comment:					
Post-Disaster Recovery Plan	Yes	Local	No	No	-
Comment: Recovery Plan Dated 11/3/13, integrated as part of the Harrison Emergency Operations Plan.					
Continuity of Operations Plan	No	-	No	-	-
Comment:					
Public Health Plan	No	-	No	-	-
Comment:					
Other	No	-	No	-	-
Comment:					

Table 9.5-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	Construction & Engineering
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No, almost 1/3 of Harrison is going through Redevelopment at this time.





9.5.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of Harrison.

Table 9.5-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Town of Harrison Planning Board / Zoning Board of Adjustment
Mitigation Planning Committee	No	-
Environmental Board / Commission	No	-
Open Space Board / Committee	No	-
Economic Development Commission / Committee	Yes	Harrison Redevelopment Agency
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Code Red
Maintenance program to reduce risk	Yes	Public Works & Engineering
Mutual aid agreements	Yes	Fire, Police, OEM
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering and Code Enforcement Planning Board Heyer, Gruel and Associates
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering and Code Enforcement
Planners or engineers with an understanding of natural hazards	Yes	Engineering and Code Enforcement Town Planner
Staff with training in benefit/cost analysis	Yes	Town Engineer CFO
Surveyors	Yes	Town Engineer - Borrie McDonald & Watson
Personnel skilled or trained in GIS applications	Yes	Town Planner - Heyer & Gruel Associates GIS Support from County OEM
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Office of Emergency Management / Fire Department
Grant writers	Yes	Office of the Mayor Town Planning Town of Engineer CFO
Resilience Officer	No	-
Other	No	-

9.5.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Town of Harrison.

Table 9.5-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes – Office of the Mayor
Capital Improvements Project Funding	Yes – Chief Financial Officer
Authority to Levy Taxes for Specific Purposes	Yes – Mayor and Council
User Fees for Water, Sewer, Gas or Electric Service	Yes – Water and Sewer Utility





Financial Resource	Accessible or Eligible to Use?
Incur Debt through General Obligation Bonds	Yes – Chief Financial Officer
Incur Debt through Special Tax Bonds	Yes – Mayor and Council
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes – Mayor and Council
State-Sponsored Grant Programs	No
Development Impact Fees for Homebuyers or Developers	Yes – Mayor and Council; OEM/Fire Department
Other	No

9.5.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of Harrison.

Table 9.5-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – Fire Department / OEM
Do you have personnel skilled or trained in website development?	Yes – Director of IT
Do you have hazard mitigation information available on your website? If yes, briefly describe.	Yes – Hazardous materials collection, disposal, waste, paint, etc.
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	Yes – Safety related, road closures.
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	Yes – Community Outreach for Combine Sewer Overflows, Tide Group (Focuses on Green Infrastructure/CSO)
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	Yes – Code Red, Community Website, Sound Track
Do you have any established warning systems for hazard events? If yes, briefly describe.	Facebook and Twitter

9.5.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of Harrison.

Table 9.5-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	3	03-16-2016
Public Protection (Fire ISO Protection Class)	Yes	04	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

9.5.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to





current and future risks and changing conditions. The table below summarizes the jurisdiction’s adaptive capacity to the hazards of concern and climate change.

Table 9.5-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Storm	Medium
Winter Storm	Medium
Wildfire	Medium
Dam Levee Failure	Medium

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.5.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.5-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction & Engineering
Who is your floodplain administrator? (name, department/position)	Rocco Russomanno, Town Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	05-07-13
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state what they are.	None
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No
<input checked="" type="checkbox"/> If so, what type of assistance/training is needed?	-
Does your jurisdiction participate in the Community Rating System (CRS)? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	No





Criterion	Response
How many flood insurance policies are in force in your jurisdiction?*	Policies in force: 241
What is the insurance in force?	Insurance in force: \$65,328,300
What is the premium in force?	Premium in force: \$210,380
How many total loss claims have been filed in your jurisdiction?*	Total loss claims: 35
How many claims are still open or were closed without payment?	Claims open or closed without payment: 4
What were the total payments for losses?	Total payments for losses: \$5,352,554.19
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation?	No

*According to FEMA statistics as of 09/30/2018

9.5.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.5.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Town of Harrison made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- Construction & Engineering Department: The Construction and Engineering department administers the Building Code, Flood Damage Prevention Ordinance, and the Stormwater Management Program.
- Harrison Fire Department: The Harrison Fire Department is the primary emergency service for fire response within the Town of Harrison. Firefighters are also trained Emergency Medical Technicians. The Harrison Office of Emergency Management is under the Authority of the Harrison Fire Department.
- Land Use Planning: The Town of Harrison works with a consulting planning firm and has integrated aspects of hazard mitigation planning into the 2017 Master Plan Reexamination Report, specifically the identification of mitigation initiatives outlined in the 2008 and 2015 Hudson County Hazard Mitigation Plans.

9.5.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the Town of Harrison will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- Land Use Planning: The 2017 Master Plan Reexamination Report identifies that the Land Development Ordinance should be comprehensively revised including evaluation of ordinance definitions, design standards, permitted uses, conditional use standards, and the addition of adopted standards, permitted uses, conditional





use standards, and the addition of adopted amendments, in order to create a user-friendly and up-to-date Land Development Ordinance for the Town.

- Amending the zoning code to be consistent with additional definitions for zoning types.
- Review of the existing Stormwater Management Ordinance to determine whether any updates are needed.
- Review and examination of the drainage improvement requirements for residential development in coordination with the Construction and Engineering Department. The Town’s sewer system is prone to exceed capacity. Additional drainage requirements for proposed subdivisions and decreases in impervious coverage may help reduce the volume of stormwater runoff.

9.5.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Town of Harrison’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.5-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.5-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	DR-4264	Yes	Low pressure moving across the deep South on Thursday January 21st and Friday January 22nd intensified and moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in and out of airports lagged through Monday January 25th as airlines pre-emptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than	Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	
May 2, 2017	N/A	N/A	Strong winds occurred behind a cold front.	A co-op observer reported that a tree fell down on a house on Davis Avenue in Harrison. The weather station at Harrison measured a wind gust up to 55 mph. \$100K in property damages were reported countywide.
May 5, 2017	N/A	N/A	A warm front approaching the area combined with a strong low-level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three-hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark.	Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.
October 29, 2017	N/A	N/A	A low-pressure system rapidly intensified as it moved north, passing west of the local area.	Law enforcement reported a tree down on South 3rd Street in Harrison. \$50K in property damages were reported countywide.
March 7-8, 2018	N/A	N/A	A strong low-pressure system developed along the Middle Atlantic coast during the morning of Wednesday, March 7, 2018. The low tracked along the coast through the early morning hours on Thursday, March 8, 2018. The storm brought heavy wet snow, strong gusty winds, and even some thundersnow across northeast New Jersey. Snowfall rates ranged from 1 to 3 inches per hour at times in the heaviest snow bands. Trained spotters and the public reported 6 inches of snowfall. An Emergency Manager in Hoboken reported 8.7 inches of snow.	A COOP observer reported 9 inches of snow in Harrison. Strong winds in combination with heavy, wet snow also brought down tree limbs and a few power lines.
July 22, 2018	N/A	N/A	Low pressure approached from the south, and gusty easterly winds were observed ahead of it. \$50K in property damages were reported.	Emergency management reported a tree down on power lines on Hamilton Street in the Town of Harrison.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
August 11, 2018	N/A	N/A	A stalled stationary boundary within a very moist airmass provided a focusing mechanism for several rounds of heavy rain that resulted in widespread flash flooding across northeast New Jersey. The Caldwell, NJ ASOS recorded 4.92 inches of rain, and multiple other stations across northeast New Jersey received between 2.5 inches and 4 inches of precipitation.	<p>Frank E. Rogers Boulevard was under water near the PATH station in Harrison.</p> <p>Manhole covers were being pushed up resulting in flash flooding on Danforth Avenue in Jersey City.</p> <p>Several roads around the City of Hoboken were flooded and impassable.</p>
August 17, 2018	N/A	N/A	Showers and thunderstorms developed in a warm and humid environment ahead of an approaching cold front, resulting in isolated flash flooding across portions of urban northeast New Jersey.	These storms brought 1-2 inches of rain to the region in a matter of hours, with a cooperative observer in Harrison, NJ recording 1.79 inches of rain during the event. Cars were stuck in flood waters with water rescues underway on Frank E Rodgers Boulevard at the PATH train station in Harrison.

Notes:

9.5.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards.





Table 9.5-12 summarizes the Town of Harrison’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.5-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	16	CEHA:	6	CEHA:	\$12,679,195	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +3ft:	0	SLR +3ft:	2	SLR +3ft:	\$5,169,139	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	734	Category 1:	137	100-year Wind Loss:	\$1,787,209	High
		Category 2:	1,676	Category 2:	312			
	Category 1 through Category 4 SLOSH	Category 3:	4,465	Category 3:	733	500-year Wind Loss:	\$16,551,300	
		Category 4:	7,501	Category 4:	1198			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	15,393	NEHRP D&E:	2,460	100-year Loss:	\$235,387	High
		Liquefaction Class 4:	57	Liquefaction Class 4:	48	500-year Loss:	\$14,685,813	
						2,500-year Loss:	\$183,138,727	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,503	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	2,575					
Flood	100- and 500-Year Mean Return Period Event	100-year	1,095	100-year	187	100-year Loss:	\$91,581,730	High
		500-year	1,570	500-year	293			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





9.5.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Town of Harrison.

- Number of repetitive loss (RL) properties: 3
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.5.7.2 CRITICAL FACILITIES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.5-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Cresthill Academy Harrison	Child Care	X	X	2020-Harrison-005
Harrison Path	Rail	X	X	Ongoing – New Station
Harrison DPW	DPW	X	X	
Public Service Propane Storage (Lng/Propane)	Hazmat	X	X	Pursuing funding for flood wall
Path Harrison	Electric Substation	X	X	Under Construction
Path Maintenance	Electric Substation	X	X	Flood wall constructed
Harrison Town of	Wastewater Treatment	X	X	2020-Harrison-004
Sprint Switching Center	Communication	X	X	2020-Harrison-005

9.5.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Areas of Urban Flooding related to combined sewer overflow near Harrison High School.
- Lack of open space on the waterfront, Town is currently in the process of expanding
- Additional generators are required to support pumps, shelters, charging stations, and medical centers during power outage events.
- Additional fuel capacity is needed to operate generators, infrastructure, and emergency vehicles.

9.5.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of Harrison that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Harrison has significant exposure. Figures 9.5-1 and 9.5-2 illustrate the hazard area extent and locations in the Town. Figure 9.5-1 indicates the location of the regulatory floodplain as well as identified critical facilities within the municipality.





9.5.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Harrison. The Town of Harrison has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. The Town agreed with the calculated hazard rankings displayed below.

Table 9.5-13. Town of Harrison Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	High	High	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

N/A = Not applicable; the Town does not anticipate to be impacted by dam or levee failure

9.5.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.5.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.5-14. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
TOH-1 – Drainage Improvements on Angelo Cifelli Drive	Town Engineer	Ongoing, Finished 2nd Phase and 1 Block River	Yes	2020-Harrison-001
TOH-2 – Enhance Shelter Capabilities	Town Engineer	Ongoing- 300KV Generator at Washington Middle School	Ongoing Capability	
TOH-3 – Support Retrofitting, Purchase, and Relocation of Structures in Hazard Prone Areas	Town Engineer	No progress, but higher standards are enforced during redevelopment.	Ongoing Capability	
TOH-4 – Installation of New Fixed Generator at a Middle School for Sheltering	Office of Emergency Management	In Progress, See TOH-2 above.	No, combine with TOH-2 action above.	
TOH-5 – Use HMP to Guide Master Plan Update.	Town Engineer	Completed during 2017 Harrison Master Plan Reexamination Report	No	

The Town of Harrison did not identify additional completed mitigation projects/activities.

9.5.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of Harrison participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Town of Harrison participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.5-16 summarizes the comprehensive range of specific mitigation initiatives the Town of Harrison would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.5-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.5-15. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Harrison-001	Angelo Cifeli Drive Drainage Improvements	Problem: The Angelo Cifeli Drive Drainage Area currently has a combined sewer system with inadequate drainage capacity which leads to frequent localized flooding events.	Existing	Coastal Storm, Flood	1, 2, 4, 6	Town Engineer, Harrison Redevelopment Agency	Capital Improvement/Private Funding	High	High	Long	High	SIP	PP
		Solution: Separation of combined sewer into separate sanitary and stormwater sewers will help reduce localized flooding by increased drainage capacity.											
2020-Harrison-002	Bergen Street Drainage Improvements	Problem: The Bergen Street Drainage Area currently has a combined sewer system with inadequate drainage capacity which leads to frequent localized flooding events.	Existing	Coastal Storm, Flood	1, 2, 4, 6	Town Engineer	Capital Improvement / NJEIT	High	High	Long	High	SIP	PP
		Solution: Separation of combined sewer into separate sanitary and stormwater sewers will help reduce localized flooding by increased drainage capacity.											
2020-Harrison-003	Repetitive Loss Properties	Problem: There are 3 repetitive loss properties in the Town of Harrison. These 3 properties have been repetitively flooded as documented by paid NFIP claims.	Existing	Flood, Severe Weather	1, 2, 5	Town Engineer/PA, Town Administration	FEMA HMGP and FMA	High	High	Within 2 years	High	EAP, SIP	PR, PP
		Solution: Conduct outreach to these and other flood prone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.											
2020-Harrison-004	Flood-proof Critical Facilities	Problem: Harrison DPW Facility is an identified critical facility located in the 1% and 0.2% annual chance flood zone.	Existing	Flood, Severe Weather	1, 2, 6	Town Engineer/PA, Town Administration	FEMA HMGP and FMA	High	High	Within 2 years	High	SIP	PR, PP
		Solution: The Town will conduct a feasibility study to determine if this facility can be mitigated and what alternatives are available. The Town will evaluate, select an action and implement											





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		if feasible, to mitigate this facility up to a 0.2% annual chance flood event.											
2020-Harrison-005	Outreach to Floodprone Critical Facilities	<p>Problem: The Cresthill Academy Harrison, Harrison PATH Station, Public Service Propane Storage, Harrison PATH Substation, PATH Maintenance, and Sprint Switching Center are identified critical facilities located on the 1% and 0.2% annual chance flood zones.</p> <p>Solution: The FPA will conduct outreach to the private facility managers to alert them of their exposure to flooding and possible mitigation actions.</p>	Existing	Flood, Severe Weather	2, 6	Town Engineer/FPA, Town Administration	Municipal Budget	High	Low	Within 2 years	High	EAP, SIP	PR, PP

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.5-16. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Harrison-001	Angelo Cifeli Drive Drainage Improvements	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Harrison-002	Bergen Street Drainage Improvements	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Harrison-003	Repetitive Loss Properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-Harrison-004	Flood-proof Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-Harrison-005	Outreach to Floodprone Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.5-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resiliency	Community Capacity Building
Coastal Erosion and Sea Level Rise								
Coastal Storm		-001, -002, -003, -004, -005	-003	-001, -002		-001, -002, -003, -004, -005		-003
Dam and Levee Failure								
Drought								
Earthquake								
Extreme Temperature								
Flood		-003, -004, -005	-003			-003, -004, -005		-003
Geologic								
Severe Weather		-003, -004, -005	-003			-003, -004, -005		-003
Severe Winter Storm								
Wildfire								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.5.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Town of Harrison followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.5-18. Contributors to the Annex

Entity	Title	Method of Participation
Harold Stahl	Fire Chief/OEM Coordinator	Member of the Planning Committee; attended meetings; contributed to the update of the annex
Rocco Russomanno	Town Engineer/ Floodplain Administrator	Member of the Planning Committee; attended meetings; contributed to the update of the annex





Figure 9.5-1. Town of Harrison Hazard Area Extent and Location Map

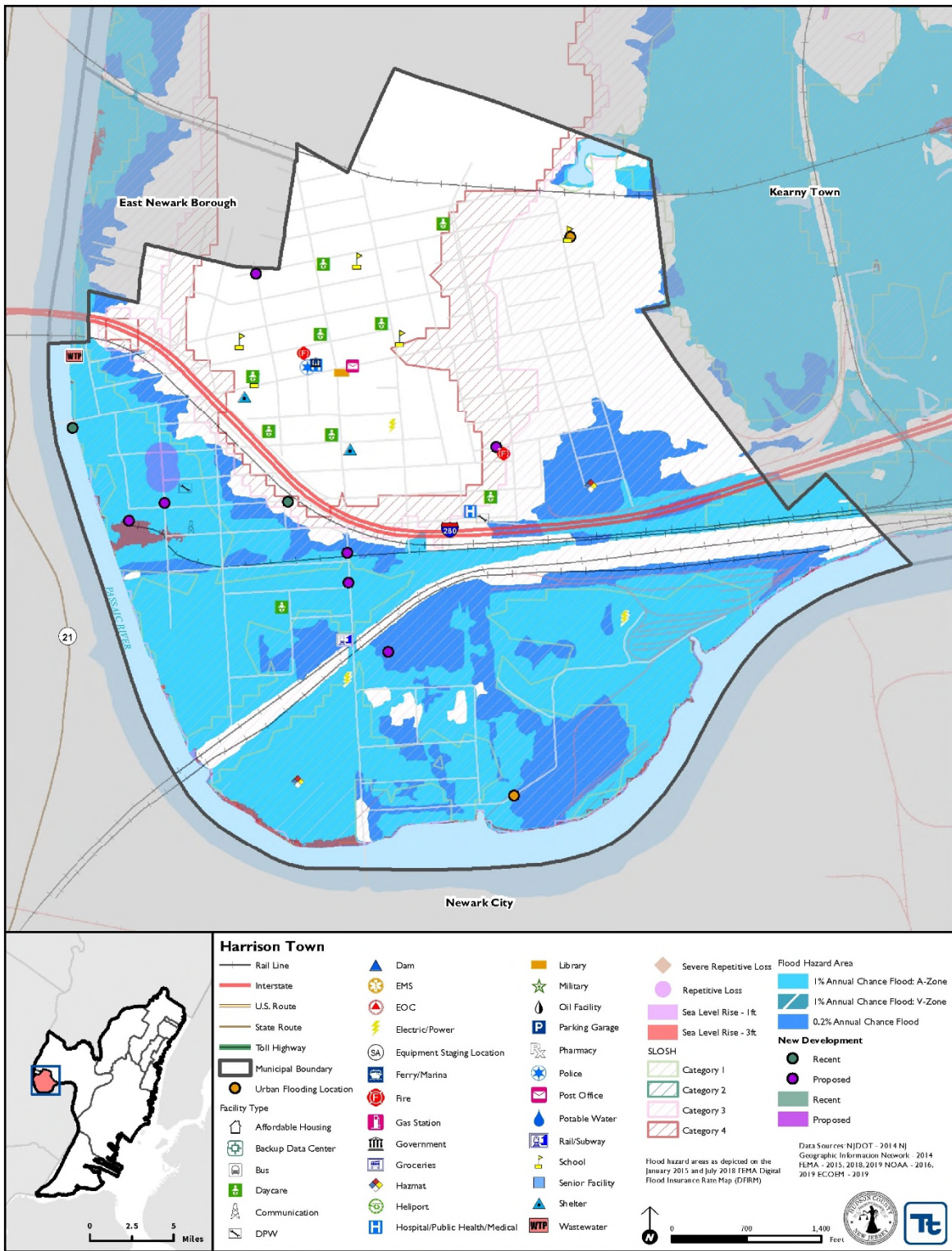
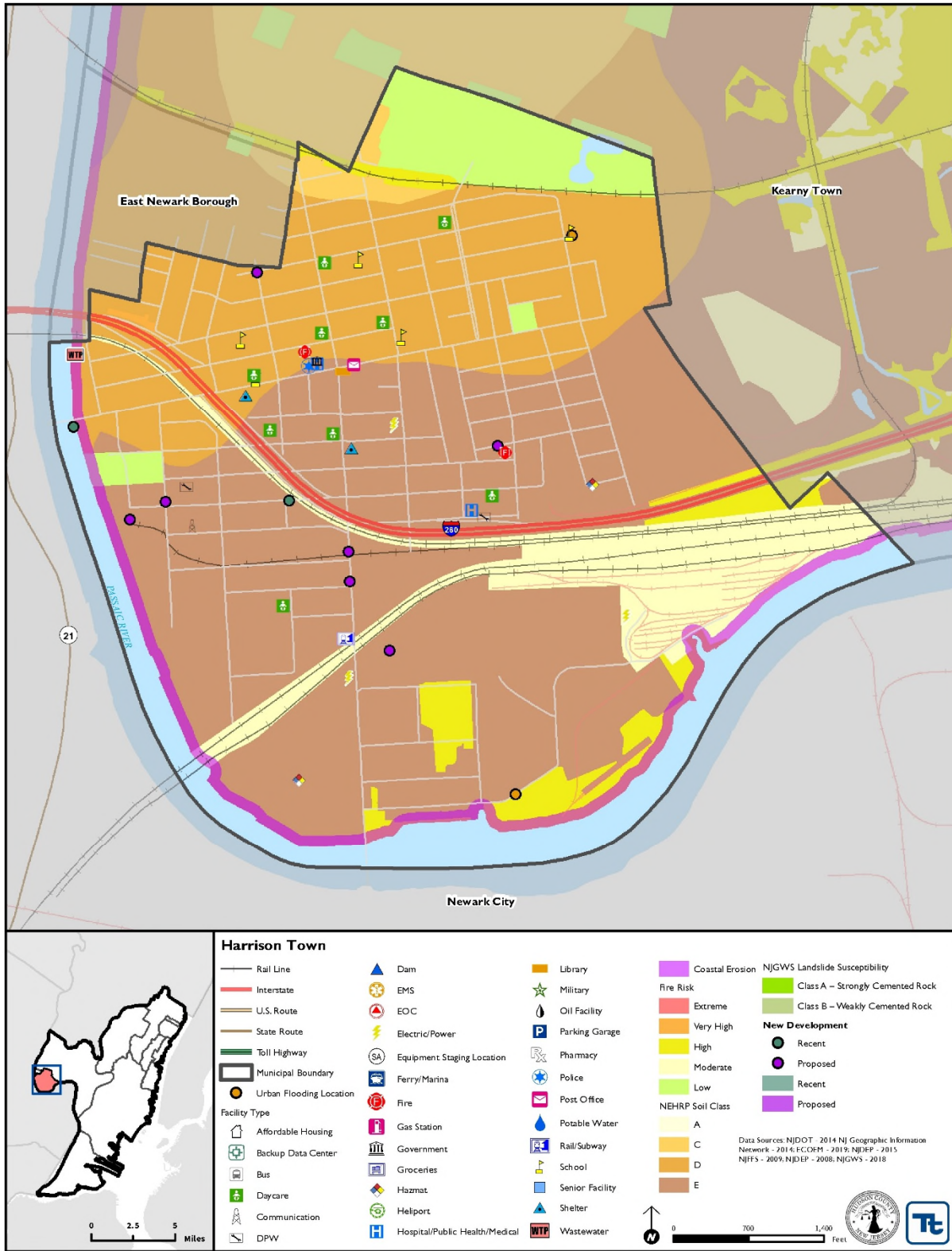




Figure 9.5-2. Town of Harrison Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Angelo Cifeli Drive Drainage Improvements		
Project Number:	2020-Harrison-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Erosion and Sea Level Rise, Coastal Storm, Flood		
Description of the Problem:	The Angelo Cifeli Drive Drainage Area currently has a combined sewer system with inadequate drainage capacity which leads to frequent localized flooding events.		
Action or Project Intended for Implementation			
Description of the Solution:	Separate combined sewer into separate sanitary and stormwater sewers to help reduce localized flooding by increased drainage capacity.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	20-year storm	Estimated Benefits (losses avoided):	Reduction in localized flooding events
Useful Life:	50 years	Goals Met:	1, 2, 4, 6
Estimated Cost:	TBD	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	2 Years
Estimated Time Required for Project Implementation:	3 Years	Potential Funding Sources:	Capital Improvement / Private Funding (Developers)
Responsible Organization:	Harrison Redevelopment Agency / Town Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Construct additional sewage treatment plants	\$50 million	Costly, require space
	Construct storage tanks to temporarily hold wastewater	\$10 million	Costly and may not have enough volume to prevent overflow and flooding.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Angelo Cifeli Drive Drainage Improvements	
Project Number:	2020-Harrison-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduces localized flood impacts which may affect citizens
Property Protection	1	Increased drainage capacity
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	Project to be conducted in conjunction with Private Developers
Fiscal	0	Project requires funding support
Environmental	1	Separation of sanitary and stormwater sewer systems
Social	1	Reduces impacts
Administrative	1	
Multi-Hazard	1	
Timeline	1	Possible to accomplish in a 3 year period of performance
Agency Champion	1	Town Engineer
Other Community Objectives	0	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Bergen Street Drainage Improvements		
Project Number:	2020-Harrison-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood		
Description of the Problem:	The Bergen Street Drainage Area currently has a combined sewer system with inadequate drainage capacity which leads to frequent localized flooding events.		
Action or Project Intended for Implementation			
Description of the Solution:	Separation of combined sewer into separate sanitary and stormwater sewers will help reduce localized flooding by increased drainage capacity.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	20-year storm	Estimated Benefits (losses avoided):	Reduction in localized flooding events
Useful Life:	50	Goals Met:	1, 2, 4, 6
Estimated Cost:	TBD	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	7 Years
Estimated Time Required for Project Implementation:	5 Years	Potential Funding Sources:	Capital Improvement / NJEIT
Responsible Organization:	Town Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Construct additional sewage treatment plants	\$50 million	Costly, require space
	Construct storage tanks to temporarily hold wastewater	\$10 million	Costly and may not have enough volume to prevent overflow and flooding.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Bergen Street Drainage Improvements	
Project Number:	2020-Harrison-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduces localized flood impacts which may affect citizens
Property Protection	1	Increased drainage capacity
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town would be the sole entity working on this project
Fiscal	0	Project requires funding support
Environmental	1	Separation of sanitary and stormwater sewer systems
Social	1	Reduces impacts from localized flooding
Administrative	1	
Multi-Hazard	1	
Timeline	0	7 Year Project Timeline
Agency Champion	1	Town Engineer
Other Community Objectives	0	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Repetitive Loss Properties		
Project Number:	2020-Harrison-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	There are 3 repetitive loss properties in the Town of Harrison. These 3 properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event + freeboard (in accordance with flood ordinance)	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	Goals Met:	1, 2, 5
Estimated Cost:	\$3Million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Town Engineer/FPA, Town Administration	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	\$500,000	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$500,000	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Repetitive Loss Properties	
Project Number:	2020-Harrison-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Families moved out of high-risk flood areas.
Property Protection	1	Properties removed from high-risk flood areas.
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The Town has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	Project would remove families from the flood prone areas of the Town
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	
Agency Champion	1	Town Engineer/FPA, Town Administration, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Flood-proof Critical Facilities		
Project Number:	2020-Harrison-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	The Harrison DPW Facility is an identified critical facility located in the 1% and 0.2% annual chance flood zone. DPW is considered a critical facility and provides critical services.		
Action or Project Intended for Implementation			
Description of the Solution:	The Borough will conduct a feasibility assessment for flood protection. Possible actions include floodproofing or relocation of the DPW facility. The Borough will carry out the most cost-effective action(s).		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	1-percent plus 2 feet	Estimated Benefits (losses avoided):	Reduction in flood exposure to DPW
Useful Life:	TBD by feasibility assessment	Goals Met:	1, 2, 6
Estimated Cost:	TBD by feasibility assessment	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP, FMA, Municipal budget
Responsible Organization:	Town Engineer/FPA, Town Administration	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new DPW in new location	\$500,000	Too expensive
	Standby sandbags	\$5,000	Requires deployment
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Flood-proof Critical Facilities	
Project Number:	2020-Harrison-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services of the DPW
Property Protection	1	Protects DPW from flood damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	Within 2 years
Agency Champion	1	Town Engineer/FPA, Town Administration
Other Community Objectives	1	Protection of critical facilities
Total	13	
Priority (High/Med/Low)	High	

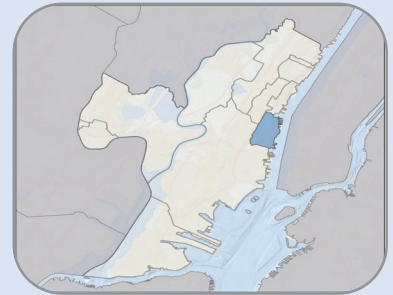




CITY OF HOBOKEN

MUNICIPALITY AT A GLANCE

Total Population: 54,117
 Total Land Area: 1.24 sq. mi
 Total Number of Buildings: 4,470



Hurricane Storm Surge



Population



Buildings

Category 1*	35,153	2,872
Category 2*	47,541	3,735

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$13,950,554

Potential Building Damages

1% Annual Chance Flood



34,465

Population residing in floodplain



2,745

Buildings in floodplain



44

Critical facilities in floodplain

3,529

Persons that may seek shelter

\$818,818,508

Potential building damages

NFIP Statistics



404 # NFIP Policies

9,280 # WYO Policies

177 # RL Properties (excludes SRL)

14 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Natural Systems Protection, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm



9.6 City of Hoboken

This section presents the jurisdictional annex for the City of Hoboken. The annex includes a general overview of the City of Hoboken; an assessment of the City of Hoboken’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.6.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the City of Hoboken’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.6-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Caleb Stratton, Chief Resilience Officer Address: 94 Washington Street Hoboken, NJ 07030 Phone Number: 201-744-9602 Email: cstratton@hobokennj.gov	Name / Title: Sgt. William Montanez, Police/OEM Address: 106 Hudson Street Hoboken, NJ 07030 Phone Number: 201-725-9251 Email: montanezw@hobokenpd.org
NFIP Floodplain Administrator	
Name / Title: Ann Holtzman, Floodplain Administrator/Zoning Officer Address: 94 Washington Street Hoboken, NJ 07030 Phone Number: 201-420-2063 Email: aholtzman@hobokennj.gov	

9.6.2 JURISDICTION PROFILE

In 1849, Hoboken was originally formed as a township, from portions of North Bergen Township, and was officially incorporated as a City in 1855. Over the centuries, the City has transformed from a rural farmland to a bustling urban center.

The City of Hoboken is located along the Hudson River in the eastern portion of Hudson County. It shares its borders with the Township of Weehawken to the north, Union City and Jersey City to the west, Jersey City to the south and the Hudson River to the east.

The City of Hoboken is governed by a Mayor and City Council made up of nine members. This governing body will be responsible for the adoption and implementation of this plan.

According to the U.S. Census, the 2010 population for the City of Hoboken was 50,005. The estimated 2017 population was 54,117, a 8.2 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 7 percent of the population is 5 years of age or younger and 6.3 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.





9.6.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.6-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.6-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.6-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	4	11	18	14	4
Multi-Family	249	446	43	678	148
Other (commercial, mixed-use, etc.)	0	0	0	0	0

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
800 Monroe	Commercial / Residential	1 10-story building	800 Monroe Street B: 87, L: 1.01		Approved / in development
Grand Adams	Commercial / Residential	1 6-story building	1410 Grand Street; 1405-1411 Adams Street B: 121, L: 1-4, 23, and 24	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Approved / in development
1420 Willow	Commercial	1 3-story building	1420 Willow Avenue B: 123, L: 7-12 and 14	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Approved / in development
100-108 Paterson Avenue	Commercial / Residential	1 5-story building	100-108 Paterson Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Approved / in development
8-12 Paterson Avenue	Commercial / Residential	1 5-story building	Paterson Avenue B: 15	1% Annual Chance Flood, 0.2% Annual Chance	Approved / in development





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	
Monroe Center Phase III	Commercial	424 residential unit building	605 Jackson Street; 629-633 Jackson Street	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Approved / in development
New Hotel & Post Office Renovation	Commercial - hotel	20-story building	89 River Street B: 231.01, L: 1		Approved / in development
Hudson Tea Bldg D	Residential / Commercial	99U, 2k sf retail	1423-1431 Hudson Block 264 Lot 3.01	Flood: V-Zone; SLOSH: Category 1; NEHRP: E; Coastline Hazard	Approved
Maxwell Plc Block C	Residential / Commercial	210U, 25k sf retail	1101 Hudson St Block 261.01, Lot 1	SLOSH: Category 2	Under construction
Maxwell Plc Block D	Residential / Commercial	76U, 130k sf comm.	1018-1028 Maxwell Lane Block 261.02, Lot 1	SLOSH Category 3, SLOSH Category 4	Approved
Pump House	Residential / Commercial	18U, 1k sf retail	128-132 Harrison St Block 25, Lots 17-19	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Approved
707 Willow	Residential.	5U	707 Willow Ave. Block 169, Lot 6	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4	Under construction
304 Monroe	Residential.	11U	302-306 Monroe St Block 47, Lots 30-32	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under construction





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
301 Newark	Residential / Commercial	15U, 3k sf retail	301 Newark St. Block 2.01, Lot 5	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Under construction
P & D Hoboken	Residential.	14U	928-930 Jefferson St. Block 95, Lots 17-18	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under construction
715 Grand	Residential.	18U	715 Grand St Block 152, Lot 2	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4	Under construction
1404 Grand	Residential / Commercial	10U, .5k comm.	1404-1406 Grand St Block 121, Lot 25	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Under construction
259 First – Newark	Residential / Commercial	2U, 9k sf comm.	259 1 st St / 256-258 Newark Block 22, Lots 5.1, 5.2, 6	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4	Under construction
600 Newark	Residential.	12U	600-604 Newark St	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under construction
1125 Jefferson	Residential / Commercial	54U, .8k sf retail	1125-31 Jefferson, 1124-30 Adams Block 104, Lot 13, 17	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Approved
Marshall Terrace	Residential / Commercial	81U, 10k sf retail	100 Marshall St Block 24, Lots 6-21	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH	elevated over pkg, approx ½ complete





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Category 4, NEHRP Class D&E	
Advanced @ Hoboken	Residential / Commercial	140U, 21k sf retail	1330 Willow Ave Block 116, Lot 1.02	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4	Under construction
1414 Grand Street	Residential / Commercial	24U, 8k sf retail	1414-18 Grand St Block 12, Lots 19-21	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Under construction
Park-on-Park	Residential / Commercial	212 U, 19k sf comm.	1415 Park Ave Block 126, Lots 3, 6.1, 7.1	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under construction
Grand Holding	Residential.	8U	720 Grand St Block 85, Lots 15.02-.04	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Under construction
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Block 112 Dev	Residential / Commercial	296U, 54k sf comm.	1300-1330 Jefferson Block 112, Lot 1	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Application pending
Post Office Redev.	Comm.	hotel	85-89 River St Block 321.01, Lot 1	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft; NEHRP: E	Pending
Rockefeller Group	TBD	TBD	1413, 1501 Willow, 1500 Willow Blocks 134, 125, 133	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Pending
NJ Transit	TBD	TBD	Rail yards Block 139, 229	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH	Pending





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	
Neumann Leather Redevelopment	TBD	TBD	Observer Hwy Block 2, Lot 12	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Pending
900 Monroe	Residential / Commercial	135U,	900 Monroe St Block 92, Lot 1.01	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4	Permitting
Hudson Tea Block E	Residential / Commercial	236U, 36k sf retail	1400 Hudson St Block, 269.3, Lot 1	Flood: A-Zone; SLOSH: Category 1; SLR: +0.3 ft	Pending

* Only location-specific hazard zones or vulnerabilities identified.

9.6.4 CAPABILITY ASSESSMENT

The City of Hoboken performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.6.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the City of Hoboken.





Table 9.6-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	City	Yes	Yes	-
<i>Comment:</i> Chapter 86, Chapter 95; ICC codes are incorporated into <i>Resilience Building Design Guidelines</i> (October 2015).					
Zoning Code	Yes	City	Yes	Yes	-
<i>Comment:</i> City of Hoboken Zoning Code, Chapter 196, adopted by Mayor and Council on 8/1/1979 by Ordinance No. C-117. The Zoning Code has been amended over the years to reflect changes in planning principles, shifts in population, and land use. Chapter 104 codifies the Flood Damage Prevention Ordinance. The City's Flood Damage Prevention Ordinance and Zoning Code govern flood area construction and determine the type of structures foundations and materials that can be used to build resilient structures in floodprone areas. The City uses the design flood elevation (DFE) which is the BFE plus freeboard. The DFE is the elevation to which construction is regulated in the City. For any substantial improvement or new construction in a floodplain, a floodplain permit must be obtained.					
Subdivisions	Yes	City	Yes	No	-
<i>Comment:</i> <i>Subdivision of Land and Zoning, Adopted 6/1/1959 by Ordinance No. 128. Prior to granting approval, the City engineer must certify that the project safeguards the public against flood damage. All land elements of land development in the City have been enhanced by the adopting of the resiliency plans.</i>					
Stormwater Management	Yes	North Hudson SA and City	Yes	Yes	-
<i>Comment:</i> <i>City manages MS4 program & risk reduction projects, North Hudson manages Long Term Control Plan CSO reduction goals</i>					
Post-Disaster Recovery	Yes	Local	No	Yes	-
<i>Comment:</i> <i>Completed in 2014 - portions adopted others have not - design guide, COOP/COG adopted; updated ROSI that gave access to additional green acres funding; just certain components that were not adopted (Capital Improvements, etc.)</i>					
Real Estate Disclosure	Yes	State	No	No	Yes – 2020-HOBOKEN-001
<i>Comment:</i> N.J.A.C 13:45A-29.1					
Growth Management	Yes	City	Yes	Yes	-
<i>Comment:</i> <i>The City's floodplain management rules and regulations do not allow construction on piers and platforms that extend into the Hudson River. Mostly, this section of the code governs residential development, in the V zone, and seaward of MHHW.</i>					
Shoreline Development	Yes	City	Yes	Yes	-
<i>Comment:</i> <i>The City's floodplain management rules and regulations do not allow construction on piers and platforms that extend into the Hudson River. Mostly, this section of the code governs residential development, in the V zone, and seaward of MHHW.</i>					
Site Plan Review	Yes	City	Yes	Yes	-
<i>Comment:</i> City of Hoboken Zoning Code, Chapter 196, Section 26 (§196-26), amended on 6/21/1989 by Ordinance No. P-58; 12/2/1998 by Ordinance No. R-445; 10/17/2001 by Ordinance No. DR-14; and 5/15/2002 by Ordinance No. DR-39. The City's Planning Board is responsible for site plan review and approval.					
Environmental Protection	Yes	State/Federal	-	Yes	-
<i>Comment:</i> <i>The City's capital plans and projects are consistent with state and federal environmental law</i>					
Flood Damage Prevention	Yes	Local	Yes	Yes	-
<i>Comment:</i> City of Hoboken's Flood Damage Prevention Ordinance, Chapter 104, adopted by the City Council on 11/15/1982 by Ordinance No. C-231. It was amended in its entirety on 12/18/2013 by Ordinance No. Z-263. Article IV of Chapter 104 provides details on the administration of the ordinance. §104-13 designates the Floodplain Administrator as the appointed to administer and implement Chapter 104. §104-12 establishes the requirement of development permits for any construction within a special flood hazard areas. §104-16 provides standards to reduce the flood hazard, including freeboard requirements for special flood hazard areas (Zones X, A, Coastal A and V). The City's Flood Damage Prevention Ordinance and Zoning Code govern flood area construction and determine the type of structures foundations and materials that can be used to build resilient structures in floodprone areas. The City uses the design flood elevation (DFE) which is the BFE plus freeboard. The DFE is the elevation to which construction is regulated in the City. For any substantial improvement or new construction in a floodplain, a floodplain permit must be obtained.					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Emergency Management	Yes	Local	Yes	Yes	-
<i>Comment: COOP/COG, EOP, the City has started doing tabletop exercises during the hurricane system (before and after the season starts) and after action reports</i>					
Climate Change	Yes	Local	No	Yes	-
<i>Comment: Greenhouse Gas Inventory and Reduction Strategy (adopted by City Council); Green Building and Environmental Element (adopted by Planning Board); and working on the Resilience Plan Strategy</i>					
Disaster Recovery Ordinance	No	-	-	-	Yes – 2020-HOBOKEN-002
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	Yes – 2020-HOBOKEN-003
<i>Comment:</i>					
Other	Yes	Local	No	-	-
<i>Comment:</i>					
<ul style="list-style-type: none"> Chapter 163 – Sewers and Disposal – set requirements for discharges into wastewater collection and treatment system and enables the North Hudson Sewage Authority to comply with applicable effluent limitations, national standards of performance, toxic and pretreatment effluent standards, and any other discharge criteria. This ordinance places limitations on wastewater discharge regarding contaminants, wastewater strength, storm drainage and groundwater and discharge of unpolluted water. This ordinance refers to the uniform construction code and the flood damage prevention ordinance. 					
Planning Documents					
Comprehensive / Master Plan	Yes	Local - Hoboken Planning Board	Yes	Yes	-
<i>Comment: The original date of the master plan is 2004 and has since been reexamined in 2010 and 2018. In 2017, the Sustainability Element was adopted as part of the master plan. Sustainability has been promoted through several recent and current efforts that address climate adaptation, flood mitigation, public and environmental health, Green Building, and non-vehicular transportation. This Green Building & Environmental Sustainability Element ("Sustainability Element") discusses these efforts and outlines goals, strategies, and actions to make Hoboken a more sustainable and resilient City. The sustainability element was prepared in accordance with the Municipal Land Use Law.</i>					
Capital Improvement Plan	Yes	Local - Sustainability Director and Resilience Officer	No	Yes	-
<i>Comment: The Capital Improvement Plan has not been adopted, but it is annually updated by staff that is responsible for the delivery of capital projects.</i>					
Disaster Debris Management Plan	Yes	Local	No	Yes	-
<i>Comment: Debris Management Plan and Snow Removal Plan</i>					
Floodplain or Watershed Plan	Yes	Local	No	Yes	-
<i>Comment: Rebuild by Design EIS and Feasibility Study</i>					
Stormwater Plan	Yes	Local	Yes	Yes	-
<i>Comment: Updated in 2019 to meet NJDEP standards</i>					
Stormwater Pollution Prevention Plan	Yes	Local	No	Yes	-
<i>Comment: Site specific SWPPP's are prepared for construction sites that exceed the general permit threshold</i>					
Urban Water Management Plan	Yes	Local	No	Yes	-
<i>Comment: Part of Rebuild by Design</i>					
Habitat Conservation Plan	No	-	-	-	-
<i>Comment:</i>					
Economic Development Plan	Yes	Local	No	-	-
<i>Comment: Business Improvement District</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Shoreline Management Plan	Yes	Local	No	-	-
<i>Comment: Princeton Hydro Study re: Development on Piers and Platforms extending into the Hudson River</i>					
Community Wildfire Protection Plan	No	-	-	-	-
<i>Comment:</i>					
Community Forest Management Plan	Yes	Local	No	Yes	-
<i>Comment: Shade Tree Commission, arborist on staff/certified professional</i>					
Transportation Plan	Yes	Local	No	Yes	-
<i>Comment: Vision 0 plan, Complete Streets Design Guide Handbook, Bike Circulation Element</i>					
Agriculture Plan	No	-	-	-	-
<i>Comment:</i>					
Climate Action Plan	Yes	Local	No	Yes	-
<i>Comment: Adopted April 2019. This plan identifies several actions to become a more sustainable city and incorporates existing plans such as Rebuild by Design, the City's Master Plan, the Sustainability Element and Green Building and Environmental Sustainability Element.</i>					
Tourism Plan	No	-	-	-	-
<i>Comment:</i>					
Business Development Plan	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan / Emergency Operations Plan (EOP)	Yes	Local	Yes	Yes	-
<i>Comment: City of Hoboken Emergency Operations Plan (2017)</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	State	No	Yes	-
<i>Comment: Part of the Hudson County Hazard Mitigation Plan</i>					
Post-Disaster Recovery Plan	Yes	Local	No	Yes	-
<i>Comment: Part of the 2017 EOP</i>					
Continuity of Operations Plan	Yes	Local	No	Yes	-
<i>Comment: Part of the 2017 EOP</i>					
Public Health Plan	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					





Table 9.6-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes - Community Development & Construction Code
Does your jurisdiction have the ability to track permits by hazard area?	Yes – the City has the ability to track permits by hazard area through Spatial Data Logic
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes – this was done as part of the build out analysis for the land use site in 2018

9.6.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the City of Hoboken.

Table 9.6-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Hoboken Planning Board
Mitigation Planning Committee	Yes	Hoboken Zoning Board of Adjustment
Environmental Board / Commission	No	-
Open Space Board / Committee	Yes	Open Space Acquisition and Development and Hoboken Green Team. The Hoboken Green Team was formed in 2011 as part of the Sustainable Jersey program. The Green Team is made up of City residents and municipal staff. They have organized several events including: green fairs, green business recognition program, green buildings walking tour, a storm drain mural project, a reusable shopping bag giveaway, rain barrel workshops, volunteer cleanup events, and other environmental workshops.
Economic Development Commission / Committee	Yes	The City of Hoboken Special Improvement District (SID) focused on economic development and generates income through a business specific ratable amount.
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Nixle, Social Media (facebook and twitter), reverse 911
Maintenance program to reduce risk	Yes	North Hudson SU and Department of Environmental Services
Mutual aid agreements	Yes	Police and fire – Jersey City and surrounding communities
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Transportation, Public Safety, Engineering, Community Development, and Env Services
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contracting engineer firms and have resources in house in Transportation, Engineering and Env Services
Planners or engineers with an understanding of natural hazards	Yes	Contracting engineer firms and have resources in house in Transportation, Engineering and Environmental Services





Staff/Personnel Resource	Available?	Department/Agency/Position
Staff with training in benefit/cost analysis	Yes	Engineering, Transportation & Environmental Services
Staff with training in green infrastructure	Yes	Engineering, Transportation & Environmental Services
Staff with education/knowledge/training in low impact development	Yes	Engineering, Transportation & Environmental Services
Surveyors	Yes	On call engineering firms
Stormwater Engineer	Yes	On call engineering firms
Personnel skilled or trained in GIS applications	Yes	Community Development, Public Safety, Transportation and Environmental Services
Scientist familiar with natural hazards in local area	Yes	Stevens Institute
Emergency manager	Yes	OEM Coordinator
Grant writers	Yes	Contracted consultant
Resilience Officer	Yes	Business Administration
Watershed Planner	No	-
Environmental Specialist	Yes	Environmental Services
Other	No	-

9.6.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the City of Hoboken.

Table 9.6-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes – water, sewer, gas and electric
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	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	Yes
Other	Open Space Trust Fund

9.6.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the City of Hoboken.

Table 9.6-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes





Criterion	Response
If yes, briefly describe.	
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	Yes – Facebook and Twitter
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	Yes – Citizen Advisory Committee, Rebuild by Design Board
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	Yes – mainly through the Zoning Office and Public Safety Division
Do you have any established warning systems for hazard events? If yes, briefly describe.	Yes - The City maintains Facebook and Twitter accounts to update residents on current events. The City also provides Hoboken 311 service where residents can report an issue and follow the status of the issue online. The City also uses the Nixle messaging system to send news updates, event information, and other information to residents via email and text message.

9.6.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the City of Hoboken.

Table 9.6-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

9.6.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? Yes, benchmarking through climate action plan.
- Is the administrative supportive of integrating climate change in policies or actions? Yes, policies and resolutions of commitment were part of climate action plan.
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? Yes, for example Hoboken is a LEED Gold city and has purchase 100% renewables for municipal operations.

The table below summarizes the jurisdiction’s adaptive capacity rating for each hazard of concern.





Table 9.6-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	High
Coastal Storm	High
Drought	Medium
Earthquake	Medium
Extreme Temperature	High
Flood	High
Geological Hazards	Medium
Severe Storm	High
Winter Storm	High
Wildfire	Low
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.6.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.6-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Zoning Office
Who is your floodplain administrator? (name, department/position)	Ann Holtzman CFM, Community Development, Zoning Officer
Are any certified floodplain managers on staff in your jurisdiction?	Yes, 4
What is the date that your flood damage prevention ordinance was last amended?	2013
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Exceeds, most DFE's are 3-4' above existing FIRMS.
When was the most recent Community Assistance Visit or Community Assistance Contact?	The last CAV was conducted on November 16, 1990. Community Assistance Contact made in 2017 and 2018.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state what they are.	Yes/No - Insert appropriate information
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If no, state why.	Yes, the FEMA ABFE's were adopted in 2013
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
<input checked="" type="checkbox"/> If so, what type of assistance/training is needed?	Technical, geospatial and financial
Does your jurisdiction participate in the Community Rating System (CRS)? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	No, the City does not participate in the CRS program. Yes, the City is interested in joining the CRS program.
How many flood insurance policies are in force in your jurisdiction?*	9,650
What is the insurance in force?	\$2,222,560,500
What is the premium in force?	\$7,640,652
How many total loss claims have been filed in your jurisdiction?*	1,888
How many claims are still open or were closed without payment?	492
What were the total payments for losses?	\$51,117,220.31





Criterion	Response
Do you maintain a list of properties that have been damaged by flooding?	Yes
Do you maintain a list of property owners interested in flood mitigation?	Yes

*According to FEMA statistics as of September 30, 2018

9.6.4.8 ADDITIONAL AREAS OF EXISTING INTEGRATION

- **Zoning Department** – On the Zoning Department’s webpage, links to the flood maps for the City of Hoboken are provided to allow residents to determine where the FEMA flood maps can be viewed (<https://www.hobokennj.gov/fags/where-can-i-find-a-copy-of-the-flood-map-for-hoboken>).
- **Sustainable Jersey** – In April 2010, City Council passed a resolution supporting the City of Hoboken’s participation in the Sustainable Jersey certification program. In 2011, the City was awarded the bronze certification through this program. The certification recognizes the achievements that the City has made in encouraging environmental sustainability. In 2014, the City was re-certified as bronze and then in 2017, the City was re-certified by Sustainable Jersey as a silver certified city.
- **Resilient Building Design Guidelines** - These guidelines provide an overview of the laws and regulations governing construction within Hoboken’s flood-prone areas, as well as the approval process for repairs, improvements, and new Construction. It also provides flood resilience strategies for residents, property and building owners, developers, and businesses. The guidelines state that all regulated construction is required to be inspected and approved to determine compliance with flood hazard standards. When construction or renovation work is completed on an area of a building below flood elevation a new as-built elevation certificate must be provided to the Floodplain Administrator prior to final inspection. For floodproofed buildings, an engineer-certified FEMA Floodproofing Certificate will be required instead of an as-built elevation certificate.
- **Resiliency Parks** – the Southwest Resiliency Park was completed in 2017 and designed to store 200,000 gallons of stormwater. The Northwest Resiliency Park is set to be finished in 2021. It is proposed to be the largest park in the Mile Square and will span from Madison to Adams Street, 13th Street to the north of 12th Street to the south. It will store one million gallons of stormwater and will treat rain falling on the site and stormwater from adjacent roadways through green infrastructure.
- **LEED Certified** – The City was certified as the first LEED Gold city in New Jersey. This rating was granted sing the USGBC Leadership in Energy and Environmental Design (LEED) for Cities rating system. LEED for Cities enables Hoboken to measure and track sustainability metrics in energy and water use, waste generation, transportation, and community development.
- **Resilient Building Design Guidelines** – This document serves as guidelines to provide an overview of the laws and regulations governing construction within the City’s floodprone areas, as well as the approval process for repairs, improvements, and new construction. The guidelines also provide flood resilience strategies for residents, property and building owners, developers, and businesses.
- **Rebuild by Design – Hudson River** - The United States Department of Housing and Urban Development (HUD) launched the Rebuild by Design (RBD) competition in the summer of 2013 to develop ideas to improve physical, ecological, economic, and social resilience in regions affected by Superstorm Sandy. During the competition, a comprehensive urban stormwater management strategy was developed for the Cities of Hoboken and Jersey City, and the Township of Weehawken that included hard infrastructure and soft landscape for coastal defense; policy recommendations, guidelines, and urban infrastructure to slow stormwater runoff; green and grey infrastructure improvements to allow for greater storage of excess rainwater; and water pumps and alternative routes to support drainage. The project was developed with the goal of reducing frequent flooding due to storm surge, high tide,





and heavy rainfall. HUD awarded \$230 million to the State of New Jersey for the implementation of the first phase of the project.

Phase I includes a master plan for the entire strategy; studies and pilot projects on various aspects of the overall strategy; and the following catalytic projects: coastal defense at Hoboken Station and surroundings, coastal defense at Weehawken Cove, and pump station and greenbelt combined sewer outflow (CSO) wetland pilot project. This phase includes an environmental impact analysis of the overall master plan for the entire project and funding for the construction of the catalytic coastal defense and stormwater management projects consistent with the Delay, Store and Discharge strategies.

- Rebuild by Design – Hudson River: Environmental Impact Statement** - The project is located in the City of Hoboken and includes the southern portion of the Township of Weehawken and the northern portion of Jersey City. The project’s study area has the following approximate boundaries: the portion of the Hudson River, which encompasses piers within the study area to the east; Baldwin Avenue (in Weehawken) to the north; the Palisades to the west; and 18th Street, Washington Boulevard, and 14th Street (in Jersey City) to the south. A majority of the study area (73%) is located within the Hudson River’s 1% annual chance floodplain. The study area identified the two main entry points of floodwater during coastal storm surge events: the area around Long Slip Canal and Hoboken Terminal, as well as Weehawken Cove. Water enters these areas because they are the lowest topographic areas. Because of this, it prevents water from receding after an event.

9.6.5 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The City of Hoboken’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.6-11 provides details regarding municipal-specific loss and damages the City experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.6-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (DR-4264)	Yes	Low pressure moving across the deep South on Thursday January 21st and Friday January 22nd intensified and moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in	\$162,405.70





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			<p>and out of airports lagged through Monday January 25th as airlines preemptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.</p>	
4/16/2018	Flash Flood	No	<p>Heavy rainfall developed across the area on the morning of April 16th ahead of a slow moving warm front. This rain developed in an environment with precipitable water values greater than 1.25 inches, well above normal for mid-April. Rainfall totals generally ranged from 2.5 to 4.5 inches across northeast New Jersey, with the majority of the rain falling in a 3-4 hour period. This resulted in flash flooding across the region. A water rescue was underway at the intersection of Passaic Avenue and Johnston Avenue in Kearny with a car trapped in water up to the window. Multiple roads were closed due to flooding in Hoboken. These roads include Grove Street, Henderson Street, 9th Street between Monroe Street and Madison Street, Madison Street between 8th Street and 10th Street, and the intersections of Clinton Street and 1st Street, Jackson Street and 3rd Street, and Jackson Street and 6th Street.</p>	<p>Multiple roads were closed due to flooding in Hoboken. These roads include Grove Street, Henderson Street, 9th Street between Monroe Street and Madison Street, Madison Street between 8th Street and 10th Street, and the intersections of Clinton Street and 1st Street, Jackson Street and 3rd Street, and Jackson Street and 6th Street.</p>
8/11/2018	Flash Flood	No	<p>A stalled stationary boundary within a very moist airmass provided a focusing mechanism for several rounds of heavy rain that resulted in widespread flash flooding across northeast New Jersey. The Caldwell, NJ ASOS recorded 4.92 inches of rain, and multiple other stations across northeast New Jersey received between 2.5 inches and 4 inches of precipitation. Frank E. Rogers Boulevard was under water near the PATH station in Harrison. Manhole covers were being pushed up resulting in flash flooding on Danforth Avenue in Jersey City. Several roads around the city of Hoboken were flooded and impassable.</p>	<p>Several roads around the city of Hoboken were flooded and impassable.</p>





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 2020-ongoing	COVID-19 Pandemic (DR-4488)	Yes	Coronavirus disease (COVID-19) is an infectious disease first identified in 2019. The virus rapidly spread into a global pandemic by spring of 2020. The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. In New Jersey, the first confirmed case was on March 4 th and quickly spread throughout the State. On March 24 th , New Jersey was included in a major disaster declaration by FEMA.	On March 3 rd , Mayor Bhalla issued a statement about COVID-19 and the precautions the City is taking. The City declared a state of emergency on March 12 th . The City’s website is updated frequently with information for residents and the City uses Nixle to provide alerts. As of April 21 st , there were 396 reported cases of COVID-19 in the City.

9.6.6 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.6-12 summarizes the City of Hoboken’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.6-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	562	CEHA:	15	CEHA:	\$21,465,160	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	4	SLR +1ft:	\$1,886,017	
		SLR +3ft:	0	SLR +3ft:	7	SLR +3ft:	\$167,419,492	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	35,153	Category 1:	2,872	100-year Wind Loss:	\$13,950,554	High
		Category 2:	47,541	Category 2:	3,735			
	Category 1 through Category 4 SLOSH	Category 3:	51,058	Category 3:	4,116	500-year Wind Loss:	\$90,357,680	
		Category 4:	52,245	Category 4:	4269			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	20,478	NEHRP D&E:	1,340	100-year Loss:	\$359,007	High
		Liquefaction Class 4:	25,152	Liquefaction Class 4:	1,755	500-year Loss:	\$26,998,811	
						2,500-year Loss:	\$397,869,640	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,404	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	5,628					
Flood	100- and 500-Year Mean Return Period Event	100-year	34,465	100-year	2,745	100-year Loss:	\$818,818,508	High
		500-year	42,285	500-year	3,316			
Geological	High Landslide Susceptibility Areas	Class A:	29	Class A:	4	Class A:	6718335.524	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





9.6.6.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the City of Hoboken.

- Number of repetitive loss (RL) properties: 177
- Number of severe repetitive loss (SRL) properties: 14
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.6.6.2 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain. It should be noted that every property in the table below will receive, as noted by the City of Hoboken, the direct benefits of flood risk reduction through the Rebuild by Design (RBD) coastal flood risk reduction measure. The current DFE of the levee/seawall is 15 feet, which is approximately six feet over the existing 2006 FIRM BFE of nine feet. Individual flood risk mitigation measures for these facilities is not practical/cost effective given that the RBD project will greatly reduce/mitigate flood risk.

Table 9.6-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation**
		1% Event	0.2% Event	
HOBOKEN FD ENGINE COMPANY 1/LADDER COMPANY 2*	Fire	X	X	Installed generator; refer to 2020-HOBOKEN-018
HOBOKEN FD ENGINE COMPANY 4 / RESCUE COMPANY 1*	Fire	X	X	Installed generator; refer to 2020-HOBOKEN-018
HOBOKEN FD – HEADQUARTERS*	Fire	X	X	Installed generator; refer to 2020-HOBOKEN-018
Hoboken University Medical Center*	Hospital	X	X	Installed generator; will be protected by the RBD project once complete
Elysian Charter School Of Hoboken	School	X	X	Installed generator; will be protected by the RBD project once complete
Hoboken Catholic Academy	School	X	X	Facility will be protected once the RBD project is completed
Hoboken Charter School-Upper School	School	X	X	Facility will be protected once the RBD project is completed
Hoboken Dual Language Charter School (Hola)-Elementary School	School	X	X	Facility will be protected once the RBD project is completed
Hoboken High School*	School	X	X	Installed generator; will be protected by the RBD project once complete
The Hudson School	School	X	X	Facility will be protected once the RBD project is completed
Joseph F. Brandt No. 2 Elementary School	School	X	X	Facility will be protected once the RBD project is completed
Mustard Seed School	School	X	X	Facility will be protected once the RBD project is completed
Salvatore R. Calabro	School	X	X	Facility will be protected once the RBD project is completed
Stevens Cooperative School, Hoboken Campus	School	X	X	Facility will be protected once the RBD project is completed
Thomas G. Connors Elementary School	School	X	X	Facility will be protected once the RBD project is completed





Name	Type	Exposure		Status of Mitigation**
		1% Event	0.2% Event	
Wallace No. 6 Elementary School*	School	X	X	Facility will be protected once the RBD project is completed
Hoboken Terminal*	Rail	X	X	Facility will be protected once the RBD project is completed
Hoboken*	Rail	X	X	Facility will be protected once the RBD project is completed
Hoboken Terminal*	Rail	X	X	Facility will be protected once the RBD project is completed
Hoboken North-14th Street Ferry Terminal*	Ferry	X	X	Facility will be protected once the RBD project is completed
Hoboken Ferry Terminal*	Ferry	X	X	Facility will be protected once the RBD project is completed
HOBOKEN LIBRARY	Library	X	X	Installed generator; will be protected by the RBD project once complete
Hoboken EMS*	EMS	X	X	Installed generator; will be protected by the RBD project once complete
Cognis Corp.	Hazmat	X	X	Remediated for Stormwater Management
Cognis Corp.	Hazmat	X	X	Scheduled for redevelopment; any redevelopment will follow the City's regulations for construction in the flood hazard areas
Cognis Corp.	Hazmat	X	X	Facility will be protected once the RBD project is completed
Cognis Corp.	Hazmat	X	X	Elevated Above Floodplain – no mitigation action needed
Cognis Corp.	Hazmat	X	X	Elevated Above Floodplain – no mitigation action needed
Hoboken DPW*	DPW	X	X	Consolidated at Madison St., In process of decommission – no mitigation action needed
International Bus Svc	Bus	X	X	Dry and wet floodproofing
Hoboken Sub*	Electric Substation	X	X	Installed generator; substation was rebuilt and elevated above the DFE
Madison St. Sub*	Electric Substation	X	X	New substation and elevated above the DFE – will be completed by December 2020
Marshall St. Sub*	Electric Substation	X	X	This station will be decommissioned and remediated. It is now located within the Madison St. station.
North Hudson Sewerage Authority*	Wastewater Treatment	X	X	The facility is dry floodproofed and has backup generators; prior to flood events, NHSA implements procedures to protect equipment and provide continuity of operations. This includes moving equipment and installing sand bags.
Pump Station 5th Street*	Wastewater Pump	X	X	NHSA applied to FEMA for funding to raise the generator and electrical controls to the 2 nd story; however, the grant was not awarded. Prior to flooding events, the NHSA implements procedures protect equipment and provide continuity of operations. This includes moving equipment and installing sand bags.
Pump Station H1*	Wastewater Pump	X	X	Generator installed; this location will be located behind the Rebuild by Design flood barrier when completed
Columbian Arms	Senior	X	X	Refer to 2020-HOBOKEN-019
Columbian Towers	Senior	X	X	Refer to 2020-HOBOKEN-019
Fox Hill Housing	Senior	X	X	Refer to 2020-HOBOKEN-019





Name	Type	Exposure		Status of Mitigation**
		1% Event	0.2% Event	
Marion Towers	Senior	X	X	Refer to 2020-HOBOKEN-019
Hoboken Homeless Shelter	Shelter	X	X	Generator installed; will be protected by the RBD project once complete
Multi-Service Center	Shelter	X	X	Facility will be protected once the RBD project is completed
Sunoco	Gas Station	X	X	Facility will be protected once the RBD project is completed
Local TV Channel 78 at HS - broadcast	Communication	X	X	Facility will be protected once the RBD project is completed

Note:

*Identified lifeline

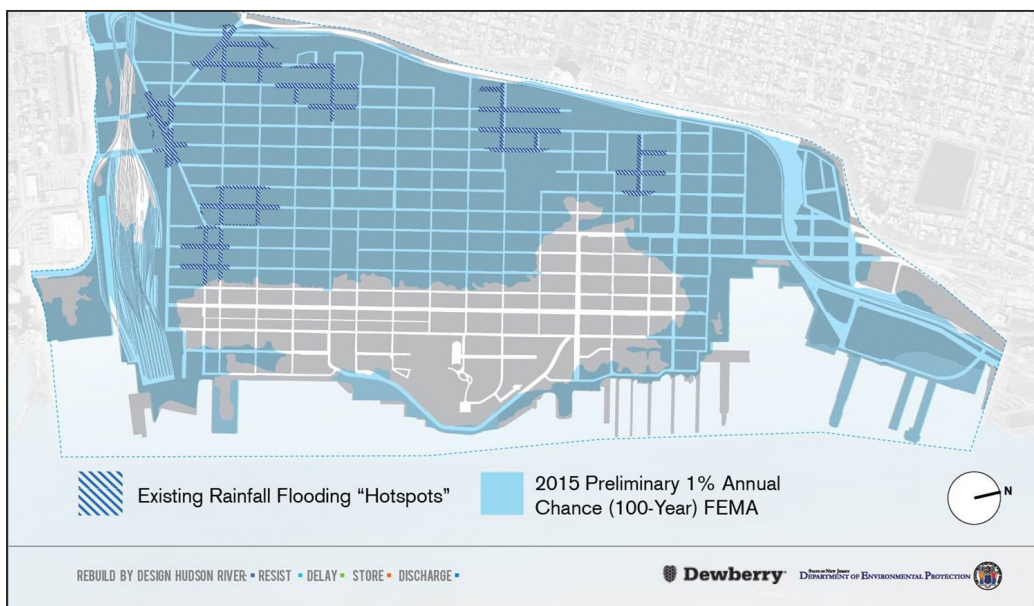
** It should be noted that every property in the table below will receive the direct benefits of flood risk reduction through the Rebuild by Design (RBD) coastal flood risk reduction measure. The current DFE of the levee/seawall is 15 feet, which is approximately six feet over the existing 2006 FIRM BFE of nine feet. Individual flood risk mitigation measures for these facilities is not practical/cost effective given that the RBD project will greatly reduce/mitigate flood risk.

9.6.6.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Active Shooter, added as annex to EOP in 2017
- The following figure shows the known areas of flooding in the City due to heavy rainfall events.

Figure 9.6-1. Rainfall Hotspots in the City of Hoboken



9.6.6.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Hoboken that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the City of Hoboken has





significant exposure. A map of the City of Hoboken hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain as well as identified critical facilities within the municipality.

9.6.6.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Hoboken. The City of Hoboken has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard ranking, the City adjusted the ranking of Coastal Erosion and Sea Level Rise from medium to high based on future climate change projections and mitigation actions they are proposing.

Table 9.6-14. City of Hoboken Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
High	High	Medium	High	High	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	Low

9.6.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.6.7.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.6-15. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
COH-1	Purchase tracts of land and reengineer them as parks and open spaces with on grade flood water retention and subsurface detention facilities to reduce localized flooding.	City of Hoboken Community Development	In progress 2 completed, 1 in construction, 1 in procurement	X	2020-HOBOKEN-004
COH-2	Coordinate with FEMA and Floodplain Administer to obtain access to the Community Rating System	City of Hoboken Zoning Officer	In progress	X	2020-HOBOKEN-005
COH-3	Install flood sensors and gages at key points in the city to relay information to the city's leaders so they can make knowledgeable decisions and best inform the public.	North Hudson Sewerage Authority	Complete – NHSA has a real time system and dashboard that was implemented in 2018		
COH-4	Construct Wet Weather Pump Station #3	City of Hoboken	In progress	X	2020-HOBOKEN-006
COH-5	Develop sea walls, flood gates, removable flood barriers, berms, levees or other coastal protection measures to protect the City from coastal storm surge	Municipal Manager	In progress funded \$230M by CDBG-DR		
COH-6	Design and construct a sustainable stormwater management system to reduce stormwater runoff and flooding.	City of Hoboken Planning	In progress	X	2020-HOBOKEN-007
COH-7	Relocate Utilities above Design Flood Elevation for Municipal Facilities	City of Hoboken Zoning	Ongoing Capability	-	-
COH-8	Create a mechanism for residents to apply for assistance with the procurement and installation of sump pumps and backflow preventers as well as elevation of utilities.	City of Hoboken FPA	No progress	X	2020-HOBOKEN-008
COH-9	Purchase specialized equipment to enable first responders to be most effective when it is most needed. Train first responders to operate fluently within the specific environmental hazards presented by urban flooding	City of Hoboken Department of Public Safety	Complete		
COH-10	Support a county level study about shelter needs	City of Hoboken OEM	No progress	X	2020-HOBOKEN-009
COH-11	Install shower facilities for sheltering at Wallace School to improve hygiene standards for those sheltering during emergencies.	City of Hoboken OEM	No progress due to funding; remove from HMP		
COH-12	Collaborate with adjacent municipalities to establish a working relationship at the operational level of agencies relevant to disaster in order to better prepare for disasters.	City of Hoboken Department of Public Safety	Complete		
COH-13	Procurement of distributed generation and installment of medium voltage distribution network to ensure redundant and consistent power supply to critical facilities.	Municipal Manager	In progress	X	2020-HOBOKEN-010
COH-14	Purchase and Installation of Emergency Backup Generators at municipal facilities identified by Sandia National Laboratories micro-grid study. For facilities located within the floodplain	Business Administration	Complete/In progress		





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	additional retrofitting of electrical systems and elevation of generators is necessary.				
COH-15	Where practical, underground utility wires in new construction, and redevelopment projects. Plan city owned infrastructure underground.	PSE&G	Ongoing Capability – this done where feasible		
COH-16	Obtain mobile generators, and install quick disconnects for generators at fuel stations.	City of Hoboken OEM	In progress	X	2020-HOBOKEN-011
COH-17	Purchase trailer mounted backup generators to support installation generators for the eventualities of maintenance and or failure.	Department of Public Safety	Complete		
COH-18	Purchase a mobile command post to be utilized for local Incident Command and EOC if necessary.	City of Hoboken OEM	ASK SGT MONTANEZ	X	
COH-19	Establish full time dedicated emergency operations center that supports police, fire & emergency operations communication with on-site resources that enable prolonged operation during emergency.	Public Safety Office	Complete – the City has an EOC		
COH-20	Update existing EOC in City Hall and ensure its ability to maintain operations during reasonable hazards, and then plan for redundant locations.	City of Hoboken OEM	In progress	X	2020-HOBOKEN-012
COH-21	Make existing communication system work: establish a list of critical personnel (mayor, police chief, etc.) and all methods to contact them (i.e. all phone numbers, emails, locations they are likely to be during crisis); ensure interoperability between police and fire radios and redundancy in repeating stations.	Department of Public Safety	Completed 2017 EOP update		
COH-22	Actively defend city computer systems from malicious activity, maintain full backups on and off site and establish a data link independent of local infrastructure. Secure servers by lock and key in City Hall and designate discreet locations for servers.	Business Administration	In progress	X	2020-HOBOKEN-013
COH-23	Purchase 8 towed road message boards with solar power and cellular data link to place at key points in the city. Purchase messaging equipment that can function independent of the status of local infrastructure (specifically power) and be distributed for the maximum number of people to view. Develop emergency communications plan to utilize social media (Facebook, Twitter, text messaging, etc.) and publicize it before the hazard so those who do have access will receive up to date information.	Department of Public Safety	Complete		
COH-24	Coordinate annual awareness campaigns with CERT members	City of Hoboken OEM	In Progress	X	2020-HOBOKEN-014
COH-25	Provide citizens with the tools to safely shelter in place, organize during an emergency, disseminate information goods and services in a coordinated manner, and augment emergency services through establish command protocols.	City of Hoboken OEM	In Progress	X	2020-HOBOKEN-015





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
COH-26	Update local land use regulations to reflect flood hazards. Update zoning code and design standards to prioritize hazard mitigation in site design and building orientation.	Department of Community Development	Complete		
COH-27	Develop plans for different inundation scenarios. Addition research and development of evacuation procedures and methodology for systematic shut down of city and services.	Public Safety Office	Ongoing Capability		
COH-28	Develop comprehensive strategy for emergency ferry use	Department of Public Safety	Ongoing Capability		
COH-29	Continuously act to prevent, mitigate, prepare, respond and recover from catastrophic events as a community.	City of Hoboken OEM	Ongoing Capability		
COH-30	On-going mitigation projects change the scope and severity of risk in the City. Annually updating the EOP plan helps the city maintain a current list of responsibilities, roles and stakeholders.	City of Hoboken OEM	Ongoing Capability		
COH-31	Purchase two snow melters to increase the City's capacity to remove snow and support county initiatives to deal with the problem holistically.	Hoboken DPW	Completed		
COH-32	Commission a study to find the likelihood of land failure in the Palisades, the areas threatened by that failure and proposes steps to be taken to mitigate the hazard.	City of Hoboken Planning	No Progress		
COH-33	Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage.	Construction Office	Ongoing Capability		
COH-34	Support the construction of four wet weather pump stations to protect the low lying areas of Hoboken from flooding. (See North Hudson MUA Initiative NHA-1)	Construction Office	In progress	X	2020-HOBOKEN-016
COH-35	Work with Hoboken University Medical Center and Sub-Clinic to develop and implement mitigation activities to prevent loss of service and/or need to evacuate. Potential activities include relocating utilities above flooding and storm surge levels, hurricane resistant glass, assuring that critical functions are located on floors above flood levels, etc.	Hoboken OEM	Ongoing Capability – the Medical Center and Clinic are working to mitigate from hazards of concern		
COH-36	Retrofit critical facilities identified as vulnerable to natural hazards. Specific retrofit actions include elevating utilities and backup generators, and providing redundant utilities where lacking or inadequate. Locations include police and fire, town hall, and senior facilities.	Hoboken OEM	Ongoing Capability – this is done as needed		
COH-37	The City has a Master Plan (2004) and a Reexamination Plan (2010). The HMP will be used as a resource to include hazard mitigation for the next Master Plan update.	City Administrator	Complete – the Master Plan was updated in 2019		





In addition to the above progress, the City of Hoboken has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- Block 10 acquisition for implementation of delay and store strategies as part of Rebuild by Design
- Partner with NJ Transit to construct stormwater mitigation Park at Hoboken Housing Authority. Separate Sewer System in adjacent roadways to contribute flows to the project
- Install 61 ROW Bioswales as part of Rebuild by Design Delay strategy buildout
- Rebuild Hoboken Police Headquarters
- Incorporate roadway elevation projects are part of low-lying area flood risk mitigation. Areas include 9th and Madison St. as well as the areas of the North End Redevelopment Plan

9.6.7.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The City of Hoboken participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The City of Hoboken participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.6-16 summarizes the comprehensive-range of specific mitigation initiatives the City of Hoboken would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.6-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.6-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-HOBOKEN-001	Real Estate Disclosure	Problem: Residential Properties located in the special flood hazard area are vulnerable to property damage from coastal flooding	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 5	City Floodplain Administrator	City Budget	Identifies floodplain and hazard areas before point of sale, informs potential property owners the location of the structure	<\$10,000	1 year	High	LPR	PR
		Solution: Disclosure of floodplain and hazard information at point of sale can educate											
2020-HOBOKEN-002	Disaster Recovery Ordinance	Problem: The City currently does not have a Disaster Recovery Ordinance.	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 5	City Floodplain Administrator	City Budget	Help manage procurement, triage and priorities during a hazard event	<\$10,000	1 year	High	LPR	PR
		Solution: Develop a Disaster Recovery ordinance to help manage procurement, triage and priorities.											
2020-HOBOKEN-003	Disaster Reconstruction Ordinance	Problem: The City currently does not have a Disaster Reconstruction Ordinance.	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 5	City Floodplain Administrator	City Budget	Help manage procurement, triage and priorities during a hazard event	<\$10,000	1 year	High	LPR	PR
		Solution: Develop a Disaster Reconstruction ordinance to help manage procurement, triage and priorities.											
2020-HOBOKEN-004 (previous action)	Open Space Acquisitions	Problem: Street level flooding occurs during heavy rain events in southwest Hoboken. See figure 9.6-1.	Existing	Coastal Storm, Severe Weather, Flood	1, 2	City of Hoboken Community Development	FEMA FMA and HMGP	Losses will be avoided on the properties that are purchased could range from minor regular flooding to catastrophic loss during an extreme event.	\$1 million+	Within 5 years (depends on funding)	Medium	NSP	PP, ES
		Solution: Purchase tract of land and re-engineer to parks and open space with on-grade flood water retention and subsurface detention facilities to reduce localized flooding.											
2020-HOBOKEN-005 (previous action)	Join the CRS Program	Problem: The City is currently not in the CRS program. By not participating, homeowners and businesses are not receiving a discount on their flood insurance premiums. There are 179 repetitive loss and 8 severe repetitive loss properties in the City.	New and Existing	Flood	1, 5	City of Hoboken Zoning Officer	City Budget	Reduction in flood insurance rates from NFIP insured homeowners	<\$10,000	Within 5 years	High	EAP	PI
		Solution: The City will develop an action plan to determine the next steps in joining the CRS program.											
2020-HOBOKEN-006 (previous action)	Pump Station #3	Problem: Street level flooding occurs during heavy rain events in Hoboken.	Existing	Coastal Storm, Flood, Severe Weather	1, 6	City of Hoboken Public Works Department, NHSA	FEMA FMA and HMGP, NJ EIT	With added capacity to the city's drainage system flooding will be reduced, significant property damage can be averted, health	>\$100,000	Within 5 years (depends on funding)	High	SIP	PP
		Solution: Construct Wet Weather Pump Station #3 as recommended in Emnet Report											





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CFS Category
								conditions will be improved.					
2020-HOBOKEN-007 (previous action)	Sustainable Stormwater Management System	Problem: City Right of Way is underutilized for flood risk reduction. Solution: Design and construct a sustainable stormwater management system consistent with the Rebuild by Design 61 ROW Bioswale designs to reduce stormwater runoff and flooding.	New	Flood	2, 3	City of Hoboken Planning	FEMA FMA and HMGP, NJ EIT	Reduce the volume of water in need of processing by the city's sewage system.	>\$100,000	Within 5 years (depends on funding)	Medium	SIP	PP
2020-HOBOKEN-008 (previous action)	Financial Assistance for Sump Pumps	Problem: There is a lack of small loans and financing mechanisms for individuals to install risk reduction measures. Solution: Create a mechanism for residents to apply for assistance with the procurement and installation of sump pumps and backflow preventers as well as elevation of utilities.	New and Existing	Flood	2, 5	City of Hoboken FPA, Construction Office	Open Space Fund	Reduce flood claims; reduce flood damage	>\$100,000	Within 5 years	Medium	SIP, NSP	PP
2020-HOBOKEN-009 (previous action)	Citywide Shelter Needs Assessment	Problem: The City does not have a shelter in place plan that would support evacuation of the entire special flood hazard area Solution: Develop a shelter needs assessment program	N/A	All	1	City of Hoboken OEM	FEMA PDM, HSGP, SHSP	Sheltering needs in the city are not as understood as needed; this could lead to larger than necessary loss of life if large scale sheltering is needed.	<\$10,000	Within 5 years (depends on funding)	High	LPR	PR, ES
2020-HOBOKEN-010 (previous action)	Develop City-Wide Microgrid	Problem: The PSE&G distribution system of radial and network feeders is designed for reliability, not necessarily resiliency. Solution: Procurement of distributed generation and installment of medium voltage distribution network to ensure redundant and consistent power supply to critical facilities. Project Implementation consistent with TCDCR PHASE I & II microgrid funded through the New Jersey Board of Public Utilities	New and Existing	All	2, 6	Municipal Manager, Zoning and Construction Departments	U.S. Department of Energy, Municipal Bonds	Losses associated with business interruption, lack of communication.	>\$100,000	Within 5 years (depends on funding)	High	SIP	PP
2020-HOBOKEN-011 (previous action)	Supply emergency power to gas stations	Problem: The fuel stations in the City do not have backup power. In the event of a power outage, municipal officials cannot fuel their vehicles. This can lead to disruption of services. Solution: Obtain mobile generators and install quick disconnects for generators at fuel stations.	N/A	All	1, 6	City of Hoboken OEM	City Budget	Continuity of operations, constant fuel supply	\$20,000	Within 5 years (depends on funding)	High	LPR	ES
	Purchase Mobile EOC	Problem: City Hall emergency operations center is not built to modern standards	N/A	All	1, 2, 6	City of Hoboken OEM	HSGP, SHSP		\$200,000	Within 5 years	High	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CFS Category
2020-HOBOKEN-012 (previous action)		Solution: Update existing EOC in City Hall and ensure its ability to maintain operations during reasonable hazards, and then plan for redundant locations.						Losses avoided through a more effective response.		(depends on funding)			
2020-HOBOKEN-013 (previous action)	Secure City Network Data	Problem: Multiple attacks and attempts have occurred on city telecommunication systems Solution: Actively defend city computer systems from malicious activity, maintain full backups on and off site and establish a data link independent of local infrastructure. Secure servers by lock and key in City Hall and designate discreet locations for servers.	N/A	Cyber Attack	2, 6	Business Administration	HSGP, SHSP, City Budget	The city will avoid loss through preservation of systems.	<\$10,000	Within 5 years (depends on funding)	High	SIP	ES
2020-HOBOKEN-014 (previous action)	Public Awareness & Education Campaign	Problem: Hoboken has a high rate of rental and condominium turnover. Many residents are not aware of different risks and hazards within the city. Solution: Coordinate annual awareness campaigns with CERT members	N/A	All	All	City of Hoboken OEM	City Budget	Better prepared CERT team and public	<\$10,000	Within 5 years (depends on funding)	High	EAP	PI, ES
2020-HOBOKEN-015 (previous action)	Expansion of Community Emergency Response Team & Hoboken Ready Campaign	Problem: There is inadequate shelter space outside of the special flood hazard area, and many residents may not have access to transportation. Solution: Provide citizens with the tools to safely shelter in place, organize during an emergency, disseminate information goods and services in a coordinated manner, and augment emergency services through establish command protocols.	N/A	All	All	City of Hoboken OEM	City Budget	Better prepared community	\$50,000	Within 5 years (depends on funding)	High	EAP	PI, ES
2020-HOBOKEN-016 (previous action)	Construction of wet weather pump stations	Problem: North Hudson Sewerage Authority does not have the pumping capacity to actively dewater streets during a heavy rain event. Solution: Support the construction of four wet weather pump stations to protect the low lying areas of Hoboken from flooding.	New	Coastal Storm, Flood, Severe Weather	1, 2	NHSA, Construction and Zoning Departments	FEMA FMA and HMGP	Protect the low lying areas of Hoboken from flooding	\$250,000	Within 5 years (depends on funding)	High	SIP	PP
2020-HOBOKEN-017	Independent Flood Mapping Project	Problem: Currently using the 2013 ABFEs (plus freeboard); however, they do not fully represent the flood hazards in the City. Higher standards are needed for future planning and to protect future development from flood hazards and sea level rise. Solution: Conduct an independent mapping project that incorporates higher regulatory standards that they will use for floodplain management administration, separate from FEMA maps. These will be used for ongoing construction projects. This will include a sea level rise projections – used as	New and Existing	Flood, Severe Weather, Sea Level Rise, Coastal Storm	All	City of Hoboken, Resiliency and Planning Teams	FEMA PDM , City Budget	Identifies higher standards for new construction, increases flood resiliency	\$50,000+	Within 5 years	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CFS Category
		public outreach tools and use for future mitigation planning in the City.											
2020-HOBOKEN-018	Fire Department Feasibility Study	<p>Problem: A majority of the fire department facilities are located in the floodplain. They are scattered throughout the City. During a flood event, a department might not be able to respond to an emergency and/or sustain building and equipment damage associated with flooding.</p> <p>Solution: Conduct a feasibility study for the City's fire departments and EMS facilities. The study will look at alternative locations, outside of the floodplain, to relocated these emergency facilities. It will also look at the potential for incorporating into redevelopment plans and evaluate the costs of conducting the relocation.</p>	New and Existing	Flood, Coastal Storm, Severe Storm	All	Hoboken OEM and Fire Department	FEMA PDM, FEMA Fire Assistance, City Budget	Identifies solutions to protect emergency facilities from damage, continuity of operations	\$50,000	Within 5 years	High	LPR	PR, ES
2020-HOBOKEN-019	Assessment of Senior Citizen Housing	<p>Problem: Senior citizen buildings and Hoboken Housing Authority buildings are located in the floodplain. During a flood event, it is difficult for these residents to evacuate.</p> <p>Solution: Comprehensive assessment of all senior citizen buildings and Hoboken Housing Authority Buildings to create an action plan for elevating critical facilities and housing units that are below design flood elevation. This assessment will create a cost estimate for each facility and then the City will seek funding to complete the elevation projects.</p>	Existing	Flood, Coastal Storm, Severe Storm	All	Hoboken Housing Authority and City Administration	CDBG, FEMA PDM, City Budget	Identifies buildings that need to be mitigated, protects critical facilities	\$50,000+	Within 5 years	High	LPR	PR
2020-HOBOKEN-020	Mitigate flood-prone properties, including RL/SRL properties	<p>Problem: There are 178 repetitive loss and eight severe repetitive loss properties in the City of Hoboken. Frequent flooding has resulted in damages to these structures as documented by paid NFIP claims.</p> <p>Solution: Conduct outreach to the flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement the best mitigation option.</p>	Existing	Flood, Severe Weather, Coastal Storm	1, 2	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$40 million+	Within 5 years	Medium	SIP, EAP	PI, SP
2020-HOBOKEN-021	Pandemic Preparedness Plan and Training	<p>Problem: The City does not have a formal pandemic preparedness plan. Due to the recent pandemic, the City realizes having a formal plan is essential in becoming more prepared and able to respond.</p>	N/A	Disease Outbreak	All	Public Safety, Health, OEM, Administration	UASI, HSGP, City Budget	Reduce the impact of a pandemic or outbreak emergency or crisis	\$50,000+	Within 2 years	High	LPR, EAP	PR, PI, ES





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Solution: Working with various City departments, the City will prepare a pandemic preparedness and response plan. The plan will include planning, development, education, practice, testing, evaluation, and annual reviews/updates.											
2020-HOBOKEN-022	Update the City's EOP	Problem: The City's current EOP was last updated in 2017; however, it does not have an Emergency Support Function (ESF) for pandemic. Solution: Update the City's EOP and develop an ESF specifically for pandemic events. It should follow a similar format of the current ESFs. In order to develop this ESF, the City should conduct the following to prepare for a pandemic: hazard analysis, capability assessment, mitigation program, resource management, documentation, critique, reimbursement for recovery costs, training program, and exercise program.	N/A	All Hazards	All	Public Safety, Health, OEM, Administration	UASI, HSGP, City Budget	Better prepared for a pandemic or disease outbreak; provides a list of resources before an event occurs	\$10,000+	Within 1 year	High	LPR	PR, ES
2020-HOBOKEN-023	Historic Preservation and Capital Improvements of City Hall	Problem: City Hall facilities are antiquated and need to be updated to reduce the transmission and exposure to COVID19 Solution: The City is developing an Engineering Infection Plan (EIP) that organizes phases of capital improvements around milestones for re-opening city facilities to the public.	Existing	All Hazards	All	Public Safety, Health, OEM, Administration	City Budget, UASI, HSGP	EIP will reduce the exposure of employees to COVID19 and the employer from workers compensation claims, and lost productivity from staff members out of work.	Approximately \$2.3M over two phases, with the third phase still in design.	July 2020 – December 2020	High	SIP, LPR, EAP	PR, PP, ES, PI

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.





Mitigation Category:

- *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 manmade 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

CRS Category:

- *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 9.6-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HOBOKEN-001	Real Estate Disclosure	1	1	1	1	1	1	1	0	1	1	1	1	0	0	11	High
2020-HOBOKEN-002	Disaster Recovery Ordinance	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2020-HOBOKEN-003	Disaster Reconstruction Ordinance	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2020-HOBOKEN-004 (previous action)	Open Space Acquisitions	1	1	1	1	0	0	0	1	1	1	0	0	1	0	8	Medium
2020-HOBOKEN-005 (previous action)	Join the CRS Program	1	0	1	1	1	1	0	0	1	1	0	0	1	1	9	High
2020-HOBOKEN-006 (previous action)	Pump Station #3	1	1	1	1	1	1	0	-1	1	0	1	0	1	1	9	High





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HOBOKEN-007 (previous action)	Sustainable Stormwater Management System	1	1	1	1	1	0	0	1	1	0	1	0	0	0	8	Medium
2020-HOBOKEN-008 (previous action)	Financial Assistance for Sump Pumps	1	1	1	1	0	0	0	1	1	1	0	0	0	0	7	Medium
2020-HOBOKEN-009 (previous action)	Citywide Shelter Needs Assessment	1	0	1	1	1	1	0	0	1	1	1	0	1	0	9	High
2020-HOBOKEN-010 (previous action)	Develop City-Wide Microgrid	1	1	1	1	1	0	0	1	1	1	1	0	0	0	9	High
2020-HOBOKEN-011 (previous action)	Supply emergency power to gas stations	1	1	1	1	1	0	0	0	1	0	1	0	1	1	9	High
2020-HOBOKEN-012 (previous action)	Purchase Mobile EOC	1	1	1	1	0	1	0	0	0	1	1	0	1	1	9	High
2020-HOBOKEN-013 (previous action)	Secure City Network Data	1	1	1	1	1	1	0	0	0	1	0	0	1	1	9	High
2020-HOBOKEN-014 (previous action)	Public Awareness & Education Campaign	1	1	1	1	1	0	0	0	1	1	1	0	1	1	10	High
2020-HOBOKEN-015 (previous action)	Expansion of Community Emergency Response Team & Hoboken Ready Campaign	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
2020-HOBOKEN-016 (previous action)	Construction of wet weather pump stations	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2020-HOBOKEN-017	Independent Flood Mapping Project	1	1	1	1	1	1	0	1	0	1	1	0	1	1	11	High
2020-HOBOKEN-018	Fire Department Feasibility Study	1	1	1	1	1	1	0	0	0	1	1	0	1	1	10	High
2020-HOBOKEN-019	Assessment of Senior Citizen Housing	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
2020-HOBOKEN-020	Mitigate flood-prone properties, including RL/SRL properties	1	1	1	1	0	0	0	0	1	1	0	0	1	0	7	Medium
2020-HOBOKEN-021	Pandemic Preparedness Plan and Training	1	1	1	1	1	1	0	0	1	1	0	1	1	1	11	High
2020-HOBOKEN-022	Update the City's EOP	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-HOBOKEN-023	Historic Preservation and Capital Improvements of City Hall	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.6-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise	-009, -017, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Coastal Storm	-001, -002, -003, -009, -017, -018, -019	-004, -006, -010, -016	-014, -015, -020	-004	-004, -009, -011, -012, -013, -014, -015, -016, -018, -020	-006, -010, -012, -013		
Dam and Levee Failure	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Drought	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Earthquake	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Extreme Temperature	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Flood	-001, -002, -003, -009, -017, -018, -019	-004, -006, -007, -008, -010, -016	-005, -014, -015, -020	-004, -008	-004, -009, -011, -012, -013, -014, -015, -016, -018, -020	-006, -007, -010, -012, -013		
Geologic	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Severe Weather	-001, -002, -003, -009, -017, -018, -019	-004, -006, -010, -016	-014, -015, -020	-004	-004, -009, -011, -012, -013, -014, -015, -016, -018, -020	-006, -010, -012, -013		
Severe Winter Storm	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		
Wildfire	-009, -019	-010	-014, -015		-009, -011, -012, -013, -014, -015	-010, -012, -013		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

9.6.8 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The City of Hoboken followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity.





Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.6-19. Contributors to the Annex

Entity	Title	Method of Participation
Caleb Stratton	Chief Resilience Officer	Attended meetings, provided input during planning process, identified mitigation strategies
Ann Holtzman	Zoning Officer and Floodplain Administrator	Attended meetings, provided input during planning process, identified mitigation strategies





Figure 9.6-2. City of Hoboken Hazard Area Extent and Location Map 1

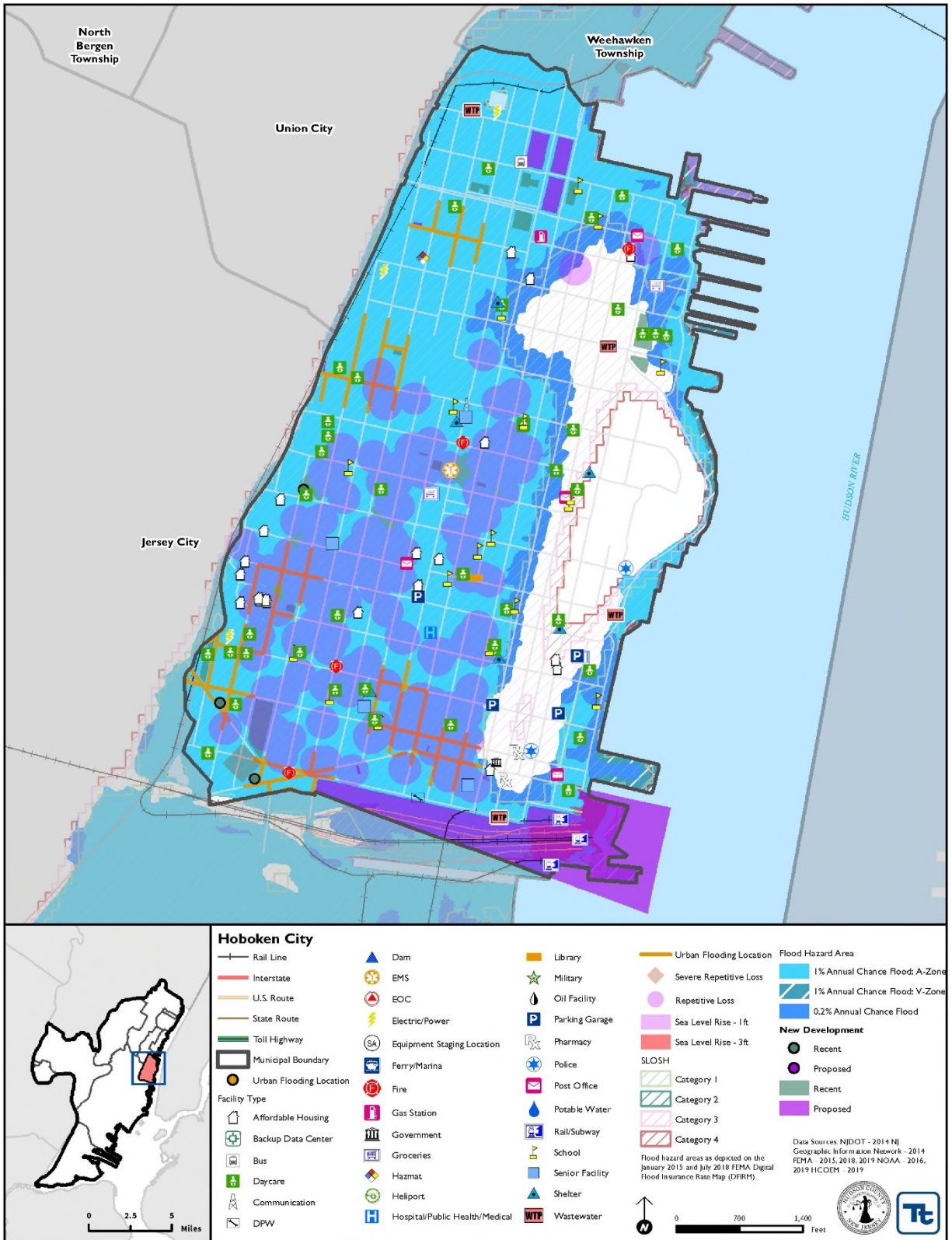
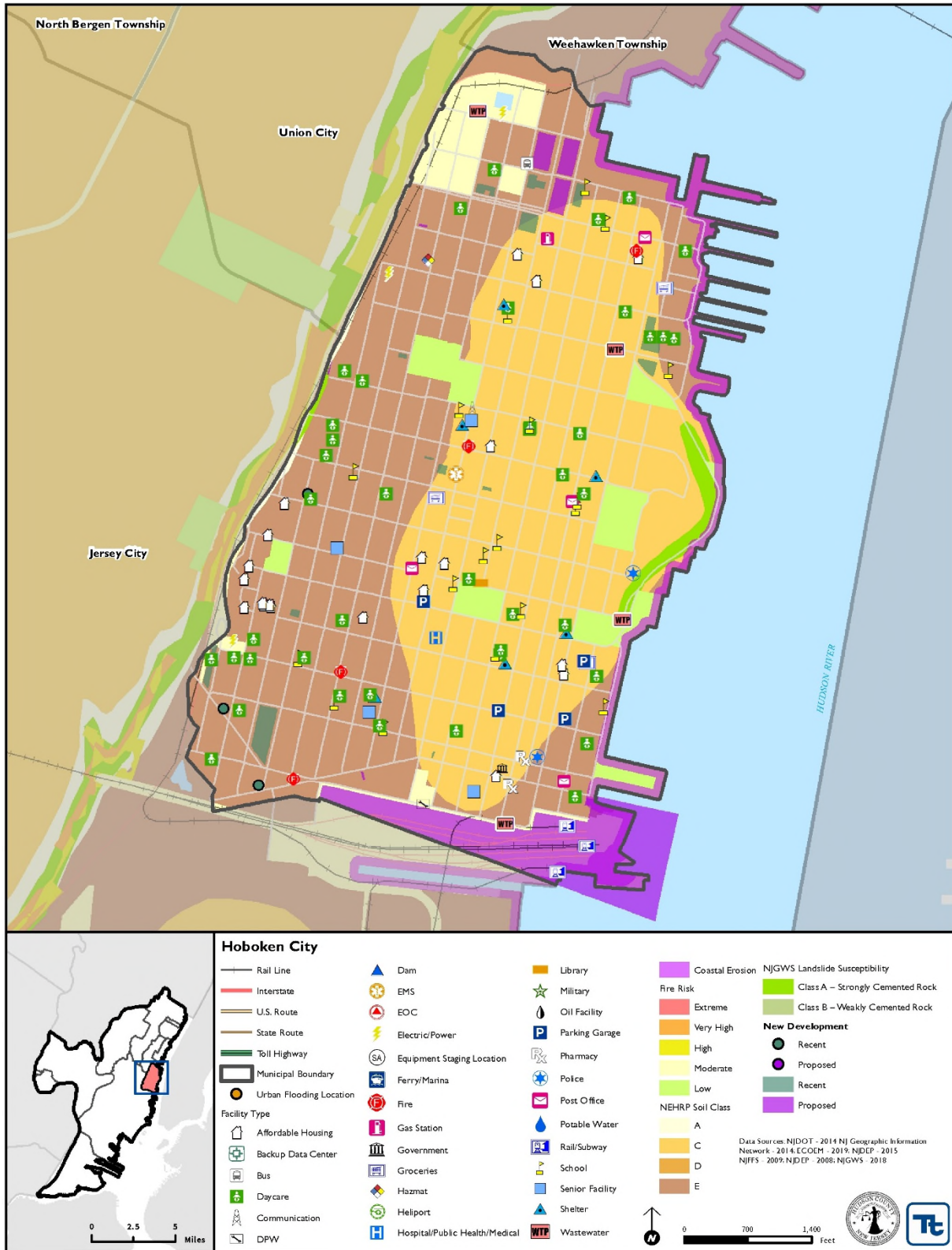




Figure 9.6-3. City of Hoboken Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-HOBOKEN-004		
Project Number:	Open Space Acquisitions		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	Street level flooding occurs during heavy rain events in southwest Hoboken. See figure 9.6-1.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase tract of land and re-engineer to parks and open space with on-grade flood water retention and subsurface detention facilities to reduce localized flooding.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Losses will be avoided on the properties that are purchased could range from minor regular flooding to catastrophic loss during an extreme event.
Useful Life:	50 years	Goals Met:	1, 2
Estimated Cost:	\$1 million+	Mitigation Action Type:	NSP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA FMA and HMGP
Responsible Organization:	City of Hoboken Community Development	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevate all structures in problem area	\$500,000+	Costly; some structures might not withstand elevation
	Acquire all structures in problem area	\$500,000+	Costly; potential loss tax base
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-004	
Project Number:	Open Space Acquisitions	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increase protection to residents in this area
Property Protection	1	Reduce flood damage potential to buildings in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need funding to complete project
Environmental	1	Provide open space and parks; increase flood retention
Social	1	Provide parks and open space for residents to use
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-HOBOKEN-006		
Project Number:	Pump Station #3		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Street level flooding occurs during heavy rain events in Hoboken.		
Action or Project Intended for Implementation			
Description of the Solution:	Construct Wet Weather Pump Station #3 as recommended in Emnet Report		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	With added capacity to the city's drainage system flooding will be reduced, significant property damage can be averted, health conditions will be improved.
Useful Life:	50 years	Goals Met:	1, 6
Estimated Cost:	>\$100,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA FMA and HMGP, NJ EIT
Responsible Organization:	City of Hoboken Public Works Department, NHSA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevate pump station	\$250,000+	Costly; not everything can be elevated
	Relocate pump station	\$1 million+	Not feasible; City is nearly built out, nowhere to relocate
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-006	
Project Number:	Pump Station #3	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improve health conditions to residents
Property Protection	1	Reduce flood damage to area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	-1	
Social	1	
Administrative	0	
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-007		
Project Number:	Sustainable Stormwater Management System		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	City Right of Way is underutilized for flood risk reduction.		
Action or Project Intended for Implementation			
Description of the Solution:	Design and construct a sustainable stormwater management system consistent with the Rebuild by Design 61 ROW Bioswale designs to reduce stormwater runoff and flooding.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce the volume of water in need of processing by the city's sewage system.
Useful Life:	50 years	Goals Met:	2, 3
Estimated Cost:	>\$100,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA FMA and HMGP, NJ EIT
Responsible Organization:	City of Hoboken Planning	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Replace entire stormwater system	\$10 million+	Too costly; long-term project
	Elevate structures impacted by stormwater flooding	\$10 million+	Too costly; emergency personnel cannot access areas during flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-007	
Project Number:	Sustainable Stormwater Management System	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduces impacts of flooding to the population
Property Protection	1	Reduces flood damage to the structures in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is political support to complete project
Legal	0	
Fiscal	0	Need funding to complete project
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	1	Flood
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-HOBOKEN-009		
Project Number:	Citywide Shelter Needs Assessment		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	The City does not have a shelter in place plan that would support evacuation of the entire special flood hazard area		
Action or Project Intended for Implementation			
Description of the Solution:	Develop a shelter needs assessment program to identify areas that would need to be evacuated before or during a flood event.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Sheltering needs in the city are not as understood as needed; this could lead to larger than necessary loss of life if large scale sheltering is needed.
Useful Life:	10 years	Goals Met:	1
Estimated Cost:	<\$10,000	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA PDM, HSGP, SHSP
Responsible Organization:	City of Hoboken OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire properties in the floodplain	\$10 million+	Too costly; loss tax base; not feasible
	Elevate properties in the floodplain	\$10 million+	Too costly; residents would need to shelter in place
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-009	
Project Number:	Citywide Shelter Needs Assessment	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	Identifies needs of residents who need sheltering during an event
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	All
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-011		
Project Number:	Supply emergency power to gas stations		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	The fuel stations in the City do not have backup power. In the event of a power outage, municipal officials cannot fuel their vehicles. This can lead to disruption of services.		
Action or Project Intended for Implementation			
Description of the Solution:	Obtain mobile generators and install quick disconnects for generators at fuel stations.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Continuity of operations, constant fuel supply
Useful Life:	19 years	Goals Met:	1, 6
Estimated Cost:	20000	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	City Budget
Responsible Organization:	City of Hoboken OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Install solar panels at gas stations	\$200,000+	Weather dependent, not enough space to install
	Install wind turbines	\$200,000+	Weather dependent, not enough space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-011	
Project Number:	Supply emergency power to gas stations	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	0	
Multi-Hazard	1	All
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-017		
Project Number:	Independent Flood Mapping Project		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather, Sea Level Rise, Coastal Storm		
Description of the Problem:	Currently using the 2013 ABFEs (plus freeboard); however, they do not fully represent the flood hazards in the City. Higher standards are needed for future planning and to protect future development from flood hazards and sea level rise.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct an independent mapping project that incorporates higher regulatory standards that they will use for floodplain management administration, separate from FEMA maps. These will be used for ongoing construction projects. This will include a sea level rise projections – used as public outreach tools and use for future mitigation planning in the City.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Identifies higher standards for new construction, increases flood resiliency
Useful Life:	N/A	Goals Met:	All
Estimated Cost:	\$50,000+	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA PDM, City Budget
Responsible Organization:	City of Hoboken Resiliency and Planning Teams	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Wait to adopt the 2024 preliminary FEMA maps	0	The City would need to wait four years for these maps and they will not incorporate future climate projections.
	Continue to use the current 2013 ABFEs that the City adopted	0	These maps are unofficial – there is risk of litigation because they are not official
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-017	
Project Number:	Independent Flood Mapping Project	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Provides a higher standard to protect buildings from flooding
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	
Legal	1	The City has the legal authority to complete project
Fiscal	0	Need funding to complete project
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Sea Level Rise, Coastal Storm
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-018		
Project Number:	Fire Department Feasibility Study		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Coastal Storm, Severe Storm		
Description of the Problem:	A majority of the fire department facilities are located in the floodplain. They are scattered throughout the City. During a flood event, a department might not be able to respond to an emergency and/or sustain building and equipment damage associated with flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct a feasibility study for the City's fire departments and EMS facilities. The study will look at alternative locations, outside of the floodplain, to relocated these emergency facilities. It will also look at the potential for incorporating into redevelopment plans and evaluate the costs of conducting the relocation.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Identifies solutions to protect emergency facilities from damage, continuity of operations
Useful Life:	N/A	Goals Met:	All
Estimated Cost:	50000	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA PDM, FEMA Fire Assistance, City Budget
Responsible Organization:	OEM and Fire Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevation of the facilities	\$15 million +	This would make the facilities completely unusable
	Dry floodproof facilities	\$25,000+	Facilities would become inaccessible during a flood event
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-018	
Project Number:	Fire Department Feasibility Study	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Coastal Storm, Severe Storm
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-019		
Project Number:	Assessment of Senior Citizen Housing		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Coastal Storm, Severe Storm		
Description of the Problem:	Senior citizen buildings and Hoboken Housing Authority buildings are located in the floodplain. During a flood event, it is difficult for these residents to evacuate.		
Action or Project Intended for Implementation			
Description of the Solution:	Comprehensive assessment of all senior citizen buildings and Hoboken Housing Authority Buildings to create an action plan for elevating critical facilities and housing units that are below design flood elevation. This assessment will create a cost estimate for each facility and then the City will seek funding to complete the elevation projects.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Identifies buildings that need to be mitigated, protects critical facilities
Useful Life:	N/A	Goals Met:	All
Estimated Cost:	\$50,000+	Mitigation Action Type:	LPR
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	CDBG, FEMA PDM, City Budget
Responsible Organization:	Hoboken Housing Authority and City Administration	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire properties	\$1 million+	Not feasible; no other location to place senior housing
	Develop evacuation procedures and evacuate during flood events	\$50,000+	Not feasible; evacuations of over 2,000 people; reduces emergency staff availability/response to other areas of the City
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-019	
Project Number:	Assessment of Senior Citizen Housing	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provides options to protect the safety of the senior population
Property Protection	1	Reduces flood impacts to senior housing
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	
Political	1	
Legal	1	The City has legal authority to conduct this assessment
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Coastal Storm, Severe Storm
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-HOBOKEN-020		
Project Number:	Mitigate flood-prone properties, including RL/SRL properties		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather, Coastal Storm		
Description of the Problem:	There are 178 repetitive loss and eight severe repetitive loss properties in the City of Hoboken. Frequent flooding has resulted in damages to these structures as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to the flood-prone property owners, including RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement the best mitigation option.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	N/A	Goals Met:	1, 2
Estimated Cost:	\$40 million+	Mitigation Action Type:	SIP, EAP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years (depends on funding)	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Floodplain Administrator	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevate properties	\$1 million+	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$1 million+	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-HOBOKEN-020	
Project Number:	Mitigate flood-prone properties, including RL/SRL properties	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce impacts of flooding on the population
Property Protection	1	Reduce flood damage to structures
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	
Political	0	
Legal	0	The City does not have legal authority to elevate the homes; need homeowners support
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Severe Weather, Coastal Storm
Timeline	0	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	0	
Total	7	
Priority (High/Med/Low)	Medium	

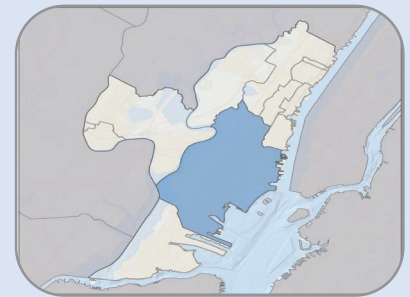




CITY OF JERSEY CITY

MUNICIPALITY AT A GLANCE

Total Population: 265,932
 Total Land Area: 15.86 sq. mi
 Total Number of Buildings: 35,894



Hurricane Storm Surge



Population



Buildings

Category 1*	47,796	4,162
Category 2*	71,463	7,392

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$29,996,248

Potential Building Damages

1% Annual Chance Flood



48,082

Population residing in floodplain



4,342

Buildings in floodplain



126

Critical facilities in floodplain

4,532

Persons that may seek shelter

\$1,083,767,531

Potential building damages

NFIP Statistics



244 # NFIP Policies

7,185 # WYO Policies

179 # RL Properties (excludes SRL)

17 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Natural Systems Protection, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm



9.7 City of Jersey City

This section presents the jurisdictional annex for the City of Jersey City. The annex includes a general overview of the City of Jersey City; an assessment of the City of Jersey City’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.7.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the City of Jersey City’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.7-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: W. Greg Kierce, Director OEM/Homeland Security Address: 715 Summit Avenue, Jersey City, NJ 07306 Phone Number: 201-547-5681 Email: wkierce@njcps.org	Name / Title: Robert Daly, Deputy Chief JCFD / OEMHS Liaison Address: 715 Summit Avenue, Jersey City, NJ 07306 Phone Number: 201-577-2348 Email: rdaly@njcps.org
NFIP Floodplain Administrator	
Name / Title: Raymond Meyer, Construction Code Official Address: 1 Jackson Square, Jersey City, NJ 07305 Phone Number: 201-547-5697 Email: raymondm@icnj.org	

9.7.2 JURISDICTION PROFILE

According to the Jersey City website (<http://www.cityofjerseycity.org>):

‘The territory comprising what is now known as Jersey City was a wilderness, occupied by the Lenni Lenape or Delawares, and governed by their tribal laws, until Henry Hudson, an English navigator, in the employ of the Dutch East India Company, seeking another route that would not require the passing of the Spanish coast to the East Indies, and failing in his mission, found these shores.’

Additionally, all of what is currently Jersey City was carved out of what was originally the Township of Bergen in the County of Bergen. During the 19th century, Jersey City played an integral role in the Underground Railroad. Four routes through New Jersey converged in the city.

The City of Jersey City is located in the central portion of Hudson County, between the Hackensack River and Newark Bay to the west, and the Hudson River and Upper New York Bay to the east. It is the largest city in Hudson County, in terms of population and geographic size (14.79 square miles). The City has 21.7 miles of waterfront along the rivers and bays. The City is bordered to the north by the Town of Secaucus, The Township of North Bergen, the City of Union City, and the City of Hoboken, to the south by the City of Bayonne, to the east by the Hudson River and Upper Bay, and to the west by Hackensack River, Newark Bay and the Town of Kearny.





The City is governed by a Mayor and City Council made up of nine members: one council member for each of the City’s six wards, plus three at-large council members who represent the entire City. This governing body will be responsible for the adoption and implementation of this plan.

According to the U.S. Census, the 2010 population for the City of Jersey City was 247,597. The estimated 2017 population was 265,932, a 7.4 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 7.7 percent of the population is 5 years of age or younger and 10.1 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.7.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.7-2 summarizes recent and expected future development trends. Refer to Table 9.7-20 through Table 9.7-23 for details regarding major residential/commercial development and major infrastructure development. Refer to Figure 9.7-1 and 9.7-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.7-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	698 units	261 units	359 units	513 units	376 units
Multi-Family	2,583 units	2,389 units	2,815 units	3,143 units	3,474 units
Other (commercial, mixed-use, etc.)	0	0	0	0	0
Square Ft. of New Construction Space Authorized by Building Permits					
Office Space	0 sq. ft.	179,792 sq. ft.	56,998 sq. ft.	4,050 sq. ft.	3,815 sq. ft.
Retail Space	0 sq. ft.	0 sq. ft.	0 sq. ft.	93,252 sq. ft.	0 sq. ft.
Other Non-Residential	4,619,223 sq. ft.	3,893,630 sq. ft.	6,004,920 sq. ft.	3,774,603 sq. ft.	4,246,188 sq. ft.

Source: New Jersey Department of Community Affairs 2020

9.7.4 CAPABILITY ASSESSMENT

The City of Jersey City performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change





9.7.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the City of Jersey City.

Table 9.7-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	Yes	-
<i>Comment: Chapter 131 of Jersey City's Code of Ordinances contains the City's Uniform Construction Codes, adopted by City Council on 5/4/1971, Article 1 of the Jersey City Code, as readopted on 9/19/1978 by Ordinance Number S-128. The Department of Housing, Economic Development and Commerce is responsible for enforcing the building code, in addition to the Office of the Construction Official. The code also references the City's flood damage prevention ordinance.</i>					
Zoning Code	Yes	Local	Yes	Yes	-
<i>Comment: Chapter 345 of Jersey City's Code of Ordinances contains the City's Zoning Code. This chapter is also known as the Land Development Ordinance of Jersey City, Hudson County, New Jersey. It was adopted pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.), in order to promote the public health, safety, morals, and general welfare. The Zoning Officer administers and enforces this chapter. This ordinance includes height exceptions for buildings in the City. There is a provision for buildings in the 1% annual chance flood area. When a property is located in the flood area, the number of feet required to reach the base flood elevation plus one foot shall be added to the maximum permitted height of the building. This provision shall apply to all property within any regular zone district or within any duly adopted redevelopment plan area. Where property is located within an historic district, or where an historic district and redevelopment plan overlap, this exception shall not apply. For the portion of the City located within the Meadowlands District, the City must follow NJSEA zoning and land use regulations.</i>					
Subdivisions	Yes	Local	Yes	Yes	-
<i>Comment: Ch. 299 Subdivision of Land; adopted 9/5/78; Ch. 56 Planning Board. Adopted 9/8/81. The purpose of this ordinance is to provide rules, regulations and standards to guide land subdivision in Jersey City in order to promote the public health, safety, convenience and general welfare of the City. The subdivision ordinance is integrated into all applications that require subdivision approval.</i>					
Stormwater Management	Yes	Local	Yes	Yes	-
<i>Comment: Ch. 345 Zoning – Article VI (Stormwater Control); Adopted 4/11/01; Amended 5/20/09 by Ordinance Number 09-052.</i>					
Post-Disaster Recovery	No	-	-	-	-
<i>Comment:</i>					
Real Estate Disclosure	Yes	State – NJ Division of Consumer Affairs	Yes	-	-
<i>Comment: N.J.A.C. 13:45A-29.1</i>					
Growth Management	Yes	Local	No	-	-
<i>Comment: Planning Department enforces; Ch. 299 Subdivision of Land; adopted 9/5/78; Ch. 299-2 Purpose. "...to ensure orderly growth and development..."</i>					
Site Plan Review	Yes	Local	Yes	Yes	-
<i>Comment: Department of Housing, Economic Development and Commerce enforces; Ch. 345 Zoning. Article 23 – Preliminary major subdivision and site plan review procedures; Amended 5/14/03 by Ordinance Number 03-059. Site Plan Reviews are required for development of most impervious surfaces and structures to provide an assurance that improvements are consistent with state and local floodplain regulations. Site plan approval is also needed for any land disturbances greater or equal to 10,000 square feet in area or any alterations to the shoreline, removal or installation of riprap or bulkhead, or the construction of retaining walls, sheet piling or other structures measuring 50 linear feet or more. Development ordinances and land use plans reference site plan approval. For the portion of the City located within the Meadowlands District, the City must follow NJSEA zoning and land use regulations.</i>					
Environmental Protection	Yes	Local	No	Yes	-
<i>Comment:</i>					
<ul style="list-style-type: none"> • Chapter 10 – Shade Tree Commission – this code establishes the Shade Tree Commission of Jersey City; the Commission is made up of five members appointed by the Mayor • Chapter 31 – Environmental Commission – this code established the Environmental Commission • Chapter 239 – Inventory of Recreation and Open Space. The purpose of this ordinance is to codify the inventory of recreation and open space. It meets the State standard to maintain an inventory of all land held by it for recreation and conservation purposes. This inventory 					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<p>cannot be amended or modified in any way except by the adoption of the ordinance. This ordinance is in place to protect and preserve land dedicated for recreation and open space purposes, including lands within the flood hazard areas. Open space and recreation preservation and expansion is included in several City plans – Resiliency Plan and Master Plan.</p> <ul style="list-style-type: none"> • Chapter 320 – Waterfront – the purpose of this ordinance is to eliminate sources of drift and debris that could lead to obstacles or hazards to navigation. This ordinance requires the removal of debris along shorelines that could become an impediment during rescue operations and a hazard to the public during a flood event. • Chapter 321 – Trees – preservation of existing trees and planning new trees to promote the health and welfare of the public • Chapter 345 – Palisades Preservation Overlay District – this ordinance protects the cliffs of the Palisades and controls erosion and stormwater quantity and quality. By protecting the Palisades and controlling development at its base, soil erosion and the volume of runoff is mitigated and added protection is provided to residents in this area during storm events. 					
Flood Damage Prevention	Yes	Local	Yes	Yes	Yes – 2020-JERSEY CITY-003
<p>Comment: Department of Housing, Economic Development and Commerce enforces; Ch. 172 Flood Damage Prevention; adopted 2/23/84; Amended 7/19/06. Ordinance Number 06-083. The ordinance requires new construction or substantial improvement (residential and non-residential) to have the lowest floor elevated to the base flood elevation. However, this does not meet the minimum set by the State of New Jersey which requires a minimum of one foot above the base flood elevation. Numerous city plans and policies reflect the standards in the ordinance; however, they reference a higher elevation standard. In the Zoning ordinance (Chapter 345), height exceptions are outlined. For properties in the 1% annual chance flood area, the number of feet required to reach the base flood elevation plus one foot shall be added to the maximum permitted height of the building. This provision shall apply to all property within any regular zone district or within any duly adopted redevelopment plan area. Where property is located within an historic district, or where an historic district and redevelopment plan overlap, this exception shall not apply.</p>					
Wellhead Protection	No	-	-	-	-
<p>Comment: There are no wellhead protection areas in Jersey City.</p>					
Emergency Management	No	-	-	-	-
<p>Comment:</p>					
Climate Change	No	-	-	-	-
<p>Comment:</p>					
Disaster Recovery Ordinance	No	-	-	-	-
<p>Comment:</p>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<p>Comment:</p>					
Other	Yes	Local	No	Yes	-
<p>Comment:</p> <ul style="list-style-type: none"> • Chapter 180 – Green Building – this ordinance allows the City to promote green building practices in accordance with U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design guidelines in the municipality through the methods provided in this section. While development applications are encouraged to comply with LEED criteria, it is not required. However, the City has incentives for developers who propose to meet LEED accreditation including receiving priority application review and a refund on building permit and land development application fees. Many plans and policies reflect the standards outlined in this ordinance. 					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
<p>Comment: Housing, Economic Development & Commerce. Division of City Planning enforces; Master Plan 2000 Park & Circulation Amendments – No Date Cator Ave. Map Amendment – No Date Master Plan Amendment Historic – 12/20/05 Amendments to the Master Plan – 7/31/07 Master Plan Reexamination Report – 2/16/2016 Stormwater Management Plan Master Plan Amendment – No Date Master Plan Circulation Element Adopted – 4/14/09. Amended 7/14/09, 12/1/09 & 6/14/11</p>					
Capital Improvement Plan	Yes	Local	Yes	-	-
<p>Comment: Administration, Office of the Mayor enforces; Ch. 3 Administration Of Government, Article 3 (Mayor); adopted 9/8/81; 3-11 Powers and duties. Amended 6/14/95 by Ordinance Number 95-050</p>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Disaster Debris Management Plan	Yes	County	No	-	-
Comment:					
Floodplain or Watershed Plan	Yes	Local	Yes	Yes	-
Comment: Jersey City Stormwater Management Plan (August 2008) identifies ways the City can reduce nonpoint sources of water pollution. The plan is a series of strategies intended to reduce the amount of stormwater pollutants which enter local waterways. The goals of the plan align with several of the Hudson County's HMP Update (protecting public safety, reducing flood damage).					
Stormwater Plan	Yes	Local	Yes	Yes	-
Comment: Jersey City Stormwater Management Plan (August 2008) – The Stormwater Management Plan is required by NJAC 7:14A-25 (Municipal Stormwater Regulations) and was created in accordance with NJAC 7:8 (Stormwater Management Rules). The plan addresses groundwater recharge, stormwater quantity, and stormwater quality by implementing the General Permit requirements referred to as the statewide basic requirements. The goals of the plan include (many related to the goals in the Hudson County HMP update): reduce flood damage, minimize stormwater runoff from new development, reduce soil erosion from any developments or construction projects, assure adequately designed culverts, bridges and other in-stream structures, maintain groundwater recharge, preventing increases of non-point source pollution, maintain the biological integrity of streams and drainage channels, minimizing stormwater runoff pollutants from new and existing developments, and protecting public safety through proper design and operation of stormwater management facilities. Refer to the Jersey City MUA annex (Section 9.14) for details regarding the Stormwater Management Plan and the CSO requirements.					
Stormwater Pollution Prevention Plan	No	-	-	-	-
Comment:					
Urban Water Management Plan	No	-	-	-	-
Comment:					
Habitat Conservation Plan	No	-	-	-	-
Comment:					
Economic Development Plan	No	-	-	-	-
Comment:					
Shoreline Management Plan	No	-	-	-	-
Comment:					
Community Wildfire Protection Plan	No	-	-	-	-
Comment:					
Forest Management Plan	Yes	Local	No	Yes	-
Comment:					
<ul style="list-style-type: none"> Jersey City Tree Canopy Assessment (June 2015) – the tree canopy of Jersey City was mapped and analyzed. The assessment stated that trees provide Jersey City with many benefits from clean air, stormwater management, cooling, natural beauty, and improved walkability and safety. Between 95 million and 155 million gallons of rainwater are currently intercepted annually by the City's tree canopy and prevents it from entering the stormwater system. The Assessment reported that the City's trees also help to clean the air by filtering particulate matter, ozone, nitrogen and sulfur dioxide, resulting in improved public health. Jersey City's Community Forestry Management Plan – part of the State's Community Forestry Management Program 					
Transportation Plan	Yes	Local	No	Yes	-
Comment:					
<ul style="list-style-type: none"> Circulation section of the circulation amendment of the Jersey City Master Plan Bicycle Master Plan (2019) – acts as a guide for future development of protected and unprotected bike lanes, other bike infrastructure, and bike safety initiatives across the City. Pedestrian Enhancement Plan (2018) – developed to prioritize the pedestrian experience in the City through improvements to safety and aesthetics, and to promote placemaking. The objectives of this plan are to provide recommendations (physical and policy-based) to improve safety that are context-sensitive and that prioritize the pedestrian experience; and to improve aesthetics and placemaking through pedestrian amenities. Vision Zero Plan (2019) - serves as a blueprint for reaching our traffic safety goals, and ensuring that safe, comfortable transportation on Jersey City streets is a right for everyone who moves to and through our community 					
Agriculture Plan	No	-	-	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Climate Action Plan	No	-	-	-	-
Comment:					
Tourism Plan	No	-	-	-	-
Comment:					
Business Development Plan	No	-	-	-	-
Comment:					
Other	Yes	Local	No	Yes	-
Comment:					
<ul style="list-style-type: none"> Resiliency Master Plan – City of Jersey City – adopted 6/13/2017 – the plan analyzed community data and storm history to determine vulnerable areas in Jersey City and how they will be addressed in the City’s Adaptation Master Plan. The plan was funded by NJDCA Post Sandy Planning Assistance Grant Program. The goals of the plan are similar to that of the 2015 Hudson County HMP, including protecting against flooding and protecting critical infrastructure. The plan discusses the history of storm events that occurred in the City, provides a description of the total land area in the SFHA, citing the County’s 2015 HMP update, and identifies the types of flooding that occurs in the City (pluvial, CSO and coastal). The plan includes a list of vulnerable areas and provides a map with these areas as well. A vulnerability assessment was also conducted, looking at social vulnerability, critical infrastructure, and economic development. After the vulnerability assessment was complete, areas that will receive the greatest impact if/when resiliency measures are implemented were identified. Six priority areas were identified – County Village, Society Hill, Westside/Riverbend, Mill Creek/Bergen-Lafayette/Van Vorst Park/Hamilton Park, Downtown/Exchange Place, and Newport. Additional studies for these areas and how to address them are included in the Adaptation Master Plan for Jersey City. Adaptation Master Plan – City of Jersey City – adopted 6/13/2017 – the plan identified implementation measures that will help improve flood resiliency in Jersey City. A detailed assessment of considerations for each priority area identified in the Resiliency Master Plan was done. Adaptation measures recommended in the Collaborative Climate Adaptation Planning for Urban Coastal Flooding (CCAPUCF) study. The five specific types of measures include: earthen berm levees or embankments constructed of compacted earthen materials with no infrastructure on their crest; boardwalk levees, where barriers are constructed with boardwalks on top for pedestrian and bicycle conveyance; strategic land rise using fill; street levees where a flood protection barrier is constructed and roadway sits on top of barrier; and surge barriers designed to prevent storm surge related flooding from penetrating behind barrier. At least one of these measures was assigned to each priority area. To determine the value of adaptation implementation, costs were measured against any potential benefits. After the analysis was done, project recommendations were given to consider character of the area, political constraints, economic impacts to businesses, cost, and other real-world effects of the implementation. Urban Environmental Green Infrastructure Design Plan – adopted 6/13/2017 – this plan evaluated the present condition of CSO systems in the City, the expected impact of proposed improvements, the separation of combined flows in areas of recent development, and potential locations for green stormwater management practices going forward. The recommendations in the plan were intended to reduce localized flood conditions through green infrastructure site modifications, including within rights-of-way, and open spaces, as well as supplemental measures such as rooftop gardens, and green roofs and walls. 					
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Local	Yes	-	-
Comment: Dept. of Public Safety and Office of Emergency Management Homeland Security enforces; Emergency Operations Plan: Base Operations Plan –Amended 9/10/12; NJSP approved 9/21/12 by Capt. Daniel Mitten. Emergency Management Section					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	No	-	-	-	-
Comment:					
Continuity of Operations Plan	No	-	-	-	-
Comment:					
Public Health Plan	No	-	-	-	-
Comment:					
Other	No	-	-	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment:</i>					

Table 9.7-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes – it goes through NJDEP, NJSEA and then Jersey City Planning and Zoning
Does your jurisdiction have the ability to track permits by hazard area?	By construction
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No – the City is entirely built out

9.7.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the City of Jersey City.

Table 9.7-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board, Zoning Board of Adjustments
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Jersey City Environmental Commission
Open Space Board / Committee	Yes	
Economic Development Commission / Committee	Yes	Jersey City Economic Development Corporation
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	SwiftReach 911, preparedness information on City website, weather warnings and updates on City website and social media accounts
Maintenance program to reduce risk	Yes	This is done on an as-needed basis
Mutual aid agreements	Yes	UASI, County, surrounding municipalities
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Admin / Engineering; Housing, Economic Development and Commerce; City Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Admin / Engineering / Architecture; Economic Development and Commerce; Planning; Construction Code Official; Housing Code Director
Planners or engineers with an understanding of natural hazards	Yes	Housing, Economic Development and Planning - Planners
Staff with training in benefit/cost analysis	Yes	Administrator's Office
Staff with training in green infrastructure	Yes	Architecture and Engineering
Staff with education/knowledge/training in low impact development	Yes	City Planning
Surveyors	Yes	Administrator's Office
Stormwater engineer	Yes	Jersey City MUA





Staff/Personnel Resource	Available?	Department/Agency/Position
Personnel skilled or trained in GIS applications	Yes	Planning Department
Local or state water quality professional	Yes	Jersey City MUA
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Public Safety / Emergency Management – OEM Coordinator
Watershed planner	No	-
Environmental specialist	Yes	Environmental Engineer in City Engineering
Grant writers	Yes	Administrator's Office
Resilience Officer	Yes	Division of City Planning and Office of Sustainability
Other	No	-

9.7.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the City of Jersey City.

Table 9.7-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No - City Attorney's Office consulted
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Clean Water Act 219 Grants (nonpoint source pollution)	Yes
Other	Yes - through Public Safety / Emergency Management; city board that manages distribution of the City's Open Space funding

9.7.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the City of Jersey City.

Table 9.7-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – PIO from the Mayor's office
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? If yes, briefly describe.	Yes – on the City's Office of Emergency Management website, they provide information on emergency preparedness. They also provide a link to sign up for their reverse 911 system (SwiftReach 911). In the event of a weather emergency, the City also has information on parking rules, snow removal, how to report downed trees and wires, and a link to the Hudson County winter emergency plan.





Criterion	Response
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	Yes – the City and departments use Facebook and Twitter to provide hazard mitigation related education and outreach
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	<ul style="list-style-type: none"> Resilient Jersey City is a non-profit organization that aims to support and augment disaster preparedness, response and relief, and emergency response organizations and initiatives for Jersey City. They seek to provide quality resources for existing organizations and introduce new initiatives that aid the strength of our community including conducting informational initiatives with the emergency planning and response community, community leaders in and out of government, the private sector and the public. Jersey City Stormwater Treatment and Resiliency Team (JC START) is a collaboration of community members, city government, local and regional nonprofit organizations, and universities to make Jersey City a sustainable community that prioritizes best stormwater management practices such as green infrastructure. Sustainable Jersey City is a network of green community groups and individuals within the City who have come together to advance efforts to move the City toward a more sustainable and resilient future. They have numerous projects and a website (https://www.sustainablejc.org/) with multiple resources including maps that show the location of certified green buildings and solar installations, food system maps, and community gardens. Environmental Commission is made up of volunteer city residents who are appointed by the mayor to serve three-year terms. The Commission was established to promote the protection and conservation of land, air, water and other natural resources within the City, and to educate the public and advise city government about the best methods for protecting and conserving these resources.
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	The Department of Health and Humans Services utilizes multiple ways to reach out to residents of the City regarding health and public services. The Department could post information regarding hazards on their website and incorporate into their current education programs.
Do you have any established warning systems for hazard events? If yes, briefly describe.	Yes – residents can sign up online for SwiftReach 911 which provides notifications via phone and text messaging. The City also provides preparedness information on City website and weather warnings and updates on City website and social media accounts. The City also uses Register Ready, a registry that allows city residents with disabilities or access and functional needs and their families, friends 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.

9.7.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the City of Jersey City.

Table 9.7-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	Yes via NJSEA (City is not in CRS)	7	5/1/2009
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	Level 2 (4 now) and moving towards level 1	Currently working on a better classification
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-





9.7.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? Yes – Resiliency Master Plan looks at flooding and Greenhouse Gas Emissions Plan
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? Yes – Long Term Control Plan in the MUA (how does SLR come into account in the plan?); mostly regarding flooding in the City

The table below summarizes the adaptive capacity for the hazards of concern and the jurisdiction’s rating.

Table 9.7-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Storm	Medium
Winter Storm	Medium
Wildfire	Medium
Dam Levee Failure	Medium

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating

9.7.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.7-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Planning, Zoning & Construction - Office of the Construction Code Official
Who is your floodplain administrator? (name, department/position)	Construction Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	7/19/2006
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	CAV – September 16, 2013





Criterion	Response
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state what they are.	The City is in good standing with the NFIP and is currently participating in the program.
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If no, state why.	No – the City experiences pluvial flooding, stormwater flooding, sea level rise, the City still has CSOs; after Sandy, the updated FEMA maps do not accurately show areas of flooding
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Yes – floodplain management program in the City could use additional staff to support and implement the program
Does your jurisdiction participate in the Community Rating System (CRS)? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	No, the City currently does not participate in the CRS program.
How many flood insurance policies are in force in your jurisdiction?*	7,385
What is the insurance in force?	\$1,873,806,300
What is the premium in force?	\$5,534,041
How many total loss claims have been filed in your jurisdiction?*	1,888
How many claims are still open or were closed without payment?	492
What were the total payments for losses?	\$51,117,220.31
Do you maintain a list of properties that have been damaged by flooding?	The City does not maintain lists or inventories of properties that have been damaged by floods.
Do you maintain a list of property owners interested in flood mitigation?	At the time of this plan update, there is currently no interest from property owners in mitigating their buildings.

*According to FEMA statistics as of September 30, 2018

9.7.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

- NJSEA** – Jersey City is part of the New Jersey Sports and Exposition Authority (NJSEA), formerly known as the Meadowlands Commission. Approximately 7.1% of the City’s total land area is located within the Meadowlands District. NJSEA is a regional planning and zoning agency for 30.4 square miles of the Hackensack Meadowlands District. The Meadowlands District Zoning Regulations (N.J.A.C. 19:4-1.1 et. seq.) provide for the orderly and comprehensive development of the Hackensack Meadowlands District, consistent with the carrying capacity of the land and the preservation of critical wetland areas in accordance with the Master Plan of the NJSEA, while preserving the ecological balance between natural and open areas and development. For the portion of Jersey City located within the Meadowlands, NJSEA land use and zoning regulations must be followed.
- Green Infrastructure** – The City maintains a list of completed green infrastructure projects that have been completed since 2013. According to this list, 37 green infrastructure projects completed in Jersey City. These projects include: bioretention systems, cisterns, rain barrels, green roofs, downspout disconnects, permeable pavement, right-of-way bioswales, and stormwater retention.
- Resilient NJ** is designed to bring together dynamic multi-disciplinary teams of planners, engineers, designers, and other experts with groups of local governments and other stakeholders to address climate change impacts to both coastal and riverine flooding within designated regions. Jersey City is part of the Jersey City team, which includes Jersey City, Newark, Hoboken, Bayonne, the HOPES Community Action Partnership and the Ironbound Community Corporation.





In each region Consultant Teams will work with the community to engage the public and stakeholders, identify assets, and conduct a regional asset-based vulnerability and risk assessment that is driven by the participants in the region. Using this risk assessment, the Consultant Team will develop creative proactive solutions to address current and future flood risks, environmental resource protection, and the promotion of sustainable growth.

After the Action Plan has been finalized, the Consultant Team will work with the region to advance some of the identified projects. These actions may include, but are not limited to, development of planning documents such as master plan elements, education and outreach campaigns, planning and concept design of nature-based/green and/or grey infrastructure projects, or the preparation of ordinances. The funds in this program are reserved for “planning-only” activities, but can be used for preliminary conceptual design or other planning associated with larger infrastructure projects.

9.7.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The City of Jersey City’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.7-11 provides details regarding municipal-specific loss and damages the City experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.7-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	Road closures, roadway flooding
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.	Flooded roadways, cars stuck in flood waters, closed roads
October 29, 2017	Flood	N/A	A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This	While this event impacted Hudson County, the City did not identify significant damages.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.	
September 25, 2018	Flash Flood	No	Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	While this event impacted Hudson County, the City did not identify significant damages.
January 2020-ongoing	COVID-19 Pandemic (DR-4488)	Yes	Coronavirus disease (COVID-19) is an infectious disease first identified in 2019. The virus rapidly spread into a global pandemic by spring of 2020. The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. In New Jersey, the first confirmed case was on March 4 th and quickly spread throughout the State. On March 24 th , New Jersey was included in a major disaster declaration by FEMA.	On March 12 th , the Mayor signed an executive order for the City outlining precautions the City will be taking. The City set up testing sites for residents to make appointments if they suspect they have the virus. The City has also set up funding for small businesses and non-profits and low-income families. The City created a webpage dedicated to COVID-19 to keep residents up-to-date with information. As of April 20 th , there were 3,812 reported COVID-19 cases and 239 deaths associated with the disease.

Notes:

9.7.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.7-12 summarizes the Town of Kearny’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.





- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.7-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	1,571	CEHA:	154	CEHA:	\$357,953,844	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	225	SLR +1ft:	34	SLR +1ft:	\$115,060,699	
		SLR +3ft:	225	SLR +3ft:	45	SLR +3ft:	\$135,493,519	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	47,796	Category 1:	4,162	100-year Wind Loss:	\$29,996,248	High
		Category 2:	71,463	Category 2:	7,392			
	Category 1 through Category 4 SLOSH	Category 3:	82,382	Category 3:	9,001	500-year Wind Loss:	\$236,586,921	
		Category 4:	91,842	Category 4:	10418			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	55,946	NEHRP D&E:	5,845	100-year Loss:	\$1,232,508	High
		Liquefaction Class 4:	44,734	Liquefaction Class 4:	3,715	500-year Loss:	\$95,775,077	
						2,500-year Loss:	\$1,377,771,875	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	26,830	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	49,729					
Flood	100- and 500-Year Mean Return Period Event	100-year	48,082	100-year	4,342	100-year Loss:	\$1,083,767,531	High
		500-year	64,516	500-year	6,413			
Geological	High Landslide Susceptibility Areas	Class A:	37	Class A:	9	Class A:	34576791.37	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	208	Wildfire:	30	Wildfire:	\$424,285,619	Moderate





9.7.7.1 REPETITIVE FLOOD LOSSES

The information below summarizes the repetitive and severe repetitive flood losses in the City of Jersey City.

- Number of repetitive loss (RL) properties: 179
- Number of severe repetitive loss (SRL) properties: 17
- Number of RL/SRL properties that have been mitigated: None

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.7.7.2 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain. Due to the sensitive nature of the critical facilities, the City decided to remove the name of each from Table 9.7-13 and list only the type of each facility.

Table 9.7-13. Potential Flood Losses to Critical Facilities

Type	Exposure		Status of Mitigation
	1% Event	0.2% Event	
Bus 1	X	X	2020-JERSEY CITY-017
Bus 2	X	X	2020-JERSEY CITY-017
Bus 3	X	X	2020-JERSEY CITY-017
Child Care 1	X	X	2020-JERSEY CITY-017
Child Care 2	X	X	2020-JERSEY CITY-017
Child Care 3	X	X	2020-JERSEY CITY-017
Child Care 4	X	X	2020-JERSEY CITY-017
Child Care 5	X	X	2020-JERSEY CITY-017
Child Care 6	X	X	2020-JERSEY CITY-017
Child Care 7	X	X	2020-JERSEY CITY-017
Child Care 8	X	X	2020-JERSEY CITY-017
Child Care 9	X	X	2020-JERSEY CITY-017
Child Care 10	X	X	2020-JERSEY CITY-017
Child Care 11	X	X	2020-JERSEY CITY-017
Child Care 12	X	X	2020-JERSEY CITY-017
Child Care 13	X	X	2020-JERSEY CITY-017
Child Care 14	X	X	2020-JERSEY CITY-017
Child Care 15	X	X	2020-JERSEY CITY-017
Child Care 16	X	X	2020-JERSEY CITY-017
Child Care 17	X	X	2020-JERSEY CITY-017
Child Care 18	X	X	2020-JERSEY CITY-017
Child Care 19	X	X	2020-JERSEY CITY-017
Child Care 20	X	X	2020-JERSEY CITY-017
Child Care 21	X	X	2020-JERSEY CITY-017
Child Care 22	X	X	2020-JERSEY CITY-017
Child Care 23	X	X	2020-JERSEY CITY-017
Child Care 24	X	X	2020-JERSEY CITY-017
Child Care 25	X	X	2020-JERSEY CITY-017
Child Care 26	X	X	2020-JERSEY CITY-017
Communication	X	X	2020-JERSEY CITY-017
DPW	X	X	The facility has been relocated and is currently not in the floodplain
Electric Power 1	X	X	2020-JERSEY CITY-008
Electric Power 2	X	X	2020-JERSEY CITY-017





Type	Exposure		Status of Mitigation
	1% Event	0.2% Event	
Electric Substation 3	X	X	2020-JERSEY CITY-017
Electric Substation 4	X	X	2020-JERSEY CITY-017
Electric Substation 5	X	X	2020-JERSEY CITY-017
Electric Substation 6	X	X	2020-JERSEY CITY-017
Electric Substation 7	X	X	2020-JERSEY CITY-017
Electric Substation 8	X	X	2020-JERSEY CITY-017
Electric Substation 9	X	X	2020-JERSEY CITY-017
Electric Substation 10	X	X	2020-JERSEY CITY-017
Electric Substation 11	X	X	2020-JERSEY CITY-017
Electric Substation 12	X	X	2020-JERSEY CITY-017
Electric Substation 13	X	X	2020-JERSEY CITY-017
Electric Substation 14	X	X	2020-JERSEY CITY-017
Electric Substation 15	X	X	2020-JERSEY CITY-017
Ferry 1	X	X	2020-JERSEY CITY-017
Ferry 2	X	X	2020-JERSEY CITY-017
Ferry 3	X	X	2020-JERSEY CITY-017
Ferry 4	X	X	2020-JERSEY CITY-017
Ferry 5	X	X	2020-JERSEY CITY-017
Ferry 6	X	X	2020-JERSEY CITY-017
Ferry 7	X	X	2020-JERSEY CITY-017
Fire 8	X	X	2020-JERSEY CITY-017
Fire 9	X	X	2020-JERSEY CITY-017
Hazmat 1	X	X	2020-JERSEY CITY-017
Hazmat 2	X	X	2020-JERSEY CITY-017
Hazmat 3	X	X	2020-JERSEY CITY-017
Hazmat 4	X	X	2020-JERSEY CITY-017
Hazmat 5	X	X	2020-JERSEY CITY-017
Hazmat 6	X	X	2020-JERSEY CITY-017
Hazmat 7	X	X	2020-JERSEY CITY-017
Hazmat 8	X	X	2020-JERSEY CITY-017
Hazmat 9	X	X	2020-JERSEY CITY-017
Hazmat 10	X	X	2020-JERSEY CITY-017
Hazmat 11	X	X	2020-JERSEY CITY-017
Hazmat 12	X	X	2020-JERSEY CITY-017
Hazmat 13	X	X	2020-JERSEY CITY-017
Hazmat 14	X	X	2020-JERSEY CITY-017
Hazmat 115	X	X	2020-JERSEY CITY-017
Hazmat 16	X	X	2020-JERSEY CITY-017
Hazmat 17	X	X	2020-JERSEY CITY-017
Hazmat 18	X	X	2020-JERSEY CITY-017
Hazmat 19	X	X	2020-JERSEY CITY-017
Heliport 1	X	X	2020-JERSEY CITY-017
Heliport 2	X	X	2020-JERSEY CITY-017
Hospital	X	X	2020-JERSEY CITY-008
Library	X	X	2020-JERSEY CITY-017
Marina 1	X	X	2020-JERSEY CITY-017
Marina 2	X	X	2020-JERSEY CITY-017
Military	X	X	2020-JERSEY CITY-017
Municipal Hall	X	X	2020-JERSEY CITY-002
Police	X	X	2020-JERSEY CITY-017
Rail 1	X	X	2020-JERSEY CITY-017
Rail 2	X	X	2020-JERSEY CITY-017
Rail 3	X	X	2020-JERSEY CITY-017
Rail 4	X	X	2020-JERSEY CITY-017





Type	Exposure		Status of Mitigation
	1% Event	0.2% Event	
Rail 5	X	X	2020-JERSEY CITY-017
Rail 6	X	X	2020-JERSEY CITY-017
Rail 7	X	X	2020-JERSEY CITY-017
Rail 8	X	X	2020-JERSEY CITY-017
School 1	X	X	2020-JERSEY CITY-017
School 2	X	X	2020-JERSEY CITY-017
School 3	X	X	2020-JERSEY CITY-017
School 4	X	X	2020-JERSEY CITY-017
School 5	X	X	2020-JERSEY CITY-017
School 6	X	X	2020-JERSEY CITY-017
School 7	X	X	2020-JERSEY CITY-017
School 8	X	X	2020-JERSEY CITY-017
School 9	X	X	2020-JERSEY CITY-017
School 10	X	X	2020-JERSEY CITY-017
School 11	X	X	2020-JERSEY CITY-017
School 12	X	X	2020-JERSEY CITY-017
School 13	X	X	2020-JERSEY CITY-017
School 14	X	X	2020-JERSEY CITY-017
School 15	X	X	2020-JERSEY CITY-017
School 16	X	X	2020-JERSEY CITY-017
School 17	X	X	2020-JERSEY CITY-017
School 18	X	X	2020-JERSEY CITY-017
School 19	X	X	2020-JERSEY CITY-017
Senior 1	X	X	2020-JERSEY CITY-017
Senior 2	X	X	2020-JERSEY CITY-017
Shelter 1	X	X	2020-JERSEY CITY-017
Shelter 2	X	X	2020-JERSEY CITY-017
Shelter 3	X	X	2020-JERSEY CITY-017
Shelter 4	X	X	2020-JERSEY CITY-017
Subway 5	X	X	2020-JERSEY CITY-017
Subway 6	X	X	2020-JERSEY CITY-017
Subway 7	X	X	2020-JERSEY CITY-017
Wastewater Pump 1	X	X	2020-JERSEY CITY-017
Wastewater Pump 2	X	X	2020-JERSEY CITY-017
Wastewater Pump 3	X	X	2020-JERSEY CITY-017
Wastewater Pump 4	X	X	2020-JERSEY CITY-017
Wastewater Pump 5	X	X	2020-JERSEY CITY-017
Wastewater Pump 6	X	X	2020-JERSEY CITY-017
Wastewater Pump 7	X	X	2020-JERSEY CITY-017

Source:

**The inventory of critical facilities and lifelines identified for the HMP is considered sensitive information. It is protected by the Protected Critical Infrastructure Information (PCII) program and under New Jersey Executive Order 21. Therefore, individual facility names and addresses are not provided in this HMP.*

9.7.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- In the Jersey City Resiliency Master Plan, areas subject to flooding were identified:
 - Pluvial flooding:
 - 9th Street and Brunswick Avenue
 - Linden and Princeton Avenues
 - Kellogg Street and Audubon Avenue





- Fisk Street and Route 440 (DOT drainage)
- Culver Avenue and Route 440 (DOT drainage)
- Grove Street between Jersey City and Hoboken
- Marin Boulevard between Jersey City and Hoboken
- Merseles and Wayne Streets
- Clendenny Avenue and Marcy
- Richard Street just east of Garfield Avenue
- Manholes blow off on Montgomery Street between Florence Street and Mill Road
- Cornelison Avenue
- Repeat basement flooding:
 - Magnolia Avenue between Summit Avenue & Chestnut Street
 - York Street between Grove & Warren Streets
 - Country Village
 - Parts of Sussex, Morris, and Van Vorst Streets
 - 5th Street between Brunswick Street & Jersey Avenue
 - 1st/2nd Street & Merseles Street
 - Pine & Maple Streets
- Drainage basins prone to tidal flooding:
 - Pine Street
 - Mill Creek
 - Mina Avenue
 - Sip Avenue
 - 18th Street
 - Claremont Carteret
 - Clendenny Avenue
 - Essex Street
- Low-lying areas throughout the City
- City Hall does not have back-up power
- Combined sewer system, including the third largest CSO in the state of New Jersey located at Mill Creek
- Increased development pressure, especially along flood prone waterfronts
- Climate Change impacts including but not limited to sea-level rise, increased average annual rainfall, and urban heat island effect
- Socially vulnerable populations as identified in the City's Resiliency Master Plan

9.7.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Jersey City that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the City of Jersey City has significant exposure. Figures 9.7-1 and 9.7-2 illustrate the hazard area extents and locations in the City.





9.7.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Jersey City. The City of Jersey City has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the City indicated the following:

- The City adjusted the ranking of Coastal Erosion and Sea Level Rise from medium to high based on the history of occurrence and the climate change and sea level rise projections for the City.
- The City adjusted the ranking of Earthquake from high to low due to the history of occurrence.
- The City adjusted the ranking of Wildfire from high to low due to the history of occurrence.

Table 9.7-14. City of Jersey City Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
High	High	Medium	Low	High	High

Geological Hazards	Severe Weather	Severe Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Low	N/A

9.7.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.7.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.7-15. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
JC-1	Enhance ordinances regarding land use, zoning and placement of large developments within know or changing flood zones especially seniors and handicapped populations who may be more adversely effected by elevation requirements.	Jersey City Planning	Ongoing Capability	-	-
JC-2	Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: <ul style="list-style-type: none"> • Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. • Including natural hazard risk and risk reduction information through social media channels and email blast systems. • Posting of flyers and other readily available NFIP informational materials at City Hall or distributing at regular civic meetings. • Preparation, distribution and analysis of public surveys. • Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. • Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts. 	OEM	Ongoing Capability	-	-
JC-3	Purchase and install Generators/Transfer Switches at the below 15 critical facilities: North, South, East and West District Police Stations, Fire Stations – Engine 2, 8, 9, 10,11, 13, 15, 17, 19, 22 Fire Rescue Building, Fire Headquarters	OEM	Completed	-	-
JC-4	Purchase 4 digital sign boards with variable message capability	OEM	Completed	-	-
JC-5	Purchase 5 portable generators 15,000 KW and above for disaster response and continuity of operations	OEM	Completed	-	-
JC-6	Mitigation Actions identified in this plan will be reviewed for the Capital Improvement Budget.	OEM	Ongoing Capability	-	-
JC-7	Promote and support non-structural flood hazard mitigation alternatives for at risk	Jersey City FPA	Ongoing Capability	-	-





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	properties within the floodplain, including those that have been identified as Repetitive Loss (RL - 159 currently) and Severe Repetitive Loss (SRL – 14 currently), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners.				

9.7.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The City of Jersey City participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The mitigation action workshop was held in January 2020 where a Mitigation Toolbox was provided that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.7-16 summarizes the comprehensive-range of specific mitigation initiatives the City of Jersey City would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.7-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.7-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-JERSEY CITY-001	Repetitive Loss Properties	<p>Problem: There are 189 repetitive loss properties and 11 severe repetitive loss properties in the City of Jersey City. These 10 properties have been repetitively flooded as documented by paid NFIP claims.</p> <p>Solution: Conduct outreach to 200 floodprone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.</p>	Existing	Flood, Severe Weather	1, 2, 5	<u>City Construction Code Official</u>	FEMA HMGP and FMA	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)	\$2 million	Within 2 years	High	EAP, SIP	PR, PP
2020-JERSEY CITY-002	Generator for City Hall	<p>Problem: The City Hall building does not have a backup power source. During a power outage, City Hall cannot function properly and provide essential services to residents.</p> <p>Solution: Purchase and install a permanent generator at City Hall.</p>	Existing	All	1, 2, 6	<u>City Administration</u>	FEMA HMGP	Continuity of operations	\$50,000+	Within 5 years	High	SIP	PP, ES
2020-JERSEY CITY-003	Update Flood Damage Prevention Ordinance	<p>Problem: The current flood damage prevention ordinance for Jersey City requires that new construction and substantial improvements in the SFHA be elevated to the base flood elevation. However, this does not meet the minimum of one feet</p>	New	Flood	All	<u>City Administration</u>	City Budget	Higher standards and protection for new construction	\$10,000	Within 5 years	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<p>above the base flood elevation set by the State of New Jersey. Many of the City's plans reference a higher standard but the adopted ordinance does not reflect that.</p> <p>Solution: Update the City's flood damage prevention ordinance to meet the minimum set by the State of New Jersey.</p>											
2020-JERSEY CITY-004	Street Levee – Country Village	<p>Problem: As identified in the City's Resiliency Master Plan, there are residences and a major thoroughfare / evacuation route known as Route 440 located in 100- year floodplain. This area is identified as Priority Area A in the Plan. The area includes block groups that equal or exceed the regional poverty threshold and includes a combined sewer outfall at Newark Bay</p> <p>Solution: Build a street level along the west side of Route 440. This will involve raising the roadway by three to four feet.</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>Division of City Planning,</u> Division of Engineering, Jersey City Municipal Utilities Authority, NJDOT, City Administration, OEM	FEMA FMA and HMGP	This will ensure that not only Country Village is protected, but ensures that Route 440 itself remains a safe, dry evacuation route.	\$50-80 million	5+ years	High	SIP	PP, ES
2020-JERSEY CITY-005	Society Hill Boardwalk Levee	<p>Problem: As identified in the City's Resiliency Master Plan (Priority Area B1), Society Hill, a multi-family residential development has an existing walkway along its riverfront. The walkway, the residences, and Route 440 are susceptible to wave damage and flooding.</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>City Planning,</u> <u>Division of Architecture,</u> <u>City Administration,</u> <u>OEM</u>	FEMA FMA and HMGP	Reduce groundwater contamination associated with flooding, protect infrastructure	\$9.5 million	5+ years	Medium	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<p>There is a combined sewer overflow point at Newark Bay.</p> <p>Solution: Elevate the existing Hackensack RiverWalk five to six feet from its current grade. The walkway distance affected is approximately one mile in length.</p>											
2020-JERSEY CITY-006	Walkway Levee	<p>Problem: Businesses in this area are prone to flooding. This area is being redeveloped and residential and mixed use properties will also be impacted from flooding.</p> <p>Solution: Construct a walkway levee along the Morris Canal Greenway to protect the commercial businesses in this area as well as pending residential and mixed use development.</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>City Engineering and OEM</u>	FEMA FMA and HMGP	Protect businesses and homes from flood damage	\$5.5 million	8+ years	Medium	SIP	PP
2020-JERSEY CITY-007	Marion & Lincoln Park Flood Control Measures	<p>Problem: As identified in the City's Resiliency Master Plan (Priority Area C), many City and Regional assets including PSE&G facilities, rail yards, and industrial uses are located in this district. Marion gardens, a public housing complex is in this area. In addition, there are several combined sewer outfalls and contaminated sites in this area.</p> <p>Solution: Implement various flood protection measures in this area of the City. This includes small-scale site specific floodwalls and wet and dry floodproofing.</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>City Planning, City Engineering, JC MUA, and OEM</u>	FEMA FMA and HMGP	Keep water away from specific areas and buildings	\$65 million	4+ years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-JERSEY CITY-008	Mill Creek - Implement Berms and Levees	<p>Problem: During flood events, Area D is significantly impacted by water entering from the south through the Tidewater Basin and into Mill Creek and from the north through the Long Slip Canal at the Hoboken border. These two flood entry points must be addressed in order to prevent flooding in the back end of the city which was historically a marshy area. This area also has vulnerable populations and pockets of poverty which merit special attention.</p> <p>Solution: Install berms at vulnerable points north of Jersey Avenue to compensate for any residual flooding that is not deterred by elevating streets (Crescent Park area).</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>City Planning, City, MUA, NJ DOT, Engineering and OEM</u>	FEMA FMA and HMGP, NJEIT	Protect historic structures, public housing, PSE&G substation, and Jersey City Medical Center	\$150 million	1 to 2 years	High	SIP	PP
2020-JERSEY CITY-009	Engineering Study of Mill Creek / Bergen-Lafayette / Van Vorst Park / Hamilton Park	<p>Problem: The Mill Creek Redevelopment area and Jersey City Medical Center are located in this area and are found within a 1% annual chance flood area and contains critical infrastructure. There is also a CSO in this area.</p> <p>Solution: Conduct a comprehensive engineering study be undertaken to address Area D, including the CSO (which has already been studied to some extent in the Mill Creek Initial Design + Finance Analysis and Recommendations prepared by Build it Green) as well as</p>	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>City Planning, JCRA, JC MUA, NJ DOT, and Engineering</u>	EMPG	Identify solutions to protect critical facilities and infrastructure from flood damage	\$100,000+	1 to 2 years	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		the threat of storm surge. The complexity of this area merits special attention in order to develop a long-term, cost-effective solution that will thoroughly protect all of the residents, businesses, and infrastructure located therein.											
2020-JERSEY CITY-010	Dudley / Washington Street Levee	<p>Problem: As identified in the City's Resiliency Master Plan (Priority Area E), many City and Regional assets including City Hall, historic districts, major commercial and employment centers, historic districts, the PATH, Hudson-Bergen Light Rail, and other critical facilities are located in the 100-year floodplain. There are six CSOs in this District.</p> <p>Solution: Raise Dudley and Washington Streets three to four feet above grade.</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>Division of City Planning</u> , <u>Division of Engineering</u> , OEM, Jersey City Municipal Utilities Authority, Port Authority, NJ Transit, NJDEP, NJDOT	FEMA FMA and HMGP	Alleviate flooding in several neighborhood sand protect critical infrastructure and historic structures.	\$15-20 million	3 to 7 years	High	SIP	PP
2020-JERSEY CITY-011	Hudson River Waterfront Boardwalk Levee	<p>Problem: As identified in the City's Resiliency Master Plan (Priority Area E), many City and Regional assets including City Hall, historic districts, major commercial and employment centers, historic districts, the PATH, Hudson-Bergen Light Rail, and other critical facilities are located in the 100-year floodplain. There are six CSOs in this District.</p> <p>Solution: Convert this area into a Boardwalk levee with a height of up to 14 feet above mean sea level. Because the Waterfront Walkway is already</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>Division of City Planning</u> , <u>Division of Engineering</u> , OEM, Jersey City Municipal Utilities Authority, Port Authority, NJ Transit, NJDEP, NJDOT	FEMA FMA and HMGP	Protect Jersey City's residents and critical infrastructure	\$50-80 million	3 to 7 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		in place, it would sit atop the levee and allow for additional space for outdoor recreation.											
2020-JERSEY CITY-012	Rail Yard Flood Protection Barrier	<p>Problem: This is the northern portion of Downtown Jersey City, including Newport and access to the Holland Tunnel. This area also contains critical facilities including the Holland Tunnel, PATH stations, ferry docks, and Hudson-Bergen Light Rail. CSOs also exist in this area.</p> <p>Solution: Develop a flood protection barrier along the south side of the NJ Transit rail yards. This would also include regrading road crossings two to three feet.</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	City Engineering, City Planning, and OEM in coordination with the City of Hoboken and NJ Transit.	FEMA FMA and HMGP	Protect Jersey City's residents and critical infrastructure	\$110,000 to \$1 million	3 to 7 years	Medium	SIP	PP
2020-JERSEY CITY-013	Wet Weather Pumping Stations	<p>Problem: This is the northern portion of Downtown Jersey City, including Newport and access to the Holland Tunnel. This area also contains critical facilities including the Holland Tunnel, PATH stations, ferry docks, and Hudson-Bergen Light Rail. CSOs also exist in this area.</p> <p>Solution: When the combined sewer system reaches capacity during heavy rainfall, water can be treated at a wet weather treatment facility before it is discharged to local water bodies. This method helps protect human health and the environment by reducing the amount of untreated combined sewage</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	City Engineering, City Planning and OEM in coordination with Jersey City MUA	NJEIT, CDBG, FEMA FMA and HMGP	Short term implementation and provide some relief from flooding in vulnerable areas	\$12-\$15 million	3 to 7 years	Medium	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		that overflows into the Hudson River by preventing storm water from flooding the sewer lines and coming back up into the streets.											
2020-JERSEY CITY-014	Flood Modeling	<p>Problem: Outside of FEMA floodplain boundaries, the city does not have updated flood risk data showing areas subject to pluvial flooding, localized flooding from the combined sewer system, and surge risk. In addition, the City does not have flood scenarios showing the added risk of sea level rise and other climate-related changes.</p> <p>Solution: A flood risk analysis inclusive of different flood events (5-year, 10-year, 100-year, etc.) and scenarios coupled with SLR projections will allow the city to identify specific areas where adaptation strategies will be most effective.</p>	Existing	Coastal Storm, Flood, Severe Weather	All	<u>Division of City Planning, Jersey City Municipal Utilities Authority, City Administration, OEM</u>	FEMA HMGP, PDM, and FMA	This work will facilitate the identification of viable projects for capital budget prioritization and future grant applications.	\$50,000	Within 2 Years	High	SIP	
2020-JERSEY CITY-015	Flood Risk Awareness	<p>Problem: Residents and business owners may not be aware of their flood risk, especially future risks related to climate change.</p> <p>Solution: A campaign, including an interactive mapping tool, to raise awareness of flood risk for homeowners, renters, at risk populations (socially vulnerable populations) businesses, and city staff.</p>	Existing	Sea Level Rise and Flood	1, 2, 5	City Planning, Office of Sustainability, Office of Innovation, Health and Human Services, City Administration, OEM	City Budget, NJDEP, FEMA	Creating a socially, economically, and structurally resilient Jersey City and improving emergency preparedness	\$30,000-\$50,000	1-2 Years	High	EAP	PI, CR





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-JERSEY CITY-016	Resiliency Parks Feasibility	<p>Problem: 40% of the city is located in the floodplain. The City does not have engineering studies to assess the feasibility of creating resiliency parks.</p> <p>Solution: Identify existing parks and open space or identify locations for new parks and open space to function as stormwater management, or resiliency, parks through the use of storage tanks and green infrastructure. Engineering studies would be used to create concept plans for funding opportunities.</p>	New and Existing	Coastal Storm, Flood, Severe Weather	All	<u>Division of City Planning,</u> <u>Division of Engineering,</u> <u>OEM,</u> Jersey City Municipal Utilities Authority, Division of Architecture	City Budget. NJEIT, CDBG, FEMA FMA and HMGP	Mitigation of localized flooding through leveraging existing and planned parks to have multiple functions including recreation and stormwater management.	\$50-100,000	1-2 Years	High	NSP, SIP	PP, CR
2020-JERSEY CITY-017	Critical Facilities in Floodplain	<p>Problem: As outlined in Table 9.7-13 above, there are numerous critical facilities in the City that are exposed to the 1% annual chance flood area. These facilities may be susceptible to flood damage which can lead to infrastructure damage, outages, and disruption of services.</p> <p>Solution: Jersey City is part of the Jersey City team in the Resilient NJ program. As part of this program, the critical facilities outlined in Table 9.7-13 will be addressed through this program. Flood risk will be analyzed through a risk assessment and action plans will be developed for critical facilities in order to identify</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 3, 4	<u>Division of City Planning,</u> <u>Division of Engineering,</u> <u>OEM,</u> Resilient NJ	NJDEP, Resilient NJ	Reduce flood impacts on critical facilities	\$1 million+	3 years	High	SIP, LPR	PP, PR





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		appropriate mitigation actions to address flooding.											

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.7-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
2020-JERSEY CITY-001	Repetitive Loss Properties	1	1	1	1	1	0	1	0	1	1	0	1	0	0	9	High
2020-JERSEY CITY-002	Generator for City Hall	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2020-JERSEY CITY-003	Update Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	1	0	10	High
2020-JERSEY CITY-004	Street Levee – Country Village	1	1	1	1	1	0	0	0	0	1	1	1	1	0	9	High
2020-JERSEY CITY-005	Society Hill Boardwalk Levee	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JERSEY CITY-006	Walkway Levee	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JERSEY CITY-007	Marion & Lincoln Park Flood Control Measures	1	1	1	1	1	0	0	1	1	1	1	1	1	0	11	High
2020-JERSEY CITY-008	Mill Creek - Implement Berms and Levees	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
2020-JERSEY CITY-009	Engineering Study of Mill Creek / Bergen-Lafayette / Van Vorst Park / Hamilton Park	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
2020-JERSEY CITY-010	Dudley / Washington Street Levee	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	High
2020-JERSEY CITY-011	Hudson River Waterfront Boardwalk Levee	1	1	1	1	1	0	0	0	1	1	1	1	1	0	10	High
2020-JERSEY CITY-012	Rail Yard Flood Protection Barrier	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JERSEY CITY-013	Wet Weather Pumping Stations	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JERSEY CITY-014	Flood Modeling	1	1	1	1	1	0	0	1	0	1	0	1	1	0	9	High
2020-JERSEY CITY-015	Flood Risk Awareness	1	1	1	1	1	0	1	0	0	1	0	1	1	0	9	High
2020-JERSEY CITY-016	Resiliency Parks Feasibility	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High
2020-JERSEY CITY-017	Critical Facilities in Floodplain	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.7-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise		-002	-015		-002	-002	-015	
Coastal Storm	-009, -017	-002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016, -017		-016	-002, -004	-002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016	-016, -017	
Dam and Levee Failure		-002			-002	-002		
Drought		-002			-002	-002		
Earthquake		-002			-002	-002		
Extreme Temperature		-002			-002	-002		
Flood	-001, -003, -009, -017	-001, -002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016, -017	-001, -015	-016	-002, -004	-001, -002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016	-015, -016, -017	
Geologic		-002			-002	-002		
Severe Weather	-001, -009, -017	-001, -002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016, -017	-001	-016	-002, -004	-001, -002, -004, -005, -006, -007, -008, -010, -011, -012, -013, -014, -016	-016, -017	
Severe Winter Storm		-002			-002	-002		
Wildfire		-002			-002	-002		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.7.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The City of Jersey City followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).





Table 9.7-19. Contributors to the Annex

Entity	Title	Method of Participation
W. Greg Kierce	Director OEM/Homeland Security	Attended meetings, reviewed annex, provided input during planning process, identified mitigation strategies, primary point of contact
Robert Daly	Deputy Chief JCFD / OEMHS Liaison	Alternate point of contact
Raymond Meyer	Construction Code Official	Attended meetings, provided input during planning process
Lindsey Sigmund	Environmental Planner	Attended meetings, provided input during planning process, identified mitigation strategies
Kate Lawrence	Sustainability Director	Attended meetings, provided input during planning process, identified mitigation strategies





Figure 9.7-1. City of Jersey City Hazard Area Extent and Location Map 1

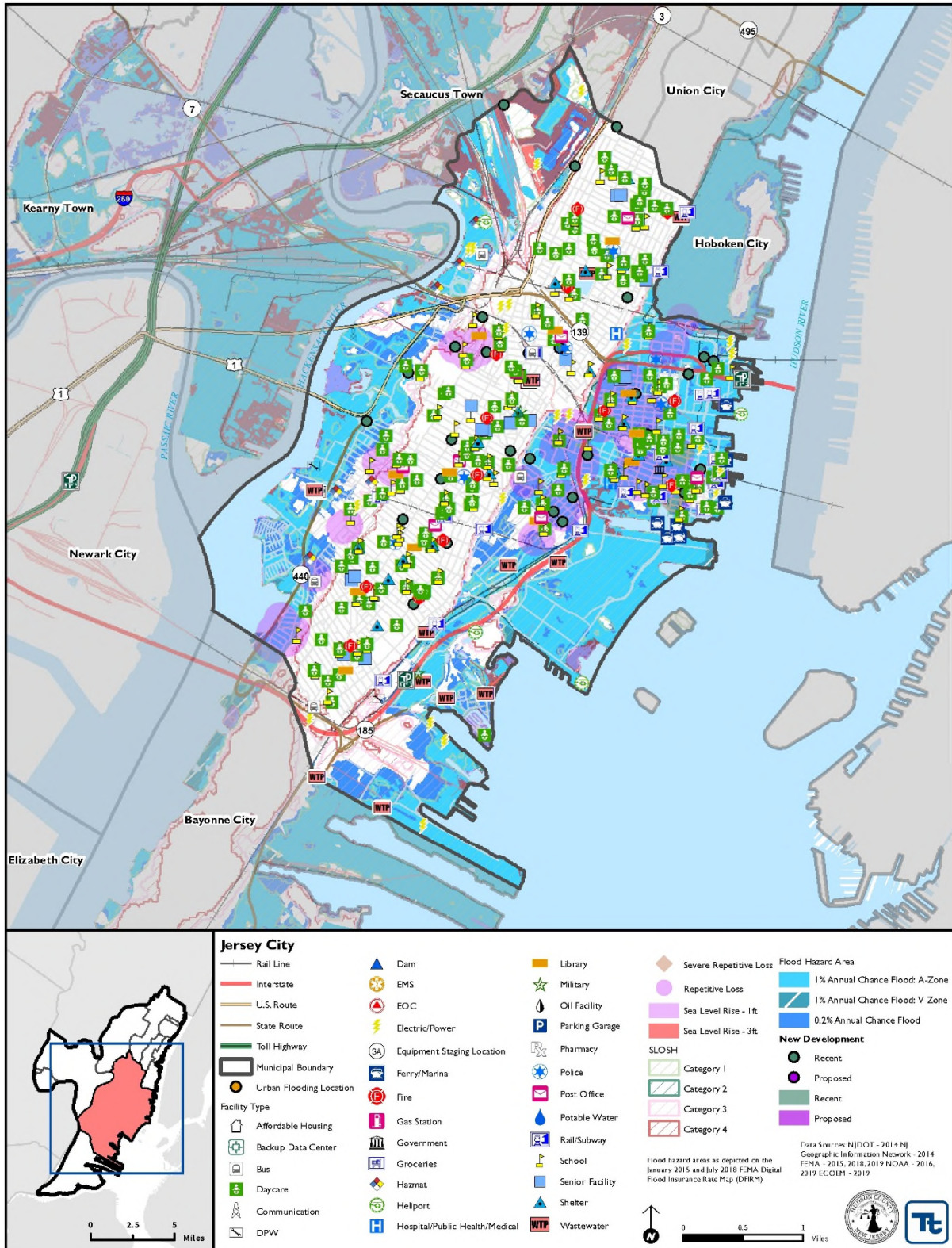




Figure 9.7-2. City of Jersey City Hazard Area Extent and Location Map 2

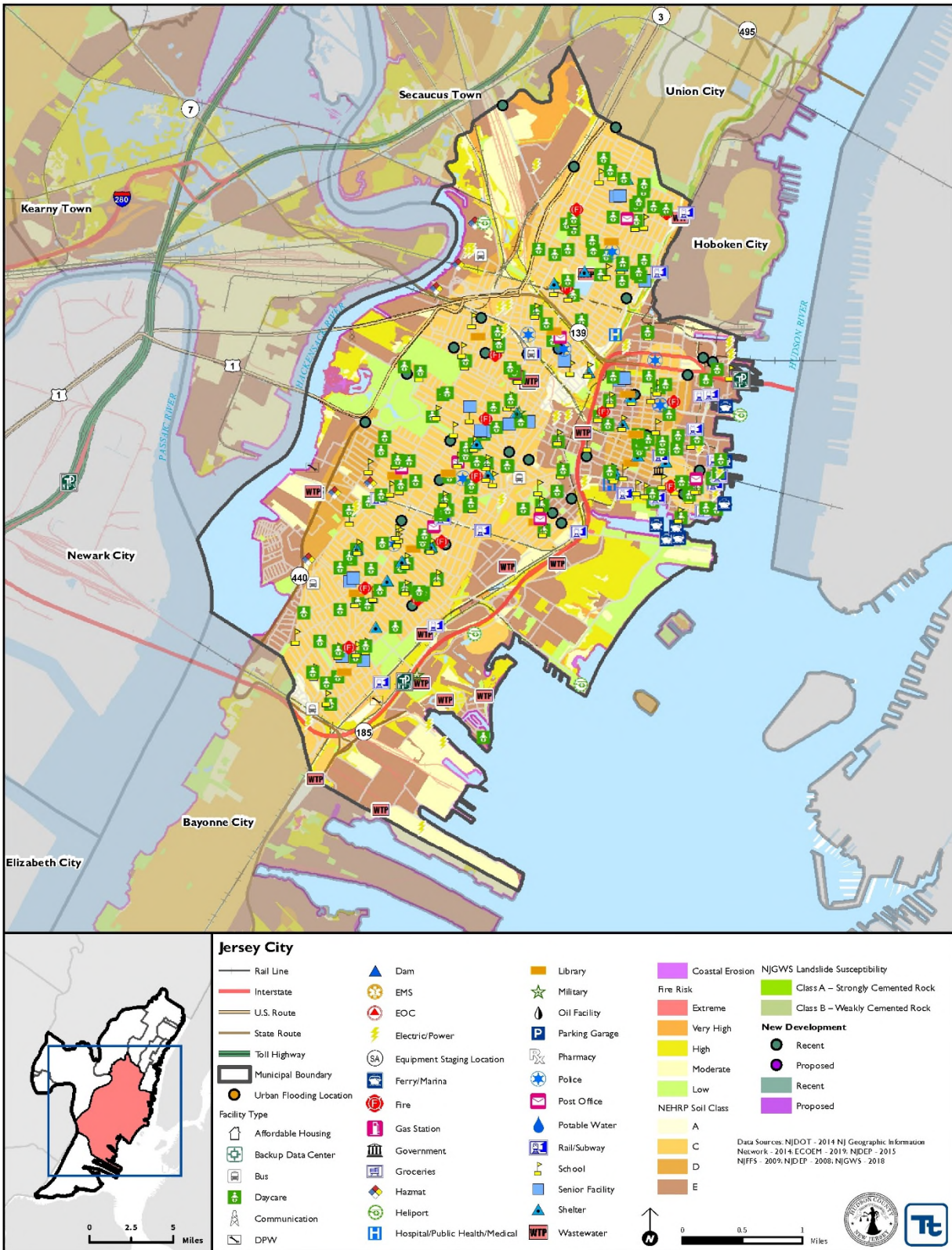




Table 9.7-20. Recent and Expected Future Development - Downtown Jersey City

SIT E	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING
DEVELOPMENT PROPOSALS																	
24	55 HUDSON STREET (95)	0	903,000	17,500	684	169	NEWPORT PARCEL 4	692	0	30,000	400						
35	EVERTRUST II	0	555,000	90,000	0	170	NEWPORT PARCEL 5	592	0	0	240						
104	HARBORSIDE PLAZA 8 (Future Development)	0	0	0	0	173	HARSIMUS COVE STATION WEST	4,617	0	0	3,700						
105	HARBORSIDE PLAZA 9 (Future Development)	0	0	0	0	185	PROPOSED DEVELOPMENT	0	0	0	0						
106	LIBERTY HARBOR NORTH RDP (Future Development)	0	0	0	0	209	338 NEWARK AVENUE	37	0	0	0						
110	455 WASHINGTON BOULEVARD	119	0	6,665	203	306	ST LUCYS (Future Development)	0	0	0	0						
124	111 FIRST STREET	500	0	0	0	308	GRAND JERSEY RDP (Future Development)	0	0	0	0						
125	POWERHOUSE BUILDING (Future Development)	0	0	0	0												
168	6TH STREET PIER	818	297,300	10,000	910												
APPROVED DEVELOPMENT PROJECTS																	
9	270 MARIN BOULEVARD (20)	420	0	40,452	0	180	296-298 COLES STREET (11 & 18)	928	0	23,950	309						
23	50 HUDSON STREET	0	731,086	20,000	1,473	191	700 WASHINGTON BOULEVARD	338	0	16,490	0						
33	HARBORSIDE PLAZA 4 (5)	0	1,057,300	9,700	618	192	659 GROVE ST.	139	0	12,527	116						
38	200 GREENE ST II / PLAZA 6	501	0	0	0	193	854 JERSEY AVENUE	119	0	14,013	90						
41	PROVOST SQUARE (33)	268	0	13,172	380	195	580 MARIN BOULEVARD	367	25,000	95,000	200						
70	143 CC DRIVE / 72 WAYNE STREET	58	0	5,909	45	200	375 FIFTH St (5)	12	0	0	0						
84	LIBERTY HARBOR NORTH	162	0	0	160	201	124-128 BRUNSWICK ST (5)	19	0	312	13						
85	LIBERTY HARBOR NORTH	16	0	0	16	205	285 NEWARK AVENUE (6)	22	0	0	0						
87	THE PARK AVENUE	395	0	44,764	144	206	286 NEWARK AVENUE (6)	18	0	0	4						
88	33-39 AETNA STREET	189	0	17,620	285	208	386 5TH STREET (5)	18	0	0	0						
89	36-50 AETNA STREET	107	0	3,940	195	300	233 NEWARK AVENUE	16	0	1,702	4						
91	THE VIEW / MILL CREEK LANE	575	0	9,736	988	301	2 HOBOKEN AVENUE (13)	161	0	3,793	147						
126	364 MARIN BOULEVARD	28	0	0	0	302	3-25 NEW YORK AVENUE	340	0	0	0						
136	MORRIS BLVD, LHN 60.19	259	0	16,600	707	304	444 WASHINGTON BOULEVARD (70)	950	0	17,192	572						
137	MORRIS BLVD, LHN 60.18	359	0	11,865	136	305	72 YORK STREET	11	0	4,200	0						
138	MORRIS BLVD, LHN 60.17	255	0	18,250	135	307	305 COLES STREET (COLES STREET PARK)	0	0	0	0						
144	700 WASHINGTON BOULEVARD (40)	790	0	15,000	876												
145	2 SHORE LANE (8)	71	0	15,603	65												
159	REGENT STREEET MIDRISE	131	0	0	29												
160	155 MARIN BOULEVARD - MARRIOT HOTEL	276	0	15,000	0												
165	144 FIRST STREET (11)	84	0	0	0												





SIT E	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING
177	318-328 NEWARK AVENUE (7)	50	0	4,895	3												
179	351 THIRD STREET (4)	12	0	796	0												
PROJECTS UNDER CONSTRUCTION																	
29	99 HUDSON STREET (79)	781	0	15,666	609	183N	351 MARIN BOULEVARD	507	0	0	203	303	HARBORSIDE	0	0	0	0
60	75 PARK LANE SOUTH	359	0	7,248	0	184	25 CHRISTOPHER COLUMBUS DRIVE	750	0	18,485	416	308	158 MERCER STREET	0	0	0	0
82	452-460 GRAND STREET	41	0	2,324	41	187	364.5 FOURTH STREET	16	0	480	0						
99	364 NINTH STREET PHASE 3 (8)	79	0	24,000	245	188	160 BRUNSWICK STREET	16	0	0	9						
106	LIBERTY HARBOR NORTH	0	0	0	0	190	39 NEW YORK AVENUE (5)	154	0	68	0						
107	155 MARIN BOULEVARD (PHASE 2)	452	0	9,037	0	194	EMERSON DISTRICT	0	0	0	0						
118	ST FRANCIS REDEVELOPMENT	0	0	0	0	196	78 MONTGOMERY STREET	40	0	0	0						
121	430 MARIN BOULEVARD (35) PHASE 2	432	0	8,394	182	197	202 MERSELES STREET (5)	16	0	0	16						
127	100 COLDEN STREET	128	0	28,650	168	198	400 NEWARK AVENUE (7)	25	0	0	15						
131	137-139 HOBOKEN AVENUE / VAN LEER	260	0	3,122	370	199	387-389 8TH ST & 34-40 DIVISION ST (8)	75	0	3,351	82						
147	BRIGHT STREET AND VARICK STREET	87	0	0	0	202	332 NEWARK AVENUE (7)	45	0	530	12						
181	175 SECOND STREET	150	0	0	28	203	333 NEWARK AVENUE (4)	18	0	3,028	0						
183	331 MARIN BOULEVARD	448	0	6,470	116	207	141 NEWARK AVENUE (7)	10	0	0	0						
RECENTLY COMPLETED DEVELOPMENT PROJECTS																	
1	9 COLES STREET (2)	11	0	0		55	20 RIVER COURT (36)	409	0	4,239	269	116	154-158 STEUBEN STREET / IVY HOUSE (7)	18	0	0	7
2	BRIGHT/GRAND TOWNHOUSES (4)	10	0	0	10	56	MARRIOTT COURTYARD (10)	189	0	0	79	117	25 MCWILLIAMS PL / HAMILTON SQ (11)	127	0	55,000	35
3	MAJESTIC THEATRE (6)	48	9,910	5,133	31	57	545 WASHINGTON BLVD / NOC IV (21)	0	858,135	11,318	653	118	210 9TH STREET / SILVERMAN (5)	25	3,025	0	0
4	NEW TOWN HOUSES (4)	8	0	0	4	58	575 WASHINGTON BLVD / NOC V (21)	0	704,510	15,584	723	119	272 GROVE STREET	99	15,000	15,000	48
5	GROVE POINTE (29)	525	0	16,480	597	59	570 WASHINGTON BLVD / NOC VI (12)	0	293,430	16,637	207	120	380 NEWARK AVENUE (7)	45	0	4,318	20
6	143-151 MORGAN ST (11)	40	0	0	40	61	MODELLS/STAPLES (1)	0	0	40,946	183	121	430 MARIN BLVD (35)	853	0	26,593	1,590
7	70 COLUMBUS PHASE II	545	0	12,267	316	62	180 TENTH ST / ROOSEVELT (7)	128	0	4,507	9	122	ELLIPSE 1-25 14TH STREET (41)	376	0	0	271
7	90 COLUMBUS / HOTEL	250	0	0	0	63	204 TENTH ST / LINCOLN (6)	153	0	0	134	123	110 FIRST STREET	352	0	12,000	343
7	90 COLUMBUS	634	0	0	0	64	234 TENTH ST - SCHOEDER LOFTS (5)	58	0	3,400	65	128	145 14TH STREET - LAGUNA (17)	144	0	7,772	95
8	303 WARREN STREET/ PHASE I (36)	306	0	27,300	804	65	270 TENTH ST	163	0	0	132	129	109-113 COLUMBUS DRIVE (5)	24	0	9,483	0
10	255 WARREN STREET (22)	220	0	18,438	328	66	310 TENTH ST	163	0	0	132	132	110 HOBOKEN AVE / VAN LEER	240	0	0	131
11/16	LEGACY AT LIBERTY PARK (4)	324	0	0	359	67	700 GROVE (12)	230	0	0	231	133	292 NEWARK AVE (5)	48	0	7,505	30
12	FULTON'S LANDING (7)	105	0	0	72	68	95-97 MONTGOMERY STREET (6)	18	0	4,508	0	134	CITY CHEMICAL SITE	140	0	0	150
13	K. HOVNANIAN AT P. HOOK (4)	71	0	1,250	80	69	ATHENA / "A" / 94 FIRST STREET (33)	250	0	9,850	211	135	FIRST AND CENTER STREET (4)	54	0	0	56
14	HUDSON POINT (6)	181	0	0	196	71	99-101 MONTGOMERY STREET (7)	16	0	900	8	139	193 MARIN BLVD PHASE 2	90	0	5,000	0





SIT E	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING
15	PIER HOUSE I (4)	180	0	5,700	233	72	311 WASHINGTON BOULEVARD (14)	68	0	0	46	140	65 BAY STREET / TRUMP 2	447	0	10,600	0
17	174 WASHINGTON STREET (4)	65	0	1,080	67	73	61 GRAND / GRAND VIEW (4)	40	0	0	38	141	253 WASHINGTON ST (8)	20	0	3,500	0
18	72-78 MORRIS STREET (3)	19	0	0	10	74	193 MARIN BLVD / GULLS COVE (16)	341	0	35,000	430	142	307 BARROW ST / 78 WAYNE ST (4)	12	0	0	12
19	60 ESSEX STREET (7)	70	0	0	69	75	LIBERTY H.N. - BLOCK 60.02 (9)	177	0	10,000	313	146	17-19 DIVISION ST	18	0	1,242	0
20	LIBERTY TERRACE (9)	120	0	0	120	76	150 BAY STREET (9)	232	0	35,000	0	148	28 BRIGHT STREET (4)	31	1,332	0	14
21	LIBERTY VIEW TOWER (37)	648	0	24,000	777	77	LIBERTY HARBOR NORTH - BLOCK 60.03 (8)	174	0	0	220	149	JERSEY AVENUE	70	0	14,000	35
22	30 HUDSON (42)	0	1,168,281	10,000	see #23	78	LIBERTY HARBOR NORTH - BLOCK 60.10 (8)	101	0	0	0	150	223-231 FIRST STREET (4)	25	0	0	14
25	61-63 SUSSEX & 60 MORRIS (6)	13	0	0	13	79	159 SECOND STREET WALDO LOFTS (12)	82	0	6,753	40	151	8 ERIE STREET (3)	16	0	17,500	0
26	77 HUDSON (48)	901	0	20,178	912	80	160 FIRST STREET (14)	150	0	9,873	63	152	425 WASHINGTON	311	0	2,214	86
27	70 HUDSON - HARTZ (12)	0	357,866	0	273	81	148 FIRST STREET (13)	119	0	2,000	0	153	1 EXCHANGE PLACE HOTEL	250	0	16,253	0
28	90 HUDSON - HARTZ (12)	0	371,728	0	285	83	LIBERTY HARBOR NORTH - BLOCK 60.04 (5)	40	0	0	10	154	143 NEWARK AVE	17	0	8,341	0
30	95 GREENE STREET - SJP (5)	0	261,184	8,146	128	86	S&K / APPLIED HOUSING (16)	347	0	6,738	253	155	325 GRAND STREET (13)	194	0	5,108	0
31	MONTGOMERY GREENE (19)	113	0	3,775	123	90	120 YORK ST (11)	139	0	6,000	104	156	CAST IRON LOFTS II / 827 JERSEY AVE (26)	232	0	26,600	311
32	HYATT HOTEL (10)	350	0	19,000	0	92	193-213 VAN VORST ST PHASE 1 (15)	255	0	7,237	252	157	UNICO TOWER II / KRE	400	0	20,000	200
34	HARBORSIDE PLAZA 4A (11)	0	170,000	25,000	1,100	92	193-213 VAN VORST ST PHASE 2 (15)	153	0	7,305	0	158	GRAND AND GROVE	549	0	6,380	347
36	HARBORSIDE PLAZA 5 (34)	0	817,500	8,500	1,258	93	833 JERSEY AVENUE (20)	155	0	11,070	155	161	350 WARREN AKA 335-341 WASH. ST	377	0	0	0
37	HARBORSIDE NORTH PIER (8)	296	0	0	280	95	SHORE CONDO / 20 NEWPORT PKWY (23 & 28)	442	0	45,602	1,045	162	HAMILTON SQUARE PHASE II	99	0	7,000	66
39	32--342 WASHINGTON ST (55)	452	0	21,069	468	96	MEDICAL OFFICES AND PARKING (5)	0	75,000	0	264	163	795-803 JERSEY AVE	377	0	20,700	429
40	321-333 WASHINGTON (4)	0	40,000	0	0	97	209-217 NEWARK AVE (5)	76	0	3,900	50	166	321-331 WARREN ST (18)	180	0	16,400	18
41	PROVOST SQUARE (38)	417	0	16,430	371	98	361-377 NEWARK AVE	55	0	2,950	56	167	182-184 14TH STREET - HOTEL	87	0	0	30
41	PROVOST SQUARE (28)	242	0	15,387	209	99	364 NINTH ST. PHASE 1 (8)	75	0	27,643	116	171	60 ERIE ST / SCHOOL #2 (3)	18	0	0	12
42	140 BAY STREET (7)	59	0	24,000	0	99	364 NINTH ST. PHASE 2 (8)	75	0	27,643	116	172	239-249 NEWARK AVE.	54	0	4,144	13
43	200 GREENE ST I / PLAZA 7 (69)	766	0	11,998	421	100	244-250 SIXTH ST (3)	12	0	0	0	174	227 4TH STREET - SCHOOL #2 (5)	12	0	0	0
44	HARBORSIDE PLAZA 10 (19)		518,578	13,482	367	101	64-66 MORRIS STREET (5)	14	0	2,000	0	175	242 10TH ST - HAMILTON LOFTS (5)	32	0	7,560	0
45	CANDLEWOOD HOTEL (8)	215	0	0	133	102	MORGAN POINT HOTEL	184	0	3,300	0	176	333 GRAND ST (12)	233	0	26,000	134
46	65 2ND ST / PORTOFINO (26)	283	0	4,800	299	103	18 PARK (11)	422	0	14,300	258	178	133 SECOND ST (7)	0	980	6,201	0
47	425 WASH. BLVD/MARBELLA (40)	412	0	5,600	318	107	155 MARIN BLVD (PHASE 1)	448	0	5,290	722	181	175 SECOND ST	138	0	0	39
48	455 WASH. BLVD/ DOUBLETREE (13)	200	0	0	187	108	187 WARREN ST / LIBERTY POINTE (3)	32	0	4,236	43	186	PROPOSED FERRY DOCK	0	0	0	0
49	480 WASHINGTON BLVD (27)	0	933,288	21,195	876	109	HOME DEPOT / 180 12TH ST (3)	0	0	105,121	420	189	366 SIXTH STREET	20	0	0	20
50	479 WASH. BLVD - WESTIN HOTEL (24)	429	0	7,000	215	111	MONACO I II / 465-475 WASH. BLVD (50)	524	0	6,105	378	196	25-27 DIVISION STREET (5)	10	0	0	0
51	499 WASHINGTON BLVD (14)	0	547,795	12,000	750	112	198 VAN VORST STREET (7)	131	0	4,426	181	197	251 NEWARK AVENUE	13	0	1,200	8
52	MACY'S (3)	0	0	237,000	0	113	THE AQUABLU / 110 RIVER DR (31)	367	0	13,348	0						





SIT E	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING	SI TE	PROJECT NAME (STORIES)	UNI TS	OFFI CE	RET AIL	PARK ING
53	100 TOWN SQ PL / NOC VII (14)	0	71,273	0	877	114	213-215 BAY STREET CONDOS	38	0	0	40						
54	25 RIVER DRIVE (29)	336	44,575	17,504	240	115	2 SECOND STREET (42)	269	0	6,000	275						

Table 9.7-21 Recent and Expected Future Development - Journal Square

SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
DEVELOPMENT PROPOSALS											
9	ROBINHOOD PLAZA (42)	492	0	5,000	250						
65	HARWOOD (50) (50)	1,200	0	15,000	600						
76	LOWES THEATRE RENOVATION	0	0	0	0						
93	3075 JFK (6)	0	0	0	0						
APPROVED DEVELOPMENT PROJECTS											
2	1 JOURNAL SQUARE (46)(79)	1,725	126,937	88,754	910	91	96-100 TUERS AVE (6)	30	6,930	7,757	0
8	JOURNAL SQUARED PHASE 3 /KRE (60)	600	0	14,000	245	92	783 NEWARK AVE (5) HINDU TEMPLE	1	8,350	0	0
15	23 COTTAGE STREET (3)	3	0	0	0	94	808 PAVONIA BUILDING-3 (1)	0	0	3,510	0
16	804 NEWARK AVE (5)	9	0	3,450	0	95	808 PAVONIA BUILDING-1 (51)	598	0	3,750	400
17	165-173 ACADEMY ST (18)	176	17,220	3,560	0	96	808 PAVONIA BUILDING-5 (1)	0	5,064	0	0
18	688-700 MONTGOMERY ST / SPU (21)	595	0	100,146	717	97	808 PAVONIA BUILDING-4 (57)	591	0	0	450
25	725-727 BERGEN AVE (5)	18	0	2,871	0	98	19 PERRINE AVENUE (5)	48	0	0	0
35	501 SUMMIT AVE / SOCIAL SECURITY (4)	0	41,400	6,300	34	100	854-860 NEWARK AVE (5)	24	0	0	27
38	CANCO LOFTS PHASE 2 (8)	327	0	0	335	101	348 BALDWIN AVENUE (6)	45	0	0	21
40	22 LIBERTY AVE (5)	24	0	0	0	102	35 COTTAGE STREET (27)	329	10,379	815	0
41	12 COOK ST (8)	106	0	2,350	53	103	26-28 COTTAGE STREET (20)	166	12,698	0	0
42	414 HOBOKEN AVE / TRIBECA GRAND (23)	121	0	47,500	88	104	74-76 COTTAGE STREET (9)	42	1,010	0	0
46	232 SIP AVE (14)	129	15,950	1,590	0	105	16 FRONT STREET (5)	26	0	0	0
50	205 BALDWIN (6)	42	0	0	15	106	167-169 BALDWIN & 44-48 NEWKIRK (12)	140	0	4,595	14
57	96-110 TONNELLE AVE (8)	130	0	6,575	10	107	32 OAKLAND AVENUE (15)	297	59,822	7,220	181
58	1072 & 1075 WEST SIDE AVE (8)	486	0	25,452	384	108	345 BALDWIN AVENUE (13)	116	0	1,945	21
60	180 BALDWIN AVE (25)	700	0	21,000	490	109	827 PAVONIA AVENUE (3)	4	0	0	0
64	134 COTTAGE(3)	8	0	0	0	110	830-832 PAVONIA AVENUE (5)	21	0	0	0
65	808 PAVONIA BUILDING-2 (2)	0	10334(other)	0	0	111	213 ACADEMY STREET (4)	8	0	0	0
66	30 JOURNAL SQUARE (72)	741	96,602	15,030	741	112	40 VROOM STREET (4)	9	0	0	0
68	362 SUMMIT (12)	120	0	5,000	70	113	626-632 NEWARK AVENUE (27)	538	28,186	8,211	0
70	580 MONTGOMERY (3)	0	17,093	11,541	62	114	14-16 OAKLAND (4)	20	0	0	0
71	530 MONTGOMERY MOSQUE (2)	0	18,722	0	0	115	28-32 VAN REIPEN (27)	235	7,723	7,562	0
73	711 MONTGOMERY (16)	299	0	5,077	120	116	30-40 COTTAGE STREET	0	0	0	0





SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
75	60 COTTAGE STREET (5)	21	0	0	0	117	693-701, 703-707 NEWARK AV (HOTEL)(25)	263	0	6,000	100
77	614-616 SUMMIT AVE (8)	32	0	5,491	0	118	18 PERRINE (3)	7	0	0	0
81	PROPOSED NEW 6 STORY STRUCTURE	0	0	0	0	119	32 JONES STREET (4)	9	0	0	0
84	37-47 HIGH ST (6)	85	0	1,310	8	120	14 VAN REIPEN (4)	6	0	0	0
88	78 COTTAGE STREET (5)	18	0	0	0	121	51, 55, 57 NEWARK (6)	45	0	0	0
89	55 JORDAN AVE (16)	267	0	4,340	112	122	51-53 HIGH STREET (4)	19	0	0	0
90	823 NEWARK AVE (4) HOTEL	21	1,976	1,839	0	123	396 SUMMIT AVENUE (3)	4	0	948	0
91	96-100 TUERS AVE (6)	30	6,930	7,757	0	124	26 OAKLAND AVENUE (6)	29	0	0	0
PROJECTS UNDER CONSTRUCTION											
7	JOURNAL SQUARED PHASE 2 / KRE (70)	700	0	18,000	522	59	61-65 NEWKIRK ST (5)	29	0	0	0
19	720-726 BERGEN AVE (5)	58	0	3,219	32	60	180 BALDWIN AVE (7)	156	0	16,000	0
21	87-97 NEWKIRK (14)	132	21,506	5,006	0	67	880 BERGEN (10)	55	0	3,337	11
24	267 BALDWIN AVE (5)	8	0	0	0	69	362 SUMMIT (6)	69	0	1,740	18
39	3085 KENNEDY BLVD / CORNUCOPIA MRKT (3)	0	0	29,416	30	72	MONTGOMERY GARDENS	0	0	0	0
43	850-852 NEWARK AVE (4)	11	0	3,266	0	74	147 ACADEMY (8)	48	0	1,000	10
44	60-62 NEWKIRK ST (5)	20	0	0	0	78	3 PERRINE AVE. (6)	37	0	0	0
48	156-160 ACADEMY ST (8)	91	0	1,128	30	83	51-57 NEWKIRK (6)	60	0	0	0
55	190 ACADEMY ST (6)	122	0	0	0	87	2973 KENNEDY (20)	79	18,654	6,770	0
56	2851-53 KENNEDY BLVD (6)	40	0	0	0	88	78 COTTAGE ST (5)	18	462	0	0
RECENTLY COMPLETED DEVELOPMENT PROJECTS											
1	2854 KENNEDY BLVD / SATE SQUARE (12)	130	0	14,000	395	31	PUBLIC SCHOOL - ELEMENTARY	0	0	0	
3	300 MAGNOLIA AVE / CHOSEN ESTATES (4)	15	0	0	0	33	ST. PETER'S UNIVERSITY STUDEN CTR (6)	0	0	0	3
4	SCHOOL RENOVATION	0	0	0	0	34	119 COTTAGE ST (4)	3	0	0	3
5	789 NEWARK AVE / HOTEL (4)	27	0	4,000	0	36	25 SENATE PLACE (6)	266	0	5,567	128
6	JOURNAL SQUARED PHASE 1 / KRE (54)	540	0	4,000	153	37	888 NEWARK AVE / MANA FINE ARTS (3 & 6)	0	2,000,000	0	39
11	100 NEWKIRK ST / KENNEDY LOFTS (8)	56	0	0	0	44	769 MONTGOMERY ST - SOLEIL LOFTS (6)	38	5,178	0	31
12	HCCC LIBRARY - 112K SF (6)	0	0	0	0	45	650-654 MONTGOMERY ST (5)	22	0	900	23
13	60 VAN REIPEN AVE (3)	8	0	0	0	47	76 ST. PAULS AVE (5)	55	0	0	60
14	36 VAN REIPEN AVE (3)	4	0	0	0	51	197 ACADEMY ST	20	0	0	15
20	52 ORCHARD STREET RENO (5)	12	0	1,000	0	52	63-65 FLEET ST (3 & 5)	16	0	0	14
22	182 ACADEMY ST / TOVASTE (7)	56	0	0	35	53	628 SUMMIT AVE (4)	7	0	444	0
23	729 BERGEN AVE (2)	0	0	10,400	0	54	146 OAKLAND AVE (4)	95	0	0	103
26	665-67 SKILLMAN AVE (5)	46	0	0	22	61	257 ACADEMY HCCC STEM (6)	0	70,070	0	0
27	3075 KENNEDY BLVD (6)	83	0	3,700	19						
28	2 JOURNAL SQUARE/ PHM II (13)	240	0	0	0						
29	50 DEY ST - CANCO LOFTS PHASE 1 (8)	224	0	17,082	0						





SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
NEW OPEN SPACE AND PUBLIC AMENITIES											
2	RENOVATED JOURNAL SQUARE PLAZA					60.2	PLAZA AND PROMENADE				
6	NEW PATH PLAZA BY KRE										
10	NEW PARK										
30	CANCO LOFTS PARK										
32	NEW PLAZA										

Table 9.7-22. Recent and Expected Future Development - Bergen Lafayette

SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
DEVELOPMENT PROPOSALS											
82	241 FAIRMOUNT					94	123 MLK DRIVE				
83	224 MONTICELLO AVE					97	524-530 OCEAN AVE	21			
85	17A-19 ASH ST	20			8	98	216 MONTICELLO AVE				
86	342 JOHNSTON AVE (8)	55	0	2,246	13	108	215 COMMUNIPAW AVE - SCITECH SCITY	410	100,000		
87	381 WHITON ST	30		1,000	10	120	374-380 COMMUNIPAW AVENUE (5)	40	0	2,600	0
88	378 JOHNSTON AVE	18	0	1,500	0	124	168-172 MLK DRIVE (5)	16	0	4,733	0
91	975 GARFIELD AVE					127	660 GRAND STREET				
92	58 ORIENT AVE										
93	311 BERGEN AVE										
APPROVED DEVELOPMENT PROJECTS											
37	412-418 PINE ST (6)	36	0	0	28	110	719-721 OCEAN AVE (4)	7	0	957	0
41	711 MONTGOMERY ST	299	0	5,077	120	111	421-423 MLK DRIVE (4)	9	0	1,646	0
42	201 CORNELISON AVE	62	0	2,000	9	112	1 EDWARD HART DR	0	0	31,283	0
44	136 SUMMIT AVE	78	0	945	46	113	184 MLK DRIVE	6	0	2,177	0
45	118 SUMMIT AVE	47	0	0	31	114	90 VIRGINIA AVE	10	0	0	0
75	829 GARFIELD AVE (5)	108	0	10,919	76	115	79 THOMAS MCGOVERN RD.	0	95,808		87
76	683 OCEAVE AVE (5)	42	0	0	15	116	725-727 BERGEN AVENUE (5)	18	0	2,869	0
77	659 OCEAN AVE (5)	29	0	780	9	117	101-105 Pacific Ave	0	0	8,441	0
78	59 VIRGINIA AVE (4)	12	0	0	0	119	327 COMMUNIPAW (5)	16	0	2,015	
89	327 PINE ST					121	568-572 COMMUNIPAW (3)	18	0	1,576	0
90	408 COMMUNIPAW AVE (5)	47	0	5,393	27	122	503-509 COMMUNIPAW (5)	40	0	1,427	0
96	409 OCEAN AVE	16	0	1,431	0	123	426-430 WHITON & 327-331 PINE (6)	98	0	0	49
101	326 PACIFIC AVE (4)	12	0	0	9	125	431-433 MLK DRIVE (6)				
105	78 MLK DRIVE					126	20 AMITY STREET (5)	40	1,427	0	0





SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
PROJECTS UNDER CONSTRUCTION											
26	561 MONTGOMERY ST	126	0	0	107	43	720 BERGEN AVE	58	0	3,219	32
27	170 LAFAYETTE ST (4)	46	0	0	50	46	684 GRAND ST (5)	60	0	1,263	65
28	420-424 WHTION ST (6)	30	0	0	13	47	65 MONITOR ST	72	0	879	28
29	2-16 ASH STREET (6)	93	0	0	65	48	286-294 ARLINGTON AVE (3)	31	0	0	30
30	37-39 CORNELISON AVE (5)	37	0	0	37	49	201 RANDOLPH AVE (3)	10	0	0	7
33	160 LAFAYETTE AVE (STALLED)	330	0	0	224	79	429-437 BERGEN AVE (5)	72	0	2,150	50
35	74 MAPLE ST (8)	104	0	3,089	35	81	300 COMMUNIPAW - PHASE 3	20			58
36	313-321 PINE ST (6)	44	0	0	29	84	132 MONITOR ST	84	0	1,000	34
38	326-328 JOHNSTON AVE (5)	20	0	2,000	3	95	451-457 OCEAVE AVE (5)	64	0	2,276	24
39	100 MONITOR ST (5)	308	8,000	2,980	85	117	170-172 GRANT AVE (5)	20	0	0	19
40	323-325 PINE ST (6)	20	0	0	7						
RECENTLY COMPLETED DEVELOPMENT PROJECTS											
1	44 BEACON PLACE (6)	0	0	0	510	25	744 OCEAN AVENUE	44	0	0	23
2	56 BEACON PLACE (18)	128	0	0	0	31	644 COMMUNIPAW AVE	10	0	0	0
3	100 CLIFTON PLACE (22)	271	0	0	0	32	78 SUMMIT AVE (3)	17	0	0	17
4	88 CLIFTON PLACE (17)	241	0	0	0	34	747 GRAND ST (5)	36	0	0	29
5	120 CLIFTON PLACE (23)	220	0	0	0	61	438 ROSE AVE	8	0	0	8
6	729 BERGEN AVE (1)	0	0	6,000	0	62	445 ROSE AVE	14	0	0	14
7	23-25 DUNCAN AVE (5)	24	0	0	24	63	361 MLK DRIVE (1)	0	0	1,600	5
8	673 BERGEN AVE (3)	19	0	2,111	0	64	376 BERGEN AVE (5)	43	0	0	16
9	769 MONTGOMERY ST (4)	38	0	5,178	31	65	242 BERGEN AVE (4)	16	0	0	0
10	167-169 MONTICELLO AVE (3)	7	0	2,170	0	66	268 MLK DRIVE (2)	8	0	0	16
11	516 BERGEN AVE (4)	18	0	3,332	0	67	30 & 50 BOSTWISK AVE (3)	69	0	0	0
12	88-94 BISHOP ST (industrial)	0	7,500	0	0	68	196 MLK DRIVE (4)	39	0	5,500	39
13	445 WHITON ST (4)	24	0	0	24	69	461 OCEAN AVE (4)	32	0	0	10
14	631 GRAND ST	0	31,017	0	32	70	460 OCEAN AVE (4)	27	0		9
15	5 MONITOR ST (4)	15	0	2,000	15	71	301 MLK DRIVE (3)	5	0	1,000	0
16	218 SUYDAM AVE	83	0	0	37	72	315 MLK DRIVE (4)	10	5,011	3,362	0
17	PACIFIC COURT	72	0	0	70	73	665 OCEAN AVE (3)	8	0	0	0
18	373 COMMUNIPAW AVE (3)	0	7,184	0	6	74	300 COMMUNIPAW - PHASE 1 & 2 (4)	117	0	0	127
19	381 COMMUNIPAW AVE	6	0	867	0	99	JCHA LAFAYETTE COMPLEX	283	0	0	166
20	2 UNION ST (3)	34		0	15	100	305 WHITON ST (4)	25	0	0	24
21	487 COMMUNIPAW (3)	8	0	0	5	102	317-319 PACIFIC AVE (3)	8	1,132	0	0
22	704 GRAND ST (4)	12	0	0	12	103	291-297 HALLADAY ST (3)	8	0	0	8
23	450 MARTIN LUTHER KING DRIVE (5)	40	0	6,200	0	106	150 MONTICELLO AVE (3)	2	0	1,000	0
24	418 MARTIN LUTHER KING DRIVE (4)	15	0	0	18	109	113-115 MONTICELLO AVE (1)	0	0	5,665	0





SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING	SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
						113	312-314 PACIFIC AVE	14	0	1,064	0
	PARKS / PLAZAS				STATUS		PUBLIC FACILITIES				STATUS
50	LAFAYETTE POOL AND BASKETBALL COURT				COMPLETED 2011	56	JC OFFICE OF EMERGENCY MANAGEMENT				COMPLETED 2011
51	BERRY LANE PARK				COMPLETED 2016	57	JERSEY CITY POLICE DEPARTMENT: WEST DISTRICT				COMPLETED 2016
52	VENETER WATSON PARK RENOVATIONS				COMPLETED 2015	58	GLENN CUNNINGMAH LIBRARY				COMPLETED 2004
53	BOYD MCGUINNESS PARK RENOVATIONS				COMPLETED 2015	59	MARY BETHUNE CENTER				COMPLETED 2001
54	FULTON AVENUE PARK				SLATED 2017	60	CITY HALL ANNEX				COMPLETED 2018
55	BAYSIDE PARK RENOVATIONS				COMPLETED 2012						

Table 9.7-23. Recent and Expected Future Development -Westside

SITE	PROJECT NAME (STORIES)	UNITS	OFFICE	RETAIL	PARKING
DEVELOPMENT PROPOSALS					
14	Bay Front Redevelopment				
17	Light Rail Extension				
23	400 Claremont				
APPROVED DEVELOPMENT PROJECTS					
15	74 Pollock	60	0	2,000	30
22	70 Fisk Street (8)	46	0	0	26
20	340-48 Westside Ave.	60	0	1,205	30
PROJECTS UNDER CONSTRUCTION					
6	100 Water(5)	112	0	0	160
8	305 West Side (5)	39	0	6,000	19
10	NJCU West Campus / Route 440 & West Side Ave	355	111,300	215,660	2,000
19	151 West Side Avenue	116	0	0	118
RECENTLY COMPLETED DEVELOPMENT PROJECTS					
1	55 Mallory Ave.	172	0	0	142
2	319-323 Grant (6)	27	0	0	22
3	20 Fisk Street	12	0	0	12
4	172-178 Culver(6)	39	0	0	41
5	366 West Side Ave	32	0	1,435	16
7	190 Culver(4)	16	0	0	18
9	196-198 Stevens Ave	300	0	0	76
12	NJCU Visual Arts Building	0	0	0	0
13	Society Hill (Phase 3)	242	0	0	0
16	353-363 Claremont Ave.	14	0	0	14
18	148-152 Clark Street & 16 Bennett Street(5)	63	0	0	57
21	Society Hill (Phase 1&2)	500	0	0	0





Action Worksheet			
Project Name:	2020-JERSEY CITY-001		
Project Number:	Repetitive Loss Properties		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	There are 189 repetitive loss properties and 11 severe repetitive loss properties in the City of Jersey City. These 10 properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 200 floodprone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)
Useful Life:	50 years	Goals Met:	1, 2, 5
Estimated Cost:	\$2 million	Mitigation Action Type:	EAP, SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	City Construction Code Official	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-001	
Project Number:	Repetitive Loss Properties	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents living in repetitive loss properties
Property Protection	1	Protect structures in repetitive loss areas
Cost-Effectiveness	1	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	1	Use City budget for outreach portion of project
Environmental	0	No environmental impacts
Social	1	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	0	Flood
Timeline	1	Within 2 years
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-002		
Project Number:	Generator for City Hall		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	The City Hall building does not have a backup power source. During a power outage, City Hall cannot function properly and provide essential services to residents.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install a permanent generator at City Hall.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Continuity of operations
Useful Life:	25 years	Goals Met:	1, 2, 6
Estimated Cost:	\$50,000+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMGP
Responsible Organization:	City Administration	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Install solar panels	\$50,000+	Weather dependent; not enough space to install
	Install wind turbine	\$50,000+	Weather dependent; not enough space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-002	
Project Number:	Generator for City Hall	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provided municipal services to residents during a power outage
Property Protection	1	Allow building to remain functional during a power outage
Cost-Effectiveness	1	Continuity of operations
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	1	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	All
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-004		
Project Number:	Street Levee – Country Village		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	As identified in the City’s Resiliency Master Plan, there are residences and a major thoroughfare / evacuation route known as Route 440 located in 100- year floodplain. This area is identified as Priority Area A in the Plan. The area includes block groups that equal or exceed the regional poverty threshold and includes a combined sewer outfall at Newark Bay		
Action or Project Intended for Implementation			
Description of the Solution:	Build a street level along the west side of Route 440. This will involve raising the roadway by three to four feet.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	This will ensure that not only Country Village is protected, but ensures that Route 440 itself remains a safe, dry evacuation route.
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$50-\$80 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	5+ years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Division of City Planning, Division of Engineering, Jersey City Municipal Utilities Authority, NJDOT, City Administration, OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-004	
Project Number:	Street Levee – Country Village	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	This will ensure that not only Country Village is protected, but ensures that Route 440 itself remains a safe, dry evacuation route.
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	5+ years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-005		
Project Number:	Society Hill Boardwalk Levee		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	As identified in the City's Resiliency Master Plan (Priority Area B1), Society Hill, a multi-family residential development has an existing walkway along its riverfront. The walkway, the residences, and Route 440 are susceptible to wave damage and flooding. There is a combined sewer overflow point at Newark Bay.		
Action or Project Intended for Implementation			
Description of the Solution:	Elevate the existing Hackensack RiverWalk five to six feet from its current grade. The walkway distance affected is approximately one mile in length.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Reduce groundwater contamination associated with flooding, protect infrastructure
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$9.5 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	5+ years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	City Planning, Division of Architecture, City Administration, OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-005	
Project Number:	Society Hill Boardwalk Levee	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Reduce groundwater contamination associated with flooding, protect infrastructure
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	5+ years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-JERSEY CITY-006		
Project Number:	Walkway Levee		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Businesses in this area are prone to flooding. This area is being redeveloped and residential and mixed use properties will also be impacted from flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	Construct a walkway levee along the Morris Canal Greenway to protect the commercial businesses in this area as well as pending residential and mixed use development.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Protect businesses and homes from flood damage
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$5.5 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	8+ years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	City Engineering and OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-006	
Project Number:	Walkway Levee	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Protect businesses and homes from flood damage
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	8+ years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-JERSEY CITY-007		
Project Number:	Marion & Lincoln Park Flood Control Measures		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	As identified in the City's Resiliency Master Plan (Priority Area C), many City and Regional assets including PSE&G facilities, rail yards, and industrial uses are located in this district. Marion gardens, a public housing complex is in this area. In addition, there are several combined sewer outfalls and contaminated sites in this area.		
Action or Project Intended for Implementation			
Description of the Solution:	Implement various flood protection measures in this area of the City. This includes small-scale site specific floodwalls and wet and dry floodproofing.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Keep water away from specific areas and buildings
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$65 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	4+ years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	City Planning, City Engineering, JC MUA, and OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-007	
Project Number:	Marion & Lincoln Park Flood Control Measures	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Keep water away from specific areas and buildings
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	1	
Social	1	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	4+ years
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-008		
Project Number:	Mill Creek - Implement Berms and Levees		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	During flood events, Area D is significantly impacted by water entering from the south through the Tidewater Basin and into Mill Creek and from the north through the Long Slip Canal at the Hoboken border. These two flood entry points must be addressed in order to prevent flooding in the back end of the city which was historically a marshy area. This area also has vulnerable populations and pockets of poverty which merit special attention.		
Action or Project Intended for Implementation			
Description of the Solution:	Install berms at vulnerable points north of Jersey Avenue to compensate for any residual flooding that is not deterred by elevating streets (Crescent Park area).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Protect historic structures, public housing, PSE&G substation, and Jersey City Medical Center
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$150 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	1 to 2 years	Potential Funding Sources:	
Responsible Organization:	City Planning, City, MUA, NJ DOT, Engineering and OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-008	
Project Number:	Mill Creek - Implement Berms and Levees	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Protect historic structures, public housing, PSE&G substation, and Jersey City Medical Center
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	1	
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	1 to 2 years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-010		
Project Number:	Dudley / Washington Street Levee		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	As identified in the City's Resiliency Master Plan (Priority Area E), many City and Regional assets including City Hall, historic districts, major commercial and employment centers, historic districts, the PATH, Hudson-Bergen Light Rail, and other critical facilities are located in the 100-year floodplain. There are six CSOs in this District.		
Action or Project Intended for Implementation			
Description of the Solution:	Raise Dudley and Washington Streets three to four feet above grade.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Alleviate flooding in several neighborhood sand protect critical infrastructure and historic structures.
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$15-\$20 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	3 to 7 years	Potential Funding Sources:	
Responsible Organization:	Division of City Planning, Division of Engineering, OEM, Jersey City Municipal Utilities Authority, Port Authority, NJ Transit, NJDEP, NJDOT	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-010	
Project Number:	Dudley / Washington Street Levee	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Alleviate flooding in several neighborhood sand protect critical infrastructure and historic structures.
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	1	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	3 to 7 years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-011		
Project Number:	Hudson River Waterfront Boardwalk Levee		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	As identified in the City's Resiliency Master Plan (Priority Area E), many City and Regional assets including City Hall, historic districts, major commercial and employment centers, historic districts, the PATH, Hudson-Bergen Light Rail, and other critical facilities are located in the 100-year floodplain. There are six CSOs in this District.		
Action or Project Intended for Implementation			
Description of the Solution:	Convert this area into a Boardwalk levee with a height of up to 14 feet above mean sea level. Because the Waterfront Walkway is already in place, it would sit atop the levee and allow for additional space for outdoor recreation.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Protect Jersey City's residents and critical infrastructure
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$50-80 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	3 to 7 years	Potential Funding Sources:	FEMA FMA and HMGP
Responsible Organization:	Division of City Planning, Division of Engineering, OEM, Jersey City Municipal Utilities Authority, Port Authority, NJ Transit, NJDEP, NJDOT	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-011	
Project Number:	Hudson River Waterfront Boardwalk Levee	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Protect Jersey City's residents and critical infrastructure
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	1	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	3 to 7 years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-012		
Project Number:	Rail Yard Flood Protection Barrier		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	This is the northern portion of Downtown Jersey City, including Newport and access to the Holland Tunnel. This area also contains critical facilities including the Holland Tunnel, PATH stations, ferry docks, and Hudson-Bergen Light Rail. CSOs also exist in this area.		
Action or Project Intended for Implementation			
Description of the Solution:	Develop a flood protection barrier along the south side of the NJ Transit rail yards. This would also include regrading road crossings two to three feet.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Protect Jersey City's residents and critical infrastructure
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$110,000 to \$1 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	3 to 7 years	Potential Funding Sources:	FEMA FMA and HMGP
Responsible Organization:	City Engineering, City Planning, and OEM in coordination with the City of Hoboken and NJ Transit.	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install floodwalls around neighborhoods that flood	\$5 million+	Costly; might prohibit access to areas during an emergency
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-012	
Project Number:	Rail Yard Flood Protection Barrier	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live and work in this area
Property Protection	1	Increase protection of buildings in this area of the City
Cost-Effectiveness	1	Protect Jersey City's residents and critical infrastructure
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	3 to 7 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-JERSEY CITY-013		
Project Number:	Wet Weather Pumping Stations		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	This is the northern portion of Downtown Jersey City, including Newport and access to the Holland Tunnel. This area also contains critical facilities including the Holland Tunnel, PATH stations, ferry docks, and Hudson-Bergen Light Rail. CSOs also exist in this area.		
Action or Project Intended for Implementation			
Description of the Solution:	When the combined sewer system reaches capacity during heavy rainfall, water can be treated at a wet weather treatment facility before it is discharged to local water bodies. This method helps protect human health and the environment by reducing the amount of untreated combined sewage that overflows into the Hudson River by preventing storm water from flooding the sewer lines and coming back up into the streets.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	Short term implementation and provide some relief from flooding in vulnerable areas
Useful Life:	25 years	Goals Met:	1, 2, 3, 4
Estimated Cost:	\$12-\$15 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	3 to 7 years	Potential Funding Sources:	NJEIT, CDBG, FEMA FMA and HMGP
Responsible Organization:	City Engineering, City Planning and OEM in coordination with Jersey City MUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Acquire all properties	\$10 million+	Costly; not feasible; loss tax base
	Install portable pumps to use during flood events	\$25,000+	Not feasible; staff would need to install pumps during flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-013	
Project Number:	Wet Weather Pumping Stations	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allow pumping stations to function during heavy rain and floods
Cost-Effectiveness	1	Short term implementation and provide some relief from flooding in vulnerable areas
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	3 to 7 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-JERSEY CITY-014		
Project Number:	Flood Modeling		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Outside of FEMA floodplain boundaries, the city does not have updated flood risk data showing areas subject to pluvial flooding, localized flooding from the combined sewer system, and surge risk. In addition, the City does not have flood scenarios showing the added risk of sea level rise and other climate-related changes.		
Action or Project Intended for Implementation			
Description of the Solution:	A flood risk analysis inclusive of different flood events (5-year, 10-year, 100-year, etc.) and scenarios coupled with SLR projections will allow the city to identify specific areas where adaptation strategies will be most effective.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	This work will facilitate the identification of viable projects for capital budget prioritization and future grant applications.
Useful Life:	N/A	Goals Met:	All
Estimated Cost:	50000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	Within 2 Years	Potential Funding Sources:	FEMA HMGP, PDM, and FMA
Responsible Organization:	Division of City Planning, Jersey City Municipal Utilities Authority, City Administration, OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Utilize the current flood maps to show where flooding occurs	0	The current maps do not show all floodprone areas
	Rely on the HMP to show areas of flooding	0	The HMP might not show all areas that flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-014	
Project Number:	Flood Modeling	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	This work will facilitate the identification of viable projects for capital budget prioritization and future grant applications.
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	1	
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	0	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 2 Years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-015		
Project Number:	Flood Risk Awareness		
Risk / Vulnerability			
Hazard(s) of Concern:	Sea Level Rise and Flood		
Description of the Problem:	Residents and business owners may not be aware of their flood risk, especially future risks related to climate change.		
Action or Project Intended for Implementation			
Description of the Solution:	A campaign, including an interactive mapping tool, to raise awareness of flood risk for homeowners, renters, at risk populations (socially vulnerable populations) businesses, and city staff.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Creating a socially, economically, and structurally resilient Jersey City and improving emergency preparedness
Useful Life:	N/A	Goals Met:	1, 2, 5
Estimated Cost:	\$30,000-\$50,000	Mitigation Action Type:	EAP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	1-2 Years	Potential Funding Sources:	City Budget, NJDEP, FEMA
Responsible Organization:	City Planning, Office of Sustainability, Office of Innovation, Health and Human Services, City Administration, OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Utilize the current flood maps to show where flooding occurs	0	The current maps do not show all floodprone areas
	Utilize FEMA-produced information on flooding	0	Does not represent all types of flood risk in the City, not specific to the City
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-015	
Project Number:	Flood Risk Awareness	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increases awareness of residents about flooding and what they can do to protect themselves from floods
Property Protection	1	
Cost-Effectiveness	1	Creating a socially, economically, and structurally resilient Jersey City and improving emergency preparedness
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	1	City budget
Environmental	0	No environmental impacts
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	0	Sea Level Rise and Flood
Timeline	1	1-2 Years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-JERSEY CITY-016		
Project Number:	Resiliency Parks Feasibility		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	40% of the city is located in the floodplain. The City does not have engineering studies to assess the feasibility of creating resiliency parks.		
Action or Project Intended for Implementation			
Description of the Solution:	Identify existing parks and open space or identify locations for new parks and open space to function as stormwater management, or resiliency, parks through the use of storage tanks and green infrastructure. Engineering studies would be used to create concept plans for funding opportunities.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Mitigation of localized flooding through leveraging existing and planned parks to have multiple functions including recreation and stormwater management.
Useful Life:	N/A	Goals Met:	All
Estimated Cost:	\$50-100,000	Mitigation Action Type:	NSP, SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding is received
Estimated Time Required for Project Implementation:	1-2 Years	Potential Funding Sources:	City Budget, NJEIT, CDBG, FEMA FMA and HMGP
Responsible Organization:	Division of City Planning, Division of Engineering, OEM, Jersey City Municipal Utilities Authority, Division of Architecture	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	current problem continues
	Elevate all buildings in the floodplain	\$10 million+	Not feasible; too costly; not all structures can be elevated
	Acquire all property in the floodplain	\$10 million+	Not feasible; costly; loss tax base
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JERSEY CITY-016	
Project Number:	Resiliency Parks Feasibility	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Mitigation of localized flooding through leveraging existing and planned parks to have multiple functions including recreation and stormwater management.
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	0	Need grant funding to complete project
Environmental	1	Utilizes open space to alleviate flooding
Social	0	
Administrative	1	The City has the administrative capacity for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	1-2 Years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	

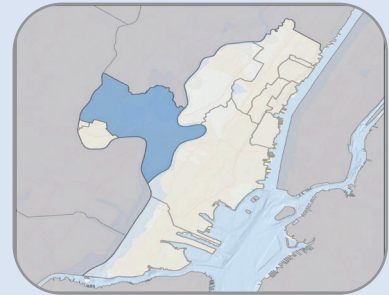




TOWN OF KEARNY

MUNICIPALITY AT A GLANCE

Total Population: 42,487
 Total Land Area: 10.19 sq. mi
 Total Number of Buildings: 7,209



Hurricane Storm Surge



Population



Buildings

Category 1* **1,109**

654

Category 2* **1,990**

875

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$4,935,400

Potential Building Damages

1% Annual Chance Flood



1,205

Population residing
in floodplain



681

Buildings in
floodplain



21

Critical facilities
in floodplain

146

Persons that may
seek shelter

\$664,022,538

Potential building
damages

NFIP Statistics



2 # NFIP Policies

117 # WYO Policies

6 # RL Properties
(excludes SRL)

2 # SRL Properties
(excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects,
Local Plan and Regulations, Education
and Awareness Programs

High Ranked Hazards



Coastal Storm, Extreme
Temperature, Severe Storm,
Severe Winter Storm



9.8 Town of Kearny

This section presents the jurisdictional annex for the Town of Kearny. The annex includes a general overview of the Town; an assessment of the Town of Kearny’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.8.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Town of Kearny’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.8-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Sgt. Peter Blair, Deputy OEM Coordinator / Police Department Address: 237 Laurel Ave. Kearny, NJ 07032 Phone Number: 201-998-8800 Email: pblair@kearnynjpd.org	Name / Title: Chief George King, OEM Coordinator / Police Department Address: 237 Laurel Ave. Kearny, NJ 07032 Phone Number: 201-998-1313 Email: gking@kearnynjpd.org
NFIP Floodplain Administrator	
Name / Title: Anthony Chisari , Construction/Zoning Official Address: 410 Kearny Ave. Kearny, NJ 07032 Phone Number: 201-955-7882 Email: tchisari@kearnynj.org	

9.8.2 JURISDICTION PROFILE

Kearny was originally formed as a township by an Act of the New Jersey Legislature on April 8, 1867, from portions of Harrison Township. Portions of the township were taken on July 3, 1895, to form East Newark. Kearny was incorporated as a town on January 19, 1899.

The governing body of the Town consists of the mayor and Town council. This governing body will be responsible for the adoption and implementation of this plan.

The Town of Kearny is located in western portion of Hudson County. It shares its borders with Bergen County to the north; the Passaic River to the west; Passaic River, East Newark and Harrison to the south and the Hackensack River to the east.

According to the U.S. Census, the 2010 population for the Town of Kearny was 40,684. The estimated 2017 population was 42,487, a 4.4 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 5.9 percent of the population is 5 years of age or younger and 13 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.





9.8.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.8-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figures 9.8-1 and 9.8-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.8-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	4	0	0	1	1
Multi-Family	7	2	9	6	7
Other (commercial, mixed-use, etc.)	4	1	2	4	3

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Passaic Avenue Redevelopment	Commercial	3 buildings	190 Passaic Avenue	0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Completed, occupied
JESAJ Kearny LLC (marjam Supply Company)	Commercial	3 buildings	342 Schuyler Avenue (Schuyler/John Hay and Garfield)	0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4	Nothing started, never received approvals
Hugo Neu Kearny Development LLC, f/k/a RTL Services, Inc.	Commercial	5 buildings	77 & 90 S. Hackensack Avenue	SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	No new construction started
113 Passaic Ave	Residential	1 four-story building	113 Passaic Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Completed, occupied
199 Tappan Street & 300 Hoyt Street	Residential	9 townhomes	199 Tappan Street	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH	Nothing started on 9 townhomes at 199 Tappan St. Change of use renovation underway at 300 Hoyt St.





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Category 4, NEHRP Class D&E	
Harrison Avenue Redevelopment Plan	Commercial	1 building	435 Bergen Avenue	SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	Completed, occupied
PSE&G Kearny 230/69kV Switchyard Expansion & class H Substation Project	Utilities	2 structures	200 Pennsylvania Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Expansion and upgrade still ongoing
Refrigerated Warehouse	Commercial	1 building	435 Bergen Avenue	SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	Completed, occupied
Proposed Truck Facility	Commercial		2 Hackensack Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	Nearing completion. Structure finished, tenant fit-out underway.
Warehouse Distribution Building	Commercial	1 building	50 Central Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Nearing completion. Structure finished, tenant fit-out underway.
350 Central Avenue	Commercial	1 building	350 Central Avenue	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH	No new construction started





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	
Hugo Neu Realty Management LLC	Commercial and Residential	4 buildings	77 & 90 Hackensack Avenue	SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Wildfire Risk	No new construction started
Ridge Crossing Phase III Redevelopment	Commercial	2 buildings	Belleville Turnpike & Sellers Street	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 3ft	Construction to be starting soon, site work only at this time
60 Passaic Ave. Residential Development	Residential	5 buildings	60 Passaic Avenue	0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Construction well underway
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
NJSEA - Belleville Turnpike				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 1ft, Sea Level Rise - 3ft, Wildfire Risk	
NJSEA - Kearny				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2,	





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				SLOSH Category 3, SLOSH Category 4 NEHRP Class D&E, Sea Level Rise - 1ft, Sea Level Rise - 3ft, Wildfire Risk	
NJSEA – Koppers Coke				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4 NEHRP Class D&E, Sea Level Rise - 1ft, Sea Level Rise - 3ft, Wildfire Risk	

* Only location-specific hazard zones or vulnerabilities identified.

9.8.4 CAPABILITY ASSESSMENT

The Town of Kearny performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.8.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of Kearny.





Table 9.8-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	No
<i>Comment: International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14 Adopted 9/3/2019; Ch. XIV Building and Housing; Construction Code enforces</i>					
Zoning Code	Yes	Local	Yes	No	No
<i>Comment: Ch. XXXVIII Zoning; Construction Code enforces</i>					
Subdivisions	Yes	Local	Yes	Yes	-
<i>Comment: Ch. XXXVI Subdivision and Site Plan; Construction Code enforces; A subdivision application must include on the primary plat and site plan the location of existing features include previous flood elevations of water sources, ponds and marsh areas. If a proposed subdivision is traversed by a water sources, drainageway, channel or stream, there must be a stormwater easement or drainage right-of-way conforming substantially with the lines of the watercourses. There are minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major developments.</i>					
Stormwater Management	Yes	Local	Yes	-	-
<i>Comment: Ch. XXXVIII Zoning, Ord. No. 38-5.9 Grading of Lots; Town adopted NJ State Code for stormwater management; Engineering and DPW enforces</i>					
Post-Disaster Recovery	No	-	-	-	-
<i>Comment: This is part of the Town's Emergency Operations Plan that was adopted in 2016. The next update will be done in 2020. Town OEM is responsible for maintaining and updating.</i>					
Real Estate Disclosure	Yes	State – NJ Division of Consumer Affairs	Yes	No	No
<i>Comment: N.J.A.C. 13:45A-29.1; before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	Yes	Local	No	-	-
<i>Comment: Ch. XXVIII Redevelopment Plans; Planning Department enforces</i>					
Site Plan Review	Yes	Local	No	Yes	-
<i>Comment: Ch. XXXVI Subdivision and Site Plan; Construction Code enforces; A subdivision application must include on the primary plat and site plan the location of existing features include previous flood elevations of water sources, ponds and marsh areas. If a proposed subdivision is traversed by a water sources, drainageway, channel or stream, there must be a stormwater easement or drainage right-of-way conforming substantially with the lines of the watercourses. There are minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major developments.</i>					
Environmental Protection	No	-	-	-	-
<i>Comment:</i>					
Flood Damage Prevention	Yes	Local	Yes	Yes	-
<i>Comment: Ch. XXXII; the code designates the Construction/Zoning Official to be the local floodplain administrator. The code requires a development permit be obtained before construction or development begins within any area of a SFHA. Any new construction or substantial improvements in the SFHA must be elevated at least one foot above the base flood elevation. The purpose of the code coincides with the goals of the County's Hazard Mitigation Plan (e.g. protect human life and health).</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					
Emergency Management	No	-	-	-	-
<i>Comment: This is part of the Town's Emergency Operations Plan that was adopted in 2016. The next update will be done in 2020. Town OEM is responsible for maintaining and updating.</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
<i>Comment: Town of Kearny Comprehensive Master Plan Report: Data Collection and Analysis. December, 1973 Town of Kearny Comprehensive Master Plan November, 1974; Town of Kearny Reexamination/Master Plan Revision, December 2008; Planning Department responsible for maintaining and updating. Many of the goals identified in the 2008 plan align with the goals of the County's Hazard Mitigation Plan. The Town also developed a green building ordinance as a result of the master plan to help the Town become more sustainable. In the 2013 Hudson County Master Plan, it provides a summary of the Town's reexamination report. It states that issues identified in the Town's plan intersect with the County's priorities including aging infrastructure, presence of CSOs, significant flooding, the need for more sustainable approaches, and better circulation for transit, pedestrians, bicyclists, and vehicles.</i>					
Capital Improvement Plan	No	-	-	-	-
<i>Comment:</i>					
Disaster Debris Management Plan	Yes	Countywide	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	-	-	-
<i>Comment:</i>					
Stormwater Plan	Yes	Local	Yes	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).</i>					
Stormwater Pollution Prevention Plan	Yes	Local	Yes	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). In the Town, the Building Department and DPW is responsible for the plan.</i>					
Urban Water Management Plan	No	-	-	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	-	-	-
<i>Comment:</i>					
Economic Development Plan	No	-	-	-	-
<i>Comment:</i>					
Shoreline Management Plan	No	-	-	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	-	-	-
<i>Comment:</i>					
Forest Management Plan	No	-	-	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Transportation Plan	Yes	Local	No	-	-
Comment: Maintained and updated by the Planning Department					
Agriculture Plan	No	-	-	-	-
Comment:					
Climate Action Plan	No	-	-	-	-
Comment:					
Tourism Plan	No	-	-	-	-
Comment:					
Business Development Plan	Yes	Local	No	-	-
Comment: Part of the Town's master plan; Planning Department responsible for maintaining and updating					
Other	Yes	Local	No	Yes	-
Comment:					
<ul style="list-style-type: none"> Town of Kearny Redevelopment Plan (June 25, 2014) – this plan states that any improvements within the Meadowlands must be in compliance with NJMC site plan requirements, including: all drainage must be properly maintained and planted and designed in accordance with the NJMC Green Guidelines for Development and Redevelopment and the minimum lowest floor elevations for structures in the 100-year flood zone must be one foot above the BFE. The Town also requires this one foot above the base flood elevation for all new residential and nonresidential development or substantial improvements. The plan also included discussions on the Strategic Plan and Master Plan. Strategic Vision Plan (2007) – identified goals to encourage the development of a diversified tax base, utilizing redevelopment as a tool for Kearny's revitalization, enhancing connections between the Town of Kearny and NJSEA. 					
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Local	Yes	-	-
Comment: Town of Kearny Emergency Operations Plan was completed in 2016. The next update will be in 2020. The Town also has site-specific plans for the chemical facilities located in the Town.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	Yes	Local	No	-	-
Comment: This is part of the Town's Emergency Operations Plan that was adopted in 2016. The next update will be done in 2020. Town OEM is responsible for maintaining and updating.					
Continuity of Operations Plan	Yes	Local	No	-	-
Comment: This is part of the Town's Emergency Operations Plan that was adopted in 2016. The next update will be done in 2020. Town OEM is responsible for maintaining and updating.					
Public Health Plan	Yes	Local	No	-	-
Comment: This is part of the Town's Emergency Operations Plan that was adopted in 2016. The next update will be done in 2020. Town OEM is responsible for maintaining and updating.					
Other	Yes	Local	No	-	-
Comment: Emergency Response Plan updated in 2014; OEM is the responsible local authority of the plan					





Table 9.8-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	Construction Code Official
Does your jurisdiction have the ability to track permits by hazard area?	Yes - the Town needs to submit permits to NJDEP; the Building Department tracks the permits
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No the Town does not have a buildable lands inventory because 99% of the Town is developed.

9.8.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of Kearny.

Table 9.8-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Town of Kearny Planning Board
Mitigation Planning Committee	No	
Environmental Board / Commission	No	
Open Space Board / Committee	No	
Economic Development Commission / Committee	Yes	Town Administrator
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Provide alerts and announcements on the Town website; Swift911 Emergency Alert System for residents; variable message boards; social media
Maintenance program to reduce risk	Yes	DPW
Mutual aid agreements	Yes	neighboring communities - police and fire
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Neglia Engineering and Heyer & Gruel; Mott McDonald for MUA
Engineers or professionals trained in building or infrastructure construction practices	Yes	Neglia Engineering; Mott McDonald for MUA
Planners or engineers with an understanding of natural hazards	Yes	Neglia Engineering and Heyer & Gruel; Mott McDonald for MUA
Staff with training in benefit/cost analysis	Yes	Chief Financial Officer, Town of Kearny
Staff with training in green infrastructure	Yes	Neglia Engineering for the Town and Mott McDonald for MUA
Staff with education/knowledge/training in low impact development	Yes	Neglia Engineering for the Town and Mott McDonald for MUA
Surveyors	Yes	Neglia Engineering
Stormwater engineer	Yes	Neglia Engineering for the Town and Mott McDonald for MUA
Personnel skilled or trained in GIS applications	Yes	Construction official and Heyer & Gruel
Local or state water quality professional	Yes	Neglia Engineering for the Town and Mott McDonald for MUA
Scientist familiar with natural hazards in local area	Yes	Hudson County Engineer
Emergency manager	Yes	OEM Coordinator





Staff/Personnel Resource	Available?	Department/Agency/Position
Watershed planner	Yes	Neglia Engineering
Environmental specialist	Yes	Excel Environmental
Grant writers	Yes	Carol Lowy, Housing and Community Development Services
Resilience Officer	Yes	Police – Sgt. Peter Blair
Other	No	

9.8.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Town of Kearny.

Table 9.8-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
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	No
State-Sponsored Grant Programs	Yes - NJ Green Acres; New Jersey Infrastructure Bank
Development Impact Fees for Homebuyers or Developers	Yes
Clean Water Act 219 Grants (nonpoint source pollution)	No
Other	Yes - municipal aid grants, Local Aid Infrastructure Funds

9.8.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of Kearny.

Table 9.8-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	No
Do you have personnel skilled or trained in website development?	Town – contracts out; Police – maintains their own
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes – the Town provides preparation information for residents prior to an event and posts emergency alerts as they are issued
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, through the Town’s website and Facebook page
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes – the Town offers an online municipal newsletter where hazard-related information can be incorporated and used to communicate information to residents
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes – the Town provides alerts and announcements on the municipal website, Swift911 Emergency Alert System, variable message boards, and social media outlets





9.8.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of Kearny.

Table 9.8-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	3	9/7/2010
Public Protection (Fire ISO Protection Class)	Yes/No	NEED	NEED
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

9.8.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? No
- Is the administrative supportive of integrating climate change in policies or actions? No
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? No

The table below summarizes the jurisdiction’s adaptive capacity for the hazards of concern and climate change.

Table 9.8-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	High
Coastal Storm	High
Drought	Medium
Earthquake	Low
Extreme Temperature	High
Flood	High
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	High
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.8.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.





Table 9.8-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction Code Enforcement Department
Who is your floodplain administrator? (name, department/position)	Construction/Zoning Official
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	2006
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum
When was the most recent Community Assistance Visit or Community Assistance Contact?	No record of recent CAV; CAC conducted in 2011
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction?*	128 insurance policies in force
• What is the insurance in force?	\$59,558,100.00
• What is the premium in force?	\$479,646.00
How many total loss claims have been filed in your jurisdiction?*	1,560
• How many claims are still open or were closed without payment?	6 open claims; 388 claims without payment
• What were the total payments for losses?	\$49,271,909.54
Do you maintain a list of properties that have been damaged by flooding?	Not at this time
Do you maintain a list of property owners interested in flood mitigation?	Not at this time

*According to FEMA statistics as of September 30, 2018

9.8.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

- The Town maintains an online mapping dashboard (<http://viewer.myidv.com/Map/71332c322babacd3/Kearny-myidv---Public>) that allows residents to view their property and identify whether or not it is located in or near a NJDEP floodprone area and identify what FEMA FIRM zone it is in.
- On the Town’s website, there is a section on downloadable maps (<https://www.kearnynj.org/downloadable-maps/>), including a link to the FEMA Map Service Center. This provides users with a direct link to the FEMA maps and where they can determine whether or not a property is located in a floodplain.
- **New Jersey Sports & Exposition Authority (NJSEA)** - NJSEA was created in 1971 and is the regional planning and zoning agency for 30.3 square miles of the Hackensack Meadowlands District. The District encompasses portions of 14 municipalities in Bergen and Hudson Counties: Carlstadt, East Rutherford, Little Ferry, Lyndhurst, Moonachie, North Arlington, Ridgefield, Rutherford, South Hackensack, and Teterboro in Bergen County; and Jersey City, Kearny, North Bergen, and Secaucus in Hudson County. NJSEA holds zoning jurisdiction over the portions of each municipality within its boundaries. The Consolidation Act allows constituent municipalities to administer the majority of the zoning requirements of the NJSEA, upon adoption of an “opt-out” resolution agreeing to follow the





land use provisions of the District’s zoning regulations. Any applications for use variances, subdivisions, and regulatory amendments are retained for review by the NJSEA, as are any applications that are deemed to be vital projects. To date, the Towns of Secaucus and Kearny have chosen to become “opt-out” municipalities.

- NJSEA updated the 2004 NJMC Master Plan to evaluate the existing conditions in the District, discuss significant changes since 2004, and highlight the accomplishments, as well as the challenges, to implementing this vision. The draft *Hackensack Meadowlands District Master Plan Update 2020* was completed in August 2019. The updated master plan outlined NJSEA’s resiliency and stewardship efforts, including:
- District zoning regulations require the preparation of a Project Impact Assessment (PIA) to evaluate impacts of new development with respect to the environment, fiscal, emergency services, municipal services, schools, and transportation.
- District zoning regulations set forth elevation and flood proofing requirements for new buildings, additions, and other structures within FEMA flood areas. The lowest floor must be elevated at least one foot above the base flood elevation.
- All development applications are reviewed for conformance with NJSEA stormwater drainage requirements. For those areas that lie with FEMA’s SFHA, the NJSEA staff reviews all development applications for conformance with the District Floodplain Management Regulations. In addition, the District zoning regulations require the submission of an Operations and Maintenance (O & M) Manual for all approved stormwater drainage systems to ensure that systems remain operational.
- Participating in the CRS program and maintain the classification for the Meadowlands District. Currently, NJSEA is a CRS Class 7 community which results in a 15% discount on NFIP policies issued through the NFIP.
- Currently updating the Hackensack Meadowlands Floodplain Management Plan (adopted in 2005).
- Collects, logs, and assesses flooding complaints on individual properties and inspects the District for flood impacts following severe weather events. NJSEA engineers are available meet with property owners for on-site inspections and to discuss stormwater drainage options with the property owners.
- Evaluates the functionality of all tide gates and pump stations located within the District.
- Inspects waterways and ditches in the District to ensure adequate stormwater conveyance capacity.
- Coordinates with municipalities and counties for removal of stream debris and tide gate repairs
- Provides and maintains equipment for use by municipal workers to assist municipalities in the District with maintenance issues
- In conjunction with MERI, monitors water levels in the District using equipment stationed at tide gates. The data is collected and relayed to the public in real time. This provides warnings to first responders and residents when water levels rise during tidal events, heavy rain events, and storms.
- Continues to work on preserving and restoring wetlands To date, approximately 3,500 acres of wetlands have been preserved and/or restored, three-quarters of which are owned by the NJSEA or the Meadowlands Conservation Trust, providing floodwater storage capacity and habitat protection.

9.8.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Town of Kearny’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.8-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events.





Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.8-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	While this event impacted Hudson County, the Town had little to no damage associated with this event.
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.	While this event impacted Hudson County, the Town had little to no damage associated with this event.
October 29, 2017	Flood	N/A	A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.	While this event impacted Hudson County, the Town had little to no damage associated with this event.
April 16, 2018	Flash Flood	N/A	Heavy rainfall developed across the area on the morning of April 16th ahead of a slow moving warm front. This rain developed in an environment with precipitable water values greater than 1.25 inches, well above normal for mid-April. Rainfall totals generally ranged from 2.5 to 4.5 inches across northeast New Jersey, with the majority of the rain falling in a 3-4 hour	While this event impacted Hudson County, the Town had little to no damage associated with this event.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			<p>period. This resulted in flash flooding across the region. A water rescue was underway at the intersection of Passaic Avenue and Johnston Avenue in Kearny with a car trapped in water up to the window. Multiple roads were closed due to flooding in Hoboken. These roads include Grove Street, Henderson Street, 9th Street between Monroe Street and Madison Street, Madison Street between 8th Street and 10th Street, and the intersections of Clinton Street and 1st Street, Jackson Street and 3rd Street, and Jackson Street and 6th Street.</p>	
September 18, 2018	Flash Flood	N/A	<p>A tropical airmass associated with the remnants of Hurricane Florence combined with an approaching cold front to produce waves of showers and thunderstorms that resulted isolated flash flooding in northeast New Jersey. The precipitable water value on the 8am sounding from Upton, New York was 2.10, which represents a daily maximum value based on the Storm Prediction Center's sounding climatology. The intersection of Passaic Avenue and Johnston Avenue in Kearny was closed due to flooding.</p>	<p>While this event impacted Hudson County, the Town had little to no damage associated with this event.</p>
September 25, 2018	Flash Flood	N/A	<p>Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Precipitable water values increased from 1.84 on the morning sounding from Upton, NY to 2.13 by evening. Both of these values are above the 90th percentile based on a sounding climatology, with the 2.13 precipitable water value on the evening of the 25th a record for the date. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.</p>	<p>While this event impacted Hudson County, the Town had little to no damage associated with this event.</p>

Source: NOAA-NCDC 2020





9.8.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.8-12 summarizes the Town of Kearny's risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.8-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	14	CEHA:	\$26,523,803	High
		SLR +1ft:	0	SLR +1ft:	11	SLR +1ft:	\$39,086,523	
		SLR +3ft:	92	SLR +3ft:	114	SLR +3ft:	\$792,788,952	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	1,109	Category 1:	654	100-year Wind Loss:	\$4,935,400	High
		Category 2:	1,990	Category 2:	875			
		Category 3:	3,080	Category 3:	1,082	500-year Wind Loss:	\$46,204,828	
		Category 4:	4,136	Category 4:	1268			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	2,118	NEHRP D&E:	887	100-year Loss:	\$1,287,169	High
		Liquefaction Class 4:	1,559	Liquefaction Class 4:	771	500-year Loss:	\$60,212,104	
						2,500-year Loss:	\$843,983,073	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	5,512	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	4,971					
Flood	100- and 500-Year Mean Return Period Event	100-year	1,205	100-year	681	100-year Loss:	\$664,022,538	High
		500-year	1,442	500-year	758			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	11	Wildfire:	\$6,762,355	Moderate





9.8.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Town of Kearny.

- Number of repetitive loss (RL) properties: 6
- Number of severe repetitive loss (SRL) properties: 2
- Number of RL/SRL properties that have been mitigated: 1

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.8.7.2 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.8-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Wmca 570	Communication	X	X	
Wnyc 820	Communication	X	X	
Kearny DPW*	DPW	X	X	The facility is not located in the floodplain according to the 2006 FEMA flood map
Pseg Kearny Generating Station*	Electric Power	X	X	2020-KEARNY-012
Generation*	Electric Power	X	X	2020-KEARNY-012
Public Service Electric & Gas Kearny Gen*	Electric Power	X	X	2020-KEARNY-012
Third Street Sub.*	Electric Substation	X	X	2020-KEARNY-013
Daily News*	Electric Substation	X	X	2020-KEARNY-013
River Terminal*	Electric Substation	X	X	2020-KEARNY-013
Path Kearny*	Electric Substation	X	X	2020-KEARNY-013
NJ Transit Mmc*	Electric Substation	X	X	2020-KEARNY-013
Uspo Kearny*	Electric Substation	X	X	2020-KEARNY-013
Turnpike Sub.*	Electric Substation	X	X	2020-KEARNY-013
Hudson County Eoc - Juneau Building*	EOC	X	X	2020-KEARNY-009
Kearny Fire Department Station 4 - South Kearny*	Fire	X	X	2020-KEARNY-010
Helo Kearny Heliport*	Heliport	X	X	2020-KEARNY-014
Penn Ave Pump*	Wastewater Pump	X	X	2020-KEARNY-011
Harrison Ave Pump*	Wastewater Pump	X	X	2020-KEARNY-011
DPW Pump Station*	Wastewater Pump	X	X	2020-KEARNY-011
DPW Pump Station*	Wastewater Pump	X	X	2020-KEARNY-011
DPW Pump Station*	Wastewater Pump	X	X	2020-KEARNY-011
Kearny Point Pump	Wastewater Pump		X	2020-KEARNY-011

*Identified lifeline

9.8.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- he Town of Kearny has an aging infrastructure and a combined sewer system in portions of the Town. Together, these conditions create a number of problems, including significant flooding, water main breaks, inflated sewer treatment costs, potholes and settlement in roads and numerous heavy rainfall overflows into effluent water bodies (Master Plan 2008).
- Fishhouse Road needs improvements – constant flooding (Master Plan 2008)





- Flooding a serious problem near Barczewski Street. Army Corps of Engineers looking at this issue (Master Plan 2008)

9.8.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of Kearny that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Kearny has significant exposure. Refer to Figures 9.8-1 and 9.8-2 which display the hazard area extent and locations in the Town.

9.8.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Kearny. The Town of Kearny has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town indicated that they are in agreement with the calculated ranking.

Table 9.8-14. Town of Kearny Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	Medium	High	Medium
Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure	
Low	High	High	Medium	N/A	

9.8.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.8.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.8-15. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
TOK-1	Construction of a stormwater pump station at Dukes Street to reduce flooding of the local built area as well as mitigating flooding in the Dead Horse Creek Watershed drainage area	Town OEM	In Progress	X	2020-KEARNY-001
TOK-2	Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage. Priority to be given to 7 Repetitive Loss and Severe Repetitive Loss properties	Town OEM	Ongoing Capability	-	-
TOK-3	Repair and reconstruct the police and fire public safety building in South Kearny	Engineering	In Progress	X	2020-KEARNY-002
TOK-4	Address and mitigate sewer / drain / flooding issues East of Schuyler Avenue and South of Bergen Avenue	Engineering	In Progress	X	2020-KEARNY-001
TOK-5	Purchase 3 portable generators 15,000 KW and above for disaster response and continuity of operations at Town critical facilities	OEM	Complete	-	-
TOK-6	Purchase and installation of permanent generators at 9 critical facilities to provide power and continuity of operations South Kearny Police and Fire; Town Hall; Town Hall Annex; EMS HQ; Fire HQ; Fire Station 2 and 3; Health Dept. (temporary shelter)	OEM	In Progress	X	2020-KEARNY-004
TOK-7	Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: <ul style="list-style-type: none"> • Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. • Including natural hazard risk and risk reduction information through social media channels and email blast systems. • Posting of flyers and other readily available NFIP informational materials at City Hall or distributing at regular civic meetings. • Preparation, distribution and analysis of public surveys. • Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. • Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts. 	OEM	Ongoing Capability	-	-
TOK-8	Purchase and installation of permanent generators at Kearny DPW and Kearny MUA pumping stations to mitigate power failure hazards and provide uninterrupted pumping capacity	Engineering	In Progress – portable generator has been purchased for the DPW and MUA	X	2020-KEARNY-005





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
TOK-9	Upgrade of 2 existing tide gates and installation of 1 new tide gate with duckbill type valve to reduce backflow and extend pump lifecycle	Engineering	In Progress	X	2020-KEARNY-006
TOK-10	Purchase and install electric and alarm services for early detection systems at pumping stations	Engineering	In Progress	X	2020-KEARNY-007
TOK-11	The Hazard Mitigation Plan will be used as a resource for the use of future grant opportunities and to assist with application development	OEM Administrator	Ongoing Capability	-	-

In addition to the above progress, the Town of Kearny has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- The Town completed several sewer separation projects, including sewer separation along portions of Washington Avenue, Alpine Place, Tappan Street, Hoyt Street, Devon Terrace, Wilson Avenue, Devon Street, Davis Avenue, Marshall Street and a small portion of Passaic Avenue near the Shop Rite and near Washington Avenue (Master Plan Revision 2008). As of the date of this plan update, sewer separation is still being done in the Town.
- The Town completed combined sewer projects, which constructed netting chambers at the ends of the Stewart Avenue, Johnston Avenue, Nairn Avenue, and Ivy Street combined sewer outfalls. These netting chambers will reduce pollution into the effluent water bodies (Master Plan Revision 2008).
- Watermain and hydrant upgrades were completed on portions of King Street, Hickory Street, Schuyler Court, Seeley Avenue, the Arthur Jones Memorial Bridge, Johnston Avenue, Highland Avenue Tappan Street and Hoyt Streets. Upcoming watermain improvements are scheduled for Davis Avenue, Bergen Avenue, Ivy Street and Magnolia Avenue (Master Plan Revision 2008).
- The Town’s engineer researched construction alternative solutions for water main improvements along portions of Central Avenue that will minimize any soil excavation (Master Plan Revision 2008).
- The storm sewers along Schuyler Avenue have been upgraded.

9.8.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of Kearny participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Town of Kearny participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.8-16 summarizes the comprehensive-range of specific mitigation initiatives the Town of Kearny would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward





for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.8-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.8-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-KEARNY-001 (previous action)	Stormwater Pump Station at Dukes Street	Problem: The area around the Dukes Street and the Dead Horse Creek watershed drainage area are floodprone.	Both	Coastal Storm, Flood, Severe Weather	2, 3	Town OEM, Town DPW, Town Engineering	FEMA HMGP and FMA	Reduce flooding and its impacts on surrounding area	\$8 million	Within 2 years	High	SIP	SP, PP
		Solution: Construct a stormwater pump station at Dukes Street. This will reduce flooding of the local built area as well as mitigate flooding in the Dead Horse Creek watershed drainage area.											
2020-KEARNY-002 (previous action)	Repair and Reconstruct Police and Fire Public Safety Building	Problem: Extensive damage due to un-natural structural settling	Existing	All Natural Hazards	1, 6	Engineering, Construction Code Official	DHS Grants (UASI) and Town Budget	Much needed South Kearny control and command center for Police and Fire	High	Within 5 years – depends on funding	Medium	SIP	SP, PP
		Solution: Unless adequate “repair in place” design can be devised, much of the building must be razed and rebuilt to facilitate proper structural repair.											
2020-KEARNY-003 (previous action)	Generators for Critical Facilities	Problem: There are four critical facilities in the Town that do not have backup power. During a power outage, these facilities cannot provide essential and emergency services to the community and residents.	Existing	All Hazards	1, 6	Town OEM and Engineering	FEMA HMGP	Provide continuity of operations, protect equipment from impacts power outages can have	\$40,000+	Within 5 years – depends on funding	Medium	SIP	PP, ES, SP
		Solution: Purchase and install permanent generators at: South Kearny Police and Fire, Town Hall Annex, Fire Station 2 and 3, and Health Department											
2020-KEARNY-004 (previous action)	Generator for Kearny DPW	Problem: The Kearny DPW facility is a critical facility and does not have backup power. During a power outage, the facility cannot function properly or provide essential services to the community.	Existing	All Hazards	1, 6	Town Engineering and Kearny MUA	FEMA HMGP	Provide continuity of operations, protect equipment from impacts power	\$10,000+	Within 5 years – depends on funding	High	SIP	SP, PP, ES
		Solution: Purchase and install a permanent generator at the Kearny DPW facility, located at 357 Bergen Avenue. This will allow the facility to fully operate											





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		during a power outage and provide essential services to the community and residents.						outages can have					
2020-KEARNY-005 (previous action)	Upgrade Tide Gates	Problem: The tide gates along the Passaic River and Hackensack River are old and in need of replacement. Solution: Upgrade three tide gates in the Town: South Kearny – Passaic River outfall at Jacobus, Hackensack River outfall, and south of 280 on the Passaic River (near railroad tracks/behind Walmart)	Existing	Coastal Storm, Flood, Severe Weather	2	<u>Town Engineering</u>	FEMA HMGP and FMA	Protect area from flooding	\$1 million	Within 5 years – depends on funding	High	SIP	SP, PP
2020-KEARNY-006 (previous action)	Electric Alarm Systems at Pumping Stations	Problem: The Town does not have a way of knowing when the pump station systems fail. Solution: Purchase and install electric and alarm services for early detection systems at pumping stations	Existing	Coastal Storm, Flood, Severe Weather	1, 6	<u>Town Engineering</u> and Kearny MUA	FEMA HMGP and FMA	Eliminate potential flood situations	>\$10,000	Within 5 years – depends on funding	High	SIP	SP, PP
2020-KEARNY-007	Repetitive Loss Properties	Problem: There are 10 repetitive loss properties in the Town of Kearny. These 10 properties have been repetitively flooded as documented by paid NFIP claims. Solution: Conduct outreach to 10 floodprone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 5	<u>Town Construction Code Official</u>	FEMA HMGP and FMA	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)	\$2 million	Within 2 years	High	EAP, SIP	PR, PP
2020-KEARNY-008	Hudson County EOC - Juneau Building	Problem: Critical facility and lifeline USS Juneau Building which serves as the County Emergency Operations Center (South Hackensack Road in Kearny) is located in the floodplain and vulnerable to storm surge (e.g., impacted by storm surge during Hurricane Sandy).	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 6	<u>Hudson County OEM</u> with support from the Town of Kearny and Kearny Point	\$3 Million grant from US EDA in partnership with the Town of Kearny	Increases drainage around building and reduce or eliminate flood	\$3 million	Within 4 years	High	SIP	PP, ES





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Solution: Hudson County to coordinate with the Town of Kearny and the private developer (Kearny Point). The current proposed solution is a public private partnership, obtain a US EDA grant, elevate the road and increase drainage capacity/address drainage along South Hackensack Road. To date, a \$3 Million grant has been awarded by US EDA.						impacts and damages					
2020-KEARNY-009	Kearny Fire Department Station 4 – South Kearny	<p>Problem: Kearny Fire Department Station 4 - South Kearny, located at 2 John Miller Way, is a critical facility and identified as a lifeline. The building is located in the 1% and 0.2% flood hazard area. The building could be susceptible to flood damage, leading to a disruption in service during emergency events.</p> <p>Solution: Conduct a study to determine if the building is elevated above the base flood elevation or has mitigation measures in place to protect from floods. If mitigation measures are not in place, conduct an evaluation of the building and property to determine which type of floodproofing is the best solution. This can include, but not limited to, applying a waterproofing sealant the walls of the building, installing watertight doors to protect mechanical rooms from flooding, elevating electrical equipment, and using portable floodwalls.</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 6	Town Engineer, Fire Chief	FEMA HMGP and PDM, Municipal Budget	Identifies mitigation options for the fire department	\$25,000+	Within 1 year	Medium	LPR, EAP	PR, PI
2020-KEARNY-010	Critical facilities – wastewater pumps	Problem: There are five wastewater pumps located in the Town: Penn Ave Pump, Harrison Ave Pump, DPW Pump Station, DPW Pump Station, and DPW Pump Station, that are located in the 1% and 0.2% flood hazard area. The five facilities are critical facilities and identified as lifelines for the Town. The	Existing	Flood, Severe Weather	1, 2, 5	Town Construction Code Official	Municipal Budget	Increases awareness of flooding, identifies solutions to protect the pumps and allow for	<\$10,000	Within 2 years	High	LPR, EAP	PR, PI





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<p>buildings could be susceptible to flood damage, leading to a disruption in service during emergency events.</p> <p>Solution: Provide outreach to the facility's owners/operators informing them that their building is located in the 1% and 0.2% flood hazard area and include mitigation options the facility might consider to protect against flood damages.</p>						continuity of operations during flood events					
2020-KEARNY-011	Critical Facilities - Electric Generating Stations	<p>Problem: There are three generating stations located in the Town: PSEG Kearny Generating Station (Hackensack Avenue), Generation (no address), and PSEG Kearny Generating (118 Hackensack Avenue). The three facilities are critical facilities and identified as lifelines for the Town. All three buildings are located in the 1% and 0.2% flood hazard area. The buildings could be susceptible to flood damage, leading to a disruption in service during emergency events.</p> <p>Solution: Provide outreach to the facility's owners/operators informing them that their building is located in the 1% and 0.2% flood hazard area and include mitigation options the facility might consider to protect against flood damages.</p>	Existing	Flood, Severe Weather	1, 2, 5	Town Construction Code Official	Municipal Budget	Increases awareness of flooding, identifies solutions to protect the pumps and allow for continuity of operations during flood events	<\$10,000	Within 2 years	High	LPR, EAP	PR, PI
2020-KEARNY-012	Critical Facilities - Electric Substations	<p>Problem: There are seven electric substations located in the Town: Third Street Sub, Daily News, River Terminal, Path Kearny, NJ Transit Mmc, Uspo Kearny, and Turnpike Sub. The seven facilities are critical facilities and identified as lifelines for the Town. All three buildings are located in the 1% and 0.2% flood hazard area. The buildings could be susceptible to flood damage,</p>	Existing	Flood, Severe Weather	1, 2, 5	Town Construction Code Official	Municipal Budget	Increases awareness of flooding, identifies solutions to protect the pumps and allow for continuity of	<\$10,000	Within 2 years	High	LPR, EAP	PR, PI





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<p>leading to a disruption in service during emergency events.</p> <p>Solution: Provide outreach to the facility's owners/operators informing them that their building is located in the 1% and 0.2% flood hazard area and include mitigation options the facility might consider to protect against flood damages.</p>						operations during flood events					
2020-KEARNY-013	Critical Facility – Helo Kearny Heliport	<p>Problem: The Helo Kearny Heliport is located at 165 Western Road. It is a critical facility and identified as a lifeline for the Town. The facility is located in the 1% and 0.2% flood hazard area. The building could be susceptible to flood damage, leading to a disruption in service during emergency events.</p> <p>Solution: Provide outreach to the facility owner/operator informing them that the building is located in the 1% and 0.2% flood hazard area and include mitigation options the facility might consider to protect against flood damages.</p>	Existing	Flood, Severe Weather	1, 2, 5	<u>Town Construction Code Official</u>	Municipal Budget	Increases awareness of flooding, identifies solutions to protect the pumps and allow for continuity of operations during flood events	<\$10,000	Within 2 years	High	LPR, EAP	PR, PI

Notes:

<p><u>Acronyms and Abbreviations:</u></p> <p>CAV Community Assistance Visit</p> <p>CRS Community Rating System</p> <p>DPW Department of Public Works</p> <p>FEMA Federal Emergency Management Agency</p> <p>FPA Floodplain Administrator</p> <p>HMA Hazard Mitigation Assistance</p> <p>N/A Not applicable</p> <p>NFIP National Flood Insurance Program</p> <p>OEM Office of Emergency Management</p>	<p><u>Potential FEMA HMA Funding Sources:</u></p> <p>FMA Flood Mitigation Assistance Grant Program</p> <p>HMGP Hazard Mitigation Grant Program</p> <p>PDM Pre-Disaster Mitigation Grant Program</p>	<p><u>Timeline:</u></p> <p>The time required for completion of the project upon implementation</p> <p><u>Cost:</u></p> <p>The estimated cost for implementation.</p> <p><u>Benefits:</u></p> <p>A description of the estimated benefits, either quantitative and/or qualitative.</p>
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Mitigation Category:

- 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 manmade 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*

CRS Category:

- *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 9.8-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-KEARNY-001 (previous action)	Stormwater Pump Station at Dukes Street	1	1	1	1	1	1	0	1	0	1	1	1	1	0	10	High
2020-KEARNY-002 (previous action)	Repair and Reconstruct Police and Fire Public Safety Building	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2020-KEARNY-003 (previous action)	Generators for Critical Facilities	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2020-KEARNY-004 (previous action)	Generator for Kearny DPW	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-KEARNY-005 (previous action)	Upgrade Tide Gates	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	High
2020-KEARNY-006 (previous action)	Electric Alarm Systems at Pumping Stations	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	High
2020-KEARNY-007	Repetitive Loss Properties	1	1	1	1	1	0	1	0	1	1	1	1	0	0	10	High
2020-KEARNY-008	Hudson County EOC - Juneau Building	1	1	1	1	1	0	1	1	0	1	1	1	1	0	11	High
2020-KEARNY-009	Kearny Fire Department Station 4 – South Kearny	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-KEARNY-010	Critical facilities – wastewater pumps	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
2020-KEARNY-011	Critical Facilities - Electric Generating Stations	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
2020-KEARNY-012	Critical Facilities – Electric Substations	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
2020-KEARNY-013	Critical Facility – Helo Kearny Heliport	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.8-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise		-002, -003, -004			-003, -004	-002, -003, -004		
Coastal Storm	-007, -009	-001, -002, -003, -004, -005, -008	-007, -009		-003, -004, -008	-001, -002, -003, -004, -005, -007, -008		
Dam and Levee Failure		-003, -004			-003, -004	-003, -004		
Drought		-002, -003, -004			-003, -004	-002, -003, -004		
Earthquake		-002, -003, -004			-003, -004	-002, -003, -004		
Extreme Temperature		-002, -003, -004			-003, -004	-002, -003, -004		
Flood	-007, -009, -010, -011, -012, -013	-001, -002, -003, -004, -005, -008	-007, -009, -010, -011, -012, -013		-003, -004, -008	-001, -002, -003, -004, -005, -007, -008		
Geologic		-002, -003, -004			-003, -004	-002, -003, -004		
Severe Weather	-007, -009, -010, -011, -012, -013	-001, -002, -003, -005, -008	-007, -009, -010, -011, -012, -013		-003, -004, -008	-001, -002, -003, -004, -005, -007, -008		
Severe Winter Storm		-002, -003, -004			-003, -004	-002, -003, -004		
Wildfire		-002, -003, -004			-003, -004	-002, -003, -004		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.8.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Town of Kearny followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).





Table 9.8-19. Contributors to the Annex

Entity	Title	Method of Participation
Sgt. Peter Blair	Police Department - Deputy OEM Coordinator	Primary POC, attended meetings, provided information for municipal annex
Chief George King	Police Department - OEM Coordinator	Alternate POC, attended meetings, provided information for municipal annex
David Silva	Niglia Engineering	Attended meetings, provided information for municipal annex
Donald Gavin	Town of Kearny DPW	Attended meetings, provided information for municipal annex
Gregg Paster	Kearny MUA	Attended meetings, provided information for municipal annex





Figure 9.8-1. Town of Kearny Hazard Area Extent and Location Map 1

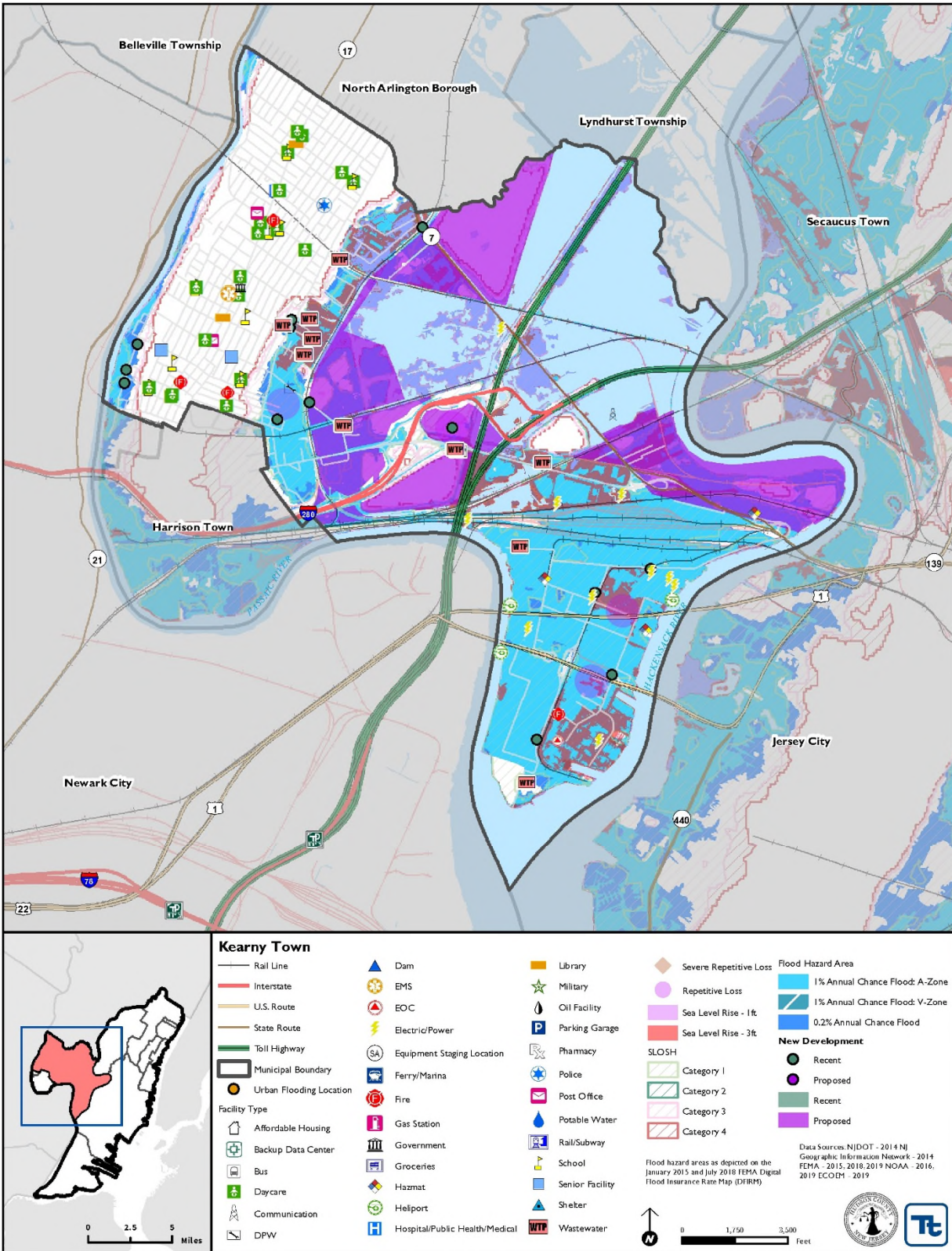
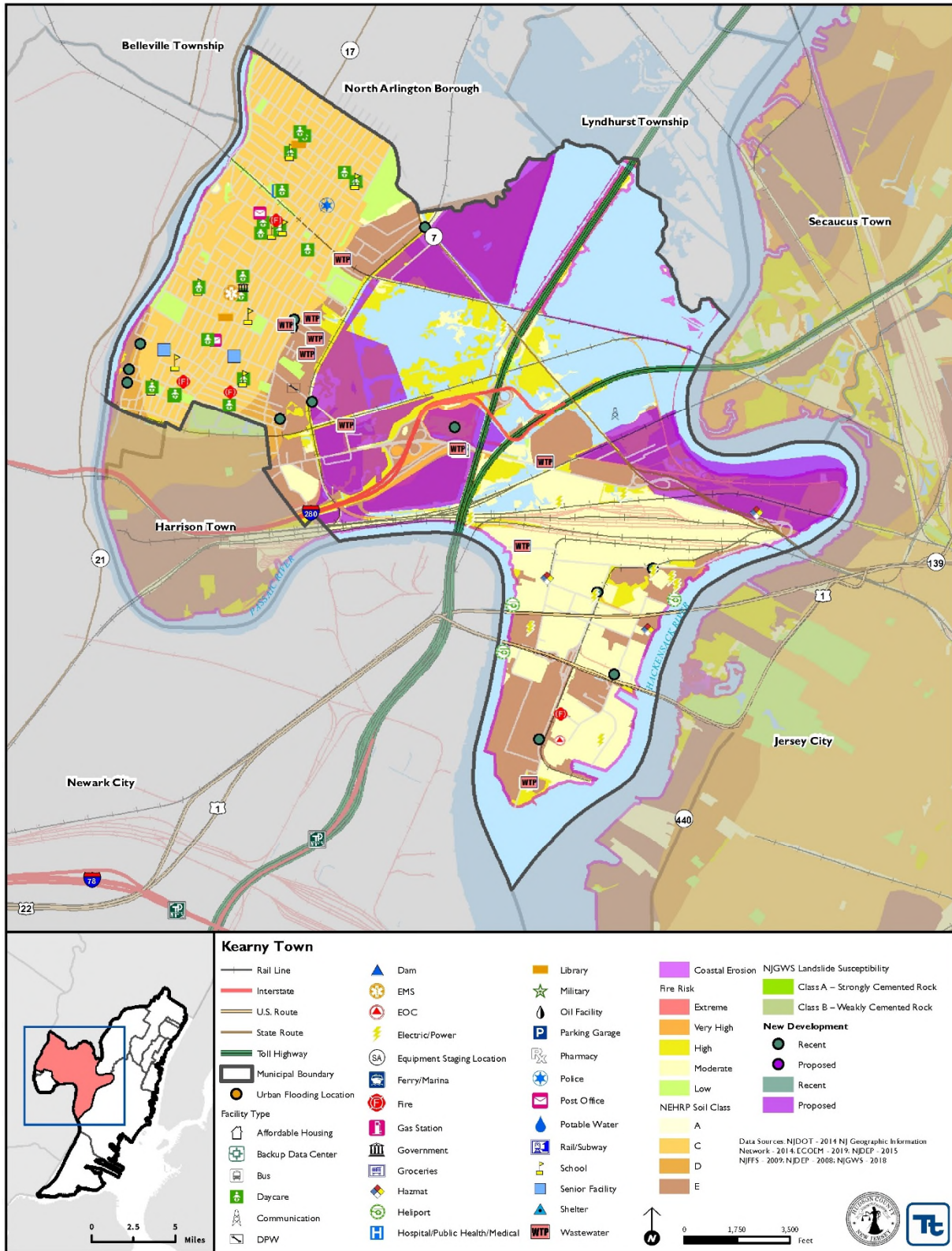




Figure 9.8-2. Town of Kearny Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-KEARNY-001		
Project Number:	Stormwater Pump Station at Dukes Street		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Problem: The area around the Dukes Street and the Dead Horse Creek watershed drainage area are floodprone.		
Action or Project Intended for Implementation			
Description of the Solution:	Construct a stormwater pump station at Dukes Street. This will reduce flooding of the local built area as well as mitigate flooding in the Dead Horse Creek watershed drainage area.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce flooding and its impacts on surrounding area
Useful Life:	50 years	Goals Met:	2, 3
Estimated Cost:	\$8 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Town OEM, Town DPW, Town Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Elevate pump stations	\$5 million+	Costly; long-term project
	Purchase portable pumps	\$20,000+	Need to be deployed during rain and flood events; might not handle the amount of water flowing through
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-001	
Project Number:	Stormwater Pump Station at Dukes Street	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increases flood protection to residents in this area; reduces stormwater backup
Property Protection	1	Increases flood protection to structures in this area; reduces stormwater backup
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 2 years
Agency Champion	1	
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY-003		
Project Number:	Generators for Critical Facilities		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	Problem: There are four critical facilities in the Town that do not have backup power. During a power outage, these facilities cannot provide essential and emergency services to the community and residents.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install permanent generators at: South Kearny Police and Fire, Town Hall Annex, Fire Station 2 and 3, and Health Department		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Provide continuity of operations, protect equipment from impacts power outages can have
Useful Life:	25 years	Goals Met:	1, 6
Estimated Cost:	\$40,000+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 5 years – depends on funding	Potential Funding Sources:	FEMA HMGP
Responsible Organization:	Town OEM and Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Install solar panels	\$25,000+	Weather dependent; not enough space to install; maintenance costs
	Install wind turbine	\$25,000+	Weather dependent; not enough space to install; maintenance costs
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-003	
Project Number:	Generators for Critical Facilities	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	All Hazards
Timeline	1	Within 5 years – depends on funding
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-KEARNY-004		
Project Number:	Generator for Kearny DPW		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	Problem: The Kearny DPW facility is a critical facility and does not have backup power. During a power outage, the facility cannot function properly or provide essential services to the community.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install a permanent generator at the Kearny DPW facility, located at 357 Bergen Avenue. This will allow the facility to fully operate during a power outage and provide essential services to the community and residents.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Provide continuity of operations, protect equipment from impacts power outages can have
Useful Life:	25 years	Goals Met:	1, 6
Estimated Cost:	\$10,000+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 5 years – depends on funding	Potential Funding Sources:	FEMA HMGP
Responsible Organization:	Town Engineering and Kearny MUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Install solar panels	\$25,000+	Weather dependent; not enough space to install; maintenance costs
	Install wind turbine	\$25,000+	Weather dependent; not enough space to install; maintenance costs
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-004	
Project Number:	Generator for Kearny DPW	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	All Hazards
Timeline	1	Within 5 years – depends on funding
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY-005		
Project Number:	Upgrade Tide Gates		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Problem: The tide gates along the Passaic River and Hackensack River are old and in need of replacement.		
Action or Project Intended for Implementation			
Description of the Solution:	Upgrade three tide gates in the Town: South Kearny – Passaic River outfall at Jacobus, Hackensack River outfall, and south of 280 on the Passaic River (near railroad tracks/behind Walmart)		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Protect area from flooding
Useful Life:	15 years	Goals Met:	2
Estimated Cost:	\$1 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 5 years – depends on funding	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Town Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Install flood walls around this area of Town	\$25,000+	Need someone to deploy them when it rains; area might not be accessible to emergency personnel
	Acquire properties in this area	\$5 million+	Costly; not feasible; loss tax base
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-005	
Project Number:	Upgrade Tide Gates	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increases flood protection to residents in this area
Property Protection	1	Increases flood protection to structures in this area
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 5 years – depends on funding
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY-006		
Project Number:	Electric Alarm Systems at Pumping Stations		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	The Town does not have a way of knowing when the pump station systems fail.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install electric and alarm services for early detection systems at pumping stations		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Eliminate potential flood situations
Useful Life:	10 years	Goals Met:	1, 6
Estimated Cost:	>\$10,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 5 years – depends on funding	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Town Engineering and Kearny MUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	During flood and heavy rain events, have someone at each pump station to monitor.	Staff Time	Not feasible; not enough staff to do this each time it rains
	Elevate all pump stations	\$5 million+	Costly; long-term project; not all pump stations can be elevated
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-006	
Project Number:	Electric Alarm Systems at Pumping Stations	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	1	
Legal	0	
Fiscal	0	
Environmental	1	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 5 years – depends on funding
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY-007		
Project Number:	Repetitive Loss Properties		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Problem: There are 10 repetitive loss properties in the Town of Kearny. These 10 properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 10 floodprone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)
Useful Life:	N/A	Goals Met:	1, 2, 5
Estimated Cost:	\$2 million	Mitigation Action Type:	EAP, SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP and FMA
Responsible Organization:	Town Construction Code Official	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Elevate all properties	\$5 million+	Costly; not all structures can be elevated
	Acquire all properties	\$5 million+	Costly; loss tax base
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-007	
Project Number:	Repetitive Loss Properties	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	1	
Legal	0	
Fiscal	1	
Environmental	0	
Social	1	Focuses on the population who experienced repetitive flooding
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 2 years
Agency Champion	0	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY-009		
Project Number:	Kearny Fire Department Station 4 – South Kearny		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	Kearny Fire Department Station 4 - South Kearny, located at 2 John Miller Way, is a critical facility and identified as a lifeline. The building is located in the 1% and 0.2% flood hazard area. The building could be susceptible to flood damage, leading to a disruption in service during emergency events.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct a study to determine if the building is elevated above the base flood elevation or has mitigation measures in place to protect from floods. If mitigation measures are not in place, conduct an evaluation of the building and property to determine which type of floodproofing is the best solution. This can include, but not limited to, applying a waterproofing sealant the walls of the building, installing watertight doors to protect mechanical rooms from flooding, elevating electrical equipment, and using portable floodwalls.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Identifies mitigation options for the fire department
Useful Life:	N/A	Goals Met:	1, 2, 6
Estimated Cost:	\$25,000+	Mitigation Action Type:	LPR, EAP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	As soon as grant funding comes in
Estimated Time Required for Project Implementation:	Within 1 year	Potential Funding Sources:	FEMA HMGP and PDM, Municipal Budget
Responsible Organization:	Town Engineer, Fire Chief	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing	0	Current problem continues
	Relocate fire department	\$5 million+	Costly; not enough land to construct new facility
	Relocate equipment prior to storm events	0	Not feasible; equipment might not be accessible during a flood event
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY-009	
Project Number:	Kearny Fire Department Station 4 – South Kearny	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	The benefits outweigh the costs; project is cost effective
Technical	1	
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	No negative social impacts on the Town
Administrative	1	The Town has the administrative support to implement this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 1 year
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	

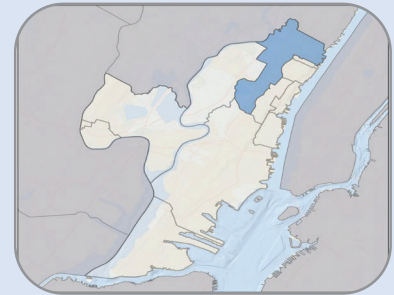




TOWNSHIP OF NORTH BERGEN

MUNICIPALITY AT A GLANCE

Total Population: 63,438
 Total Land Area: 5.29 sq. mi
 Total Number of Buildings: 6,005



Hurricane Storm Surge



Population



Buildings

Category 1*	348	93
Category 2*	832	245

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$8,400,955

Potential Building Damages

1% Annual Chance Flood



479

Population residing in floodplain



138

Buildings in floodplain



15

Critical facilities in floodplain

112

Persons that may seek shelter

\$139,481,307

Potential building damages

NFIP Statistics



5 # NFIP Policies

503 # WYO Policies

8 # RL Properties (excludes SRL)

4 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

Coastal Storm, Severe Weather, Flood, Severe Winter Weather

Project Types

Structure and Infrastructure Projects, Education and Awareness Programs

High Ranked Hazards



- Severe Storm
- Severe Winter Storm



9.9 Township of North Bergen

This section presents the jurisdictional annex for the Township of North Bergen. The annex includes a general overview of the Township; an assessment of the Township of North Bergen’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.9.2 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Township of North Bergen’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.9-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Dave Ricigliano, OEM Coordinator Address: 4233 Kennedy Blvd., North Bergen, NJ Phone Number: 201-937-7023 Email: dricigliano@northbergen.org	Name / Title: Bernard Mirandi, Engineer Address: 330 Phillips Avenue, South Hackensack, NJ Phone Number: 201-641-0770 Email: bmirandi@boswellengineering.com
NFIP Floodplain Administrator	
Name / Title: Bernard Mirandi, Engineer Address: 330 Phillips Avenue, South Hackensack, NJ Phone Number: 201-641-0770 Email: bmirandi@boswellengineering.com	

9.9.3 JURISDICTION PROFILE

The Township of North Bergen was established 1688 and incorporated in 1843. The Township is located in the northern portion of Hudson County, only four miles west of New York City on the majestic Palisades and Hudson River. The Town is located east of Hackensack Meadowlands Nature Preserve and shares its borders with Bergen County to the north, Town of Secaucus to the west, Jersey City to the south and Union City, West New York and Town of Guttenberg to the east.

The Township is located within the Meadowlands District, which is made up for 14 municipalities in Bergen and Hudson Counties. The District is 30.3 square miles and located approximately five miles west of New York City. The New Jersey Sports and Exposition Authority (NJSEA), an authority of the State of New Jersey, and serves as the regional planning and zoning agency for the Meadowlands District. The NJSEA holds zoning jurisdiction over the portions of each municipality within its boundaries.

According to the U.S. Census, the 2010 population for the Township of North Bergen was 60,773. The estimated 2017 population was 63,438, a 4.4 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 6.3 percent of the population is 5 years of age or younger and 13.7 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.





9.9.4 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.9-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.9-1 and 9.9-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.9-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	10	12	17
Multi-Family	0	0	0	19	224
Other (commercial, mixed-use, etc.)	0	0	0	0	0

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
The Dutchess	Residential	1 12-story building	7601 River Road	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, Wildfire Risk	Complete
Transit Village	Residential	5 buildings totaling 253 residential units	Tonnelle Avenue	SLOSH Category 4	Constructed in phases; under construction
WaWa Chick-fli-A	Commercial		Tonnelle Ave between 74 th and 75 th		Under construction
Gertrude Rich Estate	Residential	11 story 108 units	Block 205, Lot 81, 6217-6233 Meadowview Avenue		Not Started
Hudson Mews Redevelopment	Residential		Paterson Plank Road		Complete
Apple View	Residential	1 50-unit building	7009-7101 River Road	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH	Under construction





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Category 4, NEHRP Class D&E	
Plaza 53	Residential	5 story self-storage	1122 53 rd Street		Under construction
Spectrum Hotel	Commercial	5 story 135 Hotel Rooms	Paterson Plank Road		Under construction
67th St. & Kennedy Blvd West, LLC	Residential	51 units	John F. Kennedy Boulevard		Under construction
2507 Kennedy Boulevard LLC	Residential	15 (2 bedrooms) 18 (1 bedrooms) 55' height	Kennedy Boulevard (County Route 501)		Under construction
Union Turnpike Partners LLC	Residential	4 story 21 units	Union Turnpike		Under construction
3115 Paterson Plank Road – hotel 198 units (12 story)	Commercial (hotel)	1 12-story building	3115 Paterson Plank Road		presented to zoning board – in the works, no construction, no approvals
9001 River Rd	Commercial and Residential	8 6-story buildings	9001 River Road	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	proposing 8-story 66-unit residential building with commercial retail area and 2 levels of parking
Church Hill Estates	Residential	70 units 114' height	Church Hill Road		Under Construction
Riverview Development	Residential		River Road	0.2% Annual Chance Flood, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Construction not started
JFK Condo Developers, LLC	Residential	5 story 244 units	Kennedy Boulevard	Wildfire Risk	Under Construction
Nino Madia	Residential	24 units 5 story	Kennedy Boulevard	Wildfire Risk	Construction not started
New Community Center	Municipal	Community Center/Library	13th Street and Kennedy Boulevard	Wildfire Risk	Construction not started
Sanz North Bergen	Residential	156 units	8531, 8525 Bergenline Avenue		Construction not started; existing structures have been demolished





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
NJSEA - 16th Street	NEED	NEED		1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 3ft, Wildfire Risk	

* Only location-specific hazard zones or vulnerabilities identified.

9.9.5 CAPABILITY ASSESSMENT

The Township of North Bergen performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.9.5.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Township of North Bergen.

Table 9.9-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	-	-
<i>Comment: ICC code NJAC 5.3; Building Department responsible for maintaining and enforcing. The Township follows the Uniform Construction Code, International Residential Code (2009) and International Building Code (2009).</i>					
Zoning Code	Yes	Local	Yes	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: Title 1.1 Zoning Ord. Ap. 6/99; Building Department responsible for maintaining and enforcing					
Subdivisions	Yes	Local	Yes	-	-
Comment: 69-84 Site Plan Review Requirements Ad. 12/6/84; Building Department responsible for maintaining and enforcing					
Stormwater Management	Yes	Local	Yes	-	-
Comment: 1013-05 Stormwater Control Ord. Adopted 4/27/05; Engineering responsible for maintaining and enforcing					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	Statewide – NJDCA	Yes	-	-
Comment: N.J.A.C. 13:45A-29.1					
Growth Management	Yes	Local	No	-	-
Comment: Memorialized in Master Plan 4/99; Township Administration enforces					
Site Plan Review	Yes	Local	No	-	-
Comment: 69-84 Site Plan Review Requirements Ad. 12/6/84					
Environmental Protection	No	-	-	-	-
Comment:					
Flood Damage Prevention	Yes	Local	Yes	-	-
Comment: 1065-06 Flood Damage Prevention Ord. Adopted 6/14/06; Engineering enforces					
Emergency Management	No	-	-	-	-
Comment:					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	Yes	Local	No	-	-
Comment:					
<ul style="list-style-type: none"> Land Use Plan Section 1.42 Master Plan adopted 4/94, Property Maintenance code 513-93 adopted 12/2/93. Sustainable Land Use Pledge – the Township adopted the pledge to take steps in becoming a more sustainable community and will incorporate sustainability principles in the next update of the master plan. 					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
Comment: Memorialized in Master Plan 4/99; Building Department responsible for updating and maintaining. 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.					
Capital Improvement Plan	Yes	Local	No	-	-
Comment: Memorialized in Master Plan 4/99; Township Administration responsible for updating and maintaining					
Disaster Debris Management Plan	No	-	-	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Floodplain or Watershed Plan	No	-	-	-	-
Comment:					
Stormwater Plan	Yes	Local	Yes	Yes	-
<p>Comment: The Municipal Stormwater Management Plan for the Township of North Bergen was prepared in February 2007. 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>					
Urban Water Management Plan	No	-	-	-	-
Comment:					
Habitat Conservation Plan	No	-	-	-	-
Comment:					
Economic Development Plan	No	-	-	-	-
Comment:					
Shoreline Management Plan	Yes	Local	-	-	-
Comment: Title 1.3b Zoning Ord. Adopted 6/99; Building Department responsible for updating and maintaining					
Stormwater Pollution Prevention Plan	No	-	-	-	-
Comment:					
Community Wildfire Protection Plan	No	-	-	-	-
Comment:					
Forest Management Plan	No	-	-	-	-
Comment:					
Transportation Plan	No	-	-	-	-
Comment:					
Agriculture Plan	No	-	-	-	-
Comment:					
Climate Action Plan	No	-	-	-	-
Comment:					
Tourism Plan	No	-	-	-	-
Comment:					
Business Development Plan	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					
Response/Recovery Planning					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comprehensive Emergency Management Plan	Yes	Local	No	-	-
<i>Comment: Emergency Response Plan - Community Affairs/OEM - plan revised August 2012</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	No	-	-	-	-
<i>Comment:</i>					
Continuity of Operations Plan	No	-	-	-	-
<i>Comment:</i>					
Public Health Plan	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-
<i>Comment:</i>					

Table 9.9-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	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.
Does your jurisdiction have the ability to track permits by hazard area?	The Township currently does not have the ability to track permits by hazard area.
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes, the Township has a buildable lands inventory. This is done through the master plan and the administration department.

9.9.5.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Township of North Bergen.

Table 9.9-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Township of North Bergen Green Team derived of township officials, DPW, Sanitation, Health, Police and schools
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-





Staff/Personnel Resource	Available?	Department/Agency/Position
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	NB Connect (Everbridge) allows the Township to provide residents with critical information related to severe weather, closed roads, missing persons, and evacuations of buildings and neighborhoods. Residents will receive notifications via home, cell or business phone, email, text message, and hearing impaired devices.
Maintenance program to reduce risk	Yes	General maintenance of roads, trees, catch basins, etc. to help reduce storm impacts and damages. The Township retrofits all 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
Technical/Staffing Capability		
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 training in benefit/cost analysis	Yes	Township of North Bergen, CFO, Contract support
Staff with training in green infrastructure	Yes	Boswell Engineering
Staff with education/knowledge/training in low impact development	Yes	Boswell Engineering
Surveyors	Yes	Boswell Engineering
Stormwater engineer	Yes	Boswell Engineering
Personnel skilled or trained in GIS applications	Yes	Boswell Engineering
Local or state water quality professional	Yes	Boswell Engineering
Scientist familiar with natural hazards in local area	Yes	Boswell Engineering
Emergency manager	Yes	David Ricigliano
Watershed planner	Yes	Boswell Engineering
Environmental specialist	Yes	Boswell Engineering
Grant writers	Yes	Millennium Strategies
Resilience Officer	No	-
Other	No	-

9.9.5.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Township of North Bergen.

Table 9.9-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes - water, gas and electric are private utilities
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





Financial Resource	Accessible or Eligible to Use?
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Clean Water Act 219 Grants (nonpoint source pollution)	Yes
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

9.9.5.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Township of North Bergen.

Table 9.9-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – full time staff member
Do you have personnel skilled or trained in website development?	Yes – township staff and contractors
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes, on the OEM section of the Township website. Information includes hurricane warnings online, develop safety kits, etc.
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, the Township uses Facebook and Twitter
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes, but the Township currently does not have the means to do this. The Township is developing a newsletter.
Do you have any established warning systems for hazard events? • If yes, briefly describe.	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.

9.9.5.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Township of North Bergen.

Table 9.9-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	IBC	2015
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	Bronze	12/12/2017





9.9.5.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? Yes
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? Yes

The table below summarizes the jurisdiction’s rating for adaptive capacity for each of the hazards of concern.

Table 9.9-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Storm	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.9.5.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.9-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering
Who is your floodplain administrator? (name, department/position)	Township Engineer – Boswell Engineering
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	June 14, 2006
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum requirements
When was the most recent Community Assistance Visit or Community Assistance Contact?	The Township has not had a CAV conducted





Criterion	Response
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? <ul style="list-style-type: none"> If so, state what they are. 	No
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> If so, state what they are. 	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> If no, state why. 	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	No
Does your jurisdiction participate in the Community Rating System (CRS)? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	No – at the time of the plan update, the Township does not have the resources to support long-term participation in CRS
How many flood insurance policies are in force in your jurisdiction?* <ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	508 policies in force \$134,124,000 premium in force
How many total loss claims have been filed in your jurisdiction?* <ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	128 losses with \$5,186,251 in total payments for losses
Do you maintain a list of properties that have been damaged by flooding?	The Township has records of various areas that have been impacted by floods over the last 20 years. These areas include all of River Road, parts of Westside Avenue (particularly in the 8300 and 7300 areas), Dell Avenue at 8th Street, Dell Avenue between 39th and 48th Streets, 91st Street west of Bellman’s Creek, Tonnelle Avenue between #5800 and #6200, and Railroad Avenue at Bellman’s Creek.
Do you maintain a list of property owners interested in flood mitigation?	At this time we do not have a list, but if received phone call from a property owner that is interested in assistance we can start a list

*According to FEMA statistics as of July 31, 2019

9.9.6 INTEGRATION WITH OTHER PLANNING INITIATIVES

- Sustainable Jersey** - Sustainable Jersey is a nonprofit organization that provides tools, training and financial incentives to support communities as they pursue sustainability programs. By supporting community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity, Sustainable Jersey is empowering communities to build a better world. Municipalities can receive Sustainable Jersey certification. There are two levels of certification – bronze and silver. The Township is a Sustainable Jersey certified community. The Township of North Bergen is a bronze certified community, certified on December 12, 2017.
 Regular sewer maintenance is performed by the DPW which clean and inspect existing sewers to verify that they are properly maintained and operational. When defects are found, there is a contract for emergency repairs that is used multiple times each year to make the needed repairs.
- Stormwater Management** – The Township has a webpage dedicated to stormwater (<http://www.northbergen.org/Pages/stormwater-management>) and public outreach to residents. The page includes links to the Stormwater Management Plan and codes associated with stormwater. The Township provides tips on how to reduce pollution entering the stormwater system.





The capital budget includes funding for repairs or replacement on an annual basis. The Township has a grants consultant who handles all such grant applications.

The 2016 Comprehensive Economic Development Strategy for Hudson County is an update of the 2010-2014 CEDS Regional Plan for Hudson County. It identified several projects that would address flooding in the County, many of which were included in the 2015 Hudson County HMP. One of the projects was identified in the Township of North Bergen (installing backup generator at the Palisades Medical Center). As of the date of this plan update, this project has been completed.

- **New Jersey Sports & Exposition Authority (NJSEA)** - NJSEA was created in 1971 and is the regional planning and zoning agency for 30.3 square miles of the Hackensack Meadowlands District. The District encompasses portions of 14 municipalities in Bergen and Hudson Counties: Carlstadt, East Rutherford, Little Ferry, Lyndhurst, Moonachie, North Arlington, Ridgefield, Rutherford, South Hackensack, and Teterboro in Bergen County; and Jersey City, Kearny, North Bergen, and Secaucus in Hudson County. NJSEA holds zoning jurisdiction over the portions of each municipality within its boundaries. The Consolidation Act allows constituent municipalities to administer the majority of the zoning requirements of the NJSEA, upon adoption of an “opt-out” resolution agreeing to follow the land use provisions of the District’s zoning regulations. Any applications for use variances, subdivisions, and regulatory amendments are retained for review by the NJSEA, as are any applications that are deemed to be vital projects. To date, the Towns of Secaucus and Kearny have chosen to become “opt-out” municipalities.
 - NJSEA updated the 2004 NJMC Master Plan to evaluate the existing conditions in the District, discuss significant changes since 2004, and highlight the accomplishments, as well as the challenges, to implementing this vision. The draft *Hackensack Meadowlands District Master Plan Update 2020* was completed in August 2019. The updated master plan outlined NJSEA’s resiliency and stewardship efforts, including:
 - District zoning regulations require the preparation of a Project Impact Assessment (PIA) to evaluate impacts of new development with respect to the environment, fiscal, emergency services, municipal services, schools, and transportation.
 - District zoning regulations set forth elevation and flood proofing requirements for new buildings, additions, and other structures within FEMA flood areas. The lowest floor must be elevated at least one foot above the base flood elevation.
 - All development applications are reviewed for conformance with NJSEA stormwater drainage requirements. For those areas that lie with FEMA’s SFHA, the NJSEA staff reviews all development applications for conformance with the District Floodplain Management Regulations. In addition, the District zoning regulations require the submission of an Operations and Maintenance (O & M) Manual for all approved stormwater drainage systems to ensure that systems remain operational.
 - Participating in the CRS program and maintain the classification for the Meadowlands District. Currently, NJSEA is a CRS Class 7 community which results in a 15% discount on NFIP policies issued through the NFIP.
 - Currently updating the Hackensack Meadowlands Floodplain Management Plan (adopted in 2005).
 - Collects, logs, and assesses flooding complaints on individual properties and inspects the District for flood impacts following severe weather events. NJSEA engineers are available meet with property owners for on-site inspections and to discuss stormwater drainage options with the property owners.
 - Evaluates the functionality of all tide gages and pump stations located within the District.





- Inspects waterways and ditches in the District to ensure adequate stormwater conveyance capacity.
- Coordinates with municipalities and counties for removal of stream debris and tide gate repairs
- Provides and maintains equipment for use by municipal workers to assist municipalities in the District with maintenance issues
- In conjunction with MERI, monitors water levels in the District using equipment stationed at tide gates. The data is collected and relayed to the public in real time. This provides warnings to first responders and residents when water levels rise during tidal events, heavy rain events, and storms.
- Continues to work on preserving and restoring wetlands To date, approximately 3,500 acres of wetlands have been preserved and/or restored, three-quarters of which are owned by the NJSEA or the Meadowlands Conservation Trust, providing floodwater storage capacity and habitat protection

9.9.7 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Township of North Bergen’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.9-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.9-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
September 25, 2018	Flash Flood	N/A	Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Precipitable water values increased from 1.84 on the morning sounding from Upton, NY to 2.13 by evening. Both of these values are above the 90th percentile based on a sounding climatology, with the 2.13 precipitable water value on the evening of the 25th a record for the date. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in	The Township had five inches of rain in 12 hours; water rescues were made at shopping centers; roads were closed throughout





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	

9.9.8 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.9-12 summarizes the Township of North Bergen’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.9-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	77	CEHA:	10	CEHA:	\$8,795,162	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$74,259	
		SLR +3ft:	172	SLR +3ft:	27	SLR +3ft:	\$322,993,535	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	348	Category 1:	93	100-year Wind Loss:	\$8,400,955	High
	Category 1 through Category 4 SLOSH	Category 2:	832	Category 2:	245			
		Category 3:	3,556	Category 3:	545	500-year Wind Loss:	\$64,892,157	
		Category 4:	6,006	Category 4:	787			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	374	NEHRP D&E:	112	100-year Loss:	\$0	High
		Liquefaction Class 4:	374	Liquefaction Class 4:	137	500-year Loss:	\$22,664,795	
						2,500-year Loss:	\$305,170,029	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	8,660	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	10,023					
Flood	100- and 500-Year Mean Return Period Event	100-year	479	100-year	138	100-year Loss:	\$139,481,307	High
		500-year	753	500-year	196			
Geological	High Landslide Susceptibility Areas	Class A:	2387	Class A:	73	Class A:	61500460.63	Moderate
		Class B:	0	Class B:	2	Class B:	\$4,921,657	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	29	Wildfire:	6	Wildfire:	\$57,910,523	Moderate





9.9.8.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Township of North Bergen.

- Number of repetitive loss (RL) properties: 8
- Number of severe repetitive loss (SRL) properties: 4
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.9.8.2 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.9-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Applevue Early Learning Center And Preschool	Child Care	X	X	See 2020-NORTH BERGEN-008 in Table 9.6-16
Palisades Child Care Center	Child Care	X	X	
Homestead Sub.*	Electric Substation	X	X	See 2020-NORTH BERGEN-009 in Table 9.6-16
North Bergen Sub.*	Electric Substation	X	X	
River Road Sub.*	Electric Substation	X	X	Completed by PSE&G
W.R. Grace & Co. Conn. - Grace Construct	Hazmat	X	X	See 2020-NORTH BERGEN-010 in Table 9.6-16
Palisades Medical Center Heliport*	Helipport	X	X	Mitigated by Palisades Medical Center
Palisades Medical Center*	Hospital	X	X	Mitigated by Palisades Medical Center
The Harborage At Palisades	Senior	X	X	See 2020-NORTH BERGEN-013 in Table 9.6-16
Meter (Central Ps)-Ps01*	Wastewater Pump	X	X	See 2020-NORTH BERGEN-011 in Table 9.6-16
Woodcliff P.S (River Rd)-Ps01W*	Wastewater Pump	X	X	
8Th Street Ps-Ps02*	Wastewater Pump	X	X	
Central Ps-Ps01*	Wastewater Pump	X	X	
Woodcliff Sewage Treatment Plant*	Wastewater Treatment	X	X	See 2020-NORTH BERGEN-012 in Table 9.6-16
North Bergen MUA Central Sewage*	Wastewater Treatment	X	X	

*Identified lifeline

9.9.8.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities:

- Flooding is a concern in the east and western areas of the township. Damages from past storms have been to buildings, roadways, walkways and critical facilities/utilities in these areas in past storm events.
- High winds during recent storm events damaged buildings, electrical systems and municipal facilities.





- Areas prone to flooding in the Township include all of River Road, parts of Westside Avenue (particularly in the 8300 and 7300 areas), Dell Avenue at 8th Street, Dell Avenue between 39th and 48th Streets, 91st Street west of Bellman’s Creek, Tonnelle Avenue between #5800 and #6200, and Railroad Avenue at Bellman’s Creek.
- Tonnelle Avenue – during heavy rain events, the manhole covers blow off
- Install new / replace existing tide gates and flood gates
- Need to expand sewer system in Township

9.9.8.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Township of North Bergen that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of North Bergen has significant exposure. Figures 9.9-1 and 9.9-2 illustrate the hazard area extent and locations in the Township.

9.9.8.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of North Bergen. The Township of North Bergen has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard ranking, the Township agreed the calculated hazard ranking for each hazard of concern accurately represents the Township’s risk to the hazards.

Table 9.9-14. Township of North Bergen Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Medium	Low	Medium	Medium

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Medium	High	High	Medium	N/A

9.9.9 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.





9.9.9.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.9-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
NBT-1	Install battery backup units to existing traffic control devices at major township controlled intersections and replace old devices where needed with new units containing battery backup.	North Bergen PD Traffic Unit	No Progress – remove from plan	-	-
NBT-2	Provide emergency power for Town Hall with a stand- alone natural gas generator and automatic transfer switch.	North Bergen Department of Parks and Grounds	Completed		
NBT-3	Police Headquarters Backup Power: Install a natural gas generator to replace the existing defective/underpowered generator currently in place. This would provide emergency power for Police Headquarters which also houses Records Bureau, Communications Center and Jail areas.	North Bergen Dept of Law and Public Safety	Completed		
NBT-4	Install a stand- alone natural gas generator with automatic transfer switch to provide emergency power for the following North Bergen Board of Education-owned critical facilities, as identified in the HCSRR: <ul style="list-style-type: none"> • North Bergen High School – Main shelter location & medical Point of Distribution (POD) • Lincoln School - Midtown shelter location & medical Point of Distribution (POD) • Kennedy School - Downtown shelter location 	North Bergen BOE	No Progress	X	2020-NORTH BERGEN-004
NBT-5	North Bergen Main Library Backup Power: Install a stand-alone natural gas generator and automatic transfer switch to supply power to this facility.	North Bergen Library	No Progress – remove from plan	-	-
NBT-6	North Bergen Health Dept. Backup Power: Install stand-alone natural gas generator and automatic transfer switch to provide emergency power for vital records, clinic and medical point of distribution at 1116 43rd Street in North Bergen.	North Bergen Health Department	No Progress	X	2020-NORTH BERGEN-004
NBT-7	Hardening of Hospital (Palisades Medical Center) Boiler Room and Emergency Generators		Completed		
NBT-8	Retrofit DPW Tonnelle & add two generators: Facility has insufficient generator capacity to remain fully functional during an emergency. Adding generator capacity would be supplied	North Bergen DPW	No Progress	X	2020-NORTH BERGEN-006





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	to maintain the DPW, the Repair shop and the Police sub-station. The generator would be built at a height above flood stage. This facility has been identified as a critical facility in the risk assessment of this plan.				
NBT-9	<p>Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable.</p> <ul style="list-style-type: none"> Phase 1: Identify appropriate candidates and determine most cost-effective mitigation option (in progress). Phase 2: Work with the property owners to implement selected action based on available funding from FEMA and local match availability.(in progress) <p>Specifically identified are properties in the following areas:</p> <ul style="list-style-type: none"> West Side Avenue business area on the west side of uptown area bordering the Hackensack Meadowlands. River Road area on the eastern side of the uptown area bordering the Hudson River. Mixed business and residential use. Tonnelle avenue business area the length of the township. 	Municipal Engineer	In Progress/ Under Review; Township is working on establishing a list of priority projects	-	-
NBT-10	Support participation in the NFIP Community Rating System (CRS) program by attending CRS workshop(s) if offered within the county. Join the CRS program if adequate resources to support long term participation can be dedicated.	Municipal FPA	Complete – at the time of the plan update, the Township does not have the resources to support long-term participation in CRS	-	-
NBT-11	Have designated NFIP Floodplain Administrator (FPA), and other local officials who would benefit, become a Certified Floodplain Manager (CFM) through the Association of State Floodplain Managers (ASFPM) and New Jersey Association for Floodplain Management (NJAFM), and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis (BCA) and Substantial Damage Estimation (SDE).	Municipal FPA	Ongoing Capability	-	-
NBT-12	Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what they can do in the way of mitigation and preparedness, including flood insurance. This program will include:	Municipal Administrator	Ongoing Capability	-	-





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	<ul style="list-style-type: none"> • Maintaining an emergency notification system for all businesses and residents via phone and text and email. • Including natural hazard risk and risk reduction information through social media channels and email blast systems. • Posting of flyers and other readily available NFIP informational materials at Town/Village hall or distributing at regular civic meetings. • Preparation, distribution and analysis of public surveys. • Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. • Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts in the annual newsletter. 				
NBT-13	<p>Develop and implement a post-event damage assessment program, including the following elements:</p> <ul style="list-style-type: none"> • Conduct public outreach/education (see Public Education and Awareness Initiatives above) to inform property owners of the need to report property damage and obtain required permitting when making repairs. • Develop and organize local resources to conduct post-event damage assessments, including substantial damage determinations as warranted. • Develop an inventory (file system and/or database) of losses (incl. loss of service, property damage, economic losses, etc.) as reported to and/or identified by the Township (e.g. building permit process). 	Engineering	Ongoing Capability	-	-
NBT-14	<p>The Town's Master Plan is to be used by the planning board, zoning board of adjustment, governing body and the citizens of North Bergen in making land use planning and policy decisions that will enhance and protect the character of the community. The hazard mitigation plan will be used to guide the addition of hazard information for inclusion in the next Master Plan update.</p>	Township Administration	Ongoing Capability		
NBT-15	<p>Continue to provide ongoing support and coordinate towards the implementation of mitigation initiatives identified in the updated NBMUA strategy, which include:</p> <ul style="list-style-type: none"> • Rehabilitate the 6100 Tonnelle Avenue Pump Station • Construct a new access way to the Woodcliff 	North Bergen MUA	Ongoing Capability	-	-





2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
	Sewage Treatment Plant located on River Road <ul style="list-style-type: none"> Calibrate and fix the North Bergen MUA 25 static regulators and 11 dynamic regulators. 				
NBT-16	Repair and restore swale at 43rd West Side Ave: Existing swale is silted over a distance of several thousand feet as a result of manmade built-up blockage causing flooding and downstream restriction. Silt will need to be removed and swale to be cleaned out. It is anticipated that excavated material will be contaminated. Permitting and compliance issues are a challenge to project implementation.	Engineering	Completed	-	-
NBT-17	Palisades Medical Center - Emergency Generator: Purchase three generators and elevation of generators to safe heights in accordance with new floodplain projections (Palisades Medical Center)	Palisades Medical Center	Completed	-	-
NBT-18	Palisades Medical Center – Critical Communication and Information Protection and COOP: Relocation of communications hub to existing space on a higher floor of the same building to prevent flood damage	Palisades Medical Center	Completed		
NBT-19	Support County-sponsored studies of the land failure hazard along the Palisades, and efforts to identify feasible initiatives to mitigate land failure risk	Hudson County Engineering Department	Ongoing Capability	-	-
NBT-20	Belmanns Creek Channel Mitigation Project: Dredge Bellmans Creek to reduce flooding at 91-95th Street. This open channel body of water discharges to the Hackensack River. The creek has been filled in or encroached upon over years. It is undersized, has silted-up and causes flooding on 91st St. as well as 85th St. and exposes raw sewage. The creek needs to be dredged to increase conveyance. Fill anticipated to be highly contaminated. Sand bars and the like removed. Removed material subject to testing and proper disposal. This project is expected to be completed by 2015.	NB Engineering	Ongoing project	-	-
NBT-21	Roc Harbor Development and The Views at Hudson Pointe shoreline stabilization and walkway infrastructure coastal erosion project.	Hudson County Division of Planning/GIS	Completed	-	-
NBT-22	Support County-wide initiatives identified in Section 9.1 of this Plan Update in which the Township will be supporting and/or participating in.	Municipal Administrator	Ongoing Capability	-	-





9.9.9.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Township of North Bergen participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Township of North Bergen participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.9-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of North Bergen would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.9-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.9-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-NORTH BERGEN-001	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School	Problem: Mazzoni Place and Lower section of the High Tech High School Floods during rain/storm events Solution: Study was complete and result show that flood proofing the Mazzoni Place near lower section of High School will eliminate flooding in the area.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	<u>North Bergen Engineering</u> with support from Hudson County Engineering	FEMA and HMGP, Municipal and County Budgets	This school serves as an emergency shelter for the community. It is critical to maintain this facility during an emergency.	\$2 Million	Within 2 years	High	SIP	PP
2020-NORTH BERGEN-002	Proposed stormwater diversion along culvert south of 91 st Street	Problem: West 91 st Street constantly floods during rain and storm events. Solution: Upsize approximately 1600 feet of stormwater piping to 91 st Street.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	<u>North Bergen Engineering</u> with support from Hudson County Engineering	FEMA PDM, municipal and county budgets	Reduce loss and vulnerability to flooding in commercial section of Township	\$1.5 million	Within 2 years	High	SIP	PP
2020-NORTH BERGEN-003	Pump station and tide gate along northwestern municipal quadrant / River Road mitigation	Problem: Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave. Solution: 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 st Street and Railroad Ave. to reduce flooding in the area.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	<u>North Bergen Engineering</u> with support from Hudson County Engineering	FEMA HMGP and FMA, municipal and county budgets	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events	\$20 million	Within 5 years	High	SIP	PP
2020-NORTH	Backup Power for North	Problem: Power outages at critical facilities owned by the Township Board of Education	Existing	Coastal Storm, Severe	1, 2, 6	<u>North Bergen BOE</u>	BOE Budget, FEMA	Reduced vulnerability of critical facility	\$300,000	Within 5 years	High	SIP	PP, ES





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
BERGEN-004 (previous action)	Bergen BOE Facilities	<p>Solution: Install a stand- alone natural gas generator with automatic transfer switch to provide emergency power for the following North Bergen Board of Education-owned critical facilities, as identified in the HCSRR:</p> <ul style="list-style-type: none"> • North Bergen High School – Main shelter location & medical Point of Distribution (POD) • Lincoln School - Midtown shelter location & medical Point of Distribution (POD) • Kennedy School - Downtown shelter location 		Weather, Severe Winter Weather			HMGP and PDM	to power outages, life safety					
2020-NORTH BERGEN-005 (previous action)	North Bergen Health Dept. Backup Power	<p>Problem: Supplying backup power to critical structure, Health Dept. located at 1116 43rd street.</p> <p>Solution: Install stand-alone natural gas generator and automatic transfer switch to provide emergency power for vital records, clinic and medical point of distribution at 1116 43rd Street in North Bergen.</p>	Existing	Coastal Storm, Severe Weather, Severe Winter Weather	1, 2, 6	North Bergen Health Department	FEMA HMGP and PDM, Township Budget	Reduce loss of vital functions, possible records and medical supplies damaged.	\$60,000	Within 5 years	Medium	SIP	PP, ES
2020-NORTH BERGEN-006 (previous action)	Retrofit DPW Tonnelle & add two generators	<p>Problem: Facility has insufficient generator capacity to remain fully functional during an emergency.</p> <p>Solution: Adding generator capacity would be supplied to maintain the DPW, the Repair shop and the Police sub-station. The generator would be built at a height above flood stage. This facility has been identified as a critical facility in the risk assessment of this plan.</p>	Existing	Coastal Storm, Severe Weather, Severe Winter Weather	1, 2, 6	North Bergen DPW	FEMA HMGP and PDM	Reduced vulnerability of critical facility to power outages, life safety	\$100,000	Within 5 years	Medium	SIP	PP, ES
2020-NORTH BERGEN-007	Mitigating floodprone properties	<p>Problem: There are 14 repetitive loss properties in the Township of North Bergen. These 14 properties have been repetitively flooded as documented by paid NFIP claims.</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 5	Township Floodplain Administrator	FEMA HMGP and FMA, Township Budget	Raises awareness; provides options for homeowners	\$2 million	Within 2 years	Medium	EAP, SIP	PR, PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Solution: Conduct outreach to 14 floodprone property owners and provide information on mitigation alternatives.											
2020-NORTH BERGEN-008	Critical Facility Outreach – Child Care Centers	Problem: There are two childcare facilities located in the floodplain and exposed to flood damage. Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.	Existing	Flood, Coastal Storm, Severe Weather	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential damages; protects critical facilities	>\$10,000	Within 1 year	Medium	EAP	PI
2020-NORTH BERGEN-009	Critical Facility Outreach – Electric Substations	Problem: There are two electric substation facilities located in the floodplain and exposed to flood damage. Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.	Existing	Flood, Coastal Storm, Severe Weather	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential damages; protects critical facilities	>\$10,000	Within 1 year	Medium	EAP	PI
2020-NORTH BERGEN-010	Critical Facility Outreach – Hazmat Facility	Problem: There is one hazmat facility located in the floodplain and exposed to flood damage. Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.	Existing	Flood, Coastal Storm, Severe Weather	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential damages; protects critical facilities	>\$10,000	Within 1 year	Medium	EAP	PI
2020-NORTH BERGEN-011	Critical Facility Outreach – Wastewater Pumps	Problem: There are four wastewater pump facilities located in the floodplain and exposed to flood damage.	Existing	Flood, Coastal Storm,	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential	>\$10,000	Within 1 year	Medium	EAP	PI





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.		Severe Weather				damages; protects critical facilities					
2020-NORTH BERGEN-012	Critical Facility Outreach – Wastewater Treatment	Problem: There are two wastewater treatment facilities located in the floodplain and exposed to flood damage. Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.	Existing	Flood, Coastal Storm, Severe Weather	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential damages; protects critical facilities	>\$10,000	Within 1 year	Medium	EAP	PI
2020-NORTH BERGEN-013	Critical Facility Outreach – Senior Facility	Problem: There is one senior facility located in the floodplain and exposed to flood damage. Solution: Provide public outreach to property owners informing them that their facility is located within a floodplain and might be susceptible to flood damages. Outreach will include mitigation options to protect the facility from flood damage.	Existing	Flood, Coastal Storm, Severe Weather	1, 2	<u>Township Engineer</u>	Township Budget	Increase awareness of flooding and potential damages; protects critical facilities	>\$10,000	Within 1 year	Medium	EAP	PI

Notes:

Acronyms and Abbreviations:

CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency
 FPA Floodplain Administrator
 HMA Hazard Mitigation Assistance
 N/A Not applicable
 NFIP National Flood Insurance Program
 OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.





Mitigation Category:

- *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 manmade 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*

CRS Category:

- *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 9.9-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-NORTH BERGEN-001	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School	1	1	1	1	1	0	0	0	1	1	1	1	1	1	11	High
2020-NORTH BERGEN-002	Proposed stormwater diversion along culvert south of 91 st Street	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2020-NORTH BERGEN-003	Pump station and tide gate along northwestern municipal quadrant / River Road mitigation	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2020-NORTH BERGEN-004 (previous action)	Backup Power for North Bergen BOE Facilities	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2020-NORTH BERGEN-005 (previous action)	North Bergen Health Dept. Backup Power	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-006 (previous action)	Retrofit DPW Tonnelle & add two generators	1	1	1	1	1	1	0	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-007	Mitigating floodprone properties	1	1	1	1	1	0	0	0	0	1	0	0	0	0	6	Medium
2020-NORTH BERGEN-008	Critical Facility Outreach – Child Care Centers	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-009	Critical Facility Outreach – Electric Substations	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-010	Critical Facility Outreach – Hazmat Facility	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-011	Critical Facility Outreach – Wastewater Pumps	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-012	Critical Facility Outreach – Wastewater Treatment	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2020-NORTH BERGEN-013	Critical Facility Outreach – Senior Facility	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.9-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise								
Coastal Storm	-007	-001, -002, -003, -004, -005, -006, -007	-007, -008, -009, -010, -011, -012, -013, -014		-004, -005, -006	-001, -002, -003, -004, -005, -006, -007		
Dam and Levee Failure								
Drought								
Earthquake								
Extreme Temperature								
Flood	-007	-001, -002, -003, -004, -005, -006, -007	-007, -008, -009, -010, -011, -012, -013, -014		-004, -005, -006	-001, -002, -003, -004, -005, -006, -007		
Geologic								
Severe Weather	-007	-001, -002, -003, -004, -005, -006, -007	-007, -008, -009, -010, -011, -012, -013, -014		-004, -005, -006	-001, -002, -003, -004, -005, -006, -007		
Severe Winter Storm		-004, -005, -006			-004, -005, -006	-004, -005, -006		
Wildfire								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.9.10 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Township of North Bergen followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.9-19. Contributors to the Annex

Entity	Title	Method of Participation
Dave Ricigliano	OEM Coordinator	Attend meetings, providing information regarding mitigation initiatives, provided resources to complete annex
Bernard Mirandi	Engineer	Attend meetings, providing information regarding mitigation initiatives, provided resources to complete annex
Vahane Costanian	Engineer	Attend meetings, providing information regarding mitigation initiatives, provided resources to complete annex





Figure 9.9-1. Township of North Bergen Hazard Area Extent and Location Map 1

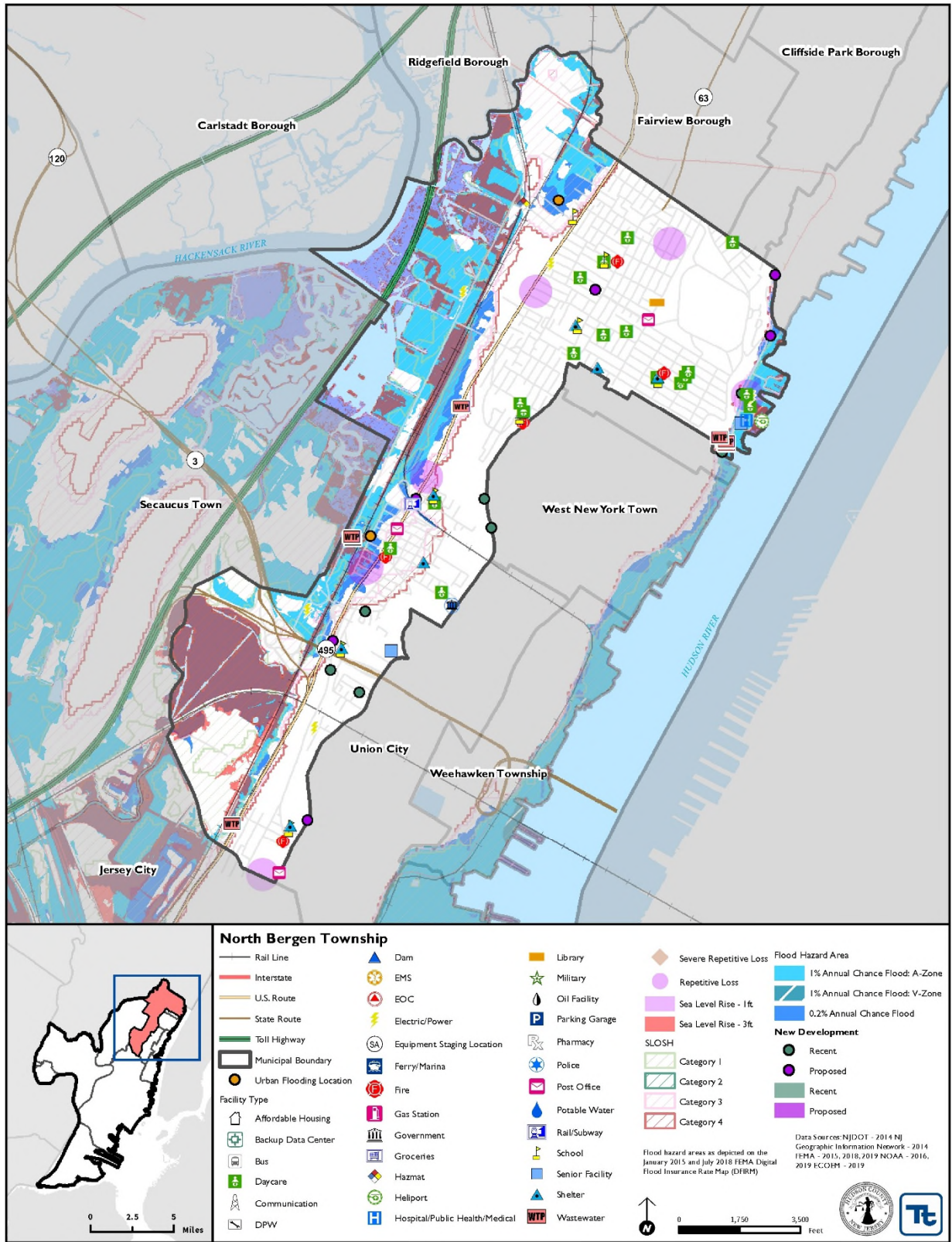
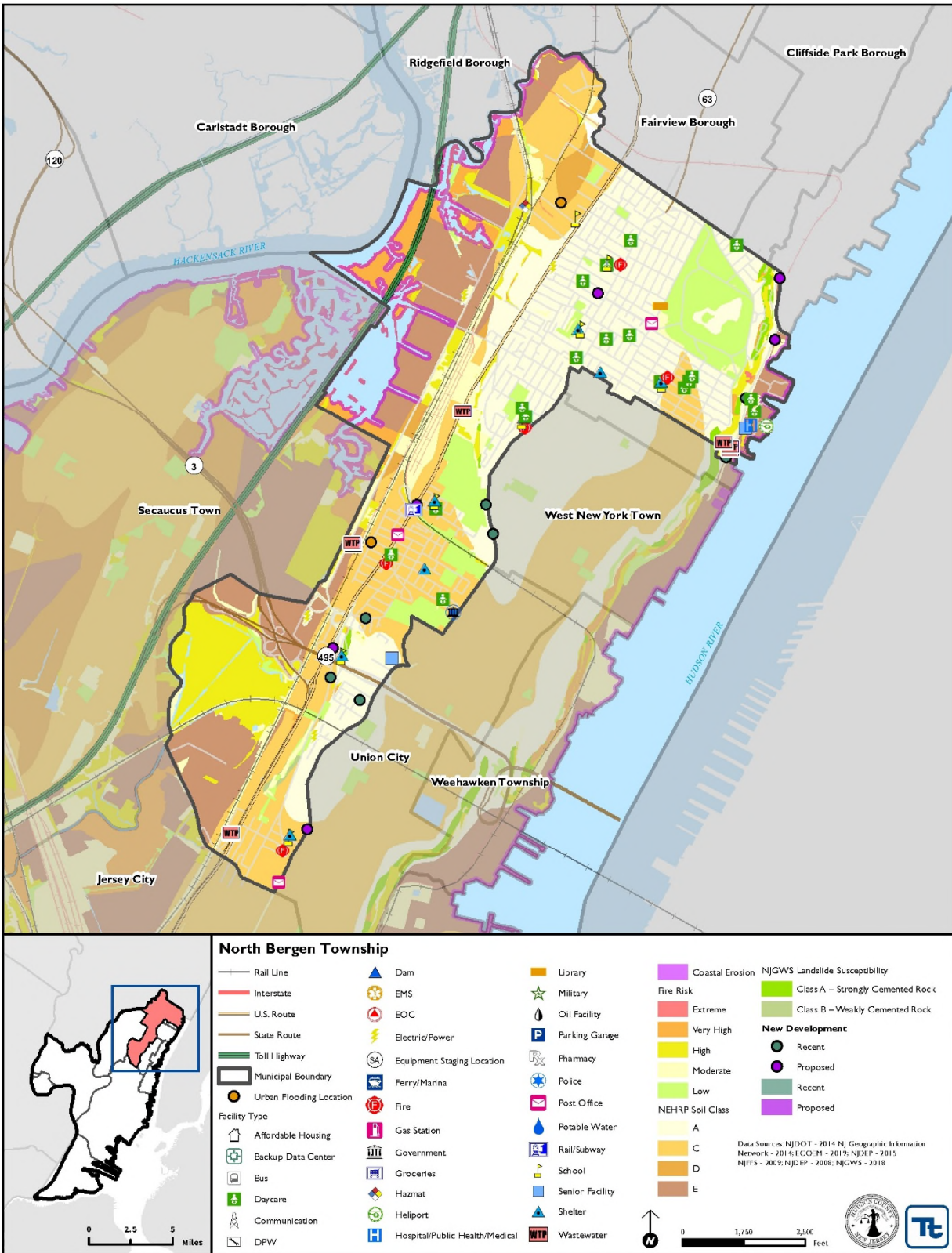




Figure 9.9-2. Township of North Bergen Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-NORTH BERGEN-001		
Project Number:	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	Mazzoni Place and Lower section of the High Tech High School Floods during rain/storm events		
Action or Project Intended for Implementation			
Description of the Solution:	Study was complete and result show that flood proofing the Mazzoni Place near lower section of High School will eliminate flooding in the area.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event	Estimated Benefits (losses avoided):	This school serves as an emergency shelter for the community. It is critical to maintain this facility during an emergency.
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$2 Million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA FEMA and HMGP, Municipal and County Budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate school	\$1 million	Too costly, not feasible
	Relocate school	\$1 million+	No land available to relocate school; costly
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-NORTH BERGEN-001	
Project Number:	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect students and teachers
Property Protection	1	Protect school from flood damage
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-NORTH BERGEN-002		
Project Number:	Proposed stormwater diversion along culvert south of 91st Street		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	West 91st Street constantly floods during rain and storm events.		
Action or Project Intended for Implementation			
Description of the Solution:	Upsize approximately 1600 feet of stormwater piping to 91st Street.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce loss and vulnerability to flooding in commercial section of Township
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$1.5 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA PDM, municipal and county budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate roadway	\$100,000+	Not feasible, costly, long-term project
	Acquire properties impacted	\$500,000+	Not feasible; loss tax base; costly; area would still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-NORTH BERGEN-002	
Project Number:	Proposed stormwater diversion along culvert south of 91st Street	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents and businesses that are in the area of the problem
Property Protection	1	Reduce flood damage potential to structures in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-NORTH BERGEN-003		
Project Number:	Pump station and tide gate along northwestern municipal quadrant / River Road mitigation		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
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.		
Action or Project Intended for Implementation			
Description of the Solution:	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 91st Street and Railroad Ave. to reduce flooding in the area.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$20 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMGP and FMA, municipal and county budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate roadway	\$100,000+	Not feasible, costly, long-term project
	Acquire properties impacted	\$500,000+	Not feasible; loss tax base; costly; area would still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-NORTH BERGEN-003	
Project Number:	Pump station and tide gate along northwestern municipal quadrant / River Road mitigation	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents and businesses that are in the area of the problem
Property Protection	1	Reduce flood damage potential to structures in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup Power for North Bergen BOE Facilities		
Project Number:	2020-NORTH BERGEN-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Severe Winter Weather		
Description of the Problem:	Power outages at critical facilities owned by the Township Board of Education		
Action or Project Intended for Implementation			
Description of the Solution:	Install a stand- alone natural gas generator with automatic transfer switch to provide emergency power for the following North Bergen Board of Education-owned critical facilities, as identified in the HCSRR: <ul style="list-style-type: none"> • North Bergen High School – Main shelter location & medical Point of Distribution (POD) • Lincoln School - Midtown shelter location & medical Point of Distribution (POD) • Kennedy School - Downtown shelter location 		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduced vulnerability of to power outages, life safety
Useful Life:	20 years	Goals Met:	1, 2, 6
Estimated Cost:	\$300,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	BOE Budget, FEMA HMGP and PDM
Responsible Organization:	North Bergen BOE	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent, costly, need to install at each facility
	Install wind turbine	\$90,000	Weather dependent, needs space to install, need to install at each facility
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup Power for North Bergen BOE Facilities	
Project Number:	2020-NORTH BERGEN-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Possible in case of shelter or medical need.
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	Existing area for project is available
Political	1	Will benefit residents of township
Legal	1	Township has proper authority
Fiscal	0	Need grant funding
Environmental	0	
Social	1	Be able to provide shelter for residents if needed
Administrative	1	Easily maintainable
Multi-Hazard	1	Coastal Storm, Severe Weather, Severe Winter Weather
Timeline	1	Possible with funding
Agency Champion	1	Local Emergency Management Officials
Other Community Objectives	1	Fits in with overall mitigation strategy
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	North Bergen Health Dept. Backup Power		
Project Number:	2020-NORTH BERGEN-005		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Severe Winter Weather		
Description of the Problem:	Supplying backup power to critical structure, Health Dept. located at 1116 43rd street.		
Action or Project Intended for Implementation			
Description of the Solution:	Install stand-alone natural gas generator and automatic transfer switch to provide emergency power for vital records, clinic and medical point of distribution at 1116 43rd Street in North Bergen.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce loss of vital functions, possible records and medical supplies damaged.
Useful Life:	20 years	Goals Met:	1, 2, 6
Estimated Cost:	\$60,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA HMGP and PDM, Township Budget
Responsible Organization:	North Bergen Health Dept.	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$50,000	Weather dependent, costly
	Install wind turbine	\$35,000	Weather dependent, needs space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	North Bergen Health Dept. Backup Power	
Project Number:	2020-NORTH BERGEN-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Continuity of operations
Cost-Effectiveness	1	Benefits outweigh the costs
Technical	1	
Political	0	
Legal	1	Township has the authority to implement this project
Fiscal	0	Need grant funding
Environmental	0	No environmental impacts
Social	0	No social impacts
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Severe Winter Weather
Timeline	1	Within 5 years (depending on funding)
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	Retrofit DPW Tonnelle & add two generators		
Project Number:	2020-NORTH BERGEN-006		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Severe Winter Weather		
Description of the Problem:	Facility has insufficient generator capacity to remain fully functional during an emergency.		
Action or Project Intended for Implementation			
Description of the Solution:	Adding generator capacity would be supplied to maintain the DPW, the Repair shop and the Police sub-station. The generator would be built at a height above flood stage. This facility has been identified as a critical facility in the risk assessment of this plan.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduced vulnerability of critical facility to power outages, life safety
Useful Life:	19 years	Goals Met:	1, 2, 6
Estimated Cost:	\$100,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA HMGP and PDM
Responsible Organization:	North Bergen DPW	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$50,000	Weather dependent, costly, might not provide full power to facility
	Install wind turbine	\$35,000	Weather dependent, needs space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Retrofit DPW Tonnelle & add two generators	
Project Number:	2020-NORTH BERGEN-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Provides continuity of operations
Cost-Effectiveness	0	Benefits outweigh the costs for this project
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Severe Winter Weather
Timeline	1	If funding received, project can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	

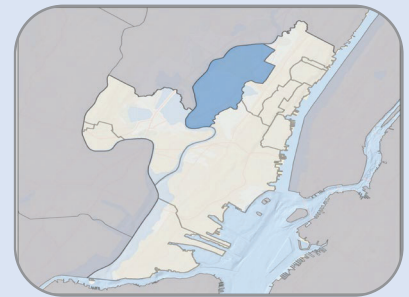




TOWN OF SECAUCUS

MUNICIPALITY AT A GLANCE

Total Population: 19,279
 Total Land Area: 6.56 sq. mi
 Total Number of Buildings: 3,845



Hurricane Storm Surge



Population



Buildings

Category 1* **1,813**

446

Category 2* **8,700**

1,627

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$4,072,852

Potential Building Damages

1% Annual Chance Flood



5,057

Population residing in floodplain



969

Buildings in floodplain



15

Critical facilities in floodplain

509

Persons that may seek shelter

\$112,934,210

Potential building damages

NFIP Statistics



3 # NFIP Policies

34 # WYO Policies

11 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

Coastal Storm, Flood, Severe Weather

Project Types

Structure and Infrastructure Projects, Education and Awareness Programs

High Ranked Hazards



Coastal Storm, Earthquake, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm



9.10 Town of Secaucus

This section presents the jurisdictional annex for the Town of Secaucus. The annex includes a general overview of the Town; an assessment of the Town of Secaucus’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.10.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Town of Secaucus’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.10-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Kevin O'Connor DPW Superintendent Address: 1230 Paterson Plank Rd., Secaucus, NJ Phone Number: 201-330-2080 Email: koconnor@secaucus.net	Name / Title: Vincent Massaro Jr., OEM Coordinator Address: 1230 Paterson Plank Rd., Secaucus, NJ Phone Number: 201-832-5288 Email: vmassaro@secaucus.net
NFIP Floodplain Administrator	
Name / Title: Kevin O'Connor DPW Superintendent Address: 1230 Paterson Plank Rd., Secaucus, NJ Phone Number: 201-330-2080 Email: koconnor@secaucus.net	

9.10.2 JURISDICTION PROFILE

Secaucus was originally formed as a borough by an Act of the New Jersey Legislature on March 12, 1900, from portions of North Bergen. On June 7, 1900, Secaucus was incorporated as a town, replacing Secaucus borough, based on the results of a referendum held on June 5, 1917.

The Town of Secaucus is governed by a Mayor and Town Council made up of six members. This governing body will be responsible for the adoption and implementation of this plan.

The Town of Secaucus, partially surrounded by the Hackensack Meadowlands, is located in the northwestern portion of Hudson County. The Town shares its borders with the Hackensack River to the north, south and west; and the Town of North Bergen and Jersey City to the east. The Hackensack River separates the Town from Bergen County, forming Hudson County’s western border.

According to the U.S. Census, the 2010 population for the Town of Secaucus was 16,264. The estimated 2017 population was 19,279, a 18.5 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 6.6 percent of the population is 5 years of age or younger and 16.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.





9.10.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.10-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.10-1 and 9.10-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.10-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	5	4	3	0	0
Multi-Family	6	6	6	8	3
Other (commercial, mixed-use, etc.)	2	3	2	0	0

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Lincoln Crossing	Commercial	1 building	1 Daffy's Way B: 451.05; L: 14.011		Projected
Proposed Warehouse/Distribution Facility	Commercial	2 buildings	1 County Road B: 44, L: 2 & 4	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 1ft, Sea Level Rise - 3ft, Wildfire Risk	Done
XChange at Secaucus Junction	Residential and Commercial	1 4-story building with 160 units	Riverside Station Boulevard	SLOSH Category 4	Projected
New High Tech High School for Hudson County Schools of Technology	Public School	1 4-level building	New County Road B: 5, L: 2.03	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 1ft, Sea	Done





Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
				Level Rise - 3ft, Wildfire Risk	
Secaucus Riverside	Residential	1 building with 116 units	1631 Patterson Plank Rd. B: 191; L: 15,15.01-15.03	1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E	Projected
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
NJSEA – 16 Street				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 3ft, Wildfire Risk	
NJSEA – Hartz Carpet Center				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, Coastal Erosion, NEHRP Class D&E	
NJSEA – Secaucus Transit Village				1% Annual Chance Flood, 0.2% Annual Chance Flood, SLOSH Category 1, SLOSH Category 2, SLOSH Category 3, SLOSH Category 4, NEHRP Class D&E, Sea Level Rise - 3ft, Wildfire Risk	

* Only location-specific hazard zones or vulnerabilities identified.

9.10.4 CAPABILITY ASSESSMENT

The Town of Secaucus performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities





- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.10.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of Secaucus.

Table 9.10-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local - Construction	Yes	No	No
<i>Comment: International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14 Adopted 9/3/2019; Town Code Ch 64 Uniform Construction Codes adopted 1/25/77 and amended where applicable. The Construction Department is the enforcing agency of this code.</i>					
Zoning Code	Yes	Local and Regional – Zoning and NJ Meadowlands Commission	Yes	Yes	-
<i>Comment: Town Code Ch 135 Zoning Ordinance adopted 5/11/48 and amended in its entirety on 5/13/14 by Ordinance Number 2014-12. Town Code Ch 9 establishing relationship with NJMC adopted 6/9/59. The Town’s code restricts residential building height if located in the flood zone (cannot exceed 35 feet or more than three stories and no basements are permitted). The code also prohibits plants with pervasive root systems in areas where they might cause damage to drainage pipes, underground utilities and stormwater management facilities and they should not be closer than 10 feet to these utilities. In 2015, the Town opted out of NJSEA zoning control, which allows the Town to have more control over planning and zoning although they still need to comply with NJSEA environmental regulations.</i>					
Subdivisions	Yes	Local and Regional – Zoning and NJ Meadowlands Commission	Yes	Yes	-
<i>Comment: Town Code Ch 119 Subdivision Ordinance adopted 6/22/54. Town Code Ch 9 establishing relationship with NJMC adopted 6/9/59; the Town’s Planning Board is the approving agency for subdivision applications. If there is a question as to the suitability of a lot or lots for their intended use due to factors such as rock formations, flood conditions or similar, the Planning Board may withhold approval of such lots.</i>					
Stormwater Management	Yes	Local and Regional – Zoning and NJ Meadowlands Commission	Yes	Yes	-
<i>Comment: Town Code Ch 116A & 116B Stormwater Management Ordinance adopted 11/28/06 & 2/13/07. Town Code Ch 9 establishing relationship with NJMC adopted 6/9/59. The general standards include stormwater management measures for major development will be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quantity standards. Non-structural stormwater management strategies are encouraged; however, if they are not sufficient to meet the Town’s standards, then structural stormwater management measures are necessary. If structural stormwater measures are needed, they must be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).</i>					
Post-Disaster Recovery	No	-	No	-	-
<i>Comment:</i>					
Real Estate Disclosure	Yes	State - NJ Division of Consumer Affairs	Yes	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: N.J.A.C. 13:45A-29.1; before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	No	-	No	-	-
Comment:					
Site Plan Review	Yes	Local and Regional - Zoning & Engineering; NJSEA	Yes	-	-
Comment: Town Code Ch 19 adopted 2/8/77. Town Code Ch 9 establishing relationship with NJMC adopted 6/9/59					
Environmental Protection	No	-	-	-	-
Comment:					
Flood Damage Prevention	Yes	Local – Construction Department and NJSEA	Yes	Yes	-
Comment: Town Code Ch 76A Flood Damage Protection Ordinance adopted 9/14/82. Town Code Ch 9 establishing relationship with NJMC adopted 6/9/59. The Construction Code Official is the designated Floodplain Administrator for the Town. This ordinance requires a permit to be obtained before construction or development begins in any SFHA. The ordinance also requires that any new construction or substantial improvement of residential and non-residential structures have the lowest floor elevated one foot or higher above the base flood elevation. Any development in the designated floodways is prohibited unless a technical evaluation demonstrates that encroachment will not result in any increase flood levels.					
Emergency Management	Yes	Local - OEM	-	-	-
Comment:					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	Yes	Local	No	Yes	-
Comment: Chapter 19 – Land Use Procedures – outlines the duties of the Planning Board, including: administering the provisions of the land subdivision and site plan review ordinances; and reviewing applications for issuance of a permit for a building or structure in a flood control basin. This chapter also outlines the duties of the Zoning Board of Adjustment, including issuing permits for construction in a flood control basin.					
Planning Documents					
Comprehensive / Master Plan	Yes	Local - Zoning and Planning	Yes	Yes	-
Comment: State mandated if the municipality has a planning board (40:55D-28) and must be re-examined every ten years (40:55D-89.1). The 2009 Reexamination Master Plan was the 5 th reexamination report since the 1979 master plan. As discussed in the County's Master Plan, continuing concern in the Town's plan was adequate growth management for the Town in a regional and local context.					
Capital Improvement Plan	Yes	Local - DPW, Administration	No	-	-
Comment:					
Disaster Debris Management Plan	Yes	County	No	-	-
Comment: Through Hudson County					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Floodplain or Watershed Plan	No	-	No	-	-
Comment:					
Stormwater Plan	Yes	Local and Regional - Zoning & Engineering; NJSEA	Yes	-	-
Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). MERI maps - might not be accurate thought; submit stormwater plan through the state each year					
Stormwater Pollution Prevention Plan	No	-	-	-	-
Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).					
Urban Water Management Plan	No	-	No	-	-
Comment:					
Habitat Conservation Plan	No	-	No	-	-
Comment:					
Economic Development Plan	No	-	No	-	-
Comment:					
Shoreline Management Plan	No	-	No	-	-
Comment:					
Community Wildfire Protection Plan	No	-	No	-	-
Comment:					
Community Forest Management Plan	Yes	Local	No	Yes	-
Comment: Town of Secaucus Community Forestry Management Plan 2014-2018 (September 19, 2014) – developed by the Shade Tree Committee, Environmental Department, Department of Public Works, and Town Administration. The mission of the plan is to insure the quality of life in the Town by providing for the care and management of the community tree resources through sustainable tree planning, tree maintenance, hazard tree removal, and public outreach. The plan includes goals regarding invasive species and their impact on the tree population (e.g. Emerald Ash Borer) and storm preparation (pre-storm assessment report and preparing for collection post-storm information). This plan is incorporated into the day-to-day operations of the Shade Tree Committee, Environmental Department, and Department of Public Works. Tree inventories are done to determine tree cover, identify maintenance needs, and generate benefit reports using i-Tree inventory software. This inventory also assists with hazard tree identification to determine any hazardous trees. The DPW continually maintains a tree crew that is dedicated to tree maintenance two days each month. Trees are pruned to help improve tree health and structural stability. Tree identification and maintenance helps reduce the potential of downed trees during storm events.					
Transportation Plan	Yes	Local	No	-	-
Comment: Part of the Town's EOP					
Agriculture Plan	No	-	No	-	-
Comment:					
Climate Action Plan	Yes	Local	No	-	-
Comment: Environmental Coordinator on staff - part of the day-to-day duties to research and implement things to do around the town					
Tourism Plan	No	Local	No	-	-
Comment: not a formal plan but working with Meadowlands Chamber of Commerce - working with everyone in the Meadowlands in preparation for the opening of the areas					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated	Has this been integrated? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Business Development Plan	No	-	No	-	-
Comment:					
Other	Yes	Local and County	No	Yes	-
Comment:					
<ul style="list-style-type: none"> • <i>Comprehensive Economic Development Strategy for Hudson County (August 22, 2016) – This is an update of the 2010-2014 CEDS Regional Plan for Hudson County. It identified several projects that would address flooding in the County, including a flood wall in the Town of Secaucus.</i> • <i>Open Space and Recreation Plan (February 18, 2014) – adopted by Town Council and Planning Board – this plan is part of the Master Plan for development and redevelopment. Several goals of this plan is to work with NJSEA to restore important wetlands in the town. The plan discusses that the edges of the Town are floodprone and as climate change continues, the risk of flooding becomes greater. To reduce this risk, the plan states that preserving these areas from development is critical in mitigating climatic effects. The Town continue to work towards acquiring open space, at the local, county and regional level, to support environmentally sensitive areas (floodplains, wetlands, and aquifer recharge areas).</i> 					
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Local - OEM	Yes	-	-
Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The Town has an Emergency Operations Plan (EOP) that is updated every 4 years. It was last updated in February 2019 and will be updated again in 2023.					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	No	-	-	-	-
Comment:					
Continuity of Operations Plan	Yes	Local – OEM	No	-	-
Comment: Part of the Town’s EOP					
Public Health Plan	Yes	Local - OEM	No	-	-
Comment: Part of the Town’s EOP					
Other	No	-	-	-	-
Comment:					

Table 9.10-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes – the Construction Department issues the permits. However, any development is a two-step process. Applications go to the Zoning Department first then the Construction Department.
Does your jurisdiction have the ability to track permits by hazard area?	No – the Town can only track by block/lot and address
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No – 88% of the land falls under NJSEA jurisdiction. Any development that falls under NJSEA, applications are filed with NJSEA. New development goes through zoning and then permitting is done through building/construction. For land outside of NJSEA, zoning remains in the Town and follows the Town’s zoning ordinance.





9.10.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of Secaucus.

Table 9.10-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Town of Secaucus Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Town of Secaucus Environmental Department, Environmental Advisory Committee, Shade Tree Committee
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Swift Reach (reverse 911) - email, voice and text, variable message boards, fire house whistles, social media (Facebook, municipal website)
Maintenance program to reduce risk	Yes	tree maintenance, culvert cleaning, street maintenance, etc.
Mutual aid agreements	Yes	police, fire (Bergen and Hudson), EM - thru the OEMS and county, Title 40 Statutes are the agreements with surrounding communities
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Remington & Vernick Engineering, Boswell Engineering, and municipal staff engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	The Town is a Class 1 municipality and has licensed code officials on staff. The Town also has an environmental consultant through a professional services agreement. Engineers include Remington & Vernick Engineering, Boswell Engineering, and municipal staff engineers
Planners or engineers with an understanding of natural hazards	Yes	Engineers - Boswell Engineering, municipal staff engineers, Remington & Vernick Engineering; Planners - consulting planner is Clarke Caton Hintz
Staff with training in benefit/cost analysis	Yes	Chief Financial Officer and grant coordinator on staff
Staff with training in green infrastructure	No	-
Staff with education/knowledge/training in low impact development	No	-
Surveyors	Yes	Public Services Agreement with Boswell Engineering, Matrix Engineering, and the Feraldo Group
Stormwater engineer	No	-
Personnel skilled or trained in GIS applications	Yes	Technical Assistant
Local or state water quality professional	No	-
Scientist familiar with natural hazards in local area	Yes	Environmental consultant - Ellas Environmental
Emergency manager	Yes	OEM Director
Watershed planner	No	-
Environmental specialist	No	-
Grant writers	Yes	Grant Coordinator and contracts Millennium Strategies
Resilience Officer	No	-
Other	Yes	The Town performs property maintenance inspections of municipal and private properties to identify any





Staff/Personnel Resource	Available?	Department/Agency/Position
		drainage blockages, areas that need to be cleaned out to improve flow, and work with private property owners. In the event of a FEMA disaster declaration, the Town utilizes a consultant to assist with FEMA project worksheets, etc.

9.10.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Town of Secaucus.

Table 9.10-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes; however, it depends the types of projects. Any change in land use applications goes through NJSEA (transportation mitigation). The Town ensures that emergency radios work in these areas.
Clean Water Act 219 Grants (nonpoint source pollution)	No
Other	Yes - NJDOT Local Aid Program for roads & drainage; County Open Space Grants; and NJDEP Green/Blue Acres Program

9.10.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of Secaucus.

Table 9.10-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes - PIO identified in the EOP by title - the town administrator is the PIO
Do you have personnel skilled or trained in website development?	Yes - independent contract with a web developer - Flannegan Productions
Do you have hazard mitigation information available on your website? <ul style="list-style-type: none"> If yes, briefly describe. 	Yes - The Town's website provides a 'News & Announcements' on the main page of the website. Hazard-related information includes notifying residents to relocate their cars to higher ground and where to find emergency shelters. The website also has a link to register for the Swift Reach 911 notification system. The Town uses this system to issue emergency notifications to residents who are registered.
Do you use social media for hazard mitigation education and outreach? <ul style="list-style-type: none"> If yes, briefly describe. 	Yes - The Town has a Facebook page where they post municipal news, events, and emergency notifications.
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes - Shade Tree Commission and Environmental Committee





Criterion	Response
<ul style="list-style-type: none"> If yes, briefly describe. 	
Do you have any other programs already in place that could be used to communicate hazard-related information? <ul style="list-style-type: none"> If yes, briefly describe. 	Yes - The Town has monthly calendars with community events and a town newsletter. Both could be used to communicate hazard-related information to residents.
Do you have any established warning systems for hazard events? <ul style="list-style-type: none"> If yes, briefly describe. 	Yes - Swift Reach Networks notification system

9.10.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of Secaucus.

Table 9.10-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No; however, NJSEA participates	7	5/1/2009
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	3	2019
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

9.10.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the jurisdiction’s adaptive capacity rating for each hazard of concern.

Table 9.10-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	High
Drought	Medium
Earthquake	High
Extreme Temperature	High
Flood	High
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.





9.10.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.10-10. National Flood Insurance Program Compliance

Table with 2 columns: Criterion and Response. Rows include questions about floodplain management, certified managers, ordinance dates, program requirements, assistance visits, outstanding violations, RiskMAP projects, flood hazard maps, staff assistance, CRS participation, flood insurance policies, total loss claims, and property lists.

*According to FEMA statistics as of September 30, 2018

9.10.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

- New Jersey Sports & Exposition Authority (NJSEA) - NJSEA was created in 1971 and is the regional planning and zoning agency for 30.3 square miles of the Hackensack Meadowlands District.





regulatory amendments are retained for review by the NJSEA, as are any applications that are deemed to be vital projects. To date, the Towns of Secaucus and Kearny have chosen to become “opt-out” municipalities.

NJSEA updated the 2004 NJMC Master Plan to evaluate the existing conditions in the District, discuss significant changes since 2004, and highlight the accomplishments, as well as the challenges, to implementing this vision. The draft *Hackensack Meadowlands District Master Plan Update 2020* was completed in August 2019. The updated master plan outlined NJSEA’s resiliency and stewardship efforts, including:

- District zoning regulations require the preparation of a Project Impact Assessment (PIA) to evaluate impacts of new development with respect to the environment, fiscal, emergency services, municipal services, schools, and transportation.
 - District zoning regulations set forth elevation and flood proofing requirements for new buildings, additions, and other structures within FEMA flood areas. The lowest floor must be elevated at least one foot above the base flood elevation.
- All development applications are reviewed for conformance with NJSEA stormwater drainage requirements. For those areas that lie with FEMA’s SFHA, the NJSEA staff reviews all development applications for conformance with the District Floodplain Management Regulations. In addition, the District zoning regulations require the submission of an Operations and Maintenance (O & M) Manual for all approved stormwater drainage systems to ensure that systems remain operational.
 - Participating in the CRS program and maintain the classification for the Meadowlands District. Currently, NJSEA is a CRS Class 7 community which results in a 15% discount on NFIP policies issued through the NFIP.
 - Currently updating the Hackensack Meadowlands Floodplain Management Plan (adopted in 2005).
 - Collects, logs, and assesses flooding complaints on individual properties and inspects the District for flood impacts following severe weather events. NJSEA engineers are available meet with property owners for on-site inspections and to discuss stormwater drainage options with the property owners.
 - Evaluates the functionality of all tide gages and pump stations located within the District.
 - Inspects waterways and ditches in the District to ensure adequate stormwater conveyance capacity.
 - Coordinates with municipalities and counties for removal of stream debris and tide gate repairs
 - Provides and maintains equipment for use by municipal workers to assist municipalities in the District with maintenance issues
 - In conjunction with MERI, monitors water levels in the District using equipment stationed at tide gates. The data is collected and relayed to the public in real time. This provides warnings to first responders and residents when water levels rise during tidal events, heavy rain events, and storms.
 - Continues to work on preserving and restoring wetlands To date, approximately 3,500 acres of wetlands have been preserved and/or restored, three-quarters of which are owned by the NJSEA or the Meadowlands Conservation Trust, providing floodwater storage capacity and habitat protection.

9.10.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Town of Secaucus’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.10-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.





Table 9.10-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas (FEMA-DR-4264)	Yes	Low pressure moving across the deep South on Thursday January 21st and Friday January 22nd intensified and moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in and out of airports lagged through Monday January 25th as airlines pre-emptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	While this event impacted Hudson County; the Town did not identify any losses or damages
September 25, 2018	Flash Flood	N/A	Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Precipitable water values increased from 1.84 on the morning sounding from Upton, NY to 2.13 by evening. Both of these values are above the 90th percentile based on a sounding climatology, with the 2.13 precipitable water value on the evening of the 25th a record for the date. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	While this event impacted Hudson County; the Town did not identify any losses or damages

9.10.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.10-12 summarizes the Town of Secaucus’s risk assessment results and data used to determine the hazard ranking.





A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.



Table 9.10-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	510	CEHA:	80	CEHA:	\$97,954,723	High
		SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$2,099,959	
		SLR +3ft:	196	SLR +3ft:	49	SLR +3ft:	\$194,480,856	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	1,813	Category 1:	446	100-year Wind Loss:	\$4,072,852	High
		Category 2:	8,700	Category 2:	1,627			
		Category 3:	11,356	Category 3:	2,183	500-year Wind Loss:	\$33,933,347	
		Category 4:	14,244	Category 4:	2788			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	4,734	NEHRP D&E:	695	100-year Loss:	\$278,057	High
		Liquefaction Class 4:	4,865	Liquefaction Class 4:	713	500-year Loss:	\$37,091,903	
						2,500-year Loss:	\$470,204,175	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,191	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	1,311					
Flood	100- and 500-Year Mean Return Period Event	100-year	5,057	100-year	969	100-year Loss:	\$112,934,210	High
		500-year	5,660	500-year	1,143			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	1,325	Wildfire:	52	Wildfire:	\$368,288,416	Moderate





9.10.7.1 REPETITIVE FLOOD LOSSES

The following summarizes the repetitive and severe repetitive flood losses in the Town of Secaucus.

- Number of repetitive loss (RL) properties: 11
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.10.7.2 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.10-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Kiddie Academy Of Secaucus	Child Care	X	X	2020-SECAUCUS-004
Harmony Early Learning Center	Child Care	X	X	2020-SECAUCUS-004
Kiddie Castle Day Care Center, Inc.	Child Care	X	X	2020-SECAUCUS-004
Equinex*	Electric Substation	X	X	2020-SECAUCUS-004
Secaucus Fire Department Engine Company 3*	Fire	X	X	This building does not flood; however, access roads to this facility become inundated. The Town has implemented procedures to put in place prior to a flooding event.
Amerada Hess Corp. Secaucus Terminal	Hazmat	X	X	2020-SECAUCUS-004
Amerada Hess Corp. Secaucus Terminal	Hazmat	X	X	2020-SECAUCUS-004
Meadowlands Hospital Medical Center*	Hospital	X	X	2020-SECAUCUS-004
Secaucus Public Library & Business Resource Center	Library	X	X	2020-SECAUCUS-004
Secaucus Junction Upper Level	Rail	X	X	2020-SECAUCUS-004
Secaucus Junction Lower Level	Rail	X	X	2020-SECAUCUS-004
Secaucus High School	School	X	X	This building does not flood; however, access roads to this facility become inundated. The Town has implemented procedures to put in place prior to a flooding event.
Secaucus Middle School	School	X	X	This building does not flood; however, access roads to this facility become inundated. The Town has implemented procedures to put in place prior to a flooding event.
Secaucus Recreation Center*	Shelter	X	X	This building does not flood; however, access roads to this facility become inundated. The Town has implemented procedures to put in place prior to a flooding event.
Koelle Boulevard Sewerage Treatment*	Wastewater Treatment	X	X	This facility is owned and operated by the Secaucus MUA. Refer to Section 9.18 for details on this facility.

*Identified lifeline

9.10.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:





- Meadowlands Parkway – flooding occurs on both the northbound and southbound shoulders of the road, leading to traffic delays and closed roadways (Hackensack Meadowlands Floodplain Management Plan 2005).
- Penhorn Avenue – flooding occurs along Penhorn Avenue during moderate rain events.

9.10.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of Secaucus that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Secaucus has significant exposure. Refer to Figures 9.10-1 and 9.10-2 at the end of this annex.

9.10.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Secaucus. The Town of Secaucus has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town agreed with the calculated hazard ranking.

Table 9.10-14. Town of Secaucus Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	High	High	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

9.10.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.10.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table





with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.10-15. Status of Previous HMP Mitigation Actions

2015 Action Number	Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
				Check if Yes	Enter 2020 HMP Action #
SEC-1	Install check valves on collection system discharges subject to tidal influence at terminus of Paterson Plan Road, Meadowlands Parkway and Route 3 East exit ramp, Plaza Center Drive and Route 3 East	DPW	No Progress	Yes	2020-SECAUCUS-003
SEC-2	Plaza Center Discharge - Installation of check valves within the town’s stormwater conveyance, upstream of the connection with the NJDOT system to stop storm surges from entering downtown Secaucus.	DPW	Completed	-	-
SEC-3	Provide stand-by power at Huber School which is used as medical clinic/ emergency shelter when Meadowlands Hospital is unavailable	Engineering	Completed	-	-
SEC-4	Upgrade Boat USCG and SFD Launch on Meadowlands Parkway To enhance response time to waterborne emergencies and disasters.	USCG	Complete	-	-
SEC-5	Dual fuel system for existing 850 kW emergency generator	Secaucus MUA	Complete	-	-
SEC-6	New emergency generator to provide an additional source of power to maintain pumping operations	Secaucus MUA	Complete	-	-
SEC-7	Construction of a new pumping station and piping network to enhance pumping capacity at Born Street Station	DPW	Complete	-	-
SEC-8	Installation of permanent back-up generators at Secaucus Library and OEM Office, 1379 Paterson Plank Rd., which can function to facilitate OEM operations and a shelter	OEM	Complete	-	-
SEC-9	Koelle/Valley - Installation of flood barriers to prevent flooding in the eastern residential portion of the Town	DPW	Complete	-	-
SEC-10	Replacement of the Koelle Tide Gate at Central Lane.	DPW	Complete	-	-
SEC-11	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL - 6 currently), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners.	Municipal FPA	Ongoing Capability	-	-

In addition to the above progress, the Town of Secaucus has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:





- The Town has a berm system in place to protect pump stations from flooding.

9.10.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of Secaucus participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Town of Secaucus participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.10-16 summarizes the comprehensive-range of specific mitigation initiatives the Town of Secaucus would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.10-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.10-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-SECAUCUS-001	Repetitive Loss Properties	Problem: There are 11 repetitive loss properties in the Town of Secaucus. These 11 properties have been repetitively flooded as documented by paid NFIP claims.	Existing	Coastal Storm, Flood, Severe Weather	1, 2	<u>Town Floodplain Administrator</u>	Municipal Budget for outreach; if interest in mitigating, Town will seek grant funding	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage (if acquiring properties)	<\$10,000+ for outreach	Within 2 years	High	EAP, SIP	PR, PP
		Solution: Conduct outreach to 11 floodprone property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement mitigation measures.											
2020-SECAUCUS-002	Hackensack Waterfront Flood Wall	Problem: The waterfront area of the Town is prone to tidal flooding. Some work has been done but additional work needs to be completed.	New and Existing	Coastal Storm, Flood, Severe Weather	1, 2, 6	<u>Town Engineer</u>	Municipal Budget	Project waterfront area from flood damages	\$800,000	5 years	Medium	SIP	PP
		Solution: In the fall of 2015, the first 400 feet of wall was constructed (\$191,000). The final wall is expected to be 2,000+ feet. It will protect the waterfront area in the second ward from flooding.											
2020-SECAUCUS-003	Check Valves on Collection System Discharges	Problem: There are several areas in the Town that are subject to tidal flooding and can become inundated with water. This results in road closures, limits access for emergency vehicles, and creates a hazard for residents.	Existing	Coastal Storm, Flood, Severe Weather, Severe Winter Weather	1, 2, 6	<u>Town DPW, Town Engineer</u>	FEMA HMGP, Municipal Budget	Reduce or eliminate tidal flooding along roadways in the Town	\$10,000+	5 years	Medium	SIP	PP, SP
		Solution: Install check valves on collection system discharges subject to tidal influence at terminus of Paterson Plan Road, Meadowlands Parkway and Route 3 East exit ramp, Plaza Center Drive and Route 3 East											
	Critical Facility Outreach	Problem: There are 10 critical facilities located in the Town that are found	Existing	Flood	1, 2		Municipal Budget	Increase awareness	\$5,000+		High	EAP	PI





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-SECAUCUS-004		<p>within the 1% flood area. The Town does not own these facilities and cannot enforce mitigation of the structures.</p> <p>Solution: The Town will implement an outreach program to inform facility owners and operators that their structure is located in the floodplain and may experience flood damage. The Town will provide information on mitigation which will include options to protect the structures. If the facility chooses to elevate, acquire or relocate, the Town will work with them to develop a grant application.</p>				Town Floodplain Administrator		of hazards, provides solutions to protect from flooding		Within 2 years			

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.10-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-SECAUCUS-001	Repetitive Loss Properties	1	1	1	1	1	1	0	0	0	1	0	1	1	0	9	High
2020-SECAUCUS-002	Hackensack Waterfront Flood Wall	1	1	1	1	1	0	0	1	0	1	1	0	0	0	7	Medium
2020-SECAUCUS-003	Check Valves on Collection System Discharges	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2020-SECAUCUS-004	Critical Facility Outreach	1	1	1	1	1	1	1	0	0	1	0	1	1	0	10	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.10-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise								
Coastal Storm		-001, -002, -003	-001			-001, -002, -003		
Dam and Levee Failure								
Drought								
Earthquake								
Extreme Temperature								
Flood		-001, -002, -003	-001, -004			-001, -002, -003		
Geologic								
Severe Weather		-001, -002, -003	-001			-001, -002, -003		
Severe Winter Storm		-003				-003		
Wildfire								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.10.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Town of Secaucus followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.10-19. Contributors to the Annex

Name	Title	Method of Participation
Kevin O’Connor	DPW Superintendent	Identified point of contact during planning process, attended meetings, provided input
Vincent Massaro, Jr.	OEM Coordinator	Identified point of contact during planning process, attended meetings, provided input on municipal annex, provided mitigation strategies





Figure 9.10-1. Town of Secaucus Hazard Area Extent and Location Map 1

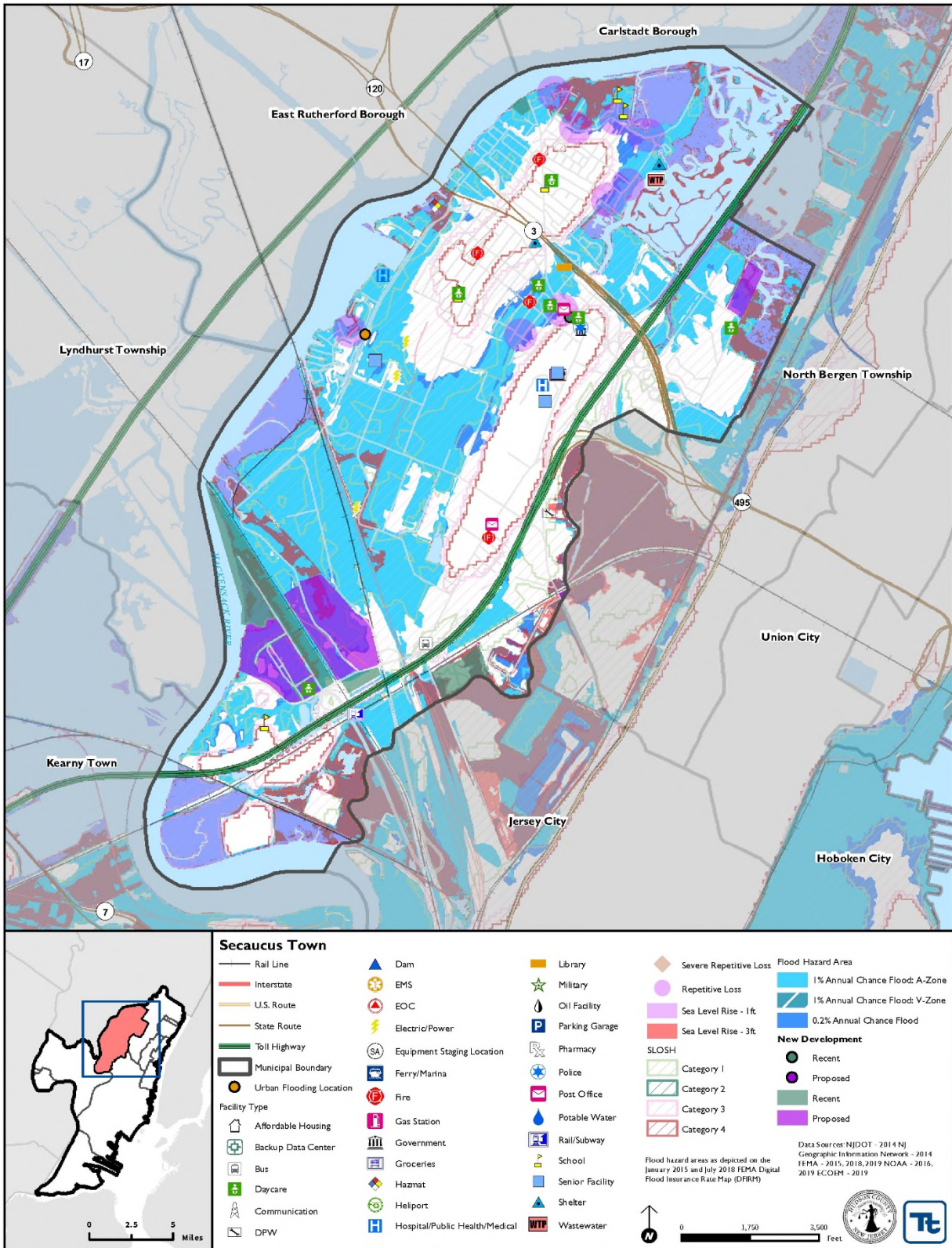
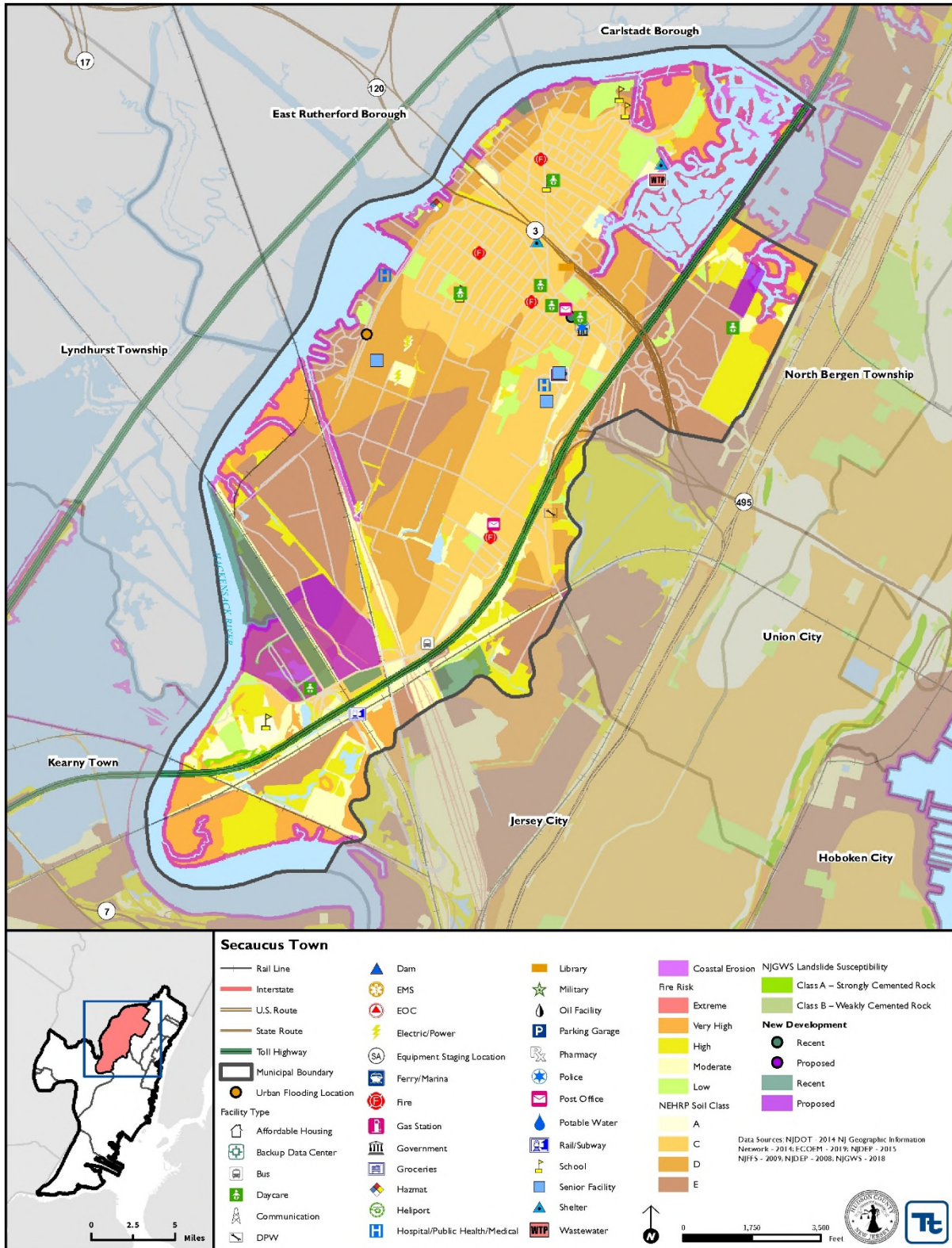




Figure 9.10-2. Town of Secaucus Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	Check Valves on Collection System Discharges		
Project Number:	2020-SECAUCUS-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	There are several areas in the Town that are subject to tidal flooding and can become inundated with water. This results in road closures, limits access for emergency vehicles, and creates a hazard for residents.		
Action or Project Intended for Implementation			
Description of the Solution:	Install check valves on collection system discharges subject to tidal influence at terminus of Paterson Plan Road, Meadowlands Parkway and Route 3 East exit ramp, Plaza Center Drive and Route 3 East		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce or eliminate tidal flooding along roadways in the Town
Useful Life:	10 years	Goals Met:	1, 2, 6
Estimated Cost:	\$10,000+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	FEMA HMGP, Municipal Budget
Responsible Organization:	Town DPW, Town Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate all structures in the area	\$1 million+	Not feasible; not all structures experience flood damage; costly
	Elevate roadways	\$1 million+	Not feasible; homes and buildings will still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Check Valves on Collection System Discharges	
Project Number:	2020-SECAUCUS-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents and business owners from flooding
Property Protection	1	Protect roadways and infrastructure from flood damage
Cost-Effectiveness	1	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Outside funding is sought to implement
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	Within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





CITY OF UNION CITY

MUNICIPALITY AT A GLANCE

Total Population: 69,815
 Total Land Area: 1.29 sq. mi
 Total Number of Buildings: 1,729



Hurricane Storm Surge



Population



Buildings

Category 1*	0	0
Category 2*	0	0

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$6,821,114

Potential Building Damages

1% Annual Chance Flood



0

Population residing in floodplain



0

Buildings in floodplain



0

Critical facilities in floodplain

4

Persons that may seek shelter

\$0

Potential building damages

NFIP Statistics



0 # NFIP Policies

0 # WYO Policies

0 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations

High Ranked Hazards



Extreme Temperature, Severe Storm, Severe Winter Storm



9.11 City of Union City

This section presents the jurisdictional annex for the City of Union City. The annex includes a general overview of the City of Union City; an assessment of the City of Union City’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.11.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the City of Union City’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.11-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Ralph Tango, Engineer Address: 400 Valley Road, Mount Arlington, NJ 07856 Phone Number: 973-216-8668 Email: rtango@maserconsulting.com	Name / Title: Mario Boron, OEM Director/Coordinator; Susan Colditz, Finance Director Address: 3715 Palisade Ave. 3 rd floor-Union City, NJ 07087 Phone Number: 201-348-5779; 201-348-5846 Email: ucnjoem@ucnj.com; scolditz@ucnj.com
NFIP Floodplain Administrator	
Name / Title: Marty Martinetti, Building Code Official Address: 3715 Palisade Ave. 2 nd floor-Union City, NJ 07087 Phone Number: 201-348-5710 Email: ldiaz@ucnj.com	

9.11.2 JURISDICTION PROFILE

Union City is located at 40°46’4”N, 74°1’55”W (40.767651, -74.031833). It is bordered by North Bergen in the west and West New York to the north, Weehawken to the east, and Hoboken to the southeast and Jersey City to the south. According to the United States Census Bureau, the city has a total area of 1.3 sq. mi (3.3 km²). All of it is land and none of it is covered by water. It meets with Jersey City along Paterson Plank Road while Kennedy Boulevard divides Union City and North Bergen right down the west side of the city with the exception of a small portion of Kennedy Boulevard which is entirely in Union City from 32nd Street to 39th Street. The City is only two miles from New York City via the Lincoln Tunnel, one mile to the New Jersey Turnpike, four miles from the Garden State Parkway, and is situated at the junction of Route 495, Route 3, and U.S. Route 1/9.

The area of what is today Union City was originally inhabited by the Lenape, but was later settled by Germans in 1851, which moved across the Hudson River from New York City in search of affordable land and open space. From the mid-1800s to the early 1900s, German Americans and Dutch dominated the area. They, along with Swiss and Austrian immigrants, founded the European-style lace making industries, for which they were famous. Union City and West New York became the "embroidery capitol of the United States", and the area between what is now Palisade and Bergenline Avenue, from 22nd to 32nd Street was a Civil War installation called Camp Yates. Trolleys began to operate in West Hoboken and Union Hill in 1890, after the area was electrified. The area on which Roosevelt Stadium stood was part of a farm called Kerrigan Farm. The street that now runs from 15th Street to 25th and ends at the stadium site is called Kerrigan Avenue. The embroidery industry's trademark is on the Union City Seal. At the turn of the 20th century, Irish





and Italian immigrants came to the city, and dominated the city until the late 1960s. The first Cubans immigrated to Union City in the 1940s, having been attracted to the city in search of work after hearing of its famed embroidery factories. Successive waves of immigrants from Eastern Europe, the Near East and Latin America have contributed imagination and skill to the industry in subsequent years. Then, as today, Union City is a destination for immigrants because it serves as a more affordable and less congested alternative to Manhattan. The Hudson County Master Plan Re-Examination Report notes that 62.86% of residents in Union City are foreign born (Hudson County 2013).

Union City was incorporated on June 1, 1925 by merging the two towns of West Hoboken and Union Hill. One of the city's two high schools, Union Hill High School, continues to bear the name that former town to this day. After World War II, veterans relocated to Bergen County, causing a short-lived decline in the population. The easternmost streets of Union City, in particular Mountain Road and Palisade Avenue, boast some impressive views of neighboring Weehawken, Hoboken and the New York City skyline, a feature which, in the aftermath of the September 11, 2001 attacks, was exploited by numerous Union City citizens, such as those who stood in the courtyard of the Union City Boxing Club to view the event's aftereffects. A piece of wreckage from the attack was used to create a monument that now stands in that courtyard.

The estimated 2017 population was 66,455, which is a 4.8 percent decrease in population from the 2010 Census (69,815). Data from the 2017 U.S. Census American Community Survey estimates that 6.3 percent of the City population is five years of age or younger, and 10.5 percent is 65 years of age or older.

Union City is governed by the Board of Commissioners. Five members comprise the Union City Board of Commissioners and serve in both administrative and legislative capacities. Each commissioner acts as the director of one of the five major department of the City, administering the daily operations of his or her department. The five major department of Union City government are Public Safety, Revenue and Finance, Parks and Public Properties, Public Works, and Public Affairs. When they act collectively as a Board, the Commissioners conduct the business of the city, such as adopting the city budget and passing resolutions and ordinances. The commissioners decide among themselves who will be the position of Mayor.

9.11.3 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 understanding a jurisdiction's overall risk to its hazards of concern. Table 9.11-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figures 9.11-1 and 9.11-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.





Table 9.11-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	0
Multi-Family	0	0	1	1	1
Other (commercial, mixed-use, etc.)	0	0	1	0	2
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Hudson Yards West	Multi Family	78 units	3309 Hudson	N/A	Site plan approval
PBG Realty	Multi Family	208 units	2207 Summit	N/A	Site plan approval

* Only location-specific hazard zones or vulnerabilities identified.

9.11.4 CAPABILITY ASSESSMENT

The City of Union City performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.11.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the City of Union City.

Table 9.11-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 4-52. Administered by the Construction Code Official.</i>					
Zoning Code	Yes	Local	Yes	No	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 223. Administered by the City Zoning Officer.					
Subdivisions	Yes	Local	Yes	No	-
Comment: Chapter 223. Administered by the City Zoning Officer and Building Subcode Official.					
Stormwater Management	Yes	Local	Yes	Yes/No	-
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); NJAC:7:14A-23. Administered by the North Hudson Sewage Authority.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	Yes	Local	Yes	No	-
Comment: State mandated at local level; Chapter 370. Administered by the Planning Board.					
Shoreline Development	No		Yes	Yes/No	No
Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.					
Site Plan Review	Yes	Local	No	No	-
Comment: Chapter 4-52. Administered by the Building Department.					
Environmental Protection	Yes	Local	Yes	No	
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Steep Slope Ordinance.					
Flood Damage Prevention	Yes	Local	Yes	No	-
Comment: Chapter 175. The ordinance does not include freeboard. Administered by the Construction Code Official.					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	No	-	-	-	-
Comment:					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment: April 2009, Reexamination Report January 2019. Administered by the Board of Commissioners. The Reexamination Report discusses smart growth, eliminating sub-standard properties through code enforcement, education, and ordinance updates; adaptive reuse of structures; adopting a streetscape plan; and encouraging open space.</i>					
Capital Improvement Plan	Yes	Local	Allowed	No	Yes/No
<i>Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. Administered by the Planning Board.</i>					
Disaster Debris Management Plan	No	-	-	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	-	-	-
<i>Comment:</i>					
Stormwater Management Plan	No	-	-	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).</i>					
Stormwater Pollution Prevention Plan	No	-	-	-	-
<i>Comment:</i>					
Urban Water Management Plan	No	-	-	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	-	-	-
<i>Comment:</i>					
Economic Development Plan	Yes	Local	No	No	-
<i>Comment: Chapter 223 of the municipal code. Administered by the Community Development Agency, City Redevelopment Board.</i>					
Shoreline Management Plan	No	-	-	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	-	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	-	-	-
<i>Comment:</i>					
Transportation Plan	No	-	-	-	-
<i>Comment:</i>					
Agriculture Plan	No	-	-	-	-
<i>Comment:</i>					
Climate Action Plan	No	-	-	-	-
<i>Comment:</i>					
Tourism Plan	No	-	-	-	-
<i>Comment:</i>					
Business Development Plan	No	-	-	-	-
<i>Comment:</i>					
Other	Yes	Local	No	No	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
<i>Comment: The City has various redevelopment plans.</i>					
County Master Plan Reexamination	Yes	County	Yes	Yes	-
<i>Comment: The County Master Plan Re-Examination Report of 2017 reviewed municipal plans throughout the County and referenced the Hudson HMP.</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9 43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The Municipal Emergency Operations Plan is administered by the Emergency Management Office.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	No	-	-	-	-
<i>Comment:</i>					
Continuity of Operations Plan	No	-	-	-	-
<i>Comment:</i>					
Public Health Plan	No	-	-	-	-
<i>Comment:</i>					
Other	No	-	-	-	-

Table 9.11-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes; Building Department
- If no, who does? If yes, which department?	
Does your jurisdiction have the ability to track permits by hazard area?	No, the Building Department lacks GIS
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes; Rent Control and Building Dept have vacant lot inventory and abandoned structure

9.11.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the City of Union City.

Table 9.11-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available ?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Hudson regional health commission
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-





Staff/Personnel Resource	Available ?	Department/Agency/Position
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Reverse, Nixle through the county, electronic boards, social media, city website
Maintenance program to reduce risk	Yes	North Hudson Sewerage authority, DPW and Public service do annual tree trimming
Mutual aid agreements	Yes	Police, EMS, Fire is regional
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	David Spatz, Professional Planner and Ralph Tango, City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Martin Martinetti & Sal Ferlise, Union City Building Department; Ralph Tango, City Engineer
Planners or engineers with an understanding of natural hazards	Yes	David Spatz, Professional Planner; Ralph Tango, City Engineer
Staff with training in benefit/cost analysis	Yes	Maser Consulting; Municipal Division
Surveyors	Yes	Maser Consulting; Municipal Division
Personnel skilled or trained in GIS applications	Yes	Sue Zitzman, Maser Consulting
Scientist familiar with natural hazards in local area	Yes	Maser Consulting, Environmental Division
Emergency manager	Yes	Mario Boron, OEM Coordinator
Grant writers	Yes	David Spatz, Professional Planner; Ralph Tango, City Engineer
Resilience Officer	No	-
Other	Yes	Snow Emergency Committee (can be used for any kind of forecasted hazard)

9.11.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the City of Union City.

Table 9.11-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

9.11.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the City of Union City.





Table 9.11-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	No, just the Mayor’s office
Do you have personnel skilled or trained in website development?	Alpha Dog and the Clerk
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes, information is posted as necessary
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes, information is posted through various social media
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes, Community meetings with police department, several times a week
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes, Fire and lockdown drills at schools, Active shooter trainings/drills (schools, mosque, Jewish Community Center)
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes; Reverse, Nixle through the county, electronic boards, social media, city website.

9.11.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the City of Union City.

Table 9.11-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	No	-	-

9.11.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? No.
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? No

The table below summarizes the jurisdiction’s adaptive capacity rating for the hazards of concern.





Table 9.11-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	N/A
Coastal Storm	Medium
Drought	Medium
Earthquake	Low
Extreme Temperature	Medium
Flood	N/A
Geological Hazards	Low
Severe Storm	Medium
Winter Storm	High
Wildfire	N/A
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.11.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.11-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Building Department
Who is your floodplain administrator? (name, department/position)	Marty Martinetti, Building Code Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2013
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	Union City Police Department Community Meetings
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Would like any training opportunities
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No, no.
How many flood insurance policies are in force in your jurisdiction? * • What is the insurance in force? • What is the premium in force?	Policies in force: 0 Insurance in force: \$0 Premium in force: \$0
How many total loss claims have been filed in your jurisdiction? * • How many claims are still open or were closed without payment?	Total loss claims: 0 Claims open or closed without payment: \$0





Criterion	Response
• What were the total payments for losses?	Total payments for losses: \$0
Do you maintain a list of properties that have been damaged by flooding?	N/A
Do you maintain a list of property owners interested in flood mitigation?	No

9.11.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.11.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the City of Union City made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- Emergency Medical: Union City Emergency Medical Services provided ambulance, first aid, and emergency medical services to Union City residents. UCEMS is not a volunteer squad, but employs paid emergency medical technicians.
- Union City Redevelopment Agency: The mission of the Redevelopment Agency of the City of Union City is to improve blighted areas of Union City, encourage economic development, encourage the development of housing for low and moderate income households within Union City and encourage compliance with and implementation of Union City master plan. The UCRA agency will participate with the City of Union City, Hudson County, the State of New Jersey and other public entities, as appropriate, in implementing its mission.

9.11.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the City of Union City will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- The flood damage prevention ordinance needs to be updated to include the state’s 1 foot freeboard requirement.
- The City could gain access to and incorporate climate change data.

9.11.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The City of Union City’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.11-11 provides details regarding municipal-specific loss and damages the City experienced during





hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.11-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion	Yes, DR-4264	Low brought heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. The City was reimbursed \$471,620.06 for snow removal and overtime costs.

Notes:

9.11.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the City of Union City. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.11-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	0	CEHA:	\$0	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	0	Category 1:	0	100-year Wind Loss:	\$6,821,114	High
		Category 2:	0	Category 2:	0			
		Category 3:	0	Category 3:	0	500-year Wind Loss:	\$61,891,735	
		Category 4:	0	Category 4:	0			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	0	NEHRP D&E:	0	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	\$6,325,027	
						2,500-year Loss:	\$102,824,966	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	7,340	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	16,057					
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	0	100-year Loss:	\$0	High
		500-year	0	500-year	0			
Geological	High Landslide Susceptibility Areas	Class A:	805	Class A:	22	Class A:	56956432.98	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





9.11.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the City of Union City.

- Number of repetitive loss (RL) properties: 0
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: The number of SRL properties excludes RL properties. RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.11.7.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.11-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
None identified					

9.11.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- Numerous critical facilities require backup power or upgrades to backup power equipment to sustain critical services such as City Hall, Ambulance Corps building, and Jose Martinez School.
- The roof on both City Hall and the EMS building are degraded and in need of replacement to protect critical functions.
- OEM requires additional emergency vehicles to protect continuity of operations and allow for continued and mobile communication during hazard events.
- The Building Department requires access to GIS technology.
- 33rd Street requires realignment to allow for proper evacuation.

9.11.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Union City that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the City of Union City has significant exposure. Figures 9.11-1 and 9.11-2 illustrate the hazard area extent and locations in the City of Union City.

9.11.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people,





property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Union City. The City of Union City has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the City changed the hazard ranking of flood from low to medium. The City has low flood exposure but can still occasionally experience urban flooding.

Table 9.11-14. City of Union City Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Low	Medium	Medium	Low	High	Medium
Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure	
Low	High	High	Medium	N/A	

9.11.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.11.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.11-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
UC-1: Installation of an emergency generators at below facilities: --City Hall - Emergency Medical Services Headquarters -Jose Martinez Freshman Academy -Bruce Walter School Recreation Center	City Engineer	No progress, Jose Martin School generator project was withdrawn/not obligated for HMA funding.	X	2020-City of Union City -003
UC-2: Upgrade the Emergency Services Radio System to allow for	Police Department	Complete		





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
effective response and communication				
UC-3: Purchase an additional Emergency Services Unit vehicle that will be used for emergency response	City/ Police Department	No progress	X	2020-City of Union City -004
UC-4: Work closely with the North Hudson Sewage Authority to address localized flooding issues	City Engineer	Ongoing Capability		
UC-5: Review the municipal zoning ordinances and Master Plan to determine if amendments are required to address hazard mitigation to include protection of the Palisades.	Planning/Zoning	Ongoing Capability		

In addition to the above progress, the City of Union City has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- Traffic study took place for new parking garage, school, and park.

9.11.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The City of Union City participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The City of Union City participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix C (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.11-16 summarizes the comprehensive-range of specific mitigation initiatives the City of Union City would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.11-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.11-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-City of Union City-001	Realignment of 33 rd Street	33 rd Street is an evacuation route but is not aligned to allow for safe and efficient evacuation.	The City will conduct a traffic study/feasibility assessment to determine the best way to reduce evacuation times by realigning 33 rd Street. The City will implement the identified design.	Existing	All hazards	1, 2, 6	City Engineer	HMGP, CDBG, Municipal budget	Efficient evacuations.	TBD by study/assessment	Within 5 years	High	SIP	ES
2020-City of Union City-002	Retrofit City Hall and EMS buildings	The roof on both City Hall and the EMS building have been damaged by storm events and are in need of replacement to protect critical functions.	Replace roof on City Hall and EMS building and retrofit to strengthen each facility.	Existing	Severe Weather, Severe Winter Storm, Coastal Storm	2, 6	City Engineer	HMGP, CDBG, Municipal budget	Continuity of operations	\$80,000	Within 3 years	High	SIP	PP
2020-City of Union City-003	Installation of an emergency generators at critical facilities	Critical facilities require backup power.	Installation generators at the following facilities: --City Hall - Emergency Medical Services Headquarters -Jose Martinez Freshman Academy -Bruce Walter School Recreation Center	Existing	All hazards	1, 2, 6	City Engineer	HMGP	Continuity of operations maintained	High	Within 5 years	High	SIP	ES
2020-City of Union City of Union City-004	Emergency Services Unit vehicle	The City requires an additional emergency services unit vehicle.	Purchase an additional Emergency Services Unit vehicle that will be used for emergency response	N/A	All hazards	1, 2	OEM	Homeland Security Grant	Increased emergency capabilities	High	Within 5 years	High	SIP	ES
2020-City of Union City -005	GIS technology for Building Department	The GIS Department does not have the ability to	Purchase GIS technology for Building Department and train staff.	N/A	All hazards	2, 4	Building Department	Municipal budget	Ability to track permit by hazard	Medium	Within 5 years	Medium	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		track permits by hazards.												
2020-City of Union City-006	Street paving and curb replacement	47th Street, 49th Street, and Brown Street require street paving and curb replacement to prevent urban flooding issues and damage from snow events.	Repave and replace curbs on 47th Street, 49th Street, and Brown Street.	Existing	Severe Weather, Flood, and Severe Winter Storm.	2, 3	City Engineer, Public Works	Municipal budget, CDBG	Roadways able to be cleared of precipitation during storm events	TBD	Within 5 years	Medium	SIP	PP
2020-City of Union City -007	Climate change resources	The City lacks climate change projection information.	Assign point of contact to gather climate change materials from local universities and state agencies.	N/A	All hazards	1, 2, 3, 4, 5, 6	Administration	Municipal budget	Increased education and capability of staff	Staff time	Within 6 months	High	LPR	PR
2020-City of Union - 008	Update flood damage prevention ordinance	The current flood damage prevention ordinance does not include freeboard.	The City will update the ordinance to include the state mandated freeboard requirement.	New	Flood	2	Administration	Municipal budget	Meet state standards	Staff time	Within 6 months	High	LPR	PR

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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*

CRS Category:

- *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 9.11-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-City of Union City -001	Realignment of 33 rd Street	1	0	0	1	1	1	0	1	1	1	1	0	1	1	10	High
2020-City of Union City -002	Retrofit City Hall and EMS buildings	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-City of Union City -003	Installation of an emergency generators at critical facilities	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-City of Union City -004	Emergency Services Unit vehicle	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2020-City of Union City -005	GIS technology for Building Department	0	1	0	0	1	1	1	1	1	1	1	1	1	1	11	High
2020-City of Union City -006	Street paving and curb replacement	0	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-City of Union City -007	Climate change resources	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
2020-City of Union City -008	Update flood damage prevention ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High





Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.11-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Coastal Storm	2020-City of Union City -005	2020-City of Union - 002 2020-City of Union - 002			2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Dam and Levee Failure	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Drought	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Earthquake	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Extreme Temperature	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Flood	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007





Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
						Union - 003	City of Union - 007	2020-City of Union - 007
Geologic	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Severe Weather	2020-City of Union City -005	2020-City of Union - 002			2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Severe Winter Storm	2020-City of Union - 005	2020-City of Union - 002			2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007
Wildfire	2020-City of Union City -005				2020-City of Union - 003, 2020-City of Union -004	2020-City of Union - 001, 2020-City of Union - 003	2020-City of Union - 005, 2020-City of Union - 007	2020-City of Union - 005, 2020-City of Union - 007

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.11.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The City of Union City followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).





Table 9.11-19. Contributors to the Annex

Entity	Title	Method of Participation
Mario Bordon	OEM Director	Secondary POC, attended plan participant meetings, provided impact and capability data, updated the mitigation strategy.
Susan Colditz	Finance/OEM	Attended plan participant meetings, provided impact and capability data, updated the mitigation strategy.
Martin Martinetti	Construction Code Official	Attended plan participant meetings, provided impact and capability data





Figure 9.11-1. City of Union City Hazard Area Extent and Location Map

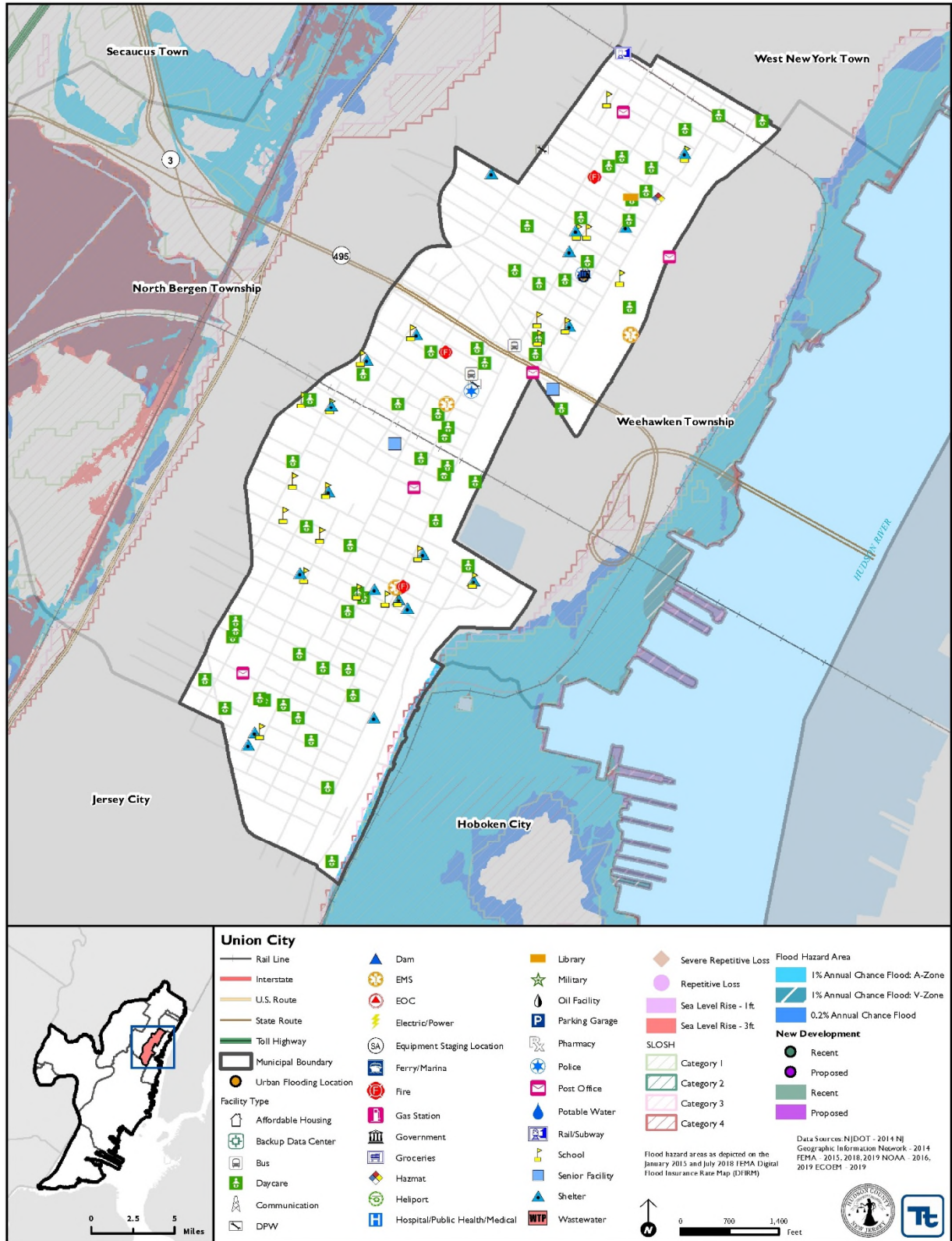
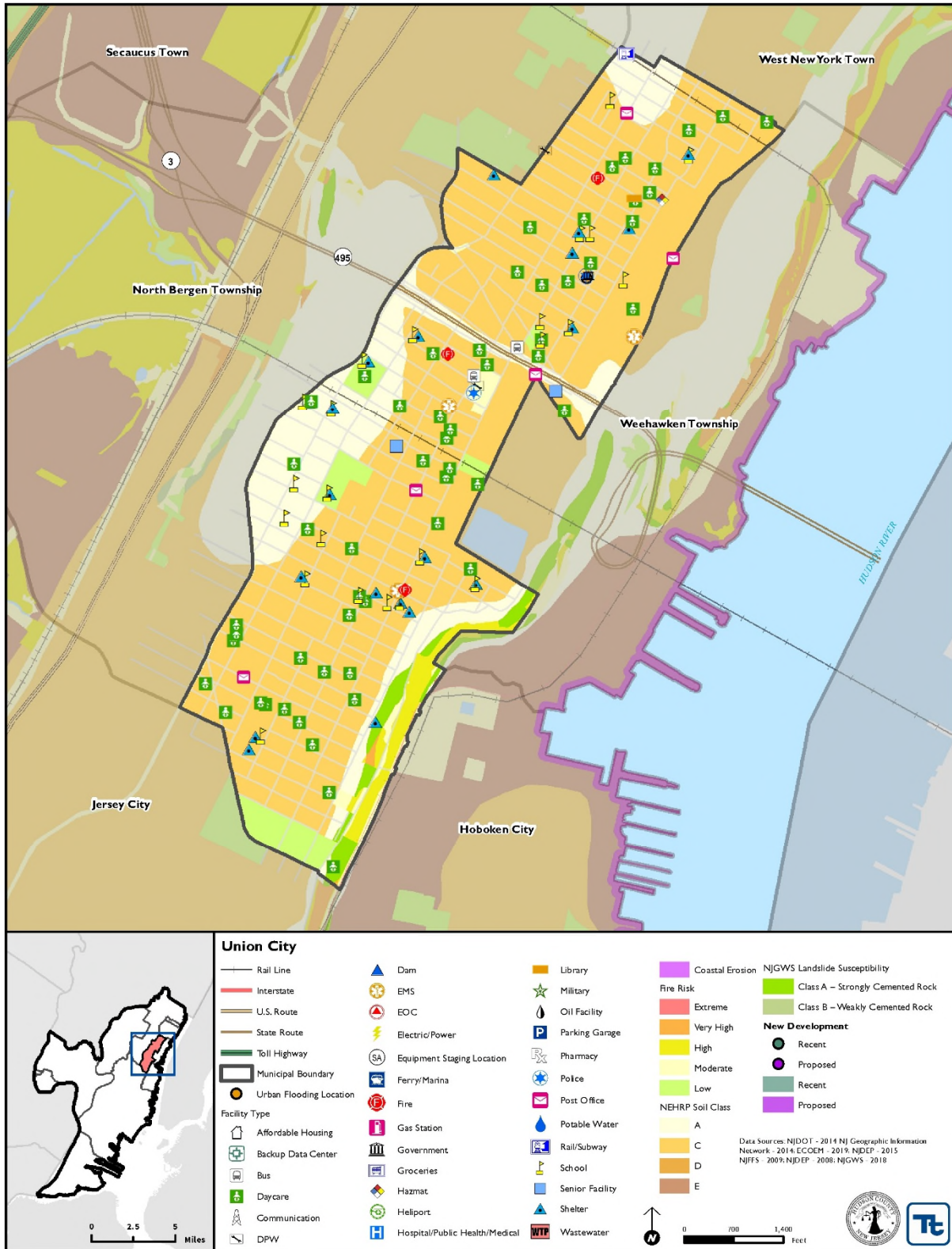




Figure 9.11-2. City of Union City Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Realignment of 33rd Street		
Project Number:	2020-City of Union -001		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	33rd Street is an evacuation route but is not aligned to allow for safe and efficient evacuation. Evacuation would overwhelm the street and cause traffic jams when traffic flow would be vital.		
Action or Project Intended for Implementation			
Description of the Solution:	The City will conduct a traffic study and feasibility assessment to determine the best way to reduce evacuation times by realigning 33rd Street. The City will implement the identified design.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by traffic study	Estimated Benefits (losses avoided):	Efficient and safe evacuation route.
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	TBD by traffic study	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, CDBG, Municipal budget
Responsible Organization:	City Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Capital improvements, hazard mitigation, emergency management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Select new evacuation route	N/A	Other possible evacuation routes have already been considered and have been found to be deficient.
	Expand sheltering to negate need for evacuation	N/A	Evacuation is necessary for certain events.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Realignment of 33rd Street	
Project Number:	2020-City of Union -001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will increase success of evacuations
Property Protection	0	
Cost-Effectiveness	0	
Technical	1	
Political	1	There is public support for the project
Legal	1	The City has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	Within 5 years
Agency Champion	1	City Engineer
Other Community Objectives	1	Evacuation improvements
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Retrofit City Hall and EMS buildings		
Project Number:	2020-City of Union -002		
Risk / Vulnerability			
Hazard(s) of Concern:	Severe Weather, Severe Winter Storm		
Description of the Problem:	The roof on both City Hall and the EMS building have been damaged by storm events and are in need of replacement to protect critical functions.		
Action or Project Intended for Implementation			
Description of the Solution:	Replace roof on City Hall and EMS building and retrofit to strengthen each facility.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	100-year storm event	Estimated Benefits (losses avoided):	Protection of continuity of operations
Useful Life:	50 years	Goals Met:	2, 6
Estimated Cost:	\$80,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 3 years
Estimated Time Required for Project Implementation:	2 months	Potential Funding Sources:	HMGP, CDBG, Municipal budget
Responsible Organization:	City Engineer	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new buildings	Millions of dollars	Costly, not necessary
	Repair city hall but abandon EMS building	\$50,000	Reduction in EMS services and response times.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Retrofit City Hall and EMS buildings	
Project Number:	2020-City of Union -002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Preserves critical services
Property Protection	1	Protects City Hall and EMS building
Cost-Effectiveness	1	
Technical	1	
Political	1	There is public support for the project
Legal	1	The City has the legal authority to complete the project
Fiscal	0	The project would likely require funding assistance
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Weather, Severe Winter Storm
Timeline	1	Within 3 years
Agency Champion	1	City Engineer
Other Community Objectives	1	Continuity of operations
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Installation of an emergency generators at critical facilities		
Project Number:	2020-City of Union -003		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	Numerous critical facilities in Union City lack backup power sources for continuity of operations.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install generators and necessary electrical components at the following facilities: -City Hall - Emergency Medical Services Headquarters -Jose Martinez Freshman Academy -Bruce Walter School Recreation Center		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations
Useful Life:	20 years	Goals Met:	1, 2, 6
Estimated Cost:	\$25,000 per generator	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	City Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Installation of an emergency generators at critical facilities	
Project Number:	2020-City of Union -003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect continuity of operations at critical facilities
Property Protection	1	Project will protect buildings from power loss
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	City Engineer
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





TOWNSHIP OF WEEHAWKEN

MUNICIPALITY AT A GLANCE

Total Population: 14,268
 Total Land Area: 0.8 sq. mi
 Total Number of Buildings: 2,113



Hurricane Storm Surge



Population



Buildings

Category 1*	466	100
Category 2*	502	116

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$2,418,047

Potential Building Damages

1% Annual Chance Flood



787

Population residing in floodplain



160

Buildings in floodplain



10

Critical facilities in floodplain

63

Persons that may seek shelter

\$140,900,724

Potential building damages

NFIP Statistics



17 # NFIP Policies

747 # WYO Policies

2 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Education and Awareness Programs

High Ranked Hazards



Flood, Severe Storm, Severe Winter Storm



9.12 Township of Weehawken

This section presents the jurisdictional annex for the Township of Weehawken. The annex includes a general overview of the Township of Weehawken; an assessment of the Township of Weehawken’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.12.2 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Township of Weehawken’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.12-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Giovanni D. Ahmad, Township Manager Address: 400 Park Ave, Weehawken, NJ Phone Number: 201-319-6010 Email: gahmad@tow-nj.net	Name / Title: Jeffrey Fulcher, Deputy Director, Weehawken DPS Address: 400 Park Ave, Weehawken, NJ Phone Number: 201-319-6046 Email: jfulcher@police.weehawkennj.gov
NFIP Floodplain Administrator	
Name / Title: Frank Tattoli, Construction Official Address: 400 Park Ave, Weehawken, NJ Phone Number: 201-319-6010 Email: franktattoli@tow-nj.net	

9.12.3 JURISDICTION PROFILE

The Township of Weehawken is located in eastern Hudson County along the Hudson River. It shares its borders with West New York to the north, Hudson River to the east, City of Hoboken to the south and Union City to the west. Weehawken was formed as a township by an Act of the New Jersey Legislature on March 15, 1859, from portions of Hoboken and North Bergen.

The Township is governed by a Council made up of five members. This governing body will be responsible for the adoption and implementation of this plan.

As of the 2010 U.S. Census, the Town of Weehawken’s population was 12,554. The estimated 2017 population was 14,268, which is a 13.6 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 5.4 percent of the Town population is five years of age or younger, and 11.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.12.4 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.12-2 summarizes recent and expected future development trends including major residential/commercial development





and major infrastructure development. Refer to Figure 9.12-1 and 9.12-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.12-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	1	0	0
Multi-Family	0	0	3	0	1
Other (commercial, mixed-use, etc.)	0	0	0	1	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
1200 Ave at Port Imperial	7 Story Building	103 Units	1200 Ave at Port Imperial	In Flood Plain	Built and Occupied
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Hong Kun Development	Apartment/Condo Complex	282	1800 Ave at Port Imperial	In Flood Plain Area	Approved – Construction has not begun
Roseland Park Apartments	Apartment/Condo Complex	298	1 Ave at Port Imperial	In Flood Plain Area	Approved – Construction has not begun

* Only location-specific hazard zones or vulnerabilities identified.

9.12.5 CAPABILITY ASSESSMENT

The Township of Weehawken performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.12.5.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Township of Weehawken.





Table 9.12-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Township Ordinance Book Chapter 9. Administered by the Building Department.</i>					
Zoning Code	Yes	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Township Ordinance Book Chapter 23. Administered by the Clerk and Zoning Board.</i>					
Subdivisions	Yes	Local	Yes	No	-
<i>Comment: Township Ordinance Book Chapter 22. Administered by the Zoning Board.</i>					
Stormwater Management	No	-	Yes	No	2020-Weehawken-004
<i>Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8)</i>					
Post-Disaster Recovery	No	-	-	-	-
<i>Comment:</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	No	-	Yes	-	-
<i>Comment: State mandated at local level.</i>					
Shoreline Development	Yes		Yes	No	2020-Weehawken-005
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes	Local	No	No	-
<i>Comment: Township Ordinance Book Chapter 9. Administered by the Zoning Board.</i>					
Environmental Protection	No	-	Yes	-	-
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code.</i>					
Flood Damage Prevention	Yes	Local	Yes	No	-
<i>Comment: Township Ordinance Book Chapter 20. Administered by the Building Department.</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment: Not applicable</i>					
Emergency Management	No	-	-	-	-
<i>Comment:</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Other	No	-	-	-	-
<i>Comment:</i>					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	No	-
<i>Comment: Reevaluation 2003. Administered by the Township Manager and the Planning Department. The 1991 Re-Examination report analyzed the 1976 Master Plan. A Land Use Plan was incorporated as an element in 1998 and identifies zoning specific to the waterfront and the steep slope areas of the Palisades.</i>					
Capital Improvement Plan	No	-	Allowed	-	-
<i>Comment: Per N.J.S.A. 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon.</i>					
Disaster Debris Management Plan	No	-	No	-	-
<i>Comment:</i>					
Floodplain or Watershed Plan	No	-	No	-	-
<i>Comment:</i>					
Stormwater Management Plan	No	Local and State	Yes	-	-
<i>Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).</i>					
Stormwater Pollution Prevention Plan	No	-	Yes	-	Not at this moment it would requires the CSO to be changed in the entire county
<i>Comment:</i>					
Urban Water Management Plan	No	-	No	-	-
<i>Comment:</i>					
Habitat Conservation Plan	No	-	No	-	-
<i>Comment:</i>					
Economic Development Plan	No	-	No	-	-
<i>Comment:</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					
Transportation Plan	No	-	No	-	-
<i>Comment:</i>					
Agriculture Plan	No	-	No	-	-
<i>Comment:</i>					
Climate Action Plan	No	-	No	-	-
<i>Comment:</i>					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Tourism Plan	No	-	No	-	-
<i>Comment:</i>					
Business Development Plan	No	-	No	-	-
<i>Comment:</i>					
County Master Plan Reexamination	Yes	County	Yes	Yes	-
<i>Comment: The County Master Plan Re-Examination Report of 2017 reviewed municipal plans throughout the County and referenced the Hudson HMP.</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The EOP is administered by OEM.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	No	-	No	-	-
<i>Comment:</i>					
Continuity of Operations Plan	No	-	No	-	-
<i>Comment:</i>					
Public Health Plan	No	-	No	-	-
<i>Comment:</i>					
Other	No	-	No	-	-
<i>Comment:</i>					

Table 9.12-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes, Building Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes, implementing GIS system
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No

9.12.5.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Township of Weehawken.





Table 9.12-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning
Mitigation Planning Committee	Yes	Unofficially, Administration
Environmental Board / Commission	No	-
Open Space Board / Committee	Yes	Open Space Trust Fund Committee
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Currently use Facebook, Twitter, website, Swiftreach, includes reverse 911, email, text, etc.
Maintenance program to reduce risk	Yes	Stormwater, tree trimming near power lines in addition to PSEG doing their own trimming
Mutual aid agreements	Yes	May not be official but verbal agreements in place.
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Town Planner consultant Jill Hartmann Town Engineers Maser Consulting
Engineers or professionals trained in building or infrastructure construction practices	Yes	Town Engineers, Maser Consulting
Planners or engineers with an understanding of natural hazards	Yes	Town Engineers, Maser Consulting
Staff with training in benefit/cost analysis	Yes	CFO, Lisa Toscano
Surveyors	Yes	Town Engineers, Maser Consulting
Personnel skilled or trained in GIS applications	Yes	Township Manager
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Jeff Welz, Public Safety Director
Grant writers	Yes	Consultants as needed
Resilience Officer	No	-
Other	No	-

9.12.5.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Township of Weehawken.

Table 9.12-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
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
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	-





9.12.5.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Township of Weehawken.

Table 9.12-7. Education and Outreach Capabilities

Table with 2 columns: Criterion and Response. Rows include questions about public information officers, website development, social media use, citizen boards, and warning systems.

9.12.5.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Township of Weehawken.

Table 9.12-8. Community Classifications

Table with 4 columns: Program, Participating?, Classification, and Date Classified. Rows include Community Rating System, BCEGS, Fire ISO Protection Class, Storm Ready Certification, Firewise Community Classification, and Sustainable Jersey.

9.12.5.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event.

Table 9.12-9. Adaptive Capacity

Table with 2 columns: Hazard and Adaptive Capacity (Capabilities) - High/Medium/Low. Rows include Coastal Erosion and Sea Level Rise, Coastal Storm, and Drought.





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Earthquake	Medium
Extreme Temperature	High
Flood	Medium
Geological Hazards	Medium
Severe Storm	High
Winter Storm	High
Wildfire	High
Dam Levee Failure	Not applicable

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.12.5.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.12-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction Code Official
Who is your floodplain administrator? (name, department/position)	Frank Tattoli
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	The Ordinance was adopted in 2006 with Appendix updates from the state and FEMA on flood zone and base flood elevation levels to be adjusted – last updated 2018
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	N/A
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No, would be interested in the future.
How many flood insurance policies are in force in your jurisdiction? * • What is the insurance in force? • What is the premium in force?	Policies in force: 758
How many total loss claims have been filed in your jurisdiction? * • How many claims are still open or were closed without payment? • What were the total payments for losses?	Total loss claims: 101
Do you maintain a list of properties that have been damaged by flooding?	Yes
Do you maintain a list of property owners interested in flood mitigation?	Yes





**According to FEMA statistics as of 9/30/2018*

9.12.6 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.12.6.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Township of Weehawken made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- **Building Department:** The Building Department is made up of the Construction Code Office, the Health Department, the Housing Inspection Office, as well as the fire, plumbing and electrical inspectors. This department also oversees the Park Avenue Partnership, which is dedicated to the revitalization of Park Avenue and the historic Water Tower.
- **Department of Public Works:** The Department of Public Works is responsible for keeping streets and parks clean, clearing branches from sidewalks and streets, removing snow, and maintaining Township buildings and grounds.
- **Fire Department:** Weehawken is served by three stations of the North Hudson Regional Fire and Rescue Department. Regionalization of the fire service has resulted in local property tax credits for Weehawken residents and has doubled the number of firefighters responding to a report of fire. A new waterfront firehouse was constructed on Port Imperial Boulevard to keep pace with the growth of the Town.
- **Weehawken Volunteer First Aid Squad:** Founded in 1969, the Weehawken Volunteer First Aid Squad provides free emergency medical services to residents of Weehawken. Three state of the art ambulances staffed by state certified personnel and equipped with oxygen, cardiac defibrillators and other lifesaving equipment respond from the Weehawken First Aid headquarters to residents in need of assistance.

9.12.6.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the Township of Weehawken will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- The Township has looked to enter the CRS program in the past but would be interested to try again in the future.
- The Township will continue to consider mitigation project funding as part of their municipal/operating and capital improvement budgets.





- The Township could develop a stormwater ordinance.

9.12.7 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Township of Weehawken’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.12-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.12-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion	Yes, DR-4264	Low pressure brought heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	The Township applied and received FEMA reimbursement for overtime for snow removal, equipment, salt, vehicle towing. Woodrow Wilson School had a partial roof collapse. Contractor was hired for snow removal assistance. Meals were purchased for employees.

Notes:

9.12.8 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the Township of Weehawken. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:





- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.12-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	64	CEHA:	12	CEHA:	\$92,076,261	High
		SLR +1ft:	51	SLR +1ft:	8	SLR +1ft:	\$76,457,298	
		SLR +3ft:	51	SLR +3ft:	8	SLR +3ft:	\$76,457,298	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	466	Category 1:	100	100-year Wind Loss:	\$2,418,047	High
		Category 2:	502	Category 2:	116			
		Category 3:	616	Category 3:	140	500-year Wind Loss:	\$19,655,431	
		Category 4:	650	Category 4:	145			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	542	NEHRP D&E:	123	100-year Loss:	\$0	High
		Liquefaction Class 4:	302	Liquefaction Class 4:	68	500-year Loss:	\$3,226,059	
						2,500-year Loss:	\$47,003,496	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,644	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	1,641					
Flood	100- and 500-Year Mean Return Period Event	100-year	787	100-year	160	100-year Loss:	\$140,900,724	High
		500-year	810	500-year	175			
Geological	High Landslide Susceptibility Areas	Class A:	654	Class A:	120	Class A:	52111611.76	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	6	Wildfire:	2	Wildfire:	\$3,432,614	Moderate





9.12.8.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Township of Weehawken.

- Number of repetitive loss (RL) properties: 2
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.12.8.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.12-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Mitigation Status
		1% Event	0.2% Event	
North Hudson Regional Fire And Rescue Engine 3*	Fire	X	X	2020-Weehawken-002
St. Lawrence Parish Center*	Shelter	X	X	2020-Weehawken-009
Bright Horizons At Lincoln Harbor	Child Care	X	X	2020-Weehawken-009
Sowing Seed School Infant, Toddler/Preschool/Afterschool Pro	Child Care		X	
Lincoln Harbor	Rail	X	X	2020-Weehawken-009
Port Imperial	Rail	X	X	2020-Weehawken-009
Port Imperial Ferry Terminal	Ferry	X	X	2020-Weehawken-009
Lincoln Harbor Ferry Terminal	Ferry	X	X	2020-Weehawken-009
Lincoln Harbor	Marina	X	X	2020-Weehawken-009
1919 Park Avenue And 300 Boulevard East	Backup data centers		X	
North Hudson Sewerage Authority*	Wastewater Pump	X	X	2020-Weehawken-009
North Hudson Sewerage - Transfers Hob*	Wastewater Pump	X	X	2020-Weehawken-009

Note: *Identified lifeline

9.12.8.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities:

- Daniel Webster School requires a backup generator
- Numerous critical facilities are exposed to flooding.

9.12.8.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Township of Weehawken that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated





for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Weehawken has significant exposure; refer to Figures 9.12-1 and 9.12-2.

9.12.8.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Weehawken. The Township of Weehawken has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard ranking, the Township indicated the following:

- Working with the town, it has been noted that due the high adaptive capacity for the Extreme Temperature Hazard, the hazard ranking has been adjusted to Medium.

Table 9.12-14. Township of Weehawken Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Medium	Low	Medium	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Medium	High	High	Medium	Low

9.12.9 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.12.9.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.12-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
TW-1: Develop and implement an enhanced all-hazards, public outreach / education / mitigation information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: <ul style="list-style-type: none"> •Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. •Including natural hazard risk and risk reduction information through social media channels and email blast systems. •Posting of flyers and other readily available NFIP informational materials at Town Hall or distributing at regular civic meetings. •Preparation, distribution and analysis of public surveys. •Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. •Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts. 	OEM, Manager's Office	Complete; Currently use fliers, Facebook, Twitter, website, newsletters, mailings encourage signup for Swiftreach, includes reverse 911, email, text, etc.		
TW-2: Purchase and install natural gas generator and automatic transfer switch for EMS and shelter building at 201 Highwood Ave and Webster School (shelter).	OEM, Manager's Office	In Progress	X	2020-Weehawken-003
TW-3: Design and construct flood barriers to protect the 18th Street Pumping Station.ch drains the Shades neighborhood of Weehawken	OEM, Manager's Office	Complete, have tiger dams.		
TW-4: Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage. Priority to be given to one Repetitive Loss property	OEM, Manager's Office	No Progress	X	2020-Weehawken-001
TW-5: The Township will consider mitigation project funding as part of their municipal/operating and capital improvement budgets	Township Manager, City Engineer	In Progress		





The Township of Weehawken did not identify any additional completed mitigation projects/activities that were not identified in the 2015 HMP mitigation strategy.

9.12.9.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Township of Weehawken participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Township of Weehawken participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.12- summarizes the comprehensive-range of specific mitigation initiatives the Township of Weehawken would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.12-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.12-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CFS Category
2020-Weehawken-001	Repetitive Loss Properties	There are 2 repetitive loss properties in the Southwest part of the Township in the Shades area of town.	Elevate the properties. (Provide outreach to owners to determine if there is interest in a property elevation. Based on the feedback, if there is an interest submit application for funding). However, must determine if this property will be mitigated by the water diversion project. This project consists of a wall to prevent flooding to deflect the water in at risk areas.	Existing	Flood	1, 2, 5	Town Manager	HMA grants, DCA grants	Eliminates flood damage to homes and residents	\$200,000	3 years	High	SIP, EAP	PP, PI
2020-Weehawken-002	Regional Firehouse Mitigation Project	The firehouse is in the 1% regulatory floodplain. During Sandy the equipment had to be relocated to provide continuity of	Since this is in a critical location, floodproof the facility to prevent ingress of flood waters and inundation of utilities.	Existing	Flood, Wildfire	1, 2, 6	<u>North Hudson Regional Fire and Rescue</u> with support from the Township.	Firefighter Assistance Grant Program, HMGP	This serves several thousand people. It is also backu	\$25,000	3 years	High	SIP	PP, ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		services It is not determined if there is back up power, but this is a lifeline facility. Potentially this could be isolated from flooded roadways. This facility also houses rescue equipment.1							p to other fire houses in the region .					
2020-Weehawken-003	Natural gas generator and automatic transfer switch for EMS and shelter building	The EMS and shelter building lacks a generator and transfer switch.	Purchase and install natural gas generator and automatic transfer switch for EMS and shelter building at 201 Highwood Ave and Webster School (shelter).	Existing	All hazards	1, 6	Office of Emergency Management, Managers Office	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Continuity of operations	\$50,000	Within 1 year	High	SIP	PP, ES
2020-Weehawken-004	Develop stormwater ordinance	The Township lacks a stand alone stormwater ordinance.	The Township will develop and adopt a stormwater ordinance.	New, Existing	Flood, Severe Storm	1, 2, 4	Administration	Municipal budget	Improvement in storm water	\$200	Within 1 year	High	LPR	PR





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
									requirements and enforcement		ar			
2020-Weehawken-005	Include hazard mitigation into shoreline development approval	Hartz Industries and Mak-Cali own most of the shoreline, and 5 to 10 year master plans are submitted before development for approval, but the town does not have shoreline planning.	Develop and implement procedures to include hazard mitigation into shoreline development approval.	New	Coastal Erosion and Sea Level Rise, Coastal Storm, Flood, Severe Storm, Winter Storm	1, 2, 3	Administration	Municipal budget	Hazard mitigation incorporation in shoreline development.	\$200 and staff time	Within 1 year	High	LPR	PR
2020-Weehawken-006	Conduct outreach to hazard prone critical facility operators	Numerous critical facilities are not owned by the Township and are prone to hazard damages	The Township will conduct outreach to operators of critical facilities to educate them on their hazard exposure and possible mitigation actions.	Existing	All hazards	1, 2, 3, 6	OEM	Municipal budget	Facility owners educated on exposure and possible mitigation actions	Staff time	Within 1 year	High	EAP	PI
2020-Weehawken-007	Daniel Webster School generator	The Daniel Webster School lacks backup	Purchase and install a backup generator at the	Existing	All hazards	1, 6	Office of Emergency	FEMA HMGP and PDM	Continuity of operat	\$20,000	Within	High	SIP	PP, ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		power.	Daniel Webster School				Management, Managers Office		ions		1 year			
2020-Weehawken-008	Updated Police Building	The Police Building is outdated and prone to damage in storm events. Continued degradation of the facility could threaten continuity of operations.	The Township will design a replacement structure and replace the existing Police Building with an updated and hazard resistant structure.	New	Coastal Storm, Severe Weather, Severe Winter Weather	1, 2, 6	Police Department	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Continuity of operations	TBD	5 years	High	SIP	ES
2020-Weehawken-009	Critical facilities outreach	Numerous critical facilities are located in the 100-year floodplain. These facilities are not Township owned.	The FPA will conduct outreach to facility managers to discuss flood exposure, current flood protections, and potential mitigation actions.	Existing	Flood	1, 2, 6	FPA	Municipal budget	Continuity of operations	Staff time	Within 2 years	High	EAP	PI

Notes:

Acronyms and Abbreviations:

Potential FEMA HMA Funding Sources:

Timeline:





CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

FMA	Flood Mitigation Assistance Grant Program
HMGF	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.12-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Weehawken-001	Repetitive Loss Properties	1	1	1	0	0	1	1	1	1	1	0	1	0	0	9	High
2020-Weehawken-002	Regional Firehouse Mitigation Project	1	1	0	1	1	1	1	1	1	1	1	1	1	1	13	High
2020-Weehawken-003	Natural gas generator and automatic transfer switch for EMS and shelter building	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2020-Weehawken-004	Develop stormwater ordinance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Weehawken-005	Include hazard mitigation into shoreline development approval	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Weehawken-006	Conduct outreach to hazard prone critical facility operators	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Weehawken-007	Daniel Webster School generator	1	0	1	1	1	1	0	0	1	1	1	1	1	1	11	High
2020-Weehawken-008	Updated Police Building	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2020-Weehawken-009	Critical facilities outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.12-12. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise	2020-Weehawken-005	2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Coastal Storm	2020-Weehawken-005	2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007, 2020-Weehawken-008			2020-Weehawken-007
Dam and Levee Failure		2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Drought		2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Earthquake		2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Extreme Temperature		2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Flood	2020-Weehawken-004, 2020-Weehawken-005	2020-Weehawken-001, 2020-Weehawken-002, 2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-001, 2020-Weehawken-006, 2020-Weehawken-009		2020-Weehawken-002, 2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Geologic		2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007
Severe Weather	2020-Weehawken-004, 2020-Weehawken-005	2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-003, 2020-Weehawken-007, 2020-Weehawken-			2020-Weehawken-007





Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe Winter Storm	2020-Weehawken-005	2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		008			2020-Weehawken-007
					2020-Weehawken-003, 2020-Weehawken-007, 2020-Weehawken-008			
Wildfire		2020-Weehawken-002, 2020-Weehawken-003, 2020-Weehawken-007	2020-Weehawken-006		2020-Weehawken-002, 2020-Weehawken-003, 2020-Weehawken-007			2020-Weehawken-007

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

9.12.10 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Township of Weehawken followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.12-19. Contributors to the Annex

Entity	Title	Method of Participation
Giovanni D. Ahmad	Manager	Primary POC, attended plan participant meetings, provided impact data, contributed to the mitigation strategy.
Jeffrey Fulcher	Deputy Director of Public Safety	Attended mitigation strategy workshop, reviewed the draft annex, and provided input on the mitigation strategy.





Figure 9.12-1. Township of Weehawken Hazard Area Extent and Location Map

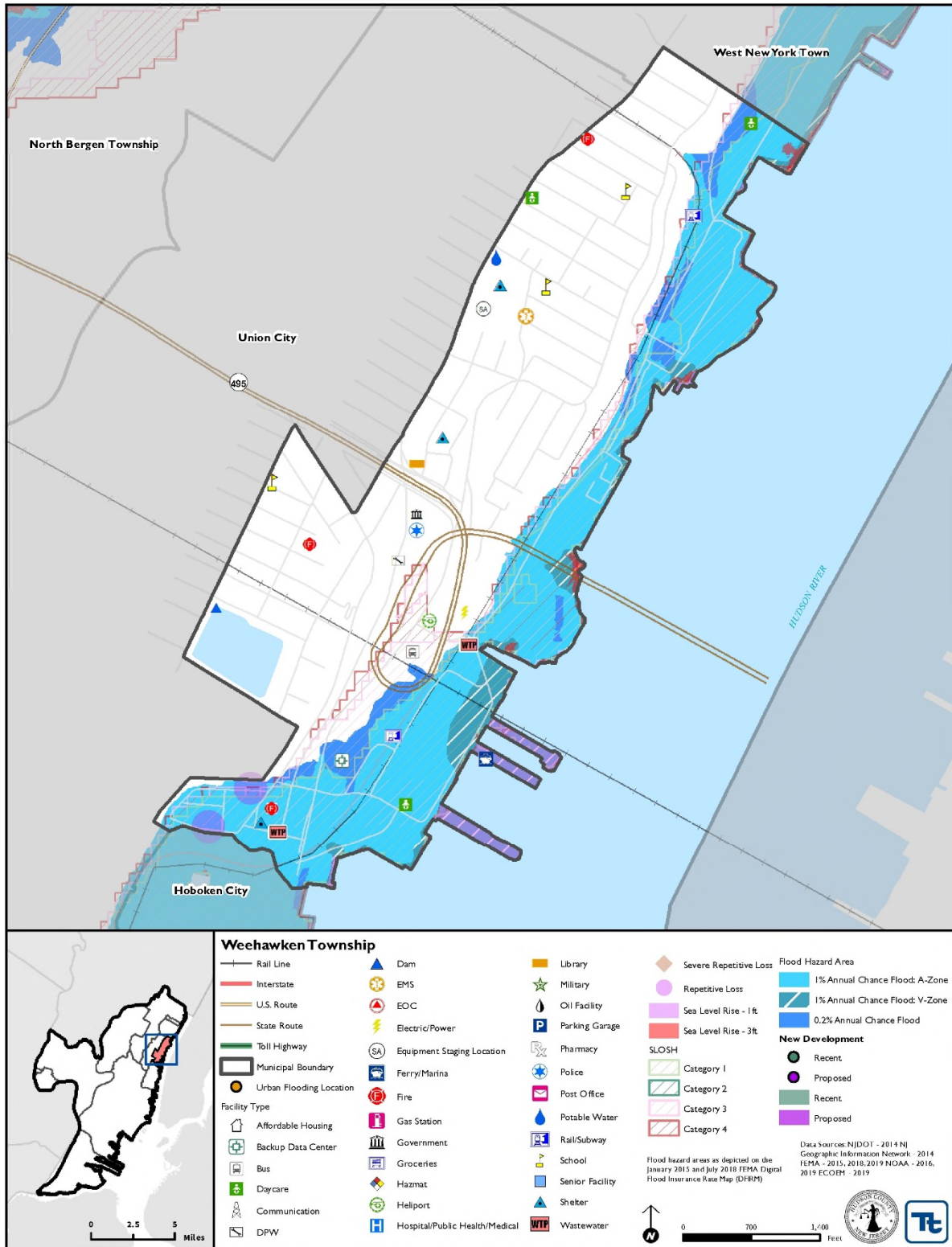
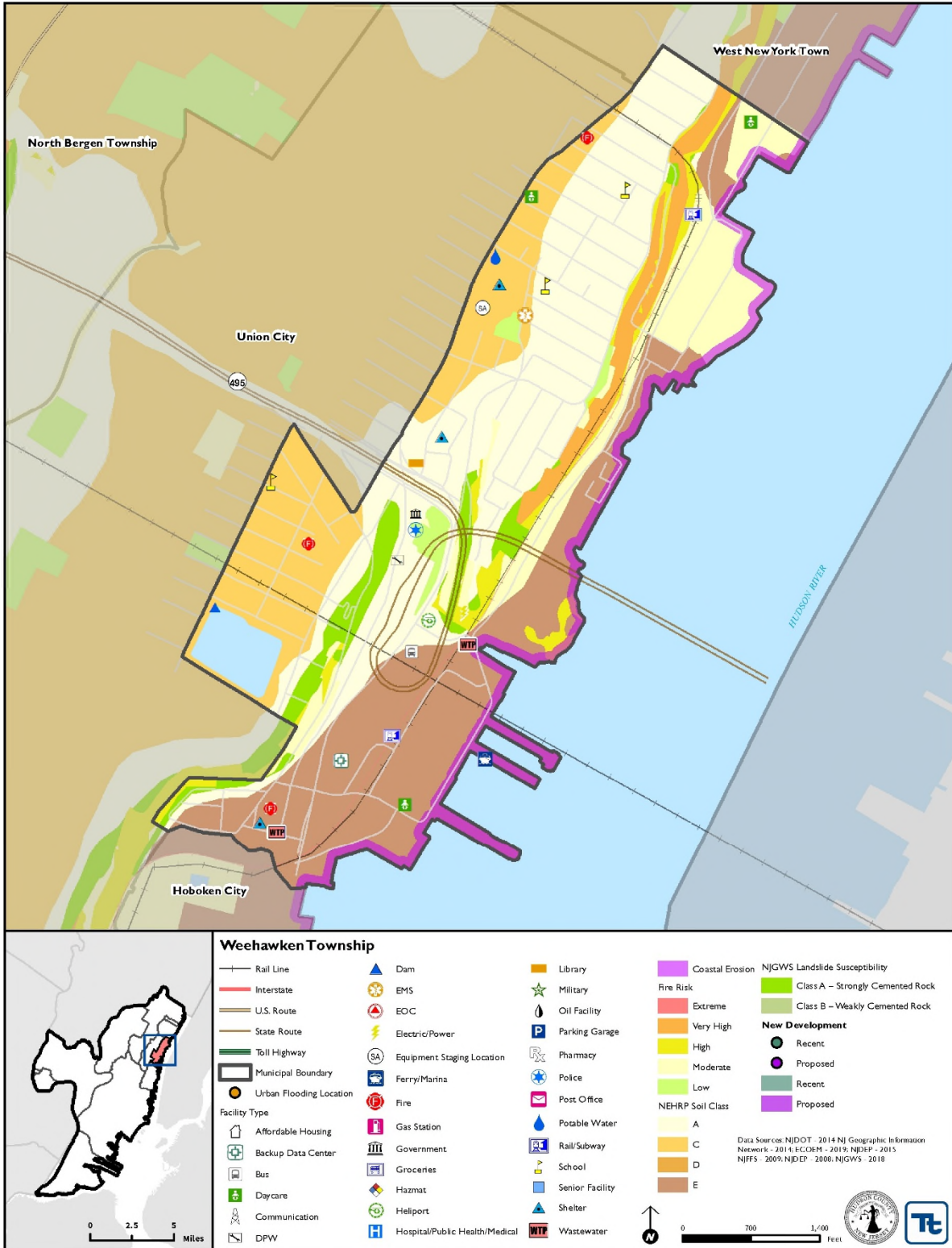




Figure 9.12-2. Township of Weehawken Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Repetitive Loss Properties		
Project Number:	2020-Weehawken-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flooding		
Description of the Problem:	There are 2 repetitive loss properties in the Southwest part of the Township in the Shades area of town.		
Action or Project Intended for Implementation			
Description of the Solution:	Elevate the properties. (Provide outreach to owners to determine if there is interest in a property elevation. Based on the feedback, if there is an interest submit application for funding). However must determine if this property will be mitigated by the water diversion project. This project consists of a wall to prevent flooding to deflect the water in at risk areas.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year flood	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents
Useful Life:	Elevation: 30 years (residential)	Goals Met:	1, 2, 5
Estimated Cost:	\$200,000	Mitigation Action Type:	Structure and Infrastructure Project, Education and Awareness Project.
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	HMA grants, DCA grants
Responsible Organization:	Town Manager	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Plan
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Acquisition	\$500,000	Low support
	Implementation of the "Big Wall" project	TBD	This is a long term project without immediate benefits.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Repetitive Loss Properties	
Project Number:	2020-Weehawken-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Residents will be subject to less flood impacts
1	1	Homes are elevated
Cost-Effectiveness	1	
Technical	0	Housing is old, and construction may be an issue, but this is a long term solution
Political	0	Mixed support-residents do not like change
Legal	1	
Fiscal	1	Can utilize FEMA and DCA funding
Environmental	1	
Social	1	Not relocating low income residents but providing safer housing
Administrative	1	Yes and can hire a consultant
Multi-Hazard	0	Flooding
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Regional Firehouse Mitigation Project		
Project Number:	2020-Weehawken-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Wildfire		
Description of the Problem:	The firehouse is in the 1% regulatory floodplain. During Sandy the equipment had to be relocated to provide continuity of services It is not determined if there is back up power, but this is a lifeline facility. Potentially this could be isolated from flooded roadways. This facility also houses rescue equipment.1		
Action or Project Intended for Implementation			
Description of the Solution:	Since this is in a critical location, floodproof the facility to prevent ingress of flood waters and inundation of utilities.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	0.2% flood event-500 year	Estimated Benefits (losses avoided):	This serves several thousand people. It is also backup to other fire houses in the region.
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 1 year
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	Firefighter Assistance Grant Program, HMGP
Responsible Organization:	North Hudson Regional Fire and Rescue with support from the Township.	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocation of facility	N/A	Not acceptable because there is no reasonable alternative location due to high development concentration
	Elevate the structure	N/A	Not technically feasible due road elevation and access.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Regional Firehouse Mitigation Project	
Project Number:	2020-Weehawken-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects continuity of critical services
Property Protection	1	Protects fire department building
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	Floodproofing is eligible under HMA, plus FEMA funds, fire grant funding is available
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Wildfire
Timeline	1	
Agency Champion	1	Board of Regional Fire Consortium
Other Community Objectives	1	Fire company respond to multiple hazards
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Natural gas generator and automatic transfer switch for EMS and shelter building		
Project Number:	2020-Weehawken-003		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The EMS and shelter building lacks a generator and transfer switch to support continuity of operations during a power outage.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install natural gas generator and automatic transfer switch for EMS and shelter building at 201 Highwood Ave and Webster School (shelter).		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	1, 6
Estimated Cost:	\$50,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	Within 1 year	Potential Funding Sources:	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Office of Emergency Management, Managers Office	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Natural gas generator and automatic transfer switch for EMS and shelter building	
Project Number:	2020-Weehawken-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of EMS and shelter building
Property Protection	1	Project will protect building from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Office of Emergency Management, Managers Office
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Daniel Webster School generator		
Project Number:	2020-Weehawken-007		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The Daniel Webster School lacks a generator to support continuity of operations during a power outage.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install a backup generator at the Daniel Webster School		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for students if necessary
Useful Life:	20 years	Goals Met:	1, 6
Estimated Cost:	\$20,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	Within 1 year	Potential Funding Sources:	FEMA HMGP and PDM
Responsible Organization:	Office of Emergency Management, Managers Office, School Board	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Daniel Webster School generator	
Project Number:	2020-Weehawken-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect school children if needed
Property Protection	1	Project will protect building from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Office of Emergency Management, Managers Office, School Board
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Updated Police Building		
Project Number:	2020-Weehawken-008		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Severe Winter Weather		
Description of the Problem:	The Police Building is outdated and prone to damage in storm events. Continued degradation of the facility could threaten continuity of operations.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will design a replacement structure and replace the existing Police Building with an updated and hazard resistant structure.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations
Useful Life:	25 years	Goals Met:	1, 2, 6
Estimated Cost:	TBD	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Immediately after funding received
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Police Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Retrofit current building	N/A	Facility is outdated to the point of being unfit for retrofit
	Share space at other buildings, commercial spaces	\$100,000 per year	Costly over time, not secure, unable to be sustained
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Updated Police Building	
Project Number:	2020-Weehawken-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of police
Property Protection	1	Project will protect building from damages
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Severe Winter Weather
Timeline	1	5 years
Agency Champion	1	Police Department
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





TOWN OF WEST NEW YORK

MUNICIPALITY AT A GLANCE

Total Population: 53,345
 Total Land Area: 0.99 sq. mi
 Total Number of Buildings: 4,594



Hurricane Storm Surge



Population



Buildings

Category 1*	3,852	26
Category 2*	5,116	47

*Located in SLOSH (Sea, Lake and Overland Surge from Hurricanes)

100-Year MRP Event Wind Loss



\$5,006,421

Potential Building Damages

1% Annual Chance Flood



3,237

Population residing in floodplain



18

Buildings in floodplain



0

Critical facilities in floodplain

58

Persons that may seek shelter

\$11,806,503

Potential building damages

NFIP Statistics



1 # NFIP Policies

965 # WYO Policies

2 # RL Properties (excludes SRL)

0 # SRL Properties (excludes RL)

Mitigation Action Plan (2020-2025)

Hazard

All Hazards

Project Types

Structure and Infrastructure Projects, Local Plan and Regulations, Natural Systems Protection, Education and Awareness Programs

High Ranked Hazards



Extreme Temperature, Severe Storm, Severe Winter Storm



9.13 Town of West New York

This section presents the jurisdictional annex for the Town of West New York. The annex includes a general overview of the Town of West New York; an assessment of the Town of West New York’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.13.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Town of West New York’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.13-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Lewis Cannao, OEM Coordinator Address: 428 60 th Street West New York, NJ 07093 Phone Number: 201-993-2795 Email: lcannao@westnewyorknj.org	Name / Title: William Bringas, Emergency Medical Service Department Coordinator, OEM Address: 580 66 th Street West New York, NJ 07093 Phone Number: 201-705-4972 Email: wbringas@westnewyorknj.org
NFIP Floodplain Administrator	
Name / Title: Paul Cray, Engineer Address: One Harmon Plaza, Suite 210, Secaucus NJ 07094 Phone Number: 609-680-6334 Email: paul.cray@rve.com	

9.13.2 JURISDICTION PROFILE

West New York is located at 40°47’18”N, 74°0’47”W (40.788400, -74.013090). According to the United States Census Bureau, the town has a total area of 1.3 square miles (3.4 km²), of which, 1.0 square miles (2.6 km²) of it is land and 0.3 square miles (0.8 km²) of it (23.48%) is water. West New York is a town in Hudson County, New Jersey, United States, situated upon the New Jersey Palisades. It shares its borders with the Town of Guttenberg to the north, the Hudson River to the east, Weehawken and Union City to the south and North Bergen to the west.

West New York was incorporated as a town by an Act of the New Jersey Legislature on July 8, 1898, replacing Union Township, based on the results of a referendum held three days earlier. West New York’s Urban Enterprise Zone covers portions of Bergenline Avenue from 49th to 67th Streets. In addition to other benefits to encourage employment within the Zone, shoppers can take advantage of a reduced 3½% sales tax rate (versus the 7% rate charged statewide).

West New York has been governed under the Walsh Act by a five-member commission since 1931. This governing body will be responsible for the adoption and implementation of this plan.

As of the 2010 U.S. Census, the Town of Guttenberg’s population was 49,708. The estimated 2017 population was 53,345, which is a 7.3 percent increase in population from 2010. Data from the 2017 U.S. Census American Community Survey estimates that 7.8 percent of the Town population is five years of age or younger, and 12.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.





9.13.3 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 understanding a jurisdiction’s overall risk to its hazards of concern. Table 9.13-2 summarizes recent and expected future development trends including major residential/commercial development and major infrastructure development. Refer to Figure 9.13-1 and 9.13-2 at the end of this annex which illustrate the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.13-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	0	0	0	0
Multi-Family	0	0	3	1	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Riverwalk Building C	Residential	N/A	168.01, 7.07	None	Proposed
5800 Washington Street, LLC	Residential	18	130, 3	None	Proposed
5711 Washington Street, LLC	Residential	24	131, 10	None	Proposed
Lofts at Blvd East	Multi-family residential	35	36, 34 & 35	None	Proposed

* Only location-specific hazard zones or vulnerabilities identified.

9.13.4 CAPABILITY ASSESSMENT

The Town of West New York performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community’s adaptive capacity for the impacts of climate change

9.13.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Town of West New York.





Table 9.13-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	Local	Yes	No	-
<i>Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 135 of the municipal code. Administered by NJDCA.</i>					
Zoning Code	Yes	Local	Yes	No	-
<i>Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 231 of the municipal code. Administered by the Zoning Department.</i>					
Subdivisions	Yes	Local	Yes	No	-
<i>Comment: Chapter 231-6 of the municipal code. Administered by the Planning Board.</i>					
Stormwater Management	Yes	Local	Yes	No	-
<i>Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter 331 of the municipal code. Administered by the Engineering Department.</i>					
Post-Disaster Recovery	No	-	-	-	-
<i>Comment:</i>					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
<i>Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
Growth Management	No	-	Yes	-	-
<i>Comment: State mandated at local level;</i>					
Shoreline Development	No	-	Yes	-	-
<i>Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.</i>					
Site Plan Review	Yes	Local	Yes/No	No	-
<i>Comment: Chapter 414 of the municipal code, administered by the Planning Board.</i>					
Environmental Protection	Yes	Local	Yes	No	-
<i>Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 204-16 of the municipal code notes slopes to guide floodwaters.</i>					
Flood Damage Prevention	Yes	Local	Yes	-	-
<i>Comment: Chapter 204 of the municipal code, administered by the Construction Official. The ordinance has NFIP Cumulative Substantial Damages. The ordinance lacks the state requirement of 1 foot of freeboard.</i>					
Wellhead Protection	No	-	-	-	-
<i>Comment:</i>					
Emergency Management	No	-	-	-	-
<i>Comment:</i>					
Climate Change	No	-	-	-	-
<i>Comment:</i>					
Disaster Recovery Ordinance	No	-	-	-	-
<i>Comment:</i>					
Disaster Reconstruction Ordinance	No	-	-	-	-





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment:					
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	No
Comment: Comprehensive Master Plan from 1960's (undated), Updated Population Report (August, 1975), Existing Uses of Land (October, 1975), Revised Land Use Plan (October, 1975), Community Facilities Analysis and Plan (November, 1975), Land Use Plan (November, 1978; Revised July 1, 1986), Housing Element (July, 1988), Recycling Plan Element (June, 1990), Master Plan Reexamination (2001). The Master Plan was last updated in 2015. The Plan is administered by the Planning Board. The Plan includes goals to protect natural resources, protect manmade resources, and improve mobility.					
Capital Improvement Plan	No	-	Allowed	-	-
Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon.					
Disaster Debris Management Plan	No	-	No	-	-
Comment:					
Floodplain or Watershed Plan	No	-	No	-	-
Comment:					
Stormwater Management Plan	No	Local and State	Yes	-	-
Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s).					
Stormwater Pollution Prevention Plan	No	-	Yes	-	-
Comment:					
Urban Water Management Plan	No	-	No	-	-
Comment:					
Habitat Conservation Plan	No	-	No	-	-
Comment:					
Economic Development Plan	No	-	No	-	-
Comment:					
Shoreline Management Plan	No	-	No	-	-
Comment:					
Community Wildfire Protection Plan	No	-	No	-	-
Comment:					
Community Forest Management Plan	No	-	No	-	-
Comment:					
Transportation Plan	No	-	No	-	-
Comment:					
Agriculture Plan	No	-	No	-	-
Comment:					
Climate Action Plan	No	-	No	-	-
Comment:					





	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Tourism Plan	No	-	No	-	-
<i>Comment:</i>					
Business Development Plan	No	-	No	-	-
<i>Comment:</i>					
Other	No	-	No	-	-
<i>Comment:</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. Emergency Response Plan. Last updated in 2014. Administered by OEM.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	No	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	No	-	No	-	-
<i>Comment:</i>					
Continuity of Operations Plan	No	-	No	-	-
<i>Comment:</i>					
Public Health Plan	No	-	No	-	-
<i>Comment:</i>					
Other	No	-	No	-	-
<i>Comment:</i>					

Table 9.13-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? - If no, who does? If yes, which department?	Yes
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No

9.13.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of West New York.

Table 9.13-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	Yes	Safety Committee





Staff/Personnel Resource	Available?	Department/Agency/Position
Environmental Board / Commission	No	-
Open Space Board / Committee	Yes	Recreation Department
Economic Development Commission / Committee	Yes	Urban Enterprise Zone Department
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Siren, Nixle, Swift911, highway sign, social media, website
Maintenance program to reduce risk	Yes	Public works does street cleaning.
Mutual aid agreements	Yes	EMS, Police, and Fire (verbal)
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Building Department/Outside Consultant - Town Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building Department/Outside Consultant - Town Engineer
Planners or engineers with an understanding of natural hazards	Yes	Outside Consultant - Town Engineer
Staff with training in benefit/cost analysis	Yes	Town Administrator
Surveyors	Yes	Outside Consultant - Town Engineer
Personnel skilled or trained in GIS applications	Yes	Outside Consultant - Town Engineer
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	OEM, Lewis Cannao
Grant writers	Yes	Outside Consultant - Bruno Associates
Resilience Officer	No	-
Other	No	-

9.13.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Town of West New York.

Table 9.13-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	No

9.13.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Town of West New York.





Table 9.13-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Handled by Mayor’s office.
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	Yes
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	No, but planning to start CERT team
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	School system
Do you have any established warning systems for hazard events? If yes, briefly describe.	Siren, Nixle, Swift911, highway sign, social media, website

9.13.4.5 COMMUNITY CLASSIFICATIONS

The table below summarizes the classifications for community programs available to the Town of West New York.

Table 9.13-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	No	-	-
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	none	8/19/2009

9.13.4.6 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the jurisdiction’s adaptive capacity rating for each hazard of concern. The Town noted that staffing is limited which makes adaptive capacity low in most instances.

Table 9.13-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Low
Drought	Low
Earthquake	Low
Extreme Temperature	Medium
Flood	Low
Geological Hazards	Low





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Severe Weather	Low
Winter Storm	Low
Wildfire	Low
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.13.4.7 NATIONAL FLOOD INSURANCE PROGRAM

This section provides specific information on the management and regulation of the regulatory floodplain.

Table 9.13-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	OEM
Who is your floodplain administrator? (name, department/position)	Lewis Cannao, OEM Coordinator
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2006
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meet
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If no, state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
<input checked="" type="checkbox"/> If so, what type of assistance/training is needed?	Any available opportunities
Does your jurisdiction participate in the Community Rating System (CRS)? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction? What is the insurance in force? What is the premium in force?	Flood insurance policies: 1,282 Insurance in force: Premium in force:
How many total loss claims have been filed in your jurisdiction? How many claims are still open or were closed without payment? What were the total payments for losses?	Total loss claims: 15 Claims open or closed without payment: Total payments for losses: \$153,341,385.35
Do you maintain a list of properties that have been damaged by flooding?	Yes
Do you maintain a list of property owners interested in flood mitigation?	Yes

*According to FEMA statistics as of 9/30/2018

9.13.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each jurisdiction was surveyed to obtain a better understanding





of their progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

9.13.5.1 EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Town of West New York made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the hazard mitigation plan and strategy:

- **Building Department/Code Enforcement:** The department encompasses Building, Zoning, Code Enforcement, and Housing and works closely with residents, contractors, architects, engineers, developers, lawyers, realtors, banks and mortgage companies. The Department’s goal is to provide service and safety to the public while applying all codes and ordinances.
- **Office of the Planning Board & Zoning Board of Adjustment:** The Planning Board is responsible for administering, updating and enforcing the Township’s master plan which is a comprehensive, long-range plan intended to direct the community’s growth and development. It also reviews all sub-divisions and site plans.
- **Health Department:** The Health Department works to promote culturally-competent services to all the individuals in the community of West New York by using the highest standards and evidence for disease control, health promotion and disease prevention.

9.13.5.2 OPPORTUNITIES FOR FUTURE INTEGRATION

As this HMP is implemented, the Town of West New York will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume I. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- The Flood Damage Prevention Ordinance is in need of updating to include the 1-foot freeboard requirement.
- Formalize the verbal mutual aid agreements.

9.13.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Town of West New York’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.13-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.





Table 9.13-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
January 26 2015	Winter Storm	Yes	severe winter storm with heavy snow accumulations, mixed precipitation, strong winds, and freezing temperatures throughout the State	Overtime costs for snow removal.
October 1 2015	Winter Storm Joaquin	Yes	the National Weather Service is forecasting a dangerous nor'easter weather pattern impacting New Jersey beginning on October 1, 2015, including high winds, very heavy rain, inland river flooding, as well as major coastal flooding with heavy surf and beach erosion; and WHEREAS, the National Hurricane Center currently has forecasted the track for the impending weather event Joaquin, now a major hurricane, showing it moving northward off the mid Atlantic coast late on or about October 4, 2015, which may cause significant flooding, dangerous storm surges between eight and ten feet, substantial wind damage, and stream and river flooding threatening homes and other structures, and endangering lives in the Stat	Overtime costs for snow removal.
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (DR-4264)	Yes	Low pressure moved off the Mid Atlantic coast on Saturday January 23rd, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. Governor Chris Christie declared a state of emergency for New Jersey on Friday January 22nd. New Jersey Transit stopped running trains, buses and light rail at 2 AM Saturday January 23rd. Bridges and tunnels from New York City into New Jersey were shut down by mid-afternoon Saturday. Travel in and out of airports lagged through Monday January 25th as airlines pre-emptively cut hundreds of flights. More than 1,000 flights out of area airports were cancelled, and Teterboro Airport were shuttered due to whiteout conditions. Trained spotters and an NWS cooperative observer in Harrison reported snowfall of 25 to 27 inches. Nearby Central Park and Newark Airport	Overtime costs for snow removal.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			ASOS observations showed blizzard conditions, with visibility less than one quarter mile in heavy snow and frequent wind gusts over 35 mph through the day and into the early evening on Saturday January 23rd.	
January 2017	Water main break	N/A	A six inch water main break occurred in West New York.	1,500 residents lost access to water.
March 13 2017	Winter Storm Stella	Yes	A major winter storm resulted in severe weather conditions, including heavy and wet snow, sleet, rain, and high winds.	Overtime costs for snow removal.
March 06 2018	Winter Storm	Yes	A major winter storm resulted in severe weather conditions, including heavy and wet snow, sleet, rain, and high winds.	Overtime costs for snow removal.
March 20 2018	Winter Storm	Yes	A major winter storm resulted in severe weather conditions, including heavy and wet snow, sleet, rain, and high winds.	Overtime costs for snow removal.
February 11 2019	Winter Storm	Yes	A significant winter storm caused hazardous weather conditions including wet snow, sleet, freezing rain, significant wind gusts, and accumulating ice on roadways.	Overtime costs for snow removal.
January 8 2019	Winter Storm Harper	Yes	A major winter storm caused hazardous weather conditions including heavy and wet snow, sleet, heavy and freezing rain, ice, bitter cold, sustained high winds, tidal and coastal flooding, and main stream and river flooding.	Overtime Costs for snow removal.
March 3 2019	Winter Storm	Yes	A major winter storm caused hazardous weather conditions involving heavy, wet snowfall and sleet.	Overtime Costs for snow removal.

Notes:

9.13.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern and risk to the Town of West New York. For additional vulnerability information relevant to this jurisdiction, refer to Section 4 (Risk Assessment).

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:





- High—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- Moderate—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- Low—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.13-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	495	CEHA:	7	CEHA:	\$18,480,954	High
		SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$1,439,292	
		SLR +3ft:	0	SLR +3ft:	1	SLR +3ft:	\$1,439,292	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	3,852	Category 1:	26	100-year Wind Loss:	\$5,006,421	High
		Category 2:	5,116	Category 2:	47			
		Category 3:	5,116	Category 3:	47	500-year Wind Loss:	\$40,426,112	
		Category 4:	5,116	Category 4:	48			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	5,116	NEHRP D&E:	48	100-year Loss:	\$41,276	High
		Liquefaction Class 4:	5,116	Liquefaction Class 4:	48	500-year Loss:	\$5,026,918	
						2,500-year Loss:	\$76,783,296	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	6,736	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	11,683					
Flood	100- and 500-Year Mean Return Period Event	100-year	3,237	100-year	18	100-year Loss:	\$11,806,503	High
		500-year	4,424	500-year	32			
Geological	High Landslide Susceptibility Areas	Class A:	307	Class A:	11	Class A:	30888112.6	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	3	Wildfire:	\$4,563,513	Moderate





9.13.7.1 REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Town of West New York.

- Number of repetitive loss (RL) properties: 1
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: 0

Note: RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

9.13.7.2 CRITICAL FACILITIES

The table below identifies critical facilities and lifelines in the community located in the 1-percent and 0.2-percent floodplain.

Table 9.13-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
None identified					

9.13.7.3 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- A pre-flood plan is needed to alert the public to move their vehicles from parking garages which are prone to flooding.
- There is one repetitive loss property in the town.
- The North Hudson Regional Fire Department is on the waterfront. It services a large portion of the County and may be hazard prone.
- Numerous critical facilities (Town Hall/Police Dept/EOC/Fire Department, EMS building, sheltering facilities/warming and cooling centers) have need for generators.
- The Town of West New York has a combined sewer overflow system which needs to be addressed.
- The Town’s emergency radio system needs additional coverage. The Town plans to install a repeater at the North Hudson Fire Lot. However, the location is flood prone and equipment would need to be installed above the flood level and have backup power.
- There is brushfire risk on the cliff and at Donnelly Memorial Park. Small human caused fires have occurred in the past and been put out by the fire department but under dry and high wind conditions, there is risk for large fire, possibly impacting adjacent structures.

9.13.7.4 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of West New York that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of West New York





has significant exposure. Refer to Figure 9.13-1 and 9.13-2 which illustrate the hazard area extent and locations in the Town.

9.13.7.5 HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of West New York. The Town of West New York has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town agreed with the calculated hazard rankings.

Table 9.13-14. Town of West New York Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Medium	Low	High	Medium
Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure	
Medium	High	High	Medium	N/A	

9.13.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.13.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex

Table 9.13-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
WNY-1: Develop and implement an enhanced all-hazards, public outreach / education / mitigation	OEM	In Progress	X	2020-West New York-003





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
<p>information program on natural hazard risks and what citizens can do in the way of mitigation and preparedness, including flood insurance. This program will include: Providing general natural hazard risk, preparedness and mitigation, and related NFIP information in regular newsletter and mailings. Including natural hazard risk and risk reduction information through social media channels and email blast systems. Posting of flyers and other readily available NFIP informational materials at Town Hall or distributing at regular civic meetings. Preparation, distribution and analysis of public surveys. Developing/maintaining a natural hazard risk management webpage on the municipal website where information and mapping can be posted. Enhance public outreach to residents in NFIP floodplain areas to inform of annual grant opportunities, etc. which may include periodic articles and handouts</p>				
WNY-2: Improve capacity of overall emergency response by establishing and training a Citizen Emergency Response Team	Administrator's Office	No progress	X	2020-West New York-004
WNY-3: Install Permanent Generators at Critical Facilities, including Town Hall (PD and Fire Station), EMT, DPW, Memorial High and Public Library (shelters/heating and cooling stations)	Administrator's Office	In Progress	X	2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012
WNY-4: Install permanent emergency lighting on the outside of public buildings; mobile light towers and portable generators	Administrator's Office	In Progress, have 2 large mobile generators and 5-10 small mobile generator.	X	2020-West New York-005
WNY-5: Develop and implement Nixle or similar public notification system through social media	Police Department	Complete, have Nixle and Swift 911.		

In addition to the above progress, the Town of West New York has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:





- The Police Department did a full upgrade of the dispatching center (roughly \$650,000 project).

9.13.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Town of West New York participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Town of West New York participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.13- summarizes the comprehensive-range of specific mitigation initiatives the Town of West New York would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.13-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.13-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-West New York-001	Radio Communications Building	The radio communications building near the 11th Avenue port is being upgraded to handle radio communications in the area. It is in a location that is prone to flooding but is the only location available for this use.	Critical infrastructure in the building will be elevated above the 500-year flood level. A generator will be installed above the 500-year flood level.	Existing	Flood, Severe Weather, Severe Winter Storm	2, 6	<u>OEM</u>	HMGP, PDM, FMA	Radio communications remain functional during flooding and storm events	\$100K	Within 2 years	High	SIP	PP, ES
2020-West New York-002	Brushfire Mitigation	There is possible wildfire risk to the areas between Kennedy Boulevard East and River Road and at Donnelly Memorial Park. Small fires have happened in this area in the past due to human causes (small fires, cigarette butts, etc.). A larger fire under dry and windy conditions may impact buildings surrounding the area.	The Town will conduct a feasibility assessment to determine what level of wildfire risk exists. Actions identified will be implemented. Possible actions include vegetation management, prescribed burning or removal of wildfire fuel, clearing vegetation near buildings to provide a buffer zone, etc.	Existing	Wildfire	1, 2, 4	<u>OEM</u>	Municipal budget, HMGP, Firefighter assistance grant program	Reduction in wildfire risk	\$1,000 for feasibility assessment.	Within 2 years	High	NSP	NR, PP
2020-West New York-003	Pre-flood plan for parking garages	Parking garages near the waterfront have been flooded and resulted in damaged vehicles.	The Town will develop a pre-flood plan with messaging to remove cars from	N/A	Flood	2	<u>Public Safety</u>	Municipal budget	Reduction in damaged vehicles	\$250	Within 6 mo	High	EAP	PI





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			flood prone parking garages.								months			
2020-West New York-004	CERT Team	The Town lacks a CERT team.	Improve capacity of overall emergency response by establishing and training a Citizen Emergency Response Team.	N/A	All Hazards	1, 2, 5, 6	OEM, Public Safety	Municipal budget, County OEM support	Additional capacity for disaster events	\$10,000	Within 1 year	High	LPR	ES
2020-West New York-005	Emergency Lighting for Public Buildings	Public Buildings lack external emergency lighting	Install permanent emergency lighting on the outside of public buildings.	Existing	Coastal Storm, Earthquake, Severe Weather, Severe Winter Storm, Flood	6	OEM, Public Safety	Municipal budget	Emergency lighting established	\$50,000	Within 1 year	High	SIP	ES
2020-West New York-006	Update Flood Damage Prevention Ordinance	The Flood Damage Prevention Ordinance lacks the state required 1-foot freeboard.	Update the Flood Damage Prevention Ordinance to current NJ DEP requirements.	New	Flood	2, 5	Administration, Building Dept	Municipal budget	Meet state standards	\$200	Within 6 months	High	LPR	PR
2020-West New York-007	Mitigate flood-prone properties, including RL/SRL property	The Town has one repetitive loss property	Conduct outreach to 10 flood-prone property owners, including the RL/SRL property owner and provide information on mitigation alternatives.	Existing	Flood	1, 2, 5	FPA	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents	\$150,000	3 years	High	SIP	PP
2020-West New York-008	Backup generator for PS #5	PS #5 is a sheltering location. The School lacks a backup power source.	The Town Engineer will research what size generator is necessary to supply backup power to the school. The town will then work	Existing	All hazards	6	School Board, OEM, Engineer	FEMA HMGP and PDM, Emergency Management Performance	Continuity of operations maintained	\$25,000	Within 5 years	High	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			with the school to purchase and install a generator at the school.					e Grants (EMPG) Program, School Budget						
2020-West New York-009	Replace backup generators at the High School	The High School is a sheltering location. The School's two backup generators need replacement.	The Town will work with the school to purchase and install replacement generators at the school.	Existing	All hazards	6	<u>School Board</u> , OEM, Engineer	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget	Continuity of operations maintained	\$50,000	Within 5 years	High	SIP	ES
2020-West New York-010	Backup generator for Freshman Academy	Freshman Academy is a sheltering location but lacks a backup power source.	The Town Engineer will research what size generator is necessary to supply backup power to the school. The town will then work with the school to purchase and install a generator at the school.	Existing	All hazards	6	<u>School Board</u> , OEM, Engineer	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget	Continuity of operations maintained	\$25,000	Within 5 years	High	SIP	ES
2020-West New York-011	Backup generator for PS #6	PS #6 is a sheltering location. The backup generator is in need of replacement.	The Town will work with the school to purchase and install a replacement generator at the school.	Existing	All hazards	6	<u>School Board</u> , OEM, Engineer	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program,	Continuity of operations maintained	\$25,000	Within 5 years	High	SIP	ES





Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-West New York-012	Backup generator for Housing Building on 50 th & Palisade.	The Housing Building on 50 th & Palisade is a warming and cooling shelter but lacks a backup power source.	The Town Engineer will research what size generator is necessary to supply backup power to the warming and cooling shelter. The town will then work with the school to purchase and install a generator at the building.	Existing	All hazards	6	OEM, Engineer	School Budget FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget	Continuity of operations maintained	\$25,000	Within 5 years	High	SIP	ES

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.13-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-West New York-001	Radio Communications Building	1	1	0	1	1	1	0	1	1	1	1	1	1	1	12	High
2020-West New York-002	Brushfire Mitigation	0	1	0	0	1	1	0	1	1	1	1	1	1	1	10	High
2020-West New York-003	Pre-flood plan for parking garages	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2020-West New York-004	CERT Team	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-West New York-005	Emergency Lighting for Public Buildings	1	0	0	1	1	1	1	1	1	1	1	1	1	1	12	High
2020-West New York-006	Update Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2020-West New York-007	Mitigate flood-prone properties, including RL/SRL property	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-West New York-008	Backup generator for PS #5	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2020-West New York-009	Replace backup generators at the High School	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High





Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-West New York-010	Backup generator for Freshman Academy	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2020-West New York-011	Backup generator for PS #6	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2020-West New York-012	Backup generator for Housing Building on 50th & Palisade.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.13-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise					2020-West New York-004, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Coastal Storm					2020-West New York-004, 2020-West New York-005, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Dam and Levee Failure								
Drought					2020-West New York-004, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Earthquake					2020-West New York-004, 2020-West New York-005, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Extreme Temperature					2020-West New York-004, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Flood	2020-West New York-006	2020-West New York-001	2020-West New York-003		2020-West New York-001, 2020-West New York-			





Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
					004, 2020-West New York-005, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Geologic					2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Severe Weather		2020-West New York-001			2020-West New York-001, 2020-West New York-004, 2020-West New York-005, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Severe Winter Storm		2020-West New York-001			2020-West New York-001, 2020-West New York-004, 2020-West New York-005, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			
Wildfire		2020-West New York-002		2020-West New York-002	2020-West New York-004, 2020-West New York-008, 2020-West New York-009, 2020-West New York-010, 2020-West New York-011, 2020-West New York-012			

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.





9.13.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Town of West New York followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.13-19. Contributors to the Annex

Entity	Title	Method of Participation
Jonathan Castaneda	Town Administrator	Reviewed annex
Lewis Cannao	OEM Coordinator	Primary POC, Reviewed annex
Paul Cray, PE	Town Engineer	Floodplain Administrator, Reviewed annex
Massiel M. Ferrara	Planning Manager	Reviewed annex, Coordinator
William Bringas	Emergency Medical Service Department Coordinator, OEM	Secondary POC, reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy





Figure 9.13-1. Town of West New York Hazard Area Extent and Location Map

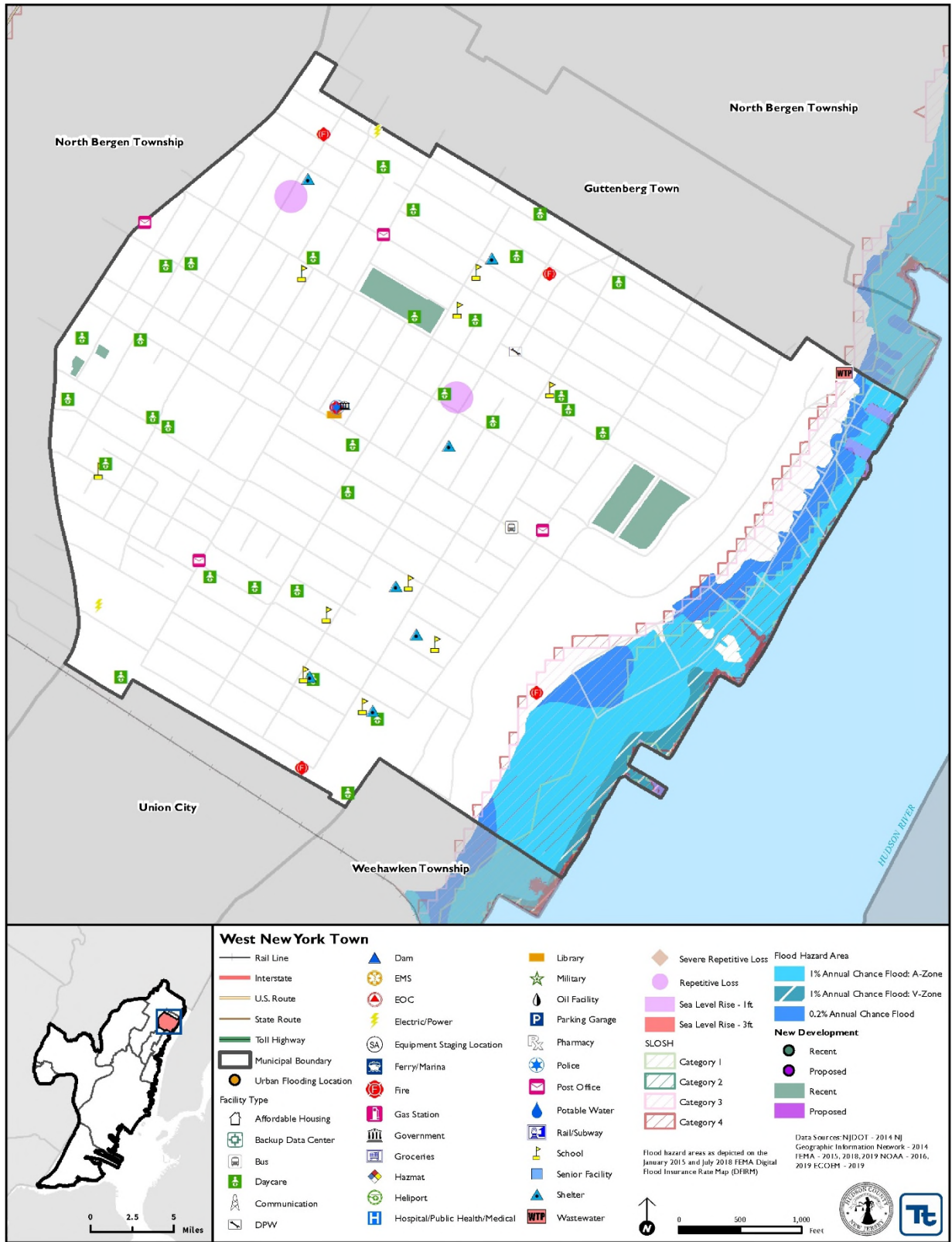
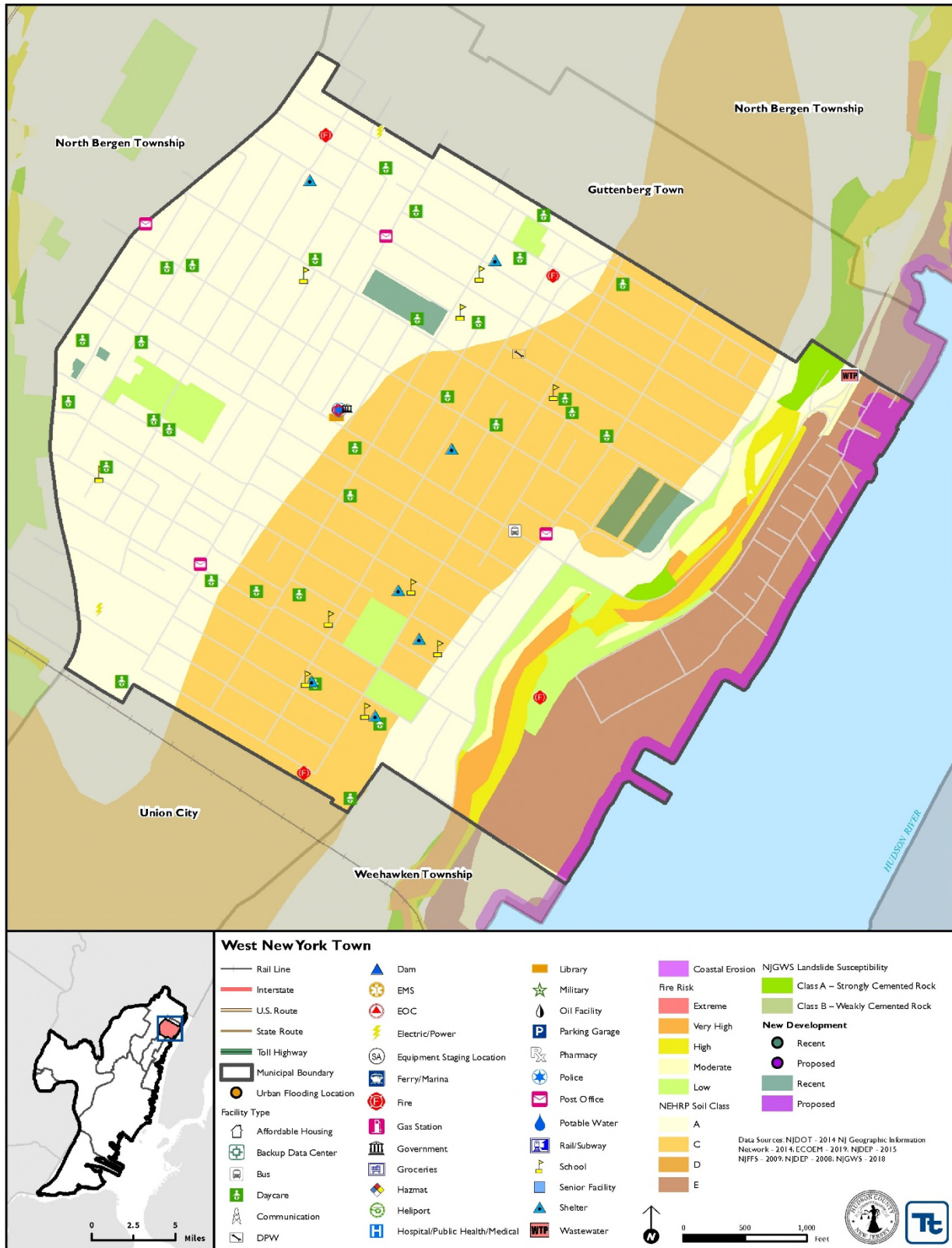




Figure 9.13-2. Town of West New York Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Radio Communications Building		
Project Number:	2020-West New York-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather, Severe Winter Storm		
Description of the Problem:	The radio communications building near the 11 th Avenue port is being upgraded to handle radio communications in the area. It is in a location that is prone to flooding but is the only location available for this use.		
Action or Project Intended for Implementation			
Description of the Solution:	Critical infrastructure in the building will be elevated above the 500-year flood level. A generator will be installed above the 500-year flood level.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	500-year flood	Estimated Benefits (losses avoided):	Radio communications remain functional during flooding and storm events
Useful Life:	50 years for elevation, 5 years for generator	Goals Met:	2, 6
Estimated Cost:	\$100,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	HMGP, FMA, PDM
Responsible Organization:	OEM	Local Planning Mechanisms to be Used in Implementation if any:	Emergency Operation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facility	N/A	No other viable options for location
	Use satellite phones for communication	\$500 per phone	Would not function as an open radio channel
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Radio Communications Building	
Project Number:	2020-West New York-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services of radio communication
Property Protection	1	Protects equipment from flood damage
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	Project protects public services
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Severe Winter Storm
Timeline	1	Within 2 years
Agency Champion	1	OEM
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Brushfire Mitigation		
Project Number:	2020-West New York-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Wildfire		
Description of the Problem:	There is possible wildfire risk to the areas between Kennedy Boulevard East and River Road and at Donnelly Memorial Park. Small fires have happened in this area in the past due to human causes (small fires, cigarette butts, etc.). A larger fire under dry and windy conditions may impact buildings surrounding the area.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will conduct a feasibility assessment to determine what level of wildfire risk exists. Actions identified will be implemented. Possible actions include vegetation management, prescribed burning or removal of wildfire fuel, clearing vegetation near buildings to provide a buffer zone, etc.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD by feasibility assessment	Estimated Benefits (losses avoided):	Reduction in wildfire risk
Useful Life:	TBD by feasibility assessment	Goals Met:	1, 2, 4
Estimated Cost:	\$1,000 for feasibility assessment.	Mitigation Action Type:	Natural Systems Protection
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	Municipal budget, HMGP, Firefighter assistance grant program
Responsible Organization:	OEM	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Clear cut brush	\$200,000	Negative environmental impacts
	Remove buildings near brush	\$250,000 per building removed	Negative public opinion, economic impacts
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Brushfire Mitigation	
Project Number:	2020-West New York-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects buildings from wildfire risk
Cost-Effectiveness	0	
Technical	0	Requires outside technical support
Political	1	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	Protects environment from wildfire
Social	1	
Administrative	1	
Multi-Hazard	1	Wildfire
Timeline	1	Within 2 years
Agency Champion	1	OEM
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Mitigate flood-prone properties, including RL/SRL property		
Project Number:	2020-West New York-007		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages to one property. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to 10 flood-prone property owners, including the RL/SRL property owner and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the area that experience frequent flooding (high risk areas).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event + freeboard (<i>in accordance with flood ordinance</i>)	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	Goals Met:	1, 2, 5
Estimated Cost:	\$150,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Three years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	NFIP Floodplain Administrator, supported by homeowners	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Buy out structure	\$500,000	Costly, loss of valuable real estate
	Elevate roads	\$500,000	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Mitigate flood-prone properties, including RL/SRL property	
Project Number:	2020-West New York-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Families moved out of high-risk flood areas.
Property Protection	1	Properties protected from flooding
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The Town has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	0	
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup generator for PS #5		
Project Number:	2020-West New York-008		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	PS #5 is a sheltering location. The School lacks a backup power source.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town Engineer will research what size generator is necessary to supply backup power the school. The town will then work with the school to purchase and install a generator at the school.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget
Responsible Organization:	School Board, OEM, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup generator for PS #5	
Project Number:	2020-West New York-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect the sheltering services of the school.
Property Protection	1	Project will protect the school from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The town lacks the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	School Board, OEM, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Replace backup generators at the High School		
Project Number:	2020-West New York-009		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The High School is a sheltering location. The School's two backup generators need replacement.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will work with the school to purchase and install replacement generators at the school.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$50,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget
Responsible Organization:	School Board, OEM, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Replace backup generators at the High School	
Project Number:	2020-West New York-009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect the sheltering services of the school.
Property Protection	1	Project will protect the school from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The town lacks the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	School Board, OEM, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup generator for Freshman Academy		
Project Number:	2020-West New York-010		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	Freshman Academy is a sheltering location but lacks a backup power source.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town Engineer will research what size generator is necessary to supply backup power to the school. The town will then work with the school to purchase and install a generator at the school.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget
Responsible Organization:	School Board, OEM, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup generator for Freshman Academy	
Project Number:	2020-West New York-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect the sheltering services of the school.
Property Protection	1	Project will protect the school from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The town lacks the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	School Board, OEM, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup generator for PS #6		
Project Number:	2020-West New York-011		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	PS #6 is a sheltering location. The backup generator is in need of replacement.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town will work with the school to purchase and install a replacement generator at the school.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget
Responsible Organization:	School Board, OEM, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup generator for PS #6	
Project Number:	2020-West New York-011	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect the sheltering services of the school.
Property Protection	1	Project will protect the school from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The town lacks the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	School Board, OEM, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Backup generator for Housing Building on 50th & Palisade.		
Project Number:	2020-West New York-012		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The Housing Building on 50th & Palisade is a warming and cooling shelter but lacks a backup power source.		
Action or Project Intended for Implementation			
Description of the Solution:	The Town Engineer will research what size generator is necessary to supply backup power to the warming and cooling shelter. The town will then work with the school to purchase and install a generator at the building.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Ensures continuity of operations; provides a shelter for residents
Useful Life:	20 years	Goals Met:	6
Estimated Cost:	\$25,000	Mitigation Action Type:	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	FEMA HMGP and PDM, Emergency Management Performance Grants (EMPG) Program, School Budget
Responsible Organization:	OEM, Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Backup generator for Housing Building on 50th & Palisade.	
Project Number:	2020-West New York-012	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect the sheltering services of the school.
Property Protection	1	Project will protect the school from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The town lacks the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	School Board, OEM, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





JERSEY CITY MUNICIPAL UTILITIES AUTHORITY

MUA AT A GLANCE

Total Population Served in Hudson County: 386,768

Total Land Area in Hudson County: 24.79 sq. mi

Services Provided: Sewerage treatment, water systems

Service Areas: Bayonne, Hoboken, Jersey City and areas outside of Hudson County



Facilities and Infrastructure

- 250 miles of sewers, 5,000 catch basins
- 24 CSO regulators
- 21 CSO netting facilities
- 12 local sewer pump stations, 2 main sewer pumping stations with grit chambers
- 1 water pump station and 5 million gallon storage tank

1% Annual Chance Flood Event



7 # Critical Facilities in Floodplain



Mitigation Action Plan (2020-2025)

Hazards

N/A

Project Types

N/A



High Ranked Hazards

- Coastal Storm
- Earthquake
- Extreme Temperature
- Flood
- Severe Storm
- Severe Winter Storm



9.14 Jersey City Municipal Utilities Authority

This section presents the jurisdictional annex for the Jersey City Municipal Utilities Authority (JCMUA). The annex includes a general overview of the JCMUA; an assessment of the JCMUA’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.14.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the JCMUA’s identified hazard mitigation plan primary and alternate points of contact.

Table 9.14-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Richard Haytas – Chief Engineer Address: 555 New Jersey 440, Jersey City, NJ Phone Number: 201-432-6340 Email: r.haytas@jcmua.com	Name / Title: Brian Messler - Engineer Address: 555 New Jersey 440, Jersey City, NJ Phone Number: 201-432-1150 Email: b.messler@jcmua.com

9.14.2 JURISDICTION PROFILE



The JCMUA operates both sewage and water systems for the City of Jersey City. Daily, the JCMUA maintains over 230 miles of sewers and 5,000 catch basins. The MUA pumps nearly 50 million gallons of wastewater each day to the Passaic Valley Sewage Commissioners’ wastewater treatment plan in the City of Newark through a 72-inch pipe under the Newark Bay.

Potable water services are provided to Jersey City with bulk water provided to Hoboken, United Water, Lyndhurst, Parsippany, Montville, with emergency interconnections with Bayonne, West Caldwell, North Jersey District Water, Newark and Passaic Valley Water Commission. There are approximately 34,000 retail customers in Jersey City.

The JCMUA serves a land area of 21.23 square miles. The JCMUA serves 247,597 persons. The JCMUA owns less than 50 acres. All properties related to the Water System are owned by the City.

INFRASTRUCTURE AND EQUIPMENT

The following information provides the number of critical infrastructure and equipment located within the JCMUA. This list of facilities is valued at greater than \$1 billion.

SEWER

- Approximately 250 miles of pipe with appurtenances
- Two main pumping stations with Grit Chambers
- Interceptor System with Force Main to PVSC
- Owns or maintains 12 local pump stations
- 24 CSO Regulators
- 21 CSO Netting Facilities





WATER

- Approximately 250 miles of pipe with appurtenances
- Pump Station and 5-million-gallon storage tank
- 23-mile aqueduct with appurtenances from Morris County to Jersey City
- Water treatment in Morris County
- Two major reservoirs with dams in Morris County

9.14.3 CAPABILITY ASSESSMENT

The JCMUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various mitigation programs
- The jurisdiction’s adaptive capacity for the impacts of climate change

9.14.3.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

Refer to the City of Jersey City’s annex (Section 9.7) for information on planning, legal, and regulatory capabilities in the City. The JCMUA did not provide anything in addition to what is captured in Section 9.7.

9.14.3.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the JCMUA.

Table 9.14-2. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	JCMUA/Engineering Sub-consultant
Planners or engineers with an understanding of natural hazards	Yes	JCMUA/Engineering Sub-consultant
Staff with training in benefit/cost analysis	No	-
Staff with training in green infrastructure	Yes	JCMUA/Engineering Sub-consultant
Staff with education/knowledge/training in low impact development	Yes	JCMUA
Surveyors	Yes	JCMUA/Engineering Sub-consultant
Stormwater engineer	Yes	JCMUA/Sub -consultant
Personnel skilled or trained in GIS applications	Yes	JCMUA/Engineering Sub-consultant





Staff/Personnel Resource	Available?	Department/Agency/Position
Scientist familiar with natural hazards in local area	No	-
Emergency manager	No	-
NO	No	N/A
Environmental specialist	Yes	JCMUA/Sub-consultant
Grant writers	No	-
Resilience Officer	No	-
Other	No	-

9.14.3.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the JCMUA.

Table 9.14-3. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes (CDGB-DR)
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 219 Grants (nonpoint source pollution)	Yes
Other	No

9.14.3.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the JCMUA.

Table 9.14-4. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – the MUA has a media director
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes – the MUA’s website provides information on their website including stormwater management, news and information, updates to upgrades and improvements, and information on site plan requirements.
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes – the MUA maintains Facebook and Twitter accounts where they use the platforms to relay information regarding construction notices, advisories, and service disruptions.
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information?	No





Criterion	Response
<ul style="list-style-type: none"> If yes, briefly describe. 	
Do you have any established warning systems for hazard events? <ul style="list-style-type: none"> If yes, briefly describe. 	No

9.14.3.5 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the jurisdiction have access to resources to determine the possible impacts of climate change? Yes
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the jurisdiction? No

The table below summarizes the jurisdiction’s adaptive capacity rating for each hazard of concern.

Table 9.14-5. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	High
Drought	Medium
Earthquake	High
Extreme Temperature	High
Flood	High
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating

9.14.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

- Jersey City Stormwater Management Plan** (June 2005) – The plan is a course of action for the City to reduce nonpoint sources of water pollution by development a comprehensive and dynamic stormwater management plan. It is updated every six years. The plan includes several goals that align with the County’s HMP, the Meadowlands Commission Master Plan (2004) and other plans: reducing flood damage, maintaining the biological integrity of streams and drainage channels; and protecting public safety. The City has a combined wastewater and stormwater drainage system that services an area of 6,190 acres. The combined sewer areas are regulated by a separate permit





for combined sewer overflow (CSO). There are two CSO drainage areas in the City – Jersey City East Drainage Area and Jersey City West Drainage Area.

- The City requires each new development that occurs after April 1, 2006 to complete an approved Stormwater Control Plan or a Stormwater Mitigation Plan.
- **Stormwater Pollution Prevention Plan** – This plan outlines how the City will and currently prevents stormwater pollution from new and existing land areas.
- **Development and Evaluation of Alternatives for Long Term Control Planning for Combined Sewer Systems – Regional Report (July 1, 2019):** The overall goal of this report was to develop and evaluate a range of CSO control alternatives that meet the requirements of the federal CSO control policy section and the USEPA combined sewer overflows guidance. As part of this report, the JCMUA analyzed a variety of CSO control alternatives and systems already in place. This included:
 - Green infrastructure – the green infrastructure that was focused on were those that had the ability to retain at least one inch of rain, design flexibility, and visual appeal. For the JCMUA, roadside rain gardens, bioswales, and tree pits.
 - Sewer System Optimization – JCMUA has implemented an ongoing program to optimize its sewer system, including:
 - The addition of two tide gates in series at each regulator outfall to reduce tidal inflow and prevent inadvertent tidal inflow leakages through tide gate redundancy;
 - Regular tide gate and Brown and Brown CSO regulator gate maintenance by JCMUA operations crews;
 - Periodic overhauls of tide gate gasket seals and the Brown and Brown regulator gates at each regulator; and
 - Raising weir elevation whenever possible to obtain the highest inline storage in the sewers.
 - The JCMUA took measures to increase storage capacity in the collection system, starting in 2000 with the designs of the netting facilities. This also included several CSO regulator modifications for CSO abatement.
 - JCMUA looked at tanks and tunnels as offline storage alternatives and analyzed the possibility of an east and west side tunnel that would be connected by drop shafts to the east and west side outfalls of the City.
 - STP Expansion – the JCMUA looked at two options of STP expansion – upgrading the east and west side pump stations or upgrading the pump stations and constructing a new force main.
 - Infiltration and inflow (I&I) – the MUA has ongoing operations to reduce excessive I&I. Approximately 67% of the sewer pipes in Jersey City inspected had defects. Based on the inspection, 87,896 feet needed to be replaced or rehabilitated.
 - Sewer Separation – the JCMUA has undertaken sewer separation in Washington and Essex Streets. However, additional sewer separations were recommended.
 - CSO treatment – looked at screening, pretreatment, and disinfection. The JCMUA already has netting/screening systems on all CSO outfalls.
- **Public Education and Outreach:** The JCMUA’s website provides information related to the MUA itself along with information on upcoming meetings, stormwater management, and news about the MUA. The stormwater management section (<https://www.jcmua.com/storm-water>) provides an overview of what stormwater is and why it is a problem in Jersey City. They make the Stormwater Pollution Prevention Plan and the Long Term Control Plan available for the public to review. Other programs they have include:





- Rain Collection Barrels – The JCMUA, Sustainable Jersey City and the Jersey City Environmental Commission offers rain barrels to Jersey City residents. Residents must agree to keep the rain barrels for at least three years and be installed properly.
- Adopt a Catch Basin - The JCMUA revamped the "Adopt a Catch Basin" program for Jersey City. The objective of the program is to connect with local community members, while also learning the importance of keeping your catch basin clean. Those that adopt the catch basin are responsible for caring for it by sweeping trash off the top of the basin, cleaning the drain after heavy rain and snow, and notifying the MUA if they think the catch basin is full or not draining properly.



- **Planning Projects:** The following JCMUA projects are currently underway or are planned for future implementation:
 - As required by Consent Decree, JCMUA is proceeding with the Phase V, VI, and VII sewer replacement projects for the replacement of over 71,700 linear feet of combined sewers that have a structural rating of 4 or 5, which indicates that they are at risk of potential failure within five to ten years.
 - Reconditioning the Claremont/Carteret Regulator Chamber and associated hardware.
 - An internal dive inspection on the 96" outfall on Thomas McGovern Drive and the Claremont/Carteret 96" and 72" combined sewers.
 - National Water Main is cleaning the combined sewers on Grand Street between Fairmount Street & Hudson Street.
 - JCMUA's contractor is replacing the 18" combined sewer on Van Winkle Avenue between Kennedy Blvd. & Senate Street.
- **Capital Improvement Budget:** The MUA maintains a capital improvements budget, which includes funding for mitigation-related projects and programs including sewer replacement and construction and sewer separation studies.
- **Grant Funding:** The MUA routinely pursues available grants to fund mitigation of their facilities, including FEMA mitigation grant funding (404, 406) and CDGB-DR.
- **Clean Waterways, Healthy Neighborhoods:** The JCMUA is a member of the Clean Waterways, Health Neighborhoods. This initiative is a collaboration of the entities who own and operate combined sewer systems within the Passaic Valley Sewerage Commission and North Bergen Municipal Utilities Authority. The initiative aims to keep the public informed of efforts being taken to reduce impacts on water quality due to CSO on areas receiving water.
- **Engineering:** The MUA, through their engineering consultant, developed post-disaster engineering reports assessing Superstorm Sandy damages to their facilities, and identifying potential mitigation projects to address those vulnerabilities.
- **Data and Information:** The MUA continues to maintain risk and loss-related data and maps which have been used within this and prior HMPs, mitigation grant applications, and other risk management plans and programs.
- **Inspections:** The MUA performs inspections of its sewers for structural integrity through the use of closed circuit television cameras which are transported through the sewers.





- Maintenance:** Work crews clean and maintain sewer lines, catch basins, and manholes, in addition to checking resident house connections as needed. JCMUA collects approximately 62,500 cubic feet of trash and grit at its treatment plants each year. Additionally, more than 72,000 cubic feet of material is removed from the City’s catch basins through daily maintenance. The JCMUA "breakout crews" repair, replace and install manholes, catch basins, and sewer lines, which range in size from eight to thirty-six inches in diameter.

9.14.5 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The JCMUA’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.14-6 provides details regarding specific loss and damages the JCMUA experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.14-6. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	No identified damages or losses associated with this event for JCMUA
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (FEMA-DR-4264)	Yes		No identified damages or losses associated with this event for JCMUA
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was	No identified damages or losses associated with this event for JCMUA





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.	
October 29, 2017	Flood	N/A	A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.	No identified damages or losses associated with this event for JCMUA
September 25, 2018	Flash Flood	No	Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	No identified damages or losses associated with this event for JCMUA

9.14.6 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.14-7 summarizes the JCMUA’s risk assessment results and data used to determine the hazard ranking.





A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.



Table 9.14-7. Summary of Risk Assessment Results (for the City of Jersey City)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	1,571	CEHA:	154	CEHA:	\$357,953,844	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	225	SLR +1ft:	34	SLR +1ft:	\$115,060,699	
		SLR +3ft:	225	SLR +3ft:	45	SLR +3ft:	\$135,493,519	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	47,796	Category 1:	4,162	100-year Wind Loss:	\$29,996,248	High
	Category 1 through Category 4 SLOSH	Category 2:	71,463	Category 2:	7,392			
		Category 3:	82,382	Category 3:	9,001	500-year Wind Loss:	\$236,586,921	
		Category 4:	91,842	Category 4:	10418			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	55,946	NEHRP D&E:	5,845	100-year Loss:	\$1,232,508	High
		Liquefaction Class 4:	44,734	Liquefaction Class 4:	3,715	500-year Loss:	\$95,775,077	
						2,500-year Loss:	\$1,377,771,875	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	26,830	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	49,729					
Flood	100- and 500-Year Mean Return Period Event	100-year	48,082	100-year	4,342	100-year Loss:	\$1,083,767,531	High
		500-year	64,516	500-year	6,413			
Geological	High Landslide Susceptibility Areas	Class A:	37	Class A:	9	Class A:	34576791.37	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	208	Wildfire:	30	Wildfire:	\$424,285,619	Moderate





9.14.6.1 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities located in the 1-percent and 0.2-percent floodplain.

Table 9.14-8. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Pump Station 1*	Wastewater Pump	X	X	Pump station is elevated above the base flood elevation
Pump Station 2*	Wastewater Pump	X	X	Pump station is elevated above the base flood elevation
Pump Station 3*	Wastewater Pump	X	X	Pump station is elevated above the base flood elevation
Pump Station 3B*	Wastewater Pump	X	X	2020-JCMUA-004
Pump Station 3C*	Wastewater Pump	X	X	Not Protected
Pump Station 4*	Wastewater Pump	X	X	Currently being redesigned and possibly relocated
Pine Street Pump Station*	Wastewater Pump	X	X	Pump Station has been elevated
West Side Pump Station*	Wastewater Pump		X	Pump station is elevated above the base flood elevation
East Side Pump Station*	Wastewater Pump		X	Pump station is elevated above the base flood elevation
Pump Station 3D*	Wastewater Pump		X	
Pump Station Bayside Park*	Wastewater Pump		X	
Jersey City MUA*	Wastewater Treatment		X	Pump station is elevated above the base flood elevation

Note: *Identified lifeline

9.14.6.2 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities.

- The following drainage basins are prone to tidal flooding:
 - Pine Street - refer to 2020-JCMUA-005
 - Mill Creek - refer to 2020-JCMUA-005
 - Mina Avenue - refer to 2020-JCMUA-005
 - Sip Avenue - refer to 2020-JCMUA-005
 - 18th Street – the MUA extended the outfall to raise rails for mitigation
 - Claremont Carteret - refer to 2020-JCMUA-005
 - Clendenny Avenue - new outfall was installed for Clendenny as the 60” outfall was damaged
 - Essex Street - refer to 2020-JCMUA-005
- Age of drainage system (refer to 2020-JCMUA-002)





- Combine sewer capacity and outfall pipes
- Tide gates at outfalls/tides
- Infiltration and inflow
- It is unknown as to how large of a sewer system to construct with storms getting worse each year
- Grove Street and Marin Blvd. – both roadways flood and paralyze motorists
- Area near prison floods on Routes 1 and 9

9.14.6.3 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the JCMUA that illustrate the probable areas impacted. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the JCMUA has significant exposure. Figures 9.14-1 and 9.14-2 illustrate the hazard area extent and locations.

9.14.6.4 HAZARD RANKING

This section includes the jurisdiction-specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as jurisdiction capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their jurisdiction. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the JCMUA. The JCMUA has reviewed the County and City of Jersey City hazard ranking tables as well as its individual results to reflect the relative risk of the hazards of concern to the jurisdiction.

Table 9.14-9. JCMUA Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Low	High	Medium	High	High	High

Geological Hazards	Severe Weather	Severe Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

9.14.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.14.7.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table





with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.14-10. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
JCMUA – 1: Construct deep tunnels approx. 20 ft in diameter running north & south parallel to the Hackensack and Hudson Rivers to reduce flooding through increased conveyance of stormwater.	JCMUA	In Progress; Designing 18th Street	Yes	2020-JCMUA-001
JCMUA-2: Sewer repair and enhancement in the lower elevations of the City to reduce flooding through increased conveyance	JCMUA	In Progress; EPA Consent Decree	Yes	2020-JCMUA-002
JCMUA – 3: SCADA (technology) enhancements to water system to reduce vulnerability to service interruption caused by extreme rain and flooding.	JCMUA	In Progress	Yes	2020-JCMUA-003
JCMUA-4: Generator replacements at JCMUA facilities: <ul style="list-style-type: none"> JCMUA sanitary pumping station at Port Jersey Blvd E. (PS1) JCMUA sanitary pumping station at Port Jersey Blvd N. (PS2) JCMUA sanitary pumping station at Chapel Ave. PS (PS3B) West Side Pumping Station East Side Pumping Station 	JCMUA	In Progress; generators have been replaced at the West Side Pumping Station and East Side Pumping Station	Yes	2020-JCMUA-004
JCMUA-5: Installation of stormwater pumps at JCMUA outfall and netting facilities: <ul style="list-style-type: none"> 18th St. Outfall in order to mitigate CSO street flooding and sewer backups. Essex St. and Colgate Walkway Mina Drive Netting facility Sip Ave. netting facility Mill Creek Regulator facility Clendenny Netting facility Claremont/Cateret Netting Facility 	JCMUA	In Progress – stormwater pumps have been installed at Essex Street and Colgate Walkway and Mina Drive netting facility	Yes	2020-JCMUA-005
JCMUA-6: East Side Plant Drainage Project - Upgrade abandoned sediment tanks to water storage vessels to alleviate some of the flooding in the downtown Jersey City area.	JCMUA	Discontinue – property has been purchased	-	-





In addition to the above progress, the JCMUA has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- New outfall for Clendenny – 60” outfall was damaged
- Working on installing 55” force main to PVSC near light rail station
- 18th Street Long Slip – extending outfall to raise rails for mitigation

9.14.7.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The JCMUA participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The JCMUA participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.14-11 summarizes the comprehensive-range of specific mitigation initiatives the JCMUA would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.14-12 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.14-11. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-JCMUA-001	Increase Stormwater Conveyance	Problem: The conveyance of the Hackensack and Hudson Rivers leads to flooding due to stormwater.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	JCMUA	EPA Construction Grants, NJDEP Sewage Improvement Grant	Increase capacity; reduce flooding; continuity of operations	\$1 million+	Within 5 years	High	SIP	PP
		Solution: Construct deep tunnels approx. 20 ft in diameter running north & south parallel to the Hackensack and Hudson Rivers to reduce flooding through increased conveyance of stormwater.											
2020-JCMUA-002	Sewer System Repairs Throughout City	Problem: The City's sewer system is in need of repair and leads to flooding in lower lying areas.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	JCMUA	FEMA HMA and JCMUA Budget	Increase capacity; reduce flooding; continuity of operations	\$1 million+	Within 5 years	Medium	SIP	PP
		Solution: Sewer repair and enhancement in the lower elevations of the City to reduce flooding through increased conveyance											
2020-JCMUA-003	Upgrade SCADA System	Problem: The SCADA system is outdated and in need of upgrades.	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	JCMUA	EPA Clean Water Fund Program; EPA Safe Drinking Water Loan Program	Continuity of operations; understanding of system status	\$1 million+	Within 5 years	Medium	SIP	PP, ES, PR
		Solution: SCADA (technology) enhancements to water system to reduce vulnerability to service interruption caused by extreme rain and flooding.											
2020-JCMUA-004	Pump Station Generators	Problem: Generators at the MUA facilities are dated and in needed of replacement.	Existing	All	1, 2, 6	JCMUA	FEMA HMGP and JCMUA Budget	Continuity of operations	\$150,000	Within 5 years	High	SIP	ES
		Solution: Generator replacements at JCMUA facilities:											





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		<ul style="list-style-type: none"> JCMUA sanitary pumping station at Port Jersey Blvd E. (PS1) JCMUA sanitary pumping station at Port Jersey Blvd N. (PS2) JCMUA sanitary pumping station at Chapel Ave. PS (PS3B) 											
2020-JCMUA-005	Stormwater Pumps at JCMUA Facilities	<p>Problem: While the JCMUA has been working on installing stormwater pumps at their facilities, additional pumps need to be installed to help alleviate flooding and allow the facilities to operate during heavy rain.</p> <p>Solution: Installation of stormwater pumps at JCMUA outfall and netting facilities:</p> <ul style="list-style-type: none"> 18th St. Outfall in order to mitigate CSO street flooding and sewer backups. Sip Ave. netting facility Mill Creek Regulator facility Clendenny Netting facility Claremont/Cateret Netting Facility 	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	JCMUA	EPA Construction Grants, NJDEP Sewage Improvement Grant	Increase capacity; reduce flooding; continuity of operations	\$1 million+	Within 5 years	High	SIP	PP
2020-JCMUA-006	Bates St. Sewer Separation	<p>Problem: The area of Bates Street experiences CSO flooding. This leads to flooding of streets and buildings.</p> <p>Solution: Sewer separation in the Bates Street Redevelopment area to alleviate combined sewage flooding.</p>	Existing	Coastal Storm, Severe Weather, Flood	1, 2, 6	JCMUA	EPA Construction Grants, NJDEP Sewage Improvement Grant	Increase capacity; reduce flooding; continuity of operations	\$1 million+	Within 5 years	High	SIP	PP





Notes:

Acronyms and Abbreviations:

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *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 manmade 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*

CRS Category:

- *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 9.14-12. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-JCMUA-001	Increase Stormwater Conveyance	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
2020-JCMUA-002	Sewer System Repairs Throughout City	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JCMUA-003	Upgrade SCADA System	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium
2020-JCMUA-004	Pump Station Generators	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-JCMUA-005	Stormwater Pumps at JCMUA Facilities	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-JCMUA-006	Bates St. Sewer Separation	1	1	1	1	1	0	0	1	0	1	1	1	1	0	10	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.14-13. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise					-004			
Coastal Storm	-003	-001, -002, -003, -005,			-003, -004	-001, -002, -003, -004,		
Dam and Levee Failure					-004			
Drought					-004			
Earthquake					-004			
Extreme Temperature					-004			
Flood	-003	-001, -002, -003, -005,			-003, -004	-001, -002, -003, -004,		
Geologic					-004			
Severe Weather	-003	-001, -002, -003, -005,			-003, -004	-001, -002, -003, -004,		
Severe Winter Storm					-004			
Wildfire					-004			

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.14.8 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The JCMUA followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the MUA’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.14-14. Contributors to the Annex

Entity	Title	Method of Participation
Richard Haytas	Chief Engineer	MUA point of contact for the planning process, attended meetings, provided input for the annex and identified mitigation strategies
Brian Messler	Engineer	MUA alternate point of contact for the planning process, attended meetings, provided input for the annex and identified mitigation strategies





Figure 9.14-1. JCMUA Hazard Area Extent and Location Map 1

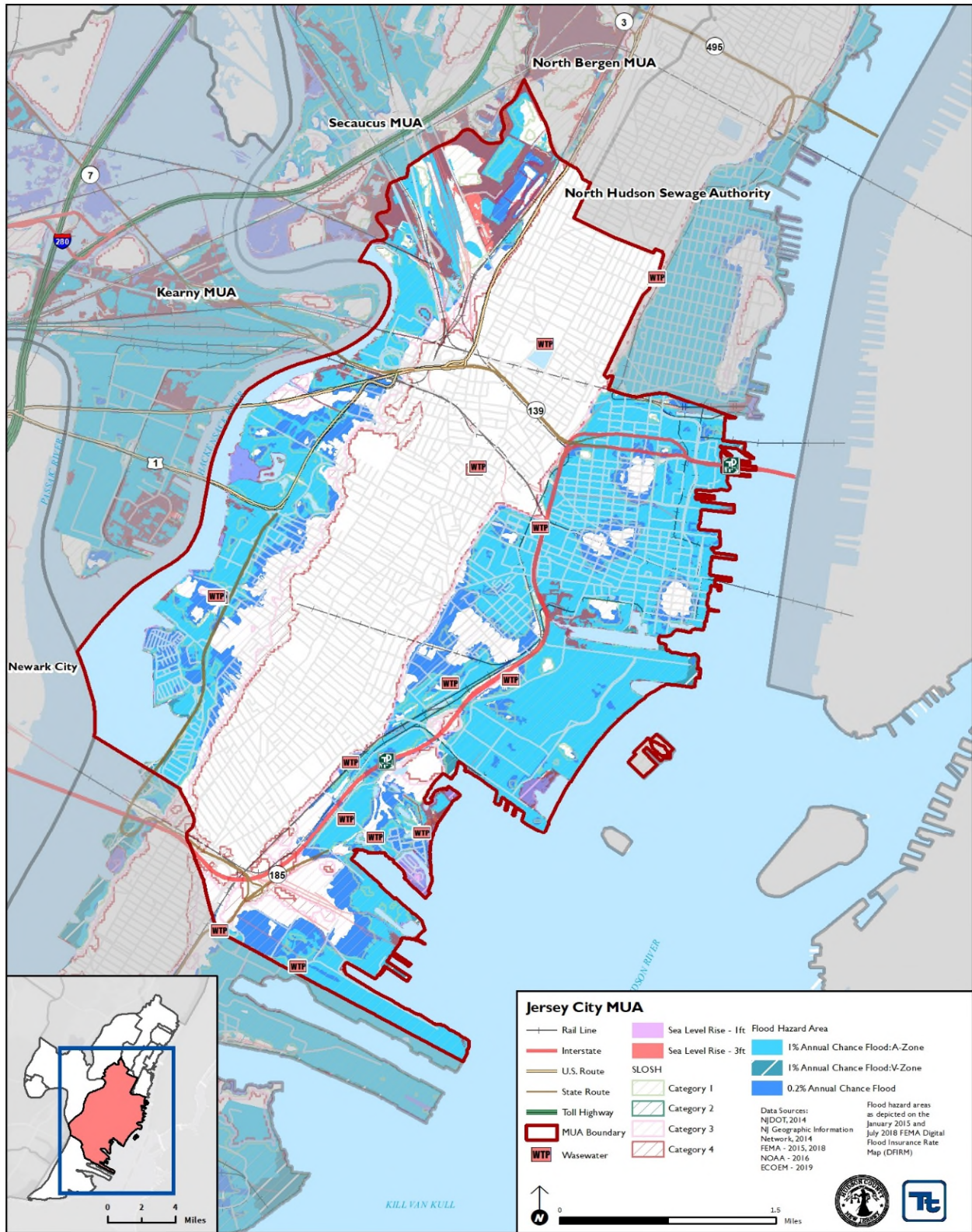
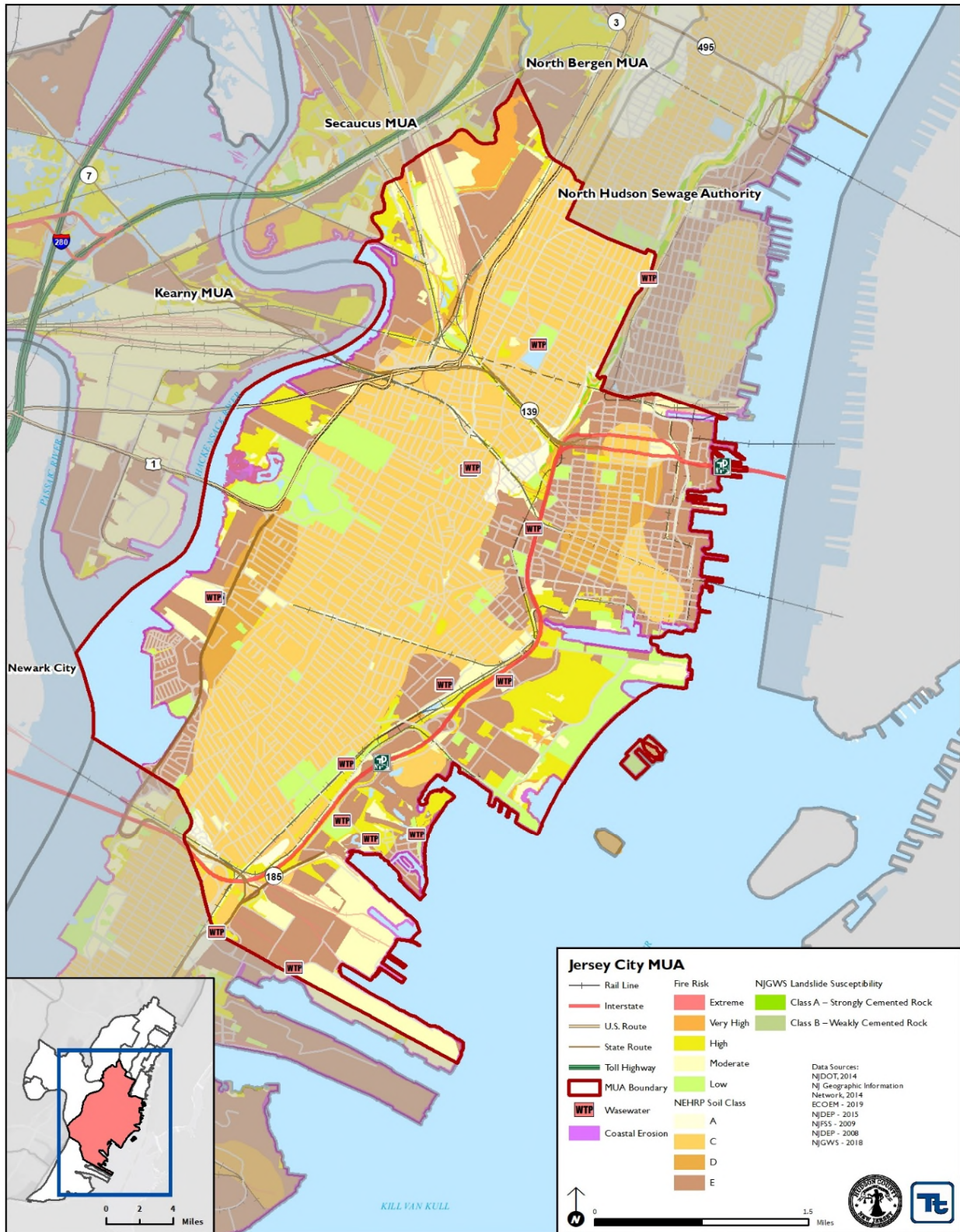




Figure 9.14-2. JCMUA Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-JCMUA-002		
Project Number:	Sewer System Repairs Throughout City		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	The City's sewer system is in need of repair and leads to flooding in lower lying areas.		
Action or Project Intended for Implementation			
Description of the Solution:	Sewer repair and enhancement in the lower elevations of the City to reduce flooding through increased conveyance		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	50 year	Estimated Benefits (losses avoided):	Increase capacity; reduce flooding; continuity of operations
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$1 million+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 3 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMA and JCMUA Budget
Responsible Organization:	JCMUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Repair just floodprone areas	\$1 million+	Does not fix the entire system; areas will still experience damages and flooding
	Elevate all structures in lower elevations	\$1 million+	Costly; not feasible; not all structures can be elevated; infrastructure would still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JCMUA-002	
Project Number:	Sewer System Repairs Throughout City	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduce or eliminate flood damage to infrastructure
Cost-Effectiveness	1	Benefits outweigh the costs – project will be cost effective
Technical	1	
Political	1	
Legal	0	
Fiscal	0	Need funding to complete the project
Environmental	0	No negative environmental impacts
Social	0	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	Within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	





Action Worksheet			
Project Name:	2020-JCMUA-004		
Project Number:	Pump Station Generators		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	Generators at the MUA facilities are dated and in needed of replacement.		
Action or Project Intended for Implementation			
Description of the Solution:	Generator replacements at JCMUA facilities: <ul style="list-style-type: none"> JCMUA sanitary pumping station at Port Jersey Blvd E. (PS1) JCMUA sanitary pumping station at Port Jersey Blvd N. (PS2) JCMUA sanitary pumping station at Chapel Ave. PS (PS3B) 		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	50 year	Estimated Benefits (losses avoided):	Continuity of operations
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$150,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 3 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMGP and JCMUA Budget
Responsible Organization:	JCMUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$50,000+	Weather dependent; not enough space to install
	Install wind turbine	\$50,000+	Weather dependent; not enough space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-JCMUA-004	
Project Number:	Pump Station Generators	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Continuity of operations
Cost-Effectiveness	1	Benefits outweigh the costs – project will be cost effective
Technical	1	
Political	1	
Legal	1	The MUA has the legal authority to implement the project
Fiscal	0	Need funding to complete the project
Environmental	0	No negative environmental impacts
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





KEARNY MUNICIPAL UTILITIES AUTHORITY

MUA AT A GLANCE

Total Population Served in Hudson County: 42,487

Total Land Area in Hudson County: 10.19 sq. mi

Services Provided: Storm water collection, waste water collection, waste water solids removal

Service Areas: Kearny, Meadowlands*, Newark*
(*outside of Hudson County)



Facilities and Infrastructure



- 1 17.5 million gallon per day capacity pumping station in South Kearny
- 4 small pumping stations in the Kearny Meadowlands (Harrison Avenue PS, Kearny Point PS)

1% Annual Chance Flood Event



2 # Critical Facilities in Floodplain



Mitigation Action Plan (2020-2025)

Hazards

All Hazards

Project Types

Structure and Infrastructure Projects

High Ranked Hazards



- Coastal Storm, Flood



9.15 Kearny Municipal Utilities Authority

This section presents the jurisdictional annex for the Kearny Municipal Utilities Authority (MUA). The annex includes a general overview of the Kearny MUA; an assessment of the Kearny MUA’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.15.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Kearny MUA’s identified hazard mitigation plan primary and alternate points of contact.

Table 9.15-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Ceren Aralp, PE - Authority Engineer Address: 39 Central Ave., Kearny Phone Number: 973-912-2636 Email: ceren.aralp@mottmac.com	Name / Title: Gregg Paster, esq. – Authority Attorney Address: 39 Central Ave., Kearny Phone Number: 201-489-0078 Email: gpaster@pasteresq.com

9.15.2 JURISDICTION PROFILE

The Kearny Municipal Utilities Authority (KMUA) was created by the Mayor and Council of the Town of Kearny in May of 1988. The Authority is responsible for the collection of waste water from portions of Meadowlands and the South Kearny sections of the Town. It is also responsible for removing solids from the waste water and pumping it to the Passaic Valley Sewerage Commission in Newark for final treatment. All sewage generated within the KMUA district is conveyed to the Passaic Valley Sewerage Commissioners (PVSC) wastewater treatment plant in Newark, NJ and there are no CSOs within their district. The Kearny Municipal Utilities Authority maintains one 17.5 million gallon per day capacity pumping station in South Kearny and four smaller pumping stations in the Kearny Meadowlands (Town of Kearny 2020).

The Harrison Avenue Pumping Station (HAPS), located at the 1802 Harrison Avenue, provides wastewater service to the southern portion of the Town of Kearny along Newark; Jersey City Turnpike and directs the flow to the Kearny Point Pump Station (KPSS). The HAPS has an existing peak pumping capacity of 3.0 MGD.

The KPSS provides wastewater service to the southern portion of the Town of Kearny. The KPSS is located at 39 Central Avenue, which is at the southernmost point of Kearny, near the confluence of the Passaic and Hackensack Rivers. The KPSS receives wastewater from a portion of the Town of Kearny, locally known as South Kearny, and conveys this waste stream to the Passaic Valley Sewerage Commission (PVSC) wastewater treatment plant for processing. The KPSS has an existing pumping capacity of 17.5 MGD and is comprised of a headworks building and main pump station building.





Figure 9.15-1. Kearny MUA Service Area Map





9.15.3 CAPABILITY ASSESSMENT

The Kearny MUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various mitigation programs
- The jurisdiction’s adaptive capacity for the impacts of climate change

9.15.3.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The Kearny Municipal Utilities Authority adopted Rules and Regulations to establish uniform requirements for dischargers into the KMUA wastewater collection system and to enable the KMUA to protect the public health, safety and welfare in furtherance of all applicable State and Federal laws relating thereto. These Rules and Regulations are established for the conduct of the Authority business and to provide a schedule of fees, rates and regulations under which the Authority will operate. The KMUA and its Rules and Regulations have been established under the County and Municipal Utilities Authorities Law, New Jersey State Statute 40:14B-1 et seq. These are posted within “Kearny Municipal Utilities Authority – Rules and Regulations”, November 2016. Refer to the Town of Kearny’s annex (Section 9.8) for information on planning, legal, and regulatory capabilities.

9.15.3.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Kearny MUA.

Table 9.15-2. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	KMUA/ Engineering Sub-consultant
Engineers or professionals trained in building or infrastructure construction practices	Yes	KMUA/ Engineering Sub-consultant
Planners or engineers with an understanding of natural hazards	Yes	KMUA/ Engineering Sub-consultants
Staff with training in benefit/cost analysis	Yes	KMUA/ Engineering Sub-consultants
Staff with training in green infrastructure	Yes	Engineering Sub-consultant
Staff with education/knowledge/training in low impact development	Yes	Engineering Sub-consultant
Surveyors	Yes	Engineering Sub-consultant
Stormwater engineer	Yes	Engineering Sub-consultant
Personnel skilled or trained in GIS applications	Yes	Engineering Sub-consultant
Local or state water quality professional	Yes	C2 licensed operator-outside consultant





Staff/Personnel Resource	Available?	Department/Agency/Position
Scientist familiar with natural hazards in local area	Yes	Engineering Sub-consultant
Emergency manager	Yes	Town of Kearny Emergency Management Office
Watershed planner	Yes	Engineering Sub-consultant
Environmental specialist	Yes	Engineering Sub-consultant
Grant writers	Yes	Engineering Sub-consultant
Resilience Officer	No	-
Other	Yes	Licensed Operator

9.15.3.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Kearny MUA.

Table 9.15-3. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes (CDGB-DR)
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes (sewer)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes - HMGP
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 219 Grants (nonpoint source pollution)	No
Other	No

9.15.3.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Kearny MUA.

Table 9.15-4. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	No
Do you have any established warning systems for hazard events? If yes, briefly describe.	No





9.15.3.5 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? Yes
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? No

The table below summarizes the adaptive capacity for climate change and the jurisdiction’s rating.

Table 9.15-5. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Medium
Drought	High
Earthquake	Low
Extreme Temperature	Medium
Flood	Medium
Geological Hazards	Medium
Severe Storm	Medium
Winter Storm	Medium
Wildfire	Low
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.15.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

- **Capital Improvement Budget:** The MUA maintains a capital improvements budget, which includes funding for mitigation-related projects and programs.
- **Grant Funding:** The MUA routinely pursues available grants to fund mitigation of their facilities, including FEMA mitigation grant funding (404, 406) and CDGB-DR. Mitigation projects are planned/incorporated within the KMUA's recovery from Superstorm Sandy.
- **Engineering:** The MUA, through their engineering consultant, developed post-disaster engineering reports assessing Superstorm Sandy damages to their facilities, and identifying potential mitigation projects to address those vulnerabilities.
- **Data and Information:** The MUA continues to maintain risk and loss-related data and maps which have been used within this and prior HMPs, mitigation grant applications, and other risk management plans and programs.
- **Backup Power:** The MUA has backup power generation in place at MUA-owned facilities – Bergen Pump, Harrison Pump, and Kearny Pump
- **System Improvements:** The MUA has conducted recent system improvements to increase capacity. The MUA ensures that all new catch basin construction, including on private property, contain grates and curb openings





that are effective at controlling floatables. The MUA continues to retrofit existing catching basins with Type N-Eco curb pieces during roadway rehabilitation projects to ensure floatables are less likely to enter the system.

- **Maintenance:** On a regular basis, the Kearny DPW and KMUA cleans catch basis to keep clear of debris. The Town and the MUA also conducts street sweeping operations each week.
- **Winter Weather Capabilities:** The MUA has snow removal equipment on hand and installed a salt shed for MUA-use.
- **Pumps:** The MUA pumps are inspected weekly.
- **Harrison Ave Facility:** Submarine doors have been installed and closed.
- **Fats, Oils and Grease Program:** During the site plan review process in the Town, establishments that will produce fats, oils, and greases are required to provide grease traps to ensure that these items are not conveyed into the system.
- **Public Engagement and Outreach:** Kearny MUA has implemented a community cleanup program to help keep storm drains clear of debris. The Town uses their municipal website to notify on the difference ordinances associated with stormwater (pet waste management; lawn and garden maintenance)

9.15.5 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Kearny MUA’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.15-6 provides details regarding municipal-specific loss and damages the Kearny MUA experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.15-6. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	No identified damages or losses associated with this event for KMUA
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (FEMA-DR-4264)	Yes		No identified damages or losses associated with this event for KMUA
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event,	No identified damages or losses associated with this event for KMUA





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			<p>with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.</p>	
<p>October 29, 2017</p>	<p>Flood</p>	<p>N/A</p>	<p>A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.</p>	<p>No identified damages or losses associated with this event for KMUA</p>
<p>September 25, 2018</p>	<p>Flash Flood</p>	<p>No</p>	<p>Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to</p>	<p>No identified damages or losses associated with this event for KMUA</p>





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	

Notes:

9.15.6 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.15-7 summarizes the Kearny MUA’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.15-7. Summary of Risk Assessment Results (for the Town of Kearny)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	14	CEHA:	\$26,523,803	High
		SLR +1ft:	0	SLR +1ft:	11	SLR +1ft:	\$39,086,523	
		SLR +3ft:	92	SLR +3ft:	114	SLR +3ft:	\$792,788,952	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	1,109	Category 1:	654	100-year Wind Loss:	\$4,935,400	High
		Category 2:	1,990	Category 2:	875			
		Category 3:	3,080	Category 3:	1,082	500-year Wind Loss:	\$46,204,828	
		Category 4:	4,136	Category 4:	1268			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	2,118	NEHRP D&E:	887	100-year Loss:	\$1,287,169	High
		Liquefaction Class 4:	1,559	Liquefaction Class 4:	771	500-year Loss:	\$60,212,104	
						2,500-year Loss:	\$843,983,073	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	5,512	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	4,971					
Flood	100- and 500-Year Mean Return Period Event	100-year	1,205	100-year	681	100-year Loss:	\$664,022,538	High
		500-year	1,442	500-year	758			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	11	Wildfire:	\$6,762,355	Moderate





9.15.6.1 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities located in the 1-percent and 0.2-percent floodplain.

Table 9.15-8. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Penn Ave Pump*	Wastewater Pump	X	X	Pump Control Panel is raised above the 100 year flood elevation. The pump station is equipped to be powered by a portable temporary power generator.
Harrison Ave Pump*	Wastewater Pump	X	X	The pump cannot be elevated; however, it does have a source of backup power to use in the event of a power outage. The building where the generator is located has a flood barrier built around it and designed to a 500-year flood event

Note:

*Identified lifeline

9.15.6.2 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their service area:

- The MUA is isolated from primary firefighting capabilities.
- Aging infrastructure is vulnerable to a severe earthquake.
- Flooding on Fish House Road block access to MUA facilities.
- Interested in funding for pipe rehab for infiltration and inflow
- Pipes south of 2nd and Lincoln need to be looked at
- Perform storm sewer inspections
- Separating stormwater and wastewater
- Main Plant flooding
- 4-man operation; limited resources
- Storm surge and extreme rainfall – primary concerns
- Harrison Avenue – primary flood concern
- Flooding of Harrison Avenue Pumping Station (HAPS) during Superstorm Sandy from flood waters and influent flow during power outage. The HAPS facility is located within the FEMA Special Flood Hazard Area (SFHA). The HAPS first floor elevation is 8.32 NAVD 88. There are no specific flood control barriers or devices at the site. (KMUA Harrison Avenue Pumping Station Sandy Disaster Recovery Engineering Report, March 2013, Hatch Mott MacDonald)
- Flooding of Kearny Point Pumping Station (KPPS) during Superstorm Sandy from influent flow and back-pressure of force main during extended PVSC shutdown. The KPPS is located outside the NFIP SFHA. The approximate ground elevation at the KPPS is 13.00 ft. There are no specific flood control barriers or devices at the site. (KMUA Kearny Point Pumping Station Sandy Disaster Recovery Engineering Report, March 2013, Hatch Mott MacDonald)
- Power loss after Superstorm Sandy due to insufficient fuel accessibility/availability for emergency generators at all facilities
- Access from the KMUA offices to Harrison Avenue Pump Station, Bergen Avenue Pump Station and MSLA 1-D pump station is severely affected during storm events. Even if the station is not flooded, operational capacity is limited as staff cannot reach to these locations safely to responds to alarms or refuel generators etc.
- Wet wells and valve vaults for PAPS, BAPS and HAPS would be flooded during an event requiring a cleaning.





- Kearny MUA owns numerous air release and vacuum manholes and valve vaults along the Harrison Avenue Force Main connecting Bergen Ave PS and MSLA 1-D PS that is critical to the pump stations operations and may not be accessible or get damaged during a 1% flood event.

9.15.6.3 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Kearny MUA that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Kearny MUA has significant exposure. Refer to maps at the end of this annex which display the hazard area extent and location in the jurisdiction.

9.15.6.4 HAZARD RANKING

This section includes the jurisdiction specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their jurisdiction. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Kearny MUA. The Kearny MUA has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the jurisdiction.

During the review of the hazard ranking, the Kearny MUA indicated the following:

- Adjusted the calculated hazard ranking for drought from medium to low as drought as a low impact risk to the MUA. Drought only reduces flow passed on to PVSC.
- Adjusted the calculated ranking for earthquake from high to medium due to the previous event history of earthquakes occurring in the MUA service area.
- Adjusted the calculated hazard ranking for severe storm and winter storm from high to medium. While these events are frequent, the MUA has backup power in place and have performed recent system improvements to increase capacity.
- Adjusted the calculated hazard ranking for wildfire from high to low due to the previous event history of wildfires occurring in and impacting the MUA service area.





Table 9.15-9. Kearny MUA Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Low	High	Low	Medium	Medium	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	Medium	Medium	Low	N/A

9.15.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.15.7.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.15-10. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
KMUA-1: HAPS and KPPS Shutoff Isolation Valve and Bypass Piping: Installation of a shutoff isolation valve to temporarily redirect flow from the gravity sewer collection area around the HAPS and KPSS during flooding to mitigate future flooding. The HAPS, which provides wastewater service to the southern portion of Kearny and a portion of the New Jersey Turnpike, also receives flow from two upstream pump stations.	Kearny MUA as supported by contract engineer	Complete	-	-
KMUA-2: HAPS Flood Barrier: Creation of a flood barrier system for the currently unprotected HAPS, which is located in a wetlands area and within a flood zone.	Kearny MUA as supported by contract engineer	Complete	-	-
KMUA-3: HAPS Generator Replacement: Replacement of the current generator, which is approaching the end of its useful life due to prolonged operation during Hurricane Sandy.	Kearny MUA as supported by contract engineer	In CIP for implementation	X	2020-KEARNY MUA-001





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
KMUA-4: KPPS Generator Replacement: Replacement of a generator nearing the end of its useful life at the Kearny Point Pump Station, which provides wastewater service to the southern portion of Kearny.	Kearny MUA as supported by contract engineer	Complete	-	-
KMUA-5: SCADA Upgrades to Pump Stations: Upgrade SCADA systems at all pump stations to enhance monitoring and operation during periods when the stations are otherwise inaccessible.	Kearny MUA as supported by contract engineer	No progress – need funding	X	2020-KEARNY MUA-002
KMUA-6: KPPS Fueling Station: Construct a fueling station at KPPS.		No Progress	X	2020-KEARNY MUA-003
KMUA-7: KPSS Salt Shed: Construct a salt shed at KPSS.	Kearny MUA	Completed	-	-
KMUA-8: Provide support to county regarding stormwater controls for Fish House Road and Newark-Jersey City Turnpike. Both roads flood during large tidal storm surges and remain flooded for prolonged periods of time making accessibility to the KMUA's infrastructure limited.	Hudson County; Kearny MUA as supported by contract engineer		X	2020-KEARNY MUA-005
KMUA-9: Provide support for State and County led mitigation flood control measures for other low-lying regions in South Kearny to limit flooding caused by storm surges.	State of NJ, Hudson County, Town of Kearny, Kearny MUA as supported by contract engineer	Ongoing Capability	-	-

9.15.7.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Kearny MUA participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Kearny MUA participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.15-11 summarizes the comprehensive-range of specific mitigation initiatives the Kearny MUA would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 jurisdiction priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.





As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.15-12 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.15-11. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-KEARNY MUA-001	HAPS Generator Replacement	Problem: The current generator at the Harrison Avenue Pump Station is approaching the end of its useful life due to prolonged operation during Hurricane Sandy.	Existing	All	1, 2, 6	Kearny MUA	FEMA HMGP, Capital Improvements Plan	Allow continuity of operations during power outage; provide essential services to service area	\$100,000	Within 2 years	High	SIP	PP, ES
		Solution: Replacement of the current generator at the Harrison Avenue Pump Station. The proposed generator will be a Cummins LTA 10 G1; model 250 DFAC.											
2020-KEARNY MUA-002	SCADA Upgrades to Pump Stations	Problem: The SCADA system is outdated and in need of upgrades. It is not installed on all pumps part of KMUA.	Existing	All	1, 2, 6	Kearny MUA	Capital Improvements Plan; EPA Clean Water Fund Program; EPA Safe Drinking Water Loan Program	Connecting to systems remotely would allow monitoring and operating the pump stations when the roads are not accessible	\$1 million+	Within 5 years	High	SIP	ES, PR
		Solution: Upgrade SCADA systems at all pump stations to enhance monitoring and operation during periods when the stations are otherwise inaccessible.											
2020-KEARNY MUA-003	KMUA Storm Sewer Rehabilitation	Problem: Storm sewer system rehabilitation necessary to alleviate flooding in the area and must be investigated	Existing	All	1, 2, 6	Kearny MUA	FEMA HMGP, Capital Improvements Plan	Alleviate flooding and allow continuity of operations; provide essential	\$1.5 million+	Within 5 years	Medium	SIP	PP, ES
		Solution: Perform investigation and complete mapping of the storm sewer system in the district including condition											





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		assessment and rehabilitation projects to confirm all storm and sanitary sewers are separated.						services to service area					

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.15-12. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-KEARNY MUA-001	HAPS Generator Replacement	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2020-KEARNY MUA-002	SCADA Upgrades to Pump Stations	1	1	1	1	1	1	0	0	0	1	1	1	0	0	9	High
2020-KEARNY MUA-003	KMUA Storm Sewer Rehabilitation	1	1	1	1	1	1	0	0	0	1	1	0	1	1	10	Medium

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.15-13. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Coastal Storm	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Dam and Levee Failure	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Drought	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Earthquake	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Extreme Temperature	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Flood	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Geologic	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Severe Weather	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Severe Winter Storm	-002	-001, -002, -003			-001, -002	-001, -002, -003		
Wildfire	-002	-001, -002, -003			-001, -002	-001, -002, -003		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.15.8 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Kearny MUA followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the MUA’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.15-14. Contributors to the Annex

Entity	Title	Method of Participation
Ceren Aralp, PE	Engineer	Attended meetings, provided input during planning process, identified mitigation strategies
Gregg Paster, esq	Attorney	Attended meetings, provided input during planning process, identified mitigation strategies





Figure 9.15-2. Kearny MUA Hazard Area Extent and Location Map 1

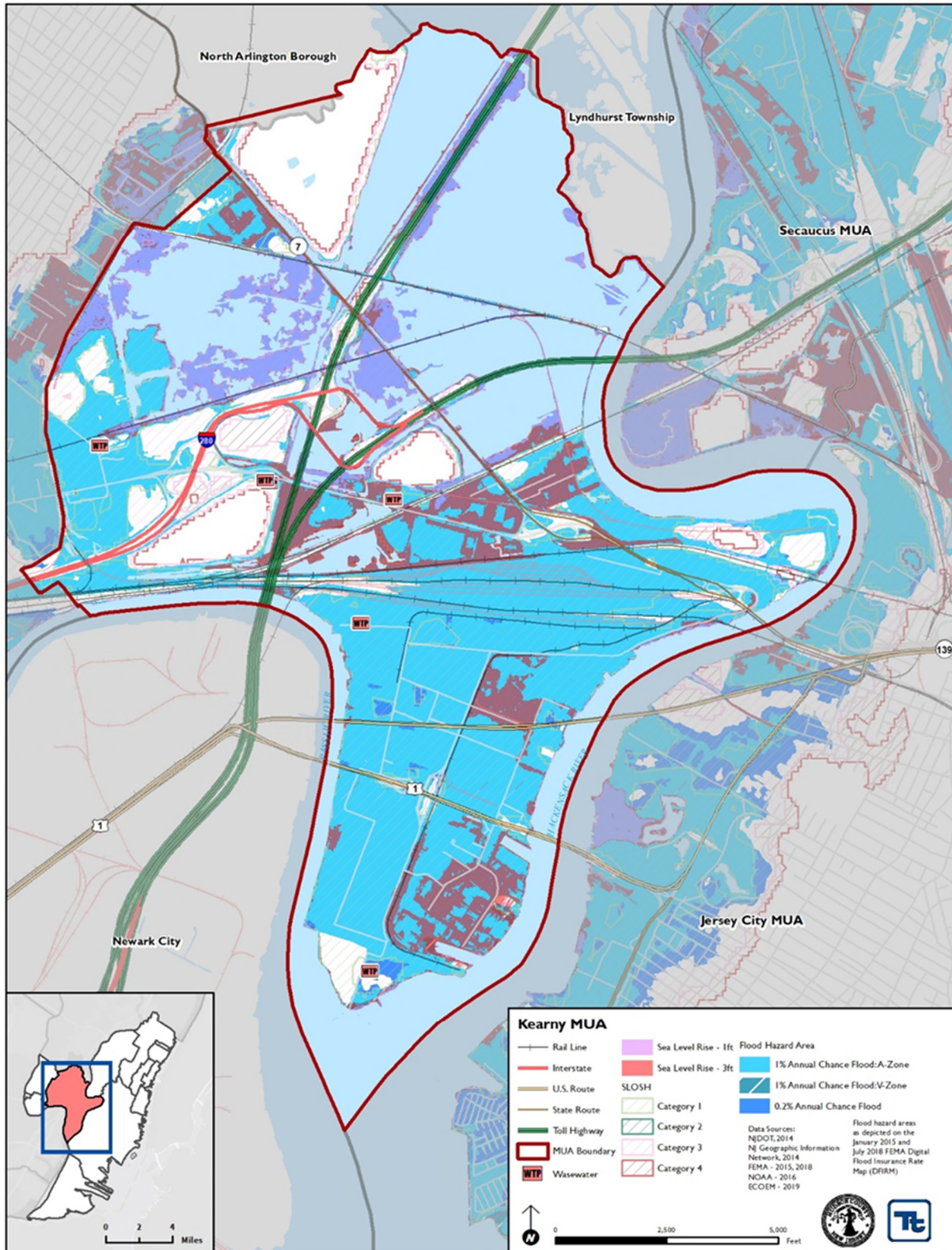
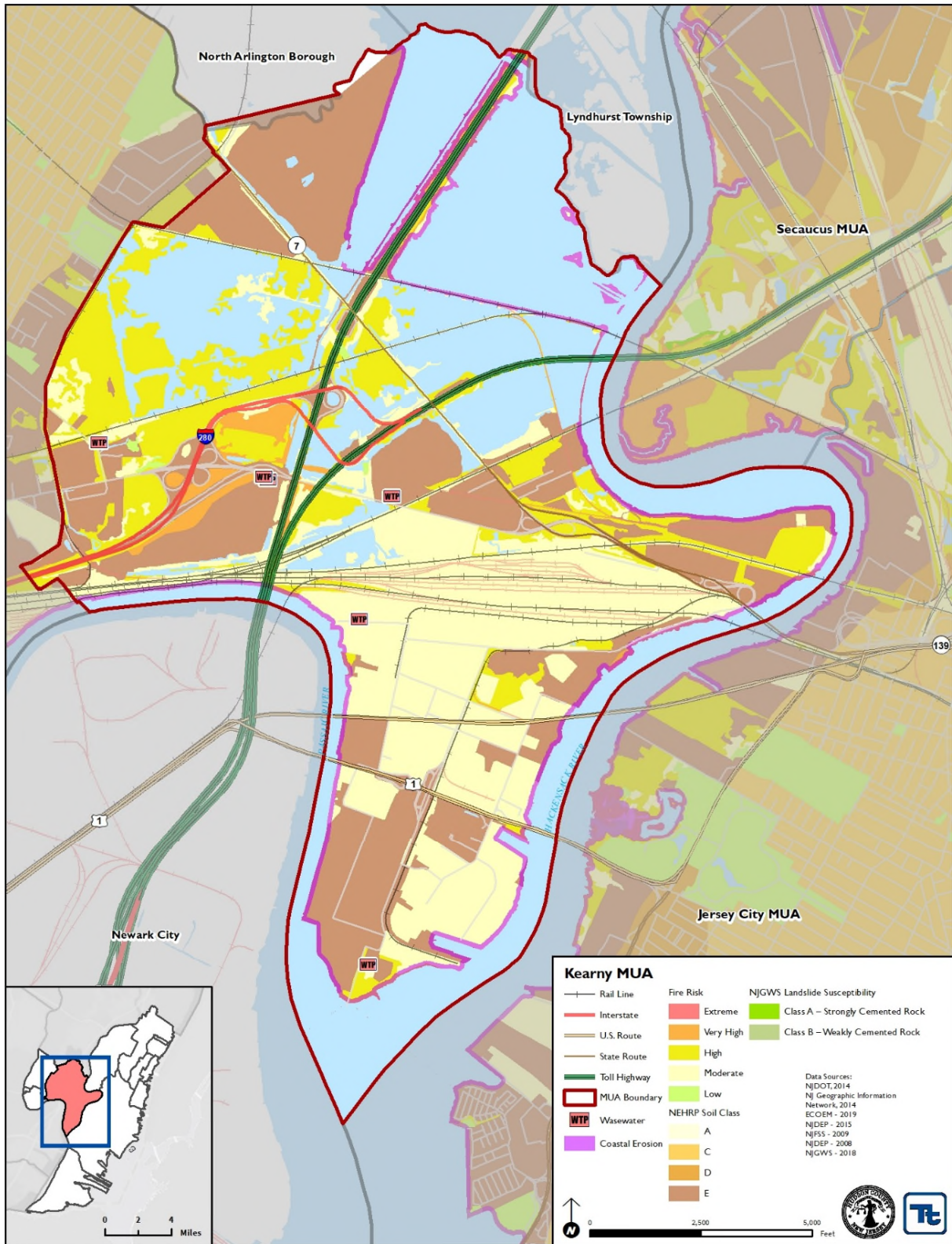




Figure 9.15-3. Kearny MUA Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-KEARNY MUA-001		
Project Number:	HAPS Generator Replacement		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The current generator at the Harrison Avenue Pump Station is approaching the end of its useful life due to prolonged operation during Hurricane Sandy.		
Action or Project Intended for Implementation			
Description of the Solution:	Replacement of the current generator at the Harrison Avenue Pump Station. The proposed generator will be a Cummins LTA 10 G1; model 250 DFAC.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	50 year	Estimated Benefits (losses avoided):	Continuity of operations
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$100,000	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 3 months of receiving funds
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP, Capital Improvements Plan
Responsible Organization:	KMUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$50,000+	Weather dependent; not enough space to install
	Install wind turbine	\$50,000+	Weather dependent; not enough space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY MUA-001	
Project Number:	HAPS Generator Replacement	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Continuity of operations
Cost-Effectiveness	1	Benefits outweigh the costs – project will be cost effective
Technical	1	
Political	1	
Legal	1	The MUA has the legal authority to implement the project
Fiscal	0	Need funding to complete the project
Environmental	0	No negative environmental impacts
Social	0	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	Within 3 years
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020-KEARNY MUA-002		
Project Number:	SCADA Upgrades to Pump Stations		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	The SCADA system is outdated and in need of upgrades. It is not installed on all pumps part of KMUA.		
Action or Project Intended for Implementation			
Description of the Solution:	Upgrade SCADA systems at all pump stations to enhance monitoring and operation during periods when the stations are otherwise inaccessible.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Connecting to systems remotely would allow monitoring and operating the pump stations when the roads are not accessible
Useful Life:	15 years	Goals Met:	1, 2, 6
Estimated Cost:	\$1 million+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 3 months of receiving funds
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	Capital Improvements Plan; EPA Clean Water Fund Program; EPA Safe Drinking Water Loan Program
Responsible Organization:	Kearny MUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Monitor each system in-person	Staff time	Not feasible; time consuming; limits staff capabilities during an event
	Install on certain systems	\$50,000+	Only provides information on certain stations and not the entire system
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY MUA-002	
Project Number:	SCADA Upgrades to Pump Stations	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Storm sewer rehabilitation		
Project Number:	2020-KEARNY MUA-003		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	Storm sewer system rehabilitation necessary to alleviate flooding in the area and must be investigated		
Action or Project Intended for Implementation			
Description of the Solution:	Perform investigation and complete mapping of the storm sewer system in the district including condition assessment and rehabilitation projects to confirm all storm and sanitary sewers are separated.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	50 year	Estimated Benefits (losses avoided):	Alleviate flooding and allow continuity of operations; provide essential services to service area
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$1.5 Million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 3-6 months of receiving funds
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP, Capital Improvements Plan
Responsible Organization:	KMUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new independent systems and abandon existing	High	Expensive; not feasible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-KEARNY MUA-003	
Project Number:	Storm sewer rehabilitation	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	Medium	





NORTH BERGEN MUNICIPAL UTILITIES AUTHORITY

MUA AT A GLANCE

Total Population Served in Hudson County: 144,986

Total Land Area in Hudson County: 6.77 sq. mi

Services Provided: Waste water collection

Service Areas: North Bergen, Guttenberg, a small portion of Union City, Newark* (*outside Hudson County)



Facilities and Infrastructure

- Woodcliff Treatment Plant in North Bergen
- 4 pump stations (Central, 60th Street, 8th Street, River Road)
- 9 CSO netting facilities
- 80 miles of combined and separate sewer systems (ranging in size from 6" to 72" diameter)
- 25 static regulators
- 11 dynamic regulators

1% Annual Chance Flood Event



4 # Critical Facilities in Floodplain



Mitigation Action Plan (2020-2025)

Hazards

Coastal Storm, Flood, Severe Weather, Severe Winter Storm

Project Types

Structure and Infrastructure Projects



High Ranked Hazards

- Flood
- Severe Storm
- Severe Winter Storm



9.16 North Bergen Municipal Utilities Authority

This section presents the jurisdictional annex for the North Bergen Municipal Utilities Authority (MUA). The annex includes a general overview of the North Bergen MUA; an assessment of the North Bergen MUA’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.16.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the North Bergen MUA’s identified hazard mitigation plan primary and alternate points of contact.

Table 9.16-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Frank Pestana - Executive Director Address: 6200 Tonnelle Ave Phone Number: 201-422-0100 Email: fpnbmua@aol.com	Name / Title: David Ricigliano - North Bergen OEM Coordinator Address: 6100 Tonnelle Avenue Phone Number: 201-937-7023 Email: dricigliano@northbergen.org

9.16.2 JURISDICTION 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. (<http://www.nbmua.com/>)

The NBMUA services an area of 5.82 square miles, (North Bergen and Guttenberg) with a population of 71,949 (2010 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.

NBMUA owned critical facilities include the following, valued at approximately \$185 million:

- Central Pump Station
- 60th Street Pump Station
- 8th Street Pump Station
- River Road Pump Station





9.16.3 CAPABILITY ASSESSMENT

The North Bergen MUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various mitigation programs
- The jurisdiction’s adaptive capacity for the impacts of climate change

9.16.3.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

Refer to the Town of Guttenberg’s annex (Section 9.4) and the Township of North Bergen’s annex (Section 9.9) for information on planning, legal, and regulatory capabilities.

9.16.3.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the North Bergen MUA.

Table 9.16-2. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Boswell Engineering (S. Hackensack, NJ)
Engineers or professionals trained in building or infrastructure construction practices	Yes	Boswell Engineering (S. Hackensack, NJ)
Planners or engineers with an understanding of natural hazards	Yes	Boswell Engineering (S. Hackensack, NJ)
Staff with training in benefit/cost analysis	Yes	Patricia Bartoli, NB MUA CFO
Staff with training in green infrastructure	NO	
Staff with education/knowledge/training in low impact development	Yes	Boswell Engineering
Surveyors	Yes	Boswell Engineering
Stormwater engineer	NO	Boswell Engineering
Personnel skilled or trained in GIS applications	Yes	Boswell Engineering
Local or state water quality professional	Yes	Frank Pestana
Scientist familiar with natural hazards in local area	Yes	Boswell Engineering
Emergency manager	Yes	David Ricigliano, NB MUA OEM Coordinator
Watershed planner	No	
Environmental specialist	No	
Grant writers	NO	
Resilience Officer	NO	
Other	NO	





9.16.3.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the North Bergen MUA.

Table 9.16-3. Fiscal Capabilities

Table with 2 columns: Financial Resource, Accessible or Eligible to Use? Rows include Community Development Block Grants, Capital Improvements Project Funding, Authority to Levy Taxes for Specific Purposes, User Fees for Water, Sewer, Gas or Electric Service, Incur Debt through General Obligation Bonds, Incur Debt through Special Tax Bonds, Incur Debt through Private Activity Bonds, Withhold Public Expenditures in Hazard-Prone Areas, State-Sponsored Grant Programs, Development Impact Fees for Homebuyers or Developers, Clean Water Act 219 Grants (nonpoint source pollution), Other.

9.16.3.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the North Bergen MUA.

Table 9.16-4. Education and Outreach Capabilities

Table with 2 columns: Criterion, Response. Rows include: Do you have a public information officer or communications office? (Yes), Do you have personnel skilled or trained in website development? (Yes), Do you have hazard mitigation information available on your website? (Yes - The MUA maintains a website...), Do you use social media for hazard mitigation education and outreach? (No), Do you have any citizen boards or commissions that address issues related to hazard mitigation? (No), Do you have any other programs already in place that could be used to communicate hazard-related information? (No), Do you have any established warning systems for hazard events? (CSO Notification System - online mapping tool...)

9.16.3.5 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while





discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the MUA have access to resources to determine the possible impacts of climate change upon the jurisdiction? Yes
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the jurisdiction? Yes

The table below summarizes the jurisdiction’s adaptive capacity rating for each hazard of concern.

Table 9.16-5. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	Medium
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	High
Geological Hazards	Low
Severe Storm	High
Winter Storm	High
Wildfire	Medium
Dam Levee Failure	N/A

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating

9.16.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

- **Development and Evaluation of Alternatives for Long Term Control Planning for Combined Sewer Systems – Regional Report (July 1, 2019):** The overall goal of this report was to develop and evaluate a range of CSO control alternatives that meet the requirements of the federal CSO control policy section and the USEPA combined sewer overflows guidance. As part of this report, the North Bergen MUA analyzed a variety of CSO control alternatives and systems already in place. This included: source control, green infrastructure, infiltration and inflow control, sewer system optimization, storage, sewage treatment plan (STP) expansion or storage, sewer separation, treatment of CSO discharges, and screening of control technologies. The plan identified CSO alternative options for the MUA.
- **North Bergen MUA Sewer Use Regulations (May 2009):** The MUA established rules and regulations for the discharge of wastewaters into the treatment works of the MUA. The objectives of this ordinance is to prevent the introduction of pollutants into the MUA’s treatment works which can interfere with the operation of the systems or contaminate the resulting sludge; prevent the introduction into the MUA’s treatment works, inadequately treated pollutants which will pass through the systems into receiving waters; and improve the opportunity to recycle and reclaim wastewaters and sludges from the systems.
- **Maintenance:** Regular sewer maintenance is performed by the North Bergen DPW which clean and inspect existing sewers to verify that they are properly maintained and operational. When defects are found, there is a contract for emergency repairs that is used multiple times each year to make the needed repairs.





- **Stormwater Management:** The Township of North Bergen has a webpage dedicated to stormwater (<http://www.northbergen.org/Pages/stormwater-management>) and public outreach to residents. The page includes links to the Stormwater Management Plan and codes associated with stormwater. The Township provides tips on how to reduce pollution entering the stormwater system.
- **Capital Improvement Budget:** The MUA maintains a capital improvements budget, which includes funding for mitigation-related projects and programs. The budgets for each year are found on the MUA website.
- **Grant Funding:** The MUA routinely pursues available grants to fund mitigation of their facilities, including FEMA mitigation grant funding (404, 406) and CDGB-DR.
- **Engineering:** The MUA, through their engineering consultant, developed post-disaster engineering reports assessing Superstorm Sandy damages to their facilities, and identifying potential mitigation projects to address those vulnerabilities.
- **Data and Information:** The MUA continues to maintain risk and loss-related data and maps which have been used within this and prior HMPs, mitigation grant applications, and other risk management plans and programs.

9.16.5 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The North Bergen MUA’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.16-6 provides details regarding jurisdiction-specific loss and damages the North Bergen MUA experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.16-6. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	While this storm impacted Hudson County, the MUA did not sustain any significant damages.
January 22-23, 2016	Winter Storm Jonas: Winter Storm, Blizzard, Coastal Erosion (FEMA-DR-4264)	Yes		While this storm impacted Hudson County, the MUA did not sustain any significant damages.
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro	While this storm impacted Hudson County, the MUA did not sustain any significant damages.





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			<p>Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.</p>	
<p>October 29, 2017</p>	<p>Flood</p>	<p>N/A</p>	<p>A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.</p>	<p>While this storm impacted Hudson County, the MUA did not sustain any significant damages.</p>
<p>September 25, 2018</p>	<p>Flash Flood</p>	<p>No</p>	<p>Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the</p>	<p>While this storm impacted Hudson County, the MUA did not sustain any significant damages.</p>





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	

9.16.6 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.16-7 summarizes the Kearny MUA’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.16-7. Summary of Risk Assessment Results (for the Town of Guttenberg)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	0	CEHA:	4	CEHA:	\$16,745,907	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	0	Category 1:	12	100-year Wind Loss:	\$1,835,342	High
		Category 2:	0	Category 2:	12			
		Category 3:	553	Category 3:	13			
	Category 1 through Category 4 SLOSH	Category 4:	553	Category 4:	13	500-year Wind Loss:	\$14,119,218	
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	0	NEHRP D&E:	12	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	12	500-year Loss:	\$1,494,173	
						2,500-year Loss:	\$23,193,507	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,528	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	1,971					
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	6	100-year Loss:	\$112,839	High
		500-year	0	500-year	12			
Geological	High Landslide Susceptibility Areas	Class A:	1659	Class A:	4	Class A:	47379965.48	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





Table 9.16-8. Summary of Risk Assessment Results (for the Township of North Bergen)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	77	CEHA:	10	CEHA:	\$8,795,162	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$74,259	
		SLR +3ft:	172	SLR +3ft:	27	SLR +3ft:	\$322,993,535	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	348	Category 1:	93	100-year Wind Loss:	\$8,400,955	High
		Category 2:	832	Category 2:	245			
		Category 3:	3,556	Category 3:	545			
	Category 1 through Category 4 SLOSH	Category 4:	6,006	Category 4:	787	500-year Wind Loss:	\$64,892,157	
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	374	NEHRP D&E:	112	100-year Loss:	\$0	High
		Liquefaction Class 4:	374	Liquefaction Class 4:	137	500-year Loss:	\$22,664,795	
						2,500-year Loss:	\$305,170,029	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	8,660	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	10,023					
Flood	100- and 500-Year Mean Return Period Event	100-year	479	100-year	138	100-year Loss:	\$139,481,307	High
		500-year	753	500-year	196			
Geological	High Landslide Susceptibility Areas	Class A:	2387	Class A:	73	Class A:	61500460.63	Moderate
		Class B:	0	Class B:	2	Class B:	\$4,921,657	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	29	Wildfire:	6	Wildfire:	\$57,910,523	Moderate





9.16.6.1 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities located in the 1-percent and 0.2-percent floodplain.

Table 9.16-9. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Meter (Central Ps)-Ps01*	Wastewater Pump	X	X	Currently being mitigated – equipment is being elevated
Woodcliff P.S (River Rd)-Ps01W*	Wastewater Pump	X	X	The facility was destroyed by fire three years ago and rebuilt and is mitigated; equipment and facility generator have been elevated
8Th Street Ps-Ps02*	Wastewater Pump	X	X	2020-NBMUA-004 – waterproof door
Central Ps-Ps01*	Wastewater Pump	X	X	Currently being mitigated – equipment is being elevated
61St St Ps (Pumps)-Ps03*	Wastewater Pump		X	
61St St Ps (Wet Well)-Ps03*	Wastewater Pump		X	
61St St Ps (Controls)-Ps03*	Wastewater Pump		X	
8Th Street Fm Air Release-Ps02*	Wastewater Pump		X	

*Identified lifeline

9.16.6.2 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities:

- Flooding is a concern in the eastern and western most areas of the township. Damages from past storms have been to buildings, roadways, sewer lines, walkways, and critical facilities/utilities in these areas in past storm events. The critical facility hospital (Palisades Medical Center) on River Road sustains recurring damage. To alleviate this problem, the MUA conducts ongoing activities to help with this problem.
- High winds during recent storm events damaged buildings, electrical systems and municipal facilities to include damage to the Woodcliff Treatment plant. The treatment plant has a backup generator in the event of power outages and will be able to function without power.
- The North Bergen MUA has treatment facilities and pump stations located in the eastern and western flood areas. A project is currently underway (refer to mitigation action number 2020-NBMUA-001).

9.16.6.3 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the North Bergen MUA that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the North Bergen MUA has significant exposure. Figures 9.16-1 and 9.16-2 illustrate the hazard area extent and locations in the MUA.





9.16.6.4 HAZARD RANKING

This section includes the jurisdiction-specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their jurisdiction. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the North Bergen MUA. The North Bergen MUA has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to their jurisdiction. During the review of the hazard ranking, the North Bergen MUA indicated the following:

- North Bergen MUA adjusted the ranking for coastal erosion and sea level rise from low to medium.
- North Bergen MUA adjusted the ranking for coastal storm from high to medium

Table 9.16-10. North Bergen MUA Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Medium	Medium	Medium	High
Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure	
Low	High	High	Medium	N/A	

9.16.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.16.7.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and can also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.16-11. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
NBMUA -1: Rehabilitate the 6100 Tonnelle Avenue Pump Station – Tonnelle Avenue is a major north-	North Bergen MUA; Boswell Engineering,	Ongoing Capability		





2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
south roadway which frequently floods; flooding increases on Tonnelle Avenue and the Town is faced with a health hazard (overflow of raw sewage) when the pump station fails.	Township of North Bergen/HC Eng.			
NBMUA -2: Construct a new access way to the Woodcliff Sewage Treatment Plant located on River Road. River Road is vulnerable to flooding and there are no means to maintain the existing plant during major storm events. Steep grade behind plant limits options unless the MUA acquires additional property.	NB Eng. and DPW; HC Eng. and Roads and Public Property	Ongoing Capability		
NBMUA -3: Calibrate and fix the North Bergen MUA 25 static regulators and 11 dynamic regulators.	North Bergen MUA; Boswell Engineering, Township of North Bergen	Ongoing Capability		
NBMUA -4: Convert existing sludge holding tanks located at the Central Treatment Plant to wet weather storage tanks to reduce peak wet weather flow. These new holding tanks would retain peak combined sewer flow for a period of time and then release the flow when peak flow in interceptor subsides.	North Bergen MUA; Boswell Engineering, Township of North Bergen	No Progress – remove from HMP update		
NBMUA -5: Enhance mutual aid policies with surrounding municipalities and authorities.	North Bergen MUA, Boswell Engineering surrounding municipalities and authorities	Ongoing Capability		
NBMUA -6: Replace entire box culvert at 91st Street and replace entire roadway as well as north & south sidewalks.	North Bergen MUA; Boswell Engineering, Township of North Bergen	Ongoing Capability		
NBMUA -7: Install backup power to critical structures: N.B. MUA Headquarters Facility and Garage located at 6200 Tonnelle Avenue	North Bergen MUA; Boswell Engineering, Township of North Bergen	Ongoing Capability		

9.16.7.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The North Bergen MUA participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The North Bergen MUA participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource





for Reducing Risk to Natural Hazards' (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.16-12 summarizes the comprehensive-range of specific mitigation initiatives the North Bergen MUA would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.16-13 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.16-12. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-NBMUA-001	Tide gate pump station Fairview Ave./Railroad Ave.	<p>Problem: Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave.</p> <p>Solution: 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 91st Street and Railroad Ave. to reduce flooding in the area.</p>	Existing	Coastal Storm, Severe Weather, Flood, Severe Winter Weather	1, 2, 6	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	FEMA HMGP and FMA, municipal and county budgets	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events	\$20 million	Within 5 years	High	SIP	PP
2020-NBMUA-002	Proposed stormwater diversion along culvert	<p>Problem: West 91st Street constantly floods during rain and storm events.</p>	Existing	Coastal Storm, Severe Weather,	1, 2, 6	North Bergen Engineering, North	FEMA PDM, municipal and	Reduce loss and vulnerability to flooding	\$1.5 million	Within 2 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
	south of 91 st Street	Solution: Upsize approximately 1600 feet of stormwater piping to 91st Street.		Flood, Severe Winter Weather		<u>Bergen MUA</u> with support from Hudson County Engineering	county budgets	in commercial section of Township					
2020-NBMUA-003	Pump station and tide gate along northwestern municipal quadrant	<p>Problem: Flooding during Rain/storm events coupled with tide cycle cause flooding along West Side Ave to 91st Street / Fairview Ave and Railroad Ave.</p> <p>Solution: 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 91st Street and Railroad Ave. to reduce flooding in the area.</p>	Existing	Coastal Storm, Severe Weather, Flood, Severe Winter Weather	1, 2, 6	<u>North Bergen Engineering, North Bergen MUA</u> with support from Hudson County Engineering	FEMA HMGP and FMA, municipal and county budgets	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events	\$20 million	Within 5 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-NBMUA-004	Critical Facility – 8 th Street Pump Station #2	<p>Problem: 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.</p> <p>Solution: Install floodproof doors and elevate equipment, as necessary, to protect the pump station from flood damage.</p>	Existing	Flood, Coastal Storm, Severe Storm	1, 2, 6	North Bergen MUA	FEMA FMA and HMGP, MUA Budget	Continuity of operations, protection from flood damage	\$15,000	Within 5 years (depends on funding)	Medium	SIP	PP, ES

Notes:

<p><u>Acronyms and Abbreviations:</u></p> <p>CAV Community Assistance Visit</p> <p>CRS Community Rating System</p> <p>DPW Department of Public Works</p> <p>FEMA Federal Emergency Management Agency</p> <p>FPA Floodplain Administrator</p> <p>HMA Hazard Mitigation Assistance</p> <p>N/A Not applicable</p> <p>NFIP National Flood Insurance Program</p> <p>OEM Office of Emergency Management</p>	<p><u>Potential FEMA HMA Funding Sources:</u></p> <p>FMA Flood Mitigation Assistance Grant Program</p> <p>HMGP Hazard Mitigation Grant Program</p> <p>PDM Pre-Disaster Mitigation Grant Program</p>	<p><u>Timeline:</u></p> <p>The time required for completion of the project upon implementation</p> <p><u>Cost:</u></p> <p>The estimated cost for implementation.</p> <p><u>Benefits:</u></p> <p>A description of the estimated benefits, either quantitative and/or qualitative.</p>
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- Mitigation Category:**
- 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 manmade 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





CRS Category:

- *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 9.16-13. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-NBMUA-001	Tide gate pump station Fairview Ave./Railroad Ave.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	11	High
2020-NBMUA-002	Proposed stormwater diversion along culvert south of 91 st Street	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2020-NBMUA-003	Pump station and tide gate along northwestern municipal quadrant	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2020-NBMUA-004	Critical Facility – 8 th Street Pump Station #2	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.16-14. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise								
Coastal Storm		-001, -002, -003, -004			-004	-001, -002, -003, -004		
Dam and Levee Failure								
Drought								
Earthquake								
Extreme Temperature								
Flood		-001, -002, -003, -004			-004	-001, -002, -003, -004		
Geologic								
Severe Weather		-001, -002, -003, -004			-004	-001, -002, -003, -004		
Severe Winter Storm		-001, -002, -003				-001, -002, -003		
Wildfire								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.16.8 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The North Bergen MUA followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the MUA’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.16-15. Contributors to the Annex

Entity	Title	Method of Participation
Frank Pestana	Executive Director	Attend meetings, providing information regarding mitigation initiatives, provided resources to complete annex
Dave Ricigliano	OEM Coordinator	Attend meetings, providing information regarding mitigation initiatives, provided resources to complete annex





Figure 9.16-1. North Bergen MUA Hazard Area Extent and Location Map 1

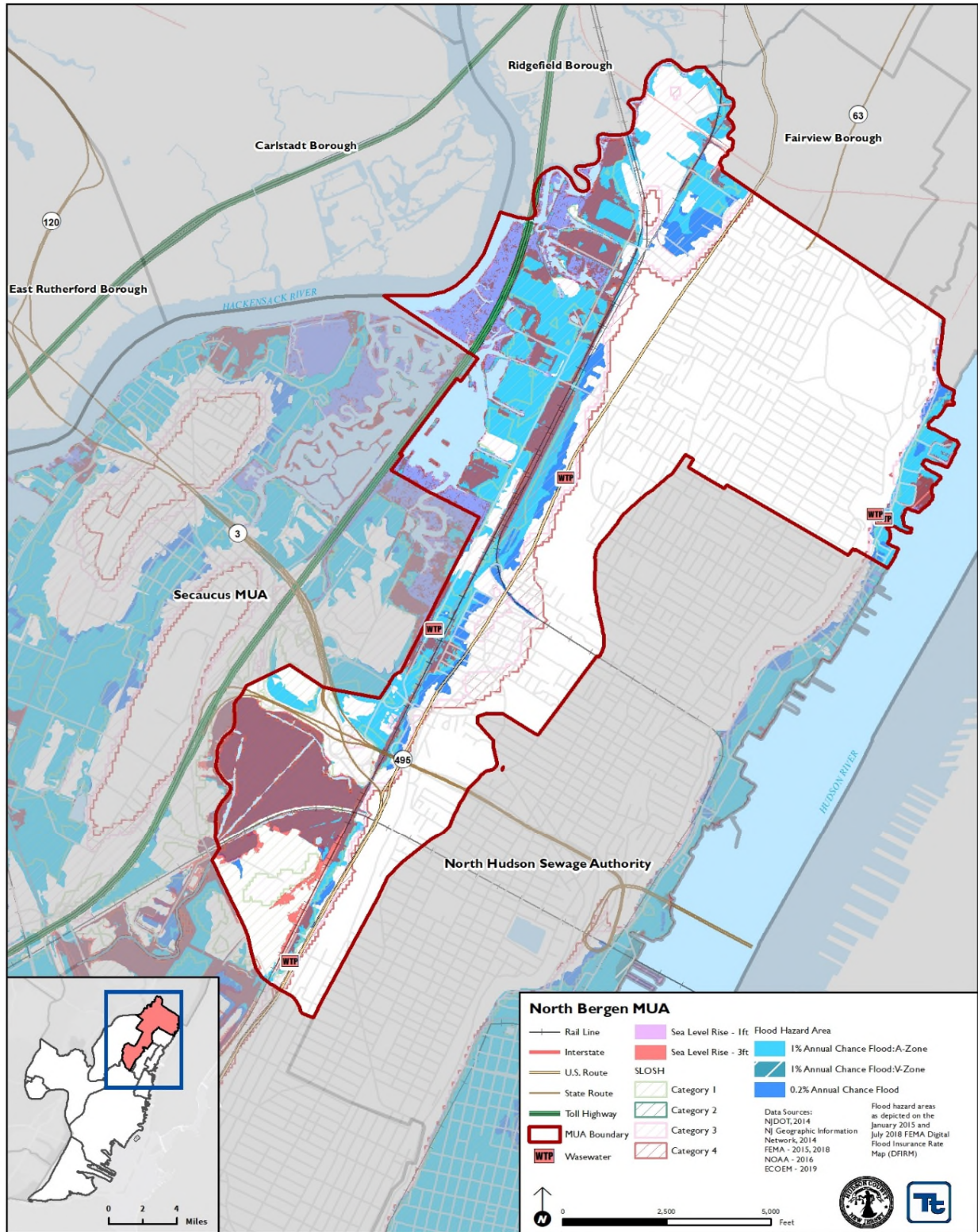
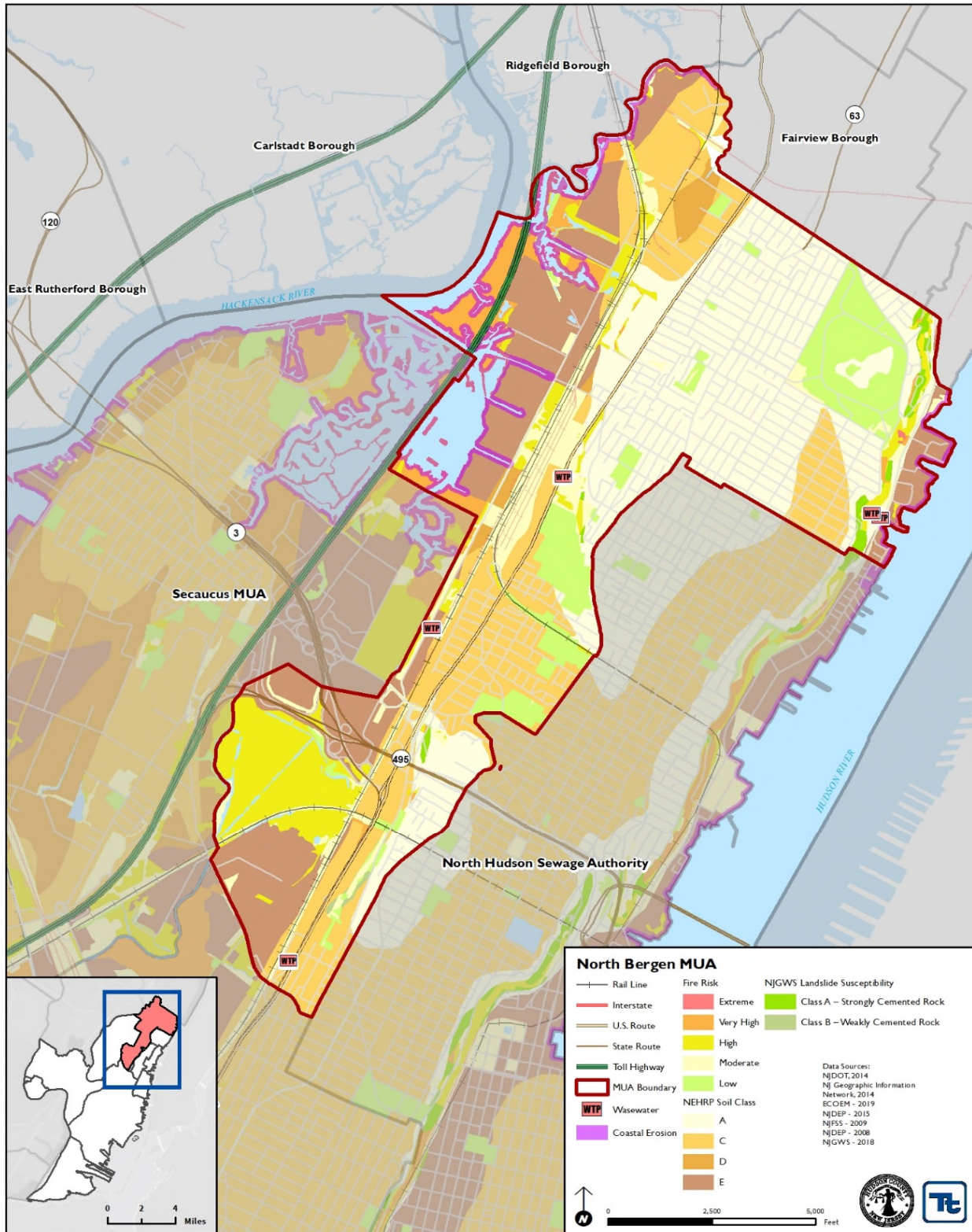




Figure 9.16-2. North Bergen MUA Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	2020-NBMUA-001		
Project Number:	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	Mazzoni Place and Lower section of the High Tech High School Floods during rain/storm events		
Action or Project Intended for Implementation			
Description of the Solution:	Study was complete and result show that flood proofing the Mazzoni Place near lower section of High School will eliminate flooding in the area.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input type="checkbox"/>	No <input checked="" type="checkbox"/>
Level of Protection:	1% annual chance flood event	Estimated Benefits (losses avoided):	This school serves as an emergency shelter for the community. It is critical to maintain this facility during an emergency.
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$2 Million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA FEMA and HMGP, Municipal and County Budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate school	\$1 million	Too costly, not feasible
	Relocate school	\$1 million+	No land available to relocate school; costly
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020- NBMUA -001	
Project Number:	Flood mitigation for Mazzoni Place / Flood Proof High Tech High School	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect students and teachers
Property Protection	1	Protect school from flood damage
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020- NBMUA -002		
Project Number:	Proposed stormwater diversion along culvert south of 91st Street		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
Description of the Problem:	West 91st Street constantly floods during rain and storm events.		
Action or Project Intended for Implementation			
Description of the Solution:	Upsize approximately 1600 feet of stormwater piping to 91st Street.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input type="checkbox"/>	No <input checked="" type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduce loss and vulnerability to flooding in commercial section of Township
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$1.5 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA PDM, municipal and county budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate roadway	\$100,000+	Not feasible, costly, long-term project
	Acquire properties impacted	\$500,000+	Not feasible; loss tax base; costly; area would still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020- NBMUA -002	
Project Number:	Proposed stormwater diversion along culvert south of 91st Street	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents and businesses that are in the area of the problem
Property Protection	1	Reduce flood damage potential to structures in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	2020- NBMUA -003		
Project Number:	Pump station and tide gate along northwestern municipal quadrant		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Severe Weather, Flood		
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.		
Action or Project Intended for Implementation			
Description of the Solution:	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 91st Street and Railroad Ave. to reduce flooding in the area.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Western business including warehouses and trucking facilities along with the municipal rec complex will remain undisturbed during rain and storm events
Useful Life:	50 years	Goals Met:	1, 2, 6
Estimated Cost:	\$20 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months of receiving funding
Estimated Time Required for Project Implementation:	Within 5 years	Potential Funding Sources:	FEMA HMGP and FMA, municipal and county budgets
Responsible Organization:	North Bergen Engineering, North Bergen MUA with support from Hudson County Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	Do nothing - current problem continues	0	Current problem continues
	Elevate roadway	\$100,000+	Not feasible, costly, long-term project
	Acquire properties impacted	\$500,000+	Not feasible; loss tax base; costly; area would still flood
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	2020-NBMUA-003	
Project Number:	Pump station and tide gate along northwestern municipal quadrant	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents and businesses that are in the area of the problem
Property Protection	1	Reduce flood damage potential to structures in this area
Cost-Effectiveness	1	Benefits outweigh the costs of the project
Technical	1	Action is technically feasible
Political	1	There is overall support for this action
Legal	0	The Township does not have jurisdiction to implement this action; needs assistance from Hudson County
Fiscal	0	Need grant funding to complete project
Environmental	0	No negative or positive environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	Coastal Storm, Severe Weather, Flood
Timeline	1	To be completed within 5 years (depends on funding)
Agency Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	





NORTH HUDSON SEWERAGE AUTHORITY

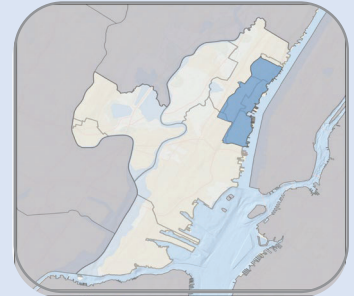
MUA AT A GLANCE

Total Population Served in Hudson County: 191,545

Total Land Area in Hudson County: 4.32 sq. mi

Services Provided: Sewerage treatment

Service Areas: Hoboken, Union City, Weehawken, West New York



Facilities and Infrastructure

- Two wastewater treatments plants (Adams Street WWTP, Hoboken; River Road WWTP, West New York)
- 17 CSO regulators (13 float operated and 4 weir controlled)
- 911 CSO outfalls
- 97 solids and floatables facilities
- 110 Pump stations
- 105 miles of combined sewer (including interceptors, siphons and force mains)

1% Annual Chance Flood Event



5 # Critical Facilities
in Floodplain



Mitigation Action Plan (2020-2025)

Hazards

Coastal Storm, Flood, Severe Storm, Severe Winter Storm

Project Types

Structure and Infrastructure Projects



High Ranked Hazards

Coastal Erosion and Sea Level Rise, Coastal Storm, Extreme Temperature, Flood, Severe Storm, Severe Winter Storm



9.17 North Hudson Sewerage Authority

This section presents the jurisdictional annex for the North Hudson Sewerage Authority. The annex includes a general overview of the North Hudson Sewerage Authority; an assessment of the North Hudson Sewerage Authority’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.17.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the North Hudson Sewerage Authority’s identified hazard mitigation plan primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.17-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Philp Reeve – Assistance Project Director Address: 1600 Adams St., Hoboken, NJ Phone Number: 201-206-5061 Email: Philip.reeve@jacobs.com	Name / Title: Steven Hudock Address: 1600 Adams St., Hoboken, NJ Phone Number: 201-454-7458 Email: steve.hudock@jacobs.com

9.17.2 JURISDICTION PROFILE

The North Hudson Sewerage Authority (NHSA) was formed in 1988 to serve as a regional conveyance, transmission, treatment and disposal authority for wastewater generated within the Hoboken, Union City and Weehawken area. In November 1996, North Hudson acquired the collection system, pump stations, regulators, outfalls, and the River Road Wastewater Treatment Plant (WWTP) in the Town of West New York, facilities that were previously owned by the West New York Municipal Utilities Authority. On February 1, 1998, North Hudson took ownership and full operation and maintenance responsibilities of the collection systems in the cities of Hoboken, Union City, and Weehawken.

Figure 9.17-1 presents the extent of the Adams Street WWTP and the River Road WWTP service areas. The NHSA services a land area of 5.97 sq. miles, with a population of approximately 174,650 people.

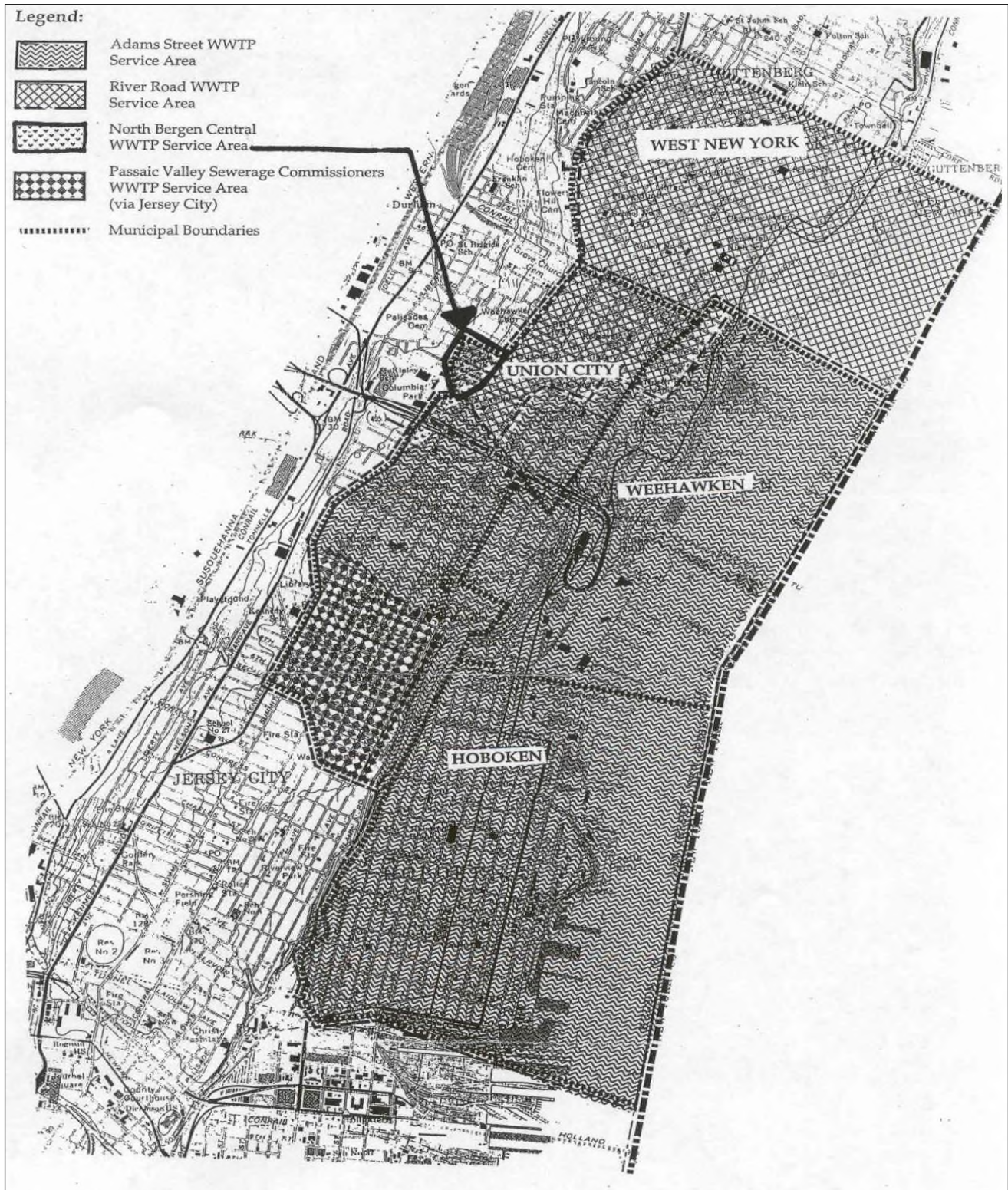
The Adams Street WWTP treats all of the sewage generated within the City of Hoboken. Based on historical billed-for water use, approximately 83 percent of the sewage generated in Weehawken and 45 percent of the sewage generated in Union City is treated at the Adams Street WWTP. The River Road WWTP treats all sewage generated in the Town of West New York, approximately 17 percent of sewage generated in Weehawken, and 23 percent of sewage generated in Union City. The remaining sewage generated in Union City (with exception of a small amount of sewerage conveyed to the North Bergen MUA) is conveyed to the Jersey City MUA for treatment at the Passaic Valley Sewerage Commissioners WWTP. North Hudson bills all of the customers in the four municipalities for sewage treatment service on the basis of metered water consumption and pays the owners of other wastewater agencies (Jersey City MUA and the North Bergen MUA) for the portion of sewage they handle.

North Hudson bills all of the customers in the four municipalities for sewage treatment service and pays the North Bergen Municipal Utilities Authority and the Jersey City Sewerage Authority for the portion of sewage they handle. North Hudson's billings are based on metered water consumption for all customers.





Figure 9.17-1. North Hudson Sewerage Authority Service Area Map





North Hudson’s service area includes the following facilities:

- Two wastewater treatments plants (Adams Street WWTP, Hoboken; River Road WWTP, West New York)
- 17 CSO Regulators (13 float operated and 4 weir controlled)
- 9 CSO Outfalls
- 9 solids and floatables facilities
- 11 Pump Stations
- 105 miles of combined sewer (including interceptors, siphons and force mains)

Adams Street WWTP has a permitted plant flow of 20.8 million gallons per day (mgd) while the design flow for the plant is 24 mgd. The plant has a capacity to handle a wet weather flow of 40 mgd. Plant currently treats an average flow of 14 mgd. River Road WWTP has a permitted and design plant flow of 10 mgd. The plant has a capacity to handle a wet weather flow of 20 mgd. Plant currently treats an average flow of 8 mgd.

9.17.2.1 ADDITIONAL INFORMATION

Awards: In recent years, the NHSA has received the following awards and recognitions:

- 2018 Energy Savers–For Leak Detection Program (AEA WAVE Award)
- 2018 Forward Thinking Award–For Asset Management, Waterbody Advisory System, and New Wet Weather Pump Station (AEA WAVE Award)
- 2015 Innovative Thinking–For Proposed Ecological Zone in Hoboken (AEA WAVE Award)
- 2013 Member Organization Award/Hurricane Sandy (AEA WAVE Award)
- 2012 Engineering Excellence Award H1 Wet Weather Pump Station (ACEC)
- 2012 Community Partnership Award (AEA* WAVE Award)
- 2010 Outstanding Community Outreach Award (AEA WAVE Award)
- 2008 NHSA Innovative Engineering Award (ACEC**)
- 2008 Best Management Practices (AEA WAVE Award)
- 2007 Outstanding Community Outreach Award (AEA WAVE Award)
- 2006 Outstanding Community Outreach Award (AEA WAVE Award)
- 2005 Outstanding Community Outreach Award (AEA WAVE Award)
- 2005 Special Recognition Award NJ Harbor Discharge Group (NACWA***)
- 2004 Forward Thinking Award (AEA WAVE Award)
- 2002 Outstanding Community Outreach Award (AEA WAVE Award)
- 2001 Communicator AWARD H20TV & Your Wastewater System
- 1999 Outstanding Infrastructure Renewal PR Program (AEA WAVE Award)
- 1998 Outstanding Annual Report (AEA WAVE Award)
- 1997 Outstanding Competitive Example (AEA WAVE Award)
- 1996 Outstanding Floatables Campaign (AEA WAVE Award)
- 1994 Outstanding High School Summer Internship Program Award (AEA WAVE Award)
- 1993 Public Education Award (AEA WAVE Award)

9.17.3 GROWTH/DEVELOPMENT TRENDS

The NHSA does not anticipate increasing its service area or the services it provides. The flow is expected to increase slightly as the service area continues to build out.





9.17.4 CAPABILITY ASSESSMENT

The North Hudson Sewerage Authority performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various mitigation programs
- The jurisdiction’s adaptive capacity for the impacts of climate change

9.17.4.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The information provided in this section provides NHSA-specific planning, legal, and regulatory capabilities. For municipal-related information, please refer to the Hoboken (Section 9.6), Union City (Section 9.11), West New York (Section 9.13), and Weehawken (Section 9.12) annexes.

- **Capital Improvement Plan** - updated annually; it will allocate funds annually to mitigation if necessary
- **Long-Term Control Plan** – North Hudson Sewage Authority has been working on a Long-Term CSO Control Plan (LCTP). The LCTP has several stages: system characterization, development of alternatives, selection of approach, and implementation. Since 2015, the Sewage Authority started their system characterization. To date, this is what has been completed:
 - Compiled the latest information on land uses and planned developments that will affect sanitary and drainage flows.
 - Street by street, the Sewage Authority deployed crews with GPS systems to confirm the locations of all their catch basins, pipes, manholes and other assets to update our GIS databases.
 - They used cameras to get a better handle on the condition of their pipes and to quantify the amount of water that is infiltrating our sewers from groundwater and drinking water pipe leaks.
 - The Sewage Authority collected water samples from their sewers when it was raining to test for bacteria concentrations.
 - The Sewage Authority deployed sensors in their sewers to measure flows during dry and wet weather for six months.
 - Using the sensor data, they compiled computer models of our sewers.
 - They used the Sewage Authority’s models to calculate the dry and wet weather flows to monitor performance.
 - The Sewage Authority participated in a year-long monitoring program of the Hudson River to test for bacteria and identify sensitive areas for recreation uses and fish and wildlife habitat.

9.17.4.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the North Hudson Sewerage Authority.





Table 9.17-2. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering
Planners or engineers with an understanding of natural hazards	Yes	Engineering
Staff with training in benefit/cost analysis	No	
Staff with training in green infrastructure	Yes	Engineer with Mott MacDonald NHSA consulting engineer
Staff with education/knowledge/training in low impact development	No	-
Surveyors	Yes	Engineering
Stormwater engineer	Yes	Engineer with Mott MacDonald NHSA consulting engineer
Personnel skilled or trained in GIS applications	Yes	Engineering/Contractor assistance
Local or state water quality professional	Yes	NJDEP Philip Reeve license holder for WWTP and collection system
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	OEM Coordinators from Hoboken and West New York
Watershed planner	No	-
Environmental specialist	Yes	Engineer with Mott MacDonald NHSA consulting engineer
Grant writers	Yes	Engineering
Resilience Officer	Yes	Tom Aloï
Other	No	-

9.17.4.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the North Hudson Sewerage Authority.

Table 9.17-3. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	No
Capital Improvements Project Funding	Yes, annually
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes, sewer
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes, Public Assistance and HMGP; i-bank through NJDEP
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 219 Grants (nonpoint source pollution)	No
Other	No





9.17.4.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the North Hudson Sewerage Authority.

Table 9.17-4. Education and Outreach Capabilities

Table with 2 columns: Criterion and Response. Rows include questions about public information officers, website development, hazard mitigation information, social media use, citizen boards, other programs, and warning systems.

9.17.4.5 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event.

- Does the MUA have access to resources to determine the possible impacts of climate change upon the jurisdiction? Yes/No
Is the administrative supportive of integrating climate change in policies or actions? Yes/No





- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the jurisdiction? Yes/No

The table below summarizes the jurisdiction’s adaptive capacity for the hazards of concern and climate change.

Table 9.17-5. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Medium
Coastal Storm	Medium
Drought	Low
Earthquake	Low
Extreme Temperature	Low
Flood	Medium
Geological Hazards	Low
Severe Storm	Medium
Winter Storm	Medium
Wildfire	Low
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement;

Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating.

9.17.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

- Public Outreach:** The NHSA provides information on CSOs on the website. They also developed a CSO newsletter that includes a summary of what CSOs are and what the NHSA has done already to address CSOs. The NHSA held public meetings regarding the Long Term Control Plan for NHSA and posted invitations online and in the newsletter.
- Capital Improvement Budgets:** The NHSA maintains capital improvement budgets that include funding for mitigation projects.
- General Operations:** All operations, policies and programs within the NHSA consider and provide for, as appropriate and feasible, the protection of their facilities and operations from damage and loss of service to natural hazards.

9.17.6 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The NHSA’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.17-6 provides details regarding jurisdiction-specific loss and damages the NHSA experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.

Table 9.17-6. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and	While this event impacted the County, the NHSA did not





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	experience significant losses and/or damages
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.	While this event impacted the County, the NHSA did not experience significant losses and/or damages
October 29, 2017	Flood	N/A	A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported	While this event impacted the County, the NHSA did not experience significant losses and/or damages





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
September 25, 2018	Flash Flood	No	<p>on Passaic Avenue at Bellgrove Drive in Kearny.</p> <p>Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.</p>	While this event impacted the County, the NHSA did not experience significant losses and/or damages

Notes:

9.17.7 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.17-7 summarizes the NHSA’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.17-7. Summary of Risk Assessment Results (for the City of Hoboken)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	562	CEHA:	15	CEHA:	\$21,465,160	High
		SLR +1ft:	0	SLR +1ft:	4	SLR +1ft:	\$1,886,017	
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +3ft:	0	SLR +3ft:	7	SLR +3ft:	\$167,419,492	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	35,153	Category 1:	2,872	100-year Wind Loss:	\$13,950,554	High
		Category 2:	47,541	Category 2:	3,735			
		Category 3:	51,058	Category 3:	4,116			
	Category 1 through Category 4 SLOSH	Category 4:	52,245	Category 4:	4269	500-year Wind Loss:	\$90,357,680	
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	20,478	NEHRP D&E:	1,340	100-year Loss:	\$359,007	High
		Liquefaction Class 4:	25,152	Liquefaction Class 4:	1,755	500-year Loss:	\$26,998,811	
						2,500-year Loss:	\$397,869,640	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,404	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	5,628					
Flood	100- and 500-Year Mean Return Period Event	100-year	34,465	100-year	2,745	100-year Loss:	\$818,818,508	High
		500-year	42,285	500-year	3,316			
Geological	High Landslide Susceptibility Areas	Class A:	29	Class A:	4	Class A:	6718335.524	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





Table 9.17-8. Summary of Risk Assessment Results (for the City of Union City)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	0	CEHA:	0	CEHA:	\$0	High
		SLR +1ft:	0	SLR +1ft:	0	SLR +1ft:	\$0	
		SLR +3ft:	0	SLR +3ft:	0	SLR +3ft:	\$0	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	0	Category 1:	0	100-year Wind Loss:	\$6,821,114	High
		Category 2:	0	Category 2:	0			
		Category 3:	0	Category 3:	0	500-year Wind Loss:	\$61,891,735	
		Category 4:	0	Category 4:	0			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	0	NEHRP D&E:	0	100-year Loss:	\$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	\$6,325,027	
						2,500-year Loss:	\$102,824,966	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	7,340	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	16,057					
Flood	100- and 500-Year Mean Return Period Event	100-year	0	100-year	0	100-year Loss:	\$0	High
		500-year	0	500-year	0			
Geological	High Landslide Susceptibility Areas	Class A:	805	Class A:	22	Class A:	56956432.98	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	0	Wildfire:	\$0	Moderate





Table 9.17-9. Summary of Risk Assessment Results (for the Township of Weehawken)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	64	CEHA:	12	CEHA:	\$92,076,261	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	51	SLR +1ft:	8	SLR +1ft:	\$76,457,298	
		SLR +3ft:	51	SLR +3ft:	8	SLR +3ft:	\$76,457,298	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	466	Category 1:	100	100-year Wind Loss:	\$2,418,047	High
	Category 1 through Category 4 SLOSH	Category 2:	502	Category 2:	116			
		Category 3:	616	Category 3:	140	500-year Wind Loss:	\$19,655,431	
		Category 4:	650	Category 4:	145			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	542	NEHRP D&E:	123	100-year Loss:	\$0	High
		Liquefaction Class 4:	302	Liquefaction Class 4:	68	500-year Loss:	\$3,226,059	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,644	Physical impacts due to extreme temperatures would be limited.		2,500-year Loss:	\$47,003,496	
		Population Below Poverty Level:	1,641					
Flood	100- and 500-Year Mean Return Period Event	100-year	787	100-year	160	100-year Loss:	\$140,900,724	High
		500-year	810	500-year	175			
Geological	High Landslide Susceptibility Areas	Class A:	654	Class A:	120	Class A:	52111611.76	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	6	Wildfire:	2	Wildfire:	\$3,432,614	Moderate





Table 9.17-10. Summary of Risk Assessment Results (for the Town of West New York)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA	CEHA:	495	CEHA:	7	CEHA:	\$18,480,954	High
	Sea Level Rise: NOAA +1ft and +3ft rise	SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$1,439,292	
		SLR +3ft:	0	SLR +3ft:	1	SLR +3ft:	\$1,439,292	
Coastal Storm	100- and 500- MRP Hurricane Wind	Category 1:	3,852	Category 1:	26	100-year Wind Loss:	\$5,006,421	High
	Category 1 through Category 4 SLOSH	Category 2:	5,116	Category 2:	47			
		Category 3:	5,116	Category 3:	47	500-year Wind Loss:	\$40,426,112	
		Category 4:	5,116	Category 4:	48			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	5,116	NEHRP D&E:	48	100-year Loss:	\$41,276	High
		Liquefaction Class 4:	5,116	Liquefaction Class 4:	48	500-year Loss:	\$5,026,918	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	6,736	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		
		Population Below Poverty Level:	11,683					
Flood	100- and 500-Year Mean Return Period Event	100-year	3,237	100-year	18	100-year Loss:	\$11,806,503	High
		500-year	4,424	500-year	32			
Geological	High Landslide Susceptibility Areas	Class A:	307	Class A:	11	Class A:	30888112.6	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	3	Wildfire:	\$4,563,513	Moderate





9.17.7.1 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities in the MUA jurisdiction located in the 1-percent and 0.2-percent floodplain.

Table 9.17-11. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
North Hudson Sewerage Authority*	Wastewater Pump	X	X	Prior to flooding events, the NHSA implements procedures protect equipment and provide continuity of operations. This includes moving equipment and installing sand bags.
North Hudson Sewerage - Transfers Hob*	Wastewater Pump	X	X	This location will be located behind the Rebuild by Design flood barrier when completed; please refer to the City of Hoboken’s annex (Section 9.6) for details on this project.
North Hudson Sewerage Authority*	Wastewater Treatment	X	X	Prior to flooding events, the NHSA implements procedures protect equipment and provide continuity of operations. This includes moving equipment and installing sand bags.
Pump Station 5th Street*	Wastewater Pump	X	X	Applied to FEMA for funding to raise the generator and electrical controls to the 2 nd story; however, the grant was not awarded. Prior to flooding events, the NHSA implements procedures protect equipment and provide continuity of operations. This includes moving equipment and installing sand bags.
Pump Station H1*	Wastewater Pump	X	X	This location will be located behind the Rebuild by Design flood barrier when completed; please refer to the City of Hoboken’s annex (Section 9.6) for details on this project.

Source:

Note:

*Identified lifeline

9.17.7.2 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities:

- Sea level rise and flood – low street elevations
- Sea level rise – lack of open space for mitigation
- Coastal storm and severe weather – old sewer infrastructure
- The City of Hoboken has a flat landscape and makes it difficult to video pipes due to water

9.17.7.3 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the North Hudson Sewerage Authority that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the North Hudson Sewerage Authority has significant exposure. Maps at the end of this annex display the hazard area extent and location.

9.17.7.4 HAZARD RANKING





This section includes the jurisdiction specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their jurisdiction. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the North Hudson Sewerage Authority. The North Hudson Sewerage Authority has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the MUA.

During the review of the hazard ranking, the North Hudson Sewerage Authority indicated the following:

- The Sewage Authority adjusted the ranking for coastal erosion and sea level rise from low to high.
- The Sewage Authority adjusted the ranking for drought and earthquake from medium to low.
- The Sewage Authority adjusted the ranking for wildfire from medium to low.

Table 9.17-12. North Hudson Sewerage Authority Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
High	High	Low	Low	High	High

Geological Hazards	Severe Weather	Winter Storm	Wildfire	Dam Levee Failure
Medium	High	High	Low	Low

9.17.8 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.17.8.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.





Table 9.17-13. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
NHSA-1: Plan and operate a wet weather pump stations system to protect the low-lying areas of Hoboken from flooding. The City of Hoboken supported the North Hudson Sewerage Authority's ("NHSA") \$20 million grant application for Hazard Mitigation funding to construct new wet weather pump stations to alleviate flooding.	NHSA with support from Hoboken Engineering and DPW	Complete; 2 wet weather pumps installed (H-1 in 2011 and H-5 in 2016); Funding for Resiliency Park - 1 million gallon tank below ground; de-gridding facilities and pumps.	-	-
NHSA-2: Wet weather pump station at 11th Street area: The City of Hoboken submitted a Letter of Intent ("LOI") to the New Jersey Environmental Infrastructure Trust for a \$9 million low interest loan to install a new wet weather pump station at 11th Street along the waterfront. If funded, the City will pay for the pump station's construction and the NHSA will operate and maintain the pump station in perpetuity. Design of the H-5 pump station is complete.	City of Hoboken Eng. And DPW with support of the NHSA	In Progress; H-5 complete (in operation since September 2016)	X	2020-NHSA-001
NHSA-3: Develop, test, & evaluate a COOP/COG Plan	NHSA with support from local and County OEM	Complete; EOP updated annually	-	-
NHSA-4: Address urban flooding problems along 16th to 19th streets Weehawken where storm surges cause backs up into basements and low-lying first floors. Protect with barriers key structures in the Adams Street facility to elevation appropriate for the plant location as well as flood wall and water tight doors.	NHSA with support from Hoboken and Weehawken Engineering and DPW	Complete; Flood wall replaced with panels; flood doors being installed; protection of generator facility	-	-
NHSA-5: Initiation of a proposed study to evaluate an eco-zone that would utilize gray and green infrastructure with the creation of a wetland barrier	NHSA with support from local and County OEM's and City of Hoboken	Complete; evaluated green infrastructure as part of LTCOP and found to not be beneficial due to costs.	-	-
NHSA-6: Proposed replacement of underground electrical feeders at the Adams Street WWTP in a configuration that would be resistant to flooding	NHSA	Complete with FEMA funding.	-	-

In addition to the above progress, the North Hudson Sewerage Authority has identified the following mitigation projects/activities that have also been completed but were not identified in the 2015 HMP mitigation strategy:

- The Authority has identified some mitigation projects around the Adams Street WWTP and is partnering with the City of Hoboken to construct a second Wet Weather Pumping Station
- The NHSA and the City of Hoboken entered a partnership in 2014 to address chronic flooding in the neighborhoods around ShopRite. The City funded the construction of the H-5 wet weather pump station on 11th Street at Hudson Street. NHSA assumed the responsibility for the design, easements, and operations and maintenance of the pump station. The H-5 pump station has two 40 mgd pumps which, long with the control system, are located





underground in a landscaped island on 11th Street. Between November 2016 and April 2017, the pump station handled four large storms that would have typically flooded the area along 9th and Madison. During each of these storms, the pump station prevented flooding. While an event on May 5, 2017 caused inundation on the street, the pump station rapidly drained the water from the roadway.

- Since 2008, NHSA has spent \$45 million to reline and replace sewers, which help address the capacity issue and help reduce street flooding.
- Reducing Combined Sewer Overflows (CSOs) –
 - Over the last 20 years, North Hudson has eliminated three CSOs that discharge into the Hudson River. Today, it has nine.
 - Over 5.5 miles of sewers have been relined, replaced and rehabilitated to increase capacity and flow to the treatment plants during rain events.
 - Treatment systems have been upgraded.
 - End-of-pipe controls have been put into place to provide basic treatment at the outfalls.
 - Green infrastructure projects have been undertaken throughout the entire service area.
 - Detention tanks have been built under public parks.
 - Wet weather pump stations have been constructed.
 - Public notification systems were put into place to alert the public when CSOs are active.



9.17.8.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The North Hudson Sewerage Authority participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. North Hudson Sewerage Authority participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.17-14 summarizes the comprehensive-range of specific mitigation initiatives the North Hudson Sewerage Authority would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 jurisdiction priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each





of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.17-15 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.17-14. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-NHSA-001 (previous action)	Wet weather pump station at 11th Street area	<p>Problem: Flooding of 8th to 11th Street - west side of Hoboken</p> <p>Solution: The City of Hoboken submitted a Letter of Intent (“LOI”) to the New Jersey Environmental Infrastructure Trust for a \$9 million low interest loan to install a new wet weather pump station at 11th Street along the waterfront. If funded, the City will pay for the pump station’s construction and the NHSA will operate and maintain the pump station in perpetuity. Design of the H-5 pump station is complete.</p>	New	Coastal Storm, Flood, Severe Weather	2, 3	NHSA, City of Hoboken Eng. and DPW	NJ Infrastructure Trust Fund, NJDEP	Reduce or eliminate flooding of 8 th to 11 th Street	\$9 million	Within 2 years	High	SIP	PP
2020-NHSA-002	Northeast Resilience Park	<p>Problem: The northwest section of the City of Hoboken generates CSOs. This can lead to sources of pollution in the Hudson River.</p> <p>Solution: Build a stormwater storage tank/pump station and stormwater collection system. This will help reduce the amount of pollution sources entering Hudson River.</p>	Existing	N/A	2, 3	NHSA and City of Hoboken	Phase 1 has funding through i-bank (NJDEP) and grant funding	Reduction of CSO	\$30 million	Within 3 years	High	SIP	PP
2020-NHSA-003	Madison Street Sewer Replacement Project	<p>Problem: During periods of heavy rain, areas in Hoboken (9th and Madison) flood and affect local businesses and residents. This section of the road is considered a lifeline as it provides direct access to emergency services.</p> <p>Solution: Raise street grades and improve combined sewer conveyance. This will help reduce street flooding, protecting</p>	Existing	Coastal Storm, Flood, Severe Weather	2, 3	NHSA and City of Hoboken	i-bank (NJDEP)	Reduce street flooding, protect infrastructure, continuity of operations	\$5 million	Within 3 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		businesses and residents, and allowing roadways to remain open.											

Notes:

<p><u>Acronyms and Abbreviations:</u></p> <p>CAV Community Assistance Visit</p> <p>CRS Community Rating System</p> <p>DPW Department of Public Works</p> <p>FEMA Federal Emergency Management Agency</p> <p>FPA Floodplain Administrator</p> <p>HMA Hazard Mitigation Assistance</p> <p>N/A Not applicable</p> <p>NFIP National Flood Insurance Program</p> <p>OEM Office of Emergency Management</p>	<p><u>Potential FEMA HMA Funding Sources:</u></p> <p>FMA Flood Mitigation Assistance Grant Program</p> <p>HMGP Hazard Mitigation Grant Program</p> <p>PDM Pre-Disaster Mitigation Grant Program</p>	<p><u>Timeline:</u></p> <p>The time required for completion of the project upon implementation</p> <p><u>Cost:</u></p> <p>The estimated cost for implementation.</p> <p><u>Benefits:</u></p> <p>A description of the estimated benefits, either quantitative and/or qualitative.</p>
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Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.17-15. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-NHSA-001 (previous action)	Wet weather pump station at 11th Street area	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
2020-NHSA-002	Northeast Resilience Park	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-NHSA-003	Madison Street Sewer Replacement Project	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.17-16. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise								
Coastal Storm		-001, -003				-001, -003		
Dam and Levee Failure								
Drought								
Earthquake								
Extreme Temperature								
Flood		-001, -003				-001, -003		
Geologic								
Severe Weather		-001, -003				-001, -003		
Severe Winter Storm								
Wildfire								

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

- RED** = high ranked hazard
- ORANGE** = medium ranked hazard
- YELLOW** = low ranked hazard
- WHITE** = no ranking

9.17.9 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The North Hudson Sewerage Authority followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the jurisdiction’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.17-17. Contributors to the Annex

Name	Title	Method of Participation
Philp Reeve	Assistance Project Director	Point of contact during planning process, attended meetings, provided input on annex and mitigation strategy
Steven Hudock	-	Point of contact during planning process, attended meetings, provided input on annex and mitigation strategy





Figure 9.17-2. North Hudson Sewerage Authority Hazard Area Extent and Location Map 1

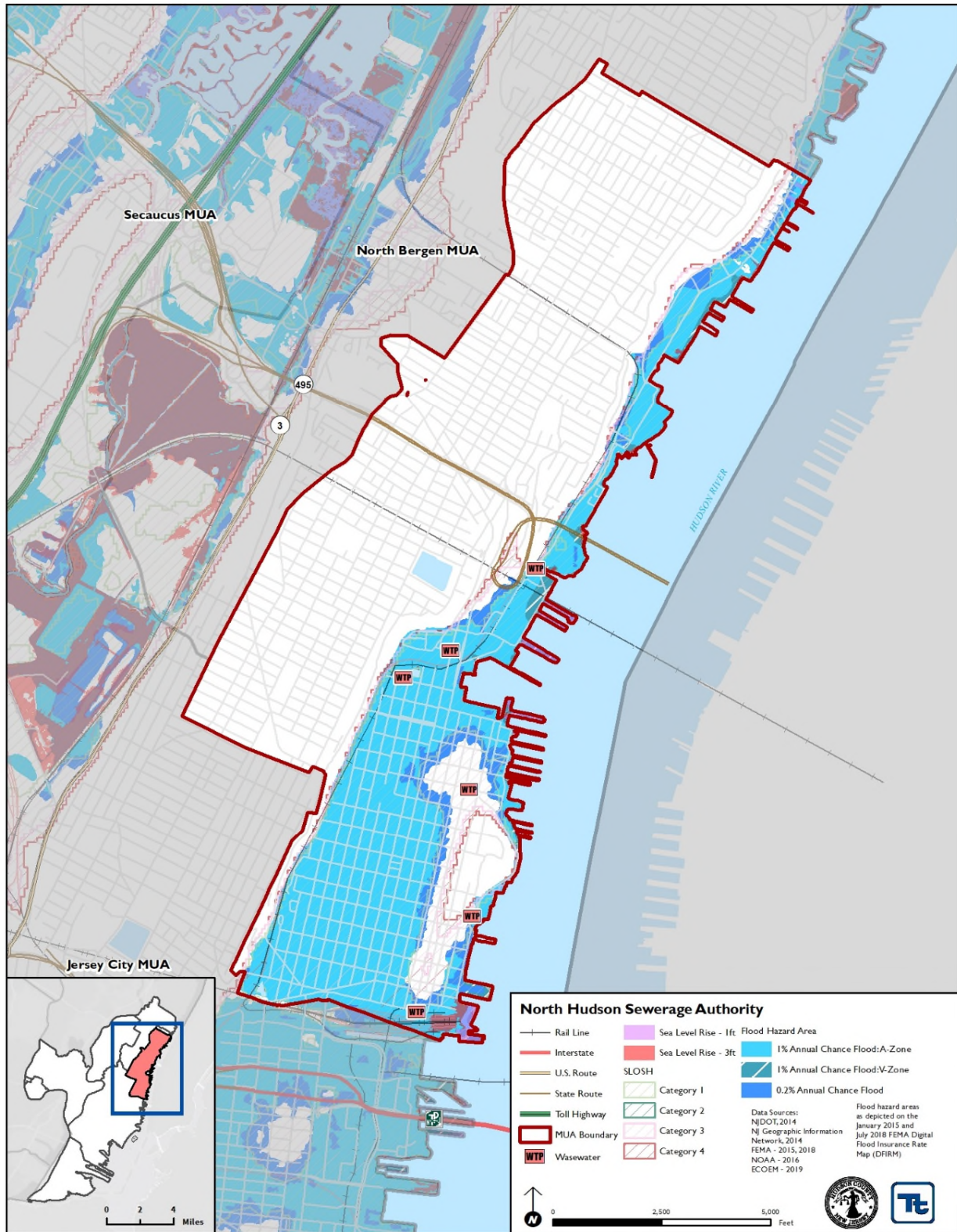
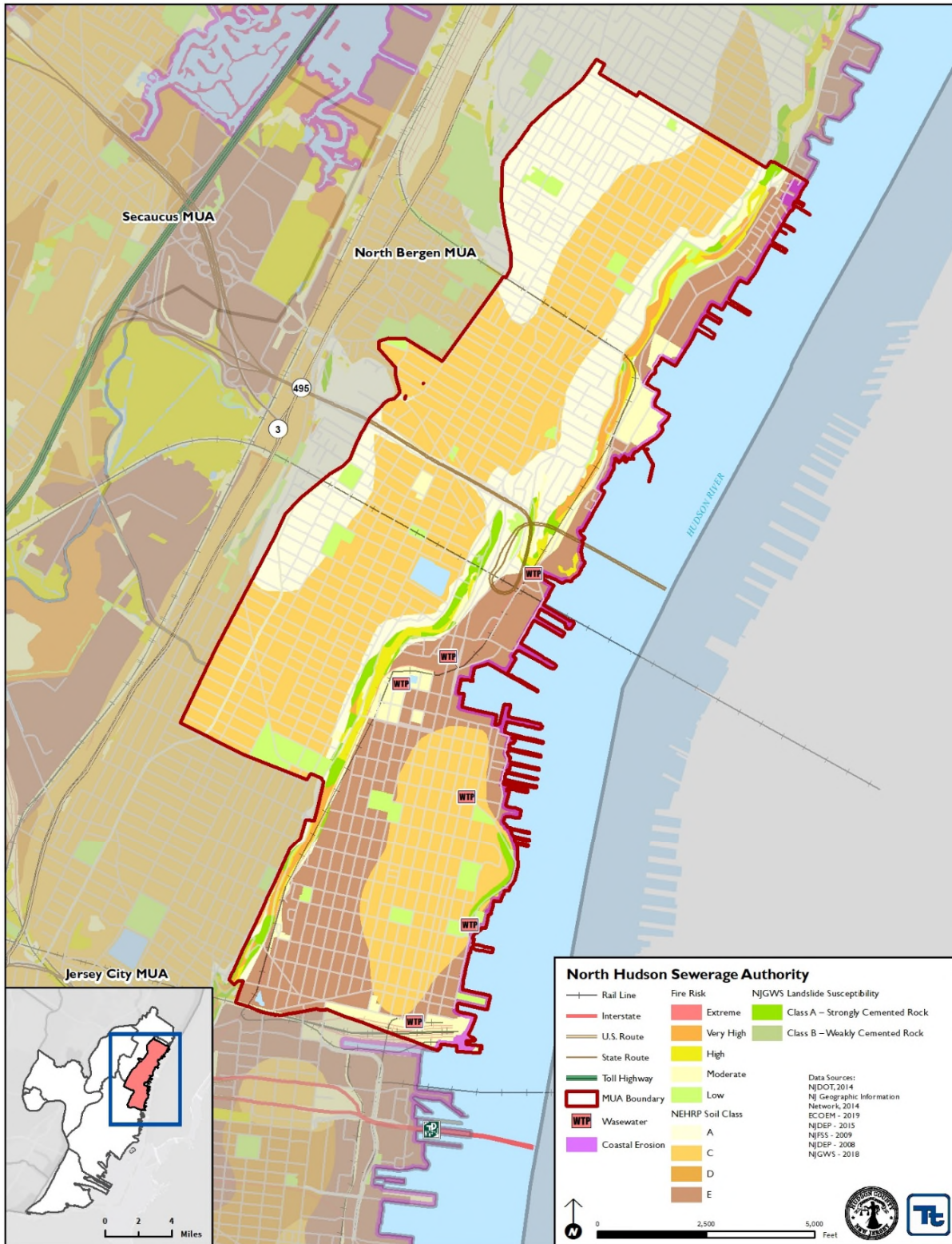




Figure 9.17-3. North Hudson Sewerage Authority Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	Northeast Resilience Park		
Project Number:	2020-NHSA-002		
Risk / Vulnerability			
Hazard(s) of Concern:	N/A		
Description of the Problem:	The northwest section of the City of Hoboken generates CSOs. This can lead to sources of pollution in the Hudson River.		
Action or Project Intended for Implementation			
Description of the Solution:	Build a stormwater storage tank/pump station and stormwater collection system. This will help reduce the amount of pollution sources entering Hudson River.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduction of CSO
Useful Life:	50 years	Goals Met:	2, 3
Estimated Cost:	\$30 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 1 year
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	Phase 1 has funding through i-bank (NJDEP) and grant funding
Responsible Organization:	NHSA and City of Hoboken	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	CSO storage in a tank located in the Hudson River	\$30 million	Very difficult to permit for construction in the River; permitting and public acceptance
	Additional conveyance and treatment capacity at the plant	\$50 million	Not an immediately feasible; costs
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			
Action Worksheet			
Project Name:	Northeast Resilience Park		
Project Number:	2020-NHSA-002		
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate	
Life Safety	1	Reduction of CSOs	





Property Protection	1	Reduction of CSOs
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	NHSA has the legal authority to complete and implement this project
Fiscal	1	Received funding to complete a portion of the project through NJDEP
Environmental	1	Increases environmental quality
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	1	Within 3 years
Agency Champion	1	
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Madison Street sewer Replacement Project		
Project Number:	2020-NHSA-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Coastal Storm, Flood, Severe Weather		
Description of the Problem:	During periods of heavy rain, areas in Hoboken (9 th and Madison) flood and affect local businesses and residents. This section of the road is considered a lifeline as it provides direct access to emergency services.		
Action or Project Intended for Implementation			
Description of the Solution:	Raise street grades and improve combined sewer conveyance. This will help reduce street flooding, protecting businesses and residents, and allowing roadways to remain open.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	1% annual chance flood event	Estimated Benefits (losses avoided):	Reduce street flooding, protect infrastructure, continuity of operations
Useful Life:	30 years	Goals Met:	2, 3
Estimated Cost:	\$5 million	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	i-bank (NJDEP)
Responsible Organization:	North Hudson Sewage Authority and City of Hoboken	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Acquire all properties in the area and turn into open space	\$50 million	Not feasible; too costly and would impact the City (remove essential commercial businesses and loss tax base)
	Elevation all properties in the area above the base flood elevation	\$50+ million	Not feasible; too costly; commercial businesses would be elevated at least 14 feet
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Madison Street sewer Replacement Project	
Project Number:	2020-NHSA-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Protect roadways and buildings from flooding and/or flood damage
Cost-Effectiveness	1	Benefits outweigh the costs of this project
Technical	1	
Political	1	Political support to complete this project – NHSA and City of Hoboken
Legal	1	NHSA has the legal authority to complete this project
Fiscal	0	Need funding to complete project
Environmental	1	
Social	1	
Administrative	1	Administrative support in NHSA and the City for this project
Multi-Hazard	1	Coastal Storm, Flood, Severe Weather
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	12	
Priority (High/Med/Low)	High	





SECAUCUS MUNICIPAL UTILITIES AUTHORITY

MUA AT A GLANCE

Total Population Served in Hudson County: 19,279

Total Land Area in Hudson County: 6.56 sq. mi

Services Provided: Wastewater treatment

Service Areas: Secaucus



Facilities and Infrastructure



- 7 pumping stations
- 10 miles collection system piping
- 1 waste water treatment facility (1100 Koelle Blvd)

1% Annual Chance Flood Event



1 # Critical Facilities
in Floodplain



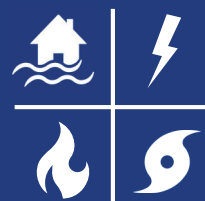
Mitigation Action Plan (2020-2025)

Hazards

All Hazards

Project Types

Structure and Infrastructure
Projects, Local Plans and
Regulations



High Ranked Hazards

- Coastal Storm
- Earthquake
- Extreme Temperature
- Flood
- Severe Storm
- Severe Winter Storm



9.18 Secaucus Municipal Utilities Authority

This section presents the jurisdictional annex for the Secaucus Municipal Utilities Authority (MUA). The annex includes a general overview of the Secaucus MUA; an assessment of the Secaucus MUA’s risk and vulnerability, and mitigation capabilities; and a prioritized action plan to implement prior to a disaster to reduce future losses and achieve greater resilience to natural hazards.

9.18.1 HAZARD MITIGATION PLANNING TEAM

The following individuals are the Secaucus MUA’s identified hazard mitigation plan primary and alternate points of contact.

Table 9.18-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Brian Bigler, Executive Director Address: 1100 Koelle Blvd., Secaucus, NJ 07094 Phone Number: 201-330-2089 Email: bbigler@secaucus.net	Name / Title: Glenn Beckmeyer, Secaucus MUA Engineer Address: 117 Herman St., East Rutherford, NJ 07073 Phone Number: 201-635-9401 Email: gbeckmeyer@beckmeyerengineering.com

9.18.2 JURISDICTION PROFILE

9.18.2.1 OVERVIEW

The Secaucus Municipal Utilities Authority (Secaucus MUA) is responsible for processing all of the wastewater generated within the Township of Secaucus. The Authority owns and operates seven pumping stations that vary in capacity from approximately 30,000 gallons per day to over 2.8 million gallons per day. Each pumping station has back-up power.

Additionally, the Authority maintains approximately 10 miles of collection system piping. This collection system is maintained in conjunction with the Department of Public Works and preventative maintenance is routinely performed. The wastewater treatment facility, located at 1100 Koelle Boulevard, currently processes 3,100,000 gallons per day. (<http://www.secaucusmua.org>).

This facility is an advanced secondary (Level III) treatment facility, with stringent discharge limitations that are met prior to final discharge into Mill Creek {a tributary of the Hackensack River}. There has not been a violation of these New Jersey Department of Environmental Protection imposed limits since the facility upgrade was completed in 1991. The facilities are manned 24 hours per day, seven days per week, including holidays.

The Secaucus MUA services an area of 6.55 square miles, with a population of 15,931 (2000 U.S. Census).

9.18.2.2 ADDITIONAL INFORMATION

Awards: In recent years, the MUA has received the following awards and recognitions:

- State of New Jersey Governors Safety Award – 2019, 2017, 2016 and 2015





- National Association of Clean Water Agencies (NACWA) Platinum Award for compliance with the NJDEP facility discharge permit– 2019, 2018, 2017, 2016, and 2015
- NACWA Peak Performance Award – 1999 to 2012
- New Jersey Utilities Authority Joint Insurance Fund; Safety Excellence Award: 1997-2017
- New Jersey Department of Labor; Citation of Merit Award: 2002, 2006
- Water Environment Federation; Burke Safety Award: 1994
- New Jersey Department of Labor; Award of Merit: 2005, 2008, 2009
- 2012 NJ Industrial Safety Committee (NJDOL) Award for Zero Time Loss Accidents
- United States Environmental Protection Agency; Operation & Maintenance Excellence Award: 2004

9.18.3 CAPABILITY ASSESSMENT

The Secaucus MUA performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) in Volume I of this plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The jurisdiction’s adaptive capacity for the impacts of hazards and climate change

9.18.3.1 PLANNING, LEGAL AND REGULATORY CAPABILITY

The information provided in this section provides MUA-specific planning, legal, and regulatory capabilities. For municipal-related information, please refer to the Town of Secaucus’s annex (Section 9.10).

- Sanitary sewer regulation for the pumps owned by the MUA
- Site Plan Review - After plans are reviewed at the municipal level, the MUA reviews to check the sanitary sewer connections
- Sewer Use Rules and Regulations – the rules and regulations govern the discharge of wastewaters into the Secaucus MUA’s wastewater treatment plant and all sewers tributary to the plant. The purpose of these rules and regulations are:
 - To prevent the introduction of pollutants into the Authority’s wastewater treatment plant and all sewers tributary thereto, which will interfere with the operation of the treatment plant, including interference with the use or disposal of the municipal sludge;
 - To prevent the introduction of pollutants into the Authority’s wastewater treatment plant and all sewers tributary thereto, which will pass through the system, inadequately treated, into receiving waters or the atmosphere, or otherwise be incompatible with the system;
 - To improve opportunities to recycle and reclaim municipal and industrial wastewater and sludges;
 - To control/regulate volume of wastewater discharged to the Authority’s wastewater treatment plant; and





- To develop, implement and recover sewer charges, sewer surcharges, Industrial Pretreatment Program (IPP) fees and/or other costs necessary to maintain proper operation of the Authority’s wastewater treatment plant.

9.18.3.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Secaucus MUA.

Table 9.18-2. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Beckmeyer Engineering; Authority Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Beckmeyer Engineering; Authority Engineer
Planners or engineers with an understanding of natural hazards	Yes	Beckmeyer Engineering; Authority Engineer
Staff with training in benefit/cost analysis	No	-
Staff with training in green infrastructure	No	-
Staff with education/knowledge/training in low impact development	No	-
Surveyors	Yes	Beckmeyer Engineering; Authority Engineer
Stormwater engineer	No	-
Personnel skilled or trained in GIS applications	No	-
Local or state water quality professional	No	-
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Brian Bigler, in his absence- Glenn Beckmeyer
Watershed planner	No	-
Environmental specialist	Yes	Paulus, Sokolowski & Sartor; authority environmental regulatory engineering services
Grant writers	No	-
Resilience Officer	No	-
Other	No	-

9.18.3.3 FISCAL CAPABILITY

The table below summarizes financial resources available to the Secaucus MUA.

Table 9.18-3. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes (CDGB-DR)
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes – the fee schedule for user and connection fees is \$7,865/equivalent residential unit, and \$2.44/100 cubic feet of water consumption
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No





Financial Resource	Accessible or Eligible to Use?
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 219 Grants (nonpoint source pollution)	No
Other	No

9.18.3.4 EDUCATION AND OUTREACH CAPABILITY

The table below summarizes the education and outreach resources available to the Secaucus MUA.

Table 9.18-4. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? If yes, briefly describe.	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? If yes, briefly describe.	No
Do you have any other programs already in place that could be used to communicate hazard-related information? If yes, briefly describe.	No
Do you have any established warning systems for hazard events? If yes, briefly describe.	No

9.18.3.5 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 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from or withstand a hazard event. This term is often referred to while discussing climate change adaptation; however, it also provides an understanding of local capacity for adapting to current and future risks and changing conditions.

- Does the MUA have access to resources to determine the possible impacts of climate change upon the jurisdiction? No
- Is the administrative supportive of integrating climate change in policies or actions? No
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the jurisdiction? No

The table below summarizes the Secaucus MUA’s adaptive capacity for the hazards of concern.

Table 9.18-5. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low





Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Storm	Low
Drought	Low
Earthquake	Low
Extreme Temperature	Low
Flood	Medium
Geological Hazards	Low
Severe Storm	Medium
Winter Storm	Low
Wildfire	Low
Dam Levee Failure	Low

Notes:

High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure = Not enough information is known to assign a rating

9.18.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

- **Capital Improvement Budget:** The MUA maintains a capital improvements budget, which includes funding for mitigation-related projects and programs. The budget is reviewed and approved each year. There are line items for supplies and equipment, engineering, repairs, capital purchases, reserve for repairs and replacements, and sanitary sewer repairs.
- **Grant Funding:** The MUA routinely pursues available grants to fund mitigation of their facilities, including FEMA mitigation grant funding (404, 406) and CDGB-DR.
- **Engineering:** The MUA, through their engineering consultant, developed post-disaster engineering reports assessing Superstorm Sandy damages to their facilities, and identifying potential mitigation projects to address those vulnerabilities.
- **Data and Information:** The MUA continues to maintain risk and loss-related data and maps which have been used within this and prior HMPs, mitigation grant applications, and other risk management plans and programs.
- **Maintenance:** The MUA frequently performs maintenance to remove debris from pumps. The screens catch debris as much as possible before water enters.
- **SCADA System:** The MUA is working to install SCADA system to monitor water levels, flows, electric system, and pumps for functionality. The project’s total cost is \$450,000 and should be completed by the end of 2020. System was installed at the plan and now working to install at all pump stations.
- **Primary clarifiers** – working on replacing them; already replaced three and working on replacing the last two – the equipment is old (installed in 1989); upgrading to keep it operable – helps reduce the potential for backups
- **Upgraded intermittent pump station** – this pump is now above base flood elevation; it helps during periods of high I&I and allows the collection system to stay functional and not backup into residential and commercial buildings.

9.18.5 HAZARD EVENT HISTORY SPECIFIC TO THE JURISDICTION

Hudson County has a history of hazard events, as detailed in Volume I, Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles (Section 4.4) and includes a chronology of events that have affected Hudson County and its jurisdictions. The Secaucus MUA history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Hudson County. Table 9.18-6 provides details regarding jurisdiction-specific loss and damages the Secaucus MUA experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 4 (Risk Assessment) of this plan.





Table 9.18-6. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
May 31, 2015	Flash Flood	N/A	A cold front approaching the area triggered scattered showers and thunderstorms that produced heavy rain leading to flash flooding across Northeast New Jersey. Charlottes Circle in Jersey City was closed due to flood waters. Route 7 at Fish House Rd. in Kearny was closed due to flooding.	None identified
May 5, 2017	Flash Flood	N/A	A warm front approaching the area combined with a strong low level jet ushering in precipitable water values in excess of 1.5 inches, resulted in flash flooding across parts of northeast New Jersey. Newark Airport (3.05 inches) and Teterboro Airport (3.01 inches) received just over 3 inches of rain during the event, with the majority of that rain falling during a three hour period. Hourly rainfall rates of up to 1.5 inches were reported at Teterboro, with rates over one inch per hour at Newark. Vehicles were stuck in flood waters at the intersection of Montgomery Street and Center Street in Jersey City. Multiple cars were trapped in flood waters on Johnson Avenue in Kearny. Fishburne Avenue in Kearny was closed with water rescues occurring at the intersection of Route 7 and Fishburne Avenue. The fire department was responding to motorists trapped in flood waters on Harrison Avenue in Kearny. Cars were trapped with rescues underway on Passaic Avenue between Central Avenue and East Newark in East Newark.	None identified
October 29, 2017	Flood	N/A	A wave of low pressure formed along a slow moving cold front before rapidly deepening off the Mid Atlantic coast during the evening. With a tropical airmass being entrained into the system, rainfall totals across northeast New Jersey ranged from 2-6, with a CWOP site in North Caldwell reporting 5.20 and the ASOS at Newark Airport reporting 4.08 of rain. This resulted in reports of flooding across parts of Hudson and Bergen counties, with water rescues taking place in Hudson County. A water rescue was reported on Passaic Avenue at Bellgrove Drive in Kearny.	None identified
September 25, 2018	Flash Flood	No	Rain developed across the area ahead of an approaching warm front, consolidating into a slow-moving band of heavy rain across northeast New Jersey by late morning. Rainfall amounts generally ranged from 3-5 inches, with one CoCoRaHS observer reporting 5.56 inches of rain in Palisades Park. Car were stuck in flood waters on Route 440 southbound near Port Jersey Boulevard in Bayonne. New Jersey Route 3 flooded westbound in the area of the eastern spur of the New Jersey Turnpike in Secaucus. All lanes closed in both directions due to flooding on	None identified





Date(s) of Event	Event Type (disaster declaration if applicable)	Hudson County Designated?	Summary of Event	Summary of Local Damages and Losses
			the US Route 1 & 9 truck route approaching NJ 440 in West Bergen. Portions of Central Avenue in Kearny were impassable due to 3-4 feet of standing water. A ramp was closed due to flooding on the New Jersey Turnpike-Hudson County Extension outside interchange 14A (NJ 440A/Bayonne Bridge) in Bayonne. All lanes were closed due to flooding on NJ 7 eastbound approaching Charlotte Circle in Marion.	

9.18.6 JURISDICTION-SPECIFIC VULNERABILITIES AND HAZARD RANKING

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Table 9.18-7 summarizes the Secaucus MUA’s risk assessment results and data used to determine the hazard ranking.

A gradient of certainty was developed to summarize the confidence level regarding the input used to populate the hazard ranking. A certainty factor of high, medium or low was selected and assigned to each hazard to provide a level of transparency and create increased understanding of the data used to support the resulting ranking. The following scale was used to assign a certainty factor to each hazard:

- **High**—Defined scenario/event to evaluate; probability calculated; evidenced-based/quantitative assessment to estimate potential impacts through hazard modeling.
- **Moderate**—Defined scenario/event or only a hazard area to evaluate; estimated probability; combination of quantitative (exposure analysis, no hazard modeling) and qualitative data to estimate potential impacts.
- **Low**—Scenario or hazard area is undefined; there is a degree of uncertainty regarding event probability; majority of potential impacts are qualitative.





Table 9.18-7. Summary of Risk Assessment Results (for the Town of Secaucus)

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Coastal Erosion and Sea Level Rise	Coastal Erosion: CEHA Sea Level Rise: NOAA +1ft and +3ft rise	CEHA:	510	CEHA:	80	CEHA:	\$97,954,723	High
		SLR +1ft:	0	SLR +1ft:	1	SLR +1ft:	\$2,099,959	
		SLR +3ft:	196	SLR +3ft:	49	SLR +3ft:	\$194,480,856	
Coastal Storm	100- and 500- MRP Hurricane Wind Category 1 through Category 4 SLOSH	Category 1:	1,813	Category 1:	446	100-year Wind Loss:	\$4,072,852	High
		Category 2:	8,700	Category 2:	1,627			
		Category 3:	11,356	Category 3:	2,183	500-year Wind Loss:	\$33,933,347	
		Category 4:	14,244	Category 4:	2788			
Dam and Levee Failure	Dam failure at the Hackensack Reservoir #2 Dam in Weehawken	Qualitative assessment conducted; population impacts anticipated downstream of dam or levee		Qualitative assessment conducted; building impacts anticipated downstream of dam or levee		Qualitative assessment conducted; economic impacts anticipated downstream of dam or levee		Low
Drought	Drought event	Majority of the County is serviced by water supplies who get water from surface water.		Droughts are not expected to cause direct damage to buildings.		Losses would be limited, due to lack of major agricultural industry.		Low
Earthquake	100, 500-, 2,500-Year Mean Return Period Event	NEHRP D&E:	4,734	NEHRP D&E:	695	100-year Loss:	\$278,057	High
		Liquefaction Class 4:	4,865	Liquefaction Class 4:	713	500-year Loss:	\$37,091,903	
						2,500-year Loss:	\$470,204,175	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,191	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	1,311					
Flood	100- and 500-Year Mean Return Period Event	100-year	5,057	100-year	969	100-year Loss:	\$112,934,210	High
		500-year	5,660	500-year	1,143			
Geological	High Landslide Susceptibility Areas	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	0	Class B:	0	Class B:	\$0	
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Economic losses could be similar to those of the coastal storm (wind and surge) and flooding hazards.		Low
Severe Winter Weather	Severe Winter Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads can impact local operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	1,325	Wildfire:	52	Wildfire:	\$368,288,416	Moderate





9.18.6.1 CRITICAL FACILITIES AND LIFELINES

The table below identifies critical facilities located in the 1-percent and 0.2-percent floodplain.

Table 9.18-8. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Koelle Boulevard Sewage Treatment	Wastewater Treatment	X	X	The facility is located at 1100 Koelle Blvd. While the facility has not experienced riverine flooding, it has experienced stormwater flooding. The MUA installed check valves to prevent backup flooding from occurring and impacting the facility.

*Identified lifeline

9.18.6.2 ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities:

- Isolated clogged storm gates; it is the Town’s responsibility to maintain
- The Town installed check valves on Mill Creek to prevent tidal flooding but if heavy rain occurs, flooding will still occur.
- Too much stormwater in sanitary system; water gets in system from infiltration and broken pipes (see mitigation action 2020-SMUA-002)
- Roof drains are connected to the sanitary system, but the MUA does not know where the connections are located (see mitigation action 2020-SMUA-004)
- MUA is not a combined system (sanitary sewer only) and is not designed for stormwater; the Town of Secaucus is responsible for stormwater in the town (see mitigation action 2020-SMUA-002)
- Stairwell and window wells to basement level. The Authority had a mason build up the wall adjacent to the stairwell four feet. Also raised the three window wells by four feet and covered same.
- River water enters the collection system from street flooding (vented covers). On site catch basins equipped with tide gates.
- Access to the facility is hindered due to street flooding.

9.18.6.3 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Secaucus MUA that illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Secaucus MUA has significant exposure. Maps of the Secaucus MUA hazard area extent and location is provided at the end of this annex (Figures 9.18-1 and 9.18-2).

9.18.6.4 HAZARD RANKING

This section includes the jurisdiction specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.





As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Hudson County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their jurisdiction. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Secaucus MUA. The Secaucus MUA has reviewed the County hazard ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the jurisdiction. During the review of the hazard ranking, the Secaucus MUA was in agreement with the calculated hazard ranking for the MUA.

Table 9.18-9. Secaucus MUA Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Medium	High	Medium	High	High	High

Geological Hazards	Severe Storm	Winter Storm	Wildfire	Dam Levee Failure
Low	High	High	Medium	N/A

9.18.7 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.18.7.1 PAST MITIGATION INITIATIVE STATUS

The following table summarizes the jurisdiction’s progress on their mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

Table 9.18-10. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
SMUA-1: Install dual fuel system for existing 850 KW emergency generator	Secaucus MUA	Complete	-	-
SMUA-2: New emergency generator to provide an additional source of power to maintain pumping operations at emergency pumping station	Secaucus MUA	In progress – MUA would like to purchase a mobile generator	X	2020-SMUA-001
SMUA-3: Floodproof main building pumping station at SMUA.	Secaucus MUA	Complete	-	-

In addition to the projects completed above, the MUA installed two emergency pumps in 2019 at a cost of approximately \$150,000. This increased the pumping capacity at the treatment facility plan by over 4 million gallons.





9.18.7.2 PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Secaucus MUA participated in a risk assessment workshop in October 2019 where detailed information was provided on assets exposed and vulnerable to the identified hazards of concern. The Secaucus MUA participated in a mitigation action workshop in January 2020 and was provided a Mitigation Toolbox that included a mitigation catalog developed specifically for Hudson County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments, and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013). Refer to Section 6 and Appendix F (Mitigation Strategy Supplement) for a more complete description of the Mitigation Toolbox and its resources.

Table 9.18-11 summarizes the comprehensive-range of specific mitigation initiatives the Secaucus MUA would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 jurisdiction priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, then complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.4-12 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.





Table 9.18-11. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-SMUA-001 (previous action)	Purchase mobile generator	Problem: Loss of primary power in the Town can lead to pumps not working properly or not working at all.	Existing	All	2, 6	Secaucus MUA	FEMA HMGP with local share (MUA)	Reduced vulnerability of critical facilities to shut down due to power outages, public health and environmental impacts avoided	\$10,000+	Within 2 years	Medium	SIP	PP, ES
		Solution: Purchase a mobile generator to be used at different locations during a power outage. This will allow the MUA to provide power to specific pumps.											
2020-SMUA-002	Infiltration and Inflow Study	Problem: Stormwater is getting into the sanitary system due to infiltration and broken pipes. This can lead to sanitary sewer overflows, creating a hazard. This also reduces the sewer systems capacity and puts a burden on operation and maintenance. Backups and overflows require emergency response and leads to disruption of service.	Existing	Coastal Storm, Flood, Severe Weather	2, 4, 6	Secaucus MUA	Water Pollution Control Grants Program (USEPA), MUA Budget	Reduce or eliminate the amount of infiltration entering the system; allows system to keep its capacity; reduces emergency response	\$25,000	Within 1 year	High	LPR	PR
		Solution: Conduct an Infiltration and Inflow (I&I) study to determine the amount of I&I entering the collection system and how to address the issue.											
2020-SMUA-003	Increase pump capacities	Problem: During heavy rain events, the sanitary sewer system can backup.	Existing	Coastal Storm, Flood,	1, 2, 6	MUA	Clean Water State	Reduce potential sewer backups,	\$500,000	Within 2 years	High	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		Solution: Increase the size of the pumps at both stations and add another force main and valve between so you can use either pump or use both. This will help with storm events and helps with potential sanitary sewer backups.		Severe Weather			Revolving Fund (USEPA), MUA Budget	continuity of operations					
2020-SMUA-004	Smoke Test	<p>Problem: Roof drains are connected to the sanitary system, causing stormwater to enter the system. This reduces the capacity of the sanitary system and can lead to sewer overflow and system failures.</p> <p>Solution: Conduct a smoke test to identify where stormwater/groundwater are entering the sanitary sewer system. Direct connections, including catch basins, downspouts, area drains, driveway drains, stairwell drains, patio drains, and storm drain inlets or ditches can be confirmed with this test.</p>	Existing	Coastal Storm, Flood, Severe Weather	1, 2, 6	Secaucus MUA with support from the Town	MUA budget	Identifies where stormwater and groundwater are entering the sanitary sewer system; provides an idea of where to make corrections	\$10,000	Within 1 year	Medium	SIP	PP
2020-SMUA-005	Basement Sump Pump Piping	Problem: Many homes in the Town of Secaucus have sump pumps in their basements. Discharge from the sump pumps is entering the sanitary sewer system (the system is not designed for	Existing	Coastal Storm, Flood, Severe Weather, Severe	1, 2, and 6	Secaucus MUA with support from the Town	MUA budget	Reduce the amount of stormwater that enters the sanitary sewer system,	\$30,000+	Within 5 years	Medium	SIP	PP





Initiative Number	Mitigation Initiative Name	Description of the Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
		stormwater). This leads to a surplus of water entering the system, creating overflows. Solution: Work with the Town of Secaucus to install piping behind the curbs for homes to use with their sump pumps. This piping will be connected to the stormwater system.		Winter Weather				continuity of operations					

Notes:

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- 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 manmade 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

CRS Category:

- 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 9.18-12. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-SMUA-001 (previous action)	Purchase mobile generator	1	1	1	1	0	1	0	0	1	0	1	1	0	0	8	Medium
2020-SMUA-002	Infiltration and Inflow Study	1	1	1	1	0	0	0	1	1	1	1	1	0	0	9	High
2020-SMUA-003	Increase pump capacities	1	1	1	1	0	1	0	0	1	1	1	1	1	0	10	High
2020-SMUA-004	Smoke Test	1	1	1	1	0	0	0	0	1	0	1	1	0	0	8	Medium
2020-SMUA-005	Basement Sump Pump Piping	1	1	1	1	0	0	0	0	1	0	1	1	0	0	8	Medium

Note (1): Refer to Section 6, which conveys guidance on prioritizing mitigation actions.

Note (2): Low (0-4), Medium (5-8), High (9-14).





Table 9.18-13. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion and Sea Level Rise		-001			-001	-001		
Coastal Storm	-002	-001, 003, -004, -005			-001	-001, 003, -004, -005		
Dam and Levee Failure		-001			-001	-001		
Drought		-001			-001	-001		
Earthquake		-001			-001	-001		
Extreme Temperature		-001			-001	-001		
Flood	-002	-001, 003, -004, -005			-001	-001, 003, -004, -005		
Geologic		-001			-001	-001		
Severe Weather	-002	-001, 003, -004, -005			-001	-001, 003, -004, -005		
Severe Winter Storm		-001, -005			-001	-001, -005		
Wildfire		-001			-001	-001		

Refer to Section 6 (Mitigation Strategy) for an explanation of the mitigation categories.

RED = high ranked hazard

ORANGE = medium ranked hazard

YELLOW = low ranked hazard

WHITE = no ranking

9.18.8 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

The Secaucus MUA followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many jurisdiction representatives. 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. The following table summarizes who participated and in what capacity. Additional documentation on the MUA’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.18-14. Contributors to the Annex

Entity	Title	Method of Participation
Brian Bigler	Executive Director	Annex POC, attended meetings, provided information to complete annex, identified projects
Glenn Beckmeyer	MUA Engineer	Annex POC, attended meetings, provided information to complete annex, identified projects





Figure 9.18-1. Secaucus MUA Hazard Area Extent and Location Map 1

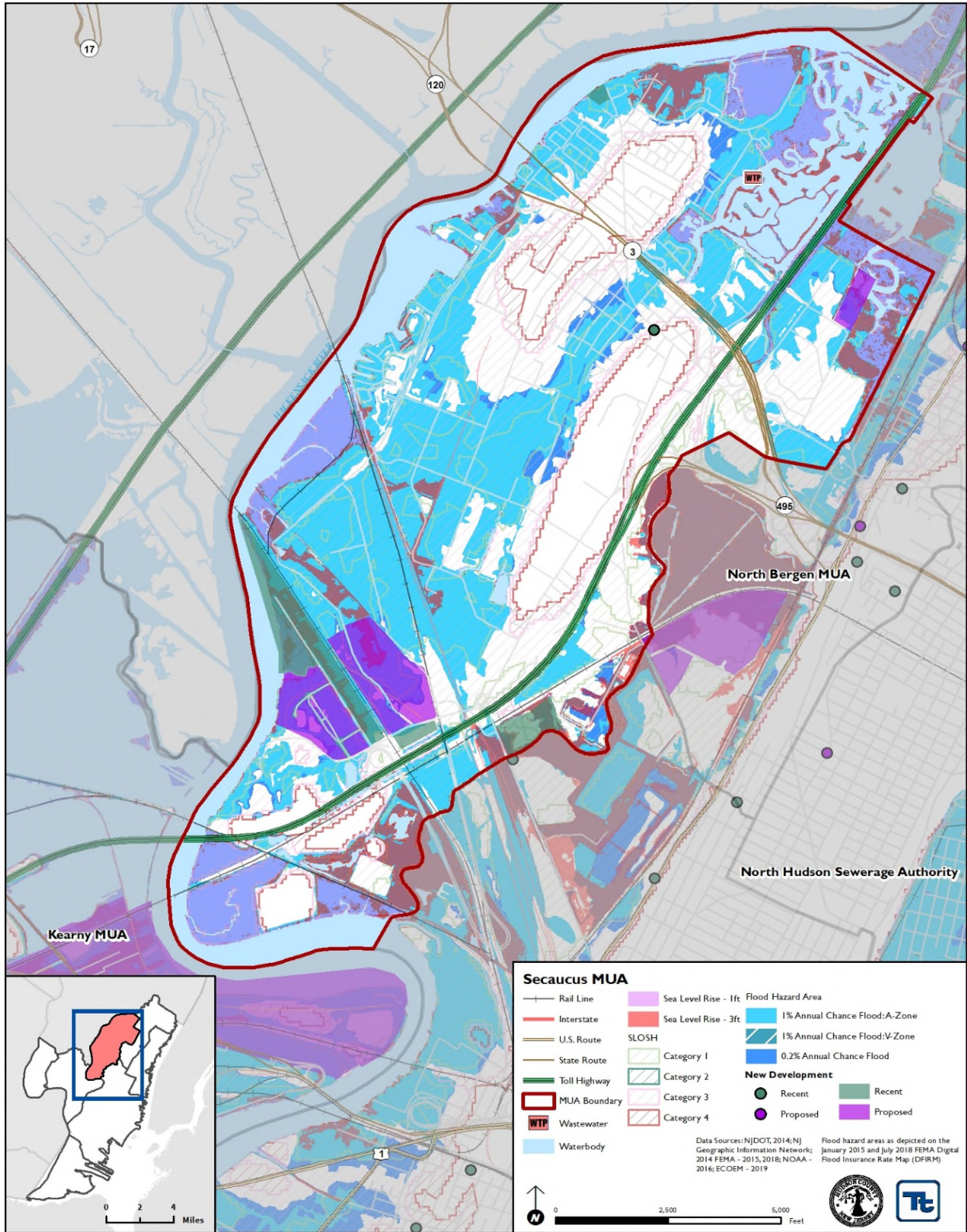
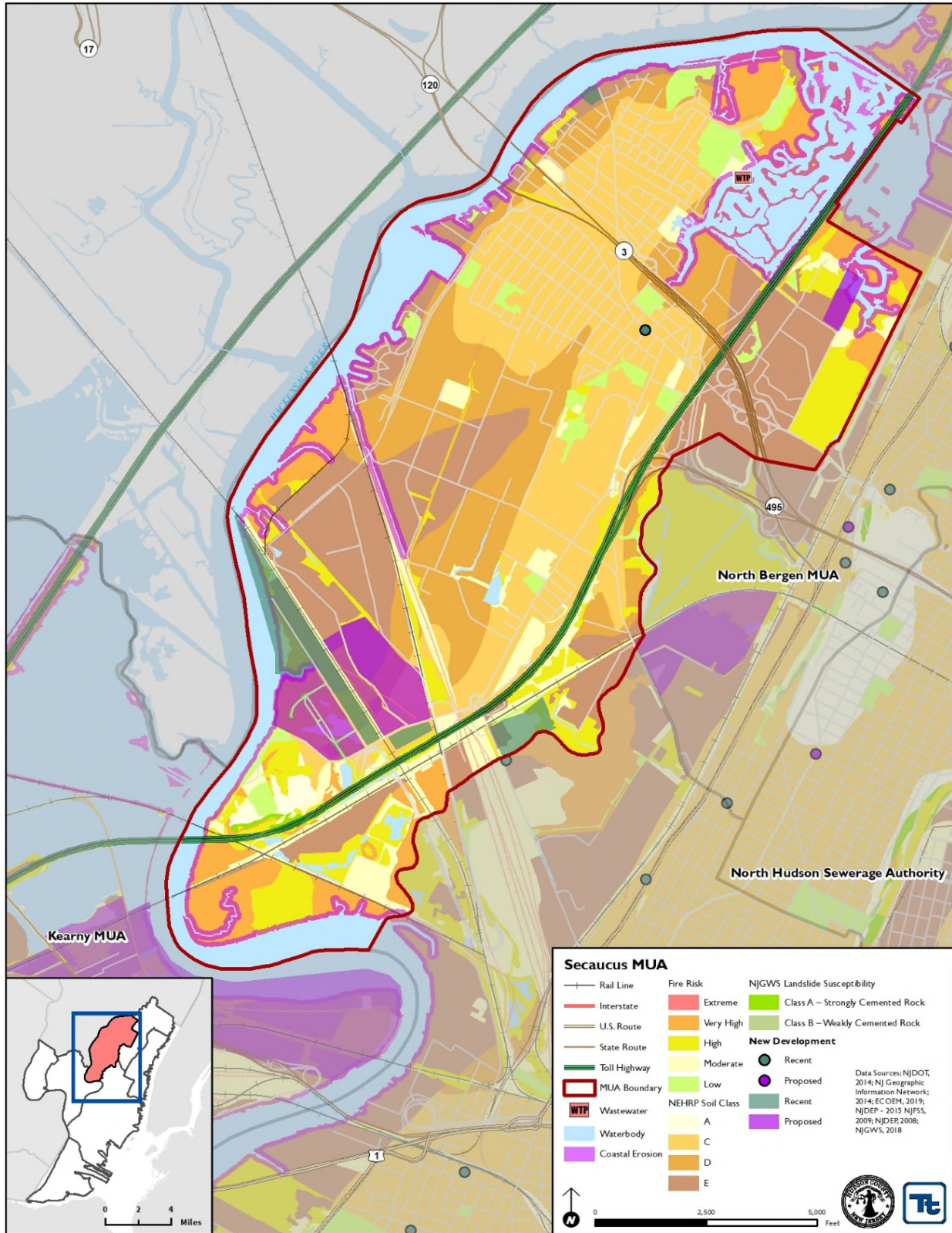




Figure 9.18-2. Secaucus MUA Hazard Area Extent and Location Map 2





Action Worksheet			
Project Name:	Purchase mobile generator		
Project Number:	2020-SMUA-001		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	Loss of primary power in the Town can lead to pumps not working properly or not working at all.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase a mobile generator to be used at different locations during a power outage. This will allow the MUA to provide power to specific pumps.		
Is this project related to a Critical Facility or Lifeline?	Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	Reduced vulnerability of critical facilities to shut down due to power outages, public health and environmental impacts avoided
Useful Life:	19 years	Goals Met:	2, 6
Estimated Cost:	\$10,000+	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP with local share (MUA)
Responsible Organization:	Secaucus MUA	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels at each pump location	\$30,000	Weather dependent, not portable, costly
	Install wind turbines at each pump location	\$35,000	Weather dependent, needs space to install
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Purchase mobile generator	
Project Number:	2020-SMUA-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provides continuity of operations and reduces the potential for sewer backup, protecting the health and safety of residents
Property Protection	1	Provides continuity of operations
Cost-Effectiveness	1	Benefits outweigh the costs for this project
Technical	1	
Political	0	
Legal	1	The MUA has the authority to implement this project
Fiscal	0	MUA needs funding to purchase generator
Environmental	0	
Social	1	
Administrative	0	
Multi-Hazard	1	All hazards
Timeline	1	If funding received, project can be completed within 5 years
Agency Champion	0	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	

