



## SECTION 8. PLANNING PARTNERSHIP

### 2022 HMP Changes

The 2022 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 Gloucester 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)]

Members of the Planning Partnership have the expertise to develop the plan and have their jurisdiction's authority to implement the mitigation strategy developed during the planning process. The Planning Partnership is responsible for developing and reviewing draft sections of the plan, updating their respective annex, creating the mitigation strategy for their jurisdiction, and adopting the final plan.

For the Gloucester 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

Gloucester County solicited the participation of all municipalities in the County at the commencement of this project. All municipalities interested signed a Letter of Intent to Participate (LOIP) committing their participation and resources to the development of the Gloucester County HMP update (Appendix B). Gloucester County and all municipalities in the County 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 Planning Partners agreed to the following planning partner expectations, which were outlined in the letter sent by Gloucester County April 21, 2021 and confirmed at the kick-off meeting held on May 5, 2021 (see Appendix C [Meeting Documentation] for details):

- Provide representation at regular planning group meetings and workshops.
- Be responsible for providing data and information as requested.
- Review and comment on data and information compiled by the contract consultant relevant to their jurisdiction.
- Be responsible for completing plan documents specific to your municipality, using provided templates with guidance and assistance by the contract consultant.
- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Facilitate public outreach efforts with citizens and local stakeholders within your community using materials provided by the contract consultant.
- Assist with the identification of strengths, weaknesses, opportunities and obstacles to implementing natural hazard mitigation within your community.
- Assist with the identification of past, ongoing and appropriate future mitigation strategies and activities within your municipality.
- Review and comment on plan documents, specifically the draft and final plans prior to submission to NJOEM and FEMA.





As described in Section 7 (Plan Maintenance), the planning partnership is intended to remain active beyond the regulatory update to support plan maintenance. Regarding the composition of the Steering and Planning Committees, it is recognized that individual commitments change over time, and it will 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 2016 HMP, the jurisdictional annexes were maintained and updated for the 2022 HMP. The jurisdictional annexes continue to provide a unique, stand-alone guide to mitigation planning for each jurisdiction. The Gloucester County HMP Update is organized so that there is an annex for Gloucester County and for every jurisdiction within the county's borders. Section 9 (Jurisdictional Annexes) includes an annex for every jurisdiction in Gloucester County.

### 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 municipal kick-off meeting, held on May 5, 2021 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.

### 8.4.2 Hazard Ranking Exercise

The presentation of the risk assessment and hazard ranking for each jurisdiction was conducted June 30, 2021. 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 Matrix) for the input submitted by each municipality. 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 at the second Steering Committee Meeting on June 23, 2021, attendees 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. All SWOO results were compiled and provided as a resource to plan participants at the Mitigation Strategy Workshop in August 2021. Refer to Appendix B (Participation Matrix) 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 August 26, 2021, for all participating jurisdictions to support the development of the updated mitigation strategy. Due to restrictions in place due to the coronavirus pandemic, this workshop was held virtually. To assist with the identification of implementable and action-oriented mitigation actions, a three-step process was followed for the 2022 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 100 percent 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 heard from the County, NJOEM, and the consultant on how to develop a diverse mitigation strategy and action worksheets.

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. Mitigation development worksheets were filled out by each municipality to identify additional problem statements and draft action worksheets were developed.

## 8.4.5 Municipal Support Meetings

In addition to the municipal kick-off meeting, municipal 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.
- Updating information regarding the jurisdiction's capabilities and past integration of hazard mitigation concepts.
- 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.

## 8.4.6 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.

**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, as well as municipal representatives, stakeholders, and residents who provided input during the planning process. Further detail is provided in Section 2 (Planning Process), Section 9 (jurisdictional annexes) and Appendix B (Participation Matrix).

**Section 9.X.2: Jurisdiction Profile:** Provides an overview and profile of the jurisdiction, including an identification of areas of known and anticipated future development and the vulnerability of those areas to the hazards of concern.

**Section 9.X.3: Jurisdictional Capability Assessment and Integration:** 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 municipal annexes, tables provide an inventory of the municipality's planning and regulatory, administrative and technical, and fiscal, capabilities, respectively. Further, another table identifies the municipality'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.

**Section 9.X.4: National Flood Insurance Program (NFIP) Compliance:** A tabular summary of the specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

**Section 9.X.5: 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.6: Jurisdictional Risk Assessment:**

- **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 Event History:** 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.

- **Hazard Ranking and Vulnerabilities:** This subsection provides information regarding each plan participant's vulnerability to the identified hazards. New to the 2022 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.

**Section 9.X.7: Mitigation Strategy and Prioritization:** This section discusses and provides the status of past mitigations 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.
- **Additional Mitigation Efforts:** 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. As indicated, applicable mitigation actions, projects and initiatives are further documented on an Action Worksheet which provides details on the project identification, evaluation, prioritization and implementation process. Table 9.X-17 provides a summary of the local mitigation strategy prioritization process discussed in Section 6.

**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.

## 8.4.7 Annex Review

Workshops and additional meetings (via email and/or teleconference) to complete the jurisdictional annexes were held with the Steering Committee and Planning Partnership 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 Gloucester County Office of Emergency Management's mitigation website. To demonstrate broad and comprehensive review and input, each jurisdiction collected signatures from these representatives. Refer to Appendix B (Participation Matrix) to review the annex signature pages.

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 Sections 2 (Plan



Adoption) and 6 (Mitigation Strategy). Completed jurisdictional annexes are presented in Section 9 (Jurisdictional Annexes).

## 8.5 COVERAGE UNDER THE PLAN

All jurisdictions (County and municipalities) met the participation requirements specified by the Steering Committee. Any non-participating local jurisdiction within the Gloucester County planning area can “dock” to this plan in the future following the linkage procedures defined in Appendix I (Linkage Procedures).

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*

Municipality	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)
Gloucester County	N/A	X	X	X	X
Clayton (B)	X	X	X	X	X
Deptford (Twp)	X	X	X	X	X
East Greenwich (Twp)	X	X	X	X	X
Elk (Twp)	X	X	X	X	X
Franklin (Twp)	-	X	X	X	X
Glassboro (B)	X	X	X	X	X
Greenwich (Twp)	X	X	X	X	X
Harrison (Twp)	X	X	X	X	X
Logan (Twp)	X	X	X	X	X
Mantua (Twp)	X	X	X	X	X
Monroe (Twp)	X	X	X	X	X
National Park (B)	X	X	X	X	X
Newfield (B)	X	X	X	X	X
Paulsboro (B)	X	X	X	X	X
Pitman (B)	X	X	X	X	X
South Harrison (Twp)	X	X	X	X	X
Swedesboro (B)	X	X	X	X	X
Washington (Twp)	-	X	X	X	X
Wenonah (B)	X	X	X	X	X
West Deptford (Twp)	X	X	X	X	X



Municipality	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)
Westville (B)	X	X	X	X	X
Woodbury (C)	X	X	X	X	X
Woodbury Heights (B)	-	X	X	X	X
Woolwich (Twp)	X	X	X	X	X
Rowan University	X	X	X	X	X

N/A = Not applicable.

*\*The Gloucester County Office of Emergency Management 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 Gloucester County.*

*\*\*\*Note that municipalities that have not submitted a letter of intent but are marked as participating have provided a verbal intent to participate and thus have updated annexes and are counted in the hazard mitigation plan update for 2022.*





## 9.1 GLOUCESTER COUNTY

This section presents the jurisdictional annex for Gloucester County and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the County participated in the planning process, an assessment of the Gloucester County's risk and vulnerability, the different capabilities used in the County, and an action plan that will be implemented to achieve a more resilient community.

### 9.1.1 Hazard Mitigation Planning Team

Gloucester County followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many County departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Gloucester County's hazard mitigation plan primary and alternate points of contact. 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 9.1-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact
Name/Title: Dennis P. McNulty, Director Address: 1200 N Delsea Drive, Clayton, NJ 08312 Phone Number: 856-307-7100 Email: <a href="mailto:dmcnulty@co.gloucester.nj.us">dmcnulty@co.gloucester.nj.us</a>		Name/Title: Charles Murtaugh, Deputy Coordinator Address: 1200 N Delsea Drive, Clayton, NJ 08312 Phone Number: 856-307-7100 Email: <a href="mailto:cmurtaugh@co.gloucester.nj.us">cmurtaugh@co.gloucester.nj.us</a>
Name	Title	Method of Participation
Dennis P. McNulty	Director	Member of the Steering Committee and HMP Coordinator for the planning process; attended meetings; worked with municipalities; provided information on capabilities, past event history, past action statuses; identified mitigation actions; reviewed annex and provided feedback



Charles Murtaugh	Deputy Coordinator	Member of the Steering Committee and assisted the HMP Coordinator throughout the process; attended meetings; worked with municipalities; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Joe Ward	GIS, Emergency Response	Member of the Steering Committee; provided GIS data to the consultant to use in the planning process; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Nick Cressman	GIS, Planning Division	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions; reviewed annex and provided feedback
Jackie Huston	County Planning	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
John Vinci	GCUA Executive Director	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Vern Marino	GCUA Assistant Executive Director	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Joe Boring	GCUA IPP Manager	Attended meetings; identified mitigation actions; reviewed annex and provided feedback
Michelle Infante- Casella	Director of the Gloucester County Cooperative Extension Services	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Jack DeAngelo	OEM Coordinator	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Peter A. Scirrotto Sr.	Director of Buildings and Grounds	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Tom Bianco	Director of Economic Development	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Vincent M. Voltaggio	Director of Public Works & County Engineer	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions; reviewed annex and provided feedback
Kelly Baker	Director of Gloucester County Improvement Authority	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Theresa Ziegler	Principal Planner	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
Joe Baker	Project Manager	Member of the Steering Committee; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions
George Hayes	Accountant	Reviewed annex and provided feedback
Chad Bruner	County Administrator	Reviewed annex and provided feedback

## 9.1.2 County Profile

According to the U.S. Census, the 2010 population for Gloucester County was 288,288. The estimated 2019 population was 291,165, a 1.0 percent increase from the 2010 Census. Data from the 2019 U.S. Census



American Community Survey indicate that 5.3 percent of the population is 5 years of age or younger and 15.4 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. Refer to Section 3 (County Profile) for details.

## 9.1.3 Jurisdictional Capability Assessment and Integration

Gloucester County performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.1.3). The updated mitigation strategy includes opportunities Gloucester County identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.1.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Gloucester County, what is present in the jurisdiction, and code citation and date.

*Table 9.1-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
All codes, ordinances, and regulations are administered at the local municipality level.					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County	Gloucester County Development Management Plan, February 1982	County	Gloucester County Planning Department



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
Provides long term planning for the County, including expected areas of future development.					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	Yes	No	Disaster Debris Management Plan	County/Federal	County OEM
<i>How does this reduce risk?</i>					
Identifies methods and procedures for debris removal following a disaster event.					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Gloucester County Highway Dept. Stormwater Management Program	State	Gloucester County Highway Department
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Civil Defense & Disaster Control Act (APP; A-9)	County	County OEM
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	Yes	No	County participates in annual process conducted by the State administrative agency (OHSP)	County, State	County OEM
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	Yes	No	-	County	County OEM
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-

### 9.1.3.2 Development and Permitting Capability

The table below summarizes the capabilities of Gloucester County to oversee and track development.

*Table 9.1-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	No	Only permits issued are road opening permits through the engineering office. Development permits are handled by local jurisdiction.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	-



### 9.1.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to Gloucester County and their current responsibilities which contribute to hazard mitigation.

*Table 9.1-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	-
Zoning Board of Adjustments	No	Zoning controlled by local Jurisdiction.
Planning Department	Yes	Nick Cressman (GIS Specialist), Jackie Huston (land development review)
Mitigation Planning Committee	Yes	County Working Group/Steering Committee
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	County Department of Economic Development; Director Tom Bianco and designated Staff
Public Works/Highway Department	Yes	To Be Determined/Assigned
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Dedicated Emergency Response Department with an Office of Emergency Management within the Department.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Everbridge alert/notification system
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The County DPW conducts tree maintenance and removal as needed. Additionally, The DPW also has a street cleaning program to keep inlets from becoming clogged with debris and sediment.
Mutual aid agreements	Yes	Countywide mutual aid and assistance agreement involving all (24) municipalities.
Human Resources Manual	Yes	Responsibilities are assumed by the OEM staff with the emergency response department and carried out in coordination with representatives of the County's Steering Committee
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	County Public Works Department including Engineering and Planning Divisions
Engineers or professionals trained in building or infrastructure construction practices	Yes	County Engineering for infrastructure construction practices
Planners or engineers with an understanding of natural hazards	Yes	County Engineers and Planning Divisions
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	OEM Staff use recently developed GIS-based survey instruments



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Member of the County OEM staff and County's Planning Office
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	OEM Coordinator and deputies
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> <ul style="list-style-type: none"> <li>By assessing the probability and frequency of certain hazards in our vulnerability to the hazards threatening our jurisdiction we can more readily determine and prioritize what mitigation efforts and activities can or need to be implemented and what budgeting factors should be considered.</li> </ul>		

### 9.1.3.4 Fiscal Capability

The table below summarizes financial resources available to the Gloucester County.

Table 9.1-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes – the County has received federal grant funds under the Community Development Block Grant (CDBG) program since 1984. This program is administered by the U.S. Department of Housing and Urban Development (HUD). The funds may be used for various public service activities which principally benefit low- and moderate-income persons.
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	-
User fees for water, sewer, gas or electric service	-
Impact fees for homebuyers or developers of new development/homes	-
Stormwater utility fee	-
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	-
Other federal or state funding programs	Yes – FEMA HMA (HMGP, FMA, BRIC); NJDEP
Open Space Acquisition funding programs	Yes – NJDEP Green Acres
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	HOME - HOME provides formula grants to states and localities that communities use often in partnership with local nonprofit groups-to fund a wide range of activities that build, buy, and/or rehabilitate





Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
	affordable housing for rent or homeownership or provide direct rental assistance to low-income people.

### 9.1.3.5 Education and Outreach Capability

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

*Table 9.1-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Utilization of the County government's website & OEM Facebook page. Also, currently using by contract, an emergency preparedness and situational awareness application.
Personnel skilled or trained in website development	Yes	Certain members of County government have been trained on and given administrative access to the County's recently updated website.
Hazard mitigation information available on your website	Yes	Have used County website in the past to advise of the County Hazard Mitigation Plan and mitigation programs.
Social media for hazard mitigation education and outreach	Yes	OEM Facebook page.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	Use of the State's incident management/situational awareness platform
Warning systems for hazard events	Yes	County's alert/notification system
Natural disaster/safety programs in place for schools	Unknown	-
Other	None	-
<b><i>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</i></b> <ul style="list-style-type: none"> <li>County OEM has participated in various programs where we share emergency and disaster preparedness literature. The County has utilized the OEM Facebook page and the county's website to post hazard an emergency preparedness information.</li> </ul>		

### 9.1.3.6 Community Classifications

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

*Table 9.1-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	N/A	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	N/A	-	-



Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public Protection (ISO Fire Protection Classes 1 to 10)	N/A	-	-
Sustainable Jersey	N/A	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.1.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.1-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazardous Materials	Moderate
Hurricanes and Tropical Storms	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor’Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Moderate
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.1.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.1-9. NFIP Summary

NFIP Topic	Comments
NFIP administration is carried out at the local municipal level.	

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.1.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.1-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	Permitting is carried out at the local municipal level.											
Multi-Family												
Other (commercial, mixed-use, etc.)												
Total Permits Issued												
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												
Performed at the local municipal level												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Performed at the local municipal level												



SFHA Special Flood Hazard Area (1% annual chance flood event)  
\* Only location-specific hazard zones or vulnerabilities identified.

## 9.1.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), Section 4.3 (Hazard Profiles), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Gloucester County's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

### 9.1.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

### 9.1.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.3 (Hazard Profiles) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Gloucester County's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. Refer to Section 4.4 (Hazard Ranking) for the countywide hazard ranking.

#### Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.



Table 9.1-11. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Comment
		1% Event	0.2% Event	
GC Health Clinic - WIC	Medical Center	Y	Y	This facility is not located near the river
GCUA Braun Court Metering Station #22	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Buckingham Metering Station # 23	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Cooper Street Metering Station # 37	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Cove Rd Metering Station # 24	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Cove Rd. Dept. Twp. Metering Station # 24	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA National Park Pump Station	Wastewater Pump Station	Y	Y	Pump station has backup power and utilities are elevated
GCUA National Park Storage Facility	Potable Water Facility	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Paulsboro Pump Station	Wastewater Pump Station	Y	Y	Pump station has backup power and utilities are elevated
GCUA WD First Avenue Metering Station # 34	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA West Deptford-Woodbury Metering Station	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below
GCUA Westville Pump Station	Wastewater Pump Station	Y	Y	Pump station has backup power and utilities are elevated
GCUA Woodbury Heights Metering Station # 36	Wastewater Metering Station	Y	Y	Auto-controls are elevated; equipment is elevated; metering is done below

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.1.6.3 Identified Issues

After review of the Gloucester County's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, municipalities identified vulnerable areas throughout the County. Refer to each annex in Section 9 for the list of vulnerable areas.



## 9.1.7 Mitigation Strategy and Prioritization

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

### 9.1.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.1-12. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-1	Support municipal outreach and education programs by providing access to current resources and reference materials that Municipal Working Groups can use to inform residents, businesses, and property owners regarding: <ul style="list-style-type: none"> <li>Current hazards and risks</li> <li>Changing conditions and actions that may reduce / increased risk</li> <li>Best practices for hazard mitigation at the individual or property level.</li> </ul>	County OEM	Ongoing Capability	No	-	-
M-2	Prioritize county critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures	County OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Support efforts by Municipal Working Groups to survey municipal critical facilities by providing data management services including facilitating periodic updates to inventory and hazard exposure data.	County OEM and Planning	Ongoing Capability – County OEM will spearhead regular meetings of the Planning Partnership	No	-	-
M-4	Support on-going plan maintenance and update processes by County and Municipal Working Groups by providing the most up-to-date information about natural hazards including refinements to flood mapping, evolving data regarding climate change, and related impacts of sea level rise and hazard event frequencies.	County OEM and Planning	Ongoing Capability	No	-	-
	Prioritize recurrent drainage problem areas and initiate data collection with county and, where appropriate, municipal agencies to track unreimbursed damages and related response and recovery expenses.	County OEM and Working Group	Ongoing Capability (County is recipient of Hazard Mitigation Grant funding the installation of (2) Pumping Stations at the Repaupo Levee	No	-	-





2016 Action Number and Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Conduct regular County Working Group meetings consistent with the plan maintenance program and the County Adoption Resolution.	County OEM and Working Group	Ongoing Capability – County OEM will spearhead regular meetings of the Planning Partnership	No	-	-
Support regular Municipal Working Group meetings and related implementation efforts including reminders at quarterly Municipal OEM Coordinators' meetings, tracking progress toward implementation of municipal mitigation measures, training regarding implementation issues such as project scoping, identification of current available options for funding, etc.	County OEM	Ongoing Capability	No	-	-
Facilitate meetings with state, county, and municipal officials to discuss and resolve implementation issues related to multi-jurisdictional mitigation measures.	State & County OEM	Ongoing Capability	No	-	-
Improve Algonkin Lake dam / embankment and road bridge located on County Route 581, also known as Commissioners Pike. The lake straddles the boundary between Gloucester and Salem County and their constituent municipalities, South Harrison Township and Pilesgrove Township, respectively. Although ownership of the embankment and bridge is shared with Salem County, Gloucester County has agreed to take responsibility for maintenance and improvements. The cost of this project is estimated at \$5 million by the Office of the County Engineer. Once funding is secured, the improvements are anticipated to take three years to complete. In addition, Gloucester County has applied for a grant in the amount of \$10 million	County Engineering	In Progress - In preliminary stages and concept development to drain/decommission lake and replace the existing bridge.	No	-	-



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/ person to implement the project.
	from the Delaware River Valley Basin Commission to acquire this private lake.					
	Continue Delaware River levee improvements including two additional projects: <ul style="list-style-type: none"><li>• Raise the height of the remaining extent of the levee in Gloucester County in Logan and Greenwich Townships and Paulsboro Borough, a total of approximately 15,000 linear feet, to a minimum of 12 feet above sea level and armor the resulting levee expansion. Completion of this project requires potential participation by private property owner(s). The cost of these improvements is estimated at \$50 million. Once funding is secured, the duration of the project is anticipated to be six years.</li><li>• Install stormwater pump station at levee in Greenwich Township to replace need for pump rental and mobilization that currently occurs when large storms are forecast. The cost of these improvements is estimated at \$1 million. Once funding is secured, the duration of the project is anticipated to be 24 months.</li></ul>	County Engineering	In Progress – HMGP Funding has been secured for the Installation of (2) Pumping Stations along the Levee System. The pump station that is being installed will alleviate the issues in this area. The pump station is out to bid and the County Engineer's office is waiting for bides to come in.	No	-	-
MJ-1	Improve storm drainage system on Atlantic Avenue (Clayton Borough)	Municipal OEM and County DPW	No progress – Atlantic Ave. is not a county road; owned by the Borough	No	-	-
MJ-2	Improve storm drainage on Lewis Drive (Clayton Borough)	Municipal OEM and NJDEP	No progress – Lewis Dr. is not a county road; owned by the Borough	No	-	-



2016 Action Number and Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-3 Risk assessment - Almonesson Lake Dam located on Cooper Street (Deptford Township)	Municipal OEM and County DPW	In Progress - The County Engineers office has gone through the Federal process and are currently in preliminary design phase for the design of a new spill way and bridge.	No	-	-
MJ-1 Alleviate flooding at Berkly Road & West Cohawkin Road (East Greenwich)	Municipal OEM and County DPW	No progress – This area in the County does not have flooding issues at this time and will not be included in the 2022 update.	No	-	-
MJ-2 Alleviate flooding at West Cohawkin Road and Friendship Road (East Greenwich)	Municipal OEM and County DPW	No progress – This area in the County does not have flooding issues at this time and will not be included in the 2022 update.	No	-	-



### 9.1.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.2-14, Gloucester County identified the following mitigation efforts completed over the last five years:

- Enhanced their mass notification system (Everbridge) – improvement from previous platform
- Mitigation grant – purchased portable generator and install transfer switches to use at several county-owned facilities (Health Bldg., Board of Elections, and Dream Park) – facilities can serve as shelters and heating/cooling center, and County CART
- Spotted Lantern Fly – County DPW is working with NJDEP and the Department of Agriculture on a spotted lantern fly spraying approach that will begin in the fall and continue through the spring. The County purchased equipment and materials and will begin spraying starting October 18, 2021.
- GCUA Anaerobic Digestion of Sludge replacing Sludge Incineration
  - GCUA previously treated sewage sludge by using two Fluidized Bed Sludge Incinerators.
  - GCUA has replaced those sludge incinerators with two Anaerobic Sludge Digestors.
  - The sludge digestion process also includes a Methane Flare to burn off excess biogas [a byproduct of Anaerobic Sludge Digestion].
  - A current project underway will allow GCUA to reuse this biogas instead of flaring the biogas off.
    - The biogas will be scrubbed clean, stored onsite, then used as fuel to power an electric engine which will produce electricity that will be used to power the GCUA Sewer Treatment Plant.
    - This onsite electrical production will help GCUA daily, but also during emergency events when the electrical power grid may be under stress.

### 9.1.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

Gloucester County participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.1-13. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise		X							X	
Dam Failure/Levee Failure	X	X			X	X	X		X	X
Disease Outbreak/Pandemic		X							X	
Drought		X							X	
Earthquake		X							X	



Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Extreme Temperatures		X				X			X	X
Flood	X	X			X	X	X		X	X
Geological Hazards		X				X			X	X
Hazardous Materials		X				X			X	X
Hurricanes and Tropical Storms	X	X		X	X	X	X		X	X
Invasive Species/Harmful Algal Bloom		X				X			X	X
Nor'Easter	X	X		X	X	X	X		X	X
Severe Weather	X	X		X	X	X	X		X	X
Severe Winter Weather		X		X	X	X	X		X	X
Wildfire		X				X			X	X
Utility Failure		X			X	X			X	X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.1-14) summarizes the comprehensive range of specific mitigation initiatives Gloucester 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 9.1-15 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.1-14. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Gloucester-001	Decommissioning Cedar Road Dam	<p><b>Problem:</b> Cedar Road Dam is a significant hazard dam located at the intersection of Heritage Road and Cedar Road in the Township of East Greenwich. The dam is owned by the County.</p> <p><b>Solution:</b> County Engineering with work with NJDEP to begin the decommissioning process of the Cedar Road Dam. A study will be done to determine the decommissioning process and what the project will include. As the final project is identified, the County will seek funding and begin the construction phase of the project.</p>	Existing	Dam Failure, Flood, Severe Weather	1, 2, 7	Within 5 years	County DPW, County Engineer, County OEM, NJDEP as needed	New Jersey Dam Restoration Program, FEMA HHPD	Improve water quality, enhance natural environment, reduce/eliminate dam failure threat	\$1 million+	Medium	LPR, SIP	PP, ES, SP
2022-Gloucester-002	Iona Lake Dam	<p><b>Problem:</b> Iona Lake Dam is a significant hazard dam located in Franklinville (Franklin Twp.).</p> <p><b>Solution:</b> County DPW has started the process of fixing and upgrading the Iona Lake Dam. This will increase the dam's</p>	Existing	Dam Failure, Flood, Severe Weather	1, 2, 7	Within 2 years	County Engineering, Public Works and OEM	County Budget	Increase integrity of dam; reduce dam failure threats	\$20,000+	High	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		integrity and provide further protection of the dam.											
2022-Gloucester-003	Training Local Officials on Updating Ordinances, Codes, and Plans	<p><b>Problem:</b> Many of the municipal codes, ordinances, and plans do not contain specifics on dam safety, substantial damage determinations, and hazard mitigation.</p> <p><b>Solution:</b> To train local government officials including Mayors, Supervisors, Code Officials and Planning and Zoning Board members on updating and integrating dam safety, substantial damage determinations, and other hazard mitigation efforts and information into ordinances, codes, and master plans. The training would also include using the BATool to update municipal annexes with updated hazard mitigation actions and initiatives and other pertinent information. By integrating this information, municipalities in Gloucester County will</p>	New and Existing	Flood, Severe Weather, Hurricanes, Nor'Easter, Dam Failure	All	Ongoing	County Planning and OEM	County Budget; FEMA BRIC	Increases awareness; hazard mitigation integration	<\$10,000	High	LPR	PR, PI





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		become more prepared pre-disaster, and more resilient during a disaster.											
2022-Gloucester -004	Permanent Generator at Reunification Site in the County	<p><b>Problem:</b> The County has a facility used for a reunification site for several high schools in the County. This facility does not have a permanent generator and cannot be used as a shelter for residents during an emergency.</p> <p><b>Solution:</b> Purchase and install a permanent generator for the site. This will provide continuity of operations and allow the facility to serve as an emergency shelter providing essential services to the community.</p>	Existing	All Hazards	1, 2, 6	3 years	County Engineering, County OEM	FEMA HMGP, County Budget	Continuity of operations; shelter facility	\$50,000+	Medium	SIP	PP, ES
2022-Gloucester -005	Lake Gilman Dam	<p><b>Problem:</b> Lake Gilman Dam is built on Raccoon Creek River and is a high hazard dam, owned by the county.</p> <p><b>Solution:</b> The County will undertake an engineering study and work with private property owners to upgrade the Lake Gilman Dam to reduce risk from</p>	New and Existing	Dam Failure, Dam, Severe Weather	1, 2, 7	5 Years	County Engineering, Public Works and OEM	FEMA HHPD, FEMA HMGP, New Jersey Dam Restoration Program, County Budget	The proposed project will safeguard public and private property in the areas protected by the dam.	TBD	Medium	SIP	SP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		natural hazard and increase integrity of the dam. Regular inspections will be conducted after major storm events or flooding events to assess potential damages and needs for improvements.											
2022-Gloucester -006	Flood Disclosure at Time of Sale	<p><b>Problem:</b> The State of New Jersey currently does not require sellers to tell prospective home buyers whether a property has been damaged by a flood. Not providing this information prevents potential buyers to make informed decisions on where to purchase their new home.</p> <p><b>Solution:</b> The County will require municipalities to adopt an ordinance that requires a seller to disclose whether the seller is aware of any past or present flooding problems that affect the property and whether any part of the property is located in a flood hazard area.</p>	Existing	Flood	All	3 years	County Planning and Municipalities	County Budget; FEMA BRIC	Informs residents of flooding before buying homes	Staff Time	Medium	LPR	PR, PI
2022-Gloucester -007	Renewable Energy Sources Identification	<p><b>Problem:</b> Future weather events will continue to jeopardize the electric</p>	New and Existing	Flood, Nor'Easter, Hurricane,	1, 2, 5, 6	4 years	County Engineering and OEM	County Budget	Increase knowledge about	TBD	Medium	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>power systems in Gloucester County. Outages have become more frequent in the County and impacts residents, businesses, and emergency services throughout.</p> <p><b>Solution:</b> Gloucester County will conduct a renewable energy feasibility study to explore and identify possible renewable energy sources and possible locations to place these sources. Once the study is complete, the County will determine the best sources and begin implementation.</p>		Severe Weather, Winter Weather, Nor'Easter, Utility Failure					different energy sources; provide alternative energy resources that will provide continuity of operations				
2022-Gloucester-008	Dam Outreach	<p><b>Problem:</b> There are 27 significant hazard dams and 3 high hazard dams located in Gloucester County. Many of the dams are owned by private entities.</p> <p><b>Solution:</b> The County will coordinate with NJDEP, municipalities, and private dam owners to discuss any changes in dam status, aid in the development of</p>	Existing	Flood, Dam Failure	1, 2, 7	5 years	County Engineering and Public Works, Municipalities, Private Owners	County Budget, FEMA HHPD, New Jersey Dam Restoration Program, County Budget	Identify actions to enhance integrity of dams	TBD	Medium	LPR, EAP	PR, PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		EAPs, and engineering assessments and inspections.											
2022-Gloucester-009	GCUA Pump Station Enhancements	<p><b>Problem:</b> GCUA operates 13 pump stations throughout Gloucester County. With the increase in population and development, the current sewer system was not built for the current population. This leads to capacity issues and poses a threat to the health and safety of the County.</p> <p><b>Solution:</b> Each system at each of the 13 pump stations will be enlarged (interceptor, force mains, anything that goes into collecting and treating sewage) to handle the increase in sewer in the County. The pump stations will be prioritized to determine the order in which the projects will be conducted.</p>	New and Existing	All	1, 2, 6	5 years	GCUA with support from County and municipalities	U.S. EDA, ARPA, GCUA Budget	Keeps up with the population growth; increases capacity of system; protects community lifeline	\$1 million+	High	SIP	SP
2022-Gloucester-010	Sewer Line Stream Encroachment Program	<p><b>Problem:</b> The GCUA sewer system was constructed in the 1970s and over 40 years old. Because of its age and where the pipes are located, during rain</p>	Existing	Severe Weather, Nor'Easter, Hurricane, Winter Weather	1, 2, 6	3 years	GCUA, Gloucester County and support from NJDEP	NJEIFP, FEMA BRIC, GCUA Budget	Understanding of existing system and making the appropriate upgrades to	\$1 million+	High	LPR, SIP	PR, PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>events, the sewer lines become exposed and leads to potential breaks and emergency issues.</p> <p><b>Solution:</b> Conduct an analysis of the sewer piping along the streams in Gloucester County to determine the condition of the piping and identify mitigations measure to repair or upgrade existing piping.</p>							enhance system; continuity of operations; public health and safety; protects community lifeline				
2022-Gloucester-011	Infiltration and Inflow (I&I) Programs	<p><b>Problem:</b> GCUA collects and treats wastewater for 20 municipalities in Gloucester County. Because GCUA focuses on wastewater, stormwater is performed at the local level. During periods of heavy rain, the stormwater system becomes overwhelmed and can impact the wastewater as well.</p> <p><b>Solution:</b> GCUA will work with Gloucester County municipalities to conduct an analysis to identified I&amp;I areas of concern and to identify projects to address any I&amp;I issues</p>	Existing	Severe Weather, Hurricane, Nor'Easter, Winter Weather	1, 2, 5, 6	4 years	GCUA, Gloucester County, and municipalities	NJEIFP, FEMA BRIC, GCUA budget	Enhance partnerships; reduce stormwater entering wastewater; increase public health and safety; protects community lifeline	\$100,000+	High	LPR, EAP, SIP	PI, PR, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		identified during the analysis. Additionally, GCUA will prepare an education and outreach training program to work with each municipality to help the municipalities understand what they can do to reduce or eliminate I&I issues.											
2022-Gloucester-012	Pump Station Generators	<p><b>Problem:</b> GCUA operates 13 pump stations throughout Gloucester County. Each pump station has a permanent emergency generator. However, the pump stations do not have additional electrical connection points to connect a portable emergency generator if needed.</p> <p><b>Solution:</b> Purchase of a dedicated portable emergency generator that could be deployed to any of the GCUA Sewer Pump Stations in case the permanent generator would fail due to an emergency event. This project will also include the installation of electrical</p>	Existing	Utility Failure, Severe Storm, Severe Winter Storm, Nor'Easter, Hurricane	All	3 years	GCUA	FEMA HMGP, GCUA Budget	Improve reliability and resiliency of the pump stations; continuity of operations; public health and safety; protects community lifeline; redundancy in power supplies	\$500,000+	Medium	SIP	PP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		connection points at each pump station to allow a portable generator to be connected.											
2022-Gloucester-013	Main Treatment Works Plant Generators	<p><b>Problem:</b> The GCUA treatment plant is located at 2 Paradise Rd., West Deptford. The plant collects and treats wastewater for Gloucester County. While the treatment plant has backup generators, they cannot power the entire facility and allow it to continuously run in the event of a long-term power outage.</p> <p><b>Solution:</b> GCUA will install additional electrical connection points at several locations around the sewer treatment plant. This will allow the GCUA to connect to portable emergency generators if needed. GCUA will also purchase up to 3 portable generators that could be deployed to any portion of the GCUA sewer treatment plan in an emergency event.</p>	Existing	Utility Failure, Severe Storm, Severe Winter Storm, Nor'Easter, Hurricane	All	3 years	GCUA	FEMA HMGP, GCUA Budget	Improve reliability and resiliency of the plant; continuity of operations; public health and safety; protects community lifeline	\$2 million	High	SIP	SP, ES

Notes:



Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.1-15. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Gloucester-001	Decommissioning Cedar Road Dam	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
2022-Gloucester -002	Iona Lake Dam	1	1	1	1	1	0	0	1	0	1	1	1	0	0	9	High 
2022-Gloucester -003	Training Local Officials on Updating Ordinances, Codes, and Plans	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	High
2022-Gloucester -004	Permanent Generator at Reunification Site in the County	1	1	1	1	1	0	0	0	0	0	1	1	0	0	7	Medium
2022-Gloucester -005	Lake Gilman Dam	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium 
2022-Gloucester -006	Flood Disclosure at Time of Sale	1	1	1	1	1	1	1	0	0	0	0	1	0	0	8	Medium
2022-Gloucester -007	Renewable Energy Sources Identification	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
2022-Gloucester-008	Dam Outreach	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2022-Gloucester-009	GCUA Pump Station Enhancements	1	1	1	1	1	1	0	0	0	1	1	1	0	0	9	High 
2022-Gloucester-010	Sewer Line Stream Encroachment Program	1	1	1	1	0	0	0	1	0	1	1	1	1	0	9	High
2022-Gloucester-011	Infiltration and Inflow (I&I) Programs	1	1	1	1	0	0	0	1	0	1	1	1	1	0	9	High 
2022-Gloucester-012	Pump Station Generators	1	1	1	1	0	1	0	0	0	0	1	1	0	0	7	Medium
2022-Gloucester-013	Main Treatment Works Plant Generators	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

 This action has been identified as being of highest importance to the County and an action that the County would like to complete as soon as funding is received.



## 9.1.8 Action Worksheets

The following action worksheets have been developed by Gloucester County to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.

Action Worksheet			
<b>Project Name:</b>	Training Local Officials on Updating Ordinances, Codes, and Plans		
<b>Project Number:</b>	2022- Gloucester -003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Hurricanes, Nor'Easter, Dam Failure		
<b>Description of the Problem:</b>	Many of the municipal codes, ordinances, and plans do not contain specifics on dam safety, substantial damage determinations, and hazard mitigation.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	To train local government officials including Mayors, Supervisors, Code Officials and Planning and Zoning Board members on updating and integrating dam safety, substantial damage determinations, and other hazard mitigation efforts and information into ordinances, codes, and master plans. The training would also include using the BATool to update municipal annexes with updated hazard mitigation actions and initiatives and other pertinent information. By integrating this information, municipalities in Gloucester County will become more prepared pre-disaster, and more resilient during a disaster.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increases awareness; hazard mitigation integration
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	All
<b>Estimated Cost:</b>	<\$10,000	<b>Mitigation Action Type:</b>	LPR
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months from funding
<b>Estimated Time Required for Project Implementation:</b>	Ongoing	<b>Potential Funding Sources:</b>	County Budget; FEMA BRIC
<b>Responsible Organization:</b>	County Planning and OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Rely on municipalities to implement appropriate codes and plans	Staff Time	Not all municipalities will implement; may need guidance in developing codes and plans
	County-led training	<\$10,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Training Local Officials on Updating Ordinances, Codes, and Plans	
<b>Project Number:</b>	2022- Gloucester -003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increase safety of residents with enhanced codes and ordinances
Property Protection	1	Protect buildings from future hazards as a result of having higher codes and ordinances
Cost-Effectiveness	1	
Technical	1	
Political	1	The County has the political support to implement this project
Legal	1	
Fiscal	1	County budget with FEMA BRIC funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Hurricanes, Nor'Easter, Dam Failure
Timeline	1	Ongoing action
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Permanent Generator at Reunification Site in the County		
<b>Project Number:</b>	2022- Gloucester -004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	The County has a facility used for a reunification site for several high schools in the County. This facility does not have a permanent generator and cannot be used as a shelter for residents during an emergency.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a permanent generator for the site. This will provide continuity of operations and allow the facility to serve as an emergency shelter providing essential services to the community.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; shelter facility
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	SIP
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months from funding
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	HMGP, County Budget
<b>Responsible Organization:</b>	County Engineering and OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Install solar panels	\$50,000+	Weather dependent; not feasible for long-term outages
	Install wind turbines	\$50,000+	Weather dependent; need space to install
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Permanent Generator at Reunification Site in the County	
<b>Project Number:</b>	2022- Gloucester -004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provides shelter facility to residents
Property Protection	1	Continuity of operations of building
Cost-Effectiveness	1	Benefits outweigh the costs
Technical	1	
Political	1	There is political support to implement this project
Legal	0	
Fiscal	0	Need grant funding to purchase generator
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	All hazards
Timeline	1	Within 3 years
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	7	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Flood Disclosure at Time of Sale		
<b>Project Number:</b>	2022- Gloucester -006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	The State of New Jersey currently does not require sellers to tell prospective home buyers whether a property has been damaged by a flood. Not providing this information prevents potential buyers to make informed decisions on where to purchase their new home.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The County will require municipalities to adopt an ordinance that requires a seller to disclose whether the seller is aware of any past or present flooding problems that affect the property and whether any part of the property is located in a flood hazard area.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Informs residents of flooding before buying homes
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	All
<b>Estimated Cost:</b>	Staff Time	<b>Mitigation Action Type:</b>	LPR
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months from funding
<b>Estimated Time Required for Project Implementation:</b>	3 years then Ongoing	<b>Potential Funding Sources:</b>	County Budget; FEMA BRIC
<b>Responsible Organization:</b>	County Planning and Municipalities	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Rely on municipalities to implement this ordinance	Staff Time	Not all municipalities will implement; may need guidance in developing ordinance
	Develop disclosure language for ordinances	Staff Time	Selected Project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Flood Disclosure at Time of Sale	
<b>Project Number:</b>	2022- Gloucester -006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce residents impacted by floods
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	Technically feasible; long-term solution to reduce flood damages in county
Political	1	
Legal	1	County has the authority to implement project
Fiscal	1	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	0	Flood
Timeline	1	3 years
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



## 9.2 BOROUGH OF CLAYTON

This section presents the jurisdictional annex for the Borough of Clayton and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Clayton's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.2.1 Hazard Mitigation Planning Team

The Borough of Clayton followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Clayton's hazard mitigation plan primary and alternate points of contact. 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 9.2-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact
Name/Title: Sue Miller, Borough Administrator Address: 125 N. Delsea Drive, Clayton, NJ Phone Number: 856-881-2882 x 104 Email: <a href="mailto:smiller@claytonnj.com">smiller@claytonnj.com</a>		Name/Title: Sam Teague, OEM Coordinator Address: 125 N. Delsea Drive, Clayton, NJ Phone Number: 856-881-2882 Email: <a href="mailto:steaguejr@claytonnj.com">steaguejr@claytonnj.com</a>
NFIP Floodplain Administrator		
Name/Title: Jack Eckler, Construction Code Official Address: 125 N. Delsea Drive, Clayton, NJ Phone Number: 856-881-2882 Email: <a href="mailto:jeckler@claytonnj.com">jeckler@claytonnj.com</a>		
Name	Title	Method of Participation





Sue Miller	Borough Administrator	Represented the municipality on the Planning Partnership; attended meetings; provided information to complete annex; identified mitigation actions; reviewed annex and provided feedback
Sam Teague	OEM Coordinator	Represented the municipality on the Planning Partnership; attended meetings; provided information to complete annex; identified mitigation actions; reviewed annex and provided feedback

## 9.2.2 Municipal Profile

Prior to the Revolutionary War, Jacob Fisler purchased a tract of land containing 2,800 acres in the area of Clayton's Cedar Green Cemetery followed by an additional 3,755 acre purchase by his son. Clayton Township was created on February 5, 1858 and included portions of Franklin Township. Parts of Clayton Township were subsequently taken to form Glassboro Township on March 11, 1878.

Glassworks remained the key industry for years with Moore Brothers Glassworks, Pierce Glassworks, and Clevenger Brothers as the leading manufacturers over time. The pieces from these artisans are collected world-wide and keep the historical ambiance of our Borough dynamic.

The Borough's governing body is comprised of a Mayor and a Borough Council, with all positions elected at-large on a partisan basis as part of the general election. A Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis, with two seats coming up for election each year in a three-year cycle.

Today, the Borough is a thriving community of just over 8,000 people and has a total area of 7.26 square miles with approximately 0.18 square miles of water and has one NJ State Wildlife Management Area known as CC Woods. The municipality has relatively suburban to rural characteristics, given its proximity to larger urban centers.

According to the U.S. Census, the 2010 population for the Borough of Clayton was 8,179. The estimated 2019 population was 8,626, a 5.2 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.2 percent of the population is 5 years of age or younger and 17.2 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.

## 9.2.3 Jurisdictional Capability Assessment and Integration

The Borough of Clayton performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.2.3). The updated mitigation strategy includes opportunities the Borough of Clayton identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.2.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Clayton, what is present in the jurisdiction, and code citation and date.

*Table 9.2-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 41 – Uniform Construction Code, adopted April 28, 1977	State and Local	Construction Code Official; Construction Department
<i>How does this reduce risk?</i> The Borough adopted the current New Jersey Uniform Construction Code and the Construction Code Official enforces the code. The Construction Code Official is primarily responsible for enforcing the building codes as established by New Jersey's Division of Codes and Standards to protect the health and safety of residents. The codes are set forth in the Uniform Construction Code, which includes the subcode requirements for building, electrical, plumbing, fire protection, energy, mechanical, elevator, radon, asbestos, rehabilitation and barrier-free subcodes, and lead hazard abatement.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 88 – Unified Development, adopted March 12, 1998	Local	Zoning Department; Zoning Officer
<i>How does this reduce risk?</i> The Zoning Officer is primarily responsible for enforcing the Zoning code of the Borough which pertains to what can be built on a specific property and what restrictions and requirements are needed for each improvement. The purpose of this chapter is to promote and protect the public health, safety, and general welfare and in the furtherance of the following specific objectives: ensuring the coordinated development of the Borough in accordance with its master plan; lessening congestion on the streets and ensuring access to the circulation system; providing for adequate light and air; preventing the overcrowding of land and buildings; promoting a desirable visual environment through creative development techniques and good civic design and arrangements; providing a full range of housing choices to meet the needs of households in all income levels; avoiding the undue concentration of population; ensuring the conservation and protection of open space and natural features; and conserving the value of property.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Borough is divided up into 18 zoning districts and the zoning map was adopted on May 14, 2009 and amended on July 9, 2009. The Borough has a floodplain conservation district which is intended to protect floodplain areas and to permit and encourage the preserving of open space in the Borough. There are several objectives for having this district, including: preventing development in flood prone areas; permitting structures in the floodplain if they will not impede the flow or storage of floodwaters; and provide areas for temporary storage of floodwaters.					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 88 – Unified Development, adopted March 12, 1998	Local	Zoning Department; Zoning Officer
<i>How does this reduce risk?</i> All subdivisions in the Borough are subject to the review procedures outlined in Chapter 88. When submitting an application to the planning board, plans must include watercourses, floodplains, wetlands, and other environmentally sensitive areas on and within 200 feet of the proposed site.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	5-27-2021	Local	DPW
<i>How does this reduce risk?</i> The stormwater management ordinance provides standards for runoff quantity, water quality treatment, and groundwater recharge. The ordinance is applied during planning board applications. The ordinance reduces runoff to nearby waterways and encourages natural management of stormwater using “green infrastructure” as defined by local ordinance.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	No	Yes	-	State	-
<i>How does this reduce risk?</i>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	UDO Chapter 88 + Redevelopment Plans	Local	Combined Planning/Zoning Board
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	UDO	Local and County	Combined Planning/Zoning Board
<i>How does this reduce risk?</i> All site plans are subject to the bulk zoning standards in the Unified Development Ordinance, including maximum limits on lot coverage, which help reduce runoff.					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas			
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 88, Section 57.1 – Flood Damage Prevention, adopted December 29, 2009	Federal, State, County and Local	Zoning Officer
<i>How does this reduce risk?</i> The purpose of this chapter is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. It applies to all special flood hazard areas within the Borough as shown on the flood insurance rate maps dated January 20, 2010. Prior to developing in any flood area, a development permit must be applied for obtained. The Zoning Officer is the floodplain administrator for the Borough and responsibilities include development permit review. Any new construction or substantial improvements of residential structures in the floodplain must have their lowest floor, including the basement, elevated to or above the base flood elevation. Non-residential construction or substantial improvements in the floodplain must either be elevated at or above the base flood elevation or floodproof areas below the base flood elevation.					
<b>Wellhead Protection</b>	Yes	No	UDO Chapter 88-35.1	Local	PI/Zoning Bd& DPW



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i> No structure can be within 250', facilities that store fuels, chemicals, or any substances which could endanger groundwater resources are prohibited within 1,100 ft. of a well unless a containment system (then 500 ft.)					
<b>Emergency Management Ordinance</b>	Yes	No			
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	2017 Master Plan Reexamination Report – Adopted March 19, 2018	Local	Planning Board
<i>How does this reduce risk?</i> The intent of the master plan is to advance the goals and purposes of the New Jersey Municipal Land Use Law, including securing safety from fire, flood, panic, and other natural and man-made disasters. The natural features element of the master plan presents the physical capacity of the land and natural constraints in the Borough, including steep slopes, wetlands, soils, etc.					
<b>Capital Improvement Plan</b>	Yes	Allowed	Annual Budget	Local	DPW/Finance
<i>How does this reduce risk?</i> Planning for improvements and equipment for readiness.					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i> Not a separate plan, is part of Stormwater Management Plan.					
<b>Floodplain Management or Watershed Plan</b>	Yes	No	Watershed Based Municipal Stormwater Management Plan – February 2006. Update pending in 2021.	Local	DPW
<i>How does this reduce risk?</i> This plan was prepared as part of Gloucester County's Stormwater Management Program and provides strategies for the Borough to follow in addressing stormwater management. It addresses groundwater recharge and stormwater quantity and quality, by incorporating the stormwater design and performance standards for new major development. The goals of the plan align with several goals of the 2022 HMP.					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan – February 2006	Local	Gloucester County Improvement Authority
<i>How does this reduce risk?</i> This plan was prepared as part of Gloucester County's Stormwater Management Program and provides strategies for the Borough to follow in addressing stormwater management. It addresses groundwater recharge and stormwater quantity and quality, by incorporating the stormwater design and performance standards for new major development. The goals of the plan align with several goals of the 2022 HMP.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan – April 20, 2020	Local	Public Works; Stormwater Program Coordinator
<i>How does this reduce risk?</i> Provides points of contact for storm water activities in town that the Borough completes.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	-	Local/County	Emerg. Mgt. Coord. & Department Heads for Annexes
<i>How does this reduce risk?</i>					
Documented procedures for how to handle emergency and/or disaster events.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Public Health Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Other</b>		-			

### 9.2.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Clayton to oversee and track development.

*Table 9.2-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Construction Office – Construction Official
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Approximately 1/3 of land within the Borough is parks, state forest, or county parks and facilities.

### 9.2.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Clayton and their current responsibilities which contribute to hazard mitigation.

*Table 9.2-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning/Zoning Board
Zoning Board of Adjustments	Yes	Planning/Zoning Board
Planning Department	No	Planner – Federici and Akin
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission was created by an ordinance adopted on April 23, 1992 for the protection, development, and use of natural resources, including water resources, located in the Borough. The commission is made up of seven members appointed by the mayor, with one being a member of the Planning Board.
Open Space Board/Committee	Yes	Parks & Recreation Committee was created by an ordinance adopted on March 28, 1968. The committee is made up of 9



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		members and three alternate members. Together with the Borough Council, they coordinate and provide equipment for recreational activities, as well as to coordinate the development, operation and maintenance of parks, public places, playgrounds, and recreational areas, in the Borough of Clayton, in order to provide for the maximum benefit and planned development for the residents of the Borough.
Economic Development Commission/Committee	Yes	Economic Development Committee
Public Works/Highway Department	Yes	The Public Works Department is primarily responsible for water and sewer operations, maintenance of streets and roads, repair and rehabilitation of Borough facilities, and maintenance of Borough parks and sports fields.
Construction/Building/Code Enforcement Department	Yes	Construction Office
Emergency Management/Public Safety Department	Yes	The Borough has an Emergency Management Coordinator and a Deputy Coordinator.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Locally have Fire Co. alarm system and participate in Everbridge notifications.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	DPW is responsible.
Mutual aid agreements	No	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	HR Manual development for Joint Insurance Fund. No job description with this responsibility.
Other	Yes	Emergency Management Committee
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/Zoning Board, Construction Official, Borough Engineer, and Zoning Official
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning/Zoning Board, Construction Official, Borough Engineer, and Zoning Official
Planners or engineers with an understanding of natural hazards	Yes	Planning/Zoning Board, Construction Official, Borough Engineer, and Zoning Official, Emergency Management
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	DPW maps storm drains, valves, and hydrants.
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Mgt. Coordinator & Deputy
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

### 9.2.3.4 Fiscal Capability

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

Table 9.2-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes – can address street flooding.
Capital improvements project funding	Yes





Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes

### 9.2.3.5 Education and Outreach Capability

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

*Table 9.2-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Public Works – information sharing at Community Day, Borough newsletter, and Borough website.
Personnel skilled or trained in website development	Yes	The Borough uses a consultant to develop and maintain the municipal website.
Hazard mitigation information available on your website	Yes	The Borough posts emergency alerts and warnings on their website and social media accounts.
Social media for hazard mitigation education and outreach	Yes	The Borough posts emergency alerts and warnings on their website and social media accounts.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Utilize County's Everbridge system and Fire Co. alarm system.
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>Through the Borough's website and social media accounts – the Borough includes posts on storm preparation, emergency notifications, and upcoming public events.</li> </ul>		





### 9.2.3.6 Community Classifications

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

*Table 9.2-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	No	N/A	N/A
Public Protection (ISO Fire Protection Classes 1 to 10)	No	N/A	N/A
Sustainable Jersey	No	N/A	N/A
StormReady Certification	No	N/A	N/A
Firewise Communities classification	No	N/A	N/A

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.2.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.2-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Weak – the Borough is not vulnerable to this hazard, therefore, there is no need to have capabilities related to this hazard.
Dam Failure/Levee Failure	Weak – there is only one small dam in the Borough with minimal vulnerabilities; therefore, there is no have capabilities related to this hazard.
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Weak - the Borough has little to no vulnerability to this hazard, therefore, there is no need to have capabilities related to this hazard.
Extreme Temperatures	Moderate
Flood	Weak – minimal flooding in the Borough with minimal flood capabilities in the Borough
Geological Hazards	Weak - the Borough has little to no vulnerability to this hazard, therefore, there is no need to have capabilities related to this hazard.
High Wind	Moderate



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.2.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.2-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 13</li> <li># RL properties: 0</li> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0 (elevation or acquisition and funding source)</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$9,543.00</li> <li># claims filed: 8</li> <li>Total loss payments: \$95,163.78</li> </ul>
Describe areas prone to flooding in your jurisdiction.	1. North Street – with torrential rain
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	N/A
Detail any RiskMAP projects currently underway in your jurisdiction.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Maps are adequate – very limited flood prone areas.
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction Official
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Borough Engineer – Sickels & Associates
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Construction Official, DPW, Borough Engineer (Flood Damage Prevention Program)



NFIP Topic	Comments
What specific training or support does your floodplain management staff need to support its floodplain management program?	Not needed locally – utilize Borough Engineer.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Construction Official (required under UCC).
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	12/21/1994
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 88, Section 57.1</li> <li>December 29, 2009</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	The Unified Development Ordinance takes all of these things into consideration.
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>N/A</li> <li>At this time, there is no interest in joining the CRS program due to minimal flood exposure.</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most flood prone and likely to incur flood damage?	No repetitive losses.
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No – the current flood damage prevention ordinance does not require a minimum of one-foot freeboard.

Source: FEMA September 16, 2019; NJDEP - 2021

Notes: RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.2.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.2-10. Recent and Expected Future Development

Type of Development	2016	2017	2018	2019	2020	2021
---------------------	------	------	------	------	------	------



Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	12	0	0	0	1	0	0	0	1	0	3	0
Multi-Family	0	0	8	0	0	0	3	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	1	0	1	0	0	0	0	0	0	0
Total Permits Issued	12	0	9	0	2	0	3	0	1	0	3	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												
Camp Salute	Commercial		76		911 N. Delsea Dr. B: 1601 / L: 13			Hazardous Materials		Complete		
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Autumn Run	Residential		63 single-family condominiums		201 E. Avenue B: 2002 / L: 22			Hazardous Materials		Anticipated within next 5 years		
Fairview Apartments	Commercial		Approximately 108 units		B: 95 / L: 13, 14, 15, and 29			Hazardous Materials		Anticipated within next 5 years		

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.2.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Clayton's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Clayton has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.2-1. Borough of Clayton Hazard Area Extent and Location Map 1

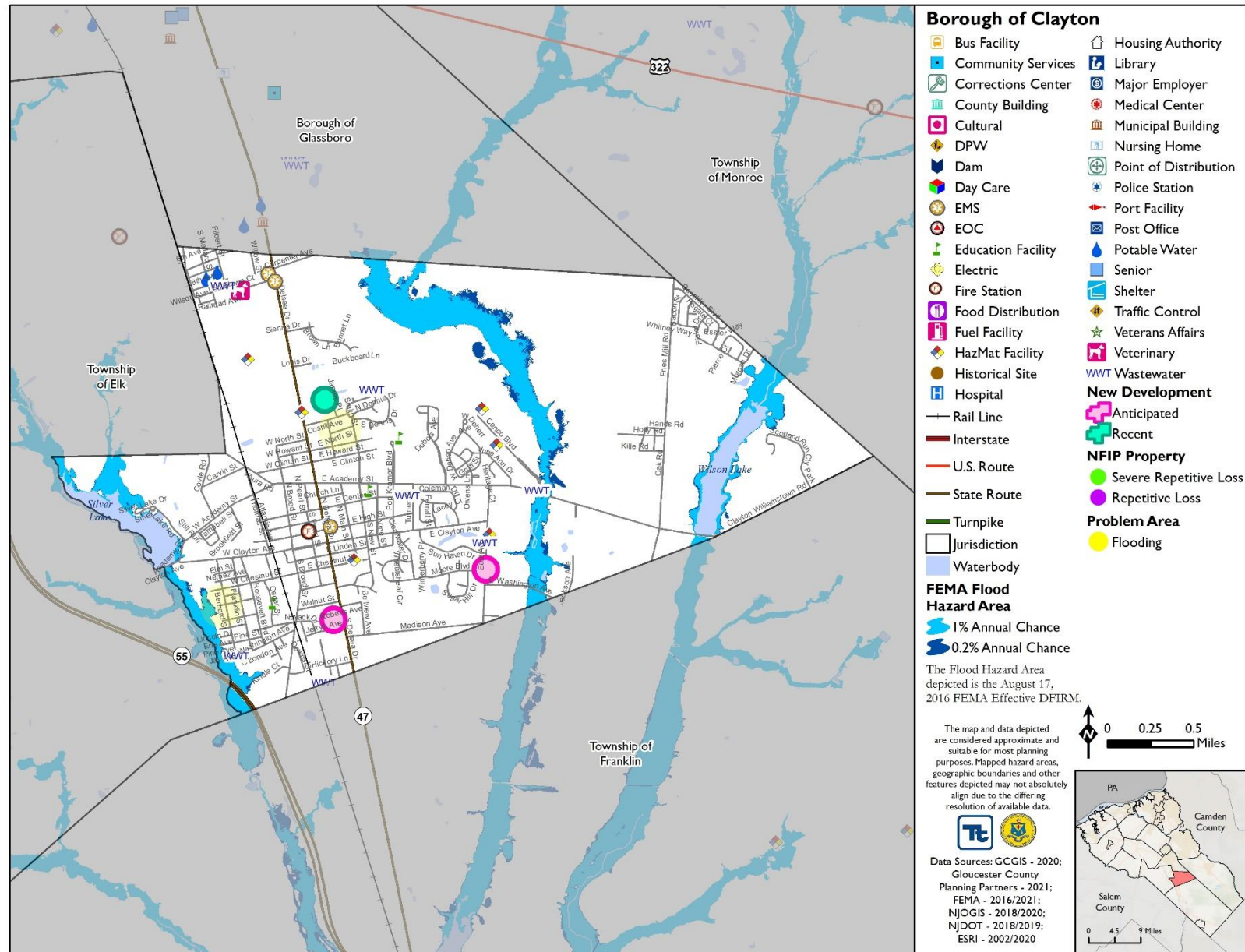






Figure 9.2-2. Borough of Clayton Hazard Area Extent and Location Map 2

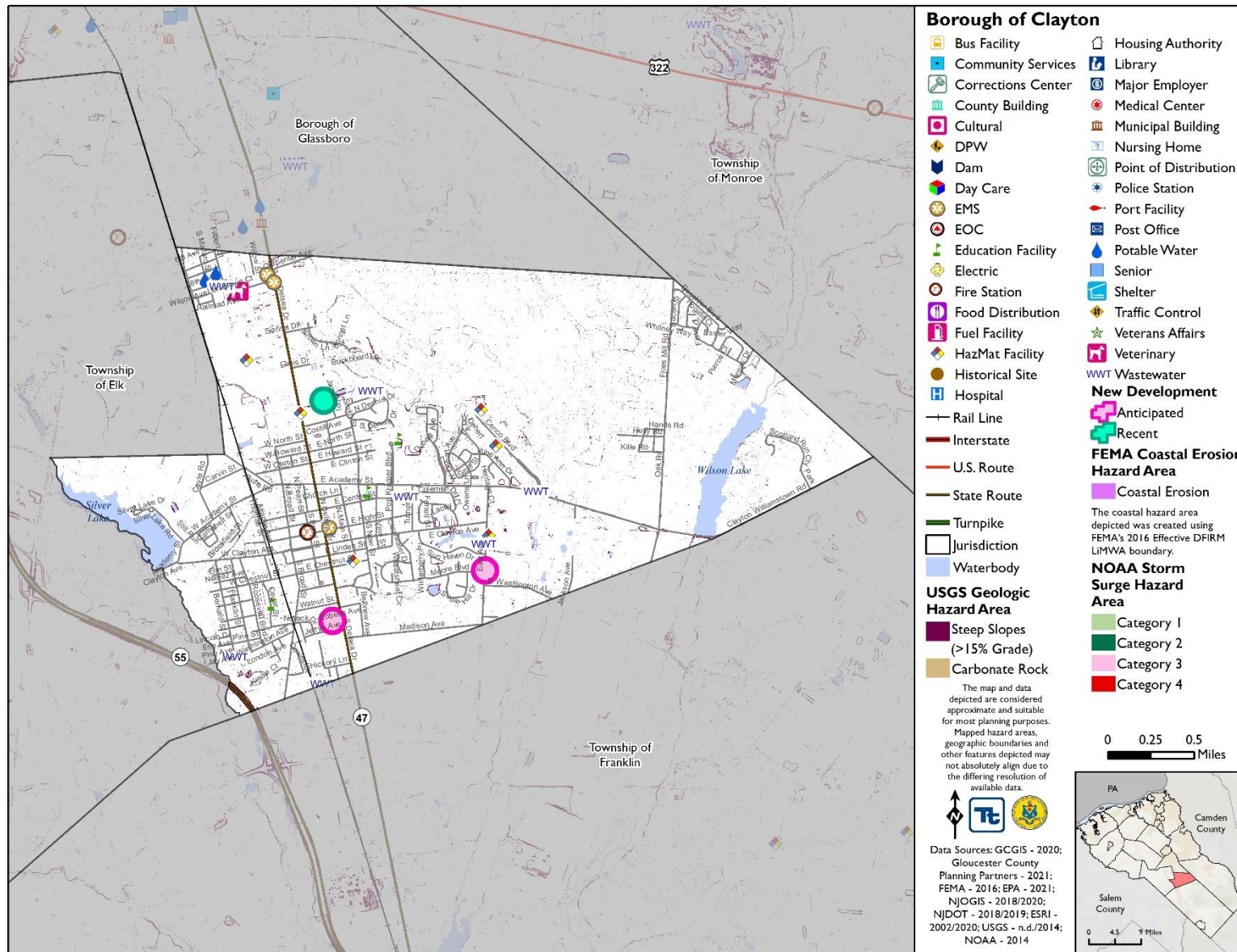




Figure 9.2-3. Borough of Clayton Hazard Area Extent and Location Map 2

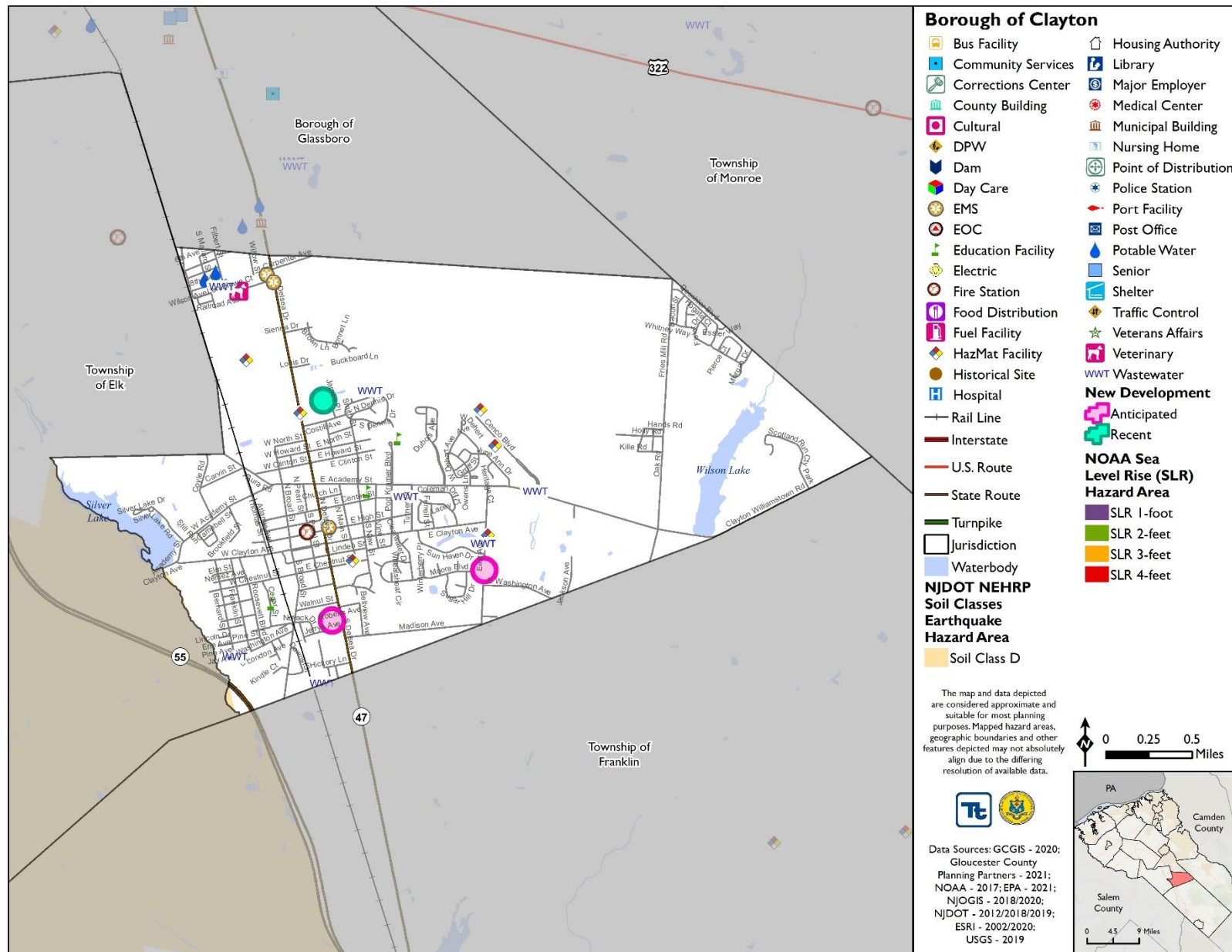
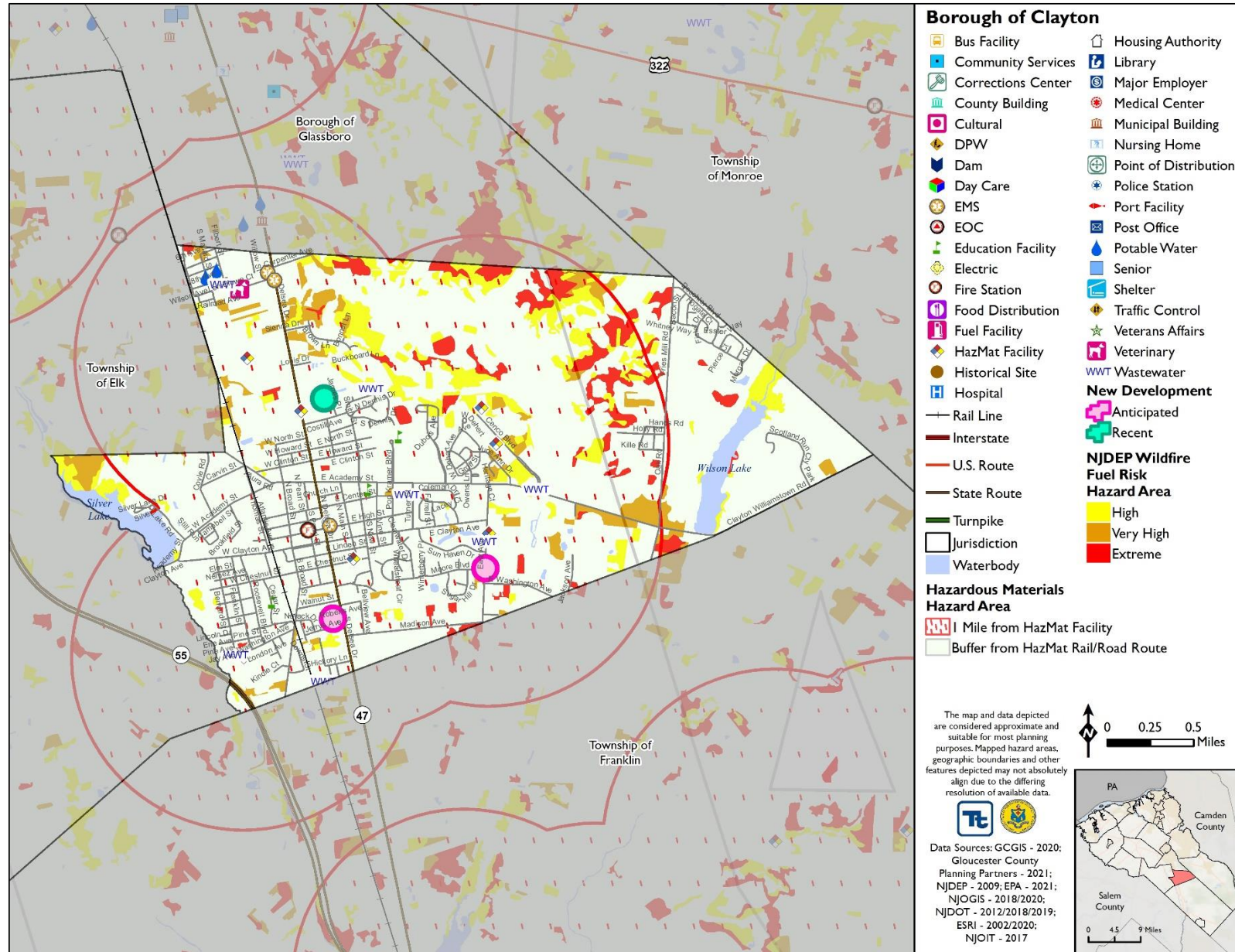






Figure 9.2-4. Borough of Clayton Hazard Area Extent and Location Map 2







### 9.2.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Clayton's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.2-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	No municipal damages reported
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	No municipal damages reported
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	No municipal damages reported
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	No municipal damages reported
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	No municipal damages reported
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed	No municipal damages reported



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.2.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Clayton's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Clayton. The Borough of Clayton reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough agreed with the calculated rankings.

*Table 9.2-12. Hazard Ranking Input*

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Low	Low	Medium	Low	Low	Low	Low	Medium

Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Low	High	Medium	Medium	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.2-13. Potential Flood Losses to Critical Facilities*

Name	Type	Exposure		Comment
		1% Event	0.2% Event	
None Identified				

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.2.6.3 Identified Issues

After review of the Borough of Clayton's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Clayton has identified the following vulnerabilities within their community:

- In the area of Center Street, Delsea Drive, and Atlantic Avenue, flood occurs as a result of heavy rain. Also in this area, residential properties along West Center St. and South Broad St. experienced flooded backyards during periods of heavy rain. The Borough has completed some upgrades, but additional work needs to be to help alleviate the flooding in this part of the Borough.
- Lewis Drive in the Borough has insufficient storm drainage. During a major storm, the system cannot handle large amounts of water and there is concern with road drainage.
- The Borough DPW Facility is located at the intersection of Bernard Street and Washington Avenue. All municipal equipment is stored here, along with fuel for municipal vehicles. In the event of a power outage, the facility cannot operate properly and cannot provide fuel.
- The Borough's Senior Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a heating/cooling center and provide meals to residents in the event of a power outage.
- The Borough's Recreation Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a heating/cooling center for residents in the event of a power outage.
- The drainage system along North Street is in need of upgrades. The Borough received CDBG funds to complete this project; however, additional work is needed. During heavy rain events, stormwater systems become inundated and lead to road closures, impacts continuity of operations, and limits emergency response.
- The drainage system at the pump station located on Brown Lane is prone to flooding. Water collects in front of the pump station and causes flooding in the area. If the flooding is severe, the pump station is impacted.



- Silver Lake Dam is a privately owned dam located in the Borough. It is a significant hazard dam that is in poor condition. If breached, it would cause severe damage to the Borough.
- Still Run is a stream that runs behind Bernard Street. Sediment and debris build up in the stream and causes it to overflow its banks, leading to flooding. Due to the location of Still Run, it is difficult to get equipment there to keep the stream clear of debris. Still Run empties into a wetland and as that becomes full, the rest of the area becomes inundated.
- The Borough lacks a stand-alone Disaster Debris Management Plan. In the event of a debris-producing event, the Borough does not have a formal plan in place to address debris and clean-up.
- The current flood damage prevention ordinance does not meet the NJDEP's minimum requirement of one-foot freeboard. The Borough needs to work with NJDEP to update the ordinance.
- Aging infrastructure in the Borough has led to frequent utility failures, including power and water.
- While flooding is not a major concern for the Borough, stormwater flooding occurs.
- No backup power at the DPW yard or Senior Center. The DPW yard has fuel pumps for municipal vehicles and equipment and contains critical equipment. The Senior Center could serve as a shelter in the event of an emergency.
- East North Street between North New and North Main – there is an undersized storm drain piping. The system becomes overwhelmed during heavy rain events. The Borough performs routine maintenance of the storm drains.
- Bernard Street from West Chestnut to Washington Avenue – this drainage in this area becomes overwhelmed along the length of Bernard Street, which is located near Silver Lake. During heavy rain events, the lake area contributes to the drainage problem and the discharge areas back up.
- Municipal department engagement during storm events.

Specific areas of concern based on resident response to the citizen survey include:

- Spotted Lantern Flies have been identified in the Borough.

## 9.2.7 Mitigation Strategy and Prioritization

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

### 9.2.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.2-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Improve storm drainage system on Atlantic Avenue.	Municipal OEM, Gloucester County DPW	No Progress	Yes	Concern with potential road flooding from Delsea Drive discharge, but no losses have occurred to date.	DPW with Borough Engineer
MJ-2	Improve storm drainage on Lewis Drive.	Municipal OEM, NJDEP	No Progress	Yes	Concern with road drainage after major storms. No known losses.	DPW with Borough Engineer
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current hazards and risks • Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.	Municipal OEM	Ongoing Capability	No	-	-
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability	No	-	-
M-5	Install permanent backup emergency power generator at Public Works Building (CF-5).	Municipal OEM and Public Works	No Progress	Yes	The DPW building does not have backup power. The Borough	DPW & Finance



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
					will install a natural gas-powered generator at the facility.	
M-6	Install permanent backup emergency power generator at Senior Center (CF-27).	Municipal OEM and Public Works	No Progress	Yes	The facility does not have backup power. If it had backup power, it could serve as a heating and cooling center and provide food to residents.	DPW & Finance
M-7	Install permanent backup emergency power generator at Recreation Center (CF-28).	Municipal OEM and Public Works	No Progress	Yes	The facility does not have backup power. If it had backup power, it could serve as a heating and cooling center.	DPW & Finance
M-8	Clean storm drains behind Brown Lane.	Municipal OEM and Public Works	Ongoing Capability – quarterly routine cleaning schedule	No	-	-
M-9	Upgrade drainage system at North Street	Municipal OEM and Public Works	In Progress – put in collection system with CDBG grant award	Yes	The Borough received CDBG funds; however, additional upgrades are needed.	DPW, Engineer, & Finance
M-10	Upgrade drainage system at Pump Station located at Brown Lane (CF-11).	Municipal OEM and Public Works	No Progress	Yes		DPW, Engineer, & Finance
M-11	Dredge Still Run stream behind Bernard Street	Municipal OEM and Public Works	No Progress-requires NJDEP Permit	Yes		DPW, Engineer & Finance
M-12	Dredge area of Little Ease Run Creek behind North Dennis Drive.	Municipal OEM and Public Works	No Progress – requires NJDEP Permit	Yes		DPW, Engineer & Finance
M-13	Engineering study to determine sewer flooding and infiltration at Bernard Street & Washington Avenue	Municipal OEM and Public Works	No Progress	Yes		DPW, Engineer & Finance
M-14	Engineering study to identify upgrades to storm water management system at Lawns Area	Municipal OEM and Public Works	No Progress	Yes		DPW, Engineer & Finance



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-15	Engineering study to determine drainage / water storage solution at Still Run	Municipal OEM and Public Works, Homeowners	No Progress	Yes		DPW, Engineer & Finance
M-16	Hazard threat assessment related to Propane Tank Farm located on Delsea Drive Route 47	Municipal OEM and Public Works, Homeowners	No Progress	Yes	Unknown threat at the facility; Borough wants to identify types of concerns, materials stored, etc.	OEM, Fire Co., DPW, Police & Management
M-17	Hazard threat assessment related to Aleris Light Aluminum Company	Municipal OEM and Aleris Company	No Progress	Yes	Unknown threat at the facility; Borough wants to identify types of concerns, materials stored, etc.	OEM, Fire Co., DPW, Police, and Management



### 9.2.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.2-14, the Borough of Clayton identified the following mitigation efforts completed over the last five years:

- The Borough performs routine maintenance of the storm drains throughout the municipality.
- The Borough installed new stormwater pipes on Costill Avenue from James Place to Dennis and on Dennis from Costill to Smith Street.

### 9.2.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Clayton participated in a mitigation action workshop in August 2021 and was provided 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 Flood prone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories.

*Table 9.2-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS						
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES	
Coastal Erosion and Sea Level rise	X									X	
Dam / Levee Failure	X	X				X			X	X	
Disease Outbreak	X									X	
Drought	X									X	
Earthquake	X									X	
Extreme Temperature	X									X	
Flood	X	X	X	X	X	X	X	X	X	X	
Geologic	X									X	
Hazardous Materials	X									X	
Hurricane/Tropical Storm	X	X	X		X	X		X	X	X	
Invasive and Nuisance Species	X									X	
Nor'Easter	X	X	X		X	X		X	X	X	
Severe Weather	X	X	X		X	X		X	X	X	
Severe Winter Weather	X								X	X	
Wildfire	X									X	
Utility Failure	X	X							X	X	

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.2-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Clayton 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 9.2-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.2-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-B. Clayton-001 (previous action MJ-1)	Atlantic Avenue Drainage	<p><b>Problem:</b> In the area of Center Street, Delsea Drive, and Atlantic Avenue, flood occurs as a result of heavy rain. Also in this area, residential properties along West Center St. and South Broad St. experienced flooded backyards during periods of heavy rain. The Borough has completed some upgrades, but additional work needs to be to help alleviate the flooding in this part of the Borough.</p> <p><b>Solution:</b> The Borough will upgrade and re-route the piping that flows from Atlantic Avenue to the wetlands west of the street. Additionally, the Borough will implement a maintenance program to clear the stream that flows from the wetland area south towards Bernard Avenue.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, NJEIT Programs, Municipal Budget	Reduce/eliminate flooding in area; increase stormwater capacity	\$50,000+	High	SIP, NSP	PP, NR, SP
2022-B. Clayton-002 (previous action MJ-2)	Lewis Drive Drainage	<p><b>Problem:</b> Lewis Drive in the Borough has insufficient storm drainage. During a major storm, the system cannot handle large amounts of water and there is concern with road drainage.</p> <p><b>Solution:</b> The Borough will determine the proper size to upgrade the storm drainage system. This will include increasing the size of pipes and dredge wetlands. The Borough will also reroute the piping to go around the around and implement a maintenance program to keep the system clear of sediment and debris.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, NJEIT Programs, Municipal Budget	Reduce/eliminate flooding in area; increase stormwater capacity	\$50,000+	High	SIP, NSP	PP, NR, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-B. Clayton-003	Generator for the DPW Building	<p><b>Problem:</b> The Borough DPW Facility is located at the intersection of Bernard Street and Washington Avenue. All municipal equipment is stored here, along with fuel for municipal vehicles. In the event of a power outage, the facility cannot operate properly and cannot provide fuel.</p> <p><b>Solution:</b> The Borough will purchase and install a natural gas-powered generator at the DPW facility. The generator will power the necessary buildings and equipment.</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP, Municipal Budget	Continuity of operations; protecting community lifeline	\$25,000	High	SIP	PP, SP
2022-B. Clayton-004	Generator for the Senior Center	<p><b>Problem:</b> The Borough's Senior Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a heating/cooling center and provide meals to residents in the event of a power outage.</p> <p><b>Solution:</b> The Borough will purchase and install a natural gas-powered generator at the Senior Center. The generator will power the building and necessary equipment. Additionally, the facility will be able to serve as a shelter to residents during a power outage.</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption	1, 2, 5, 6	Within 5 years	Borough Engineer	FEMA HMGP, Municipal Budget	Continuity of operations; providing essential services during power outages	\$25,000	High	SIP	PP, SP
2022-B. Clayton-005	Generator for the Recreation Center	<p><b>Problem:</b> The Borough's Recreation Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter	1, 2, 5, 6	Within 5 years	Borough Engineer	FEMA HMGP, Municipal Budget	Continuity of operations; providing essential services during power outages	\$25,000	High	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		heating/cooling center for residents in the event of a power outage.  <b>Solution:</b> The Borough will purchase and install a natural gas-powered generator at the Recreation Center. The generator will power the building and equipment. Additionally, the facility will be able to serve as a heating and cooling center for residents during power outages.		Weather, Utility Interruption									
2022-B. Clayton-006	Upgrade Drainage System at North Street	<b>Problem:</b> The drainage system along North Street is in need of upgrades. The Borough received CDBG funds to complete this project; however, additional work is needed. During heavy rain events, stormwater systems become inundated and lead to road closures, impacts continuity of operations, and limits emergency response.  <b>Solution:</b> The Borough will determine the appropriate size pipes to install in this area of the municipality. Once determined, the Borough will install additional pipes and larger pipes in this area. Additionally, the Borough will implement a maintenance program to ensure debris and sediment in the stormwater systems are kept clear.	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, CDBG, Municipal Budget	Continuity of operations; reduce/eliminate flooding; protect infrastructure	\$50,000+	High	SIP, NSP	PP, NR, SP
2022-B. Clayton-007	Upgrade Drainage System at Brown Lane Pump Station	<b>Problem:</b> The drainage system at the pump station located on Brown Lane is prone to flooding. Water collects in front of the pump station and causes flooding in the area. If the flooding is severe, the pump station is impacted.	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, CDBG, Municipal Budget	Continuity of operations; reduce/eliminate flooding; protect infrastructure	\$50,000+	High	SIP, NSP	PP, NR, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Borough will conduct an engineering study to determine solutions to reduce or alleviate flooding in this area of the Borough. Once the study is complete, the Borough will select the best solution and implement the project. This will help reduce or eliminate flooding in the area and allow the pump station to function properly.											
2022-B. Clayton-008	Silver Lake Dam	<p><b>Problem:</b> Silver Lake Dam is a privately owned dam located in the Borough. It is a significant hazard dam that is in poor condition. If breached, it would cause severe damage to the Borough.</p> <p><b>Solution:</b> Working with the Silver Lake Association (dam owner), the Borough will conduct a feasibility study on the dam to determine options to address any concerns that could impact the integrity of the dam. Once identified, the Association and Borough will seek funding to address any concerns.</p>	New and Existing	Dam Failure, Flood, Severe Weather	1, 2, 5, 6	Within 5 years	Borough DPW and Engineer	FEMA HMGP and BRIC, FEMA HHPD, Municipal Budget	Increase protection of dam; protect population; protect infrastructure	\$15,000+	Medium	SIP	PP, SP
2022-B. Clayton-009	Still Run and Bernard Street	<p><b>Problem:</b> Still Run is a stream that runs behind Bernard Street. Sediment and debris build up in the stream and causes it to overflow its banks, leading to flooding. Due to the location of Still Run, it is difficult to get equipment there to keep the stream clear of debris. Still Run empties into a wetland and as that becomes full, the rest of the area becomes inundated.</p> <p><b>Solution:</b> The Borough will complete an engineering study to determine the best drainage and water storage solution at</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, CDBG, Municipal Budget	Reduce/eliminate flooding; protect infrastructure and population	\$15,000+	Medium	SIP, NSP	PP, NR, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Still Run. Once identified, the Borough will seek funding to complete the project to reduce or eliminate flooding in this area and allow Still Run to flow properly.											
2022-B. Clayton-010	Engineering Study of Lawns Area	<b>Problem:</b> In the Lawns Area of the Borough, stormwater is flowing into the sewer system and it leads to flooding when the systems become overwhelmed. <b>Solution:</b> The Borough will complete an engineering study to determine the types of upgrades the stormwater system needs in this area. Once identified, the Borough will seek funding to implement the project.	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 years	Borough Public Works and Borough Engineer	FEMA HMGP and BRIC, CDBG, Municipal Budget	Reduce/eliminate flooding; increase stormwater capacity; reduce stormwater entering sewer	\$15,000+	High	SIP, NSP	PP, NR, SP
2022-B. Clayton-011	Develop Disaster Debris Management Plan	<b>Problem:</b> The Borough lacks an adopted Disaster Debris Management Plan. <b>Solution:</b> The Borough will complete and adopt the in-progress Disaster Debris Management Plan.	New and Existing	All Hazards	5	6 months	Public Works, OEM	Municipal budget	Increased planning for post-disaster response and cleanup.	Staff time	High	LPR	PR, PI
2022-B. Clayton-012	Update Flood Damage Prevention Ordinance	<b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance. <b>Solution:</b> The Borough will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction	Existing	Flood	1, 2	6 months	Floodplain Administrator; Administration	Municipal budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff Time	High	LPR	PR, PI, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Code (UCC) implemented by the Construction Official.											
2022-B. Clayton-013	Address Floodprone Properties	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been flooded as documented by paid NFIP claims. While the Borough does not have repetitive loss properties, there are other floodprone properties.</p> <p><b>Solution:</b> Conduct outreach to 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 acquisition/purchase/ moving/ elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).</p>	Existing	Flood, Severe Weather	1, 2	1 year	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, Municipal Budget, NJDEP Green Acres	Reduce/eliminate flood losses	TBD Based on Identified Project	High	EAP. SIP	PP, PI

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority*

Project Number	Project 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
2022-B. Clayton-001	Atlantic Avenue Drainage	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	⚠ High
2022-B. Clayton-002	Lewis Drive Drainage	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	⚠ High
2022-B. Clayton-003	Generator for the DPW Building	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	⚠ High





Project Number	Project 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
2022-B. Clayton-004	Generator for the Senior Center	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	High
2022-B. Clayton-005	Generator for the Recreation Center	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	High
2022-B. Clayton-006	Upgrade Drainage System at North Street	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	High
2022-B. Clayton-007	Upgrade Drainage System at North Street	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	High
2022-B. Clayton-008	Silver Lake Dam	1	1	1	1	0	0	0	0	0	1	1	1	1	0	8	Medium
2022-B. Clayton-009	Still Run and Bernard Street	1	1	1	1	0	0	0	0	0	1	1	1	1	0	8	Medium
2022-B. Clayton-010	Engineering Study of Lawns Area	1	1	1	1	0	1	0	0	0	1	1	1	1	0	9	High
2022-B. Clayton-011	Develop Disaster Debris Management Plan	1	1	1	1	0	1	1	0	0	1	1	1	1	0	10	High
2022-B. Clayton-012	Update Flood Damage Prevention Ordinance	1	1	1	1	0	1	1	0	0	1	0	1	1	0	9	High
2022-B. Clayton-013	Address Floodprone Properties	1	1	1	1	0	1	1	0	0	1	1	1	1	0	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

**!** This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.2.8 Action Worksheets

The following action worksheets have been developed by the Borough of Clayton to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Atlantic Avenue Drainage		
<b>Project Number:</b>	2022-B. Clayton – 001 (previous action MJ-1)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	In the area of Center Street, Delsea Drive, and Atlantic Avenue, flood occurs as a result of heavy rain. Also in this area, residential properties along West Center St. and South Broad St. experienced flooded backyards during periods of heavy rain. The Borough has completed some upgrades, but additional work needs to be to help alleviate the flooding in this part of the Borough.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will upgrade and re-route the piping that flows from Atlantic Avenue to the wetlands west of the street. Additionally, the Borough will implement a maintenance program to clear the stream that flows from the wetland area south towards Bernard Avenue.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flooding in area; increase stormwater capacity
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, NJEIT Programs, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties in area	\$1 million+	Costly; roadways would still flood
	Elevation all properties in area	\$1 million+	Costly; roadways would still flood
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Atlantic Avenue Drainage	
<b>Project Number:</b>	2022-B. Clayton – 001 (previous action MJ-1)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Reduce/ eliminate flooding in area; increase stormwater capacity
Technical	1	Project is technically feasible
Political	0	
Legal	1	Borough as the legal authority to implement
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	Administrative support and staff to implement the project
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Lewis Drive Drainage		
<b>Project Number:</b>	2022-B.Clayton-002 (previous action MJ-2)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	Lewis Drive in the Borough has insufficient storm drainage. During a major storm, the system cannot handle large amounts of water and there is concern with road drainage.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will determine the proper size to upgrade the storm drainage system. This will include increasing the size of pipes and dredge wetlands. The Borough will also reroute the piping to go around the around and implement a maintenance program to keep the system clear of sediment and debris.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flooding in area; increase stormwater capacity
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funds
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, NJEIT Programs, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties in area	\$1 million+	Costly; roadways would still flood
	Elevation all properties in area	\$1 million+	Costly; roadways would still flood
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Lewis Drive Drainage	
<b>Project Number:</b>	2022-B.Clayton-002 (previous action MJ-2)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Reduce/ eliminate flooding in area; increase stormwater capacity
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Generator for the DPW Building		
<b>Project Number:</b>	2022-B. Clayton-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption		
<b>Description of the Problem:</b>	The Borough DPW Facility is located at the intersection of Bernard Street and Washington Avenue. All municipal equipment is stored here, along with fuel for municipal vehicles. In the event of a power outage, the facility cannot operate properly and cannot provide fuel.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will purchase and install a natural gas-powered generator at the DPW facility. The generator will power the necessary buildings and equipment.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; protecting community lifeline
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$25,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funds
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000+	Weather dependent; may not be able to power the entire facility
	Install wind turbines	\$10,000+	Weather dependent; may not be able to power the entire facility
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Generator for the DPW Building	
<b>Project Number:</b>	2022-B. Clayton-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allows building to operate during power outages
Cost-Effectiveness	1	Continuity of operations; protecting community lifeline
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	Need grant funding to purchase generator
Environmental	0	
Social	0	
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Generator for the Senior Center		
<b>Project Number:</b>	2022-B.Clayton-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption		
<b>Description of the Problem:</b>	The Borough's Senior Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a heating/cooling center and provide meals to residents in the event of a power outage.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will purchase and install a natural gas-powered generator at the Senior Center. The generator will power the building and necessary equipment. Additionally, the facility will be able to serve as a shelter to residents during a power outage.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; providing essential services during power outages
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$25,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funds
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, Municipal Budget
<b>Responsible Organization:</b>	Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000+	Weather dependent; may not be able to power the entire facility
	Install wind turbines	\$10,000+	Weather dependent; may not be able to power the entire facility
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Generator for the Senior Center	
<b>Project Number:</b>	2022-B.Clayton-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Allows building to operate during power outages
Cost-Effectiveness	1	Continuity of operations; protecting community lifeline
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	Need grant funding to purchase generator
Environmental	0	
Social	0	
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Generator for the Recreation Center		
<b>Project Number:</b>	2022-B. Clayton-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption		
<b>Description of the Problem:</b>	The Borough's Recreation Center, located at 1 Garwood Blvd., provides free services to senior residents of the Borough. The facility currently does not have backup power. If it did, the facility could be used as a heating/cooling center for residents in the event of a power outage.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will purchase and install a natural gas-powered generator at the Recreation Center. The generator will power the building and equipment. Additionally, the facility will be able to serve as a heating and cooling center for residents during power outages.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; providing essential services during power outages
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$25,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funds
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, Municipal Budget
<b>Responsible Organization:</b>	Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000+	Weather dependent; may not be able to power the entire facility
	Install wind turbines	\$10,000+	Weather dependent; may not be able to power the entire facility
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Generator for the Recreation Center	
<b>Project Number:</b>	2022-B. Clayton-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Continuity of operations; providing essential services during power outages
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	Need grant funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Interruption
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Upgrade Drainage System at North Street		
<b>Project Number:</b>	2022-B. Clayton-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	The drainage system along North Street is in need of upgrades. The Borough received CDBG funds to complete this project; however, additional work is needed. During heavy rain events, stormwater systems become inundated and lead to road closures, impacts continuity of operations, and limits emergency response.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will determine the appropriate size pipes to install in this area of the municipality. Once determined, the Borough will install additional pipes and larger pipes in this area. Additionally, the Borough will implement a maintenance program to ensure debris and sediment in the stormwater systems are kept clear.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; reduce/eliminate flooding; protect infrastructure
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, CDBG, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Upgrade Drainage System at North Street	
<b>Project Number:</b>	2022-B. Clayton-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Continuity of operations; reduce/ eliminate flooding; protect infrastructure
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Upgrade Drainage System at Brown Lane Pump Station		
<b>Project Number:</b>	2022-B. Clayton-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	The drainage system at the pump station located on Brown Lane is prone to flooding. Water collects in front of the pump station and causes flooding in the area. If the flooding is severe, the pump station is impacted.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will conduct an engineering study to determine solutions to reduce or alleviate flooding in this area of the Borough. Once the study is complete, the Borough will select the best solution and implement the project. This will help reduce or eliminate flooding in the area and allow the pump station to function properly.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; reduce/eliminate flooding; protect infrastructure
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, CDBG, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties in area	\$1 million+	Costly; roadways would still flood
	Elevation all properties in area	\$1 million+	Costly; roadways would still flood
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Upgrade Drainage System at North Street	
Project Number:	2022-B. Clayton-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Continuity of operations; reduce/ eliminate flooding; protect infrastructure
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Silver Lake Dam		
<b>Project Number:</b>	2022-B. Clayton-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Dam Failure, Flood, Severe Weather		
<b>Description of the Problem:</b>	Silver Lake Dam is a privately owned dam located in the Borough. It is a significant hazard dam that is in poor condition. If breached, it would cause severe damage to the Borough.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Working with the Silver Lake Association (dam owner), the Borough will conduct a feasibility study on the dam to determine options to address any concerns that could impact the integrity of the dam. Once identified, the Association and Borough will seek funding to address any concerns.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increase protection of dam; protect population; protect infrastructure
<b>Useful Life:</b>	N/A	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$15,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, FEMA HHPD, Municipal Budget
<b>Responsible Organization:</b>	Borough DPW and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevation properties in the dam inundation area	\$1 million+	Costly; may not be necessary
	Acquire properties in the dam inundation area	\$1 million+	Costly; may not be necessary
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Silver Lake Dam	
<b>Project Number:</b>	2022-B. Clayton-008	
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 costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	The Borough does not own the dam; therefore, they will need to work with the dam owner to implement project
Fiscal	0	Need funding to complete study and any work necessary
Environmental	0	
Social	0	
Administrative	1	Borough DPW and Engineer
Multi-Hazard	1	Dam Failure, Flood, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Still Run and Bernard Street		
<b>Project Number:</b>	2022-B. Clayton-009		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	Still Run is a stream that runs behind Bernard Street. Sediment and debris build up in the stream and causes it to overflow its banks, leading to flooding. Due to the location of Still Run, it is difficult to get equipment there to keep the stream clear of debris. Still Run empties into a wetland and as that becomes full, the rest of the area becomes inundated.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will complete an engineering study to determine the best drainage and water storage solution at Still Run. Once identified, the Borough will seek funding to complete the project to reduce or eliminate flooding in this area and allow Still Run to flow properly.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flooding; protect infrastructure and population
<b>Useful Life:</b>	N/A	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$15,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, CDBG, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Routine maintenance of Still Run and Bernard Street	Staff Time	Does not address the main drainage issue
	Acquire properties in area	\$1 million	Maintains open space; however, sediment will still build up
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Still Run and Bernard Street	
<b>Project Number:</b>	2022-B. Clayton-009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Reduce/ eliminate flooding; protect infrastructure and population
Technical	1	Project is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need funding to complete study and project
Environmental	0	
Social	0	
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Engineering Study of Lawns Area		
<b>Project Number:</b>	2022-B. Clayton-010		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	In the Lawns Area of the Borough, stormwater is flowing into the sewer system and it leads to flooding when the systems become overwhelmed.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will complete an engineering study to determine the types of upgrades the stormwater system needs in this area. Once identified, the Borough will seek funding to implement the project.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flooding; increase stormwater capacity; reduce stormwater entering sewer
<b>Useful Life:</b>	N/A	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$15,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of receiving funds
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, CDBG, Municipal Budget
<b>Responsible Organization:</b>	Borough Public Works and Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate properties in the dam inundation area	\$1 million+	Costly; may not be necessary
	Acquire properties in the dam inundation area	\$1 million+	Costly; may not be necessary
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Engineering Study of Lawns Area	
<b>Project Number:</b>	2022-B. Clayton-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	Reduce/eliminate flooding; increase stormwater capacity; reduce stormwater entering sewer
Technical	1	Project is technically feasible
Political	0	
Legal	1	Borough has legal authority to complete study
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	No negative social impacts
Administrative	1	Borough Public Works and Borough Engineer
Multi-Hazard	1	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Address Floodprone Properties		
<b>Project Number:</b>	2022-B. Clayton-013		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been flooded as documented by paid NFIP claims. While the Borough does not have repetitive loss properties, there are other floodprone properties.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 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 acquisition/purchase/ moving/ elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flood losses
<b>Useful Life:</b>	N/A	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD based on identified project	<b>Mitigation Action Type:</b>	Education and Awareness Programs, Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, Municipal Budget, NJDEP Green Acres
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate properties in the dam inundation area	\$1 million+	Costly; may not be necessary
	Acquire properties in the dam inundation area	\$1 million+	Costly; may not be necessary
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Address Floodprone Properties	
<b>Project Number:</b>	2022-B. Clayton-013	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Educates residents in floodprone areas on how to protect themselves from flood damage
Property Protection	1	Potential flood loss reduction
Cost-Effectiveness	1	Reduce/eliminate flood losses
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	1	Borough can fund the outreach but will need grant funding for any project implementation
Environmental	0	
Social	0	
Administrative	1	Administrative capabilities to complete project
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	1 year
Agency Champion	1	
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	



## 9.3 TOWNSHIP OF DEPTFORD

This section presents the jurisdictional annex for the Township of Deptford and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Deptford's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.3.1 Hazard Mitigation Planning Team

The Township of Deptford followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Deptford's hazard mitigation plan primary and alternate points of contact. 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 9.3-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Thomas Newman Jr., Township Manager; Deputy Emergency; Management Coordinator Address: Municipal Building 1011 Cooper Street Deptford, NJ Phone Number: (856) 686-2220 Email: tnewman@deptford-nj.org NFIP Floodplain Administrator	Name/Title: Michael Divito, Police Department; Deputy Emergency Management Coordinator Address: Municipal Building 1011 Cooper Street Deptford, NJ Phone Number: (609) 922-1039 Email: mdivito@deptford-nj.org



Name/Title: Christian Romano, Construction Official  
Address: Municipal Building 1011 Cooper Street Deptford, NJ  
Phone Number: (856) 845-5300  
Email: cromano@deptford-nj.org

Name	Title	Method of Participation
Thomas Newman Jr.	Township Manager	Participated in Workshops, Annex meetings, Annex updates and prepared worksheets. Reviewed annex and provided feedback
Michael Divito	Deputy Emergency Management Coordinator	Participated in Workshops, Annex meetings, Annex development and prepared worksheets.
Christian Romano	Construction Official	Participated in Workshops, Annex meetings, and prepared worksheets. Reviewed annex and provided feedback
Paul Medany	Mayor	Reviewed annex and provided feedback
Jonathan Bryson	Engineer	Reviewed annex and provided feedback
Kimberly Wasizur	Fiscal/CFO	Reviewed annex and provided feedback
Brian Slauch	Township Planner	Reviewed annex and provided feedback
Bob R. Herson	Public Works	Reviewed annex and provided feedback
Frank Newkirk	Police Chief	Reviewed annex and provided feedback
Michael White	Fire Commissioner	Reviewed annex and provided feedback

## 9.3.2 Municipal Profile

Deptford Township has been known to be one of the most populated townships within the County. The old township, incorporated in 1695, comprised some 106 square miles and included what today is West Deptford, Washington Township, Monroe, Westville, Woodbury and Woodbury Heights. In contrast, today's township is less than 18 square miles.

The Township was settled in 1623 by the Dutch under Cornelius Jacobse Mey and was later claimed by the Swedes and the Finns before coming under British control and was later named after the old English Port of Deptford. The Clement Oak in Deptford was the site of the first hot air balloon landing in North America, gathering that distinction when Jean-Pierre Blanchard completed his flight to Deptford from Philadelphia in 1793. Today, Deptford is comprised of many communities, localities and place names including Almonesson, Blackwood Terrace, Clements Bridge, Cooper Village, Country Club Estates, Good Intent, Hammond Heights, Jericho, Lake Tract, New Sharon, Oak Valley, Salina, Westcottville, Westville Grove, Woodbury Gardens, Woodbury Park and Woodbury Terrace.



According to the United States Census Bureau, the township had a total area of 17.57 square miles with 0.25 square miles of waterbody. The township is a suburb of Philadelphia, located on the eastern side of the Walt Whitman Bridge, one conduit which joins southern New Jersey with Philadelphia.

Deptford Township operates within the Faulkner Act, formally known as the Optional Municipal Charter Law, under the Council-Manager form of municipal government. The governed body is comprised of the seven-member Township Council, whose members are elected on an at-large basis in partisan elections. It is the council's duty to then select a mayor and a deputy mayor to serve two-year terms from among its members.

According to the U.S. Census, the 2010 population for the Township of Deptford was 30,561. The estimated 2019 population was 30,349, a 0.37 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.3 percent of the population is 5 years of age or younger and 17.5 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.

### 9.3.3 Jurisdictional Capability Assessment and Integration

The Township of Deptford performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.3.3). The updated mitigation strategy includes opportunities the Township of Deptford identified for integration of mitigation concepts to be incorporated into municipal procedures.



### 9.3.3.1.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Deptford, what is present in the jurisdiction, and code citation and date.

*Table 9.3-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 10 – Building and Housing, adopted 1967 with subsequent amendments	State and Local	Construction Code Official; Construction Department
<p><i>How does this reduce risk?</i></p> <p>The Township adopted the current New Jersey Uniform Construction Code and the Construction Code Official enforces the code. The Construction Code Official is primarily responsible for enforcing the building codes as established by New Jersey's Division of Codes and Standards to protect the health and safety of residents. The codes are set forth in the Uniform Construction Code, which includes the subcode requirements for building, electrical, plumbing, fire protection, energy, mechanical, elevator, radon, asbestos, rehabilitation and barrier-free subcodes, and lead hazard abatement.</p>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Unified Development Ordinance, adopted March 2, 1995 and amended through March 18, 2019	Local	Zoning Officer; Planning and Zoning Department
<p><i>How does this reduce risk?</i></p> <p>The Zoning Officer is primarily responsible for enforcing the Uniform Development Ordinance of the Township which pertains to what can be built on a specific property and what restrictions and requirements are needed for each improvement. This chapter is derived from a comprehensive ordinance regulating and limiting the uses of land and the uses and locations of buildings and structures; regulating and restricting the height and bulk of buildings and structures and determining the area of yards and other open spaces; regulating and restricting the density of population; dividing the Township of Deptford, Gloucester County, New Jersey into zoning districts for such purposes; adopting a map of said Township showing boundaries and the classification of such districts; establishing an official map for said municipality; establishing rules, regulations and standards governing the subdivision and development of land within the Township; establishing a Planning Board and a Zoning Board of Adjustment; and prescribing penalties for the violation of its provisions.</p> <p>The Township is divided up into 29 zoning districts. The boundaries of these zoning districts are established on a map entitled, "Zoning, Deptford Township, Gloucester County, NJ", adopted on June 24, 2014. When reviewing applications for development, the Board may request a site environmental assessment where review indicates that there are significant critical areas or suspected environmental hazard on the site in question. The Ordinance requires that lands which are located within the one hundred (100) year flood plain of a stream or lands which are classified by the New Jersey Department of Environmental Protection (NJDEP) as wetlands or wetland transition buffers may be used only as permitted by the NJDEP. In addition, no subdivision, site plan or land development plan shall be approved unless there has been a plan approved by the Planning Board that provides for soil erosion and sediment control consistent with this ordinance.</p>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Unified Development Ordinance, adopted March 2, 1995 and amended through March 18, 2019 – Article IX	Local	Zoning Officer; Planning and Zoning Department/Boards
<p><i>How does this reduce risk?</i></p> <p>Review procedures for subdivision approval are provided in Article IX of the Unified Development Ordinance. A subdivision and/or site plan shall be designed and conform to standards that will result in a well-planned community, protect the health and safety of the residents, and provide a desirable living environment without unnecessarily adding to development costs. The following improvements shall be required: streets and circulation, off-street parking and loading, landscaping and common open space, affordable housing, water supply, sanitary sewers, and storm water management.</p>					
<b>Stormwater Management Ordinance</b>	Yes- Within Unified Dev. Ord.	Yes	Unified Development Ordinance, adopted March	Local	Planning and Zoning Department/Boards





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
			2, 1995 and amended through March 18, 2019		
<p><i>How does this reduce risk?</i></p> <p>Stormwater management and drainage are incorporated into many components of the Unified Development Ordinance. The design of storm water drainage for parking facilities shall address water quality, flooding and groundwater recharge and shall incorporate the use of non-structural stormwater strategies to the maximum extent practical, in accordance with the rules of the NJ Department of Environmental Protection. Where disturbance in existing parking lots exceeds one thousand (1,000) sf. and the storm water system does not meet the current standards for water quality, an applicant shall provide a means of improving conditions acceptable to the Township or Board Engineer. Examples include, but are not limited to, rain gardens, structures to limit TSS concentrations, bio-swales, and infiltration basins. All parking and loading areas shall be designed to minimize impervious surfaces by use of permeable materials where appropriate.</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<p><i>How does this reduce risk?</i></p> <p>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</p>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Several Redevelopment Plans adopted on different dates.	Local/State	Local Redevelopment Authority
<p><i>How does this reduce risk?</i></p> <p>Like many municipalities in the state, Deptford has sought to take a more active role in reducing blighting influences through the establishment of a number of redevelopment areas; including the Five Points Redevelopment Areas, Big Timber Creek Redevelopment Area, Clements Bridge Road Redevelopment Area I &amp; II, and Rowan College at Gloucester County.</p>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Unified Development Ordinance, adopted March 2, 1995 and amended through March 18, 2019 – Article IX	Local and County	Zoning Officer; Planning and Zoning Department/Boards
<p><i>How does this reduce risk?</i></p> <p>Review procedures for site plan approval are provided in Article IX of the Unified Development Ordinance. A site plan and/or subdivision shall be designed and conform to standards that will result in a well-planned community, protect the health and safety of the residents, and provide a desirable living environment without unnecessarily adding to development costs. The following improvements shall be required: streets and circulation, off-street parking and loading, landscaping and common open space, affordable housing, water supply, sanitary sewers, and storm water management.</p>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 24, Environmental Protection	Local	Township Council
<p><i>How does this reduce risk?</i></p> <p>24-1. Cost recovery for the cleanup of imminent Hazards and unusual occurrence in the township. All cost recovery associated with any imminent hazard or unusual occurrences within the boundaries of the Township of Deptford, which shall include labor and material for the removal of any imminent hazard or unusual occurrences or taking of reasonable measures to prevent or mitigate damages to the public health, safety or welfare of the residents of the Township of Deptford, including the lands, private or public therein.</p> <p>Chapter BH:16, Air Pollution Control, adopted in 1967. Pollution of the atmosphere by smoke, cinders, soot, fly ash, gases, fumes, vapors, odors, dust and other contaminants is a menace to the health, welfare and comfort of the residents of the Township and a cause of substantial damage to property. For the purpose of controlling and reducing atmospheric pollution, it is to be the policy of the Township to minimize air pollution as herein defined and prohibit excessive emission of the same; to establish standards governing the installation, maintenance and operation of equipment and appurtenances relating to combustion which are a source or potential source of air pollution; and in furtherance of this purpose to cooperate and coordinate these efforts with the State Department of Health, Air Pollution Control Program.</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 15, Flood Damage Prevention 1982	Federal, State, County and Local	Construction Code Officer
<p><i>How does this reduce risk?</i></p> <p>It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas. In order to accomplish its purposes, this chapter includes methods and provisions for restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities. Such methods include that new construction and substantial improvement of any residential structure shall have the lowest floor including basement, elevated to or above base flood elevation; New construction or substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot above the base flood elevation; or, together with attendant utility and sanitary facilities, be flood proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capacity of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and In all areas of special flood hazard in which base flood elevation data has been provided and no floodway has been designated, the cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than 0.2 of a foot at any point.</p> <p>The Township Engineer is presently amending the FDP Ordinance for adoption to reflect the correct Residential BFE.</p>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Township Ordinance under Police Department – Chapter 2-19.4 Division of EMS	Local	Public Safety Department
<p><i>How does this reduce risk?</i></p> <p>Enables pre-planning for large incidents and better coordination for incident or events within the Township.</p>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? Yes</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>• Do the ordinances prohibit development within, or filling of, wetlands, floodways, and floodplains? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>• Do the regulations allow density transfers where hazard areas exist? Yes</li> <li>• When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Master Plan of the Township of Deptford - Adopted January 11, 2017	Local	Planning Board
<p><i>How does this reduce risk?</i></p> <p>A Master Plan is required for a municipality to have valid zoning. The intent of the master plan is to advance the goals and purposes of the New Jersey Municipal Land Use Law, including securing safety from fire, flood, panic, and other natural and man-made disasters. The natural features element of the master plan presents the physical capacity of the land and natural constraints in the Borough, including steep slopes, wetlands, soils, etc. The four main goals established for this Master Plan, include:</p> <ul style="list-style-type: none"> <li>Protecting natural resources;</li> <li>Managing present conditions;</li> <li>Envisioning Deptford's future; and</li> <li>Improving Deptford's environs.</li> </ul> <p>In the Land Use Plan, significant portions of Big Timber and Mantua Creeks are earmarked for open space purposes, partially to reduce damage from flooding.</p>					
<b>Capital Improvement Plan</b>	Yes	Allowed	Approved annually as needed	Local	Mayor and Council
<p><i>How does this reduce risk?</i></p> <p>Stormwater system improvements have been included in past Capital Improvement Plans and are anticipated in the future.</p>					
<b>Disaster Debris Management Plan</b>	Yes	No	Emergency Operations Plan	Local	Emergency Management
<p><i>How does this reduce risk?</i></p> <p>The Township has adopted and referenced the County Disaster Debris Management Plan under our Emergency Operations Plan. The Township will work toward adopting its own Disaster Debris Management Plan and will continue to coordinate with the County.</p>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, February, 2006	Local	Township Engineer
<p><i>How does this reduce risk?</i></p> <p>All New Jersey municipalities were required in early 2004 to obtain a NJPDES Municipal Stormwater General Permit for control of their stormwater discharges. The NJDEP's new Stormwater Management Rules in N.J.A.C. 7:8 have been developed to address the adverse impacts that unmanaged land development can have on groundwater recharge and stormwater runoff quality and quantity. The MSWMP provides strategies for Deptford Township to follow in addressing stormwater management. The plan is required by N.J.A.C. 7:14A-25, the Municipal Stormwater Regulations, and contains the elements required by N.J.A.C. 7:8, the Stormwater Management Rules. The MSWMP addresses groundwater recharge and stormwater quantity and quality, by incorporating the stormwater design and performance standards for new major development (defined as projects that disturb one or more acres of land or increase the amount of impervious surface by one-quarter acre or more). These standards are intended to minimize the adverse impact of stormwater runoff on water quality, and to address water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies.</p>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, April 2, 2020	Local	Public Works Superintendent
<p><i>How does this reduce risk?</i></p> <p>The Township has completed and submitted all of the required SPPP reporting forms to ensure consistency with the Stormwater Pollution regulations by controlling unwanted discharges into the stormwater systems.</p>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Habitat Conservation Plan</b>	Yes	No	Master Plan of the Township of Deptford - Adopted January 11, 2017	Local	Planning Board
<p><i>How does this reduce risk?</i></p> <p>The Master Plan contains a comprehensive Conservation Element. Within the Conservation Element, the natural features of Deptford are listed and described. This environmental analysis provides information on the natural processes that affect the use of land. Supporting the</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Conservation Element is the Environmental Resource Inventory which provides more detailed information concerning the natural resources of the municipality. Criteria for judging the acquisition of land for conservation purposes are established in the element. The organizing concept of greenways is used in the identification of potential open space parcels along stream corridors in the Open Space and Recreation Element. The environmental analysis in the Conservation Element also provides support for the assignment of residential densities and non-residential intensity in the Land Use Plan Element.					
<b>Economic Development Plan</b>	No	No	Economic Development Summit, September 26, 2016	-	-
<i>How does this reduce risk?</i> The Township does not have an Economic Development Plan, but Deptford recognizes its current potential for attracting new business giving its location and demographics, and identifies several redevelopment areas; Five Points Redevelopment Areas, Big Timber Creek Redevelopment Area, Clements Bridge Road Redevelopment Area I & II, and Rowan College at Gloucester County.					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	Yes	No	Master Plan of the Township of Deptford - Adopted January 11, 2017	Local	Planning Board
<i>How does this reduce risk?</i> The Master Plan includes a Circulation Element that addresses transportation issues. The Circulation Element discusses the means of moving people and goods in Deptford. It describes the network of roads and classifies them according to standard methods. Problem areas in the road network are identified for potential improvements and several new road segments are proposed. In addition to the street network, the Township's bicycle path and pedestrian system is discussed. A system of bicycle routes is proposed. Public transportation routes are described and the potential land use effects of the creation of a Bus Rapid Transit system originating in Deptford are acknowledged. The element includes a section on the design of streets with particular attention to traffic calming measures to address motor vehicle speeding and protect pedestrians.					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Does the transportation plan limit access to hazard areas? Yes</li> <li>Is transportation policy used to guide growth to safe locations? Yes</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? Yes</li> <li>Are environmental systems that protect development from hazards identified and mapped? Yes</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? Yes</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan September 2020	Local	Emergency Management
<i>How does this reduce risk?</i> Documented procedures for how to handle emergency and/or disaster events.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.3.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Deptford to oversee and track development.

*Table 9.3-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	The Township has a fully staffed Construction Department and covers all of the Subcodes.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	State Regulations limit floodplain development.
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	Yes	Existing Land Use Inventory, Master Plan



### 9.3.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Deptford and their current responsibilities which contribute to hazard mitigation.

*Table 9.3-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board
Zoning Board of Adjustment	Yes	Zoning Board
Planning Department	Yes	Community Development Department. The Planning and Zoning Divisions of the Department of Community Development are responsible for: The review of all applications for construction permits in order to determine consistency with zoning regulations, the processing and review of all applications for subdivision, site plan, and variance approvals, and providing assistance to residents with zoning and planning issues.
Mitigation Planning Committee	No	Looking to develop one in the near future.
Environmental Board/Commission	Yes	Environmental Commission. The Environmental Commission in the Township was established for the protection, development and use of natural resources, including water resources.
Open Space Board/Committee	Yes	Recreation Advisory Committee. The Committee advises the Planning Board and Environmental Commission concerning recreation and open space, including an annual review of the "recreation and open space" components of the Township's Master Plan.
Economic Development Commission/Committee	Yes	Addressed within Community Development Department.
Public Works/Highway Department	Yes	The Department of Public Works is responsible for streets, sanitation, general services, street lighting and stormwater management.
Construction/Building/Code Enforcement Department	Yes	Division of Construction Code Enforcement. Ensuring that all construction is consistent with nationally recognized standards is the main objective of the Construction Office. Construction codes insure that the safety and welfare of the occupants of buildings and structures are protected with reasonable requirements.
Emergency Management/Public Safety Department	Yes	Within the Department of Public Safety is the Division of Emergency Management Services, the head of which is the Emergency Management Coordinator. The Emergency Management Coordinator shall be under the supervision of the Chief of Police or his designee. The Division shall be responsible for emergency management, paid and volunteer ambulance service, 911 compliance, and right-to-know compliance.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Digital Sign Boards and Social Media
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Municipal Stormwater Management Plan
Mutual aid agreements	Yes	County Wide – Fire and Police
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with knowledge of land development and land management practices	Yes	Federici & Akin, P.A. – Jon Bryson – 856-589-1400 Planner – Clarke Caton Hintz – Brian Slaugh – 609-883-8383 ext 306
Engineers or professionals trained in building or infrastructure construction practices	Yes	Federici & Akin, P.A. – Jon Bryson – 856-589-1400 Planner – Clarke Caton Hintz – Brian Slaugh – 609-883-8383 ext 306
Planners or engineers with an understanding of natural hazards	Yes	PB & ZB Engineers – CME Associates – Jim Winckowski – 732-462-7400
Staff with expertise or training in benefit/cost analysis	Yes	CFO – Kimberly Kwasizur – 856-845-5300 ext 2200
Professionals trained in conducting damage assessments	Yes	Office of Board Engineer and Township Planner
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	J. McHale & Associates, Inc. Jerome McHale – 609-914-4679
Emergency Manager	Yes	Thomas Newman Jr
Grant writer(s)	Yes	Grant applications are completed in house and by consultants.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater Engineer
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> Having subject matter experts in the respective fields allows for better risk reduction.		

### 9.3.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Deptford.

Table 9.3-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes – Roadway replacement projects
Capital improvements project funding	Yes. Recently funded Capital Improvement projects have included those related to upgrading the Township's stormwater systems, building improvements, equipment purchases, and open space acquisition.
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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	No
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No





Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Capital Improvements to roads and drainage systems help with flooding mitigation.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes – priorities have to be looked at when making decisions.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.3.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Deptford.

*Table 9.3-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Social Media and Sign Boards. Township Managers Executive Assistant
Personnel skilled or trained in website development	Yes	PCS – 856-596-4446 or Qscend Technologies 203-757-6000 for website development
Hazard mitigation information available on your website	Yes	The Department of Emergency Management posts Hazard Mitigation information and educational information on its Plan & Prepare webpage on the Township's official website
Social media for hazard mitigation education and outreach	Yes	The Department of Emergency Management posts Hazard Mitigation information and educational information on its Plan & Prepare webpage on the Township's official website.
Citizen boards or commissions that address issues related to hazard mitigation	No	In Process of forming one.
Other programs already in place that could be used to communicate hazard-related information	Yes	School Notification system and Reverse 911 through Everbridge
Warning systems for hazard events	Yes	Everbridge Social media local
Natural disaster/safety programs in place for schools	Yes	As part of School Security, the Emergency Management Teams in the schools and throughout the district work with the local police, fire and emergency personal on a continual basis. The schools follow state guidelines and proper procedures for all types of fire and safety drills which are performed on a monthly basis. The practice of these drills helps the district prepare in the event of a true crisis
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>Working on putting together some informational seminars and at the annual National Night Out the Office of Emergency Management sets up tables and has informational flyers to give out to the residents.</li> </ul>		



### 9.3.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Deptford.

*Table 9.3-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	ISO 3	04/01/2016
Sustainable Jersey	Yes	Registered	June 20, 2011
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.3.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.3-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Weak – The Township is not vulnerable to this hazard, therefore, there is no need to have capabilities related to this hazard.
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazmat	Moderate
Hurricane	Moderate
High Wind	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor'Easter	Moderate



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Weak – The Township has little to no vulnerability to this hazard, therefore, there is no need to have capabilities related to this hazard
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.3.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.3-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 68</li> <li># RL properties: 1</li> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$ 114,397.00</li> <li># claims filed: 15</li> <li>Total loss payments: \$81,400.49</li> </ul>
Describe areas prone to flooding in your jurisdiction.	Westville Grove Stream, Big Timber Creek
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Fair Market of Structure compared to damage percentage <ul style="list-style-type: none"> <li>None</li> </ul>
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Staff – Tony Dariano
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, and engineering capability).	Construction Official, Christian Romano, Federici & Aiken (Township Engineer)



NFIP Topic	Comments
What specific training or support does your floodplain management staff need to support its floodplain management program?	Certified Flood plain management courses and certification
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Must exceed 50% of market value. The Township utilizes the Tax assessors assessed value, and appraisals if provided to determine value, and Architect's estimates and Contractors proposals to determine improvement value.
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	11/21/1994
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	<ul style="list-style-type: none"> <li>• 0802</li> <li>• Chapter 15</li> <li>• 1982 Updated 08/01/2016 ordinance number O.13.16</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Yes Chapter 15
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	<ul style="list-style-type: none"> <li>• No</li> <li>• No</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most flood prone and likely to incur flood damage?	Westville Grove, Gilbert Avenue are flood prone. The Township has only one repetitive property.
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No. The Township will update the residential freeboard requirement when new model ordinance is available for adoption.

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.3.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of



concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.3-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	46	0	48	0	53	0	21	0	28	0	14	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	3	0	4	0	2	0	3	0	3	0	3	0
Total Permits Issued	49	0	52	0	55	0	24	0	31	0	17	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												
Tanyard Acres	Residential		66		397.04, 397.04		No Known Hazard		SFD/ nearly completed			
Boundary Estates	Residential		53		407.02,03,04,05,06		No Known Hazard		SFD/Completed			
Landings	Residential		30		199		No Known Hazard		Nearly Completed			
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Fairview Ridge	Residential		528		B:398 L:32		No Known Hazard		Mix of Apartments, SFD's, Condos and Apartments			

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.3.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Deptford's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Deptford has significant exposure. The maps also show the location of potential new development, where available.







Figure 9.3-1. Township of Deptford Hazard Area Extent and Location Map 1

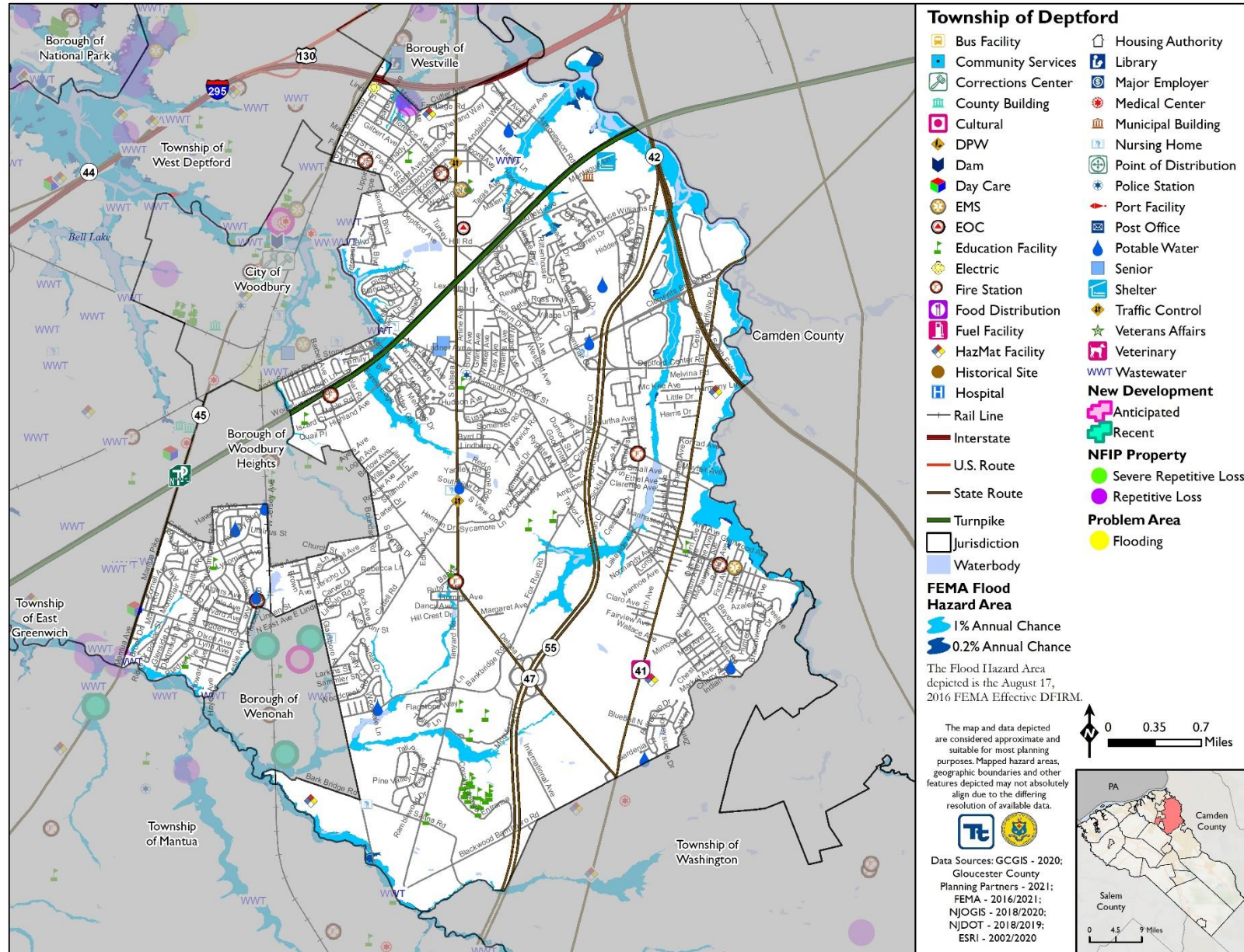






Figure 9.3-2. Township of Deptford Hazard Area Extent and Location Map 2

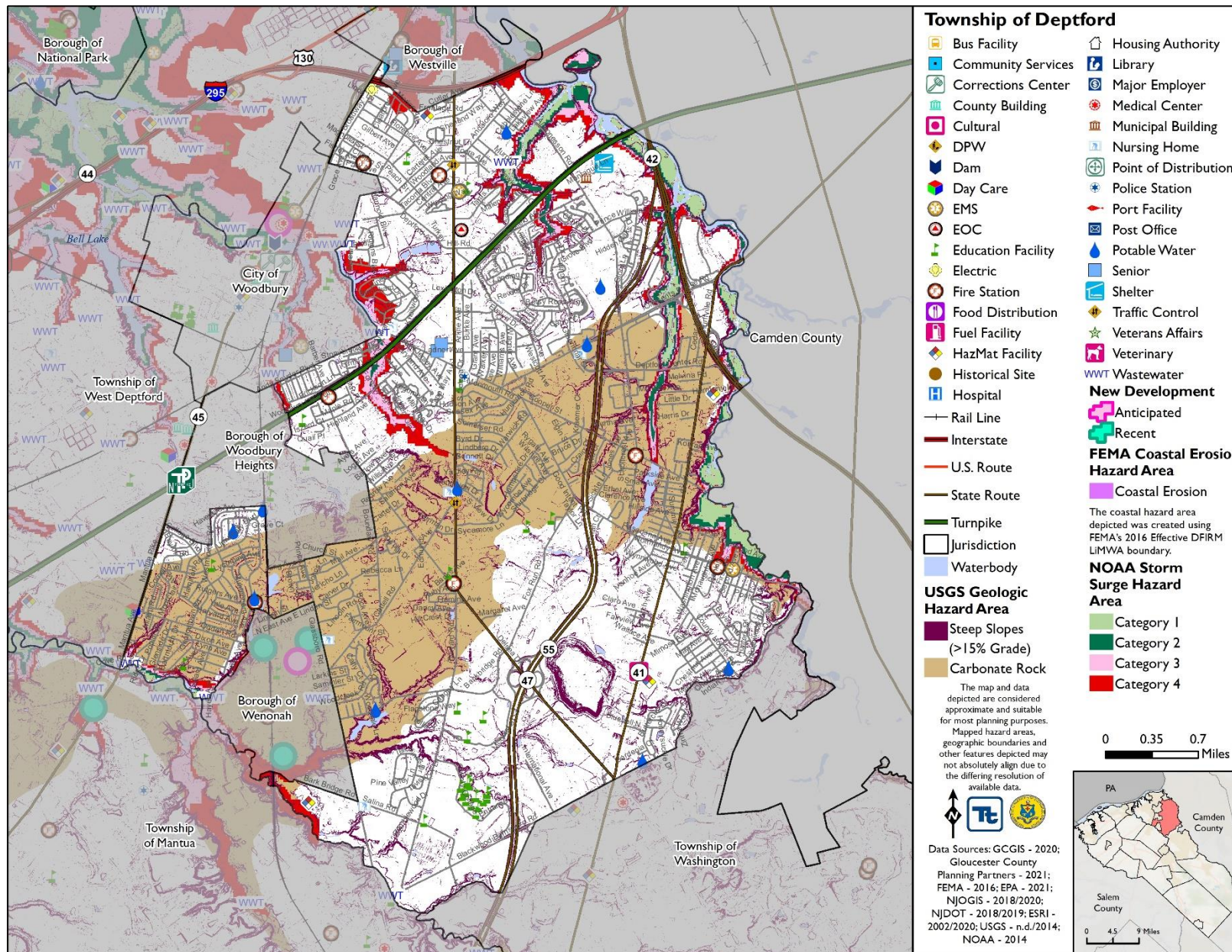






Figure 9.3-3. Township of Deptford Hazard Area Extent and Location Map 3

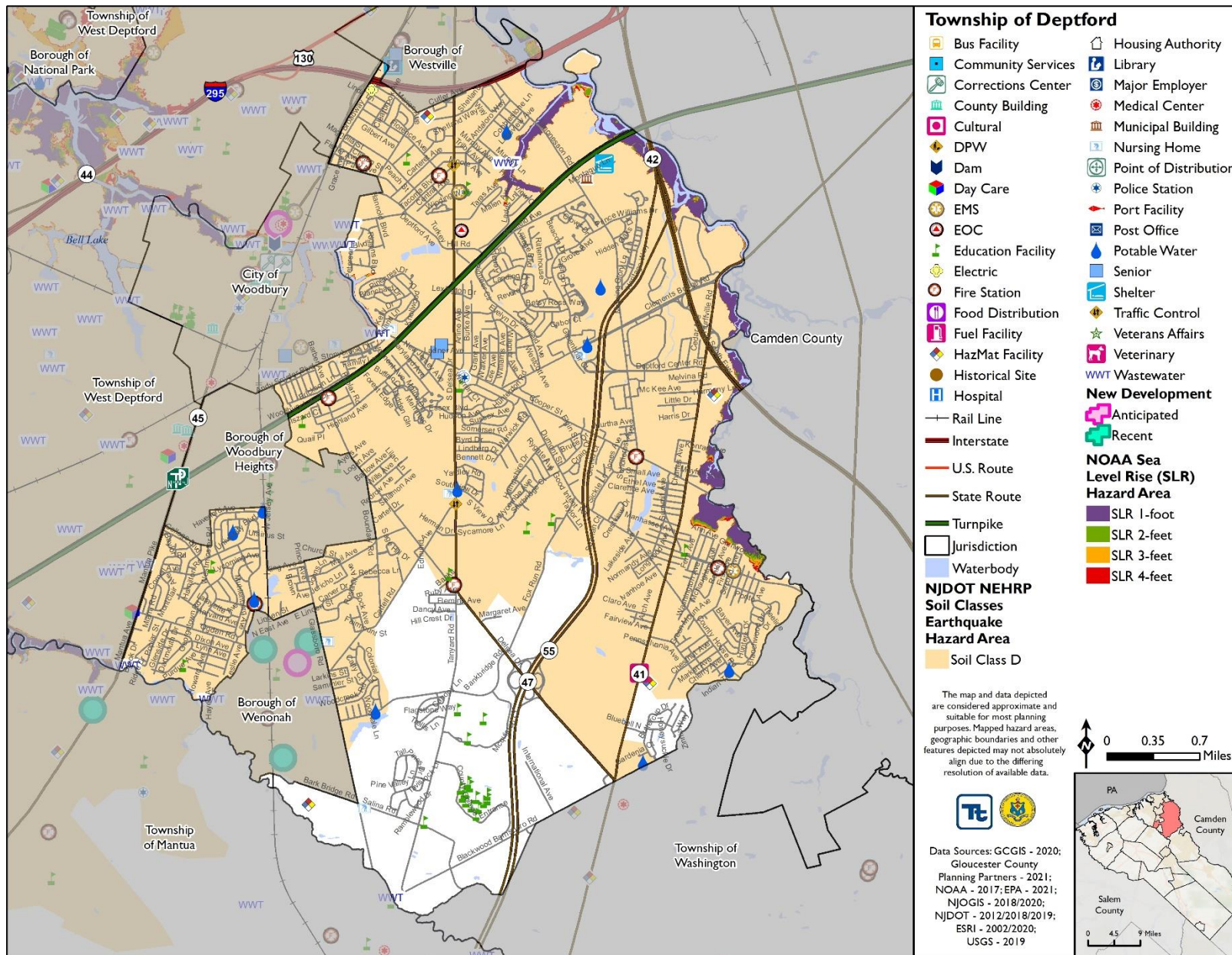
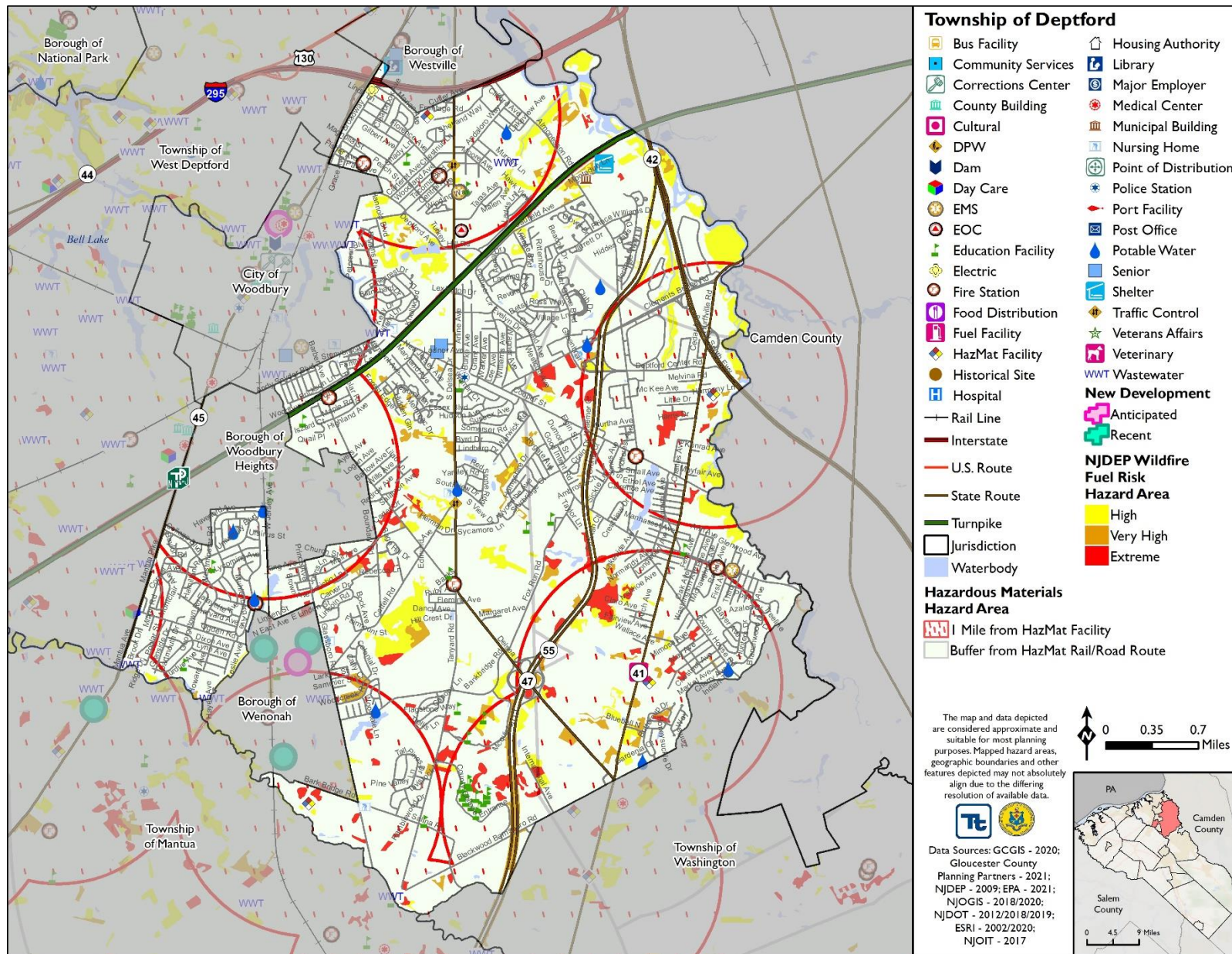






Figure 9.3-4. Township of Deptford Hazard Area Extent and Location Map 4





### 9.3.6.1.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Deptford's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.3-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching - 2°F.	No municipal damages reported just unexpected temperatures
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Township had debris management clean up and set up charging stations and ice and water distribution in the south east section of town due to power being out for over a week.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Township did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Township did not report damages.



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Township was subject to closures and masking and social distancing requirements. Also had emergency response changes due to outbreaks in our healthcare facilities in town.
June 2019	Tornado	No	As determined by NWS an EF-1 tornado came through the township causing damage to home and roadways with trees down and electric interruptions.	Damage to houses and critical infrastructure.
September 1-3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	Township experienced an EF-2 tornado that stretched 12 miles through the county.	Damage to residence and electrical systems creating a large debris management project.

### 9.3.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Deptford's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Deptford. The Township of Deptford reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township is selecting the Low ranking instead of Medium as initially ranked for Disease Outbreak given the current experiences with Covid-19. The Township has improved the Mitigation processes





due to the outbreaks at Assisted Living Facilities and the contamination and disinfecting first responders after an exposure.

Table 9.3-12. Hazard Ranking Input

Coastal Erosion	Dam/Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive	Nor'Easter
Low	High	Low	Low	Medium

Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.3-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
1st Ave.	Wastewater Metering Station	Y	Y	Y	County Facility in the Township
Cove 1st Ave.	Wastewater Metering Station	Y	Y	Y	County Facility in the Township
GCUA Cooper Street Metering Station # 37	Wastewater Metering Station	Y	Y	Y	County Facility in the Township
GCUA Cove Rd Metering Station # 24	Wastewater Metering Station	Y	Y	Y	County Facility in The Township
GCUA Cove Rd. Dept. Twp. Metering Station # 24	Wastewater Metering Station	Y	Y	Y	County Facility in The Township

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.3.6.3 Identified Issues

After review of the Township of Deptford's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Deptford has identified the following vulnerabilities within their community:



- Almonesson Lake Dam located on Cooper Street is an aging at risk dam.
- The Township is lacking in outreach and educational opportunities needed to inform municipal residents, businesses, and property owners regarding potential hazards.
- There are several critical facilities in the community that vulnerable to potential hazards.
- Recurring urban flooding during severe storm events due to inadequate drainage systems closes roads and floods homes.
- Two of the Township's Fire Stations lack back-up power.
- Monongahela Middle School is a designated shelter and requires back-up power to provide that lifeline function.
- The Police Department is connected to Municipal building and the existing generator only supplies power to the staircases and server room at this time.
- During severe storm events the flooding of roads and residential properties occur blocking safe passage of vehicles and causing property damage, particularly in the Westville Grove Area.
- Harden facility (new windows) for Lake Tract Elementary School (CF-21), Deptford Township High School (CF-24). Monogahela Middle School is in the middle of major project.
- The Township lacks a stand-alone Disaster Debris Management Plan. In the event of a debris-producing event, the Township does not have a formal plan in place to address debris and clean-up.
- The Township's current flood damage prevention ordinance needs to be updated to agree with the latest model ordinance.
- Deptford Emergency Operations Center was moved to 1219 Delsea Drive and there is currently no back up power.
- The following County owned Critical Facilities are located in the SFHA: Wastewater Metering Stations:
  - 1st Ave.
  - Cove 1st Ave.
  - GCUA Cooper Street Metering Station # 37
  - GCUA Cove Rd Metering Station
- The Township is transversed by highway and rail that allow for the transport of hazardous materials. There is also a business within the township that houses Hazardous Material and is a "Do Not Enter" facility for emergency responders due to safety issues.

## 9.3.7 Mitigation Strategy and Prioritization

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

### 9.3.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.3-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP?	
				Check if Yes	Enter 2022 HMP Action #
MJ-1	Risk assessment - Almonesson Lake Dam located on Cooper Street.	Municipal OEM, Gloucester County DPW	In Progress – County working on it presently. Cooper Street CR 706 Bridge / Dam at Almonesson Lake - This Local Concept Development project involves reviewing the feasibility of various improvements to the bridge, dam, and roadway on Cooper Street CR 706 at Almonesson Lake, Bridge 3-K-3. This project will evaluate alternatives from bridge repairs to replacement and possible widening. The County Engineers office has gone through the Federal process and is currently in preliminary design phase for the design of a new spill way and bridge. A public information session was held on February 19, 2020. Evaluation of concepts continues with upcoming meetings planned with the NJDOT and NJ Department of Environmental Protection.	Yes - Aging dam	County Working on it. 2022- T. Deptford -001
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current hazards and risks • Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.	Municipal OEM	In Progress	Yes - Hazards	Ongoing, but outreach and education efforts have to be upgraded  2022- T. Deptford -002
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	Yes - Hazard / Location	2022- T. Deptford -003
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability	Yes - Hazards / Location / Historic losses	2022- T. Deptford -004
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance	Municipal OEM and Working Group	Ongoing Capability	No- Include as an ongoing capability	Meetings are held quarterly as part of our LEPC requirement.



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP?	
				Check if Yes	Enter 2022 HMP Action #
	program and the Municipal Adoption Resolution.				
M-5	Install permanent backup emergency power generator at Public Works Facility(CF-11).	Municipal OEM and Public Works Department	Completed. Through a Federal Surplus Property Program the Township now has a 100 KW generator at the maintenance garage and a trailer mounted generator available for the office. Completed	No - Completed	-
M-6	Install permanent backup emergency power generator at Battalion 9-2: TacomaBoulevard Fire Station(CF-6).	Municipal OEM and Fire Department	In Progress	Yes - Hazard	2022- T. Deptford -005
M-7	Install permanent backup emergency power generator at Battalion 9-3: CooperStreet Station on Almonesson Road (CF-8).	Municipal OEM and Fire Department	Completed	No	-
M-8	Install permanent backup emergency power generator at Battalion 9-4: TanyardRoad Fire Station (CF-9).	Municipal OEM and Fire Department	No Progress	Yes - Hazard	2022- T. Deptford -005
M-9	Install permanent backup emergency power generator at Monogahela MiddleSchool (CF-23).	Municipal OEM and School Board	In Progress	Yes - Location	2022-T. Deptford -006
M-10	Assess backup emergency power capabilities at PoliceStation building (CF-3).	Municipal OEM and Police Department	No Progress	Yes - Police Department is connected to Municipal building and generator only supplies staircases and server room at this time.	2022- T. Deptford -007
M-11	Engineering study to determine appropriate mitigation measure to address flooding along Gilbert Avenue (Westville Grove Area).	Municipal OEM and Public Works Department	No Progress	Yes - Historic Losses	2022- T. Deptford -008
M-12	Engineering study to determine appropriate mitigation measure to address flooding along Marian Avenue (Westville Grove Area).	Municipal OEM and Public Works Department	No Progress	Yes - Historic Losses	2022- T. Deptford -008
M-13	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	Completed	No – Mitigation completed	-
M-14	Harden main gate Public Works Department building.(CF-11).	Municipal OEM and Public Works Department	Completed	No	-



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP?	
				Check if Yes	Enter 2022 HMP Action #
M-15	Harden facility (newwindows) for Lake Tract Elementary School (CF-21).	Municipal OEM and School Board	Plans in progress	Yes - Location	2022- T. Deptford -009
M-16	Harden facility (new windows) for Deptford Township High School(CF-24).	Municipal OEM and School Board	Plans in progress	Yes - Location	2022- T. Deptford -009
M-17	Harden facility (newwindows) for Monogahela MiddleSchool (CF-23).	Municipal OEM and School Board	The school is in the process of a major renovation which includes hardening of the facility.	No. Improvements are underway.	-



### 9.3.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.3-14, the Township of Deptford identified the following mitigation efforts completed over the last five years:

- Deptford Emergency Operations Center was moved to 1219 Delsea Drive. However, there is currently no back up power if the center is in operation and power is lost. This area is prone to losing power due to the set-up of the PSE&G power grid.

### 9.3.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Deptford participated in a mitigation action workshop in August 2021 and was provided 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 Flood prone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories.

*Table 9.3-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X	X		X	X		X			X
Dam/ Levee	X	X		X	X	X	X		X	X
Disease Outbreak	X	X		X	X		X			X
Drought	X	X		X	X		X			X
Earthquake	X	X		X	X	X	X		X	X
Ext Temp	X	X		X	X		X			X
Flood	X	X		X	X	X	X		X	X
Geologic	X	X		X	X	X	X		X	X
Hazmat	X	X		X	X	X	X			X
Hurricane	X	X		X	X	X	X		X	X
Invasive	X	X		X	X		X			X
Nor'Easter	X	X		X	X	X	X		X	X
Severe Weather	X	X		X	X	X	X		X	X
Severe Winter Weather	X	X		X	X	X	X		X	X
Wildfire	X	X		X	X		X			X
Utility Failure	X	X		X	X		X		X	X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.3-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Deptford 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 9.3-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.3-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022- T. Deptford - 001	Almonesson Lake Dam	<p><b>Problem:</b> Almonesson Lake Dam located on Cooper Street is an aging dam. Dam failure would impact property downgrade of the facility.</p> <p><b>Solution:</b> The Dam is County owned. The County is working on this as an ongoing project to address this issue. Gloucester County will replace the 90-year-old bridge and dam at Almonesson Lake. This Local Concept Development project involves reviewing the feasibility of various improvements to the bridge, dam, and roadway on Cooper Street CR 706 at Almonesson Lake, Bridge 3-K-3. This project will evaluate alternatives from bridge repairs to replacement and possible widening. A</p>	Existing	Dam Failure, Earthquake, Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather	1, 2, 5, 6	Within 5 Years	County Engineer	Municipal Budget funding staff involved	Protection life and property	High	High	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		public information session was held on February 19, 2020. Evaluation of concepts continues with upcoming meetings planned with the NJDOT and NJ Department of Environmental Protection.											
2022- T. Deptford - 002	Community Outreach and Education	<p><b>Problem:</b> The Township is lacking in outreach and educational opportunities needed to inform municipal residents, businesses, and property owners regarding potential hazards.</p> <p><b>Solution:</b> The Township will identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding:</p> <ul style="list-style-type: none"> <li>• Current hazards and risks</li> <li>• Changing conditions and actions that may</li> </ul>	New and Existing	All	1, 2, 3,	Within 1 Year, Planned by June 2022	Township Administration	Municipal Budget	Enhanced outreach and education will protect life and property from hazards	Low	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level. In addition, the Township will hold community events providing in person information and hand-outs to residents.											
2022- T. Deptford - 003	Critical Facilities Survey	<p><b>Problem:</b> There are critical facilities in the community that are vulnerable to potential hazards.</p> <p><b>Solution:</b> The Township needs to establish a prioritization of critical facilities by completing the site and facility survey to identify vulnerabilities and potential mitigation measures. Once the survey is complete, an evaluation will take place to determine those critical facilities that are at greatest risk and/or provide the</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	2 years	Township Administration, Public Works and Engineer	Municipal Budget	Protection of Life and Property	Medium	Medium	LPR	PR, ES





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		most essential function. Funding will be then we sought for the highest priority facilities to provide mitigation measures that reduce risk.											
2022- T. Deptford - 004	Urban Flooding	<p><b>Problem:</b> Recurring urban flooding during severe storm events due to in adequate drainage systems closes roads and floods homes.</p> <p><b>Solution:</b> The Township will prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses. Once the areas are identified, a detailed plan will be prepared and implemented to address the drainage/flooding issues in the most cost effective and expedient manner. The Township will continue its</p>	New and Existing	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather	1, 2, 5, 6	Annually budget for and replace storm water drainage systems	Township Administration, Public Works and Engineer	Capital Budget, BR IC, HMGP	Reduced flooding protects property and natural systems	\$400,000	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		stormwater facility restoration program.											
2022- T. Deptford - 005	Back-up power – Fire Stations	<p><b>Problem:</b> Two of the Township's Fire Stations lack back-up power. The firefighters are first responders and cannot adequately respond to hazard within the community if power is lost at their stations.</p> <p><b>Solution:</b> Determine the proper sized generators for each location and install permanent back-up emergency power generators at Battalion 9-2, Tacoma Boulevard Fire Station and at Battalion 9-4: Tanyard Road Fire Station. The Bureau of Fire Safety will be responsible for regular maintenance and testing following installation.</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 6	2 to 4 years	Township Bureau of Fire Safety, OEM, and Engineer	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Assistance to Firefighters Grant Program, Municipal Budget	Continuity of operations for an emergency service provider	High	Medium	SIP	ES
2022- T. Deptford - 006	Back-up power for Shelter	<p><b>Problem:</b> Monongahela Middle School is a designated shelter and requires</p>	Existing	Flood, Hurricane, Nor'Easter, Severe	1, 2, 5, 6	3 Years	School District	School District Capital Budget, FEMA HMGP and BRIC, USDA	Provide a needed power supply to an	\$100,000	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		back-up power to provide that lifeline function.  <b>Solution:</b> The Township will work with the School District to acquire and install a permanent back-up emergency power generator at Monogahela Middle School (CF-23). The School District will be responsible for regular testing and maintenance following installation.		Weather, Severe Winter Weather, Utility Failure				Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program	emergency shelter				
2022- T. Deptford - 007	Back-up power-Police Station	<b>Problem:</b> The Police Department is connected to Municipal building and the existing generator only supplies power to the staircases and server room at this time. The full capability of the Police Station requires its seamless operation to protect life and property during a hazard event which is not possible without power.	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	1 to 2 years	Township Administration, Township Public Works and Engineer	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Provide backup power to an emergency service provider for continuity of operations	\$150,000	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Provide back-up emergency power capabilities at the Police Station building by replacing the old diesel generator and installing a new natural gas generator able to powering all of the Police Station and the other critical operations within the Municipal Building (CF-3). Public Works will be responsible for maintenance and testing following installation.											
2022- T. Deptford - 008	Urban Flooding – Westville Grove area	<p><b>Problem:</b> During severe storm events the flooding of roads and residential properties occur blocking safe passage of vehicles and causing property damage.</p> <p><b>Solution:</b> The Township has hired an Engineering Firm to conduct a study to determine appropriate mitigation measures to address flooding along</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	Flood Study in process	Township Public Works and Engineer	Municipal Budget HMGP, FMA, BRIC for implementation of improvements	Reduced Flooding protects properties and keeps roads open	\$400,000	Medium	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Gilbert and Marian Avenues (Westville Grove Area) and will seek funding for design plans for structural/nonstructural solutions. Cost effective solutions will be implemented.											
2022- T. Deptford - 009	Harden School Buildings- Shelters	<p><b>Problem:</b> School buildings used as shelters have old windows that are not capable of withstanding high velocity winds, such as to those produced by hurricane, which hamper the buildings' ability to serve as a shelter.</p> <p><b>Solution:</b> Harden vulnerable facilities by providing new storm-resistant windows at Lake Tract Elementary School, and Deptford Township High School, by way of funding through the School District's capital improvement program.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather	1, 2, 5, 6	Within 5 Years, Monogahela Middle School under renovations	School Board, Township Administration and Engineer	School District's capital improvement program	Hardening structures will protect Critical Facilities which also serve as Emergency Shelters	High	Medium	SIP	PP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022- T. Deptford - 010	Disaster Debris Management Plan	<p><b>Problem:</b> The municipality does not have a disaster debris management plan.</p> <p><b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the cleanup process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders might be necessary.</p>	New	All	5	2 years, 1 year once funding secured	Various Departments and Township Council	Municipal Budget	High	Low	High	LPR	PR
2022- T. Deptford - 011	FDPO Update	<p><b>Problem:</b> The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.</p> <p><b>Solution:</b> The Township Council and Administration as well as the NFIP Administrator shall work together to</p>	Existing	Flood, Hurricane, Nor'easter, Severe Weather	1, 2,	1-5 years, 6 months once contacted by state.	State of NJ and Township Administration	Municipal Budget	Compliance	Staff time	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		update their FDPO once contacted by the state. The state shall work with municipality to provide updated guidance and model ordinance as needed.											
2022-T. Deptford-012	Back-up Power – Emergency Operations Center	<p><b>Problem:</b> The Deptford Emergency Operations Center was moved to 1219 Delsea Drive and there is currently no back-up power. The center cannot provide the vital coordination operation during a hazard event if there is a loss of power. The Delsea Drive area is prone to losing power due to the set-up of the PSE&amp;G power grid. The EOC also functions as shelter.</p> <p><b>Solution:</b> The Township will apply for grant funding to place a 100 kw natural gas powered generator on the building.</p>	New and Existing	All	1, 2, 5, 6	1 – 2 years, 1 year once funding secured	Township OEM, Public Works and Engineer	HMGP, FMA	Backup power will allow for Continuity of Operations during an Emergency	\$150,000	High	SIP	ES
2022-T. Deptford-013	Flood Proof Metering Stations	<b>Problem:</b> The following County owned Critical Facilities	Existing	Flood, Hurricane, Nor'Easter, Severe	1,2	5 Years	Gloucester County	County owned.	Protection of County Critical Facilities	High	High	SIP	SP





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		are located in the SFHA: 1. Wastewater Metering Stations: • 1st Ave. • Cove 1st Ave. • GCUA Cooper Street Metering Station # 37 • GCUA Cove Rd Metering Station # 24 • GCUA Cove Rd. Dept. Twp. Metering Station # 24		Weather, Severe Winter Weather, Utility, Failure					essential for maintaining sanitary conditions				
2022-T. Deptford-014	Haz-mat Preparedness	<b>Problem:</b> The Township is transversed by highway and rail that allow for the transport of hazardous materials. The Township also has businesses within its limits that produce and/or store hazardous materials,  <b>Solution:</b> Gloucester County has a Haz-Mat/CBRNE response	Existing	Haz-Mat, Severe Weather, Severe Winter Weather	1,2,5,6	1 Year	Township and County OEM	Staff Time	Enhanced protection of life and property	Low	High	EAP	PP, PI, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		team. It is a highly trained professional group that is specially equipped to respond to the release of the hazardous materials that threaten the citizens of our County, their property, or the environment. The Township will coordinate with the County's Haz-Mat Team, to cross check all known haz-mat facilities within the Township limits, and the potential for Haz-mat materials in transit and enhance the continuity of local/county operations.											

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
 CRS Community Rating System  
 DPW Department of Public Works  
 EHP Environmental Planning and Historic Preservation  
 FEMA Federal Emergency Management Agency  
 FPA Floodplain Administrator

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program  
 HMGP Hazard Mitigation Grant Program  
 BRIC Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation

**Cost:**

The estimated cost for implementation.



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

*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 also 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 also 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 9.3-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022- T. Deptford -001	Almonesson Lake Dam	1	1	1	1	0	0	1	1	1	0	0	1	1	1	10	High
2022- T. Deptford -002	Community Outreach and Education	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- T. Deptford -003	Critical Facilities Survey	1	0	0	1	1	0	0	1	1	0	1	0	1	1	8	Medium
2022- T. Deptford -004	Urban Flooding	1	1	1	1	1	1	1	0	1	1	1	0	1	1	12	High
2022- T. Deptford -005	Back-up power – Fire Stations	1	0	0	1	1	1	0	1	0	1	1	0	1	0	8	Medium
2022-T. Deptford -006	Back-up power for Shelter	1	1	0	1	1	1	1	1	1	1	1	1	1	1	13	High
2022- T. Deptford -007	Back-up power-Police Station	1	1	0	1	1	1	1	1	1	1	1	1	1	1	13	⚠️ High
2022- T. Deptford -008	Urban Flooding – Westville Grove area	1	1	0	1	1	0	0	0	1	1	0	0	1	1	8	Medium
2022- T. Deptford -009	Harden School Buildings-Shelters	1	1	0	1	0	0	0	1	1	0	1	0	1	1	12	Medium
2022- T. Deptford -010	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	⚠️ High
2022- T. Deptford -011	FDPO Update	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022-T. Deptford-012	Back-up Power – Emergency Operations Center	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	⚠️ High
2022-T. Deptford-013	Flood Proof Metering Stations	1	1	1	1	0	1	1	1	1	0	1	0	1	1	11	High
2022-T. Deptford-014	Haz-mat Preparedness	1	1	1	1	0	1	1	1	1	0	1	1	1	1	12	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

⚠️ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.3.8 Action Worksheets

The following action worksheets have been developed by the Township of Deptford to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Urban Flooding		
<b>Project Number:</b>	2022- T. Deptford -004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather		
<b>Description of the Problem:</b>	Recurring urban flooding during severe storm events due to in adequate drainage systems closes roads and floods homes.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses. Once the areas are identified, a detailed plan will be prepared and implemented to address the drainage/flooding issues in the most cost effective and expedient manner. The Township will continue its stormwater facility restoration program.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined by extent of restoration of SW system	<b>Estimated Benefits (losses avoided):</b>	Reduced flooding protects property and natural systems
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$400,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Budget for annually and apply for grant funding over a 5 year term
<b>Estimated Time Required for Project Implementation:</b>	Annually budget for and replace storm water drainage systems	<b>Potential Funding Sources:</b>	Capital Budget, BRIC, HMGP
<b>Responsible Organization:</b>	Township Administration, Public Works and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate or Buyout homes	Very High	Stormwater system fails flooding continues - Costly
	Elevate roads	High	Stormwater system fails flooding continues
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Urban Flooding	
<b>Project Number:</b>	2022- T. Deptford -004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding.
<b>Property Protection</b>	1	Protects property from flood damage
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	1	Project will require grant funding.
<b>Environmental</b>	0	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather
<b>Timeline</b>	0	Annually budget for and replace storm water drainage systems over a 5 year term
<b>Agency Champion</b>	1	
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Back-up power – Fire Stations		
<b>Project Number:</b>	2022- T. Deptford -005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	Two of the Township's Fire Stations lack back-up power. The firefighters are first responders and cannot adequately respond to hazard within the community if power is lost at their stations.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Determine the proper sized generators for each location and install permanent back-up emergency power generators at Battalion 9-2 ,Tacoma Boulevard Fire Station and at Battalion 9-4: Tanyard Road Fire Station. The Bureau of Fire Safety will be responsible for regular maintenance and testing following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations for an emergency service provider
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1,2,5,6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Low	<b>Desired Timeframe for Implementation:</b>	2 to 4 years
<b>Estimated Time Required for Project Implementation:</b>	2 to 4 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Assistance to Firefighters Grant Program, Municipal Budget
<b>Responsible Organization:</b>	Township Bureau of Fire Safety, Engineer and OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Back-up power – Fire Stations	
<b>Project Number:</b>	2022- T. Deptford -005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of Fire Department
<b>Property Protection</b>	0	Project will provide backup power for fire house.
<b>Cost-Effectiveness</b>	0	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	0	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	0	2 to 4 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM, and Fire Department
<b>Other Community Objectives</b>	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Back-up power for Shelter		
<b>Project Number:</b>	2022-T. Deptford -006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	Monongahela Middle School is a designated shelter and requires back-up power to provide that lifeline function.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will work with the School District to acquire and install a permanent back-up emergency power generator at Monogahela Middle School. The School District will be responsible for regular testing and maintenance following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Provide a needed power supply to an emergency shelter
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$100,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 1 year of funding
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	School District Capital Budget, FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program
<b>Responsible Organization:</b>	School District	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Back-up power for Shelter	
<b>Project Number:</b>	2022-T. Deptford -006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of a Lifeline Facility
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	0	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	
<b>Fiscal</b>	1	The Township and School Board have the legal authority to complete the project.
<b>Environmental</b>	1	Project requires funding support.
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	1	3 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM, and School Board
<b>Other Community Objectives</b>	1	
<b>Total</b>	13	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Back-up power-Police Station		
<b>Project Number:</b>	2022- T. Deptford -007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Police Department is connected to Municipal building and the existing generator only supplies power to the staircases and server room at this time. The full capability of the Police Station requires its seamless operation to protect life and property during a hazard event which is not possible without power.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Provide back-up emergency power capabilities at the Police Station building by replacing the old diesel generator and installing a new natural gas generator able to powering all of the Police Station and the other critical operations within the Municipal Building. Public Works will be responsible for maintenance and testing following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Provide backup power to an emergency service provider for continuity of operations
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$150,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 to 2 years
<b>Estimated Time Required for Project Implementation:</b>	1 to 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Township Administration, Township Public Works and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Back-up power-Police Station	
<b>Project Number:</b>	2022- T. Deptford -007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of Police Department
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to complete the project.
<b>Fiscal</b>	1	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	1	1 to 2 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM, and Police Department
<b>Other Community Objectives</b>	1	
<b>Total</b>	13	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Back-up Power – Emergency Operations Center		
<b>Project Number:</b>	2022-T. Deptford-012		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Deptford Emergency Operations Center was moved to 1219 Delsea Drive and there is currently no back-up power. The center cannot provide the vital coordination operation during a hazard event if there is a loss of power. The Delsea Drive area is prone to losing power due to the set-up of the PSE&G power grid. The EOC also functions as shelter.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will apply for grant funding to place a 100 kw natural gas powered generator on the building. Public Works will assist with maintenance and testing following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Backup power will allow for Continuity of Operations during an Emergency
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$150,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1-2 years
<b>Estimated Time Required for Project Implementation:</b>	1 – 2 years, 1 year once funding secured	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Township OEM, Public Works and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Back-up Power – Emergency Operations Center	
<b>Project Number:</b>	2022-T. Deptford-012	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services and continuity of operations of OEM
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to complete the project.
<b>Fiscal</b>	1	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	1	1 – 2 years, 1 year once funding secured
<b>Agency Champion</b>	1	Municipal Engineer, OEM, Public Works
<b>Other Community Objectives</b>	1	
<b>Total</b>	14	
<b>Priority (High/Med/Low)</b>	High	



## 9.4 TOWNSHIP OF EAST GREENWICH

This section presents the jurisdictional annex for the Township of East Greenwich and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of East Greenwich's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.4.1 Hazard Mitigation Planning Team

The Township of East Greenwich followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of East Greenwich's hazard mitigation plan primary and alternate points of contact. 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 9.4-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Kyle Messick, OEM Coordinator Address: 159 Democrat Rd., Mickleton, NJ Phone Number: 856-423-4322 x 250 Email: <a href="mailto:kmessick@egpd.org">kmessick@egpd.org</a>	Name/Title: Anthony Rossett, Public Works Manager Address: 159 Democrat Rd., Mickleton, NJ Phone Number: 856-423-0655 Email: <a href="mailto:arossett@eastgreenwichnj.com">arossett@eastgreenwichnj.com</a>
NFIP Floodplain Administrator	
Name/Title: James Sabetta, Construction Official Address: 159 Democrat Rd., Mickleton, NJ Phone Number: 856-423-0733 x 403 Email: <a href="mailto:jsabetta@eastgreenwichnj.com">jsabetta@eastgreenwichnj.com</a>	



Name	Title	Method of Participation
Kyle Messick	OEM Coordinator	Point of contact for the municipality; represented the Township on the planning partnership; attended meetings; provided information for annex; and reviewed previous actions and identified new actions; reviewed annex and provided feedback
Anthony Rossett	Public Works Manager	Attended meetings; reviewed previous actions and identified new actions; provided information for annex; reviewed municipal annex and provided feedback
James Sabetta	Construction Official	Attended meetings; reviewed previous actions and identified new actions; provided information for annex; reviewed municipal annex and provided feedback
Dale Archer	Mayor	Reviewed annex and provided feedback
Matthew Brenner	Chief of Police	Reviewed annex and provided feedback
Robert Gould	Fire Chief	Reviewed annex and provided feedback

## 9.4.2 Municipal Profile

East Greenwich Township was created by an act of the New Jersey Legislature on February 10, 1881, from the eastern part of Greenwich Township and the western part of Mantua Township.

The township is located in the northwest part of the County and has a total area of 14.922 square miles, including 14.440 square miles of land and 0.482 square miles of water. Unincorporated communities, localities and place names located partially or completely within the township include Clarksboro, Hendricksons Mills, Mickleton, Middleton, Mount Royal, Tomlins, Warringtons Mills and Wolfert.

East Greenwich Township is governed under the Township form of New Jersey municipal government, with a Township Committee that is comprised of five members, who are elected directly by the voters at-large in partisan elections who then select one of its members to serve as Mayor and another as Deputy Mayor.

According to the U.S. Census, the 2010 population for the Township of East Greenwich was 9,555. The estimated 2019 population was 10,488, an 8.89 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 7.5% percent of the population is 5 years of age or younger and 14.8% 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.

## 9.4.3 Jurisdictional Capability Assessment and Integration

The Township of East Greenwich performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.4.3). The updated mitigation strategy includes opportunities the Township of East Greenwich identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.4.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of East Greenwich, what is present in the jurisdiction, and code citation and date.

*Table 9.4-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Title 15 Buildings and Construction; Municipal Code	State and Local	East Greenwich Township Construction Code Department
<p><i>How does this reduce risk?</i></p> <p>The Construction Code Department enforces the building code and is made up of a construction official, building subcode official, fire protection subcode official and other subcode officials. Permits are required for new construction, additions, swimming pools, and satellite dishes and towers. It also includes the Flood Damage Prevention Code in Chapter 15.32.</p>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Title 16 Land Development Code; Municipal Code	Local	Combined Land Use Board – Planning/Zoning
<p><i>How does this reduce risk?</i></p> <p>This chapter is intended to be a comprehensive ordinance regulating and limiting the uses of land and the uses and locations of buildings and structures; regulating and restricting the height and bulk of buildings and structures; regulating and restricting the area of yards and other open spaces; regulating and restricting the density of population; sectioning the township into districts for such purposes as provided on the adopted zoning map of the township showing boundaries and the classification of such districts; establishing rules, regulations and standards governing the subdivision and development of land within the township; establishing a planning board; and prescribing penalties for the violation of its provisions. Several of the purposes of the chapter align with the goals and objectives of the County's HMP including to secure safety from fire, flood, panic and other natural and manmade disasters.</p> <p>Section 86 of the zoning code includes floodplain regulations. The purpose of this section is to permit only that development of floodprone areas which: is appropriate in light of the probability of flood damage and the need to preclude flood losses; represents an acceptable social</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
and economic use of the land relative to the hazards involved; and does not increase danger to life or property anywhere adjacent to or in the floodplain area.					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 16.16 - Subdivision Plat and Site Plan Procedures; Municipal Code	Local	Combined Land Use Board – Planning/Zoning
<i>How does this reduce risk?</i> Prior to subdividing or resubdividing land, the land owner must submit a sketch plat, survey prints, and a land development checklist to the Land use Board.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 16.45 – Stormwater Control; Municipal Code; Updated 3/23/2021	Local	
<i>How does this reduce risk?</i> In accordance with our NJOEP Tier A Municipal Stormwater General Permit, the Township has adopted various Ordinances to regulate the impact of stormwater runoff and pollutants to the environment. The purpose of stormwater ordinance is to establish minimum stormwater management requirements and controls for "major development. Flood control, groundwater recharge, and pollutant reduction shall be achieved through using stormwater management measures in the Township, including green infrastructure and nonstructural stormwater management strategies.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	No	Yes	-	State	-
<i>How does this reduce risk?</i>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	Joint Land Use Board
<i>How does this reduce risk?</i> This is outlined in the Township's Master Plan (2004) and Reexamination report (2018). One of the goals of the plan is to preserve and protect the character of established residential neighborhoods as well as agricultural uses to ensure any future growth compliments and enhances the character of the overall community.					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 16.16 - Subdivision Plat and Site Plan Procedures; Municipal Code	Local and County	Combined Land Use Board – Planning/Zoning
<i>How does this reduce risk?</i> The site plan ordinance is part of Chapter 16 (Subdivision Plat and Site Plan Procedures). The Planning Board is responsible for reviewing and determining non-residential site plans and subdivisions with non-use related variances.					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 16.59	Local	Environmental Commission
<i>How does this reduce risk?</i> The Township has an environmental overlay district used to protect and conserve environmentally sensitive areas from inappropriate development. This district includes floodplains and wetlands as mapped by the U.S. Department of the Interior and the U.S. Department of Housing and Urban Development. Also included are those lands that have been identified as a National Heritage Priority Site due to the presence of endangered plant species, as identified by the National Land Management Plan (1999 Natural Features Map) and lands identified as Regional Freshwater Wetland Habitat (Natural Resource Inventory 1998—Priorities Map). Environmental impact statements are required for any development proposals within the environmental overlay district.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 15.32 – Flood Damage Prevention; Municipal Code	Federal, State, County and Local	Planning Board
<p><i>How does this reduce risk?</i></p> <p>This chapter applies to all special flood hazard areas within the Township. The purpose of the chapter is to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. The Planning Board is appointed to administer and implement the flood damage prevention ordinance. Duties include permit review, using base flood data, obtaining information, and interpreting the FIRM boundaries. The current ordinance requires new construction and substantial improvements in the floodplain must have the lowest floor elevate to or above the BFE. This does not meet the minimum set by NJDEP. During the next update of the ordinance, the Township will work with NJDEP to ensure the ordinance meets the minimum requirements.</p>					
<b>Wellhead Protection</b>	Yes	No	Through NJDEP that the municipality has a wellhead protection program	State	DEP
<p><i>How does this reduce risk?</i></p> <p>Part of the Stormwater Ordinance</p>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? Yes</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>• Do the regulations allow density transfers where hazard areas exist? No</li> <li>• When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No – municipality	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	East Greenwich Township Planning Board
<p><i>How does this reduce risk?</i></p> <p>The master plan contains several elements: land use, circulation, recreation, open space, farmland, housing and population, community facilities, utility facilities, recycling, economic, and historic preservation.</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Capital Improvement Plan</b>	Yes	Allowed	Part of the general budget	Local	Township Council
<i>How does this reduce risk?</i> Varies year to year – 5-year projection for each department of equipment					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i> While the County maintains a countywide Debris Management Plan, the Township does not have one specific to their community and needs. Refer to Table 9.4-16 as the Township identified this as a mitigation action.					
<b>Floodplain Management or Watershed Plan</b>	Yes	No	FEMA	Federal	Floodplain Manager
<i>How does this reduce risk?</i> Floodplain ordinance (not a plan) – use the FIRMs for permitting process					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, 2/2006	County and Local	Gloucester County Improvement Authority; East Greenwich Township Planning Board & Stormwater Program Coordinator
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, 2/9/2021	Local	East Greenwich Stormwater Program Coordinator
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	Yes	No	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	Planning Board
<i>How does this reduce risk?</i> An element of the master plan					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	Yes	No	Community Forest Management Plan, 11/2016	Local	East Greenwich Shade Tree Commission
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Community Forestry plan was developed by the Shade Tree Commission and consultant. We are in year of the fourth of 5 year plan. The community was accredited in 2018 and 2019.					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Yes</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. No</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? N/A</li> <li>Are environmental systems that protect development from hazards identified and mapped?</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	East Greenwich Township Emergency Operations Plan, April 2018	Local	Office of Emergency Management
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Continuity of Operations Plan</b>	Yes	No	East Greenwich Township Emergency Operations Plan April 2018	Local	Office of Emergency Management
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.4.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of East Greenwich to oversee and track development.

*Table 9.4-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	No	Issue building permits but not large scale housing development; that would come through approval from the Land Use Board
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Preserved farmland not available for development but there is some farmland that could potentially be developed (approximately 100+ acres)

### 9.4.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of East Greenwich and their current responsibilities which contribute to hazard mitigation.

*Table 9.4-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Combined Land Use Board oversees site plan reviews and subdivision applications and other planning and zoning needs including Master Planning.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Environmental Board/Commission	Yes	The Environmental Commission of East Greenwich works to preserve natural resources and provide environmental protection information education to residents. The Commission assists with site reviews environmental workshops, and habitat cleanups. The Commission also oversees participation in Sustainable Jersey, where the Township was certified Bronze on 12/16/2020.
Open Space Board/Committee	Yes	Township Committee recommends for Master Plan
Economic Development Commission/Committee	Yes	The Mayor oversees the economic development commission.
Public Works/Highway Department	Yes	The Public Works Department is responsible for the construction, maintenance, and operation of township streets, landscaping and other public facilities.
Construction/Building/Code Enforcement Department	Yes	The Construction Department enforces the New Jersey State Uniform Building Code and local building and zoning codes.
Emergency Management/Public Safety Department	Yes	The East Greenwich Office of Emergency Management works to prevent emergencies and to be prepared for any type of emergency that might occur through effective mitigation, preparedness, response, and recovery.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Gloucester Alert, and NJ Register Ready are available to residents for emergency notifications.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works Dept. maintains roadways, township building maintenance, tree maintenance, and debris disposal
Mutual aid agreements	Yes	Emergency Services county wide/ Construction Department
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Construction
Other	Yes	Water & Sewer Department - responsible for delivering quality water to homes within the water service areas of the town. The sewer department provides public sewer service to homes within the sanitary sewer service areas of the Township.
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Engineers or professionals trained in building or infrastructure construction practices	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Planners or engineers with an understanding of natural hazards	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Staff with expertise or training in benefit/cost analysis	Yes	Construction Officials
Professionals trained in conducting damage assessments	Yes	Construction Officials



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Management Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-
Other	Yes	East Greenwich Stormwater Program Coordinator; Green Team
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Construction Department reviews permit applications, etc. to ensure new development is not within hazard areas and if so, the construction is built to meet the municipal codes</li> </ul>		

#### 9.4.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of East Greenwich.

Table 9.4-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? When the Township improves roadways or upgrade roadways, they will look at the stormwater and construct the roads accordingly.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes</li> </ul>	



### 9.4.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of East Greenwich.

*Table 9.4-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	Emergency Management Department webpage
Social media for hazard mitigation education and outreach	Yes	East Greenwich OEM Facebook Page
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Green Team
Other programs already in place that could be used to communicate hazard-related information	Yes	East Greenwich Township Newsletter
Warning systems for hazard events	Yes	Gloucester Alert, NJ Register Ready, Everbridge
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"> <li>OEM Facebook page posts regularly on these topics.</li> </ul>		

### 9.4.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of East Greenwich.

*Table 9.4-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	4	2019
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	81	2018
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	4	Unknown
Sustainable Jersey	Yes	Bronze	12/16/2020
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable



NP Not participating  
- Unavailable

### 9.4.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.4-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion / Sea Level Rise	Moderate
Dam/ Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive and Nuisance Species	Weak
Nor'Easter	Strong
Severe Storm	Moderate
Severe Winter Storm	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.4.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.4-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 17</li> <li># RL properties: 2</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$ 7,756</li> <li># claims filed: 10</li> </ul>



NFIP Topic	Comments
<ul style="list-style-type: none"> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total loss payments: \$ 25,156.62</li> </ul>
Describe areas prone to flooding in your jurisdiction.	North Street and Higginsville Lane have properties adjacent to Mantua Creek; these properties having flooded in the past but no substantial issues.
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations?	Based off of Building Code
<ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
<ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction Code
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Township Engineer
What specific training or support does your floodplain management staff need to support its floodplain management program?	Continue attending seminars and trainings
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	More than 50% of assessed value
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes – through the HMP, Rutgers, and NJDEP
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	2015
What is the local law number or municipal code of your flood damage prevention ordinance?	Chapter 8.5
What is the date that your flood damage prevention ordinance was last amended?	August 4, 2016
Does your floodplain management program meet or exceed minimum requirements?	Meet
<ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Land Use Board
Does your jurisdiction participate in CRS?	The Township currently does not participate in the CRS program. There is currently no interest in joining the program at the time of this HMP update.
<ul style="list-style-type: none"> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> </ul>	



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	No
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	Yes

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.4.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.4-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	28	0	28	0	38	0	15	0	18	0	32	0
Multi-Family	3	0		0		0	4	0	5	0	4	0
Other (commercial, mixed-use, etc.)	3	0	5	0	11	0	3	0	2	0	2	0
Total Permits Issued	34	0	33	0	49	0	22	0	25	0	38	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												
Johnson Warehouse	Commercial		1		450 Swedesboro Ave Mickleton NJ 8056		Storm Surge, Earthquake, Hazardous Materials			Completed		
CRG	Commercial		1		191 Harmony Rd Mickleton NJ 08056		Storm Surge, Earthquake, Hazardous Materials			Completed		





Cubes at East Greenwich	Commercial	1	100 Huff Ln Mickleton NJ 08056	Storm Surge, Earthquake, Hazardous Materials	Completed
Meadows at Greenwich Crossing	Residential	75	Mantua Road/E Crossing Dr Mt Royal NJ 08061	Earthquake, Carbonate Rock, Hazardous Materials	Completed
Villages at Whiskey Mill	Residential	119	121 Berkley Rd Clarksboro NJ 08020	Storm Surge, Earthquake, Hazardous Materials	Completed
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
Knight Owl Holding	Commercial	1	block 201 lot 2 and 3	Storm Surge, Earthquake, Hazardous Materials	Anticipated within the next 5 years
Clarksboro Commons	Residential	300	E Cohawkin Rd/County House Rd	Earthquake, Carbonate Rock, Hazardous Materials	Anticipated within the next 5 years
NA	Residential	8	33 Whiskey Mill Rd	Earthquake, Hazardous Materials	Anticipated within the next 5 years
Connifer	Residential	70	W Cohawkin Road	Earthquake, Hazardous Materials	Anticipated within the next 5 years
Legacy at East Greenwich	Residential	140	67 W Cohawkin Rd Clarksboro NJ 08020	Earthquake, Hazardous Materials	Construction in Progress
Berkley Square	Mixed use	107 townhomes/ unknown total on commercial units	141 Berkley Road	Earthquake, Hazardous Materials	Construction in Progress

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.4.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of East Greenwich's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of East Greenwich has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.4-1. Township of East Greenwich Hazard Area Extent and Location Map 1

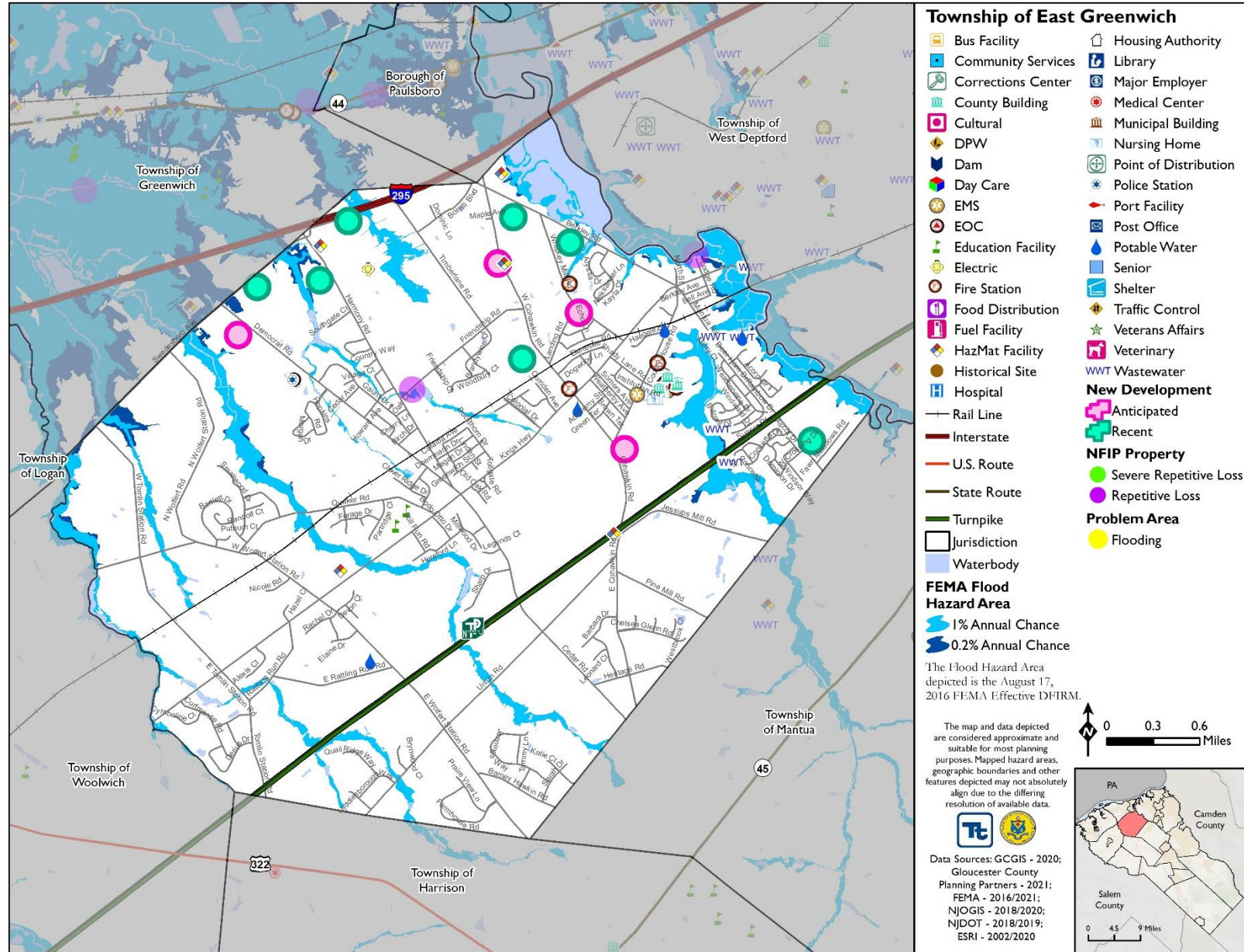






Figure 9.4-2. Township of East Greenwich Hazard Area Extent and Location Map 2

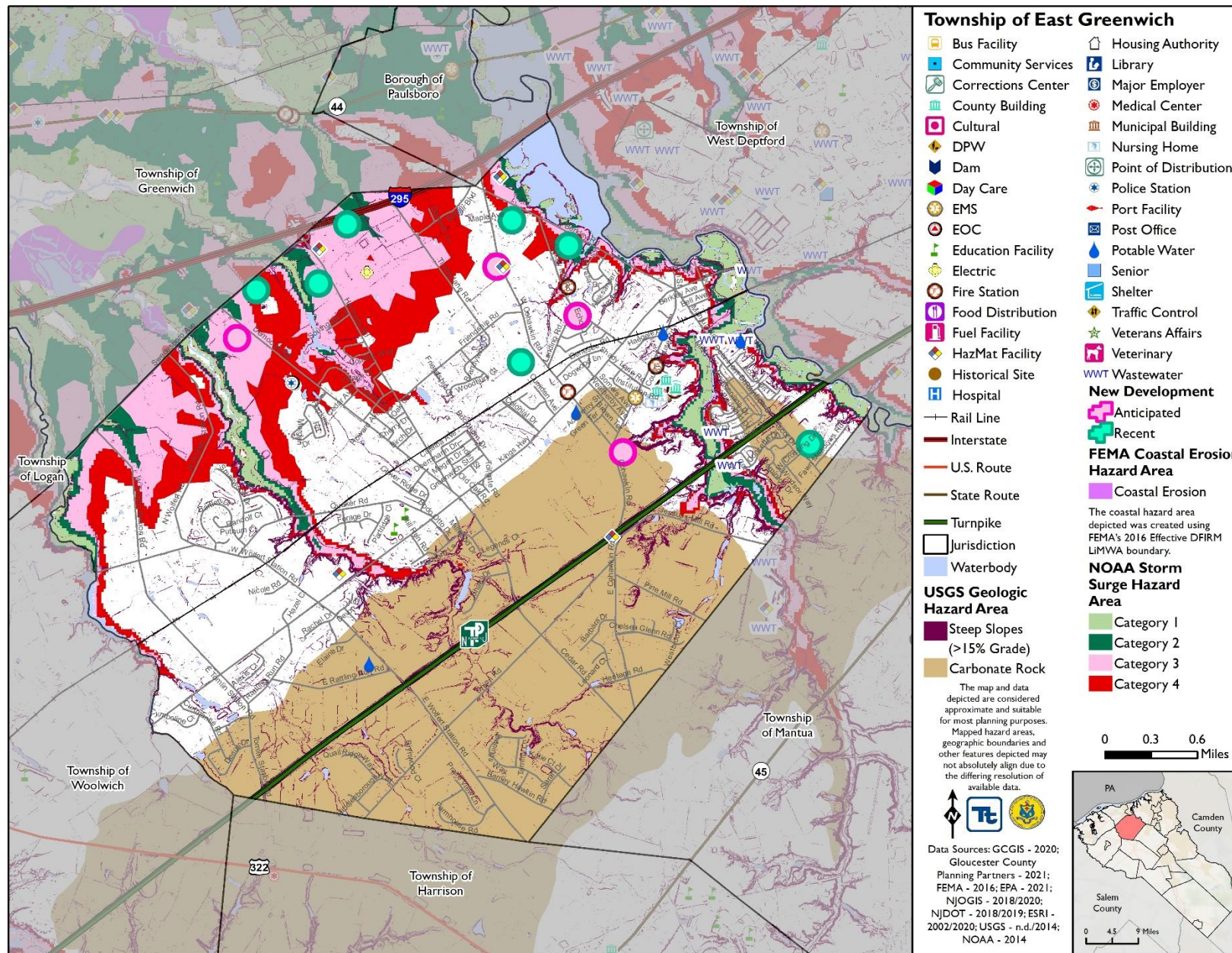






Figure 9.4-3. Township of East Greenwich Hazard Area Extent and Location Map 3

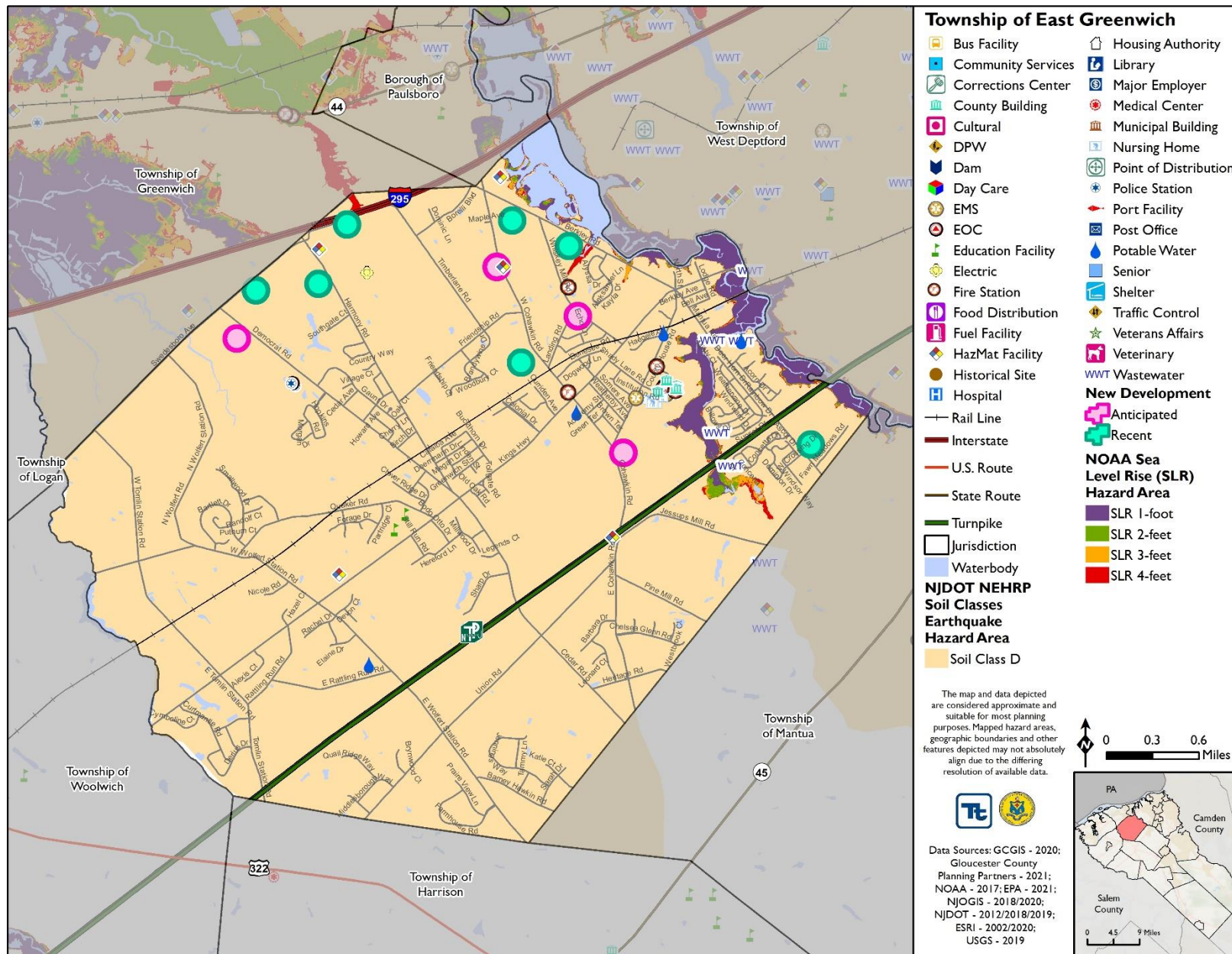
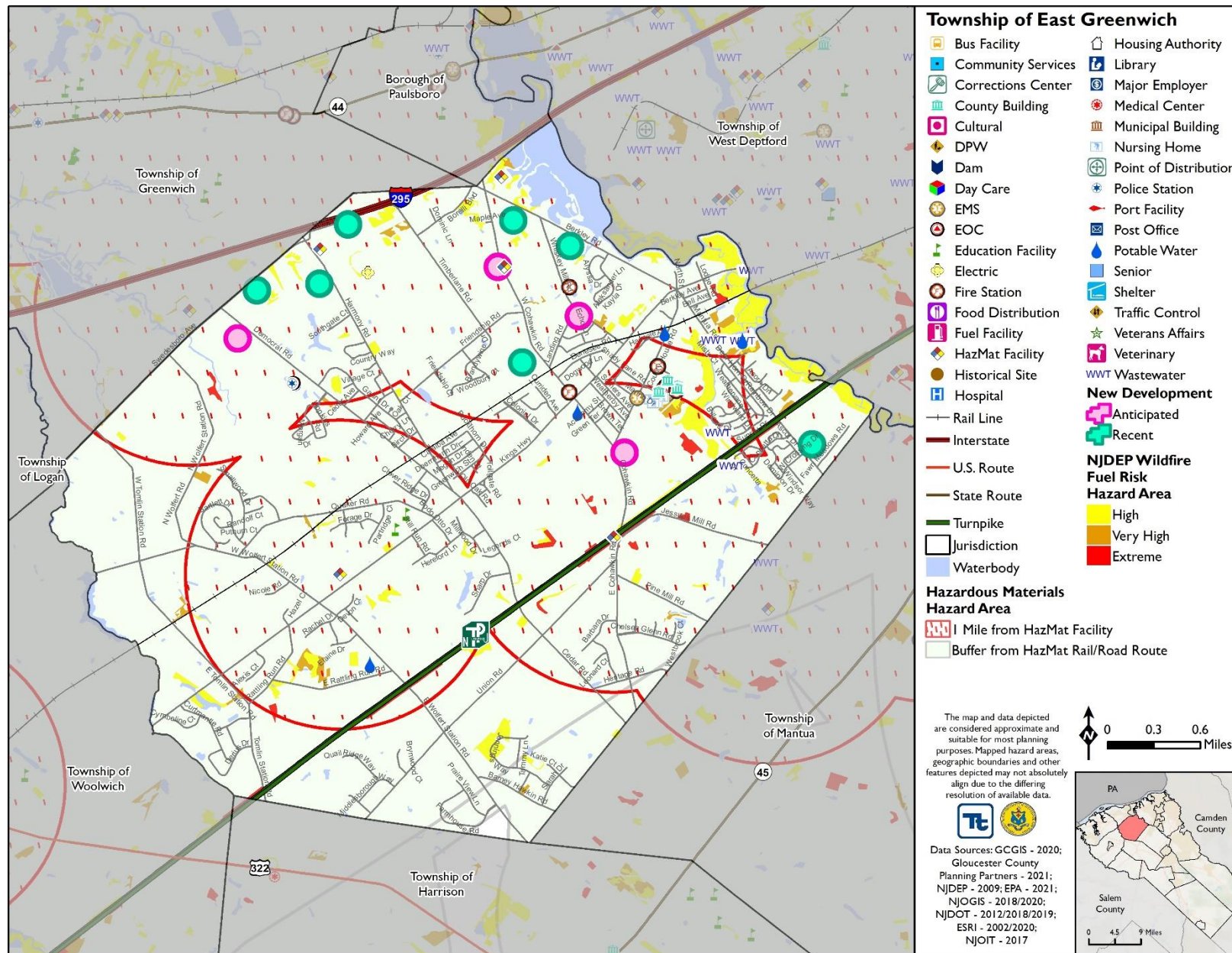






Figure 9.4-4. Township of East Greenwich Hazard Area Extent and Location Map 4



Section 9.4 | Township of East Greenwich



### 9.4.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of East Greenwich's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.4-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	No municipal damages reported
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Over 600 homes and businesses sustained damage. Downed trees and utility poles throughout the township. Roadways impassable and power outages up to 6 days. Total damage was approximately \$12 million.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Constant plowing and salting operations resulting in over \$55,000 in emergency protective measures.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	No municipal damages reported
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	As of May 21, 2021, East Greenwich reported 911 confirmed cases of COVID-19, and 21 total fatalities.
August 4, 2020	Tropical Storm Isaias (DR-4574)	Yes	On August 4, 2020 Tropical Storm Isaias brought heavy rain and strong winds resulting in flooding.	Heavy rain caused damage to a culvert and asphalt on Jessup Mill Rd. Damages were \$50 thousand.
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling.	No municipal damages reports



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.4.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of East Greenwich's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of East Greenwich. The Township of East Greenwich reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough agreed with the calculated rankings.

*Table 9.4-12. Hazard Ranking Input*

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Low	Low	Medium	Low	Medium	Low	Low	High
Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure		
Low	Low	Medium	High	Medium	Low	Medium		





Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.4-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Comment
		1% Event	0.2% Event	
No critical facilities located in the floodplain				

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.4.6.3 Identified Issues

After review of the Township of East Greenwich's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of East Greenwich has identified the following vulnerabilities within their community:

- Friendship Rd – Drainage and cross drain need upgrade to alleviate roadway flooding – the Township anticipates redesigning the roadway and drain over the next five years (see 2022-E Greenwich-001 in Table 9.4-16).
- The Township's flood damage prevention ordinance requires update (see 2022-E Greenwich-004 in Table 9.4-16).
- The Township lacks a stand-alone Disaster Debris Management Plan (see 2022-E Greenwich-005 in Table 9.4-16)
- Hazmat incident due to transportation on roadways – the Township needs to conduct aggressive traffic enforcement/traffic studies on major roadways to identify ways to reduce/prevent accidents (see 2022-E Greenwich-007 in Table 9.4-16).

## 9.4.7 Mitigation Strategy and Prioritization

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

### 9.4.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.4-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Alleviate flooding at Berkley Road & West Cohawkin Road.	Municipal OEM, Gloucester County DPW	Completed – Royal Farms funded improvements to the intersection	No	-	-
MJ-2	Alleviate flooding at West Cohawkin Road and Friendship Road.	Municipal OEM, Gloucester County DPW	Not complete	No	-	-
MJ-3	Beaver dams at Union Road bridge.	Municipal OEM, Gloucester County DPW	Completed – Municipal DPW	No	-	-
MJ-4	Alleviate flooding at Berkley Road and Boat Ramp at Mantua Creek.	Municipal OEM, Gloucester County DPW	Not complete	No	-	-
MJ-5	Improve storm drainage at Harmony Road.	Municipal OEM, Gloucester County DPW	Completed – Funded by private warehouse company built on Harmony Rd	No	-	-
MJ-6	Improve storm drainage on Democrat Road.	Municipal OEM, Gloucester County DPW	Complete – County improvements	No	-	-
MJ-7	Fatal accidents at Kings Highway (County Route 551) and Tomlin Station Road (County Route 664).	Municipal OEM, Gloucester County DPW	Complete – County and municipal funded	No	-	-
MJ-8	Fatal accidents at Kings Highway and Wolfert Station Road.	Municipal OEM, Gloucester County DPW	In progress – County/municipal	No	-	-
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current	Municipal OEM	Ongoing Capability through social media and printed media - municipal	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	hazards and risks • Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.					
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability – as drainage issues arise, the Township addresses when they do roadway improvements.	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability	No	-	-
M-5	Install permanent backup emergency power at East Greenwich Fire Department on Cohawkin Road (CF-6).2	East Greenwich Fire Company	Complete – Funded by EG Fire Department	No	-	-
M-6	Install permanent backup emergency power at Public Works Well #3 (CF-18).	EG Public Works	In Progress – Municipal DPW	Yes	Lacks backup power	OEM and Engineer (2022- E Greenwich - 002)
M-7	Install permanent backup emergency power at Public Works Well #4 (CF-19).	EG Public Works	In progress – Municipal DPW	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-8	Install permanent backup emergency power at Toddlers N Tots Private Preschool (CF-26).	Toddlers N Tots	Completed – funded by school	No	-	-
M-9	Purchase tow for emergency generator.	EG Public Works	Complete – Municipal DPW	No	-	-
M-10	Purchase of portable backup emergency power generators for special needs groups.	EG Office of Emergency Management	In progress – in 2020 portable generators were purchased, and we are in the process of acquiring additional generators for the next few years.	Yes	Generators were used after June 2015 storm for special needs population	Municipal OEM
M-11	Purchase dog cages / kennels for evacuations.	EG Office of Emergency Management	Not completed	Yes	No historical need but identified as a need; dog kennels will be purchased in 2021, and in future years to have in the event they are needed.	Municipal OEM
M-12	Dredge stream behind Howard Drive.	-	Not completed	No	-	-
M-13	Upgrade drainage / cross drain at Friendship Road.	Municipal DPW	Not completed	Yes	Flooding of roadway; no historic losses	Municipal DPW
M-14	Install drainage system on Jessop Mill Road.	Municipal DPW	Completed	No	-	-
M-15	Purchase 6" bypass pump.	Municipal DPW	Completed	No	-	-
M-16	Purchase of road closure signs with stands.	Municipal DPW	Completed	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-17	Purchase sump pumps for flooded homes.	Volunteer Fire Department/Municipal OEM	Completed – the fire department purchased sump pumps to use in the event of basement flooding in the Township	No	-	-
M-18	Purchase of sandbags / barricades.	Municipal DPW	Complete	No	-	-
M-19	Address identified Repetitive Flood Loss Properties.	-	No Progress	Yes	The Township has repetitive loss properties	NFIP FPA (2022- E Greenwich -006)
M-20	Purchase chainsaws for tree removal.	Municipal DPW	Complete	No	-	-



### 9.4.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.4-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.4.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of East Greenwich participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.4-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion / Sea Level Rise	X	X								X
Dam / Levee Failure	X	X								X
Disease Outbreak	X	X								X
Drought	X	X								X
Earthquake	X	X								X
Extreme Temperature	X	X								X
Flood	X	X			X	X				X
Geologic	X	X								X
Hazardous Materials	X	X			X					X
Hurricane / Tropical Storm	X	X								X
Invasive and Nuisance Species	X	X								X
Nor'Easter	X	X								X
Severe Weather	X	X				X			X	X
Severe Winter Weather	X	X								X
Wildfire	X	X								X
Utility Failure	X	X				X				X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.4-16) summarizes the comprehensive range of specific mitigation initiatives the Township of East Greenwich 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 9.4-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.4-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-E Greenwich-001	Friendship Road	<b>Problem:</b> Friendship Road has drainage issues that leads to roadway flooding which causes road closures and prohibits access to this part of the Township. <b>Solution:</b> The Township will complete a redesign of the roadway and drainage system. Once design to complete, the Township will implement the design and upgrades to the roadway and drainage systems.	Existing	Severe Weather, Flood	1, 2	Through 2023	Township Engineer and DPW	Municipal Budget	Continuity of operations, safe road conditions, reduce flood damages	To be determined	Medium	SIP	PP, SP
2022- E Greenwich -002	Critical Facility Generators	<b>Problem:</b> Well 3 provides potable water to residents of the Township. It currently does not have a source of backup power in the event of a power outage. During long-term power outages, water supply from this well is limited. <b>Solution:</b> Purchase and install a 150kw natural gas generator at Well 3. This will provide continuity of operations during power outages.	Existing	Severe Weather, Hurricane/ Tropical Storm, Utility Failure	1, 2, 5, 6	Within 3 years	Township OEM and Engineer	FEMA HMGP, Municipal Budget	Continuity of operations; potable water during power outages	\$35,000+	High	SIP	PP, ES
2022- E Greenwich -003	Animal Sheltering Plan and Kennels	<b>Problem:</b> During a disaster, residents may need to stay in a municipal shelter; however, municipal shelters do not have proper equipment to house pets. <b>Solution:</b> The Township will develop an animal plan to identify steps in sheltering pets. In addition to the	Existing	Flood, Hurricane/ Tropical Storm, Nor'Easter, Severe Weather, Severe Winter	1	1 to 5 years	Township Council and OEM	Municipal Budget	Proper sheltering for residents and pets	\$5,000	Medium	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		plan, the Township will purchase the necessary equipment and materials to allow municipal shelters to include pets.		Weather, Utility Outages									
2022- E Greenwich -004	Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	6 months	Floodplain Administrator, Administration	Municipal Budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	High	LPR	PR
2022- E Greenwich -005	Municipal Debris Management Plan	<p><b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.</p>	Existing	All Hazards	5	1 year	Public Works, OEM	Municipal Budget	Increased planning for post-disaster response and cleanup.	Staff time	Medium	LPR	ES
2022- E Greenwich -006	RL/SRL Property Outreach	<b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss	Existing	Flood	1, 2	3 years	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open	\$1 million+	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		property. Other areas may be floodprone.  <b>Solution:</b> Conduct outreach to 17 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).							space for the municipality increasing flood storage.				
2022- E Greenwich -007	Traffic Studies	<b>Problem:</b> Roadway transportation and traffic in the Township leads to accidents. Some accidents involve hazardous materials which leads to road closures, clean-ups, and emergency response.  <b>Solution:</b> The Township will complete traffic studies and implement aggressive traffic enforcement of major roadways to reduce or prevent traffic incidents and reduce or prevent hazardous material incidents related to transportation.	Existing	Hazardous Materials	4	Within 5 years	Township Police, DPW, and OEM	Municipal Budget	Reduce traffic incidents and hazmat events; increase protection	\$3,000-\$5,000	Medium	LPR	PR, ES
2022- E Greenwich -008	Fire House Upgrade	<b>Problem:</b> There are currently two fire stations located in the Township. The Township received some funding to construct the station; however,	New	All	1, 2, 6	1 year	Township Council, Township Fire Department	FEMA Assistance to Firefighters	Increase capabilities; provide	\$500,000	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>additional funding is needed. The new station would house essential equipment and enhance the capabilities of the department to do their job and provide emergency services to the community.</p> <p><b>Solution:</b> The Township will seek additional funding to contribute towards the construction of a new fire house. The project is currently in design phase and will be put out to bid shortly. Once funding is received, the Township can construct a facility that will provide essential services, serve as a central location of emergency equipment, and allow firefighters to do their job properly.</p>							emergency services				

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-E Greenwich-001	Friendship Road	1	1	1	1	1	1	0	0	0	1	1	1	0	0	9	High
2022- E Greenwich -002	Critical Facility Generators	1	1	1	1	1	1	0	0	1	1	1	1	0	0	10	High 
2022- E Greenwich -003	Animal Sheltering Plan and Kennels	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
2022- E Greenwich -004	Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High



Project Number	Project 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
2022- E Greenwich -005	Municipal Debris Management Plan	1	1	1	1	1	0	0	0	0	0	1	1	0	0	7	Medium
2022- E Greenwich -006	RL/SRL Property Outreach	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High
2022- E Greenwich -007	Traffic Studies	1	1	1	1	0	0	0	0	0	1	1	1	1	0	8	Medium
2022- E Greenwich -008	Fire House Upgrade	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High 

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.4.8 Action Worksheets

The following action worksheets have been developed by the Township of East Greenwich to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.

Action Worksheet			
<b>Project Name:</b>	Critical Facility Generators		
<b>Project Number:</b>	2022-E Greenwich -002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Hurricane/Tropical Storm, Utility Failure		
<b>Description of the Problem:</b>	Well 3 provides potable water to residents of the Township. It currently does not have a source of backup power in the event of a power outage. During long-term power outages, water supply from this well is limited.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a 150kw natural gas generator at Well 3. This will provide continuity of operations during power outages.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; potable water during power outages
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$35,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP, Municipal Budget
<b>Responsible Organization:</b>	Township OEM and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000	Weather dependent; not enough power to run well for long-term outages
	Install permanent generator	\$35,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Critical Facility Generators	
<b>Project Number:</b>	2022-E Greenwich -002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide potable water for population during power outages
Property Protection	1	Allows pump to function properly
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	1	
Administrative	1	Administrative support to implement project
Multi-Hazard	1	Severe Weather, Hurricane/Tropical Storm, Utility Failure
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	RL/SRL Property Outreach		
<b>Project Number:</b>	2022-E Greenwich-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss property. Other areas may be floodprone.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 17 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	100-year flood but depends on project selected	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Depends on project selected	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	3 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties in floodprone areas	\$1 million+	Not all properties are susceptible to flooding; loss tax base
	Outreach and Mitigation	\$1 million+	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	RL/SRL Property Outreach	
<b>Project Number:</b>	2022-E Greenwich-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents from flooding
Property Protection	1	Reduce or eliminate flood damage to structures
Cost-Effectiveness	1	Benefits outweigh the costs
Technical	1	
Political	1	
Legal	1	Township has legal authority to implement this project
Fiscal	1	Township can fund outreach but will need grant funding for any mitigation actions
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



## 9.5 TOWNSHIP OF ELK

This section presents the jurisdictional annex for the Township of Elk and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Elk's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.5.1 Hazard Mitigation Planning Team

The Township of Elk followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Elk's hazard mitigation plan primary and alternate points of contact. 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 9.5-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Edward Selb, Emergency Management Coordinator Address: 80 Whig Lane, Monroeville, NJ 08343 Phone Number: 856-418-8700 Email: <a href="mailto:edselb1604ret@aol.com">edselb1604ret@aol.com</a>	Name/Title: Kevin Keen, 1 <sup>st</sup> Deputy Emergency Management Coordinator Address: 80 Whig Lane, Monroeville, NJ 08343 Phone Number: 856-889-9863 Email: <a href="mailto:kkeen96@comcast.net">kkeen96@comcast.net</a>
NFIP Floodplain Administrator	
Name/Title: Tony Dariano, Construction Code Official Address: 80 Whig Lane, Monroeville, NJ 08343 Phone Number: 856-881-6525 x 130 Email: <a href="mailto:tdariano@elktownshipnj.gov">tdariano@elktownshipnj.gov</a>	



Name	Title	Method of Participation
Edward Selb	Emergency Management Coordinator	Provided information on capabilities, status of previous actions, hazard ranking review, contributed to mitigation strategy

## 9.5.2 Municipal Profile

Elk Township, primarily known as an agricultural community, is made up of almost 20 square miles at the southern end of Gloucester County. It is easily accessed by major roadways in South Jersey including Route 55 and 47 that run north and south through the municipality. Elk Township was formed as a township by an act of the New Jersey Legislature on April 17, 1891, from portions of Clayton Township, Glassboro Township and South Harrison Township. The township was named for elk hunted in the area.

the township had a total area of 19.34 square miles, including 19.16 square miles of land and 0.18 square miles of water and borders Ewan Lake, Gilman Lake, and Silver Lake. Unincorporated communities, localities and place names located partially or completely within the township include Aura, Ferrell, Harding, Hardingville and Monroeville.

The municipality is governed under the township form of municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.

According to the U.S. Census, the 2010 population for the Township of Elk was 4,216. The estimated 2019 population was 4,135, a 1.9 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 3.0 percent of the population is 5 years of age or younger and 16.2 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.

## 9.5.3 Jurisdictional Capability Assessment and Integration

The Township of Elk performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities



- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.5.3). The updated mitigation strategy includes opportunities the Township of Elk identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.5.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Elk, what is present in the jurisdiction, and code citation and date.

*Table 9.5-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 54 – Uniform Construction Codes	State and Local	Construction Official and Zoning Officer
<i>How does this reduce risk?</i> Plans for future and updated risks that could occur from areas not previously developed. The Construction Official is the chief administrator for enforcing the code.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 96 – Unified Development, Municipal Code; adopted 9/7/2000	Local	Planning Board
<i>How does this reduce risk?</i> The purpose of this chapter is to regulate the nature and extent of the uses of land and of buildings and structures thereon for the purposes set forth in the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) and to exercise the power to zone and regulate land development granted to municipalities of the State of New Jersey. All land and every building in the Township must conform to this code. Plans for future and updated risks that could occur from areas not previously developed					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 96, Article VI – Subdivision and Site Plans, Municipal Code; adopted 9/7/2000	Local	Planning Board
<i>How does this reduce risk?</i> The ordinance states “no development shall take place within the Township nor shall any land be cleared or altered, nor any use or change in the use of any building or other structure, nor shall any watercourse be diverted or its channel or floodplain dredged or filled, nor shall any parking areas, accessory or otherwise, or accessways thereto, be constructed, installed or enlarged, nor shall any building permit, certificate of occupancy or other required permit be issued with respect to any such structure, land or parking area, except in accordance with an approval of such development granted pursuant to this section, unless exempted in accordance with § 96-23”. Plans for future and updated risks that could occur from areas not previously developed					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 86 – Stormwater Management, Municipal Code; adopted 8/3/2006	Local	Planning Board
<i>How does this reduce risk?</i> Controls the run-off from roadways and open land that could cause an impact of infrastructure. The purpose of this code is to establish minimum stormwater management requirements and controls for major development.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	No	Yes	-	State	-
<i>How does this reduce risk?</i> Offers of flood insurance and advisory notice of potentially hazardous area					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	Local	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 96, Article VI – Subdivision and Site Plans, Municipal Code; adopted 9/7/2000	Local	Planning Board
<i>How does this reduce risk?</i> Plans for future and updated risks that could occur from areas not previously developed					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 65 – Flood Damage Prevention, Municipal Code; adopted 12/3/2009	Federal, State, County and Local	Construction Code Official
<i>How does this reduce risk?</i> The purpose of this code is to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. The Construction Code Official is identified as the floodplain administrator and responsible for permit review, obtain and maintain information, and understanding the FIRM maps. For all new construction or substantial improvements, the lowest floor must be elevated to or above the BFE. The code also plans for future and updated risks that could occur from areas not previously developed.					
<b>Wellhead Protection</b>	Yes	No	Chapter 98 – Water, Municipal Code; adopted 10/6/2005	Local	Elk Township Municipal Utilities Authority
<i>How does this reduce risk?</i> Plans for future and updated risks that could occur from areas not previously developed					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes. Thorough review before issuing permits for construction.</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes.</li> <li>Does it contain natural overlay zones that set conditions? Yes</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? Unknown</li> <li>When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Comprehensive Master Plan, adopted 1978; Reexamination July 2016	Local	Land Use Board
<i>How does this reduce risk?</i>					
Plans for future and updated risks that could occur from areas not previously developed					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Chapter 86 Adopted 4/01/2021	Local	Public Works
<i>How does this reduce risk?</i>					
Controls the run-off from roadways and open land that could cause an impact of infrastructure					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Plan Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? Yes</li> <li>Is transportation policy used to guide growth to safe locations? yes</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Yes</li> <li>Are environmental systems that protect development from hazards identified and mapped? No</li> <li>Do environmental policies maintain and restore protective ecosystems? Unknown</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? Unknown</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	April 2021	Local	Office of Emergency Management
<i>How does this reduce risk?</i>					
Guidance and plans for response, recovery and future planning					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.5.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Elk to oversee and track development.

*Table 9.5-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	No	Submission of plan to joint land use board with public input and review
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Construction Department tracks.
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	-

### 9.5.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Elk and their current responsibilities which contribute to hazard mitigation.

*Table 9.5-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Combined Planning and Zoning Board of Adjustment reviews land development applications for



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		major and minor subdivisions and site plans, variances, and design change requests.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission Committee
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Committee
Public Works/Highway Department	Yes	The Public Works Department maintains the Township Owned Roadways, recreational fields, municipal buildings and properties, as well as managing waste and recycling services.
Construction/Building/Code Enforcement Department	Yes	The Construction Department enforces building codes and approves construction permits.
Emergency Management/Public Safety Department	Yes	Office of Emergency Management
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Police Department Early Warning System
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works maintains township-owned roadways, recreational fields, municipal buildings, and properties.
Mutual aid agreements	Yes	Neighboring fire departments
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Boch Planners & Associates
Engineers or professionals trained in building or infrastructure construction practices	Yes	Boch Planners & Associates
Planners or engineers with an understanding of natural hazards	Yes	Boch Planners & Associates
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Boch Planners & Associates; Construction Department
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	OEM Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Mitigate potential risk and survey for potential future risks.</li> </ul>		



### 9.5.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Elk.

*Table 9.5-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	no
Authority to levy taxes for specific purposes	Yes, tax increases
User fees for water, sewer, gas or electric service	N/A
Impact fees for homebuyers or developers of new development/homes	N/A
Stormwater utility fee	N/A
Incur debt through general obligation bonds	Yes, if required
Incur debt through special tax bonds	Yes, if required
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes, if allocated
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Limited due to property taxes</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.5.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Elk.

*Table 9.5-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Through County OEM
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Citizen boards or commissions that address issues related to hazard mitigation	Yes	OEM Working Group
Other programs already in place that could be used to communicate hazard-related information	Yes	Elk Township Newsletter
Warning systems for hazard events	Yes	Through County OEM
Natural disaster/safety programs in place for schools	Yes	-
Other	No	-

### 9.5.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Elk.

*Table 9.5-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	-	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	-	-	-
Sustainable Jersey	No	N/A	N/A
StormReady Certification	No	N/A	N/A
Firewise Communities classification	No	N/A	N/A

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.5.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.5-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion and Sea Level Rise	Moderate
Dam/ Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate





Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive Species	Moderate
Nor'Easter	Moderate
Severe Storm	Moderate
Severe Winter Storm	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.5.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.5-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 11</li> <li># RL properties: 1</li> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$4,887</li> <li># claims filed: 8</li> <li>Total loss payments: \$ 53,920.61</li> </ul>
Describe areas prone to flooding in your jurisdiction.	-
Do you maintain a list of properties that have been damaged by flooding?	-
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	-
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	-
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	-
<b>NFIP Administration</b>	



NFIP Topic	Comments
What local department is responsible for floodplain management?	Construction Code Official
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Permit review, understanding of BFE and floodway data, education and outreach to residents, and understanding FEMA maps
What specific training or support does your floodplain management staff need to support its floodplain management program?	-
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	-
Do you have access to resources to determine possible future flooding conditions from climate change?	-
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	8/2/1994
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 65 December 3, 2009
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"><li>If exceeds, in what ways?</li></ul>	The current ordinance does not meet the minimum state requirements for new construction or substantial improvements in the floodplain. It currently requires properties to have the first floor at or above the base flood elevation.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? <ul style="list-style-type: none"><li>If yes, is your jurisdiction interested in improving its CRS Classification?</li><li>If no, is your jurisdiction interested in joining the CRS program?</li></ul>	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.5.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.



Table 9.5-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	46	-	26	-	14	-	23	-	17	-	14	-
Multi-Family	-	-	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Total Permits Issued	46		26		14		23		17		14	
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												
None identified												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.5.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Elk's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Elk has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.5-1. Township of Elk Hazard Area Extent and Location Map 1

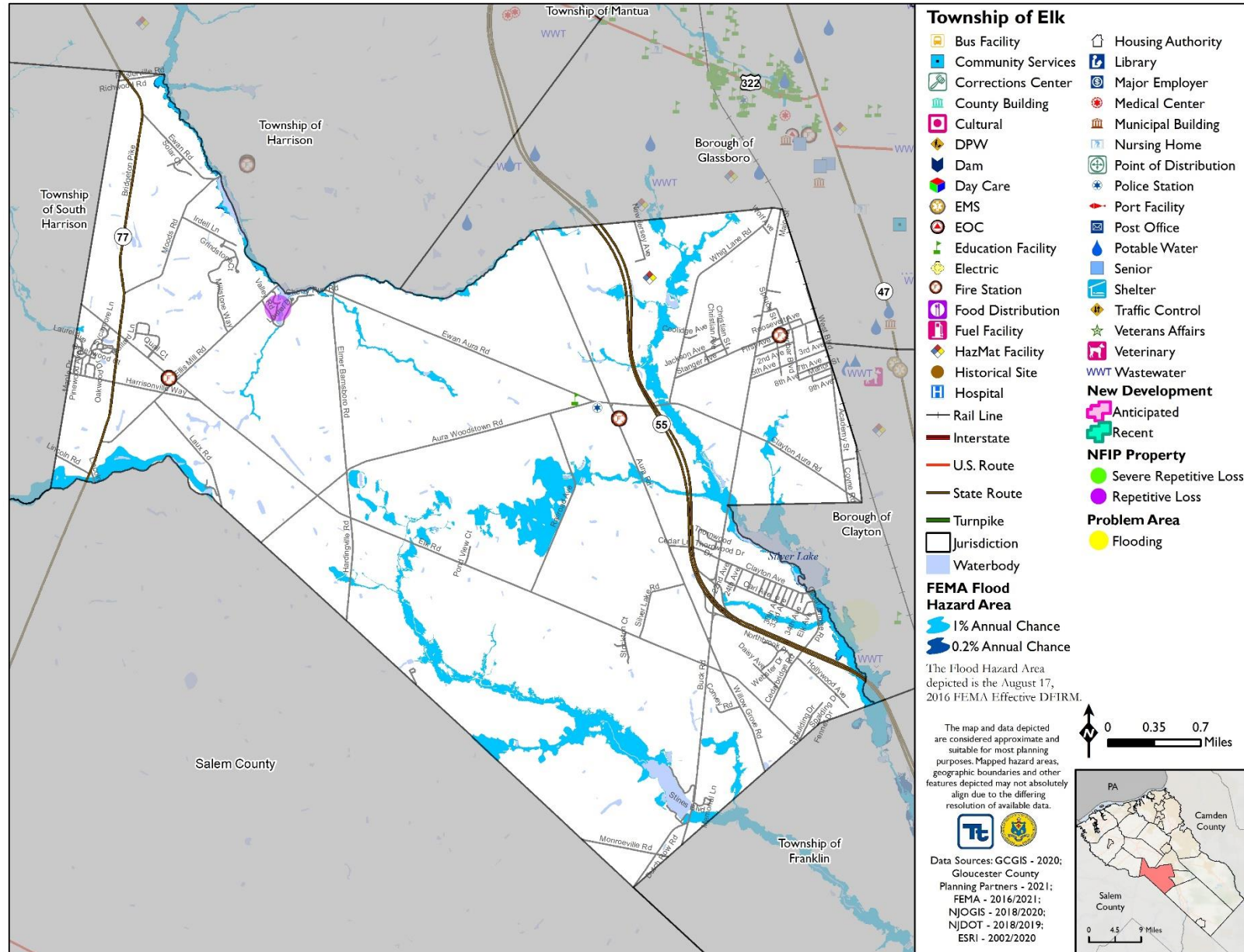






Figure 9.5-2. Township of Elk Hazard Area Extent and Location Map 2

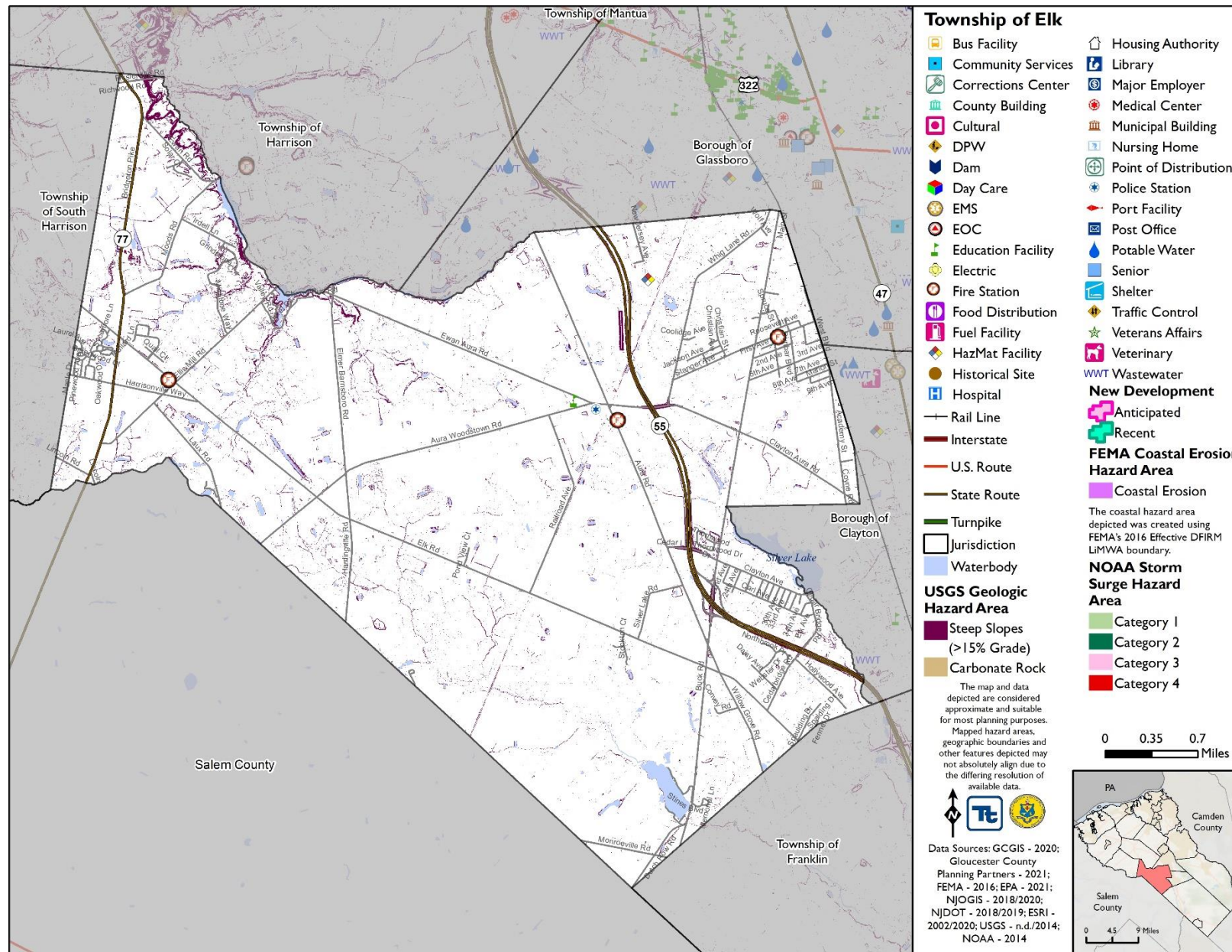




Figure 9.5-3. Township of Elk Hazard Area Extent and Location Map 3

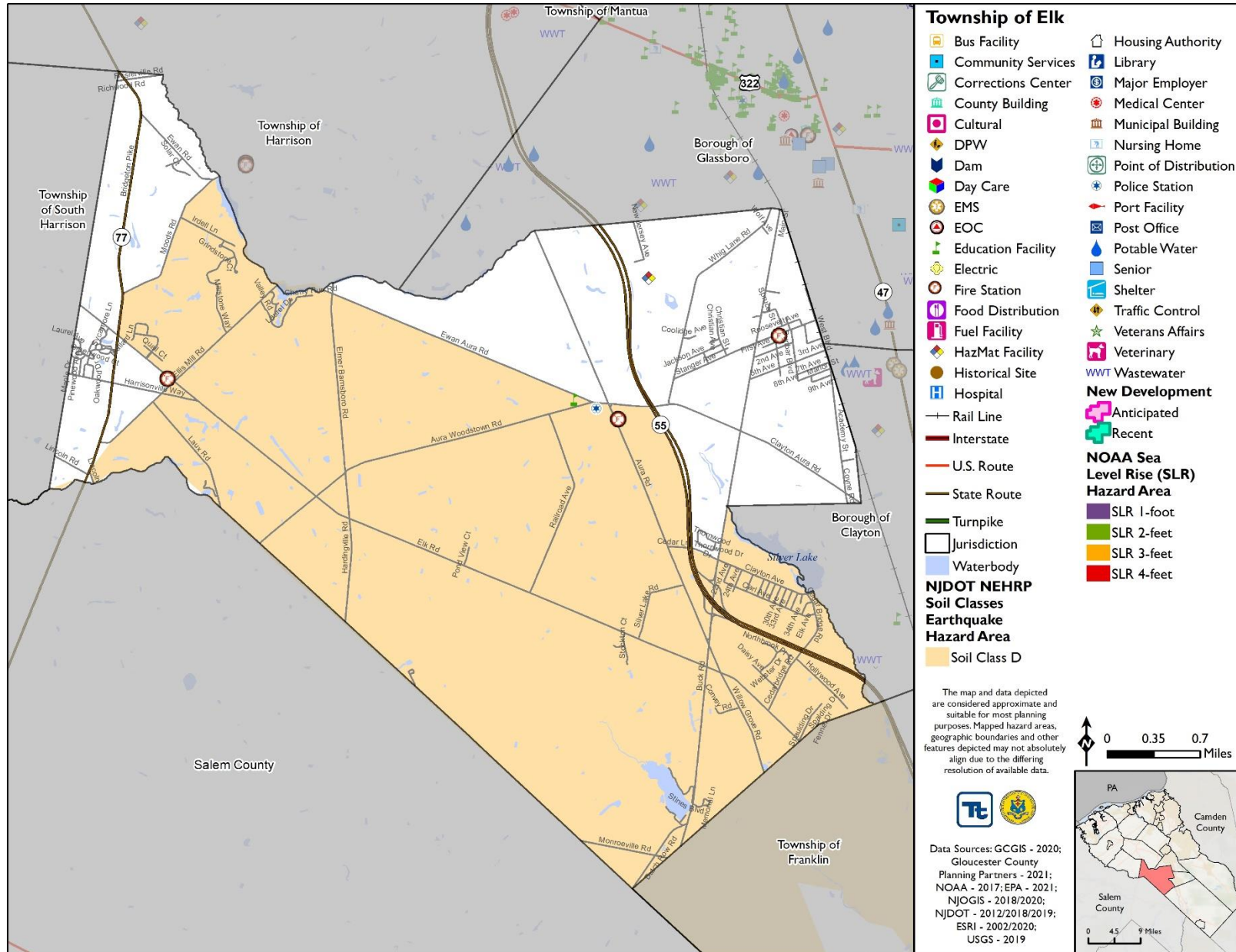
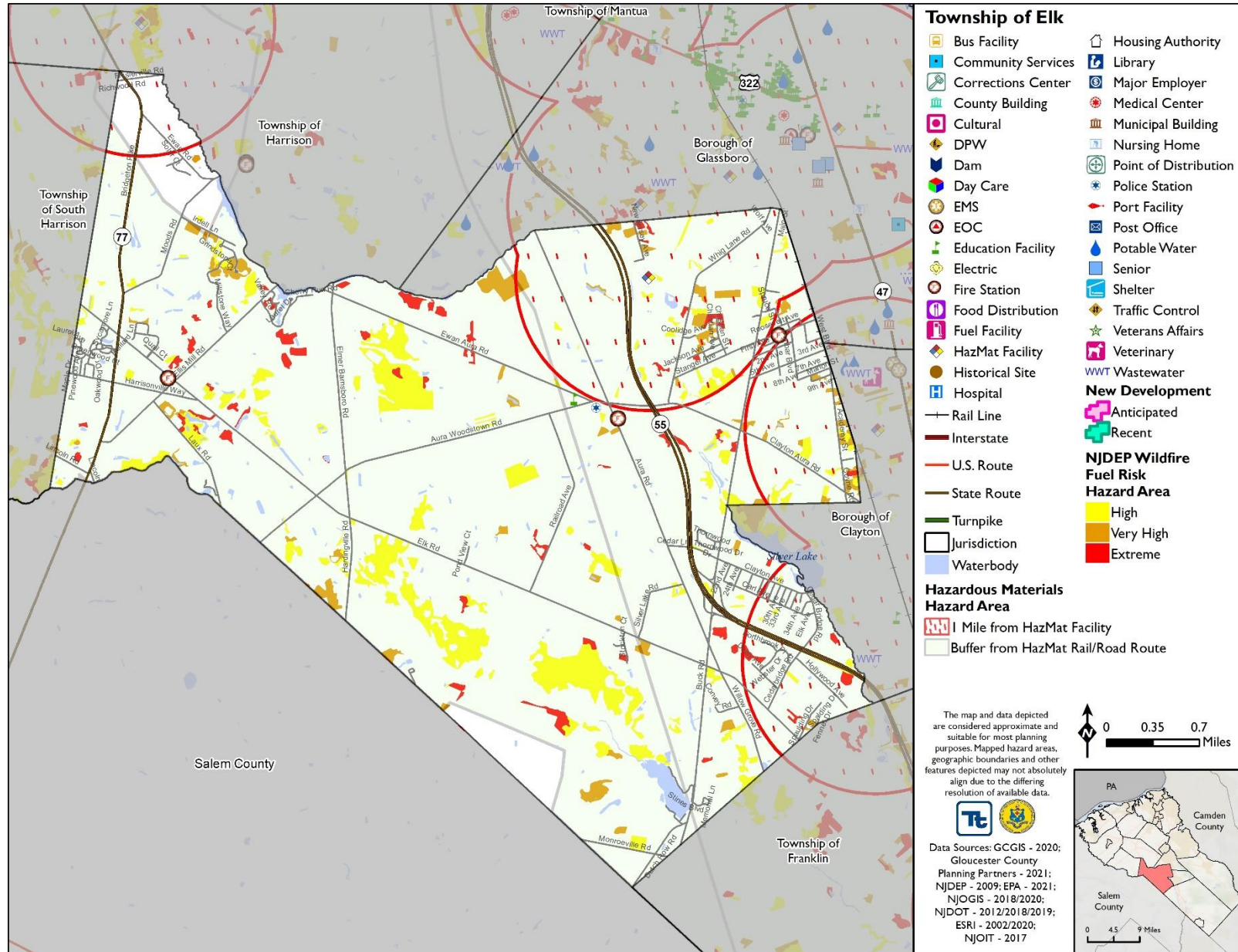






Figure 9.5-4. Township of Elk Hazard Area Extent and Location Map 4







### 9.5.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Elk's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.5-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	No significant impact
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	No significant impact
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	No significant impact
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	No significant impact
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	On-going coordination with Gloucester County and State of NJ. Police officer overtime due to COVID illness within police department.
September 1-3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with	No significant impact



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.5.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Elk's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Elk. The Township of Elk reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township agreed with the calculated rankings for the municipality.

Table 9.5-12. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Medium	Low	Medium	Low	Medium	Low	Low	High

Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Medium	High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.5-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.5.6.3 Identified Issues

After review of the Township of Elk's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Elk has identified the following vulnerabilities within their community:

- The Township's flood damage prevention ordinance requires update.
- The Township lacks a stand-alone Disaster Debris Management Plan.
- Lack of backup power for two fire stations.
- Dam replacement process for Lake Garrison has begun including engineering and funding.

Specific areas of concern based on resident response to the citizen survey include:

- Filled-in pond located on Hollywood Ave., surrounding area of pond floods.
- Flooding at end of street and basements throughout the street on Douglas in the Lawns section of Elk Twp.

## 9.5.7 Mitigation Strategy and Prioritization

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

### 9.5.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.5-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Determine current need and options for mitigation at Lake Garrison.	Municipal OEM, Lake Garrison Association, Gloucester County DPW, NJDEP	In Progress	Yes	Hazardous release of large volume on water if dam fails	Municipal OEM, Lake Garrison Association, Gloucester County DPW, NJDEP
MJ-2	Determine current need and options for mitigation at Lake Gilman.	Municipal OEM, Lake Gilman Association, Gloucester County DPW, NJDEP	In Progress	Yes	Hazardous release of large volume on water if dam fails	Municipal OEM, Lake Garrison Association, Gloucester County DPW, NJDEP
MJ-3	Risk assessment - Hackney Dam, 431 Richwood Road, County Road / Route 609.	Municipal OEM, Harrison Township	In Progress	Yes	Hazardous release of large volume on water if dam fails	Municipal OEM, Harrison Township Gloucester County DPW, NJDEP
MJ-4	Risk assessment - dam on Silver Lake on Route 608.	Municipal OEM, Clayton Borough	In Progress	Yes	Hazardous release of large volume on water if dam fails	Municipal OEM, Silver Lake Association, Clayton Borough Gloucester County DPW, NJDEP
MJ-5	Risk assessment - Ewan Lake Dam.	Municipal OEM, Harrison Township	In Progress	Yes	Hazardous release of large volume on water if dam fails	Municipal OEM, Harrison Township Gloucester County DPW, NJDEP
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current hazards and risks	Municipal OEM	Ongoing Capability	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	• Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.					
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	In Progress/Ongoing	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability	No	-	-
M-5	Install permanent backup emergency power generator at Fire Station 39-1 (CF-4).	Municipal OEM	In Progress	Yes	No Back-up generator, Lack of funds	Municipal OEM
M-6	Install permanent backup emergency power generator at Fire Station 39-2 (CF-5).	Municipal OEM and Fire Department	In Progress	Yes	No Back-up generator, Lack of funds	Municipal OEM
M-7	Follow-up with landowner of Hackney Dam located on Richwood Road and County Route 609 re: potential mitigation options.	Municipal OEM and Hackney Dam Owners	In Progress	Yes	Unable to locate owners of property	Municipal OEM and Hackney Dam Owners
M-8	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	Ongoing Capability	No	-	-



### 9.5.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.2-14, the Township of Elk identified the following mitigation efforts completed over the last five years:

- MJ-1, Update, 6/04/2021 Dam has been reviewed and certified for NJDEP Dam Management through 2021, 2022. Replacement needed. Failure may impact major county highway #553, north-south corridor through Gloucester/Salem Counties and further.
- Lake Gilman Dam is a high hazard dam and was replaced about 10 years ago

### 9.5.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Elk participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.5-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion / Sea Level Rise	X	X			X	X	X			X
Dam / Levee Failure	X	X			X	X	X			X
Disease Outbreak	X	X			X	X	X			X
Drought	X	X			X	X	X			X
Earthquake	X	X			X	X	X			X
Extreme Temperature	X	X			X	X	X			X
Flood	X	X		X	X	X	X			X
Geologic	X	X			X	X	X			X
Hazardous Materials	X	X			X	X	X			X
Hurricane / Tropical Storm	X	X			X	X	X			X
Invasive and Nuisance Species	X	X			X	X	X			X
Nor'Easter	X	X			X	X	X			X
Severe Weather	X	X		X	X	X	X			X
Severe Winter Weather	X	X			X	X	X			X
Wildfire	X	X			X	X	X			X
Utility Failure	X	X			X	X	X			X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.5-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Elk 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 9.5-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.





Table 9.5-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-T. Elk-001	Backup Power at Critical Facilities	<p><b>Problem:</b> The two fire stations in the Township do not have backup power – Aura Volunteer Fire Company and Ferrell Volunteer Fire Company. Both facilities provide essential services to the community. If backup power was available, the facilities could serve as heating/cooling centers for residents.</p> <p><b>Solution:</b> The Township will identify the appropriate size generators to purchase for both fire stations. Once identified, the natural gas generators will be purchased at installed.</p>	New	All	1, 2, 6	Within 1 year	Township Fire Department, Township Committee	FEMA HMGP and Assistance to Firefighters Grants, Municipal Budget	Ensures continuity of operations; provides a shelter for residents	\$50,000+	High	SIP	PP, ES
2022-T. Elk-002	Outreach Program Enhancement	<p><b>Problem:</b> The current education and outreach program in place consists of a municipal website and social media accounts. However, the current program is in need of enhancement and need the ability to reach out to residents without internet access.</p> <p><b>Solution:</b> The Township Office of Emergency Management will reevaluate the current</p>	New and Existing	All	1, 2, 3, 6	Within 6 months	Township Committee, Township Emergency Management	Municipal Budget	Increases education and outreach	Staff Time	High	LPR	PR, PI, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		outreach program and identify additional methods to use, including pamphlet distributions in tax bills. Information to include will focus on emergency preparedness for hazards of concern including hurricanes, tornadoes, and snowstorms.											
2022-T. Elk-003	Dam Feasibility Study	<p><b>Problem:</b> There are several dams located in the Township – Lake Garrison Dam, Hackney Dam and Ewan Lake Dam. All three dams are privately owned and identified as a significant hazard. The Township does not have details on the dams.</p> <p><b>Solution:</b> Working with the dam owners, the Township will initiate a feasibility study on the dams to provide technical information about the dams and provide guidance to the Township and owners to make decisions.</p>	Existing	Dam Failure	1, 2, 3, 7	Within 1 year	Township Engineer, Dam Owners, NJDEP if needed	HHPD Grant Program, NJDEP Dam Safety, Dam Owner	Identify any vulnerabilities of dams, increase awareness	\$10,000+	High	SIP	PP, ES
2022-T. Elk-004	Lake Garrison Dam	<p><b>Problem:</b> On June 4, 2021, the dam was reviewed and certified by NJDEP. It was determined that the dam needs to be replaced. If failure was to occur, it can impact County Highway 553, the north/south corridor through</p>	Existing	Dam/Levee Failure	1, 2, 3, 7	Within 5 years	Township Engineer, NJDEP, dam owner	FEMA HHPD, Municipal Budget	Protect areas located in the area of the dam	\$1 million	High	SIP	PP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>Gloucester and Salem Counties.</p> <p><b>Solution:</b> The Township will work with NJDEP to determine next steps in replacing Lake Garrison Dam. Once determined, the Township will work with the dam owner and NJDEP to replace the dam.</p>											
2022-T. Elk-005	Update Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	Existing	Flood	1, 2	6 months	Floodplain Administrator; Administration	Municipal budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff Time	Medium	LPR	PR, PI, ES
2022-T. Elk-006	Develop Debris	<b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.	New and Existing	All Hazards	5	6 months	Public Works, OEM	Municipal budget	Increased planning for post-disaster	Staff time	Medium	LPR	PR, PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
	Management Plan	<b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.							response and cleanup.				
2022-T. Elk-007	Floodprone Properties	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been flooded as documented by paid NFIP claims. While the Township does not have repetitive loss properties, there are other floodprone properties.</p> <p><b>Solution:</b> Conduct outreach to 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 acquisition/purchase/ moving/ elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).</p>	Existing	Flood, Severe Weather	1, 2	1 year	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, Municipal Budget, NJDEP Green Acres	Reduce/ eliminate flood losses	TBD Based on Identified Project	Medium	EAP. SIP	PP, PI

Notes:

Not all acronyms and abbreviations defined below are included in the table.



**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.5-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-T. Elk-001	Backup Power at Critical Facilities	1	1	1	1	1	1	0	0	0	1	1	1	0	0	9	⚠️ High
2022-T. Elk-002	Outreach Program Enhancement	1	1	1	1	1	1	1	0	0	1	1	1	0	0	10	⚠️ High
2022- T. Elk-003	Dam Feasibility Study	1	1	1	1	1	0	0	1	0	1	0	1	1	0	9	High
2022- T. Elk-004	Lake Garrison Dam	1	1	1	1	1	0	0	1	0	1	0	1	1	0	9	High
2022- T. Elk-005	Update Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	0	0	0	8	Medium
2022- T. Elk-006	Develop Debris Management Plan	1	1	1	1	1	1	1	0	0	1	0	0	0	0	8	Medium
2022- T. Elk-007	Floodprone Properties	1	1	1	1	1	0	0	0	0	1	1	1	0	0	8	Medium

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

⚠️ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.5.8 Action Worksheets

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The following action worksheets have been developed by the Township of Elk to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.





Action Worksheet			
<b>Project Name:</b>	Backup Power at Critical Facilities		
<b>Project Number:</b>	2022-T. Elk-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	The two fire stations in the Township do not have backup power – Aura Volunteer Fire Company and Ferrell Volunteer Fire Company. Both facilities provide essential services to the community. If backup power was available, the facilities could serve as heating/cooling centers for residents.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will identify the appropriate size generators to purchase for both fire stations. Once identified, the natural gas generators will be purchased at installed.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations; provides a shelter for residents
<b>Useful Life:</b>	15 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	As soon as funding is received
<b>Estimated Time Required for Project Implementation:</b>	Within 1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and Assistance to Firefighters Grants, Municipal Budget
<b>Responsible Organization:</b>	Township Fire Department, Township Committee	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000+	Weather dependent; not efficient for long term outages
	Install wind turbines	\$10,000+	Weather dependent; need space to install; maintenance
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Backup Power at Critical Facilities	
<b>Project Number:</b>	2022-T. Elk-001	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	Need funding
Environmental	0	
Social	0	
Administrative	1	Fire Department will be responsible for implementing
Multi-Hazard	1	All Hazards
Timeline	1	Within 1 year
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Floodprone Properties		
<b>Project Number:</b>	2022-T. Elk-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been flooded as documented by paid NFIP claims. While the Township does not have repetitive loss properties, there are other floodprone properties.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 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 acquisition/purchase/ moving/ elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	Depends on project selected	<b>Estimated Benefits (losses avoided):</b>	Reduce/eliminate flood losses
<b>Useful Life:</b>	Depends on project selected	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD based on Identified Project	<b>Mitigation Action Type:</b>	Education and Awareness Program, Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	As soon as funding is received
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, Municipal Budget, NJDEP Green Acres
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Acquire all properties	\$500,000+	Costly; not all properties need to be acquired
	Purchase portable flood walls to use around floodprone areas	\$25,000+	Costly; maintenance; installation and removal of floodwalls before and after flood events
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Floodprone Properties	
<b>Project Number:</b>	2022-T. Elk-007	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	0	Township does not have the legal authority to mitigate private properties; however, they have the authority to implement an outreach program
Fiscal	0	Need funding for mitigation projects
Environmental	0	
Social	0	
Administrative	1	Administrative capabilities to conduct outreach
Multi-Hazard	1	Flood, Severe Weather
Timeline	1	1 year
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



## 9.6 TOWNSHIP OF FRANKLIN

This section presents the jurisdictional annex for the Township of Franklin and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Franklin's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.6.1 Hazard Mitigation Planning Team

The Township of Franklin followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Franklin's hazard mitigation plan primary and alternate points of contact. 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 9.6-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Lt. Matthew Decesari, OEM Coordinator Address: 1571 Delsea Dr. Franklinville, NJ 08322 Phone Number: 856-694-1415 Email: mdecasari@franklintownship.com	Name/Title: Alexander Fragoso, Detective Address: 1571 Delsea Dr. Franklinville, NJ 08322 Phone Number: 856-694-1415 Email: afragoso@franklintownship.com
NFIP Floodplain Administrator	
Name/Title: Rosemary Flaherty, Zoning/Construction Official Address: 1571 Delsea Dr. Franklinville, NJ 08322 Phone Number: 856-694-1234 Email: zoning@franklintownship.com	



Name	Title	Method of Participation
Lt. Matthew Decesari	OEM Coordinator	Provided information, reviewed annex and provided feedback
Rosemary Flaherty	Zoning/Construction Official	Reviewed annex and provided feedback
Barbara Freijomil	Municipal Clerk	Reviewed annex and provided feedback
Robin Sarlo	Fiscal/CFO	Reviewed annex and provided feedback
Michael DePalma	Building Code Official	Reviewed annex and provided feedback
Larry Snodgrass	Public Works/Recycling Coordinator	Reviewed annex and provided feedback
Chief Brian Zimmer	Police Chief	Reviewed annex and provided feedback
Chief Dana DeCesari	Fire Chief	Reviewed annex and provided feedback

## 9.6.2 Municipal Profile

The Township of Franklin was incorporated on January 27, 1820 when 72,000 acres of portions of Woolwich and Greenwich Townships were combined. Glassboro, Clayton, Newfield, and Elk were originally part of this tract, but became independent municipalities by 1924. Farms, orchards, glasshouses, gristmills and saw mills were an important part of the economy. In 1861, the Woodbury-to-Glassboro rail line carried passengers and freight from Camden to Millville, and a short time later, to Cape May. Franklinville, Iona, Malaga, and Newfield had stations along the way. Today the Township of Franklin remains a semi-rural area with a mix of housing, businesses, farming, and open spaces.

According to the United States Census Bureau, the township had a total area of 56.39 square miles, including 55.83 square miles of land and 0.56 square miles of water. The Township is located approximately midway between Philadelphia and Atlantic City and is 56.8 square miles in size. The municipality is by definition a rural community. Significant amounts of open space, farmland, and underdeveloped, environmental sensitive land comprise the majority of the township. The township lies within the Jew Jersey Pinelands Preserve, severely limiting any development potential. Additionally, extensive significant wetlands, watersheds, and floodplains exist within the municipality which are aimed to be protected. Unincorporated communities, localities and place names located partially or completely within the township include Blue Bell, Downstown, Forest Grove, Franklinville, Fries Mills, Iona, Janvier, Lake, Malaga, Marsh Lake, Piney Hollow, Plainville, Star Cross and Porchtown.

The municipality is governed under the township form of municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.



According to the U.S. Census, the 2010 population for the Township of Franklin was 16,820. The estimated 2019 population was 16,440, a 2.3 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.3 percent of the population is 5 years of age or younger and 13.5 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.

## 9.6.3 Jurisdictional Capability Assessment and Integration

The Township of Franklin performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.6.3). The updated mitigation strategy includes opportunities the Township of Franklin identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.6.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Franklin, what is present in the jurisdiction, and code citation and date.

*Table 9.6-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	-	State and Local	-





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<i>By ensuring structures are safe and within regulation in case of emergency</i>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 253 – Land Development, Municipal Code, adopted 12/11/1979	Local	Planning Board
<i>How does this reduce risk?</i>					
<i>By ensuring the proper structure in zones that may be susceptible to storms or flooding</i>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Article IV Subdivision and Site Plan Review and Approval, Chapter 253 – Land Development, Municipal Code, adopted 12/11/1979	Local	Planning Board
<i>How does this reduce risk?</i>					
<i>To avoid overcrowding in areas that may be susceptible or vulnerable in emergencies</i>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 335 – Stormwater Control Within and Outside Pineland Zones, Municipal Code, adopted 3/12/2019	Local	Planning Board
<i>How does this reduce risk?</i>					
<i>Ensures that property owners are not putting other property owners at risk of flooding</i>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i>					
<i>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</i>					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Article IV Subdivision and Site Plan Review and Approval, Chapter 253 – Land Development, Municipal Code, adopted 12/11/1979	Local	Planning Board
<i>How does this reduce risk?</i>					
<i>To ensure properties are up to code</i>					
<b>Environmental Protection Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<i>Protects against harmful substances that can affect our environment</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 226 – Flood Damage Prevention, Municipal Code, adopted 11/10/2009	Federal, State, County and Local	Construction Code Official
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Helps property owners plan and mitigate towards best practices					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 38 – Emergency Management, Municipal Code, adopted 12/11/2007	Local	Emergency Management Coordinator
<i>How does this reduce risk?</i>					
Puts an entity in place that can track and mitigate incidents to avoid unneeded risk by the township					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
Other	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? Yes</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>• Do the regulations allow density transfers where hazard areas exist? Unknown</li> <li>• When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Master Plan, adopted 2004; Reexamination 2011	Local	Planning Board
<i>How does this reduce risk?</i>					
Allows for documented procedures to follow for land use to reduce risk					
<b>Capital Improvement Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, February 2006	County and Local	Gloucester County Improvement



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
					Authority, Franklin Township
<i>How does this reduce risk?</i> Ensures that property owners are not putting other property owners at risk of flooding					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, February 2006	County and Local	Gloucester County Improvement Authority, Franklin Township
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	Yes	No	Gloucester County Farmland Preservation Plan, Updated 2015	County and Local	Gloucester County Agriculture Development Board; Franklin Township Planning Board
<i>How does this reduce risk?</i> Helps preserve protected areas					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning</b>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Emergency Operations Plan</b>	Yes	Yes	-	Local	OEM
How does this reduce risk? Documented plans that will be followed during emergency					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
How does this reduce risk?					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
How does this reduce risk?					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Public Health Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Other</b>	No	No	-	-	-

### 9.6.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Franklin to oversee and track development.

*Table 9.6-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? • If yes, what department is responsible? • If no, what is your process for development?	Yes	Zoning/Construction
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain development permits
Do you have a buildable land inventory? • If yes, describe. • If no, quantitatively describe the level of buildout in the jurisdiction.	No	Township has plenty of open space

### 9.6.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Franklin and their current responsibilities which contribute to hazard mitigation.

*Table 9.6-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planning Board	Yes	The Planning & Zoning Board provides direction on various land use issues including adjusting lot lines, preparing properties for subdivision and development, and processing requests for use and density variances.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The Franklin Environmental Commission creates natural resource inventories, review planning and zoning applications to determine if any conditions exist on the property (such as wetlands) could affect the development, and obtain grants to help with a variety of "green" projects.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The Economic Development Committee seeks ways to bring businesses to Franklin and retain existing businesses. The Committee is also responsible for redevelopment of abandoned buildings.
Public Works/Highway Department	Yes	The Public Works Department is responsible for trash collection, recycling, and maintenance of township roads.
Construction/Building/Code Enforcement Department	Yes	The Construction Department is responsible for permitting, inspecting, and monitoring many building and construction projects, including new / temporary buildings, additions, renovations, and demolitions.
Emergency Management/Public Safety Department	No	Consists of 3 members of the Franklin Township Police Department
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Franklin Township utilizes Alert Center for notifications about severe weather, road closures, and other emergencies.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Public Works Department is responsible for this action.
Mutual aid agreements	Yes	Gloucester County EMS
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Township hires an engineering firm for matters like these.
Engineers or professionals trained in building or infrastructure construction practices	Yes	See above
Planners or engineers with an understanding of natural hazards	Yes	See above
Staff with expertise or training in benefit/cost analysis	No	-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Township hires firms to assist with this
Emergency Manager	Yes	Lt. Matthew DeCesari
Grant writer(s)	Yes	Nancy Kennedy Brent
Resilience Officer	Yes	Two officers within the police department
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

### 9.6.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Franklin.

*Table 9.6-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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	No
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Rosemary Flaherty</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Rosemary Flaherty</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. Rosemary Flaherty</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Rosemary Flaherty</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Rosemary Flaherty</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Rosemary Flaherty</li> </ul>	



### 9.6.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Franklin.

*Table 9.6-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Lt. Matthew DeCesari
Personnel skilled or trained in website development	Yes	Sara Thurston
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	Franklin Township Newsletter
Warning systems for hazard events	Yes	Alert Center Emergency Alerts
Natural disaster/safety programs in place for schools	Yes	School Safety Plans updated yearly
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"> <li>The Township can use their website and social media accounts to</li> </ul>		

### 9.6.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Franklin.

*Table 9.6-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Sustainable Jersey	No	Registered	4/14/2009
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable





### 9.6.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.6-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazardous Materials	Moderate
Hurricane/Tropical Storm	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor’Easter	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Moderate
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.6.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.6-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 21</li> <li># RL properties: 1</li> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$8,424.00</li> <li># claims filed: 10</li> <li>Total loss payments: \$106,634.97</li> </ul>



NFIP Topic	Comments
(elevation or acquisition and funding source: N/A)	
Describe areas prone to flooding in your jurisdiction.	Oak Ave/Greenwood Ave.
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	<ul style="list-style-type: none"> <li>Assistance from county OEM</li> <li>None to my knowledge</li> </ul>
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	N/A
<ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Planning Board
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Planning Board and hired engineers
What specific training or support does your floodplain management staff need to support its floodplain management program?	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Handled by the construction office
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	1/12/1995
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 226</li> <li>November 10, 2009</li> </ul>
Does your floodplain management program meet or exceed minimum requirements?	Meets
<ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS?	No – the Township is not interested in joining the CRS program at this time
<ul style="list-style-type: none"> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> </ul>	



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.6.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.6-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	13	-	8	-	5	-	13	-	14	-	20	-
Multi-Family	-	-	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Total Permits Issued	979	-	848	-	706	-	643	-	670	-	419	-
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												
None identified												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.6.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Franklin's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.



Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Franklin has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.6-1. Township of Franklin Hazard Area Extent and Location Map 1

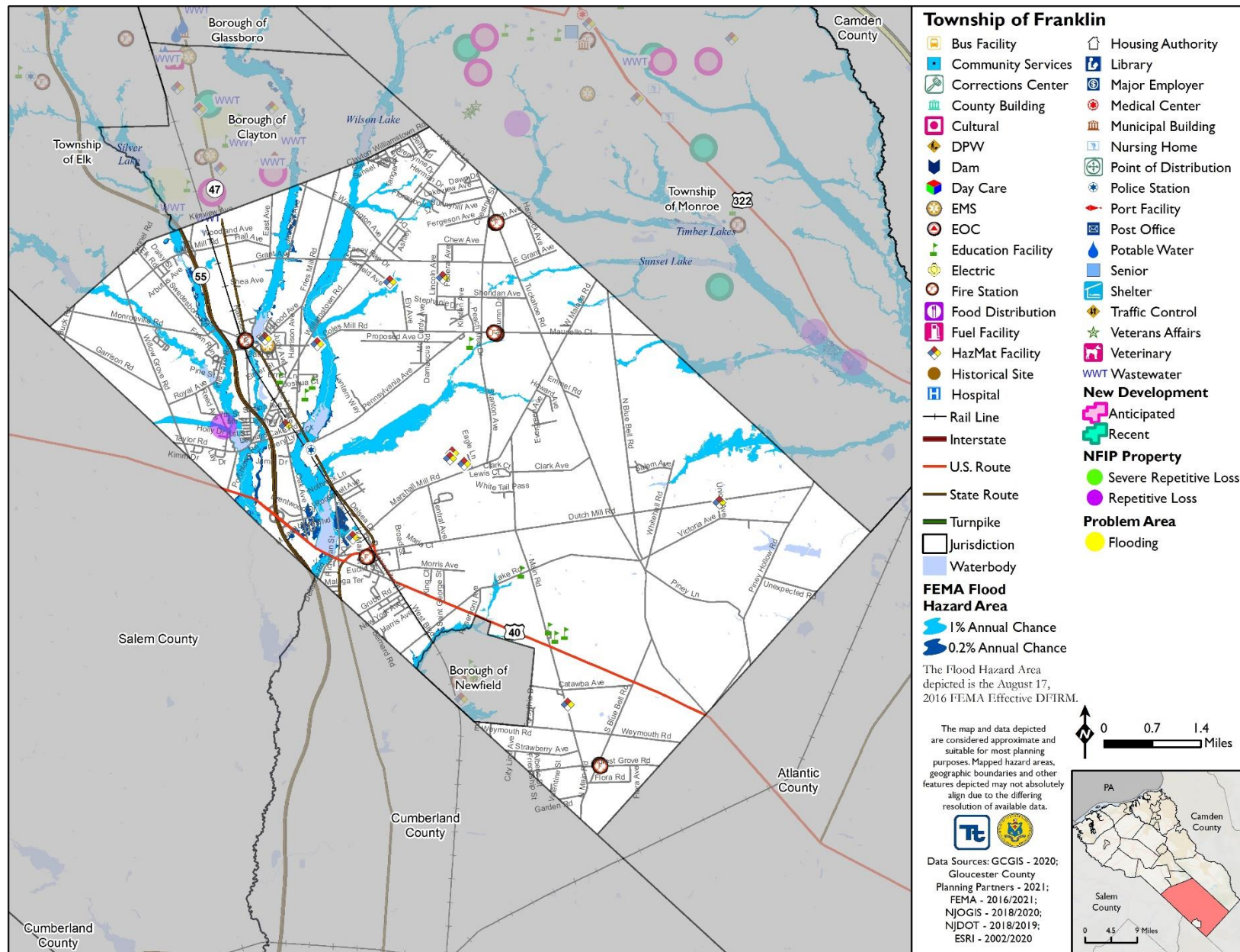






Figure 9.6-2. Township of Franklin Hazard Area Extent and Location Map 2

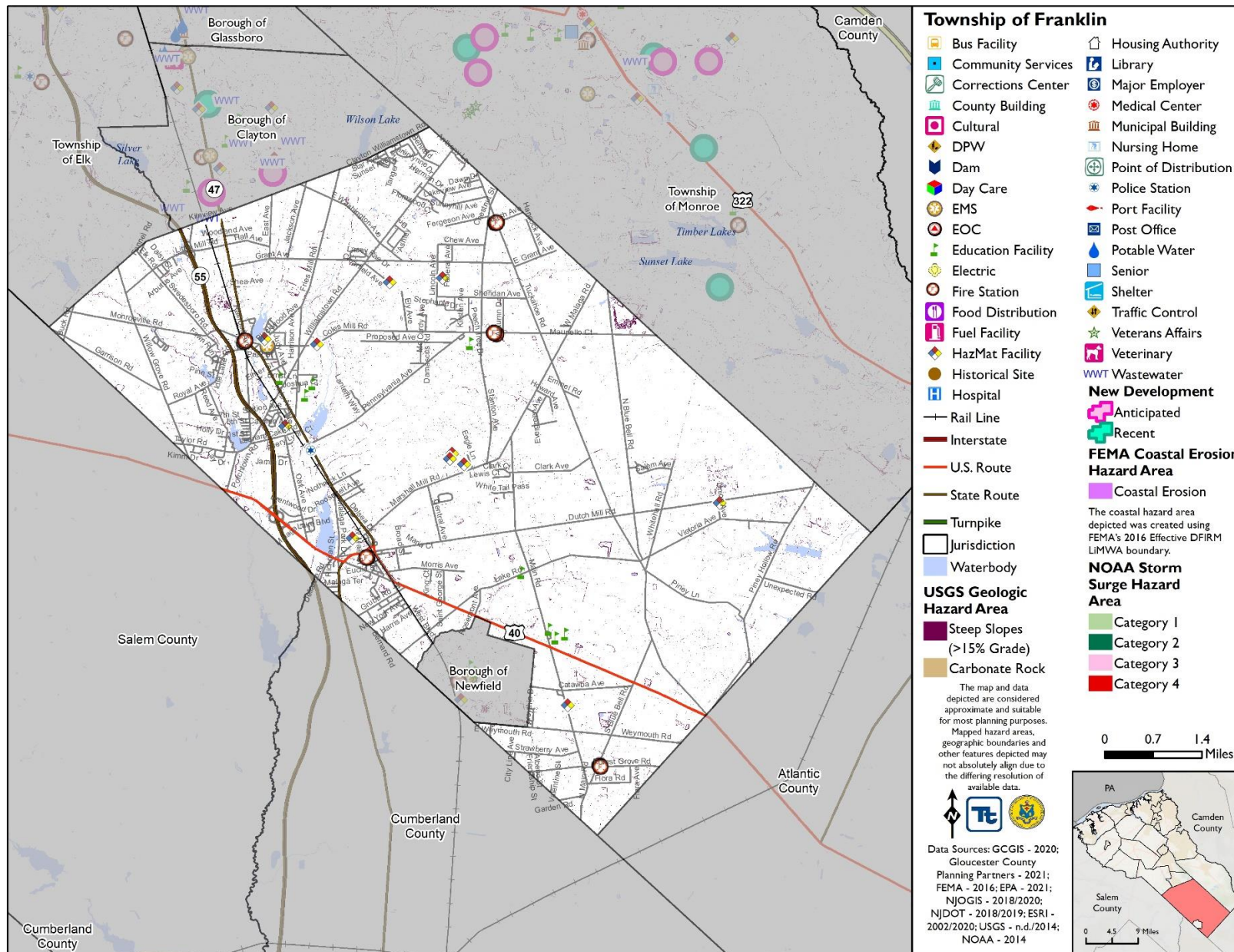




Figure 9.6-3. Township of Franklin Hazard Area Extent and Location Map 3

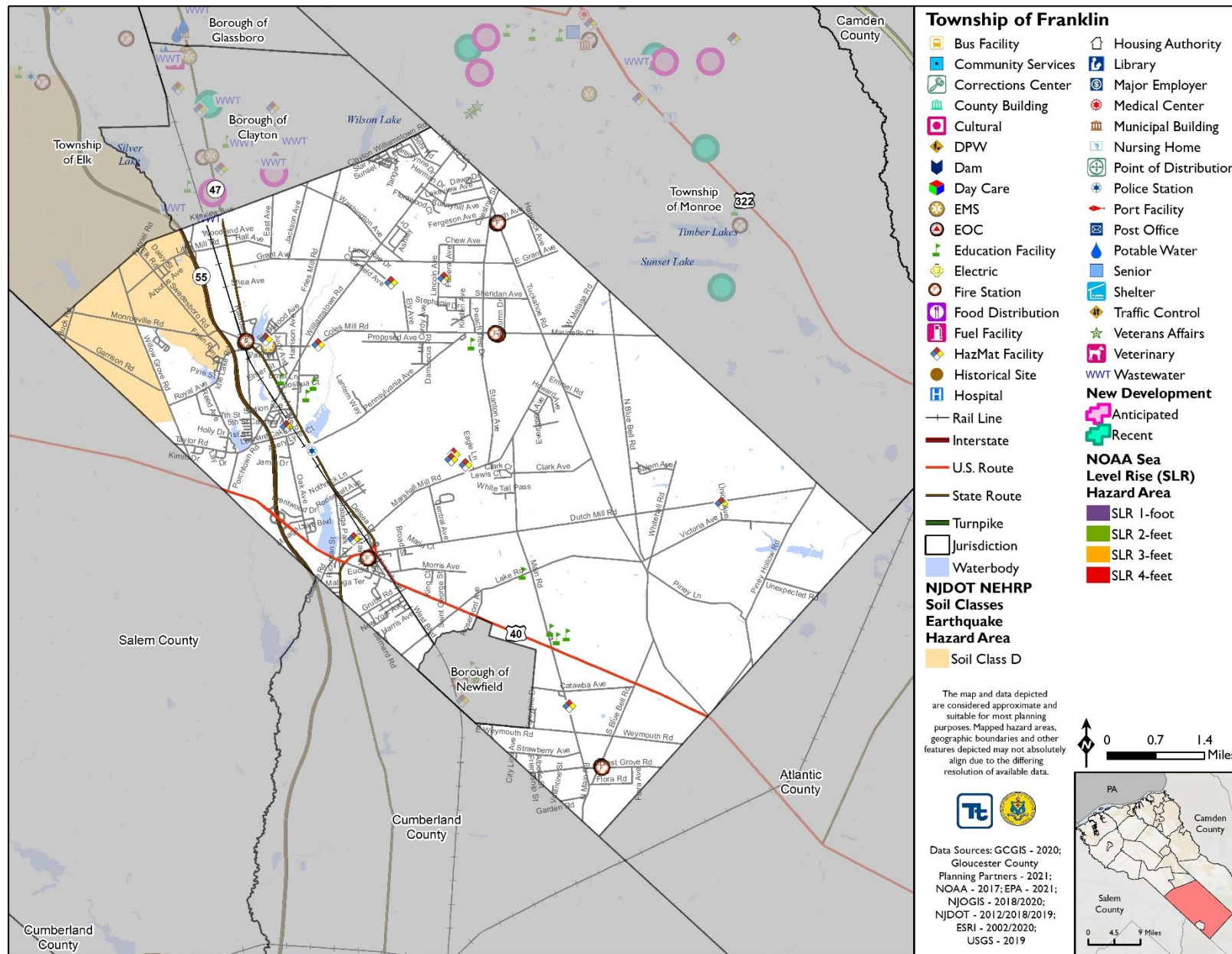
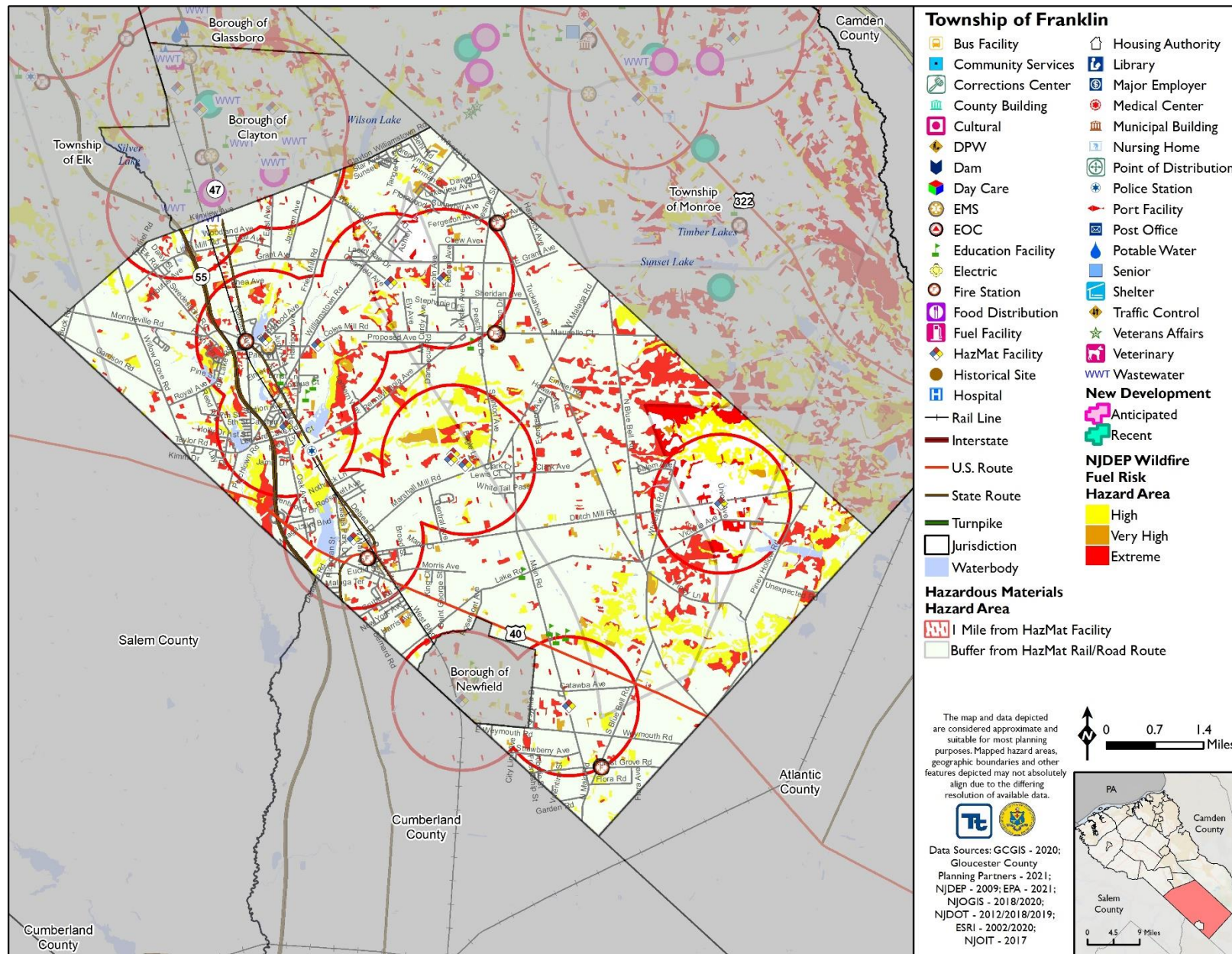






Figure 9.6-4. Township of Franklin Hazard Area Extent and Location Map 4





### 9.6.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Franklin's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.6-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Township did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Township did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Township did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Township did not report damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Losses incurred during the pandemic included monetary values associated with purchasing PPE and staffing.
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid	No reported damages or losses



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.6.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Franklin's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Franklin. The Township of Franklin reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township agreed the calculated rankings for the community.

Table 9.6-12. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Medium	Low	Medium	Low	Medium	Low	Low	High
Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure		



Low	Low	Medium	High	Medium	Medium	Medium
-----	-----	--------	------	--------	--------	--------

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.6-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.6.6.3 Identified Issues

After review of the Township of Franklin's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Franklin did not identify any additional vulnerabilities within their community.

Specific areas of concern based on resident response to the citizen survey include:

- Our street (Oak Ave in Malaga) floods badly during storms.
- We lost our dam on Idle Acres Lake during Hurricane Irene. This was due to a breach in Elephant Swamp. The dam at the old campground on Delsea Drive has been out for years. I worry that these older structures will once again cause issues for our Lake.

## 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 indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.6-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-4	Improve storm drainage on Morris Avenue at State Route 40 (evacuation route).	Municipal OEM, NJDOT	No Progress	No	-	-
MJ-5	Alleviate flooding at West Boulevard & State Route 40.	Municipal OEM, NJDOT	No Progress	No	-	-
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current hazards and risks • Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.	Municipal OEM	Ongoing Capability	No	-	-
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability	No	-	-
M-5	Install permanent backup emergency power generator to Municipal Hall (CF-1).	Municipal OEM	Completed	No	-	-
M-6	Install permanent backup emergency power generator to Public Works Facility (CF-10).	Municipal OEM	Completed	No	-	-
M-7	Install permanent backup emergency power generator to Community Center (CF-16).	Municipal OEM	Completed	No	-	-
M-8	Engineering study to assess risk and maintenance of Franklinville Lake Dam.	Municipal OEM	Completed	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-9	Upgrade drainage system on Lay Drive.	Municipal OEM	No Progress	Yes	The drainage system along Lay Drive is inadequate in size and becomes inundated when at full capacity.	DPW, Engineer (2022-Franklin-004)
M-10	Upgrade drainage and retention system on University Street.	Municipal OEM	No Progress	Yes	The drainage system University Street is inadequate in size and becomes inundated when at full capacity. Drainage and retention systems are in need of upgrades.	DPW, Engineer (2022-Franklin-005)
M-11	Upgrade drainage system on Sunny Hill Drive.	Municipal OEM	Completed	No	-	-
M-12	Upgrade drainage system on Forrest Grove Road.	Municipal OEM	Completed	No	-	-
M-13	Address identified Repetitive Flood Loss Properties.	Municipal OEM	Ongoing Capability	No	-	-
M-14	Envelope hardening/secure roof ballast of shelter (Regional High School) (CF-15).	Municipal OEM	Completed	No	-	-
M-15	Hazard threat assessment related to chlorine carrying freight rail carriers.	Municipal OEM	In Progress	No	-	-
M-16	Hazard threat assessment related to Arrow Crop Service Airport and hazardous materials on site.	Municipal OEM	No Progress	No	-	-
M-17	Modify building materials, revisit response and evacuation plans, firelanes and education for populations in the Pinelands.	Municipal OEM and Fire Departments	Ongoing Capability	No	-	-



### 9.6.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.6-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.6.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

A mitigation action workshop was held in August 2021 and during the meeting, participants were provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.6-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise	X									X
Dam Failure/Levee Failure	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Extreme Temperatures	X									X
Flood	X	X	X		X	X		X	X	X
Geological Hazards	X									X
Hazardous Materials	X									X
Hurricane/Tropical Storm	X	X	X			X		X	X	X
Invasive Species/Harmful Algal Bloom	X									X
Nor'Easter	X	X	X			X		X	X	X
Severe Weather	X	X	X			X		X	X	X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X									X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.6-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Franklin 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 9.6-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.6-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Franklin-001	Flood Damage Prevention Ordinance	<b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.  <b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.	New	Flood	1, 2	6 months	Floodplain Administrator, Township Administration	Township budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	High	LPR	PR
2022-Franklin-002	Municipal Debris Management Plan	<b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.  <b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.	Existing	All Hazards	5	1 year	Public Works, OEM	Township budget	Increased planning for post-disaster response and cleanup.	Staff time	Medium	LPR	ES
2022-Franklin-003	RL/SRL Property Outreach	<b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss property. Other areas may be floodprone.	Existing	Flood, Severe Weather	1, 2	3 years	Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality	\$1 million+	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Conduct outreach to 21 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).							increasing flood storage.				
2022-Franklin-004 (previous action)	Drainage System Upgrades on Lay Drive	<b>Problem:</b> The drainage system along Lay Drive is inadequate in size and becomes inundated when at full capacity. <b>Solution:</b> The Township will complete a stormwater drainage design plan to determine what improvements and upgrades are needed. Once the plan is complete and projects are identified, the Township will begin the upgrades.	New and Existing	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather	1, 2, 5	5 years	Township DPW, Township Engineer	NJ Environmental Infrastructure Financing Program, Municipal Budget	Increase system capacity; reduce damages	Staff Time	Low	SIP, NSP	PP, SP, NR
2022-Franklin-005 (previous action)	Drainage and Retention System on University Street	<b>Problem:</b> The drainage system University Street is inadequate in size and becomes inundated when at full capacity. Drainage and retention systems are in need of upgrades. <b>Solution:</b> The Township will complete a stormwater drainage and retention system design plan to determine what improvements and upgrades are needed. Once the plan is complete and	New and Existing	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather	1, 2, 5	5 years	Township DPW, Township Engineer	NJ Environmental Infrastructure Financing Program, Municipal Budget	Increase system capacity; reduce damages	Staff Time	Low	SIP, NSP	PP, SP, NR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		projects are identified, the Township will begin the upgrades.											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-Franklin-001	Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	1	0	10	High
2022-Franklin-002	Municipal Debris Management Plan	1	1	1	1	0	0	0	0	0	1	1	1	1	0	8	Medium
2022-Franklin-003	RL/SRL Property Outreach	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High
2022-Franklin-004 (previous action)	Drainage System Upgrades on Lay Drive	1	1	0	0	0	0	0	0	0	1	1	0	0	0	4	Low
2022-Franklin-005 (previous action)	Drainage and Retention System on University Street	1	1	0	0	0	0	0	0	0	1	1	0	0	0	4	Low

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.6.8 Action Worksheets

The following action worksheets have been developed by the Township of Franklin to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	RL/SRL Property Outreach		
<b>Project Number:</b>	2022-Franklin-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss property. Other areas may be floodprone.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 21 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard (in accordance with flood ordinance)	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	3 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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:	RL/SRL Property Outreach	
Project Number:	2022-Franklin-003	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	1	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood, Severe Weather
Timeline	1	3 years
Agency Champion	0	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	



## 9.7 BOROUGH OF GLASSBORO

This section presents the jurisdictional annex for the Borough of Glassboro and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Glassboro's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.7.1 Hazard Mitigation Planning Team

The Borough of Glassboro followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Glassboro's hazard mitigation plan primary and alternate points of contact. 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 9.7-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Jack Manning, OEM Coordinator Address: 1 South Main St., Glassboro Phone Number: 856-881-9230 ext. 88190 Email: <a href="mailto:jmanning@glassboropd.org">jmanning@glassboropd.org</a>	Name/Title: Zachary Heard, Deputy OEM Coordinator Address: 1 South Main St., Glassboro Phone Number: 856-881-9230 ext. 88152 Email: <a href="mailto:zheard@glassboro.org">zheard@glassboro.org</a>
NFIP Floodplain Administrator	
Name/Title: Terri Fanfarillo, Construction Code Office Coordinator Address: 1 South Main St., Glassboro Phone Number: (856) 881-9230 Ext. 88310 Email: <a href="mailto:Tfanfarillo@glassboro.org">Tfanfarillo@glassboro.org</a>	



Name	Title	Method of Participation
Jack Manning	OEM Coordinator	Point of contact for annex; part of the planning partnership; reviewed annex and provided input; identified mitigation actions; reviewed and provided feedback on annex
Clark Pierpont	Code Official	Attended meetings; reviewed annex and provided input; identified mitigation actions; reviewed and provided feedback on annex
Karyn Paccione	CFO	Attended meetings; reviewed annex and provided input; identified mitigation actions; reviewed and provided feedback on annex
Roy Cook	Water and Sewer Asst. Superintendent	Attended meetings; reviewed annex and provided input; identified mitigation actions
Teresa Fanfarillo	Code Office Adm. Asst.	Attended meetings; reviewed annex and provided input; identified mitigation actions
Edward Malandro	Administrator	Reviewed and provided feedback on annex
Chip Clark	Public Works Superintendent	Reviewed and provided feedback on annex
John Polillo	Police Chief	Reviewed and provided feedback on annex

## 9.7.2 Municipal Profile

Glassboro has a rich history in the manufacturing of glass. Established in 1779 by Solomon Stanger, the town was first known as "Glass Works in the Woods." Over the years, the glass factory changed ownership many times. During the 1840's, the factory was under the ownership of the Whitney Brothers and Glassboro became one of the largest communities in Gloucester County with a blacksmith, wheelwright, carpenter, shoemaker, and mason. During the twentieth century the factory was relocated from the center of the town and changed its focus from glass manufacturing to the production of metal closures for glass and metal containers. Then in 1923, Glassboro gained recognition, as it became the home of the New Jersey Normal School, later to become Glassboro State College, presently known as Rowan University.

According to the United States Census Bureau, the borough had a total area of 9.36 square miles, including 9.32 square miles of land and 0.04 square miles of water. Major routes that pass through the municipality include route 55, 47, and 322. Unincorporated communities, localities and place names located partially or completely within the borough include Elsemere.

The municipality is governed under the borough form of municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Glassboro was 18,579. The estimated 2019 population was 19,826, a 6.3 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 4.8 percent of the population is 5 years of age or younger and 12.1 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 Jurisdictional Capability Assessment and Integration

The Borough of Glassboro performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.7.3). The updated mitigation strategy includes opportunities the Borough of Glassboro identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.7.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Glassboro, what is present in the jurisdiction, and code citation and date.

*Table 9.7-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 203 – Uniform Construction Codes	State and Local	Code Enforcement
<i>How does this reduce risk?</i> The Construction Official shall be the chief administrator of the enforcing agency. The Borough's Construction and Codes Office enforces the building code which protects the health and safety of tenants and the general public. Construction Officials will be directly responsible for the daily oversight and administration of the Department of Code Enforcement, Planning, and Zoning.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 107 – Development Regulations	Local	Planning Board, Zoning Board of Adjustment



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
			and Zoning, Municipal Code, adopted 12/14/1976		
<p><i>How does this reduce risk?</i></p> <p>The purpose of this code is to establish a pattern for land development based on the Master Plan and to effectuate the Master Plan and is enacted in order to encourage municipal action to guide the appropriate development of land in a manner which will promote the public health, safety, morals and general welfare of the people. This code is intended to secure safety from fire, flood, panic and other natural and man-made disasters; provide adequate light, air and open space; avoid a conflict with the development and general welfare of neighboring municipalities, the county and state; establish appropriate population densities and concentrations contributing to the well-being of persons, neighborhoods, communities and regions and the preservation of the environment; provide sufficient space for residential, recreational, commercial and industrial uses and open space; encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities and routes which result in congestion or blight; promote a desirable visual environment; promote the conservation of open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land; provide procedures for planned developments which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site; encourage coordination of various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land; promote the conservation of energy; and provide for maximum utilization of renewable energy resources.</p>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 107 – Development Regulations and Zoning, Municipal Code, adopted 12/14/1976	Local	Planning Board, Zoning Board of Adjustment
<p><i>How does this reduce risk?</i></p> <p>Refer to the Zoning/Land Use Code above.</p>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Article X – Stormwater Control, Chapter 107 – Development Regulations and Zoning, Municipal Code, adopted 7/25/2006	Local	Planning Board, Zoning Board of Adjustment
<p><i>How does this reduce risk?</i></p> <p>The purpose of this article is to establish minimum stormwater management requirements and controls for major development. It applies to non-residential major development and aspects of residential major developments that are not preempted by the Residential Site Improvements Standards at N.J.A.C. 5:21. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	Yes	No	Chapter 241 – Emergency Response, Municipal Code, adopted 4/22/2008	Local	OEM, Administration
<p><i>How does this reduce risk?</i></p>					
<b>Real Estate Disclosure</b>	No	-	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Growth Management Plan, 2/23/2021	Local	Borough of Glassboro Administration
<p><i>How does this reduce risk?</i></p> <p>The 2022 plan outlines strategies to support targeted growth, economic development, and an increase in quality of life for residents. It integrates the master plan and various codes. Additionally, the plan includes Rowan University and identifies ways to integrate the University with the Borough.</p>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 107 – Development Regulations and Zoning, Municipal Code, adopted 12/14/1976	Local	Planning Board, Zoning Board of Adjustment
<p><i>How does this reduce risk?</i></p> <p>Site plan approval by the approving authority is required for all developments which do not meet the definition of "site plan, exempt". No zoning permit, construction permit, or certificate of occupancy shall be issued for any structure until site plan approval has been granted.</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Environmental Protection Ordinance</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 107-46 – Flood Damage Prevention, Municipal Code, amended 12/29/2009	Federal, State, County and Local	Construction Code Official
<i>How does this reduce risk?</i> The purpose of this code is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. It applies to all special flood hazard areas in the Borough. The Construction Code Official is the appointed floodplain administrator and responsible for enforcing the code. Duties includes permit review, using the flood data available, obtaining and maintaining information, and variance procedure involvement. The Borough has specific standards for new development and substantial improvements of structures in the flood hazard area, including having the lowest floor elevated to or above the base flood elevation.					
<b>Wellhead Protection</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 241 – Emergency Response, Municipal Code, adopted 4/22/2008	Local	OEM
<i>How does this reduce risk?</i> Includes procedures needed to follow in the event of any leakage, spilling, or release of hazardous materials.					
<b>Climate Change Ordinance</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? YES</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? YES</li> <li>• Does it contain natural overlay zones that set conditions? NO</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? NO</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? YES</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? NO</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? NO</li> <li>• Do the regulations allow density transfers where hazard areas exist? NO</li> <li>• When updating ordinances, is hazard mitigation considered? YES</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Master Plan, adopted 12/7/2004 (Rev 2020)	Local	Planning Board
<i>How does this reduce risk?</i>					
<b>Capital Improvement Plan</b>	Yes	Allowed	6-year plan, part of the Municipal Budget	Local	Borough Council





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i> This is included in the annual budget for the Borough.					
<b>Disaster Debris Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan, 2021	Local and County	Planning Board and Stormwater Program Coordinator
<i>How does this reduce risk?</i> Address groundwater recharge and stormwater quantity, quality and green infrastructure by incorporating stormwater design and performance standards for new major development. Standards in the plan are intended to minimize the adverse impact of stormwater runoff on water quality and address water quantity and the loss of groundwater recharge.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, 9/19/2019	Local	Stormwater Program Coordinator and Planning Board
<i>How does this reduce risk?</i> Outlines the procedures in place to manage stormwater and limit stormwater pollution. Includes the various programs in place to do so along with details on outreach, various ordinances, and other programs.					
<b>Urban Water Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	Yes	No	Part of Redevelopment Plan	Local	Planning Board
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Tourism Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	Yes	No	January 12, 2005	Local	Planning Board
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? YES</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? YES</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? NO</li> <li>Does the future land use map clearly identify natural hazard areas? Plan NO</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? YES</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? YES</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? YES</li> <li>Are environmental systems that protect development from hazards identified and mapped? LIMITED</li> <li>Do environmental policies maintain and restore protective ecosystems? N/A</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? N/A</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Glassboro Emergency Operations Plan 2019-2022	Local	OEM
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	Yes	No	Glassboro COOP	Local	OEM
<i>How does this reduce risk?</i>					
Lays out procedures to maintain continuity of operations during hazard event.					
<b>Public Health Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? YES</li> </ul>					



### 9.7.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Glassboro to oversee and track development.

*Table 9.7-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"><li>If yes, what department is responsible?</li><li>If no, what is your process for development?</li></ul>	Yes and No	Planning Board approval is required
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"><li>If yes, describe.</li><li>If no, quantitatively describe the level of buildout in the jurisdiction.</li></ul>	No	The Borough is approximately 85% built out with very little buildable land available.

### 9.7.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Glassboro and their current responsibilities which contribute to hazard mitigation.

*Table 9.7-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board creates the planning and development of the Borough including financing, zoning, licensing, land use policy, and the effects of development on the Borough.
Zoning Board of Adjustments	Yes	The Zoning Board of Adjustment inspects and reviews buildings for zoning compliance. The board regulates the rules for what and where things can be built in the Borough.
Planning Department	Yes	The Planning & Zoning Department is responsible for the physical development of the Borough including financing, zoning, licensing, land use policy and the effects of development on the Borough.
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	<ul style="list-style-type: none"><li>The Glassboro Green Team Advisory Commission leads community efforts in adopting environmentally sustainable business practices. The Commission oversees the community garden, and supports resolutions to promote electric vehicles, renewable energy, and a complete multi-modal transportation network.</li><li>Parks and Recreation Commission advises and makes recommendations to the Council on matters pertaining to a public park and</li></ul>



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		recreation program: including the acquisition of land, equipment, and facilities and improvements in operations and administration.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The Economic Development Department supports business developments and improvements, including the Rowan Boulevard \$350 million revitalization project and Glassboro-Camden Light Rail proposal.
Public Works/Highway Department	Yes	The Highway Department ensures streets, sidewalks, and highways are safe and clean. They maintain streets and provide snow and ice removal. They also manage residential garbage collection and disposal and recycling.
Construction/Building/Code Enforcement Department	Yes	The Construction Office administers and enforces building, housing, health, sanitation, and safety regulations.
Emergency Management/Public Safety Department	Yes	The Glassboro Office of Emergency Management is to prepare for, mitigate, respond to and recover from disasters and other large scale emergencies and events by coordinating and directing the efforts of municipal government, emergency services, the public and other members of the Glassboro Community.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	The Glassboro mobile app sends users notifications during emergencies and for significant updates and news in the Borough. Nixle Emergency Alerts via email or text message are also available to residents
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Highway Department manages snow and leaf removal. To prevent flooding, Glassboro regularly does street sweeping and cleans catch basins. All 18 outfalls are maintained to allow street runoff.
Mutual aid agreements	Yes	Countywide for emergency services
Human Resources Manual	Yes	Municipal Code Chapter 97
Other	Yes	Neighborhood Preservation Program
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Zoning Department; Planning Board; Zoning Board of Adjustment
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning and Zoning Department; Planning Board; Zoning Board of Adjustment
Planners or engineers with an understanding of natural hazards	Yes	Planning and Zoning Department; Planning Board; Zoning Board of Adjustment
Staff with expertise or training in benefit/cost analysis	Yes	Planning and Zoning Department; Planning Board; Zoning Board of Adjustment
Professionals trained in conducting damage assessments	Yes	Code Enforcement – Building or Subcode Officials
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Water and Sewer, Code Enforcement
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Contracted services



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Emergency Manager	Yes	1 EMC, 3 DEMCS
Grant writer(s)	No	-
Resilience Officer	Yes	Police Department only
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> <ul style="list-style-type: none"> <li>Administration involves the Borough's technical experts in all aspects of planning and implementation of projects which ensures risk reduction is always a part of the plan</li> </ul>		

### 9.7.3.4 Fiscal Capability

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

*Table 9.7-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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	Water and Sewer
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	Green Acres
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b> <ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Projects that contribute to risk reduction are prioritized during the budget process.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes, as available</li> </ul>	

### 9.7.3.5 Education and Outreach Capability

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



Table 9.7-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Lavonne Philips – Public Information/Business Development Emergency services have their own
Personnel skilled or trained in website development	Yes	Lavon Phillips
Hazard mitigation information available on your website	Yes	The Office of Emergency Management Webpage links to the previous HMP and provides information about the ongoing Coronavirus Pandemic, and Safety Planning including a Business Emergency Response Template for businesses to use.
Social media for hazard mitigation education and outreach	Yes	OEM, Police Department, Municipal social media
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	The Glassboro mobile app, Glassboro Newsletter, and Social Media can be utilized for hazard information.
Warning systems for hazard events	Yes	Social Media, Everbridge
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"> <li>Social media (Facebook), Everbridge alerting through County ERC, Borough website</li> </ul>		

### 9.7.3.6 Community Classifications

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

Table 9.7-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	Yes	Bronze	12/13/2018
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable



### 9.7.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.7-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Weak – the Borough is not vulnerable to this hazard, therefore, there is no need to have capabilities related to this hazard.
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Weak - the Borough has little to no vulnerability to this hazard, therefore, there is no need to have capabilities related to this hazard.
Hazardous Materials	Moderate
Hurricane/Tropical Storm	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor’Easter	Moderate
Severe Weather	Weak
Severe Winter Weather	Moderate
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.7.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.7-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 21</li> <li># RL properties: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$17,754.00</li> <li># claims filed: 4</li> </ul>





NFIP Topic	Comments
<ul style="list-style-type: none"> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total loss payments: \$3,032.85</li> </ul>
Describe areas prone to flooding in your jurisdiction.	Union St., Carpenter St.
Do you maintain a list of properties that have been damaged by flooding?	Not in Code
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	<ul style="list-style-type: none"> <li>Visual and engineers report</li> <li>None</li> </ul>
Detail any RiskMAP projects currently underway in your jurisdiction.	None
<ul style="list-style-type: none"> <li>Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.</li> </ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Code Official
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Consultant
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Consultant- Sickles and Assoc.
What specific training or support does your floodplain management staff need to support its floodplain management program?	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Whatever is in the ordinance for substantial development
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes – through NJDEP and Rutgers University
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	7/12/1994
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 107-46</li> <li>December 29, 2009</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> <li>If exceeds, in what ways?</li> </ul>	No – the ordinance needs to be updated to meet current State standards. The current ordinance states that all new construction and substantial improvements (residential and non-residential) have the lowest floor elevated to or above the base flood elevation.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? <ul style="list-style-type: none"> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> </ul>	The Borough does not participate in the CRS program and at this time is not interested in joining.



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	

Source: FEMA September 16, 2021; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.7.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.7-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	69	-	55	-	5	-	3	-	3	-	3	-
Multi-Family	-	-	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	6	-	7	-	1	-	1	-	4	-	0	-
Total Permits Issued	75	-	62	-	6	-	4	-	7	-	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												
Village Grande at Camelot	Senior Residential		450 homes		2 Clubhouse Way		-			Complete		
Poplar Square Apartments	Residential		1 structure – 125 units		15 South Poplar St.		-			Complete		
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
High Street Estates	Residential		-		285 E High St		-			In Progress		
Village Grande at Camelot	Senior Residential		126 homes		2 Clubhouse Way		-			In Progress		
Pennrose Properties	Residential		65 units		Ellis St.		-			In Progress		
South Delsea Dr.	Residential		120-130 apartments		South Delsea Drive		-			In Progress		

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.



## 9.7.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Glassboro's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Glassboro has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.7-1. Borough of Glassboro Hazard Area Extent and Location Map 1

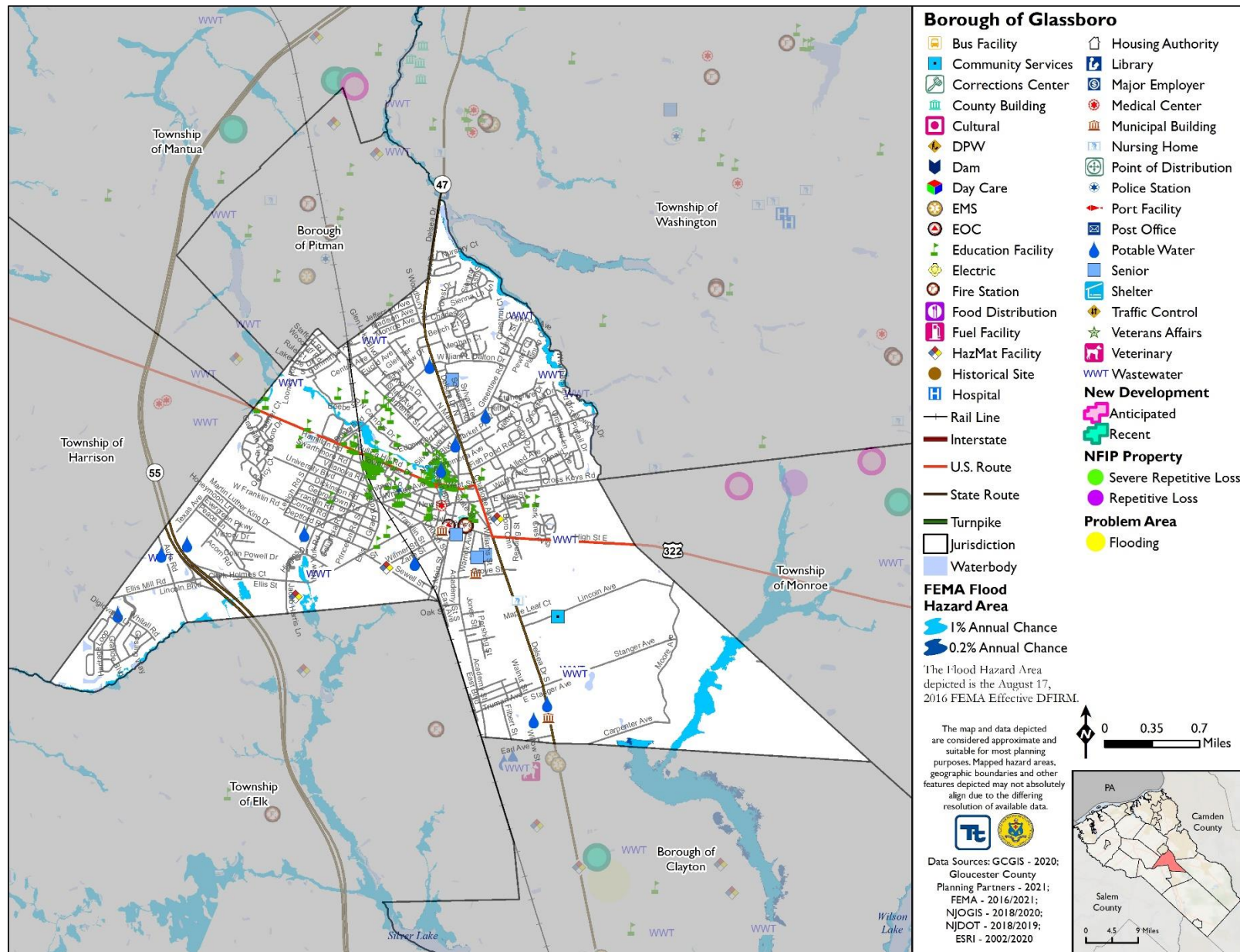






Figure 9.7-2. Borough of Glassboro Hazard Area Extent and Location Map 2

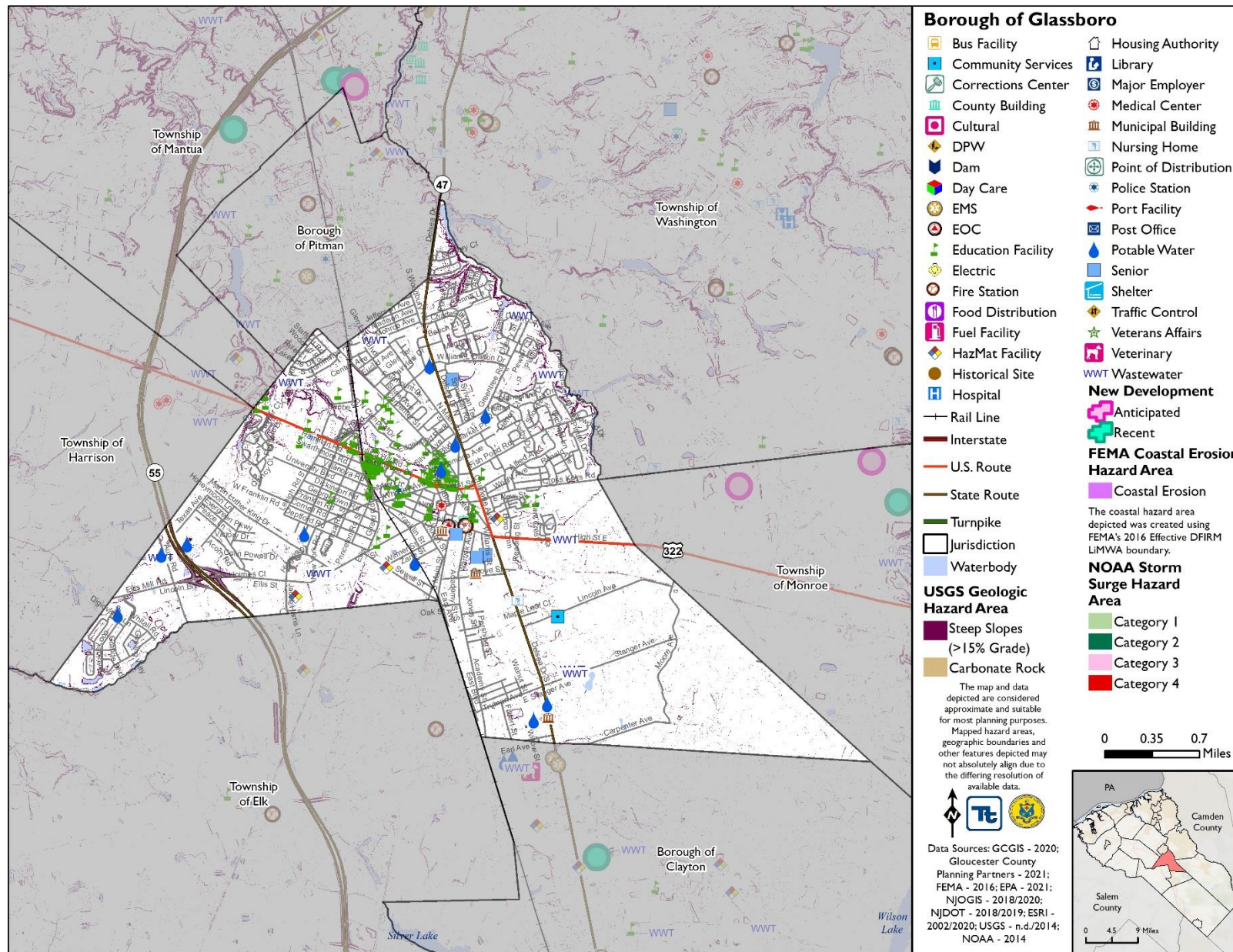




Figure 9.7-3. Borough of Glassboro Hazard Area Extent and Location Map 3

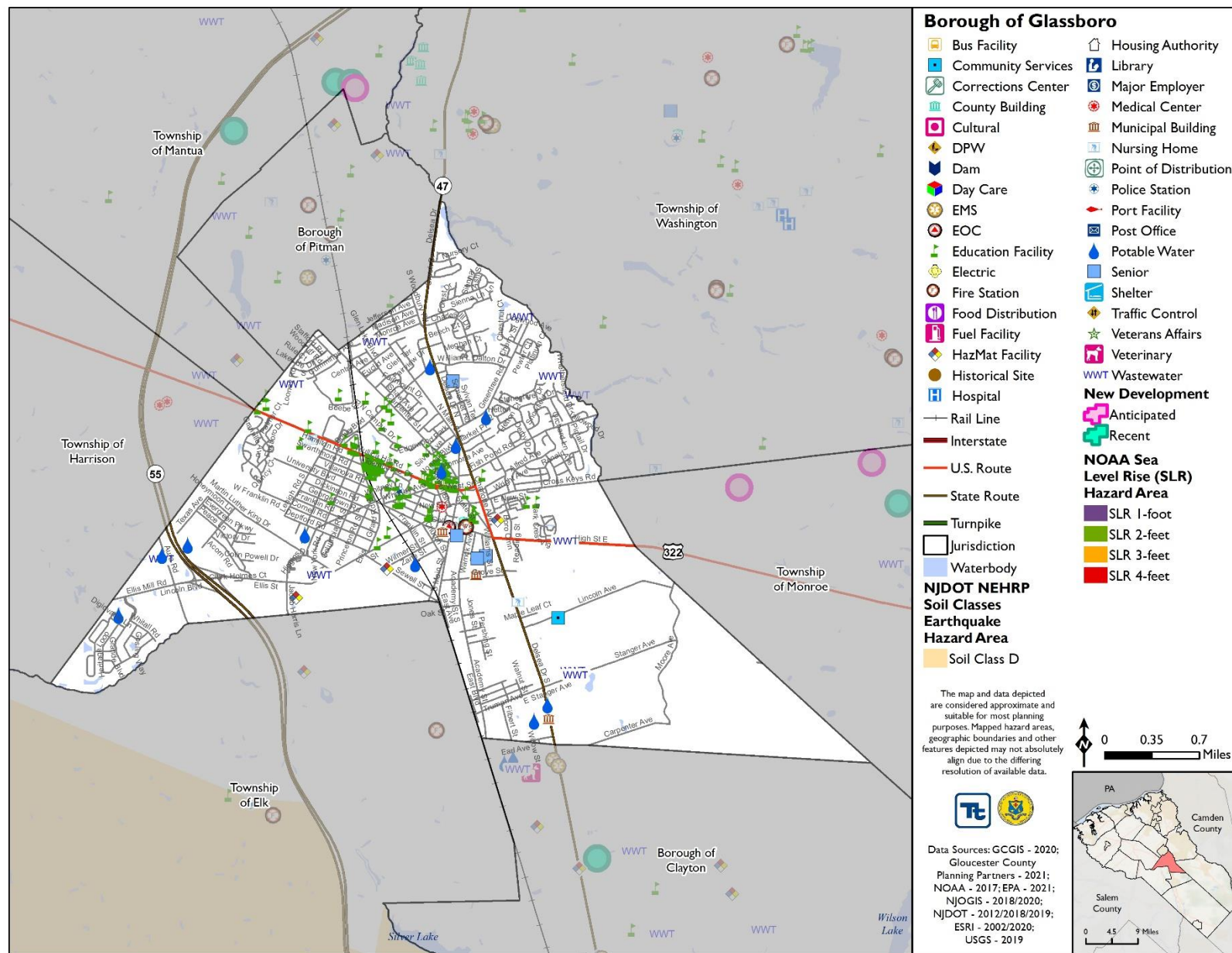
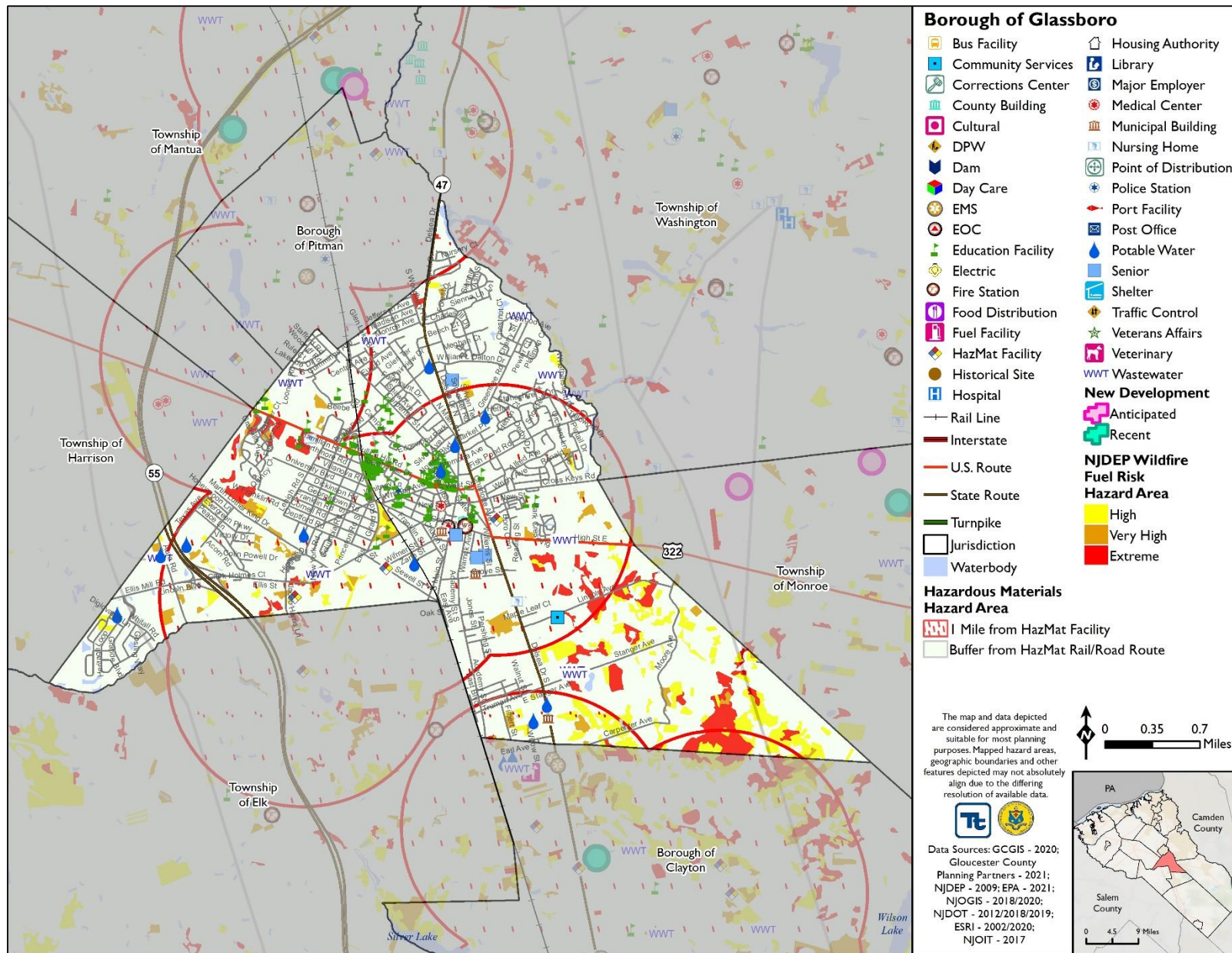






Figure 9.7-4. Borough of Glassboro Hazard Area Extent and Location Map 4







### 9.7.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Glassboro's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.7-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	\$20,171.32 for Debris Removal, Protective Measures and damage to network switch at CE building
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	\$210,958 for equipment, supplies, building modifications
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	No damages within the Borough but provided mutual aid to the surrounding municipalities



## 9.7.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Glassboro's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides 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 (Risk Assessment) 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 5.3 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Glassboro. The Borough of Glassboro reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- Disease Outbreak – adjusted the ranking from low to high due to the high student population associated with Rowan University. The Borough's transmission rate during COVID was much higher than the average during certain times of the academic year. Glassboro currently is #1 in the county and has a 113.9 per capita (1000) positive rate through the duration of the pandemic.

Table 9.7-12. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Low	High	Medium	Low	Medium	Low	Low	High

Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Medium	High	Medium	Medium	Medium

Note: The scale is based on the hazard rankings established in Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

### Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.



Table 9.7-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.7.6.3 Identified Issues

After review of the Borough of Glassboro's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Glassboro has identified the following vulnerabilities within their community:

- Rowan University – the Borough will work with Rowan University to ensure the University maintains and cleans their stormwater drainage system on an annual and as-needed basis.
- Cyber-infrastructure (sensitive data, operations, etc.)
- Verizon Switching Station – located on Delsea St. – any damage to this building would impact the Borough's ability to do anything

Specific areas of concern based on resident response to the citizen survey include:

- Southern end of Main Street floods – the Borough continues to clear debris from over top inlet; flooding is not as frequent due to upgrades done on Union Street.
- The storm drains on Sienna Lane overflows – the Borough stated that this area does not flood

## 9.7.7 Mitigation Strategy and Prioritization

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

### 9.7.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.7-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Determine status of Oberst Dam for Lake Oberst.	Municipal OEM, Gloucester County DPW	No	The Borough does not have jurisdiction over this dam, it is a privately owned dam and the County Highway Dept is responsible	Gloucester County DPW and Glassboro OEM
MJ-2	Improve storm drainage at South Academy Street between Grillo Street and Grove Street.	Municipal OEM, Gloucester County DWP, NJDOT	No	The Borough does not have jurisdiction over this road, it is a county road – the Borough tries to keep this clear, the pipes need to be changed from Academy St to South Delsea St. – the part on Academy is owned by the County the rest is part of the Borough	Gloucester County DPW and Glassboro OEM
MJ-3	Determine effectiveness of work-in-progress on detention basin at Rowan Boulevard.	Municipal OEM, Gloucester County DPW, NJDOT	No	-	-
MJ-4	Alleviate flooding at Chestnut Branch Drive on Rowan University Campus.	Municipal OEM, Rowan University	No	-	-
MJ-5	Alleviate flooding at Village Grande and Camelot Avenue.	Municipal OEM, Gloucester County DPW	No	-	-
MJ-6	Improve storm drainage at Carpenter Street and Normal Boulevard.	Municipal OEM, Gloucester County DPW	No	-	-
MJ-7	Improve drainage around Campus Terrace Apartments on Carpenter Street.	Municipal OEM,	No	-	-



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
		Gloucester County DPW				
MJ-8	Hazard threat assessment related to South Jersey Gas high pressure lines running along Union Street, Ellis Street, and Delsea Drive.	Municipal OEM and South Jersey Gas	Ongoing Capability	No	-	-
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none"><li>• Current hazards and risks</li><li>• Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams</li><li>• Best practices for hazard mitigation at the individual or property level.</li></ul>	Municipal OEM	Ongoing Capability – OEM and stakeholders will continue to make efforts to educate the public regarding aspects of hazard mitigation.	No	-	-
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability – OEM will continue to conduct HMP update meetings throughout the life of the plan.	No	-	-
M-5	Install permanent backup emergency power generator at Glassboro Fire Department – Station 26-1 (CF-4).	Municipal OEM and Public Works	Completed	No	-	-
M-6	Install permanent backup emergency power generator at Well #2 (CF-12).	Municipal OEM and Highway Department	No Progress – backup power is needed at this facility to ensure it operates during a power outage	Yes	Need a diesel fuel generator for Wells 2 and 4	Borough Highway Department; Borough Water and Sewer



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-7	Install permanent backup emergency power generator at Well #4 (CF-14).	Municipal OEM and Public Works Department	No Progress – backup power is needed at this facility to ensure it operates during a power outage	Yes	Need a diesel fuel generator for Wells 2 and 4	Borough Highway Department; Borough Water and Sewer
M-8	Install permanent backup emergency power generator at J. Harvey Rogers School (CF-24).	Municipal OEM and Board of Education	No Progress – backup power is needed at this facility to ensure it operates during a power outage	Yes	No backup power at the school	OEM and Board of Education
M-9	Install permanent backup emergency power generator at Thomas E. Bowe Elementary School (CF-25).	Municipal OEM and Board of Education	Completed	No	-	-
M-10	Install permanent backup emergency power generator at Dorothy L. Bullock School (CF-26).	Municipal OEM and Board of Education	Completed	No	-	-
M-11	Install permanent backup emergency power generator at Glassboro Intermediate School (CF-27).	Municipal OEM and Board of Education	Completed	No	-	-
M-12	Install permanent backup emergency power generator at Administration Building (CF-28).	Municipal OEM and Board of Education	Complete	No	-	-
M-13	Install permanent backup emergency power generator at Senior Center (CF-32).	Municipal OEM and Parks and Recreation	Completed	No	-	-
M-14	Engineering study to determine drainage / conveyance on Union Street.	Municipal OEM and Highway Department	Completed – Work has been done	No	-	-
M-15	Pipe upgrade on East Boulevard.	Municipal OEM and Highway Department	No Progress	Yes	New piping (1000 ft or more); bore more piping under the railroad to increase capacity – stormwater system	Engineer and Water/Sewer
M-16	Engineering study to determine high water level at Isabella Drive.	Municipal OEM and Highway Department	Completed – Inlets were installed to help address the water level; as of now, it is working properly	No	-	-



### 9.7.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.2-14, the Borough of Glassboro identified the following mitigation efforts completed over the last five years:

- The Borough is currently upgrading generators at the lift stations in the community.

### 9.7.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Glassboro participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.7-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise	X	X			X		X			X
Dam Failure/Levee Failure	X	X			X		X			X
Disease Outbreak/Pandemic	X	X			X		X			X
Drought	X	X			X		X			X
Earthquake	X	X			X		X			X
Extreme Temperatures	X	X			X		X			X
Flood	X	X			X		X		X	X
Geological Hazards	X	X			X		X			X
Hazardous Materials	X	X			X		X			X
Hurricane/Tropical Storm	X	X			X		X		X	X
Nor'Easter	X	X			X		X		X	X
Invasive Species/Harmful Algal Bloom	X	X			X		X			X
Severe Weather	X	X			X		X		X	X
Severe Winter Weather	X	X			X		X			X
Wildfire	X	X			X		X			X
Utility Failure	X	X			X		X		X	X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.7-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Glassboro 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 9.7-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.7-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Glassboro-001	Generator at Well #2	<b>Problem:</b> Well #2 provides potable water for a portion of the population in the Borough. Power outages can cause the well to be inoperable and unable to provide drinking water. <b>Solution:</b> Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Borough Highway Department; Borough Water and Sewer	FEMA HMGP; Municipal Budget	Continuity of operations; potable water	\$30,000	Medium	SIP	ES, SP
2022-Glassboro-002	Generator at Well #4	<b>Problem:</b> Well #4 provides potable water for a portion of the population in the Borough. Power outages can cause the well to be inoperable and unable to provide drinking water. <b>Solution:</b> Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Borough Highway Department; Borough Water and Sewer	FEMA HMGP; Municipal Budget	Continuity of operations; potable water	\$30,000	Medium	SIP	ES, SP
2022-Glassboro-003	Generator at J. Harvey Rogers School	<b>Problem:</b> J Harvey Rodgers School is located at 301 Georgetown Rd. containing pre-K and kindergarten classes. The school currently does not have backup power and cannot function properly during a power outage. If it had backup power, the building could serve as a shelter for the community (heating/cooling center).	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Glassboro OEM and Board of Education	FEMA HMGP; Municipal Budget	Continuity of operations	\$30,000+	Medium	SIP	ES, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Working with the Board of Education, the Township will identify the proper size generator for run the school building. Once identified, the generator will be purchased and installed.											
2022-Glassboro-004	Pipe upgrade on East Boulevard	<p><b>Problem:</b> The current stormwater system that runs along East Boulevard is inadequate in size and unable to handle the increase capacity it experiences.</p> <p><b>Solution:</b> The Borough will upgrade the piping (~1000 feet) along East Boulevard and under the railroad to increase stormwater capacity. This will increase capacity of the system and reduce or eliminate any inundation associated with the system.</p>	Existing	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather	1, 2, 5, 6	Within 3 years	Glassboro OEM and Highway Department	FEMA HMGP; Municipal Budget	Increase capacity; reduce damages from overflow; continuity of operations	\$50,000+	Medium	SIP	SP
2022-Glassboro-005	Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Borough will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction</p>	New	Flood	1, 2	6 months	Floodplain Administrator, Administration	Municipal budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Code (UCC) implemented by the Construction Official.											
2022-Glassboro-006	Municipal Debris Management Plan	<b>Problem:</b> The Borough lacks an adopted Disaster Debris Management Plan. <b>Solution:</b> The Borough will complete and adopt the Disaster Debris Management Plan once complete.	Existing	All Hazards	5	1 year	Highway, OEM	Municipal budget	Increased planning for post-disaster response and cleanup.	Staff time	Medium	LPR	PR, ES
2022-Glassboro-007	Cyber Infrastructure	<b>Problem:</b> Ensure that the Borough's cyber assets are protected from damage from storms, flooding or other natural disasters that could cause a loss of security, sensitive data or impede operations of emergency services and essential government activities. <b>Solution:</b> Upgrade the Borough's IT system by upgrading the server and install backup systems independent of existing servers. This will provide protection to the Borough's cyber infrastructure and ensure continuity of operations.	Existing	All Hazards	1, 2, 6	2 years	Borough Council	Municipal Budget	Protect cyber assets, continuity of operations	\$10,000+	High	LPR, SIP	PI, ES
2022-Glassboro-008	Elsemere Stormwater and Drainage Systems	<b>Problem:</b> The Borough completed a study in the Elsemere section to identify pipe locations and how to connect this portion of the Borough to a drainage system and stormwater collection system. The Borough needs to begin the work identified in the study to connect this section to the stormwater and drainage systems.	Existing	Flood, Nor'Easter, Hurricane/Tropical Storm, Severe Weather	1, 2, 5, 6	Within 3 years	Glassboro OEM and Highway Department	FEMA HMGP; Municipal Budget	Increase capacity; reduce damages from overflow; continuity of operations	\$2 million+	Medium	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Review the completed study and identify first steps in completing the storage and drainage systems installations. The Borough will then begin installing a drainage/stormwater collection system in the Elsemere section of the Borough.											
2022-Glassboro-009	Holly and High Streets Drainage System Upgrades	<p><b>Problem:</b> At the intersection of Holly and High Streets, the current drainage system is undersized and becomes overwhelmed during periods of heavy rain. This leads to disruptions in service and roadway flooding.</p> <p><b>Solution:</b> The Borough will conduct a study to determine what is needed to upgrade the system and allow it function properly even during times of excessive rain. Once the study is complete and projects are identified, the Borough will begin the drainage system upgrades.</p>	Existing	Flood, Nor'Easter, Hurricane/Tropical Storm, Severe Weather	1, 2, 5, 6	Within 3 years	Glassboro OEM and Highway Department	FEMA HMGP; Municipal Budget	Increase capacity; reduce damages from overflow; continuity of operations	\$20,000	Medium	SIP	SP
2022-Glassboro-010	Code Enforcement and IT Offices Generator	<p><b>Problem:</b> The building that houses the code enforcement office and IT offices does not have backup power. During a power outage, the services in the building cannot function properly.</p> <p><b>Solution:</b> Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.</p>	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Borough Council	FEMA HMGP; Municipal Budget	Continuity of operations	\$30,000	Medium	SIP	ES, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Glassboro-011	Tree Maintenance Program	<p><b>Problem:</b> The trees along University Blvd. are older trees with shallow root systems. They pose a risk to the roadways and properties. During more recent events, downed branches have led to closed roadways and power outages.</p> <p><b>Solution:</b> The Borough will implement a tree maintenance program and will initially focus on University Blvd. The Borough will develop a list of trees that need to be removed first in order to avoid further damage.</p>	Existing	All	1, 2, 5	1 year	Highway Department	Municipal Budget	Reduce or eliminate damage from trees	Staff Time	Medium	SIP	ES

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Acronyms and Abbreviations:*

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-Glassboro-001	Generator at Well #2	1	1	1	1	0	1	0	0	0	1	0	1	1	0	8	Medium
2022- Glassboro - 002	Generator at Well #4	1	1	1	1	0	1	0	0	0	1	0	1	1	0	8	Medium
2022- Glassboro - 003	Generator at J. Harvey Rogers School	1	1	1	1	0	1	0	0	0	1	0	1	1	0	8	Medium
2022- Glassboro-004	Pipe upgrade on East Boulevard	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium 





Project Number	Project 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
2022- Glassboro - 005	Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	1	0	10	High
2022- Glassboro - 006	Municipal Debris Management Plan	1	1	1	1	0	1	0	0	0	1	1	0	0	0	7	Medium
2022- Glassboro - 007	Cyber Infrastructure	1	1	1	1	1	1	0	0	0	1	0	1	1	0	9	High
2022- Glassboro - 008	Elsemere Stormwater and Drainage Systems	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2022-Glassboro-009	Holly and High Streets Drainage System Upgrades	1	1	1	1	0	1	0	0	0	1	1	1	0	0	8	Medium
2022-Glassboro-010	Code Enforcement and IT Offices Generator	1	1	1	1	0	1	0	0	0	1	0	1	1	0	8	Medium
2022-Glassboro-011	Tree Maintenance Program	1	1	1	1	0	0	1	0	0	1	1	0	0	0	7	Medium

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.7.8 Action Worksheets

The following action worksheets have been developed by the Borough of Glassboro to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Generator at Well #2		
<b>Project Number:</b>	2022-Glassboro-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Well #2 provides potable water for a portion of the population in the Borough. Power outages can cause the well to be inoperable and unable to provide drinking water.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; potable water
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Borough Budget
<b>Responsible Organization:</b>	Borough Highway Department; Borough Water and Sewer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000	Weather dependent; not enough power to run well for long-term outages
	Install permanent generator	\$30,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Generator at Well #2	
<b>Project Number:</b>	2022-Glassboro-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide potable water for population during power outages
Property Protection	1	Allows pump to function properly
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	0	Utility Failure
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Generator at Well #4		
<b>Project Number:</b>	2022-Glassboro-002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Well #4 provides potable water for a portion of the population in the Borough. Power outages can cause the well to be inoperable and unable to provide drinking water.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; potable water
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Borough Budget
<b>Responsible Organization:</b>	Borough Highway Department; Borough Water and Sewer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000	Weather dependent; not enough power to run well for long-term outages
	Install permanent generator	\$30,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Generator at Well #4	
Project Number:	2022-Glassboro-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide potable water for population during power outages
Property Protection	1	Allows pump to function properly
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	0	Utility Failure
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	



Action Worksheet			
<b>Project Name:</b>	Generator at J. Harvey Rogers School		
<b>Project Number:</b>	2022-Glassboro-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	J Harvey Rodgers School is located at 301 Georgetown Rd. containing pre-K and kindergarten classes. The school currently does not have backup power and cannot function properly during a power outage. If it had backup power, the building could serve as a shelter for the community (heating/cooling center).		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Working with the Board of Education, the Township will identify the proper size generator for run the school building. Once identified, the generator will be purchased and installed.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Glassboro OEM and Board of Education	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000	Weather dependent; not enough power to run well for long-term outages
	Install permanent generator	\$30,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Generator at J. Harvey Rogers School	
<b>Project Number:</b>	2022-Glassboro-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide potable water for population during power outages
Property Protection	1	Allows pump to function properly
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project; however, will need to work with the Board of Education
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	0	Utility Failure
Timeline	1	
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Pipe upgrade on East Boulevard		
<b>Project Number:</b>	2022-Glassboro-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather		
<b>Description of the Problem:</b>	The current stormwater system that runs along East Boulevard is inadequate in size and unable to handle the increase capacity it experiences.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will upgrade the piping (~1000 feet) along East Boulevard and under the railroad to increase stormwater capacity. This will increase capacity of the system and reduce or eliminate any inundation associated with the system.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increase capacity; reduce damages from overflow; continuity of operations
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Glassboro OEM and Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways to protect from flooding	\$1 million	Not feasible; buildings and properties will still flood
	Upgrade pipes	\$50,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Pipe upgrade on East Boulevard	
<b>Project Number:</b>	2022-Glassboro-004	
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 costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	1	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather
Timeline	1	Within 3 years
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Elsemere Stormwater and Drainage Systems		
<b>Project Number:</b>	2022-Glassboro-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather		
<b>Description of the Problem:</b>	The Borough completed a study in the Elsemere section to identify pipe locations and how to connect this portion of the Borough to a drainage system and stormwater collection system. The Borough needs to begin the work identified in the study to connect this section to the stormwater and drainage systems.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Review the completed study and identify first steps in completing the storage and drainage systems installations. The Borough will then begin installing a drainage/stormwater collection system in the Elsemere section of the Borough.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increase capacity; reduce damages from overflow; continuity of operations
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$2 million+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Glassboro OEM and Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties that are impacted by flooding	\$5 million+	Not feasible; not all properties flood
	Upgrade system	\$2 million+	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Elsemere Stormwater and Drainage Systems	
<b>Project Number:</b>	2022-Glassboro-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Increase capacity of system and provides stormwater services to the section of the borough
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	1	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather
Timeline	1	To be completed within 3 years; depending on funding
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Holly and High Streets Drainage System Upgrades		
<b>Project Number:</b>	2022-Glassboro-009		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather		
<b>Description of the Problem:</b>	At the intersection of Holly and High Streets, the current drainage system is undersized and becomes overwhelmed during periods of heavy rain. This leads to disruptions in service and roadway flooding.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will conduct a study to determine what is needed to upgrade the system and allow it function properly even during times of excessive rain. Once the study is complete and projects are identified, the Borough will begin the drainage system upgrades.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increase capacity; reduce damages from overflow; continuity of operations
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$20,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Glassboro OEM and Highway Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Acquire all properties that are impacted by flooding	\$5 million+	Not feasible; not all properties flood
	Upgrade system	\$20,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Holly and High Streets Drainage System Upgrades	
<b>Project Number:</b>	2022-Glassboro-009	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Increase capacity of system
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	1	Flood, Nor'Easter, Hurricane/ Tropical Storm, Severe Weather
Timeline	1	To be completed within 3 years; depending on funding
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	





Action Worksheet			
<b>Project Name:</b>	Code Enforcement and IT Offices Generator		
<b>Project Number:</b>	2022-Glassboro-010		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	The building that houses the code enforcement office and IT offices does not have backup power. During a power outage, the services in the building cannot function properly.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a diesel-fuel generator to allow for continuity of operations at the well and provide potable water for the community.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Borough Budget
<b>Responsible Organization:</b>	Borough Council	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Capital Improvement
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Install solar panels	\$10,000	Weather dependent; not enough power to run well for long-term outages
	Install permanent generator	\$30,000	Selected project
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Code Enforcement and IT Offices Generator	
<b>Project Number:</b>	2022-Glassboro-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide potable water for population during power outages
Property Protection	1	Allows pump to function properly
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Borough has legal jurisdiction over project
Fiscal	0	The Borough needs funding to complete project
Environmental	0	
Social	0	
Administrative	1	Administrative support to implement project
Multi-Hazard	0	Utility Failure
Timeline	1	To be completed within 2 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



## 9.8 TOWNSHIP OF GREENWICH

This section presents the jurisdictional annex for the Township of Greenwich and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Greenwich's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.8.1 Hazard Mitigation Planning Team

The Township of Greenwich followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Greenwich's hazard mitigation plan primary and alternate points of contact. 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 9.8-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Robert Schoch, OEM Coordinator Address: 420 Washington St., Gibbstown, NJ Phone Number: 856-224-0373 Email: <a href="mailto:oem@greenwichtwp.com">oem@greenwichtwp.com</a>	Name/Title: Kirk Fairley, Deputy Coordinator Address: 420 Washington St., Gibbstown, NJ Phone Number: 856-224-0373 Email: <a href="mailto:pwclerk@greenwichtwp.com">pwclerk@greenwichtwp.com</a>
NFIP Floodplain Administrator	
Name/Title: Joseph Giordano, Floodplain Administrator Address: 420 Washington St., Gibbstown, NJ Phone Number: 856-423-9129 ext. 214 Email: <a href="mailto:jgiordano@greenwichtwp.com">jgiordano@greenwichtwp.com</a> / <a href="mailto:floodadmin@greenwichtwp.com">floodadmin@greenwichtwp.com</a>	



Name	Title	Method of Participation
Robert Schoch	OEM Coordinator	Represented the municipality on the Planning Partnership; attended meetings; provided information to complete annex; identified mitigation actions; reviewed and provided feedback on annex
Kirk Fairley	Deputy Coordinator	Represented the municipality on the Planning Partnership; attended meetings; provided information to complete annex; identified mitigation actions
Joseph Giordano	Floodplain Administrator	Provided information to complete annex
Jeffrey Godfrey	Township Administrator	Reviewed and provided feedback on annex
Chief Stacey L. Mangine	Police Chief	Reviewed and provided feedback on annex
Leonard M. Fisla	Fire Department	Reviewed and provided feedback on annex

## 9.8.2 Municipal Profile

Greenwich Township was first formed on March 1, 1695 and was formally incorporated as one of New Jersey's initial 104 townships by an Act of the New Jersey Legislature on February 21, 1798. The Nothnagle Log House is believed to be one of the oldest standing wooden structures built by European settlers in the Eastern United States, estimated to be built between the years 1638 and 1643.

According to the United States Census Bureau, the Township had a total area of 12.03 square miles, including 8.96 square miles of land and 3.07 square miles of water. Highway 130 runs directly through the southern part of the town. Unincorporated communities, localities and place names located partially or completely within the township include Gibbstown, Clements, Green, Monds Island and Thompsons Point.

The municipality is governed within the Faulkner Act. The governing body is comprised of five members elected at-large in partisan elections to serve three-year terms on a staggered basis, with two council seats up for election in each of the first two years and the mayoral seat up for vote in the third year of a three-year cycle.

According to the U.S. Census, the 2010 population for the Township of Greenwich was 4,899. The estimated 2019 population was 4,831, 1.4 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 3.8 percent of the population is 5 years of age or younger and 20.3 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.

## 9.8.3 Jurisdictional Capability Assessment and Integration

The Township of Greenwich performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.8.3). The updated mitigation strategy includes opportunities the Township of Greenwich identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.8.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Greenwich, what is present in the jurisdiction, and code citation and date.

*Table 9.8-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 310 – Uniform Construction Codes	State and Local	Construction Code Official
<i>How does this reduce risk?</i> The Township adopted the New Jersey State Uniform Construction Code					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 700 – Zoning, Municipal Code, amended 10/21/1991	Local	Planning Board, Zoning Administrator
<i>How does this reduce risk?</i> This code governs the use of all land and every building or portion of a building erected, altered, added to or relocated and every use within a building or use accessory thereto, within the Township of Greenwich. The purpose of the code is to: <ul style="list-style-type: none"> <li>• To promote the public health, safety, morals and general welfare of the inhabitants of the Township of Greenwich.</li> <li>• To secure safety from fire, flood, panic and other natural and man-made disasters.</li> <li>• To provide adequate light, air and open space.</li> <li>• To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment.</li> <li>• To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private.</li> <li>• To encourage the location and design of transportation route which will promote the free flow of traffic while discouraging locations of such facilities and routes which result in congestion or blight.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>To promote a desirable visual environment through creative development techniques and good civic design and arrangements.</li> <li>To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 610 – Subdivision of Land and Site Plan Review, Municipal Code, adopted 12/19/1977	Local	Planning/Zoning Board
<p><i>How does this reduce risk?</i> The purpose of this ordinance is as follows:</p> <ul style="list-style-type: none"> <li>To provide rules, regulations and standards to guide the development and subdivision of lands in this Township in a manner which will promote the public health, safety, morals and general welfare.</li> <li>To ensure the orderly development, conservation, protection and proper use of land and adequate provision for circulation, utilities and services.</li> <li>To provide adequate light, air and open space.</li> <li>To ensure the coordination of development within the Township with the development and general welfare of neighboring municipalities, the county and the State of New Jersey as a whole.</li> <li>To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which will result in congestion or blight.</li> <li>To promote a desirable visual environment through creative development techniques and good civic design and arrangement.</li> <li>To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>To encourage development which incorporates the best features of design and relates the type, design and layout of residential, commercial, industrial and recreational development to the particular site.</li> <li>To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 594 – Stormwater Management, Municipal Code, adopted 7/21/2003	Local	Township of Greenwich
<p><i>How does this reduce risk?</i> The purpose of this chapter is to establish for those portions of Greenwich Township within the sewer service area, stormwater management regulations which require, as a condition of municipal approval, that certain applications for development covered by this chapter include a stormwater management plan which will achieve, to the extent practicable, a goal of no net increase in stormwater runoff and pollutant loads.</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<p><i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</p>					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 610 – Subdivision of Land and Site Plan Review, Municipal Code, adopted 12/19/1977	Local	Planning/Zoning Board
<p><i>How does this reduce risk?</i> The Planning/Zoning Board is responsible for reviewing and approval site plans.</p>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 388 – Flood Damage Prevention, Municipal Code, adopted 8/15/2016	Federal, State, County and Local	Township of Greenwich Floodplain Administrator
<p><i>How does this reduce risk?</i></p> <p>It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:</p> <ul style="list-style-type: none"> <li>• Protect human life and health;</li> <li>• Minimize expenditure of public money for costly flood-control projects;</li> <li>• Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>• Minimize prolonged business interruptions;</li> <li>• Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;</li> <li>• Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>• Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>• Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> <p>A development permit must be obtained before construction or development begins, including placement of manufactured homes, within any area of special flood hazard. The designated floodplain administrator will review the permit application and grant or deny the permit. Additionally, the floodplain administrator provides the following services: permit review, utilize floodplain data, maintain information, and conduct substantial damage reviews.</p>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? No</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? There are no natural overlay zones setting conditions, but a separate conservation area is identified.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Additional action required included providing an environmental statement/study prior to development.</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Rezoning procedures do take into consideration natural hazard areas as limits on zoning changes.</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Development within or filing of wetlands, floodways and floodplains are controlled by the NJDEP and US Department of the Interior</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes as provided by the general standards for subdivisions</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes as provided by the general standards for subdivisions</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? No, conservation subdivisions or cluster subdivisions are not addressed by ordinance</li> <li>Do the regulations allow density transfers where hazard areas exist? No, Density transfers are not addressed by ordinance, Density is controlled by the Zoning district usage</li> <li>When updating ordinances, is hazard mitigation considered? Yes, Hazard Mitigation is considered when updating ordinances</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Master Plan, adopted 9/13/1999	Local	Planning/Zoning Board
<i>How does this reduce risk?</i> The Master Plan serves as a guide for future development in the Township. The following elements are part of the plan – land use; housing and population; circulation; community facilities; recycling; economic development; recreation; conservation; utility service; and historic preservation. The plan also includes capital improvement programs and plan integration.					
<b>Capital Improvement Plan</b>	Yes	Allowed	Annual Budget	Local	Township Council
<i>How does this reduce risk?</i> The annual budget contains a 3-year capital program					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan	Local	Stormwater Engineer
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan	Local	Stormwater Engineer
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Community Wildfire Protection Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes, Projects are limited in development in areas vulnerable to natural hazards</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Parts of budgets provide funding for mitigation projects.</li> <li>Does the future land use map clearly identify natural hazard areas? Aside from conservation districts, land use map does not identify natural hazard areas</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? No</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? No</li> <li>Is transportation policy used to guide growth to safe locations? No</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? No</li> <li>Are environmental systems that protect development from hazards identified and mapped? No</li> <li>Do environmental policies maintain and restore protective ecosystems? No</li> </ul>					
Do environmental policies provide incentives to development that is located outside protective ecosystems? No					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan, January 2020	State	OEM Coordinator
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Post-Disaster Recovery Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.8.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Greenwich to oversee and track development.

*Table 9.8-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Planning Board
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Construction
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	Yes	It is limited due to potable water and wastewater connections

### 9.8.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Greenwich and their current responsibilities which contribute to hazard mitigation.

*Table 9.8-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning/Zoning Board oversees land development, subdivisions and the application processes. The Board also maintains the Master Plan and approves site plans for new developments.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Environmental Board/Commission	Yes	The Environmental Commission works to plant trees within the Township, as well as recycling initiatives and eradication of invasive species including the Spotted Lanternfly.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	-
Public Works/Highway Department	Yes	The Public Works Department oversees the inspection, maintenance , and repairs within their means of all systems.
Construction/Building/Code Enforcement Department	Yes	Construction Code Officials
Emergency Management/Public Safety Department	Yes	The Emergency Management Department works to ensure that all township facilities can combat natural and man-made disasters by coordinating efforts of all township departments for response and establishing laws, ordinance, resolutions, and procedures for public safety and immediate response to emergency situations. The Department also provides emergency preparedness information to the public, including training for emergency response, civic organization preparedness presentations, and by maintaining a COVID-19 call center, and emergency alerts system.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	The Township uses Swift911 alerts for Emergency Notifications.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Public Works Department performs required maintenance of the Stormwater system. Tree trimming is done on an as needed basis.
Mutual aid agreements	Yes	MOU's with Gloucester County
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	While the Township has a Personnel Manual, it does not address any particular job description
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Planning Board Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning Board Engineer
Planners or engineers with an understanding of natural hazards	Yes	Planning Board and Township Engineers
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Township Engineer



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Emergency Manager	Yes	OEM Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater Engineer (Township Engineer)

### 9.8.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Greenwich.

*Table 9.8-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No- CDBG are not eligible
Capital improvements project funding	Yes – Funds are budgeted on as needed basis
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	Yes- Can be used as a funding if required
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes- On as needed basis
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes - The Township has used FEMA Funding in the past
Open Space Acquisition funding programs	Yes - The Township has used this source for other funding not Mitigation
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? We continuously monitor our hazardous situations to see what can be completed prior to an event occurrence.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes. Projects are limited</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Parts of the budgets provide funding for mitigation projects</li> </ul>	

### 9.8.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Greenwich.



Table 9.8-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	The Emergency Management Department Website links to previous Hazard Mitigation Plan and provides information about the current HMP update.
Personnel skilled or trained in website development	Yes	Township IT vendor
Hazard mitigation information available on your website	Yes	The Emergency Management Department Website links to the previous Hazard Mitigation Plan and provides information about the current HMP update.
Social media for hazard mitigation education and outreach	Yes	The Emergency Management Department Website provides information about personal preparedness including Flood Protection, How to build and Emergency Kit, as well as pet and children preparedness information.
Citizen boards or commissions that address issues related to hazard mitigation	Yes	The Township uses Swift911 alerts for Emergency Notifications. Also will be a part of the local LEPC
Other programs already in place that could be used to communicate hazard-related information	Yes	The Emergency Management Department Website provides information about personal preparedness including flood protection, how to build an emergency kit, and pet and children preparedness information.
Warning systems for hazard events	Yes	The Township uses Swift911 alerts for Emergency Notifications.
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>The Township utilizes Social Media as well as Swift 911 (Reverse 911 system) to get information out as quickly as possible to inform our residents</li> </ul>		

### 9.8.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Greenwich.

Table 9.8-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	9	10/15/2021
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating





- Unavailable

### 9.8.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.8-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazardous Materials	Moderate
Hurricane/Tropical Storm	Moderate
Invasive and Nuisance Species	Moderate
Nor’Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.8.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.8-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
# NFIP Policies: 238	Total premium in force: \$363,305.00
# RL properties: 4	# claims filed: 102



NFIP Topic	Comments
# SRL properties: 0 #RL/SRL mitigated: none	Total loss payments: \$189,352.85
Describe areas prone to flooding in your jurisdiction.	Low lying areas southeast portion of Township, Willow Dr, Allen Ave., Natchez Ct., South Poplar St. Duncan Ave. and Mullen Ave.
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, and if so, how many are interested in (elevation or acquisition)?	Total of 64 Floodplain Inquiries 2018 thru 2021
How do you make Substantial Damage determinations? How many were declared for recent flood events in your jurisdiction?	Township construction code officials determine structure damage.
Detail any RiskMAP projects currently underway in your jurisdiction.	Delaware River Partners Docks and buildings
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Greenwich Twp. Floodplain Admin.
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Floodplain Admin.
What specific training or support does your floodplain management staff need to support its floodplain management program?	Assoc. of State Floodplain Mgrs. CFM/ ASFPM Course
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	-
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	2/17/2005
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 388 August 15, 2016
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Floodplain MGT. meets the minimum standards NFIP
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Yes
Does your jurisdiction participate in CRS? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	Yes - Class 9



NFIP Topic	Comments
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	Yes, filed with yearly FEMA Certification
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	Yes

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.8.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.8-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	5	2	1	1	3	0	3	2	5	0	1	0
Multi-Family	-	-	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Total Permits Issued	5	2	1	1	3	0	3	2	5	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												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None identified												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.



## 9.8.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Greenwich's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Greenwich has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.8-1. Township of Greenwich Hazard Area Extent and Location Map 1

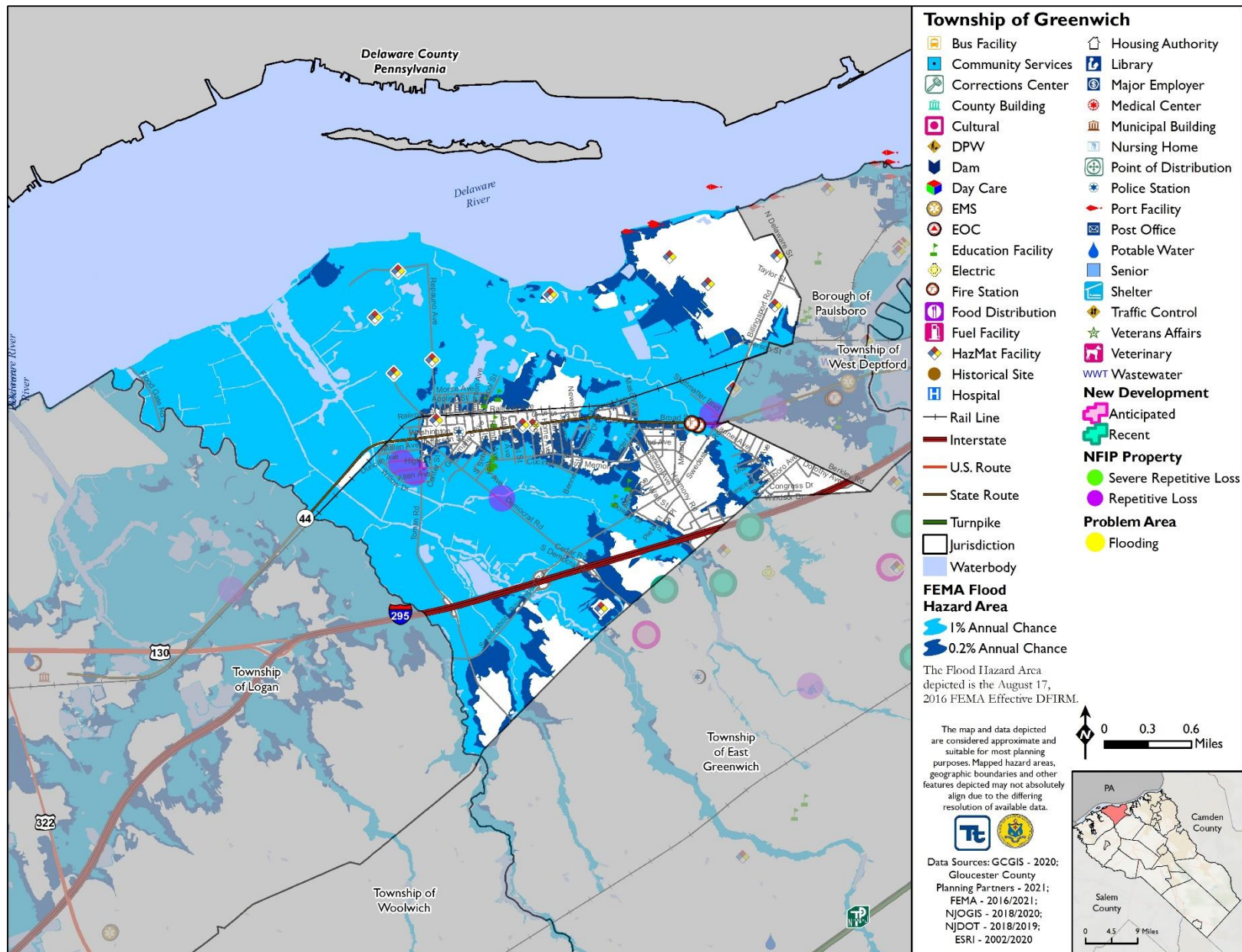






Figure 9.8-2. Township of Greenwich Hazard Area Extent and Location Map 2

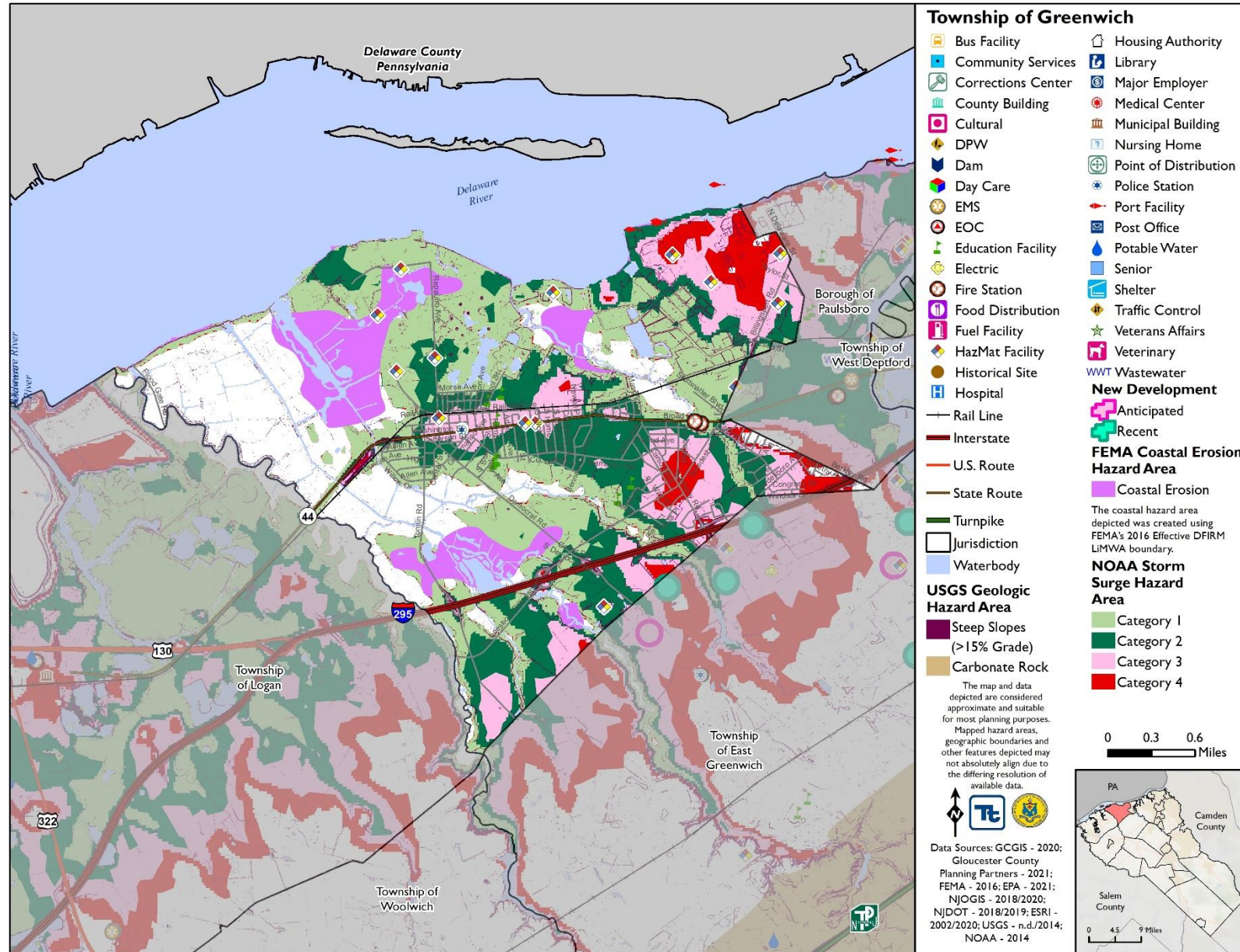




Figure 9.8-3. Township of Greenwich Hazard Area Extent and Location Map 3

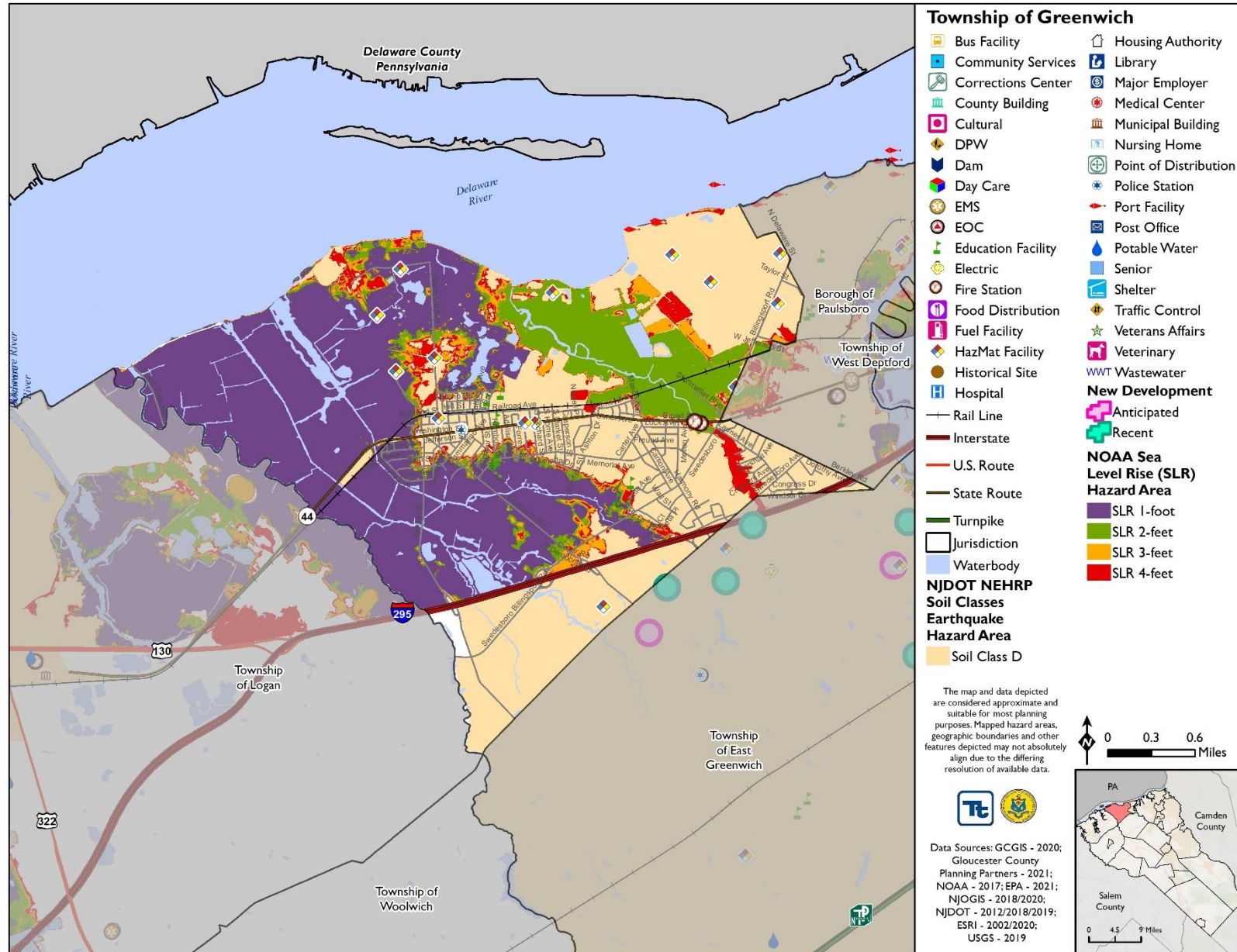
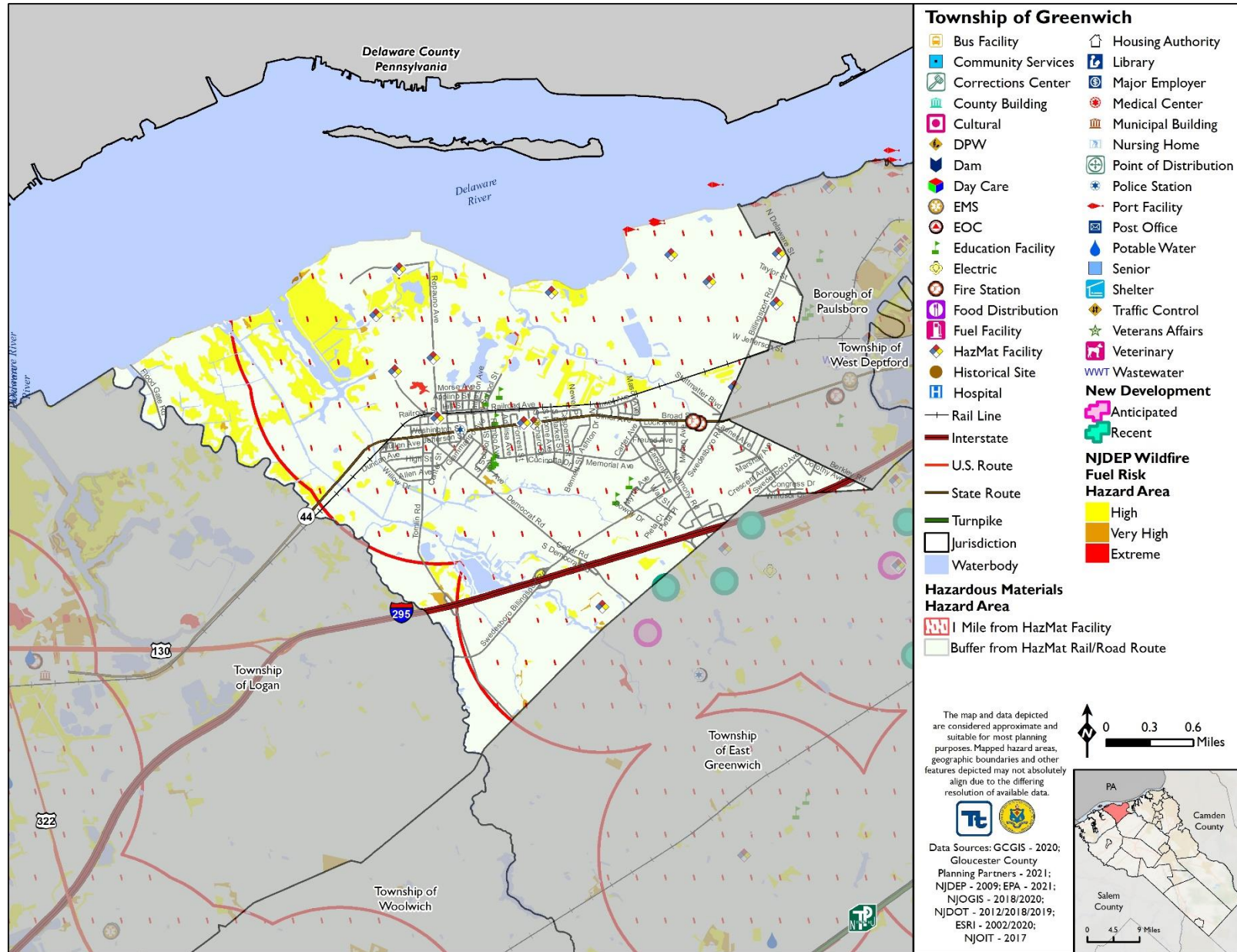






Figure 9.8-4. Township of Greenwich Hazard Area Extent and Location Map 4





### 9.8.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Greenwich's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.8-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Snow and Ice removal from roadways throughout the township
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Tree and vegetation removal. Damaged
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Snow and Ice removal on Township roadways
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Snow and Ice Removal on Township Roadways
June 23, 2019	Severe Storm	No	9 inches of rain in about 12 hours	Flooding and Damage to homes along low lying areas
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	PPE and protection supplies needed for Municipal Workers to Include Police, Fire, Administrative, and Public Works



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	No damages occurred

### 9.8.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Greenwich's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Greenwich. The Township of Greenwich reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township agreed with the calculated ranking.

Table 9.8-12. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Medium	Low	Medium	Low	Medium	High	Low	High



Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
High	Low	Medium	High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.8-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Gibbstown Fire Company - Station 21-1	Fire Station	Y	Y	Y	-
GUARDIAN ANGELS REGIONAL SCHOOL	Primary Education	Y	Y	Y	-
NEHAUNSEY MIDDLE SCHOOL	Secondary Education	Y	Y	Y	Refer to 2022-Greenwich-004
GREENWICH BOARD OF EDUCATION	Board of Education	Y	N	Y	-
Paulsboro, NJ	Port Facility	Y	Y	Y	-
HERCULES, INC. (GIBBSTOWN PLANT)	Hazardous Material Facility	Y	Y	Y	No longer in operation
DU PONT REPAUNO PLANT	Hazardous Material Facility	Y	Y	Y	-
GEO SPECIALTY CHEMICALS INC	Hazardous Material Facility	Y	Y	Y	No longer in operation
AIR LIQUIDE INDUSTRIAL US LP	Hazardous Material Facility	Y	Y	Y	No longer in operation
GENERAL CHEMICAL LLC	Hazardous Material Facility	Y	Y	Y	No longer in operation
MYPODIAMOND INC	Hazardous Material Facility	Y	Y	Y	No longer in operation
WACO TAILORS	Hazardous Material Facility	Y	N	Y	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.8.6.3 Identified Issues

After review of the Township of Greenwich's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Greenwich has identified the following vulnerabilities within their community:

- Broad Street Elementary School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.



- Nehaunsey Middle School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.
- The wastewater treatment facility located along North School Street is located in a floodplain (AE Zone). The facility is prone to flooding and damages.
- Nehaunsey Middle School, an identified community lifeline, is located along Swedesboro Road is located in a floodplain (AE Zone). Due to its location in the floodplain, the building is susceptible to flood damages.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Township lacks an adopted Disaster Debris Management Plan.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 4 repetitive loss properties. Other areas may be floodprone.

## 9.8.7 Mitigation Strategy and Prioritization

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

### 9.8.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.8-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Sluice gate cleanup / debris removal at Floodgate Road and Delaware River.	Municipal OEM, DuPont Facilities	Ongoing Capability - Continued discussion with local, county, and state officials on the areas of responsibility, maintenance and funding.	No	-	-
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: • Current hazards and risks • Changing conditions and actions that may reduce / increase risk to include monitoring and maintenance of privately owned dams • Best practices for hazard mitigation at the individual or property level.	Municipal OEM	Ongoing Capability - Continue inform and educate thru social media and local planning committees	No	-	-
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability – the Township prioritizes and improves facilities as needed	No	-	-
M-3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Public Works	Ongoing Capability	No	-	-
M-4	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	Municipal OEM and Working Group	Ongoing Capability – the Township continues to have meetings to keep everyone on the same level of awareness	No	-	-
M-5	Install permanent backup emergency power generator at Township Hall (CF-1).	Municipal OEM and Public Works Department	In Progress – the Township is in the process of building a new municipal complex that will have backup power	No	-	-



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-6	Install permanent backup emergency power generator at Municipal Court and wellhead at 21 North Walnut Street (CF-2) / (CF-8).	Municipal OEM and Public Works Department	In Progress – the Township is in the process of building a new municipal complex that will have backup power	No	-	-
M-7	Install permanent backup emergency power generator at Police Station (CF-4). <sup>2</sup>	Municipal OEM, Public Works Department, and Police Department	In Progress – the Township is in the process of building a new municipal complex that will have backup power	No	-	-
M-8	Install permanent backup emergency power generator at Public Works Building (CF-6).	Municipal OEM and Public Works Department	Completed March 2018 Municipal Funds/Grant	No	-	-
M-9	Install permanent backup emergency power generator for Water Tower (CF-7). <sup>2</sup>	Municipal OEM and Public Works Department	Completed March 2018 Municipal Funds/Grant	No	-	-
M-10	Install permanent backup emergency power generator at Well #4A / Water Treatment Plant (CF-9). <sup>2</sup>	Municipal OEM and Public Works Department	Completed March 2018 Municipal Funds/ Grant	No	-	-
M-11	Install permanent backup emergency power generator for Wellhead #5 / Treatment Plant (CF-10). <sup>2</sup>	Municipal OEM and Public Works Department	Completed March 2018 Municipal Funds/Grant	No	-	-
M-12	Install permanent backup emergency power generator for wellhead #6 on Harmony Road (CF-11). <sup>2</sup>	Municipal OEM and Public Works Department	Completed March 2018	No	-	-
M-13	Install permanent backup emergency power generator for Wastewater Treatment Plant on North School Street (CF-12). <sup>2</sup>	Municipal OEM and Public Works Department	Completed Municipal Funds February 2011 /Grant	No	-	-
M-14	Install permanent backup emergency power generator for Greenwich Township Elementary School (CF-15).	School Board Administration	No Progress	Yes	No Back up generation for school	School Board Administration
M-15	Install permanent backup emergency power generator for <del>North</del> Middle School (CF-16).	School Board Administration	No Progress	Yes	No Back up generation for school	School Board Administration
M-16	Engineering study to determine appropriate flood mitigation action for Wastewater Treatment facility located on	Municipal OEM and Public Works Department	No Progress/ Municipal Funding	Yes	Location in floodplain	Municipal OEM and Public Works Department





#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	Washington Street (located in a flood zone) (CF-10).					
M-17	Engineering study to determine appropriate flood mitigation action for shelter at Nehaunsey Middle School (CF-16).	School Board Officials	No progress – study has not been complete	Yes	Location in floodplain	School Board Administration
M-18	Address identified Repetitive Flood Loss Properties.	Municipal OEM and Public Works Department	Ongoing Capability – the Township is aware of the RL/SRL properties	No	-	-
M-19	Hazard threat assessment related to Wastewater Treatment facility located in flood zone on 61 North School Street (CF-12).	Municipal OEM and Public Works Department	No Progress – this facility has been located here since the 1940s and there is no record of flooding in the area	No	-	-



### 9.8.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.8-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.8.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

A mitigation action workshop was held in August 2021 and follow-up materials were provided that included 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.8-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Extreme Temperature	X									X
Flood	X	X			X	X			X	X
Geologic	X									X
Hazmat	X									X
Hurricane	X	X				X			X	X
Invasive	X									X
Nor'Easter	X	X				X			X	X
Severe Weather	X	X				X			X	X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X	X								X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.8-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Greenwich 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 9.8-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.8-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Greenwich-001 (previous action)	Generator at Broad Street Elementary School	<b>Problem:</b> Broad Street Elementary School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.  <b>Solution:</b> Purchase and install a diesel-fuel generator to allow for continuity of operations at the school and provide a building to use as a heating/cooling center in the Township.	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Township BOE, Township OEM	FEMA HMGP; Municipal Budget	Continuity of operations; protection population	\$30,000+	Medium	SIP	ES
2022-Greenwich-002 (previous action)	Generator at Nehaunsey Middle School	<b>Problem:</b> Nehaunsey Middle School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.	Existing	Utility Failure	1, 2, 5, 6	Within 2 years	Township BOE, Township OEM	FEMA HMGP; Municipal Budget	Continuity of operations; protection population	\$30,000+	Medium	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Purchase and install a diesel-fuel generator to allow for continuity of operations at the school and provide a building to use as a heating/cooling center in the Township.											
2022-Greenwich-003 (previous action)	Engineering Study at Wastewater Treatment Facility on North School Street	<b>Problem:</b> The wastewater treatment facility located along North School Street is located in a floodplain (AE Zone). The facility is prone to flooding and damages.  <b>Solution:</b> The Township will complete an engineering study at the facility to determine flood sources and mitigation options to protect the facility from flooding. Once the study is complete, the Township will implement projects to protect the facility.	Existing	Flood, Hurricane/ Tropical Storm, Nor'Easter, Severe Weather	1, 2, 5, 6	3 years	Township Engineer and Public Works	Municipal Budget for study, FEMA FMA and BRIC for implementation	Continuity of operations; increase protection	\$1 million+	Low	LPR, SIP	PP, ES, SP
2022-Greenwich-004 (previous action)	Engineering Study at Nehaunsey Middle School	<b>Problem:</b> Nehaunsey Middle School, an identified community lifeline, is located along Swedesboro Road is located in a floodplain (AE Zone). Due to its location in the floodplain, the building is susceptible to flood damages.	Existing	Flood, Hurricane/ Tropical Storm, Nor'Easter, Severe Weather	1, 2, 5, 6	3 years	Township Engineer and School BOE	Municipal Budget for study, FEMA FMA and BRIC for implementation	Continuity of operations; increase protection	\$1 million+	Low	LPR, SIP	PP, ES, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Township will complete an engineering study at the school to determine flood sources and mitigation options to protect the facility from flooding. Once the study is complete, the Township will implement projects to protect the school.											
2022-Greenwich-005	Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	6 months	Floodplain Administrator, Administration	Municipal budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Greenwich-006	Municipal Debris Management Plan	<p><b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will complete and adopt the Disaster Debris Management Plan once complete.</p>	Existing	All Hazards	5	1 year	Highway, OEM	Municipal budget	Increased planning for post-disaster response and cleanup.	Staff time		LPR	ES
2022-Greenwich-007	RL/SRL Property Outreach	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 4 repetitive loss properties. Other areas may be floodprone.</p> <p><b>Solution:</b> Conduct outreach to over 200 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</p>	Existing	Flood, Severe Weather	1, 2	3 years	Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1 million+	High	SIP	PP





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		residential homes in the flood prone areas that experience frequent flooding (high risk areas).											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-Greenwich-001	Generator at Broad Street Elementary School	1	1	1	1	0	0	-1	1	1	0	0	1	1	1	8	Medium
2022-Greenwich-002	Generator at Nehaunsey Middle School	1	1	1	1	0	0	-1	1	1	0	0	1	1	1	8	Medium
2022-Greenwich-003	Engineering Study at Wastewater Treatment Facility on North School Street	0	1	0	1	0	1	-1	0	0	0	1	0	1	0	4	Low
2022-Greenwich-004	Engineering Study at Nehaunsey Middle School	0	1	0	1	0	1	-1	0	0	0	1	0	1	0	4	Low
2022-Greenwich-005	Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-Greenwich-006	Municipal Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-Greenwich-007	RL/SRL Property Outreach	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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



This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.8.8 Action Worksheets

The following action worksheets have been developed by the Township of Greenwich to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Generator at Broad Street Elementary School		
<b>Project Number:</b>	2022-Greenwich-001 (previous action)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Broad Street Elementary School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a diesel-fuel generator to allow for continuity of operations at the school and provide a building to use as a heating/cooling center in the Township.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	Power loss averted	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; protection population
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Township BOE, Township OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Solar Panels	High	Weather dependent
	Wind Turbine	High	Weather dependent
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Generator at Broad Street Elementary School	
<b>Project Number:</b>	2022-Greenwich-001 (previous action)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	Requires cooperation of Board of Education
Fiscal	-1	Requires funding support
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	0	Utility Failure
Timeline	1	Within 2 years
Agency Champion	1	Township BOE, Township ORM
Other Community Objectives	1	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Generator at Nehaunsey Middle School		
<b>Project Number:</b>	2022-Greenwich-002 (previous action)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Nehaunsey Middle School is an identified critical facility in the Township. The school does not have a source of backup power. The school could serve as a heating/cooling center if needed; however, without backup power, it cannot serve as a center.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Purchase and install a diesel-fuel generator to allow for continuity of operations at the school and provide a building to use as a heating/cooling center in the Township.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	Power loss averted	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; protection population
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$30,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP; Municipal Budget
<b>Responsible Organization:</b>	Township BOE, OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Solar Panels	High	Weather dependent
	Wind Turbine	High	Weather dependent
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Generator at Nehaunsey Middle School	
<b>Project Number:</b>	2022-Greenwich-002 (previous action)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	Requires cooperation of Board of Education
Fiscal	-1	Requires funding support
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	0	Utility Failure
Timeline	1	Within 2 years
Agency Champion	1	Township BOE, Township ORM
Other Community Objectives	1	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Engineering Study at Wastewater Treatment Facility on North School Street		
<b>Project Number:</b>	2022-Greenwich-003 (previous action)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	The wastewater treatment facility located along North School Street is located in a floodplain (AE Zone). The facility is prone to flooding and damages.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will complete an engineering study at the facility to determine flood sources and mitigation options to protect the facility from flooding. Once the study is complete, the Township will implement projects to protect the facility.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	TBD by engineering study	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; increase protection
<b>Useful Life:</b>	TBD by engineering study	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Low	<b>Desired Timeframe for Implementation:</b>	3 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	Municipal Budget for study, FEMA FMA and BRIC for implementation
<b>Responsible Organization:</b>	Township Engineer and Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove wastewater treatment facility	N/A	Cannot be removed, services are needed
	Elevate facility	N/A	Full facility cannot be elevated
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Engineering Study at Wastewater Treatment Facility on North School Street	
<b>Project Number:</b>	2022-Greenwich-003 (previous action)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	
Cost-Effectiveness	0	Cost-effectiveness unknown
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	-1	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather
Timeline	0	3 years
Agency Champion	1	Township Engineer and Public Works
Other Community Objectives	0	
<b>Total</b>	4	
<b>Priority (High/Med/Low)</b>	Low	



Action Worksheet			
<b>Project Name:</b>	Engineering Study at Nehaunsey Middle School		
<b>Project Number:</b>	2022-Greenwich-004 (previous action)		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather		
<b>Description of the Problem:</b>	Nehaunsey Middle School, an identified community lifeline, is located along Swedesboro Road is located in a floodplain (AE Zone). Due to its location in the floodplain, the building is susceptible to flood damages.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will complete an engineering study at the school to determine flood sources and mitigation options to protect the facility from flooding. Once the study is complete, the Township will implement projects to protect the school.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	TBD by engineering study	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; increase protection
<b>Useful Life:</b>	TBD by engineering study	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	Low	<b>Desired Timeframe for Implementation:</b>	3 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	Municipal budget for study, FEMA FMA and BRIC for implementation
<b>Responsible Organization:</b>	Township Engineer and School BOE	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove school	N/A	Cannot be removed, services are needed
	Relocate school	N/A	No other suitable locations available
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Engineering Study at Nehaunsey Middle School	
<b>Project Number:</b>	2022-Greenwich-004 (previous action)	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	
Cost-Effectiveness	0	Cost-effectiveness unknown
Technical	1	Project is technically feasible
Political	0	
Legal	1	
Fiscal	-1	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Weather
Timeline	0	3 years
Agency Champion	1	Township Engineer and Public Works
Other Community Objectives	0	
<b>Total</b>	4	
<b>Priority (High/Med/Low)</b>	Low	



Action Worksheet			
<b>Project Name:</b>	RL/SRL Property Outreach		
<b>Project Number:</b>	2022-Greenwich-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 4 repetitive loss properties. Other areas may be floodprone.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to over 200 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	Floodplain administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
	Action	Estimated Cost	Evaluation
<b>Alternatives:</b>	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		
<b>Project Name:</b>	RL/SRL Property Outreach	
<b>Project Number:</b>	2022-Greenwich-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Families moved out of high-risk flood areas.
<b>Property Protection</b>	1	Properties removed from high-risk flood areas.
<b>Cost-Effectiveness</b>	1	Cost-effective project
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	0	Project would remove families from the flood prone areas of the Township.
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Severe Storm, Weather
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	NFIP Floodplain Administrator, supported by homeowners
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



## 9.9 TOWNSHIP OF HARRISON

This section presents the jurisdictional annex for the Township of Harrison and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Harrison's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.9.1 Hazard Mitigation Planning Team

The Township of Harrison followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Harrison's hazard mitigation plan primary and alternate points of contact. 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 9.9-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Brian Bartholomew, Emergency Management Coordinator Address: 114 Bridgeton Pike, Mullica Hill, NJ Phone Number: 609-685-1643 Email: <a href="mailto:harrisonwpoe@harrisonwp.us">harrisonwpoe@harrisonwp.us</a>	Name/Title: Frank Rodgers, Deputy Emergency Management Coordinator Address: 114 Bridgeton Pike, Mullica Hill, NJ Phone Number: 856-974-2668 Email: <a href="mailto:frankrodgers233@gmail.com">frankrodgers233@gmail.com</a>
NFIP Floodplain Administrator	



Name/Title: Dennis McNulty, PE, Remington & Vernick, Township Engineer  
Address: 114 Bridgeton Pike, Mullica Hill, NJ  
Phone Number: 609-410-7711  
Email: [dennis.mculty@rve.com](mailto:dennis.mculty@rve.com)

Name	Title	Method of Participation
Brian Bartholomew	Emergency Management Coordinator	Attended meetings; completed worksheets; provided status of previous mitigation actions; identified mitigation actions; reviewed annex
Frank Rodgers	Deputy Emergency Management Coordinator	Attended meetings; completed worksheets; provided status of previous mitigation actions; identified mitigation actions; reviewed annex
Dennis McNulty, PE	Township Engineer	Attended meetings; completed worksheets; provided status of previous mitigation actions; identified mitigation actions; reviewed annex

## 9.9.2 Municipal Profile

Harrison Township traces its history as a farm and mill community to the early 18th century when members of the Mullica family settled the north side of the Raccoon Creek. Recent research of the land deeds and titles of the period show that it was probably William Mullica, one of three sons of Erick Mullica, that was the first family member to purchase land in the area. During the 18th century, the three other villages, Jefferson, Ewan, and Richwood were established.

Harrison Township, New Jersey is 19.84 square miles and is located in the central portion of Gloucester County, approximately 25 miles south of Camden, New Jersey. Harrison Township is bordered by the municipalities of East Greenwich Township, Mantua Township, the Borough of Glassboro, Elk Township, South Harrison Township, and Woolwich Township. Exit two of the New Jersey Turnpike is located just outside the northeast corner of the Township and provides for easy access to both metropolitan Philadelphia, Pennsylvania and Wilmington, Delaware. Unincorporated communities, localities and place names located partially or completely within the township include Mullica Hill, Richwood, Ewan, Ewans Mills, Heritage, Jefferson and Sherwin.

The municipality is governed under the township form of municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.

According to the U.S. Census, the 2010 population for the Township of Harrison was 12,417. The estimated 2019 population was 12,995, a 4.5 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.8 percent of the population is 5 years of age or younger and 10.3 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.



## 9.9.3 Jurisdictional Capability Assessment and Integration

The Township 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) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.9.3). The updated mitigation strategy includes opportunities the Township of Harrison identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.9.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Harrison, what is present in the jurisdiction, and code citation and date.

*Table 9.9-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 97 – Uniform Construction Codes, 6/21/2021	State and Local	Construction Official
<i>How does this reduce risk?</i>					
The building code sets building requirements for construction to ensure it meets expected stresses from hazard events.					
<b>Zoning Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 225 – Zoning, 10/17/1978	Local	Joint Land Use Board (JLUB)
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Municipal Code of the Township of Harrison includes provisions to reduce the risk of flood damage by restricting development within flood hazard areas of the Township					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 192 – Subdivision of Land, Municipal Code, adopted 12/29/1975	Local	Joint Land Use Board (JLUB)
<i>How does this reduce risk?</i> The purpose of this chapter shall be to provide rules, regulations and standards to guide land subdivision in the Township of Harrison in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to insure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities, and services.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 188 –Stormwater Management, 6/07/21	Local	Harrison Township
<i>How does this reduce risk?</i> The Stormwater Management ordinance of the Township of Harrison requires major development to meet or exceed the State requirements of the New Jersey Stormwater Regulations (N.J.A.C. 9:8) in order to reduce the risk of flooding by requiring control of stormwater runoff through best management practices for stormwater management including green infrastructure, retention and groundwater recharge.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinances</b>	Yes	Yes	Chapter 174 – Site Plans, Major, 6/01/1981 Chapter 176 – Site Plans, Minor, 12/20/1993	Local	Harrison Township Joint Land Use Board (JLUB)
<i>How does this reduce risk?</i> The combined Zoning and Planning Boards of the Township of Harrison make up the Joint Land Use Board (JLUB) which reduces the risk of hazards by controlling land development within the Township including restricting development and redevelopment within areas prone to hazardous conditions including flood hazard areas and locations where existing topographic conditions could result in landslides from removal of existing vegetation. Design standards of the site plan code also prevent new land grading from creating steep slopes and require new stormwater basins to contain emergency spillways that will direct overflow stormwater toward areas that will not directly impact nearby homes and property.					
<b>Environmental Protection Ordinance</b>	Yes	Yes	Chapter 20 – Environmental Commission, 11/04/1974	Local	Construction Code Official
<i>How does this reduce risk?</i> The Commission was established for the protection, development or use of natural resources, including water resources. The Commission has power to conduct research into the use and possible use of the open land areas of the Township and may coordinate the activities of unofficial bodies organized for similar purposes, and may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which in its judgment it deems necessary for its purposes. It keeps an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, in order to obtain information on the proper use of such areas; and may from time to time recommend to the Planning Board plans and programs for inclusion in the Master Plan and the development and use of such areas. The Environmental Commission reduces risk by ensuring that environmentally sensitive areas are protected and that any development within these areas will be context-sensitive to limit the disturbances.					
Chapter 188 definition of environmentally sensitive areas including wellhead protection and groundwater recharge areas. This reduces the risk of development in wellhead protection areas by restricting development in these sensitive areas of the Township.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 123 – Flood Damage Prevention, 12/07/2009	Local	Construction Code Official
<i>How does this reduce risk?</i> The Township code contains floodplain management regulations to reduce the risk of flood damage resulting from development within the Township. Floodplain management in the Township is accomplished by a combination of zoning ordinances, subdivision regulations, building codes, health regulations, special-purpose ordinances, and other applications of police power for the purpose of flood damage prevention and reduction. The Construction Official is the appointed floodplain administrator for the Township, conducting permit reviews, maintain information, and interpreting flood maps. The ordinance requires all new construction and substantial improvements of structures in the floodplain must have their lowest floor elevated to or above the BFE.					
<b>Wellhead Protection</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes	Chapter 225 – Zoning, 10/17/1978	Local	Joint Land Use Board (JLUB)
<i>How does this reduce risk?</i> During reexaminations of the Master Plan of the Township of Harrison, updates to the zoning areas are reviewed with GIS mapping layers that are updated by the County for environmentally sensitive issues. This reduces risk by restricting development within wetlands, floodways, riparian area, and floodplains. Any development within these areas would require permitting and mitigation measures through State regulatory agencies such as the New Jersey Department of Environmental Protection to reduce risks associated with development in these areas.					
<b>Capital Improvement Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, 2/2006	Local	Public Works
<i>How does this reduce risk?</i> The Harrison Township Watershed Based Municipal Stormwater Management Plan reduces the risk of hazard associated with stormwater runoff resulting from development of land within the Township.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention	Local	Stormwater Program Coordinator
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Urban Water Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>		Yes			
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Public Health Plan</b>	No	-	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-

### 9.9.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Harrison to oversee and track development.

*Table 9.9-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? • If yes, what department is responsible? • If no, what is your process for development?	Yes	Zoning and Construction Department
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? • If yes, describe. • If no, quantitatively describe the level of buildout in the jurisdiction.	No	-

### 9.9.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Harrison and their current responsibilities which contribute to hazard mitigation.

*Table 9.9-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Joint Land Use Board (JLUB) is a combined Zoning Board of Adjustment and Planning Board that implements the Land Use ordinances and oversees land use policies and procedures including review of development applications, and development of the Master Plan and planning for growth within the Township.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The Environmental Commission fosters environmental awareness, understanding, and appreciation to protect and sustain natural resources within the Township. The Commission advocated for the long-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		term protection of natural resources, promotes public interest in environmental issues and provides educational resources for residents.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Public Works Department maintains township owned roads, parks, open spaces, and properties, including overseeing stormwater management and assures proper working order of inlets and catch basins.
Construction/Building/Code Enforcement Department	Yes	The Township has a Construction Department with a construction official, zoning officer, electrical subcode, housing official, and fire inspector.
Emergency Management/Public Safety Department	Yes	The Office of Emergency Management provides hazard mitigation plan information including supporting COVID-19 assistance and services.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Gloucester County Alert
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Harrison Township Stormwater Pollution and Prevention Plan (SPPP) incorporates provisions, details and schedules for regular maintenance of stormwater system infrastructure components throughout the Township as required by the State
Mutual aid agreements	No	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	Yes	The Green Team oversees sustainable initiatives of the Township and works to improve quality of life through the Sustainable Jersey Program. The Township is a Bronze certified applicant as of 12/20/2017.
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Harrison Township maintains annual professional service agreements with consulting engineers and planners with extensive knowledge of land development and land management practices
Engineers or professionals trained in building or infrastructure construction practices	Yes	Harrison Township maintains annual professional service agreements with consulting engineers including professionals trained in building and infrastructure construction practice
Planners or engineers with an understanding of natural hazards	Yes	Harrison Township maintains annual professional service agreements with consulting planners and engineers with an extensive understanding of natural hazards
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Harrison Township maintains annual professional service agreements with engineers including



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		professionals trained in conducting damage assessments
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Harrison Township maintains annual professional service agreements with engineers including skilled professionals trained in GIS applications
Scientist familiar with natural hazards	Yes	Harrison Township maintains annual professional service agreements with engineers and professionals who have degrees with scientific knowledge of natural hazards
Surveyor(s)	Yes	Harrison Township maintains annual professional service agreements with engineering consultants who have licensed Land Surveyors on staff
Emergency Manager	Yes	Harrison Township has a dedicated coordinator and two deputy coordinators who manage coordinating emergency planning and response actions with the OEM
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)		Harrison Township maintains annual professional service agreements with engineers and professionals which include stormwater engineers and environmental scientists who specialize in various scientific areas including hazardous materials

### 9.9.3.4 Fiscal Capability

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

*Table 9.9-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	Yes, capital improvements project funding is accessible and used for hazard risk mitigation purposes
Authority to levy taxes for specific purposes	No, taxes to support these efforts in the future cannot be used due to State-mandated cap on property taxes
User fees for water, sewer, gas or electric service	Yes, wastewater connection fees are accessible to use for mitigation
Impact fees for homebuyers or developers of new development/homes	No, would require adoption of an amended zoning ordinance to collect and use impact fees to support this purpose in the future
Stormwater utility fee	No, would require adoption of a new stormwater utility ordinance to establish fees
Incur debt through general obligation bonds	No, would require local government approval in order to support this use in the future



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Incur debt through special tax bonds	No, would require local government approval in order to support this use in the future
Incur debt through private activity bonds	No, would require local government approval in order to support this use in the future
Withhold public expenditures in hazard-prone areas	Yes, public expenditures in hazard-prone areas can be withheld in the form of capital expenditures allocation for public works projects
Other federal or state funding programs	Yes, state aid funded programs such as municipal aid grants can be used for mitigation of hazards if they are within the scope and limits of funded project areas
Open Space Acquisition funding programs	Yes, Green Acres funding can be used to acquire land for new parks and open space which may contain hazardous features or conditions
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No, Township does not own their water utility system so these cannot be used to support in the future

### 9.9.3.5 Education and Outreach Capability

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

*Table 9.9-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	The Office of Emergency Management webpage links to the previous HMP.
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Other	No	-

### 9.9.3.6 Community Classifications

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



Table 9.9-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	Yes	Bronze	12/20/2017
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

The Township of Harrison has achieved Sustainable Jersey certification through various actions. The following actions within the program relate to hazard mitigation:

- Raingardens: Two rain garden were installed at the Harrison Township Wastewater Facility to address the erosion issue caused by surface run off.
- Environmental Commission: The Harrison Township Environmental Commission is an advisory commission made up of 9 members, a Township Committeeperson, and a Joint Land Use Board representative. When applications are reviewed, they advise the Joint Land Use Board (JLUB) of their concerns in detail for them. The JLUB then has the power to review information, ask the applicant to change aspects, deny applications, and so on.
- Household Hazardous Waste: The Public Works department collects used motor oil, oil filters, electronics, and anti-freeze from households.

### 9.9.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.9-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Geological Hazards	Moderate
Hazardous Materials	Moderate
Hurricane/Tropical Storm	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.9.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.9-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 16</li> <li># RL properties: 0</li> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$6,673.00</li> <li># claims filed: 2</li> <li>Total loss payments: \$18,338.06</li> </ul>
Describe areas prone to flooding in your jurisdiction.	Typically along areas of parcels located along the following: Raccoon Creek; South Branch Raccoon Creek; Raccoon Creek Tributaries; South Branch Raccoon Creek Tributary; Rattling Run; Mullica Hill Pond; Hess Pond; Miery Run; Clems Run; Clems Run Tributary; Kincaid Lake (drained); Edwards Run; Edwards Run Tributary; Ewan Lake
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> <li>N/A</li> </ul>
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	



NFIP Topic	Comments
What local department is responsible for floodplain management?	Construction
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Consultant retained
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	None (consultant retained as needed)
What specific training or support does your floodplain management staff need to support its floodplain management program?	E0273: Managing Floodplain Development through the National Flood Insurance Program (and) E0274: Understanding Floodplain Data through Geographic Information Systems (GIS)
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Engineering review by Harrison Township's Joint Land Use Board Engineer consultant
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	11/30/1994
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 123</li> <li>December 7, 2009</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	No
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Site Plan review by Joint Land Use Board
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>N/A</li> <li>Yes</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	N/A
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable





## 9.9.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.9-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	29	-	28	-	23	-	17	-	9	-	3	-
Multi-Family	0	-	0	-	0	-	0	-	0	-	0	-
Other (commercial, mixed-use, etc.)	0	-	7	-	8	-	1	-	0	-	0	-
Total Permits Issued	29	-	35	-	31	-	18	-	9	-	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												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None identified												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.9.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Harrison's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified



using mapping techniques and technologies and for which the Township of Harrison has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.9-1. Township of Harrison Hazard Area Extent and Location Map 1

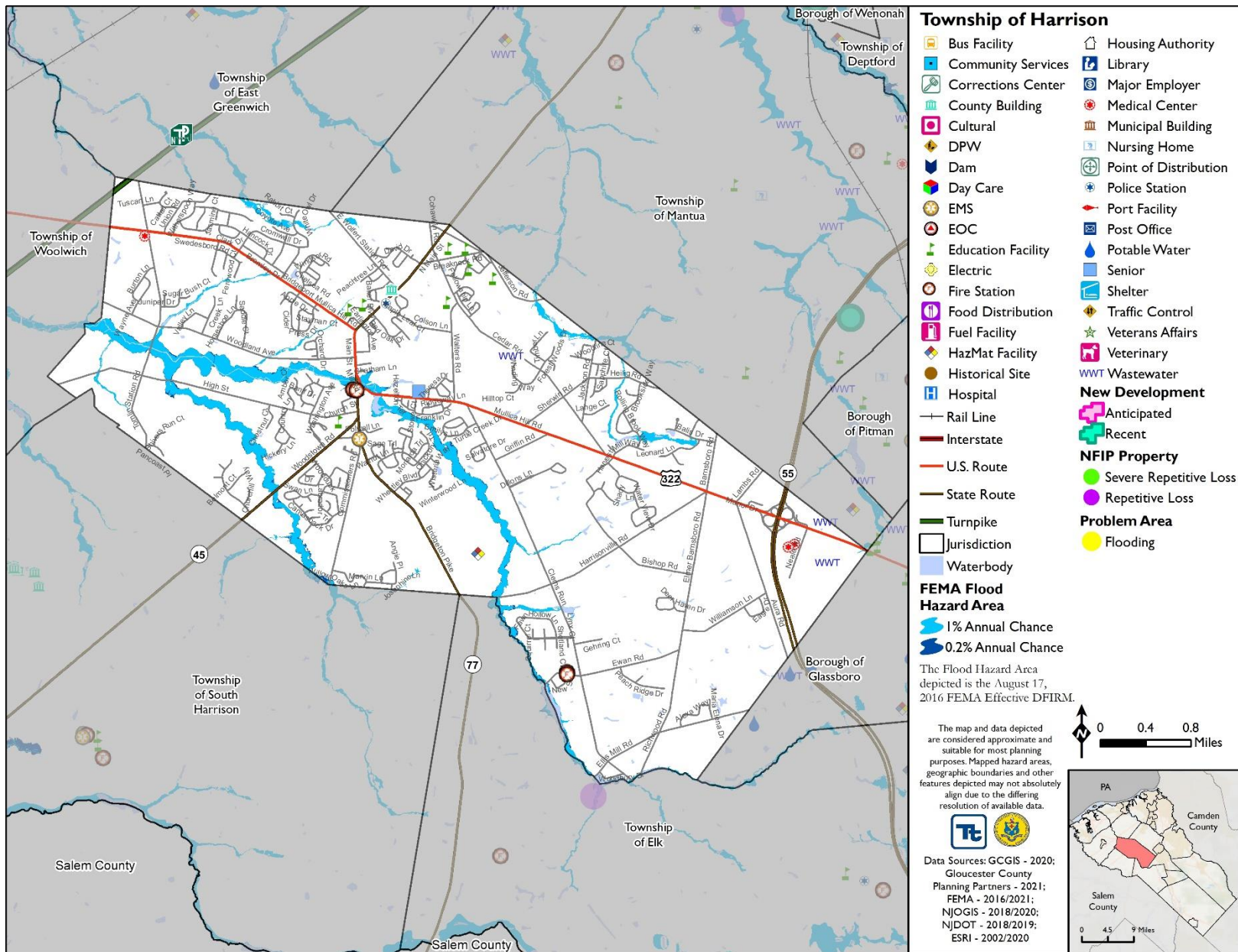






Figure 9.9-2. Township of Harrison Hazard Area Extent and Location Map 2

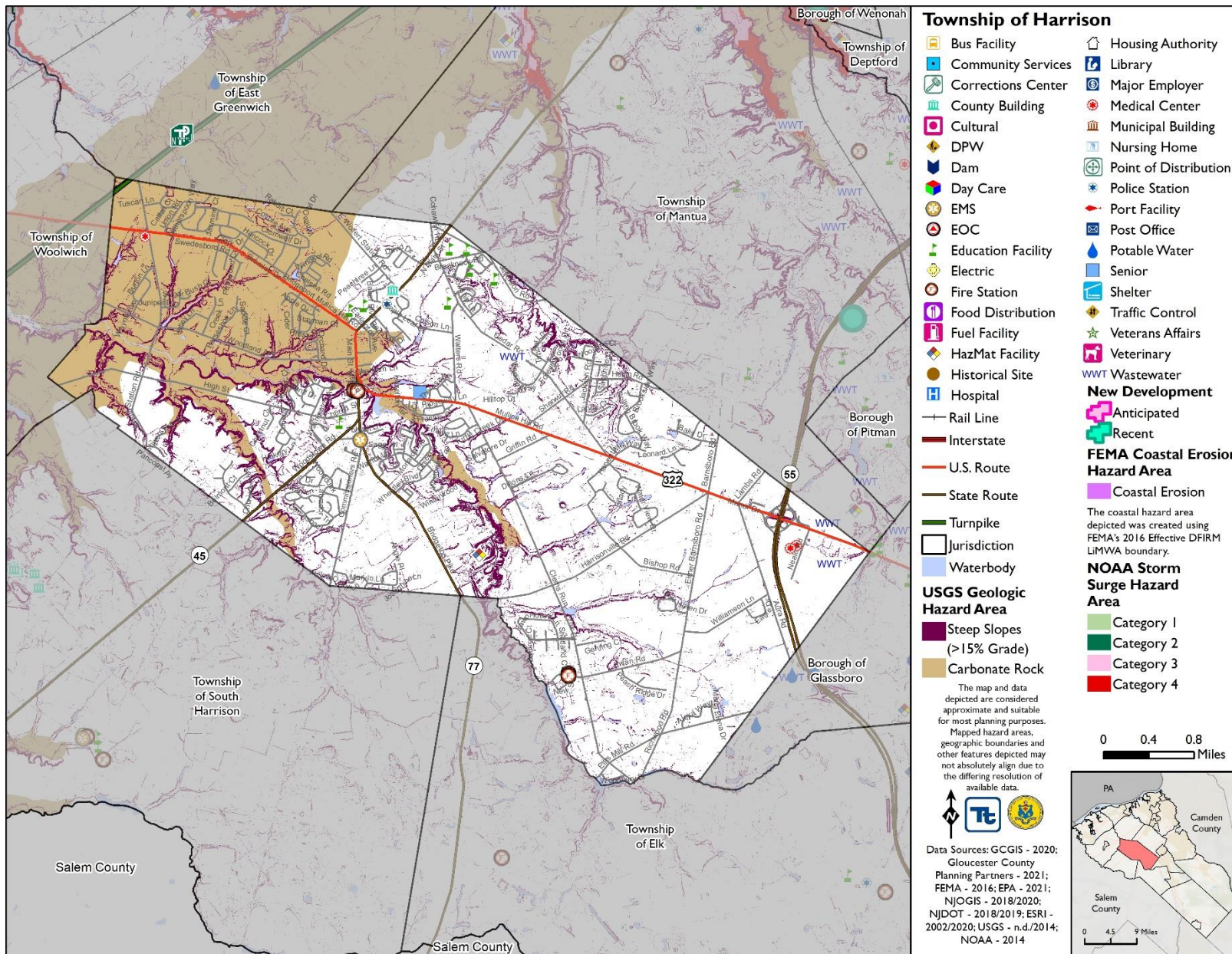






Figure 9.9-3. Township of Harrison Hazard Area Extent and Location Map 3

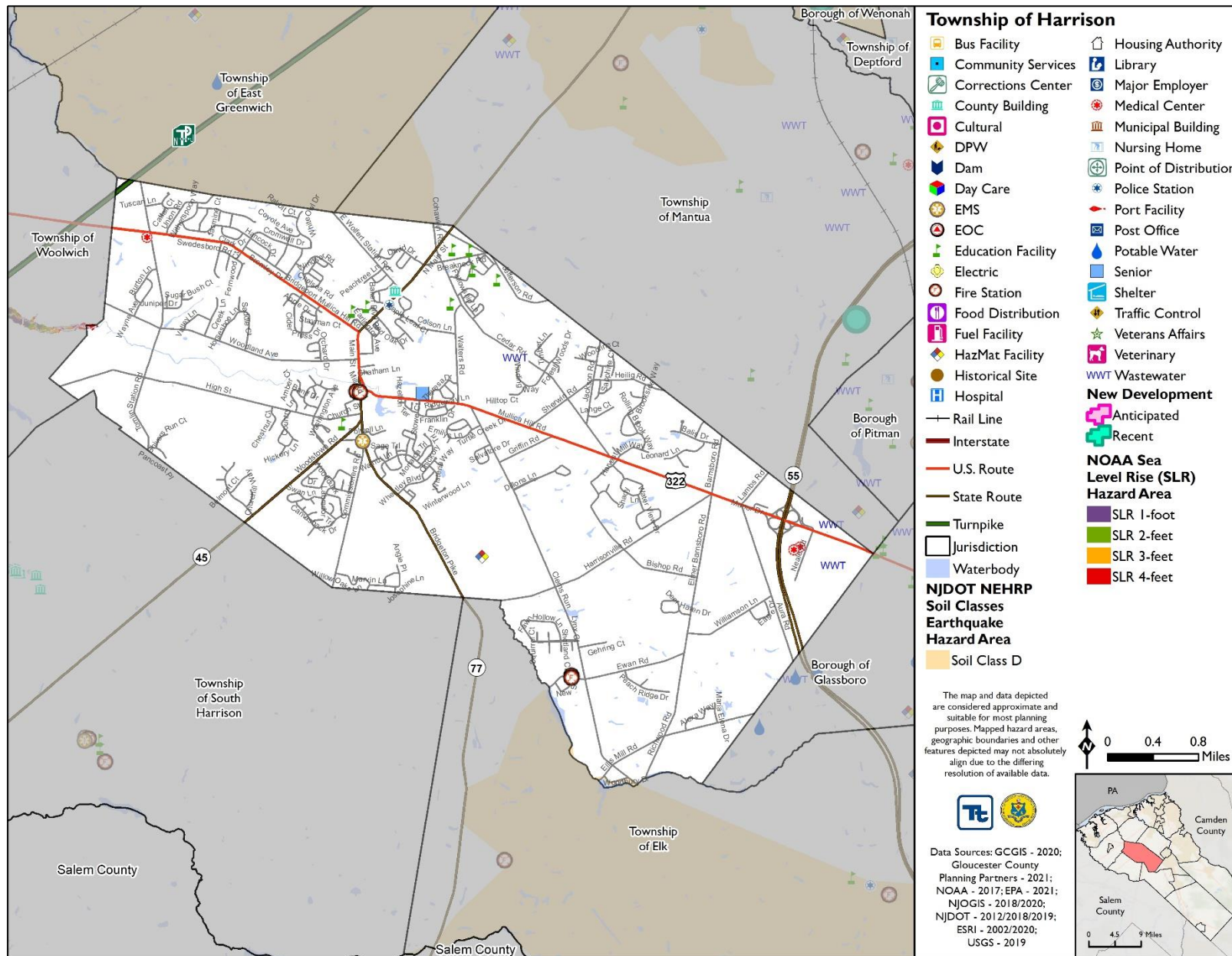
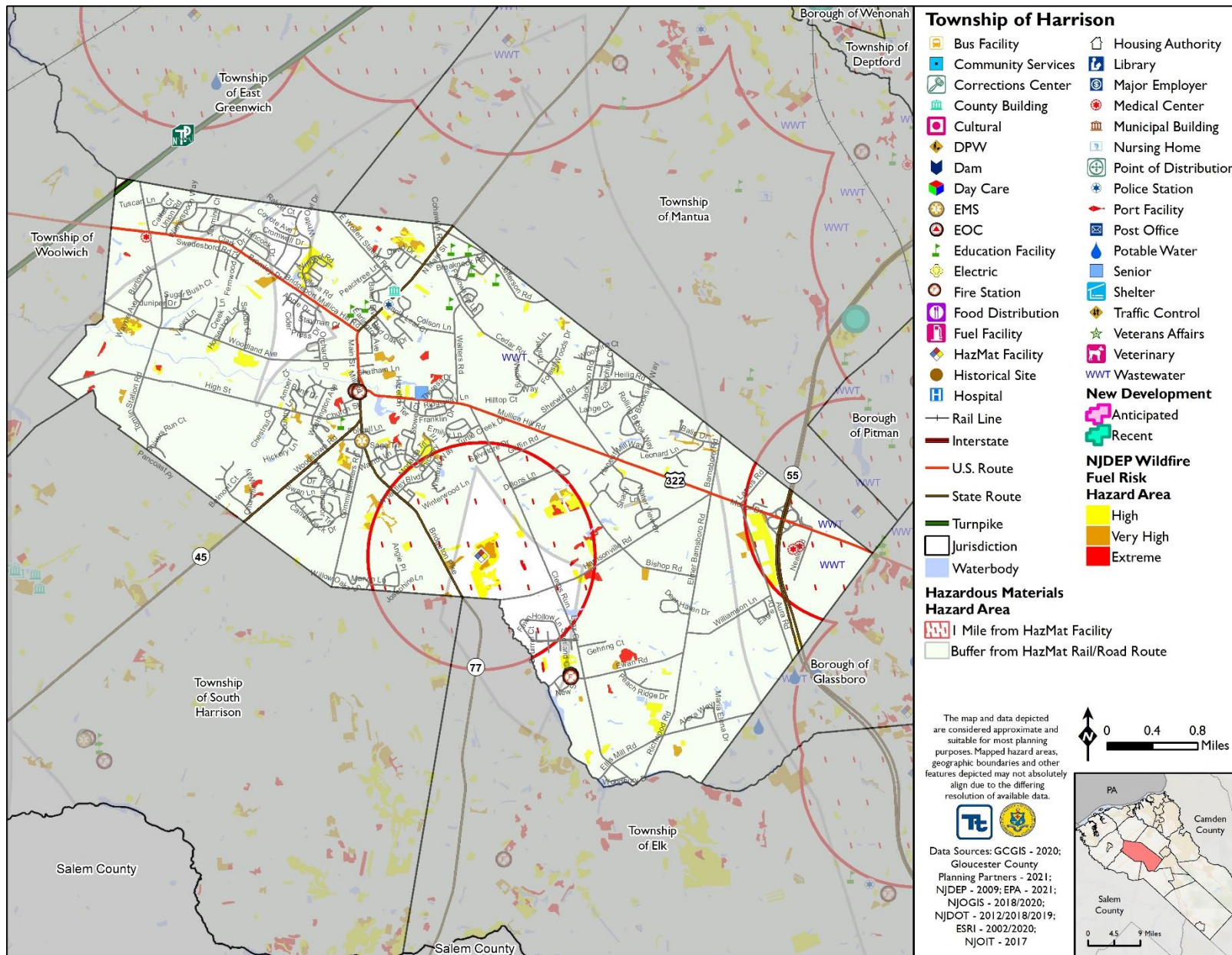




Figure 9.9-4. Township of Harrison Hazard Area Extent and Location Map 4







### 9.9.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Harrison's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.9-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	While the County experienced impacts from this event, the Township did not identify damages or losses.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	While the County experienced impacts from this event, the Township did not identify damages or losses.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	While the County experienced impacts from this event, the Township did not identify damages or losses.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	While the County experienced impacts from this event, the Township did not identify damages or losses.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	While the County experienced impacts from this event, the Township did not identify damages or losses.
September 1– 3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with	While the County experienced impacts from this event, the Township did not identify damages or losses.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.9.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Harrison's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Harrison. The Township of Harrison reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township agreed the calculated ranking and did not modify the rankings.

Table 9.9-12. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Low	Low	Medium	Low	Medium	Low	Low	High

Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Medium	High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.9-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.9.6.3 Identified Issues

After review of the Township of Harrison's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Harrison has identified the following vulnerabilities within their community:

- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Township lacks an adopted Disaster Debris Management Plan.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims.
- Wastewater pump station #5 provides essential services to the Township. The pump does not have backup power and during a power outage, services can be disrupted.
- Current emergency power generator upgrades needed to maintain security and safety of students/staff
- As a designated shelter for emergencies, Friends School does not have backup power to function properly as a shelter. The Township has identified the school as a shelter. In the event of a power outage, the school cannot operate as a shelter.

Specific areas of concern based on resident response to the citizen survey include:

- In my development there are several streets with potholes near sewer grates that are so bad I think they're going to cave in at some point. My street has a crack from one side of the street to the other. It seems like we lose power a lot during storms.
- 322 floods just East of the intersection of Rt 45 & 322.
- Dead tree hovering over the electric lines that service a number of homes. Electric company tagged it for take down a year ago, but despite our reminding them of the danger presented by the tree falling on the lines, they have not responded. We live on 322 and the speed with which container trucks travel on the road is very dangerous and we fear an accident that may cause a spill will endanger all the residents along the trucks path.



- 1. Vulnerable power "grid", does not take much to knock it out, long rural runs, not really a grid. This combined with the very high-water table in the area (Ewan) makes for constant anxiety about basement sump pump failure. 2. Vulnerable storm water management in the area (Ewan). There basically is no storm water management, a few pipes to keep the county roads dry and all just dump it on the property owners land to drain to the lakes and streams.
- Haz release due to truck traffic accidents along 322.

## 9.9.7 Mitigation Strategy and Prioritization

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

### 9.9.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.9-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
MJ-1	Alleviate flooding at Fire Station/EMS (Ewan Fire Company) located on 312 Ewan Road, Mullica Hill (CF-5).	Municipal OEM, Gloucester County Engineering Department	Completed	No	-	-
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing, Twp. website has been continuously updated with OEM info	No	-	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing	No	-	-
M-03	Conduct Regular Municipal Working Group Meetings	Municipal OEM & Municipal Working Group	Ongoing, meetings held quarterly	No	-	-
M-04	Upgrade back-up emergency power generator at Township Hall.	Municipal OEM	Completed	No	-	-
M-05	Install back-up emergency power generator at Public Works Yard.	Public Works Department	In progress	No	-	-
M-06	Install permanent back-up emergency power generator at Wastewater Pump Station #5.	Wastewater Department	No progress, part of future replacement plans	Yes	Located adjacent to environmentally sensitive area (freshwater wetlands)	Michael Gonserkevis, Harrison Township Waste-water Superintendent
M-07	Install permanent back-up emergency power generator at Wastewater Pump Station #6.	Wastewater Department	Completed	No	-	-
M-08	Install permanent back-up emergency power generator at Wastewater Pump Station #12.	Wastewater Department	In progress, waiting for delivery of unit. Delayed due to COVID.	No	-	-
M-09	Install permanent back-up emergency power generator at Wastewater Pump Station #13.	Wastewater Department	Completed	No	-	-
M-10	Upgrade back-up emergency power generator at Clearview	School Board	No progress	Yes	Current emergency power generator upgrades	Steve Nicolella, Director of Facilities



#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	Regional High School located at 401 Cedar Road (CF-26).				needed to maintain security and safety of students/staff	
M-11	Upgrade back-up emergency power generator at Pleasant Valley Elementary School.	School Board	No progress	No	-	-
M-12	Support acquisition and installation of permanent back- up emergency power generator for Friends School (CF-30) (designated shelter location).	Friends School and Municipal OEM	No progress	Yes	As a designated shelter for emergencies, facility requires a permanent back-up emergency power generator to ensure shelter safety	Lori Rowe, Director of Operations, Friends School Mullica Hill
M-13	Follow-up with landowner of flood prone property at Raccoon Creek.	Floodplain Administrator	No progress	No	-	-



### 9.9.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.9-14, the Township did not undertake any additional mitigation efforts completed over the last five years.

### 9.9.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

A mitigation action workshop was held in August 2021 and during the meeting, participants were provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.9-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion and Sea Level rise	X									X
Dam / Levee Failure	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Extreme Temperature	X									X
Flood	X	X			X	X				X
Geologic	X									X
Hazardous Materials	X									X
Hurricane/Tropical Storm	X									X
Invasive and Nuisance Species	X									X
Nor'Easter	X									X
Severe Weather	X	X				X				X
Severe Winter Weather	X	X				X				X
Wildfire	X									X
Utility Failure	X	X				X				X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.9-16) summarizes the comprehensive range of specific mitigation initiatives the Township 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 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 9.9-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.9-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Harrison-001	Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	6 months	Floodplain Administrator, Township Administration	Township budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	Medium	LPR	PR
2022-Harrison-002	Municipal Debris Management Plan	<p><b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.</p>	Existing	All Hazards	5	1 year	Public Works, OEM	Township budget	Increased planning for post-disaster response and cleanup.	Staff time	Medium	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Harrison-003	RL/SRL Property Outreach	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims.</p> <p><b>Solution:</b> Conduct outreach to 16 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).</p>	Existing	Flood	1, 2	3 years	Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1 million+	Medium	SIP	PP
2022-Harrison-004	Generator at Wastewater Pump Station #5	<p><b>Problem:</b> Wastewater pump station #5 provides essential services to the Township. The pump does not have backup power and during a power outage, services can be disrupted.</p>	Existing	Utility Failure, Severe Weather, Severe Winter Weather, Flood	1, 2, 6	Within 5 years	Township Wastewater Superintendent	FEMA HMGP, Municipal Budget	Continuity of operations; little to no disruption in services	\$50,000+	High	SIP	ES, PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Township will determine the proper size generator to install at the pump station. Once determined, the Township will purchase and install a generator to provide continuous power to the pump during a power outage.											
2022-Harrison-005	Generator at Clearview Regional High School	<b>Problem:</b> Current emergency power generator upgrades needed to maintain security and safety of students/staff  <b>Solution:</b> The School Board and the Township will determine the proper size generator to install at the school. Once identified, the generator will be purchased and installed at the school. This will allow the school to function properly during power outages and provide a safe environment for students and staff during power outages.	Existing	Utility Failure, Severe Weather, Severe Winter Weather, Flood	1, 2, 6	Within 5 years	Township Committee, School Board	FEMA HMGP, School Budget	Continuity of operations	\$50,000+	High	SIP	ES, PP
2022-Harrison-006	Generator for Friends School	<b>Problem:</b> As a designated shelter for emergencies, Friends School does not have backup power to function properly as a shelter. The Township has identified the school as a shelter. In the	Existing	Utility Failure, Severe Weather, Severe Winter	1, 2, 6	Within 5 years	Township Committee, School Board	FEMA HMGP, School Budget	Continuity of operations; shelter for residents	\$50,000+	High	SIP	ES, PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>event of a power outage, the school cannot operate as a shelter.</p> <p><b>Solution:</b> The School Board and the Township will determine the proper size generator to install at the school. Once identified, the generator will be purchased and installed at the school. This will allow the school to function properly during power outages and provide a shelter for Township residents.</p>		Weather, Flood									

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-Harrison-001	Flood Damage Prevention Ordinance	1	1	1	1	0	0	1	0	0	1	0	1	0	0	7	Medium
2022-Harrison-002	Municipal Debris Management Plan	1	1	1	1	0	0	1	0	0	1	1	1	0	0	8	Medium
2022-Harrison-003	RL/SRL Property Outreach	1	1	1	1	1	0	1	0	0	1	0	1	0	0	8	Medium
2022-Harrison-004	Generator at Wastewater Pump Station #5	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	High






Project Number	Project 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
2022-Harrison-005	Generator at Clearview Regional High School	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	High
2022-Harrison-006	Generator for Friends School	1	1	1	1	0	0	0	0	1	1	1	1	1	0	9	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.9.8 Action Worksheets

The following action worksheets have been developed by the Township of Harrison to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	RL/SRL Property Outreach		
<b>Project Number:</b>	2022-Harrison-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 16 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	100-year flood	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$1 million+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by homeowners
<b>Responsible Organization:</b>	Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Acquire all properties	\$1 million+	Not all homes need to be acquired; lost tax base
	Purchase portable flood walls	\$50,000+	Need staff to install; need to put up before potential flood events; does not protect all areas from flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	RL/SRL Property Outreach	
<b>Project Number:</b>	2022-Harrison-003	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	0	
Fiscal	1	Staff time; no funding needed until mitigation measures are identified
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	3 years
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	Medium	



Action Worksheet			
<b>Project Name:</b>	Generator at Wastewater Pump Station #5		
<b>Project Number:</b>	2022-Harrison-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Wastewater pump station #5 provides essential services to the Township. The pump does not have backup power and during a power outage, services can be disrupted.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will determine the proper size generator to install at the pump station. Once determined, the Township will purchase and install a generator to provide continuous power to the pump during a power outage.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; little to no disruption in services
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$20,000/generator	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, Municipal Budget
<b>Responsible Organization:</b>	Township Wastewater Superintendent	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$25,000+	Weather dependent; not for long-term power outages; need space to install
	Install wind turbines	\$25,000+	Weather dependent; not for long-term power outages; need space to install
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Generator at Wastewater Pump Station #5	
Project Number:	2022-Harrison-004	
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 costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Utility Failure, Severe Weather, Severe Winter Weather, Flood
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Generator at Clearview Regional High School		
<b>Project Number:</b>	2022-Harrison-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Current emergency power generator upgrades needed to maintain security and safety of students/staff		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The School Board and the Township will determine the proper size generator to install at the school. Once identified, the generator will be purchased and installed at the school. This will allow the school to function properly during power outages and provide a safe environment for students and staff during power outages.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$20,000/generator	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>		<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, School Budget
<b>Responsible Organization:</b>	Township Committee, School Board	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$25,000+	Weather dependent; not for long-term power outages; need space to install
	Install wind turbines	\$25,000+	Weather dependent; not for long-term power outages; need space to install
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Generator at Clearview Regional High School	
<b>Project Number:</b>	2022-Harrison-005	
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 costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Utility Failure, Severe Weather, Severe Winter Weather, Flood
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Generator for Friends School		
<b>Project Number:</b>	2022-Harrison-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure, Severe Weather, Severe Winter Weather, Flood		
<b>Description of the Problem:</b>	As a designated shelter for emergencies, Friends School does not have backup power to function properly as a shelter. The Township has identified the school as a shelter. In the event of a power outage, the school cannot operate as a shelter.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The School Board and the Township will determine the proper size generator to install at the school. Once identified, the generator will be purchased and installed at the school. This will allow the school to function properly during power outages and provide a shelter for Township residents.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations, shelter for residents
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$20,000/generator	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, School Budget
<b>Responsible Organization:</b>	Township Committee, School Board	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$25,000+	Weather dependent; not for long-term power outages; need space to install
	Install wind turbines	\$25,000+	Weather dependent; not for long-term power outages; need space to install
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Generator for Friends School	
<b>Project Number:</b>	2022-Harrison-006	
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 costs
Technical	1	Project is technically feasible
Political	0	
Legal	0	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Utility Failure, Severe Weather, Severe Winter Weather, Flood
Timeline	1	Within 5 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



## 9.10 TOWNSHIP OF LOGAN

This section presents the jurisdictional annex for the Township of Logan and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Logan's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.10.1 Hazard Mitigation Planning Team

The Township of Logan followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Logan's hazard mitigation plan primary and alternate points of contact. 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 9.10-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact
Name/Title: Captain Joseph V. Flatley, Emergency Management Coordinator Address: 125 Main St, Bridgeport, NJ 08014 Phone Number: 856-467-0061 x 3035 Email: jflatley@loganpdnj.org		Name/Title: Robert Taylor, Deputy Emergency Management Coordinator Address: 125 Main St, Bridgeport, NJ 08014 Phone Number: 856-467-0061 x 3059 Email: rstaylor@loganpdnj.org
NFIP Floodplain Administrator		
Name/Title: Ron Snyder, Construction Official Address: 125 Main St, Bridgeport, NJ 08014 Phone Number: 856-467-3424 x 3004 Email: rsnyder@logan-twp.org		
Name	Title	Method of Participation
Captain Joseph V. Flatley	Emergency Management Coordinator	Provided information on past events, provided status update on past actions, reviewed critical facilities, reviewed hazard rankings, contributed to mitigation strategy, participated in Annex meeting, reviewed and provided feedback on annex
Ron Snyder	Construction Official	Provided building permits
-	Planning Board	Provided information on capabilities
Robert Taylor	Deputy Emergency Management Coordinator	Reviewed and provided feedback on annex

## 9.10.2 Municipal Profile

The Township of Logan was originally settled in 1820. Logan Township was first named West Woolwich Township, which was incorporated on March 12, 1877. A year later the name was changed to Logan Township, derived from Alexander "Black Jack" Logan, a Union Army General who was behind the establishment of Memorial Day as a national holiday.

According to the United States Census Bureau, the Township had a total area of 26.60 square miles, including 21.93 square miles of land and 4.67 square miles of water. Communities, localities, and place names located partially or completely within the Township include Beckett, Bridgeport, Cadwalader, Center Square, Cooper Wharf, Coopers, Flood Gates, New Bridge, Nortonville, Prospect, Raccoon Island, and Repaupo.

Logan Township is governed within the Faulkner Act, formally known as the Optional Municipal Charter Law. The governing body is comprised of a Mayor and a Township Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office, while the four members of the Township Council are elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Township of Logan was 6,042. The estimated 2019 population was 5,924, a 2 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American



Community Survey indicate that 3.8 percent of the population is 5 years of age or younger and 10.9 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 Jurisdictional Capability Assessment and Integration

The Township of Logan performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.10.3). The updated mitigation strategy includes opportunities the Township of Logan identified for integration of mitigation concepts to be incorporated into municipal procedures.

#### 9.10.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Logan, what is present in the jurisdiction, and code citation and date.

*Table 9.10-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 102, Housing Standards	State and Local	Code Officer
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Construction Official is hereby authorized and directed to make inspections to determine the conditions of dwellings, dwelling units, rooming units and premises located within the Township of Logan in order that he may perform his duty of safeguarding the health and safety of the occupants of dwellings and of the general public.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 108 Land Use and Development, 2005	Local	Planning Board/ Officer
<p><i>How does this reduce risk?</i> The Zoning Code is intended to increase flood resilience and mitigate unsafe development in areas that are considered dangerous. The zoning ordinance is also intended to create a healthy and habitable environment for all residents.</p> <p>Note: The land use and development regulations of the Township of Logan were established by the Logan Township Land Use Ordinance, adopted May 23, 1979 by Ord. No. 10-1979 and subsequently amended. The Township's Zone Code, Zone Map and the Development Ordinance of 1991, as further amended by Ord. No. 15-2003, were combined into one Unified Development Ordinance, adopted 9-6-2005 by Ord. No. 18-2005. Said ordinance and any subsequent amendments are on file in the office of the Township Clerk.</p>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Article IX Provisions 134	Local	Town Planning
<p><i>How does this reduce risk?</i> The purpose of this article is to mandate a review of a proposed division of land into separate lots for resale against pre-determined standards. It is designed to guarantee adequate streets, utilities, drainage, and means of vehicular egress (leaving the development) and ingress (entering the area).</p>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 95 Stormwater Control	Local	Town Planning
<p><i>How does this reduce risk?</i> The purpose of the stormwater management ordinance is to reduce runoff that is harmful to the environment and public health, prevent flooding and runoff, and regulate the municipal wastewater and monitor any issues that might occur.</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	State
<p><i>How does this reduce risk?</i> Property condition disclosure statement. 1. Except as is provided in section four hundred sixty-three of this article, every seller of residential real property pursuant to a real estate purchase contract shall complete and sign a property condition disclosure statement as prescribed by subdivision two of this section and cause it or a copy thereof, to be delivered to a buyer or buyer's agent prior to the signing by the buyer of a binding contract of sale. A copy of the property condition disclosure statement containing the signatures of both seller and buyer shall be attached to the real estate purchase contract. Nothing contained in this article or this disclosure statement is intended to prevent the parties to a contract of sale from entering into agreements of any kind or nature with respect to the physical condition of the property to be sold, including, but not limited to, agreements for the sale of real property "as is".</p>					
<b>Growth Management</b>	Yes	Yes	Chapter 108 Land Use and Development, 2005	Local	Planning Board
<p><i>How does this reduce risk?</i> The Zoning Code is intended to increase flood resilience and mitigate unsafe development in areas that are considered dangerous. The zoning ordinance is also intended to create a healthy and habitable environment for all residents.</p> <p>Note: The land use and development regulations of the Township of Logan were established by the Logan Township Land Use Ordinance, adopted May 23, 1979 by Ord. No. 10-1979 and subsequently amended. The Township's Zone Code, Zone Map and the Development Ordinance of 1991, as further amended by Ord. No. 15-2003, were combined into one Unified Development Ordinance, adopted 9-6-2005 by Ord. No. 18-2005. Said ordinance and any subsequent amendments are on file in the office of the Township Clerk.</p>					
<b>Site Plan Ordinance</b>	Yes	Yes	Ordinance #10-1979; May 23, 1979	Local and County	Construction and Municipal Clerk
<p><i>How does this reduce risk?</i></p>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Environmental Protection Ordinance</b>	Yes	Yes	Chapter 19 Environmental Commission	Local	Environmental Commission
<i>How does this reduce risk?</i> A. Conduct research into the use and possible use of the open land areas of the township. B. Study and make recommendations concerning open space preservation, water resources management, air pollution control, solid waste management, noise control, soil and landscape protection, environmental appearance, marine resources and protection of flora and fauna.					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 96 Flood Damage Prevention, 2016	Federal, State, County and Local	Township Code Enforcement
<i>How does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<b>Climate Change Ordinance</b>	No	No	-	-	-
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<b>Other</b>	No	-			
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Master Plan, January 2021	Local	Planning Board
<i>How does this reduce risk?</i> The intent of the plan includes: <ul style="list-style-type: none"> <li>• Provide balanced vehicle circulation in residential and commercial areas to avoid congestion, promote vehicle safety, and provide easy access for emergency vehicles.</li> <li>• Promote the health, safety and welfare of existing and future Township residents by preventing residential development of contaminated sites and/or areas associated with disproportionate exposure or health risks relative to the existing population base and large residential population centers.</li> <li>• Conserve woodlands and wetlands, minimizing disruption of environmentally sensitive areas.</li> </ul>					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i> This plan will be developed to plan for how to dispose of debris created by an event.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, 2006	Local	Public Works Superintendent
<i>How does this reduce risk?</i> The intent and overall goal of the plan is to reduce flood damage including damage to life and property. Additionally, the plan looks to minimize stormwater runoff from new development as well as erosion that results from high runoff. Finally, the plan also seeks to protect public health and welfare of all residents through planning, engineering, operation, and maintenance of stormwater systems.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Management Plan, 2010	Local	Public Works Superintendent
<i>How does this reduce risk?</i> The Township is investigating records and tracking software to improve work order progress to ensure conditions are resolved. Public Works Supervisors also encourage staff to be mindful during all work activities and report any concerns. The Logan Township environmental commission is looking to become more active and is looking to engage in public education and outreach.					
<b>Urban Water Management Plan</b>	Yes	No	Town of Logan Wastewater Plan 2012	Local	Township DPW
<i>How does this reduce risk?</i> Pursuant to N.J.A.C. 7:15, Riparian zones are: 300 feet from top of bank (or centerline of a first order stream where no bank is apparent) for waters designated as Category One and all upstream tributaries within the same HUC 14; 150 feet for waters designated Trout Production and all upstream waters; 150 feet for water designated Trout Maintenance and all upstream waters within one linear mile as measured along the length of the regulated water; 150 feet for any segments of water flowing through an area that contains documented habitat for a threatened or endangered species of plant or animal, which is critically dependent on the surface water body for survival, and all upstream waters (including tributaries) within one linear mile as measured along the length of the surface water body; 150 feet for waters that run through acid-producing soils, and 50 feet for all waters not designated as C1, trout waters, critically water dependent Threatened and/or Endangered Species Habitat or associated with acid soils.					
<b>Habitat Conservation Plan</b>	Yes	No	Town of Logan Open Space and Recreation Plan, 2014	Local	Town Planning
<i>How does this reduce risk?</i> This Plan recommends a system of greenways to protect Logan Township's waterways and wetlands. Greenways will buffer the streams from encroaching development and stormwater runoff. Greenways will also provide wildlife corridors, which will allow for movement of wildlife across a fragmented landscape and reduce vulnerability to climate change.					
<b>Economic Development Plan</b>	No	No	-	-	-
<b>Shoreline Management Plan</b>	No	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<b>Community Forest Management Plan</b>	No	No	-	-	-
<b>Transportation Plan</b>	No	No	-	-	-
<b>Agriculture Plan</b>	No	No	-	-	-
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<b>Tourism Plan</b>	No	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Other</b>	None	-	-	-	-
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan	Local	OEM
<i>How does this reduce risk?</i> The purpose of the Emergency Operations Plan is to protect life and property in emergencies by coordinating response activities of municipal and volunteer entities to ensure their optimum uses. It provides actions to be taken to mitigate, prepare for, respond to, and recover from effects of an emergency. The plan is an all-hazards approach to emergency management and covers natural disasters, technological disasters, and national security crises.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>The EOP covers short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards.</li> </ul>					

### 9.10.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Logan to oversee and track development.

Table 9.10-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Code Enforcement
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	The municipality is built out



### 9.10.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Logan and their current responsibilities which contribute to hazard mitigation.

*Table 9.10-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board consists of volunteer residents appointed by the Mayor & Council who are responsible for preparing the Township Master Plan in compliance with provisions of the New Jersey Municipal Land Use Law (MLUL) and who are responsible for reviewing zoning ordinances referred to them by the Mayor & Council.
Zoning Board of Adjustments	Yes	Zoning Boards of Appeals are directly given appellate jurisdiction by state law. Appellate jurisdiction is the power to hear and decide appeals from decisions of those officials charged with the administration and enforcement of the zoning ordinance or local law.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The purpose of the Environmental Commission is to promote the stewardship and preservation of the City's environment and natural resources, by seeking out emerging issues and developing sound long-term policies regarding these issues and by increasing government, citizen, and stakeholder awareness about these issues.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Public Works (DPW) was formed to provide billing, maintenance, repair, connection, and service to the Township's new water and sewer infrastructure.
Construction/Building/Code Enforcement Department	Yes	Construction and Code Enforcement provides prevention, detection, investigation and enforcement of violations of statutes or ordinances regulating public health, safety, and welfare, public works, business activities and consumer protection, building standards, land-use, or municipal affairs
Emergency Management/Public Safety Department	Yes	Emergency Management
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	For All Emergencies Dial 911
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	DPW provides various maintenance
Mutual aid agreements	Yes	Fire, DPW
Human Resources Manual - Do any job descriptions specifically include identifying or	No	-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
implementing mitigation projects or other efforts to reduce natural hazard risk?		
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Township DPW
Engineers or professionals trained in building or infrastructure construction practices	Yes	Code Enforcement Office
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Management
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Yes, DPW and Code Enforcement work directly to reduce hazards prone to the community.</li> </ul>		

### 9.10.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Logan.

*Table 9.10-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	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	No



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>Fiscal capabilities contribute to risk reduction in Logan Township because funds are directed to mitigation.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Budgets do not limit expenditures on projects that would encourage development in areas vulnerable to natural hazards.</li> <li>Infrastructure policies do not limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.</li> <li>Budgets provide funding for hazard mitigation projects identified in the County HMP.</li> </ul>	

### 9.10.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Logan.

*Table 9.10-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Administration/ Clerk
Personnel skilled or trained in website development	Yes	Administration/ Clerk
Hazard mitigation information available on your website	Yes	Yes, <a href="https://www.logan-twp.org/emergency-services/">https://www.logan-twp.org/emergency-services/</a>
Social media for hazard mitigation education and outreach	Yes	Facebook
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	None	-
Warning systems for hazard events	Unsure	-
Natural disaster/safety programs in place for schools	Yes	Each school coordinates their own programs.
Other	No	-
<b><i>The jurisdiction has the following public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events:</i></b> <ul style="list-style-type: none"> <li>TV news</li> <li>Radio</li> <li>Social media</li> </ul>		



### 9.10.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Logan.

*Table 9.10-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.10.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

*Table 9.10-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Weak/NA
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
High Wind	Strong
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Strong

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.





## 9.10.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.10-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 59</li><li># RL properties: 7</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$125,773.00</li><li># claims filed: 31</li><li>Total loss payments: \$239,991.10</li></ul>
Describe areas prone to flooding in your jurisdiction.	Floodplains
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Code Enforcement Officer
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Emergency Management
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Emergency Management
What specific training or support does your floodplain management staff need to support its floodplain management program?	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Based on monetary or structural improvements.
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	July 26, 1994



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Ordinance Number 6 of 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • 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

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.10.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.10-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total I	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	2	0	5	0	3	0	4	0	3	1	4	2
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	6	2	6	2	4	3	5	1	6	1	3	0
Total Permits Issued	8	2	11	2	7	3	9	1	9	2	7	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												
Logan North	Commercial		8 Large Warehouses		Crossroads and Creekview		some in 1%			2 Complete/2 Under construction		



Port Logistic Center	Commercial	4 Large Warehouses	2803-2961 RT 322	some in 1%	1 Under construction
Pureland Flex Center 2	Commercial	3 Large Warehouses	395 - 431 Pedricktown Rd	-	2 Complete/ 1 starting to begin
Curiale Subdivision	Residential	3 Homes	596-602 Paulsboro Rd	-	3 Under construction
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Racoon Island	Commercial	5 Large Warehouses	Springer Rd (Weeks Landing)	-	Racoon Island
Liberty Ventures	Commercial	3 Large Warehouses	Rt 322 between Rt 295 and Stone Meeting Rd.	-	Liberty Ventures
(No Name)	Commercial	3 Warehouses	Rt 44 and Floodgate Rd.	1% area	(No Name)

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.10.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Logan's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Logan has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.10-1. Township of Logan Hazard Area Extent and Location Map 1

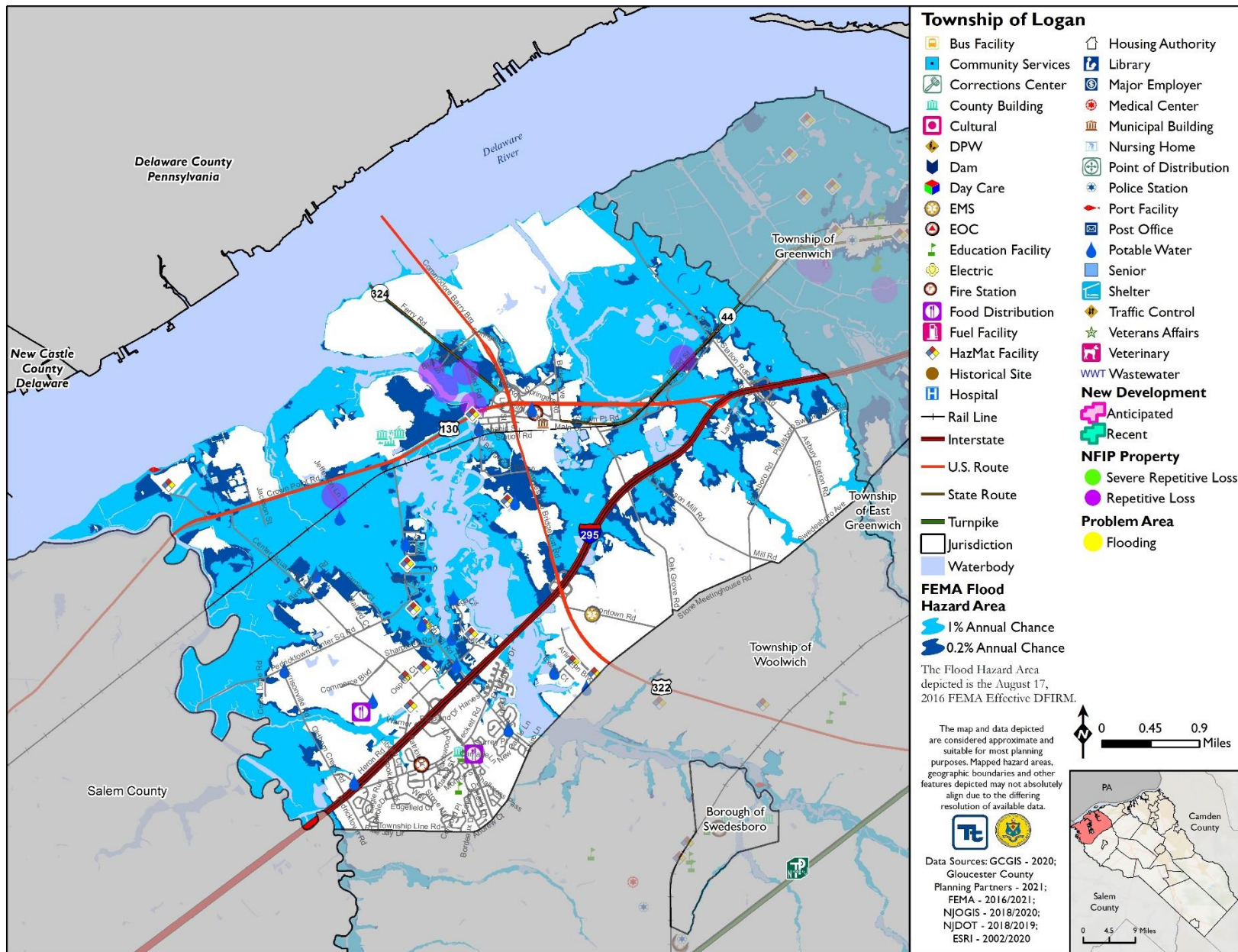






Figure 9.10-2. Township of Logan Hazard Area Extent and Location Map 2

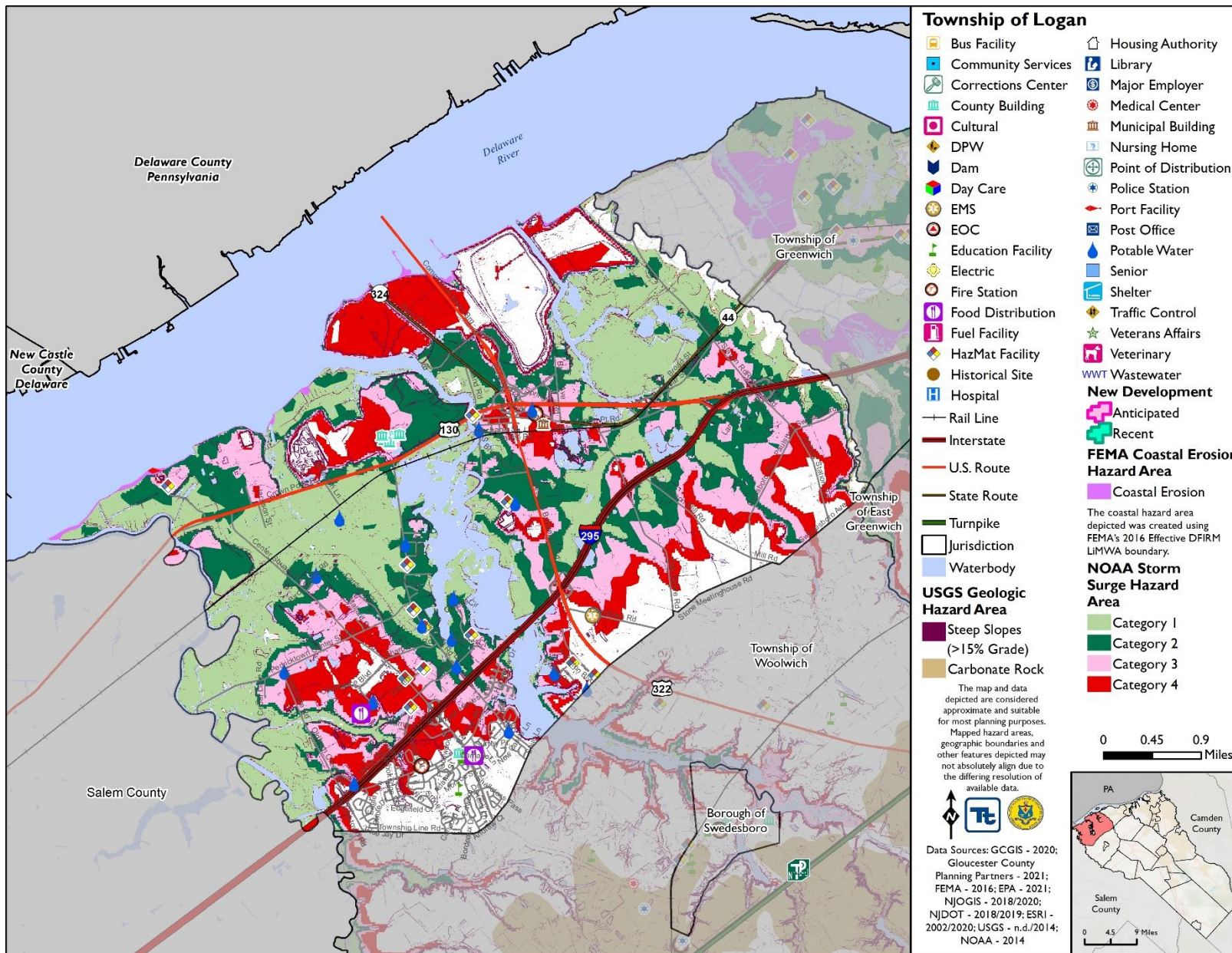






Figure 9.10-3. Township of Logan Hazard Area Extent and Location Map 3

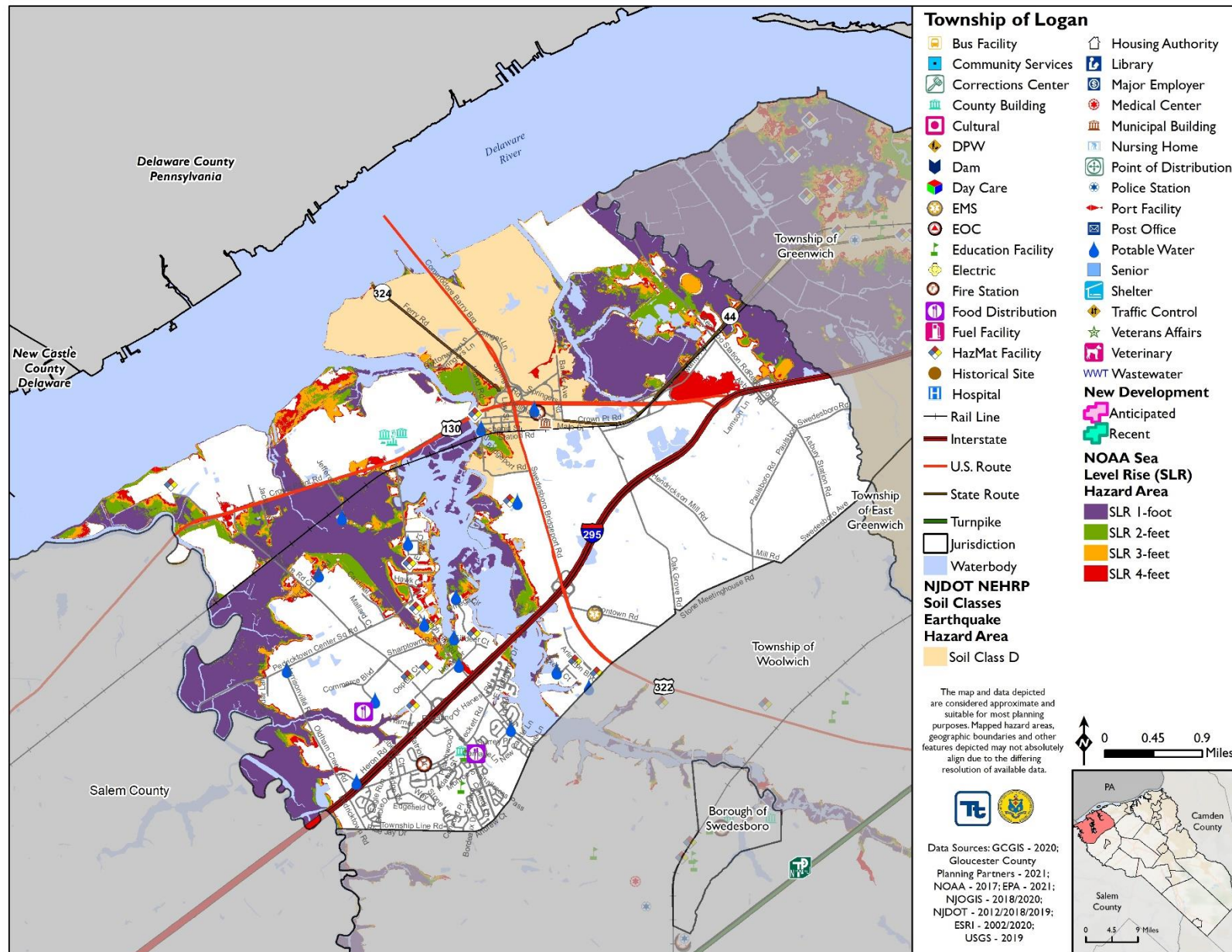
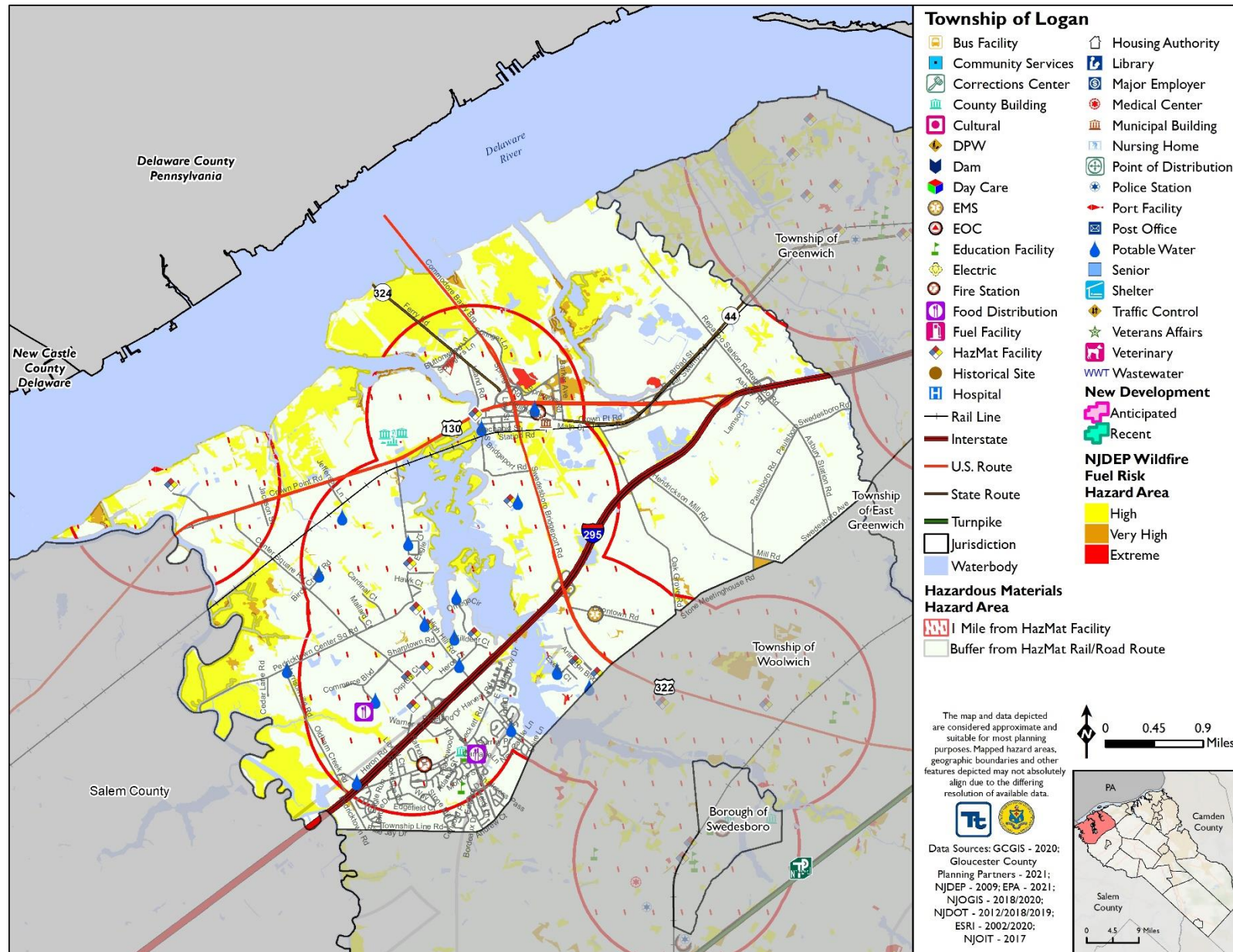




Figure 9.10-4. Township of Logan Hazard Area Extent and Location Map 4







### 9.10.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Logan's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.10-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching - 2°F.	Although the County was impacted. The Township did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted. The Township did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted. The Township did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted. The Township did not report damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Township was impacted by shut downs and masking/social distancing requirements.



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
August 4, 2020 and August 7, 2020	Tropical Storm Isaias	Yes	On August 4, 2020 TS Isaias moved through the region dropping significant rain throughout Logan Township. A subsequent storm moved through the area on August 7, 2020 bringing additional rainfall that was unable to properly drain into already overflowing waterways and storm sewers. Roadway and drainage areas resulted.	Although the County was impacted. The Township did not report damages.

### 9.10.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Logan's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Logan. The Township of Logan reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- Flooding has increased to the point that roadways are becoming compromised, and the municipality agreed to increase vulnerability from low to high.
- The municipality has higher resilience to severe storms compared to surrounding municipalities and will re rank the hazard from high to medium.

Table 9.10-12. Hazard Ranking Input

Coastal Erosion	Dam/ Levee Failure	Disease Outbreak	Drought	Earthquake	Ext Temp	Flood
Low	Medium	Low	Low	Low	Low	High



Geologic	HazMat	Hurricane	Invasive	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	High	Medium	Low	Medium	Medium	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.10-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
NJ American Water Company	Potable Water Facility	Y	X	X	See action 2022 Township of Logan-003
Logan Township Municipal Utilities Authority (High Hill Rd.)	Potable Water Facility	Y	X	X	See action 2022 Township of Logan-003
NJ American Water Company	Potable Water Facility	Y	-	X	-
Logan Township Municipal Utilities Authority (Jefferson Ln.)	Potable Water Facility	Y	-	X	-
Logan Township Municipal Utilities Authority (South Bridgeport Rd.)	Potable Water Facility	Y	-	X	-
Logan Township Municipal Utilities Authority (Birch Creek Rd.)	Potable Water Facility	Y	-	X	-
Logan Township Municipal Utilities Authority (Omega Circle)	Potable Water Facility	Y	-	X	-
Logan Township Municipal Utilities Authority (Crossroads Blvd.)	Potable Water Facility	Y	-	X	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.10.6.3 Identified Issues

After review of the Township of Logan's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Logan has identified the following vulnerabilities within their community:

- The tide gate at Birch Creek is located along the Delaware River. This tide gate is in poor condition and is allowing for water from the Delaware River to enter into the municipality during high tide, causing the adjacent roads (Center Square Road, Jefferson Lane) and wooded land to become swampland. (2022 Township of Logan-001)



- Pedrick Town Road at Salem Countyline near Oldsman Creek and High Hill Road has been experiencing periodic flooding. Previously, the road was scheduled to be repaved, but with continuous flooding, the road was not able to undergo its annual maintenance. It is to the point where the road gets flooded on a regular basis and the high tide is exacerbating the problem and if it continues, major structural damage could occur leading to hazardous driving conditions. (2022 Township of Logan-002)
- Jefferson Lane access road to wastewater treatment plan, which is a critical facility needs to conduct flood mitigation measures to reduce flooding the road. The road has continuous accessibility issues with flooding and as the facility is critical, it is important that the road has constant access without flood blockage. (2022 Township of Logan-003)
- The municipality does not have a disaster debris management plan. (2022 Township of Logan-004)
- The Township's FDPO is not updated to include the regulation requirements. (2022 Township of Logan-005)
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has seven repetitive loss properties, but other properties may be impacted by flooding as well. (2022 Township of Logan-006)

## 9.10.7 Mitigation Strategy and Prioritization

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

### 9.10.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.10-14. Status of Previous Mitigation Actions

2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
MJ-1	Alleviate coastal erosion / instability issue at Delaware River/ Repaupo Creek levee (end of Floodgate Road).	Municipal OEM, Greenwich Township, Gloucester County Engineering Department, NJDEP, FEMA, USACE.	Completed - The sluice gate was replaced, and the Army Corp. completed some stabilization for the coastal erosion. Inspections are completed quarterly.	-	-
MJ-2	Birch Creek Tide Gate	Municipal OEM, Gloucester County Engineering, NJDEP, FEMA, USACE.	In Progress – A second Pre-Application Meeting was held with NJDEP officials who requested that an Alternatives Analysis be completed for dredging options within Birch Creek to mitigate the flooding issues. This Alternatives Analysis report is being finalized and will be sent to NJDEP in June 2021. Funding Source: Seeking Funding; Cost: Not Established till Option is chosen by NJDEP, Implementation: Logan Township/ Logan MUA (With Assistance of Remington & Vernick Engineers)	X	2022 Township of Logan-001
MJ-3	Beaver management program.	Municipal OEM, NJDEP	Implemented – Complete	-	-
MJ-4	NJ Route 130 Inundation.	Municipal OEM, NJDOT	Completed – Raccoon Creek flyover bridge has been installed	-	-
M-05	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability	-	-
M-06	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability. There is continual evaluation of Critical Facilities.	-	-
M-07	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	Ongoing Capability	-	-
M-08	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability	-	-
M-09	Upgrade backup emergency power generator at Township Hall located at 125 Main Street (CF-1).	Municipal OEM	Completed	-	-
M-10	Upgrade backup emergency power generator at Logan Elementary School (primary shelter) located at 110 School Lane (CF-10).	School Board	Completed. IT Servers, Security Surveillance System and additional electrical circuits	-	-



2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
			were given battery backup power until the generator activates		
M-11	Upgrade backup emergency power generator at Center Square Elementary School (backup shelter) located at 100 Peachwood Drive (CF-9).	School Board	Completed. School board installed at Logan Elementary.	-	-
M-12	Install backup emergency power generator at Logan Fire Station #2 located at 415 Beckett (CF-5).	Fire Department	No Progress. Building expansion will include backup emergency power in a separate project. Remove from actions.	-	-
M-13	Install backup emergency power generator at Wastewater Pump Station #2 (CF-7).	Municipal Utility Authority	No Progress. MUA determined no longer a priority.	-	-
M-14	Install backup emergency power generator at Wastewater Pump Station #8 (CF-8).	Municipal Utility Authority	No Progress. MUA determined no longer a priority.	-	-
M-15	Increase fuel storage capacity at Wastewater Treatment Plant (CF-6).	Municipal Utility Authority	Completed	-	-
M-16	Resolve flooding at Jefferson Lane access road to Wastewater Treatment Plant (CF-6).	Municipal Utility Authority	In Progress. Expected to be completed in 2021	X	2022 Township of Logan-003
M-17	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	No Progress. Compile a list. Identify RLs. Determine best course of action for each.	X	2022 Township of Logan-006





### 9.10.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.10-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.10.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Logan participated in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.10-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Ext Temp	X									X
Flood	X	X			X	X			X	X
Geologic	X									X
Hazmat	X									X
Hurricane	X									X
Invasive	X									X
Nor'Easter	X									X
Severe Weather	X	X				X				X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X									X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.10-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Logan 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 9.10-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.10-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022 Township of Logan-001	Tide Gate Redevelopment	<p><b>Problem:</b> The tide gate at Birch Creek is located along the Delaware River. This tide gate is in poor condition and is allowing for water from the Delaware River to enter into the municipality during high tide, causing the adjacent roads (Center Square Road, Jefferson Lane) and wooded land to become swampland.</p> <p><b>Solution:</b> The Township would work with the Army Corps of Engineers to redevelop the tide gate to be rebuilt in a way to accommodate for the projected higher tides with climate change. The municipality would also consider surrounding structural retrofitting of roads to mitigate flooding.</p>	Existing	Flood	1, 2, 6	Town Public Works and USACE	BRIC	Flood Mitigation	High	1.5 years once funding secured	High	SIP	SP
2022 Township of Logan-002	Pedrick Town Road at Oldsman Creek Flood Mitigation	<p><b>Problem:</b> Pedrick Town Road at Salem Countyline near Oldsman Creek and High Hill Road has been experiencing periodic flooding. Previously, the road was scheduled to be repaved, but with continuous flooding, the road was not able to undergo its annual maintenance. The road is flooded on a regular basis, which is exacerbated by the high tide.</p> <p><b>Solution:</b> A hydrologic study on the road should be commenced to</p>	Existing	Flood	1, 2, 3, 4	County Highway, Township DPW	HMGP, County Budget	Flood Mitigation	100k-1 million dollars.	2 years once funding secured	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		determine the best path forward for reducing/ eliminating flooding.											
2022 Township of Logan-003	Jefferson Lane Access Road Flood Mitigation	<p><b>Problem:</b> Jefferson Lane Access Road leads to a wastewater treatment plant, a critical facility, needs flood mitigation to reduce flooding the road. The road has continuous accessibility issues with flooding and, as it leads to a critical facility, It is important that the road remains accessible.</p> <p><b>Solution:</b> Upgrades to the sewer line in progress. Expected to be completed in 2021.</p>	Existing	Flood	1, 2, 6	Town and County DPW	HMGP	Flood Mitigation	High	2 years	High	SIP	SP
2022 Township of Logan-004	Disaster Debris Management Plan	<p><b>Problem:</b> The municipality does not have a disaster debris management plan.</p> <p><b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the clean-up process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders may be necessary.</p>	New	All	All	Various Departments and Town Board	Municipal Budget	High	Low	1 year once funding secured	High	LPR	ES
2022 Township of Logan-005	FDPO Update	<b>Problem:</b> The Township's FDPO is not updated to include the regulation requirements.	Existing	Flood	All	Administration	Municipal Budget	High	Low	Short	Medium	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Update the FDPO to include the most recent regulation update to include BFE+2.											
2022 Township of Logan-006	Repetitive Loss Mitigation	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has seven repetitive loss properties, but other properties may be impacted by flooding as well.</p> <p><b>Solution:</b> Conduct outreach to 10 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).</p>	Existing	Flood, Severe Weather	1, 2	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	High	3 years	High	SIP	PP

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
CRS Community Rating System

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program

**Timeline:**

The time required for completion of the project upon implementation



DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
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

BRIC Building Resilient Infrastructure and Communities  
Program

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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022 Township of Logan-001	Tide Gate Redevelopment	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High 
2022 Township of Logan-002	Pedrick Town Road at Oldsman Creek Flood Mitigation	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022 Township of Logan-003	Jefferson Lane Access Road Flood Mitigation	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022 Township of Logan-004	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022 Township of Logan-005	Flood Damage Prevention Ordinance update	0	1	1	1	0	1	1	0	1	1	1	0	0	0	8	Medium
2022 Township of Logan-006	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.10.8 Action Worksheets

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The following action worksheets have been developed by the Township of Logan to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Tide Gate Redevelopment		
<b>Project Number:</b>	2022 Township of Logan-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	The tide gate at Birch Creek is located along the Delaware River. This tide gate is in poor condition and is allowing for water from the Delaware River to enter into the municipality during high tide, causing the adjacent roads (Center Square Road, Jefferson Lane) and wooded land to become swampland.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township would work with the Army Corps of Engineers to redevelop the tide gate to be rebuilt in a way to accommodate for the projected higher tides with climate change. The municipality would also consider surrounding structural retrofitting of roads to mitigate flooding.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	1.5 years	<b>Potential Funding Sources:</b>	BRIC
<b>Responsible Organization:</b>	Town Public Works and USACE	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Relocate Properties prone to flooding	High	Infeasible
	Tide Gate Development	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Tide Gate Redevelopment	
<b>Project Number:</b>	2022 Township of Logan-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	-1	Additional Funding is needed
<b>Environmental</b>	1	Has a positive impact on environment
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	0	This addresses a single hazard
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	The town DPW/ OEM
<b>Other Community Objectives</b>	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Pedrick Town Road at Oldsman Creek Flood Mitigation		
<b>Project Number:</b>	2022 Township of Logan-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Pedrick Town Road at Salem Countyline near Oldsman Creek and High Hill Road has been experiencing periodic flooding. Previously, the road was scheduled to be repaved, but with continuous flooding, the road was not able to undergo its annual maintenance. The road is flooded on a regular basis, which is exacerbated by the high tide.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	A hydrologic study on the road should be commenced to determine the best path forward for reducing/ eliminating flooding. The most apparent solution is to elevate the road, though even that would need to have structural engineering evaluation prior to project execution. The roads would need to be elevated to accommodate increasing tide levels. Unfortunately, given that this road is a county owned entity, the Township does not have any jurisdictional authority and thus would need to assist the county in the road elevation process. The County would also work with the town to coordinate schedules and funding allocation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years once funding secured
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	BRIC
<b>Responsible Organization:</b>	County Highway, Township DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Close Road	Low	High long-term costs
	Road elevation	High	Best long-term solution
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Pedrick Town Road at Oldsman Creek Flood Mitigation	
<b>Project Number:</b>	2022 Township of Logan-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	-1	Additional Funding is needed
Environmental	1	Has a positive impact on environment
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	0	This addresses a single hazard
Timeline	1	The timeline is feasible
Agency Champion	1	The town DPW/ OEM
Other Community Objectives	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Jefferson Lane Access Road Flood Mitigation		
<b>Project Number:</b>	2022 Township of Logan-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Jefferson Lane access road to wastewater treatment plant, which is a critical facility needs to conduct flood mitigation measures to reduce flooding the road. The road has continuous accessibility issues with flooding and as the facility is critical, it is important that the road has constant access without flood blockage.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township investigated the source of flooding to determine the flood mitigation measures needed to alleviate flooding. Upgrades to the sewer line are in progress. Expected to be completed in 2021.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP, BRIC
<b>Responsible Organization:</b>	Township Planning and DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Relocate treatment plant	High	Very expensive
	Flood Mitigation	High	Most realistically feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Jefferson Lane Access Road Flood Mitigation	
<b>Project Number:</b>	2022 Township of Logan-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	-1	Additional Funding is needed
Environmental	1	Has a positive impact on environment
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	0	This addresses a single hazard
Timeline	1	The timeline is feasible
Agency Champion	1	The town DPW/ OEM
Other Community Objectives	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Mitigation		
<b>Project Number:</b>	2022 Township of Logan-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has seven repetitive loss properties, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Education and Awareness Program
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Repetitive Loss Mitigation	
<b>Project Number:</b>	2022 Township of Logan-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Families moved out of high-risk flood areas.
<b>Property Protection</b>	1	Properties removed from high-risk flood areas.
<b>Cost-Effectiveness</b>	1	Cost-effective project
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Village has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	0	Project would remove families from the flood prone areas of the Township.
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Severe Weather, Flood
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	NFIP Floodplain Administrator, supported by homeowners
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



## 9.11 TOWNSHIP OF MANTUA

This section presents the jurisdictional annex for the Township of Mantua and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Mantua's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.11.1 Hazard Mitigation Planning Team

The Township of Mantua followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Mantua's hazard mitigation plan primary and alternate points of contact. 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 9.11-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Lt. Brian Grady, Lieutenant/OEM Coordinator Address: 405 Main Street Mantua, NJ 08051 Phone Number: 856-468-1920 x1530 Email: <a href="mailto:BLGrady@MantuaTownship.com">BLGrady@MantuaTownship.com</a>	Name/Title: Jennica Bileci, Township Administrator Address: 405 Main Street Mantua, NJ 08051 Phone Number: 856-468-1500 x120 Email: <a href="mailto:jbileci@mantuatownship.com">jbileci@mantuatownship.com</a>
NFIP Floodplain Administrator	
Name/Title: Jim Gallagher, Construction Code Official Address: 405 Main Street Mantua, NJ 08051 Phone Number: 856-468-1500 x128 Email: <a href="mailto:jgallagher@mantuatownship.com">jgallagher@mantuatownship.com</a>	



Name	Title	Method of Participation
Lt. Brian Grady	Lieutenant/OEM Coordinator	Provided information on past events, provided information on NFIP floodplain administration, provided status update on previous actions, reviewed and provided feedback on annex
Jennica Bileci	Township Administrator	Provided information on capabilities, reviewed and provided feedback on annex
Jon Bryson	Township Engineer	Provided status update on previous actions
Susan Baldwin	Construction Clerk	Provided permit information

## 9.11.2 Municipal Profile

Mantua Township was formed as a township by an act of the New Jersey Legislature on February 23, 1853, from portions of Greenwich Township. The first town meeting was then held on March 9th, 1853 where Joseph Norris, John Haines, and Elijah Chew were appointed to the position of "Overseer of the Poor and Constables"

According to the United States Census Bureau, the Township had a total area of 16.09 square miles, including 16.01 square miles of land and 0.09 square miles of water. Unincorporated communities, localities and place names located partially or completely within the Township include Richwood, Barnsboro, Boody's Mills, Centre City, Eastlack Corner, Jessups, Manunkachunk, Sewell and West Landing. Tall Pines State Preserve is a 111-acre nature preserve that opened in November 2015 as Gloucester County's first state park and is located along the border of Deptford Township and Mantua Township.

The municipality is governed under the Township form of municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.

According to the U.S. Census, the 2010 population for the Township of Mantua was 15,217. The estimated 2019 population was 14,941, a 1.8 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 4.8 percent of the population is 5 years of age or younger and 15.5 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.

## 9.11.3 Jurisdictional Capability Assessment and Integration

The Township of Mantua performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.11.3). The updated mitigation strategy includes opportunities the Township of Mantua identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.11.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Mantua, what is present in the jurisdiction, and code citation and date.

*Table 9.11-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
Building Code	Yes	Yes	Chapter 142, 1977	State and Local	Construction
<p><i>How does this reduce risk?</i></p> <p>There is hereby established in the Township of Mantua a State Uniform Construction Code enforcing agency, to be known as the "Township of Mantua Uniform Construction Code Enforcement Agency," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. The Building Subcode Official Inspector shall be the vice chief. These officials will have the authority to determine building construction that is deemed safe/ unsafe to people and the environment and provide a regulatory framework to reduce vulnerability to potential catastrophic hazards.</p>					
Zoning/Land Use Code	Yes	Yes, if the jurisdiction has a planning board	Article 3 Zoning District	Local	Town Planning
<p><i>How does this reduce risk?</i></p> <p>The boundaries of these zoning districts are established on a map entitled "Zoning Map of the Township of Mantua," dated May 2006, which accompanies and is hereby made a part of this chapter. Additionally, the map entitled "Critical Areas" is hereby made part of this chapter and shall be deemed conclusive for the purpose of administering the land use control measures of this chapter; provided, however, that the Planning Board or Zoning Board of Adjustment, as the case may be, may consider other sources of information presented by an applicant to more definitively define the location and extent of the critical areas on any lot or tract at the time of subdivision and/or site plan review.</p>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Ordinance	Yes	Yes, if the jurisdiction has a planning board	Chapter 230	Local	Joint Land Use Board
<p><i>How does this reduce risk?</i></p> <p>A prospective purchaser, prospective mortgagee or any other person interested in any land in the Township which has been part of a subdivision in effect as of July 14, 1973, may apply, in writing, to the Administrative Officer for the issuance of a certificate certifying whether or not such subdivision has been duly approved by the Planning Board and in compliance with regulations to mitigate future hazards and risk.</p>					
Stormwater Management Ordinance	Yes	Yes	Chapter 344 – Stormwater Control; adopted 12/13/2006 Chapter 346 – Stormwater Management	Local	Public Works
<p><i>How does this reduce risk?</i></p> <p>The purpose of this article is to prohibit the feeding of unconfined wildlife in any public park or on any other property owned or operated by the Township of Mantua, so as to protect public health, safety, and welfare, and to prescribe penalties for failure to comply.</p>					
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
Real Estate Disclosure	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State Division of Consumer Affairs
<p><i>How does this reduce risk?</i></p> <p>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</p>					
Growth Management	Yes	Yes, if the jurisdiction has a planning board	Chapter 230, Land Development	Local	Joint Land Use Board
<p><i>How does this reduce risk?</i></p> <p>This chapter is adopted pursuant to N.J.S.A. 40:55D-1 et seq. in order to promote and protect the public health, safety, morals, and general welfare and in the furtherance of the following related and more specific objectives:</p> <ul style="list-style-type: none"> <li>A. To secure safety from fire, flood, panic, and other natural and man-made disasters.</li> <li>B. To provide adequate light, air, and open space.</li> <li>C. To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county, and the state as a whole.</li> <li>D. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment.</li> <li>E. To encourage an appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.</li> <li>F. To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational and commercial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens.</li> <li>G. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which would result in congestion or blight.</li> <li>H. To promote a desirable visual environment through creative development techniques and good civic design and arrangements.</li> <li>I. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>J. To encourage planned unit developments which incorporate the best features of design and relate the type, design and layout of residential, commercial and recreational development to the particular site.</li> <li>K. To encourage senior citizen community housing construction.</li> <li>L. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.</li> <li>M. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Site Plan Ordinance	Yes	Yes, if the jurisdiction has a planning board	Chapter 230-82 1983	Local and County	Land Use Board
<p><i>How does this reduce risk?</i></p> <p>This chapter is adopted pursuant to N.J.S.A. 40:55D-1 et seq. in order to promote and protect the public health, safety, morals and general welfare and in the furtherance of the following related and more specific objectives:</p> <ul style="list-style-type: none"> <li>A. To secure safety from fire, flood, panic and other natural and man-made disasters.</li> <li>B. To provide adequate light, air and open space.</li> <li>C. To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole.</li> <li>D. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment.</li> <li>E. To encourage an appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.</li> <li>F. To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational and commercial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens.</li> <li>G. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which would result in congestion or blight.</li> <li>H. To promote a desirable visual environment through creative development techniques and good civic design and arrangements.</li> <li>I. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>J. To encourage planned unit developments which incorporate the best features of design and relate the type, design and layout of residential, commercial and recreational development to the particular site.</li> <li>K. To encourage senior citizen community housing construction.</li> <li>L. To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.</li> <li>M. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources.</li> </ul>					
Environmental Protection Ordinance	No	Yes, depends on type of environmental areas	-	-	-
Flood Damage Prevention Ordinance	Yes	Yes	Chapter 188 – Flood Damage Prevention; amended 8/1/2016	Federal, State, County and Local	Construction Official
<p><i>How does this reduce risk?</i></p> <p>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:</p> <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul>					
Wellhead Protection	No	No	-	-	-
Emergency Management Ordinance	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Climate Change Ordinance	No	No	-	-	-
Disaster Recovery Ordinance	No	No	-	-	-
Disaster Reconstruction Ordinance	No	No	-	-	-
Other	None	-	-	-	-
Codes, Ordinances, & Regulations Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Not often</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes.</li> <li>Does it contain natural overlay zones that set conditions? No</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? No</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? No</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? No</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? No</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? No</li> <li>When updating ordinances, is hazard mitigation considered? No</li> </ul>					
Planning Documents					
Master Plan	Yes	Yes – County Yes/No – municipality	Master Plan (2006) and Reexamination Plans (2011 and 2012)	Local	Town Planning
<i>How does this reduce risk?</i> The goals of this plan include to: Protect communities from natural hazards and promote smart development. Ensure public health and safety to reduce any avoidable hazard related issues. And to promote a sustainable future for all residents of Gloucester County.					
Capital Improvement Plan	Yes	Allowed	Yearly	Local	Governing Body
<i>How does this reduce risk?</i> Requires the departments to plan ahead of every year and strategically invest in equipment and capital to increase resilience.					
Disaster Debris Management Plan	No	No	-	-	-
Floodplain Management or Watershed Plan	No	No	-	-	-
Stormwater Management Plan	Yes	Yes	Watershed Based Municipal Stormwater Management Plan 02/2006	Local	Stormwater Officer
<i>How does this reduce risk?</i> The intent and overall goal of the plan is to reduce flood damage including damage to life and property. Additionally, the plan looks to minimize stormwater runoff from new development as well as erosion that results from high runoff and groundwater recharge. The plan also seeks to protect public health and welfare of all residents through planning, engineering, operation, and maintenance of stormwater systems.					
Stormwater Pollution Prevention Plan	Yes	Yes	Stormwater Pollution Prevention Plan Mantua Township (SPPP) 04/2021	Local	Stormwater Officer
<i>How does this reduce risk?</i> Preparation of an SPPP helps permittees in identifying potential sources of pollution and in establishing best management practices to minimize and/or eliminate the exposure of these pollutant sources. The plan identifies SPPP Team Members, Public Education and Outreach, Storm Drain Inlets. Training, and other state-required forms.					
Urban Water Management Plan	No	No	-	-	-
Habitat Conservation Plan	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Economic Development Plan	No	No	-	-	-
Shoreline Management Plan	No	No	-	-	-
Community Wildfire Protection Plan	No	No	-	-	-
Community Forest Management Plan	No	No	-	-	-
Transportation Plan	No	No	-	-	-
Agriculture Plan	No	No	-	-	-
Climate Action/ Resiliency Plan	No	No	-	-	-
Tourism Plan	No	No	-	-	-
Business/ Downtown Development Plan	No	No	-	-	-
Other	No	No	-	-	-
Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes, in planning documents</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? No</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? No</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? No</li> <li>Are environmental systems that protect development from hazards identified and mapped? No</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
Response/Recovery Planning					
Emergency Operations Plan	Yes	Yes	Base Plan 2013	Local	OEM
<i>How does this reduce risk?</i> The Emergency Management Plan protects our community by coordinating and integrating all activities necessary to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recover from threatened or actual natural disasters, acts of terrorism, or other man-made disasters.					
Strategic Recovery Planning Report	No	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	-	-	-
Post-Disaster Recovery Plan	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Continuity of Operations Plan	Yes	No	-	-	-
Public Health Plan	No	No	-	-	-
Other	No	-	-	-	-
Response/Recovery Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.11.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Mantua to oversee and track development.

*Table 9.11-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? - If yes, what department is responsible? - If no, what is your process for development?	Yes	Zoning
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? - If yes, describe. - If no, quantitatively describe the level of buildout in the jurisdiction.	Yes	The Township has a site inventory of available land created by Economic Development Coordinator.

### 9.11.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Mantua and their current responsibilities which contribute to hazard mitigation.

*Table 9.11-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Land Use Board
Zoning Board of Adjustments	Yes	Land Use Board
Planning Department	No	Department of Zoning, Land Use & Code Enforcement. The purpose of Zoning is to ensure that any proposed use, construction, or alteration is allowed in the zone and will be located within the required setbacks from the property lines as required by the Mantua Township Code. This code regulates the setbacks and permitting process for principal



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		structures, additions, decks, gazebos, pools, hot tubs, sheds, basketball courts, patios, fencing, and all other accessory uses and structures. The code protects the integrity of the entire Township.
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The Environmental Commission has four Volunteer members
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The mission of the Mantua Township Economic Development Department is to create positive partnerships in the spirit of progress by seeking out and addressing the economic development needs of our community through outreach, creativity, perseverance, partnerships and cooperation.
Public Works/Highway Department	Yes	The Department of Public Works' mission is to provide the highest level of service to the residents of Mantua while maintaining the community's infrastructure in the most cost-effective manner possible. We provide essential services in the areas storm sewer maintenance, trash, recycling and yard waste collection, streets, buildings, grounds, and vehicle maintenance. The department continually strive to improve their services by incorporating new technology, employee involvement, improved customer service, and new ideas to effectively maintain our service-oriented department.
Construction/Building/Code Enforcement Department	Yes	The Mantua Township Construction Department is responsible for ensuring that all construction work in the Township complies with the requirements of the New Jersey Uniform Construction Code. The Department consists of clerical staff and licensed inspectors to perform the duties of the office.
Emergency Management/Public Safety Department	Yes	The department's mission is to provide the highest quality police services to the public in order to enhance community safety, protect life, property, and the Constitutional rights of all. In doing this, they will strengthen our relationship with the community, promote a partnership of mutual respect, and enhance the quality of life for their community.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Message and sign boards
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	DPW
Mutual aid agreements	Yes	DPW/ Fire
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with knowledge of land development and land management practices	Yes	DPW
Engineers or professionals trained in building or infrastructure construction practices	Yes	DPW/ Code Enforcement
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	OEM
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<i>How do your administrative/technical capabilities contribute to risk reduction in your community?</i> Staff and OEM plan and are trained to support hazard mitigation.		

### 9.11.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Mantua.

*Table 9.11-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No





Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
How do your fiscal capabilities contribute to risk reduction in your community?	
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul>	
Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No	
Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No	
Do budgets provide funding for hazard mitigation projects identified in the County HMP? No	

### 9.11.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Mantua.

*Table 9.11-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	No	-
Personnel skilled or trained in website development	Yes	Clerk
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Various sirens and warning systems
Natural disaster/safety programs in place for schools	No	-
Other	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe. No		

### 9.11.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Mantua.



Table 9.11-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.11.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.11-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
High Wind	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.11.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.11-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 21</li><li># RL properties: 6</li><li># SRL properties: 0</li><li>#RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$12,066.00</li><li># claims filed: 25</li><li>Total loss payments: \$342,121.85</li></ul>
Describe areas prone to flooding in your jurisdiction.	Some low-lying areas are floodprone after heavy rain
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Code Enforcement Officer makes determination through guidelines set by municipal law
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Code Enforcement
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Code Enforcement and OEM as well as other departments supplement services as needed by residents.
What specific training or support does your floodplain management staff need to support its floodplain management program?	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Unsure
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	July 20, 1994
<ul style="list-style-type: none"><li>What is the local law number or municipal code of your flood damage prevention ordinance?</li></ul>	<ul style="list-style-type: none"><li>Chapter 188</li><li>August 1, 2016</li></ul>



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>Not interested</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most flood prone and likely to incur flood damage?	Described in mitigation actions below
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No, to be addressed through action -004

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.11.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.11-10. Recent and Expected Future Development

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						



	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	38	32	32	0	44	0	63	0	57	0	22	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	2	3	3	0	0	0	3	0	2	0	0	0
Total Permits Issued	30	0	0	0	44	0	66	0	59	0	22	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												
White Oak Apartments	Residential	50		407 White Oak Lane, Sewell, NJ 08080		None			Completed			
Auto Zone	Commercial	1		222 Bridgeton Pike, Mantua, NJ 08051		Carbonate Rock, Soil Class D			Completed			
Cloud 10 Car Wash	Commercial	1		510 Woodbury Glassboro Road Sewell, NJ 08080		None identified			Completed			
Dollar General	Commercial	1		271 Lambs Road Sewell, NJ 08080		None identified			Completed			
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Unknown	Mixed Use	5		Lambs Road		None identified			Approved			

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.11.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Mantua's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Mantua has significant exposure. The maps also show the location of potential new development, where available.





Figure 9.11-1. Township of Mantua Hazard Area Extent and Location Map 1

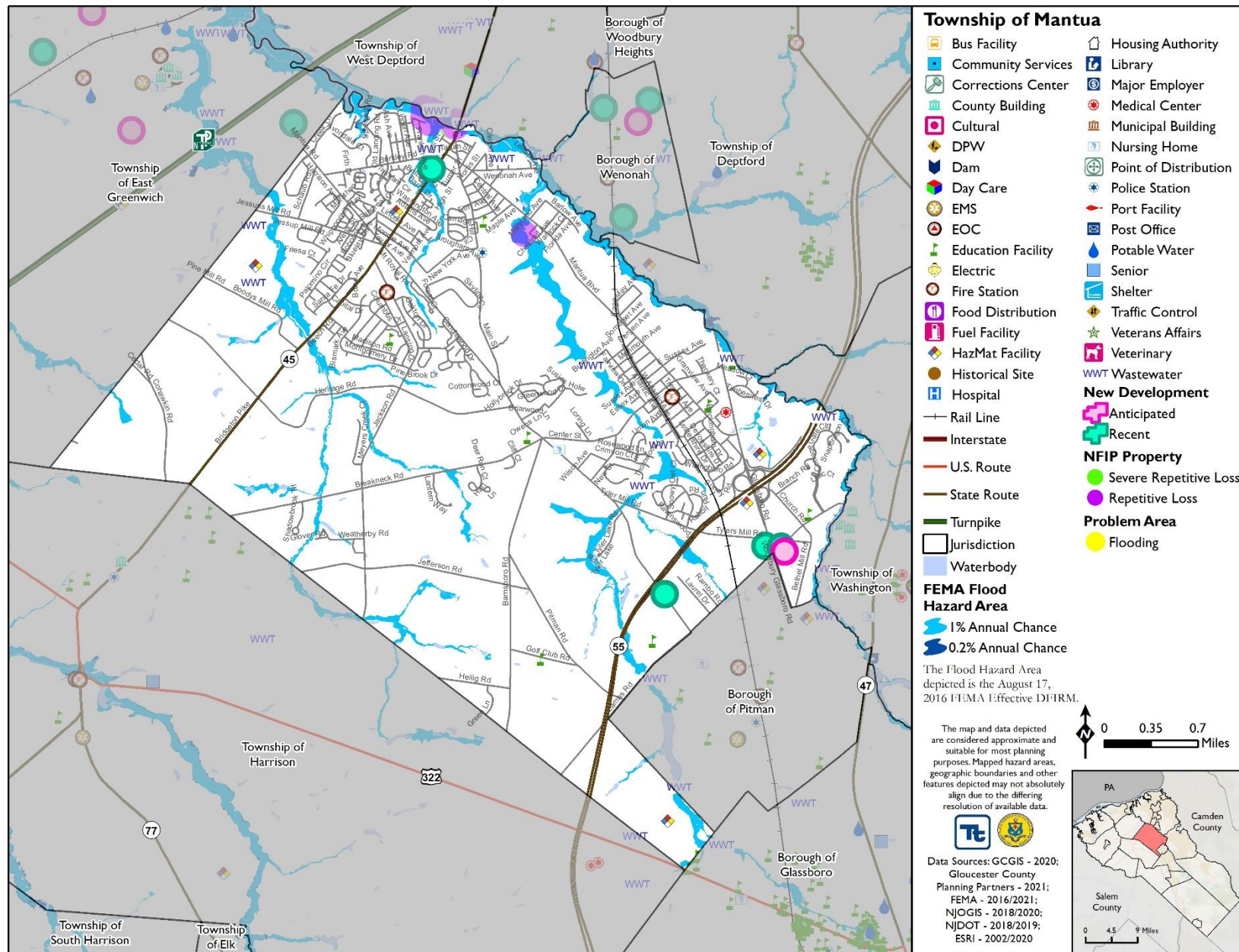






Figure 9.11-2. Township of Mantua Hazard Area Extent and Location Map 2

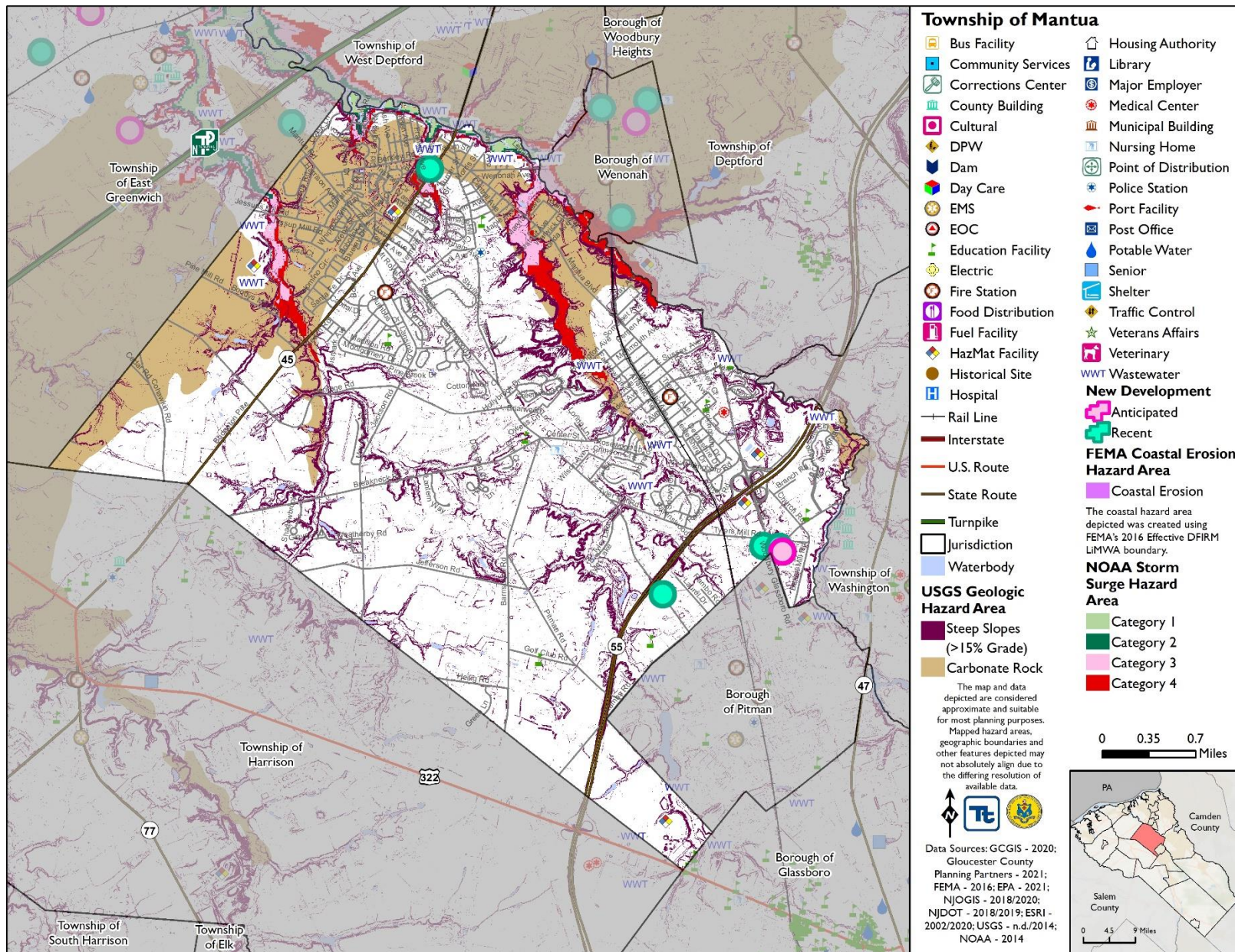






Figure 9.11-3. Township of Mantua Hazard Area Extent and Location Map 3

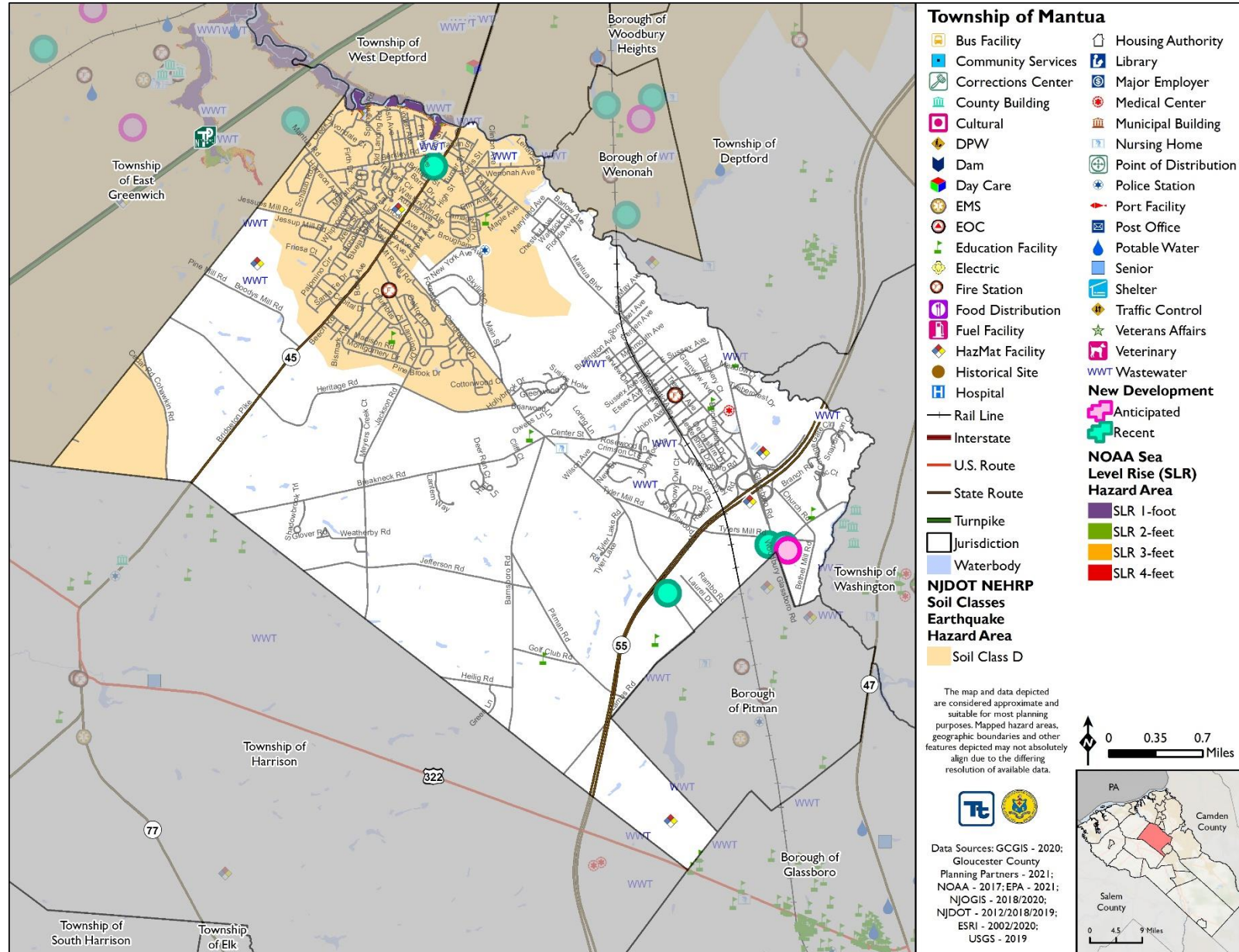
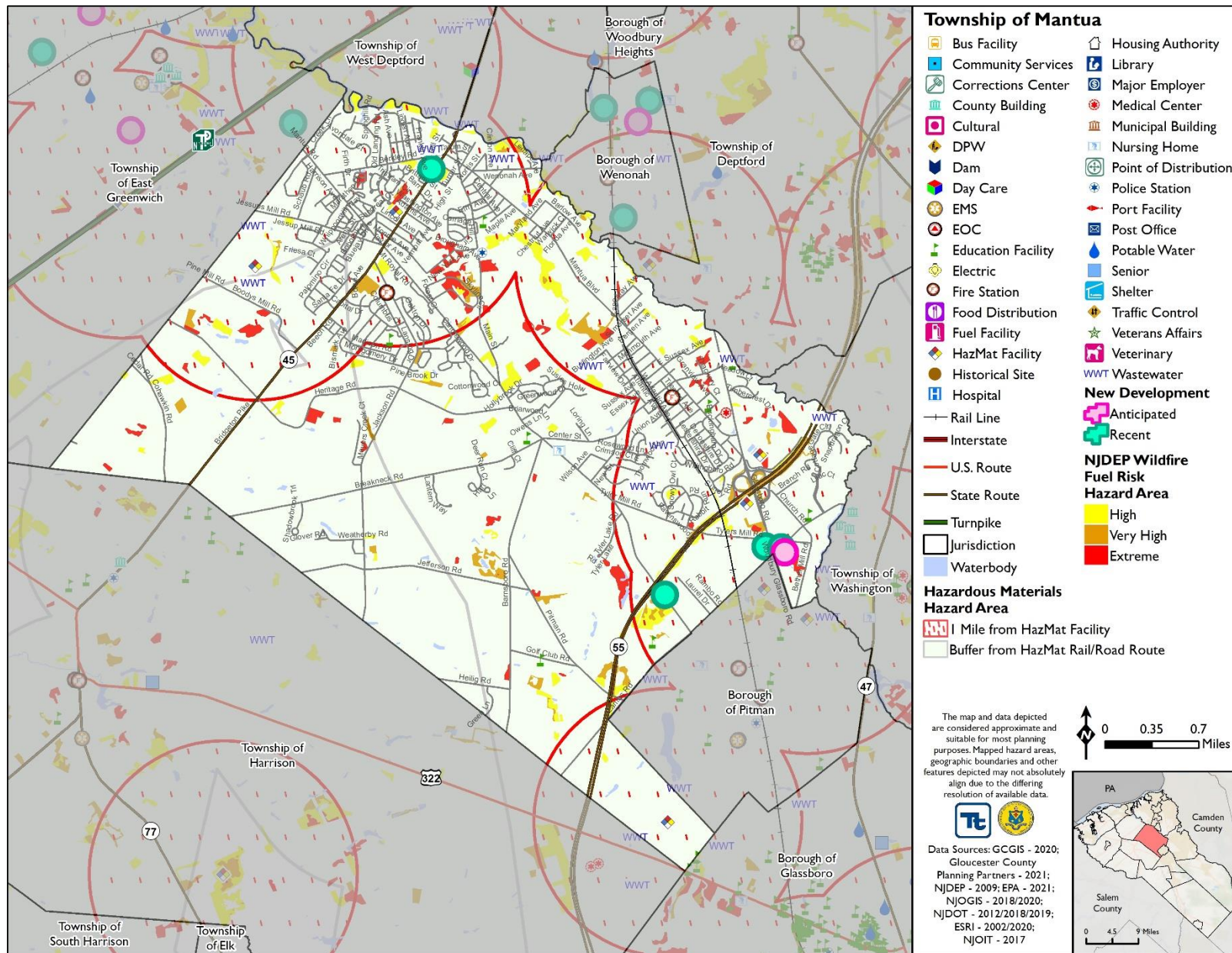




Figure 9.11-4. Township of Mantua Hazard Area Extent and Location Map 4







### 9.11.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Mantua's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.11-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Minor effect on the Township.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Severe effect on the Township for weeks after the event. Fire Department roof was lost, extensive debris removal and multiple road closures for days. Financial impact was at least \$283,000 on the Township.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Township was hit hard with snow and had a financial impact of at least \$50,008 on the Township for debris removal.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	A little more than average snowstorm with plowing operations in effect.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Township closed its doors and forced employees to work from home where appropriate. Financial impact was at least \$16,000 on the Township.



### 9.11.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Mantua's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Mantua. The Township of Mantua reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- Hazmat is not a significant threat to the community and will be re ranked from high to medium.
- Severe storms are not a significant threat give historical events and will be re ranked from high to medium.
- Severe winter storms have relatively good response in terms of service and will be re ranked from medium to low.
- Utility failure has not occurred in the municipality for a long time and will be re ranked from medium to low.

*Table 9.11-12. Hazard Ranking Input*

Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Geologic
Low	Low	Medium	Low	Medium	Low	Low

Haz Mat	Hurricane	Invasive	Nor' Easter	Severe Storm	Severe Winter Storm	Wildfire	Utility Failure
Medium	Low	Low	Medium	Medium	Low	Low	Low

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.11-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.11.6.3 Identified Issues

After review of the Township of Mantua's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Mantua has identified the following vulnerabilities within their community:

- The Senior Citizen Center (Listed as critical facility) does not have adequate backup power. It is not only critical for this facility to have continued operations as a medical facility, but also because it is considered an emergency shelter in times of need. It is important therefore that this facility has a permanent generator, including times when flooding and other natural disasters are occurring.
- Glassboro Road Continues to flood and continues to cause major road / traffic related issues as well as flood loss. This project is ongoing, and the municipality is trying to determine best feasible intervention needed to reduce flooding along this road.
- Route 45 within the Township has repetitive flooding. This causes hazardous driving conditions as well as property loss. This road, however, is owned by the state and is not under the jurisdiction of the municipality.
- The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.
- The GCUA Buckingham Metering Station # 23 is located within the 100-year floodplain and is subject to flooding.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 2 repetitive loss properties, but other properties may be impacted by flooding as well.
- The water and sewer lines in the Mantua city center area are outdated.
- The municipality does not have a disaster debris management plan.



## 9.11.7 Mitigation Strategy and Prioritization

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

### 9.11.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.11-14. Status of Previous Mitigation Actions

2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
MJ-1	Alleviate flooding at Glassboro Road to include retention system at stream crossing bridge.	Municipal OEM, Mantua Township DPW, Gloucester County DPW	No Progress	Yes	2022 Township of Mantua 001
MJ-2	Alleviate flooding on Route 45.	Municipal OEM, NJDOT	In Progress – NJDOT contracted McCormick Taylor Engineers to study the issue.	Yes	2022 Township of Mantua 002
MJ-3	Upgrade storm drainage pipes at Atlantic Avenue and Livingstone Road.	Municipal OEM, Gloucester County DPW	No Progress	No	-
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	In progress	No	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	In progress	No	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	In progress – Data collection is available in the County dispatch software, ProPhoenix	No	-
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Complete	No	-
M-05	Install backup emergency power generator at Fire Station (CF-4).	Municipal OEM and Public Works Department	Completed by fire department with the costs to them.	No	-
M-06	Install permanent backup emergency power generator at Public Works Facility (CF-6).	Municipal OEM and Public Works Department	Completed by HMG from Hurricane Sandy	No	-
M-07	Install backup emergency power generator at Senior Center (CF-16).	Municipal OEM and Public Works Department	No Progress	Yes	2022 Township of Mantua 003
M-08	Upgrade water / sewer system in Mantua Township city center area.	Municipal OEM and Public Works Department	In Progress – Currently sent to engineer to study replacement of all water and sewer lines as well as fire hydrants.	Yes	2022 Township of Mantua 008
M-09	Engineering study to determine appropriate flood mitigation action for houses located on Hickory Avenue next to Mantua Creek.	Municipal OEM and Public Works Department	No Progress	No	-
M-10	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	No Progress	No	-





### 9.11.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.11-14, the Township of Mantua identified the following mitigation efforts completed over the last five years:

- Various stormwater improvements across the Township.

### 9.11.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Mantua participated in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.11-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/ Levee	X	X								X
Disease Outbreak	X	X								X
Drought	X	X								X
Earthquake	X	X								X
Ext Temp	X	X								X
Flood	X	X		X	X	X	X		X	X
Geologic	X	X								X
Hazmat	X	X								X
Hurricane	X	X								X
Invasive	X	X								X
Nor'Easter	X	X								X
Severe Storm	X	X								X
Severe Winter Storm	X	X								X
Wildfire	X	X								X
Utility Failure	X	X								X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.11-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Mantua 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 9.11-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.11-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022 Township of Mantua-001	Glassboro Road Flood Mitigation	<p><b>Problem:</b> Glassboro Road continues to flood and cause major road / traffic related issues as well as flood loss. This project is ongoing, and the municipality is trying to determine best feasible intervention needed to reduce flooding along this road.</p> <p><b>Solution:</b> The Township would like to alleviate flooding along Glassboro Road by creating a retention basin system at stream crossing bridge. The system would not only prevent overflow of the stream and stormwater infrastructure but also will allow for natural filtration to reduce the amount of contaminated runoff that enters the water system. The DPW shall work with some of the landowners to coordinate the construction of the retention basin. The design is already underway and the next stage is to construct the new basin. The DPW shall then secure funding through HMGP and or BRIC and then determine subcontractor work. The project would then be maintained by the DPW once construction is complete.</p>	New	Flood	1, 2, 6	3 years	DPW	HMGP/BRIC	Flood Mitigation	\$500,000	High	SIP	SP
2022 Township of Mantua-002	Route 45 Flood Mitigation	<p><b>Problem:</b> Route 45 within the Township has repetitive flooding. This causes hazardous driving conditions as well as property loss. This road, however, is owned by the state and is</p>	Existing	Flood	1, 2, 5, 6	3 years	NJDOT, Mantua DPW	State Funding	High	Municipal budget	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>not under the jurisdiction of the municipality.</p> <p><b>Solution:</b> The Township shall work the NJDOT to alleviate flooding along road. Mantua would not be the stakeholder in this project and thus would not qualify for funding. However, the town is willing to work closely and coordinate construction costs if needed to alleviate flooding. The DPW will reach out to the state to determine funding as well as methods to alleviate flooding of road.</p>											
2022 Township of Mantua-003	Senior Center Backup Power Installation	<p><b>Problem:</b> The Senior Citizen Center (listed as a critical facility) does not have adequate backup power. It is critical for this facility to operate continuously as it is a medical facility and is also considered an emergency shelter in times of need. Therefore, it is important that this facility has a permanent generator to be used when flooding and other natural disasters are occurring.</p> <p>It is not only critical for this facility to have continued operations as a medical facility, but also because it is considered an emergency shelter in times of need. It is important therefore that this facility has a permanent generator, including times when flooding and other natural disasters are occurring.</p>	New	All	1, 2, 6	2 years	Facility manager and DPW	Municipal Budget and HMGP	High	\$100,000-500,000	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The DPW shall work with the facility manager of the senior Citizen center to determine the adequate backup power needed to power the entire facility. The generator will be permanent and will require site assessment to determine the best location that the new asset will be placed. The DPW shall coordinate these efforts with the facility manager and help secure adequate funding to purchase and install the generator.											
2022 Township of Mantua-004	FDPO Update	<b>Problem:</b> The municipality's flood damage prevention ordinance is outdated and requires revisions and updating. <b>Solution:</b> The Township Board and Administration as well as the NFIP Administrator shall work together to update their FDPO once contacted by the state. The state shall work with municipality to provide updated guidance and model ordinance as needed.	Existing	Flood	All	1-5 years	State of NJ and Township Administration	Municipal Budget	Compliance	Staff time	High	LPR	PR
2022 Township of Mantua-005	Disaster Debris Management Plan	<b>Problem:</b> The municipality does not have a disaster debris management plan. <b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the cleanup process post disaster. This plan can be developed by the	New	All	4	2 years	Various Departments and Town Board	Municipal Budget	High	Staff time	High	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders might be necessary.											
2022-Township of Mantua-006	GCUA Buckingham Metering Station # 23 Flood Mitigation	<p><b>Problem:</b> The GCUA Buckingham Metering Station # 23 is located within the 100-year floodplain and is subject to flooding.</p> <p><b>Solution:</b> The Township shall conduct outreach to the property owner to determine potential mitigation actions to reduce potential damage that can be caused by flooding. The Town NFIP administrator shall reach out to the facility owner to reduce the facility's risk to damage. If the facility requires retrofitting of some nature and thus funding, the facility owner shall work with the Township to apply for funding.</p>	Existing	Flood	2, 4, 5	2 years	GCUA, Township Administration	Municipal budget, FMA	Moderate	Low	High	EAP	PI
2022-Township of Mantua-007	Rep Loss Outreach	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 2 repetitive loss properties, but other properties can be impacted by flooding as well.</p> <p><b>Solution:</b> Conduct outreach to 30 flood-prone property owners, including RL/SRL property owners and provide information on mitigation</p>	Existing	Flood	1, 2, 3, 5	5 years	Township Administration	Municipal Budget	FMA, HMGP	\$ 3 Million	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		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).											
2022-Tpwnship of Mantua-008	Water and Sewer Line Upgrade	<p><b>Problem:</b> The water and sewer lines in the Mantua city center area are outdated.</p> <p><b>Solution:</b> Upgrade water / sewer system in Mantua Township city center area. Municipal OEM and Public Works Department. Sent plans to the engineer to study replacement of all water and sewer lines as well as fire hydrants.</p>	Existing	Flood	1, 2, 4	3 years	OEM, DPW, Engineering	HMGP/BRIC	Flood Mitigation	High	High	SIP	SP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV Community Assistance Visit  
 CRS Community Rating System  
 DPW Department of Public Works  
 EHP Environmental Planning and Historic Preservation  
 FEMA Federal Emergency Management Agency  
 FPA Floodplain Administrator  
 HMA Hazard Mitigation Assistance  
 N/A Not applicable

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program  
 HMGP Hazard Mitigation Grant Program  
 BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:





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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022 Township of Mantua-001	Glassboro Road Flood Mitigation	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High 
2022 Township of Mantua-002	Route 45 Flood Mitigation	1	1	1	0	0	0	0	1	1	1	0	1	1	1	9	High
2022 Township of Mantua-003	Senior Center Backup Power Installation	1	1	1	1	1	1	-1	0	1	1	1	1	1	1	11	High
2022 Township of Mantua-004	FDPO Update	1	1	1	1	1	-1	1	1	1	1	1	1	1	1	12	High
2022 Township of Mantua-005	Disaster Debris Management Plan	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2022-Township of Mantua-006	GCUA Buckingham Metering Station # 23 Flood Mitigation	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022-Township of Mantua-007	Rep Loss Outreach	1	1	1	1	1	1	0	1	0	0	0	0	1	1	9	High
2022-Tpwnship of Mantua-008	Water and Sewer Line Upgrade	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.11.8 Action Worksheets

The following action worksheets have been developed by the Township of Mantua to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Glassboro Road Flood Mitigation		
<b>Project Number:</b>	2022 Township of Mantua-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Glassboro Road Continues to flood and continues to cause major road / traffic related issues as well as flood loss. This project is ongoing, and the municipality is trying to determine best feasible intervention needed to reduce flooding along this road.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township would like to alleviate flooding along Glassboro Road by creating a retention basin system at stream crossing bridge. The system would not only relieve the stream and stormwater infrastructure from overflowing but will also allow for natural filtration to reduce contaminated runoff from entering the water system. The DPW shall work with some of the landowners to coordinate the construction of the retention basin. The design is already underway and the next stage is to construct the new basin. The DPW shall then secure funding through HMGP and or BRIC and then determine subcontractor work. The project would then be maintained by the DPW once construction is complete.		
<b>Is this project related to a Critical Facility?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$500,000	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years once funding secured
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	HMGP/ BRIC
<b>Responsible Organization:</b>	DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Close Road	High	Infeasible
	Retention Basin	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Glassboro Road Flood Mitigation	
<b>Project Number:</b>	2022 Township of Mantua-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	-1	Additional Funding is needed
<b>Environmental</b>	1	Has a positive impact on environment
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	0	This addresses a single hazard
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	The town DOW/ OEM
<b>Other Community Objectives</b>	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Senior Center Backup Power Installation		
<b>Project Number:</b>	2022 Township of Mantua-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All		
<b>Description of the Problem:</b>	The Senior Citizen Center (Listed as critical facility) does not have adequate backup power. It is not only critical for this facility to have continued operations as a medical facility, but also because it is considered an emergency shelter in times of need. It is important therefore that this facility has a permanent generator, including times when flooding and other natural disasters are occurring.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The DPW shall work with the facility manager of the senior Citizen center to determine the adequate backup power needed to power the entire facility. The generator will be permanent and will require site assessment to determine the best location that the new asset will be placed. The DPW shall coordinate these efforts with the facility manager and help secure adequate funding to purchase and install the generator.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Continued Operation
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1,2
<b>Estimated Cost:</b>	\$100-500,000	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6 months once plans made and funding secured
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP
<b>Responsible Organization:</b>	Town DPW and Facility Manager	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Structural and Infrastructure Project
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar	High	Dependent on weather
	Install generator	High	Best long-term solution
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Senior Center Backup Power Installation	
<b>Project Number:</b>	2022 Township of Mantua-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	-1	Additional Funding is needed
Environmental	0	Has no adverse impact
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	1	This addresses multiple hazards
Timeline	1	The timeline is feasible
Agency Champion	1	The town DPW/Facility Manager
Other Community Objectives	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Rep Loss Outreach		
<b>Project Number:</b>	2022-Township of Mantua-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has 2 repetitive loss properties, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	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/elevating residential homes in the flood prone areas that experience frequent flooding (high risk areas).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	\$ 3 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	5 years
<b>Estimated Time Required for Project Implementation:</b>	5 Years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	Township Administration supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Rep Loss Outreach	
<b>Project Number:</b>	2022-Township of Mantua-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 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	0	Flood
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	



## 9.12 TOWNSHIP OF MONROE

This section presents the jurisdictional annex for the Township of Monroe and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Monroe's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.12.1 Hazard Mitigation Planning Team

The Township of Monroe followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Monroe's hazard mitigation plan primary and alternate points of contact. 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 9.12-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Ryan S. Borkowski, Sargent for PD/OEM Address: 125 Virginia Avenue Phone Number: 856-728-9800 x250 Email: <a href="mailto:rborkowski@monroetwppd.org">rborkowski@monroetwppd.org</a>	Name/Title: Don Darcangelo, PD/ OEM Address: 125 Virginia Avenue Phone Number: 856-728-9800 x524 Email: <a href="mailto:ddarcangelo@monroetwppd.org">ddarcangelo@monroetwppd.org</a>
NFIP Floodplain Administrator	
Name/Title: Tara Nelms, Zoning Official Address: 125 Virginia Avenue Phone Number: 856-7 28-9800 x222 Email: <a href="mailto:tnelms@monroetownshipnj.org">tnelms@monroetownshipnj.org</a>	



Name	Title	Method of Participation
Ryan S. Borkowski	Sargent for PD/OEM	Provided information on past events, capabilities, NFIP administration. Provided status updates on previous actions. Reviewed critical facilities. Reviewed annex and provided feedback.
Jennifer Ballard	Technical Assistant to the Construction Official	Provided permit information.
Don Darcangelo	Police Department/OEM	Reviewed annex and provided feedback.

## 9.12.2 Municipal Profile

Monroe Township is a Bicentennial Community. It's first residents predate 1776. The Township of Monroe was formed in March of 1859 at which time Williamstown was designated as a place of elections and town meetings. Early history refers to this as one of the "pine townships" because of the abundance of pine timber in the area. The area is drained on the east by Four Mile Branch and Squankum Branch of the Great Egg Harbor River, on the south by Whitehall and Hospitality Branches and Scotland Run. The township was formed by an act of the New Jersey Legislature on March 3, 1859, from portions of Washington Township, while the area was still part of Camden County. Monroe Township was shifted to Gloucester County on February 28, 1871, along with the majority of Washington Township. In 1950, portions of the Township were transferred to Winslow Township in Camden County.

According to the United States Census Bureau, the Township had a total area of 46.93 square miles, including 46.42 square miles of land and 0.51 square miles of water. The major route that passes through the Township is Route 322 and is adjacent to the Atlantic City Expressway to the east. Unincorporated communities, localities and place names located partially or completely within the Township include Berryland, Broad Lane, Cecil, Cross Keys, Downer, New Brooklyn, Radix, Victory Lakes and Williamstown.

Monroe Township is governed within the Faulkner Act system which has a governing body of a Mayor and the Township Council. The Mayor is directly elected to a four-year term of office. The Township Council is comprised of seven members, with three at-large seats and four seats selected from wards, all of whom serve four-year terms of office.

According to the U.S. Census, the 2010 population for the Township of Monroe was 36,129. The estimated 2019 population was 36,789, a 1.8 percent increase from the 2010 Census. Data from the 2018 U.S. Census American Community Survey indicate that 4.7 percent of the population is 5 years of age or younger and 16 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.



## 9.12.3 Jurisdictional Capability Assessment and Integration

The Township of Monroe performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.12.3). The updated mitigation strategy includes opportunities the Township of Monroe identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.12.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Monroe, what is present in the jurisdiction, and code citation and date.

*Table 9.12-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
Building Code	Yes	Yes	1999	State and Local	Town CEO
<i>How does this reduce risk?</i>					
The Bureau of Fire Prevention shall enforce the Uniform Fire Safety Act and the codes and regulations adopted under it in all buildings, structures and premises within the established boundaries of the Township of Monroe, other than owner-occupied one- and two-family dwellings, and shall faithfully comply with the requirements of the Uniform Fire Safety Act and the Uniform Fire Code.					
Zoning/Land Use Code	Yes	Yes	Land Management Article 8 Design, Performance, and Evaluation Standards	Local	Town Planning
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The purpose of this section is to provide a method of developing land in certain districts of the Township so that desirable open spaces, conservation areas, floodplains, recreation areas and other environmentally sensitive lands can be set aside by permitting a reduction in lot sizes without increasing the number of lots. No development shall be carried out in vegetated areas of the Township which are classified as a moderate, high or extreme hazard.					
Subdivision Ordinance	Yes	Yes	Article VII Chapter 175-54	Local	Planning Board
<i>How does this reduce risk?</i> Site plan review and approval shall be required before any new business is commenced at a property, all or any portion of the type of business or businesses changes at a property, change of use (primary or ancillary) at a property, adding any use (primary or ancillary) at a property or change of occupancy at a property, any construction, reconstruction, reduction, conversion, structural alteration, relocation, rehabilitation or enlargement of any building or any other structure at any property, any mining, excavation, removal of soil, clearing of a site or placing of any fill on property contemplated for development. Except as hereinafter provided, no building permit or zoning permit shall be issued in connection with any of the aforementioned matters unless and until site plan approval is granted or waived by the reviewing board. No certificate of occupancy shall be given unless all construction and development fully conform to the plans as approved by the reviewing board.					
Stormwater Management Ordinance	Yes	Yes	Section 175-140 (2006)	Local	Engineer
<i>How does this reduce risk?</i> The purpose is to establish minimum stormwater management requirements and controls for major development, consistent with the statewide requirements at N.J.A.C. 7:8, the regulations and standards contained in the Pinelands CMP, and the provisions of the adopted master plan and land use ordinances of Monroe Township.					
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
Real Estate Disclosure	Yes	Yes	N.J.A.C. 13:45A-29.1	State	NJ Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	Yes	Yes, if the jurisdiction has a planning board	Article XIV Chapter 175 - 161	Local	Planning Board
<i>How does this reduce risk?</i> There is hereby ordained by the Township Council for the Township of Monroe, Gloucester County, New Jersey, pursuant to the provisions of New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) and to implement the Pinelands Protection Act (N.J.S.A. 13:18A-1 to 18A-29) and the Pinelands Comprehensive Management Plan, a Comprehensive Land Management Ordinance for the purpose of and in order to effectuate the Master Plan, enacted to guide the appropriate development and redevelopment of land in a manner which will promote the public health, safety, morals and general welfare; regulate the use of land within zoning districts; secure safety from fire, flood, panic and other natural and man-made disasters; provide adequate light, air and open space; limit and restrict buildings according to their type and the nature and extent of their use and regulate the nature and extent of the use of land for all purposes; regulate the bulk, height, number of stories and size of buildings and other structures; avoid a conflict with the development and general welfare of neighboring municipalities, the county and the state; establish appropriate population densities and concentrations contributing to the well-being of persons, neighborhoods, communities and regions and the preservation of the environment; provide sufficient space for residential, recreational, commercial and industrial uses and open space; encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities and routes which result in congestion or blight; promote a desirable visual environment through creative development techniques and good civic design and arrangement; promote the conservation of open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land; encourage coordination of various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land; encourage planned development which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site; encourage senior citizen community housing construction; promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources; and preserve and protect the significant and unique resources of the Pinelands.					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Site Plan Ordinance	Yes	Yes, if the jurisdiction has a planning board	Article XII Chapter 175	Local and County	Planning or Zoning Board
<p><i>How does this reduce risk?</i></p> <p>There is hereby ordained by the Township Council for the Township of Monroe, Gloucester County, New Jersey, pursuant to the provisions of New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) and to implement the Pinelands Protection Act (N.J.S.A. 13:18A-1 to 18A-29) and the Pinelands Comprehensive Management Plan, a Comprehensive Land Management Ordinance for the purpose of and in order to effectuate the Master Plan, enacted to guide the appropriate development and redevelopment of land in a manner which will promote the public health, safety, morals and general welfare; regulate the use of land within zoning districts; secure safety from fire, flood, panic and other natural and man-made disasters; provide adequate light, air and open space; limit and restrict buildings according to their type and the nature and extent of their use and regulate the nature and extent of the use of land for all purposes; regulate the bulk, height, number of stories and size of buildings and other structures; avoid a conflict with the development and general welfare of neighboring municipalities, the county and the state; establish appropriate population densities and concentrations contributing to the well-being of persons, neighborhoods, communities and regions and the preservation of the environment; provide sufficient space for residential, recreational, commercial and industrial uses and open space; encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging the location of such facilities and routes which result in congestion or blight; promote a desirable visual environment through creative development techniques and good civic design and arrangement; promote the conservation of open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land; encourage coordination of various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land; encourage planned development which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site; encourage senior citizen community housing construction; promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources; and preserve and protect the significant and unique resources of the Pinelands.</p>					
Environmental Protection Ordinance	Yes	Yes, depends on type of environmental areas	Article I Chapter 31	Local	Environmental Commission
<p><i>How does this reduce risk?</i></p> <p>The Environmental Commission has the following powers and duties:</p> <ul style="list-style-type: none"> <li>A. Conduct research into the use and possible use of open land areas.</li> <li>B. Coordinate the activities of unofficial bodies organized for similar purposes.</li> <li>C. Keep an index of all open areas publicly or privately owned, including open marshlands, swamps and other wetlands.</li> <li>D. Recommend to the Planning Board, from time to time, programs for inclusion in the Master Plan and programs for development and use of such areas.</li> <li>E. Acquire, subject to the approval of the Township Council, real and personal property, which property shall be utilized to maintain, improve, protect, limit to the future use of or otherwise conserve and properly utilize open spaces and other land and water areas in the municipality.</li> <li>F. Study and make recommendations concerning open space preservation, water resources management, air pollution control, solid waste management, noise control, soil and landscape protection and environmental appearance.</li> </ul>					
Flood Damage Prevention Ordinance	Yes	Yes	Chapter 44, Flood Damage Prevention, 6-9-10	Federal, State, County and Local	Zoning Officer/Tara Nelms
<p><i>How does this reduce risk?</i></p> <p>The Flood Damage Prevention Ordinance is adopted in order to:</p> <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;</li> <li>B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;</li> <li>C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</li> <li>D. Controlling filling, grading, dredging, and other development which may increase flood damage; and</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</li> </ul>					
Wellhead Protection	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Emergency Management Ordinance	Yes	No	Chapter 132 Base Plan from 2018	Local	OEM/Ryan Borkowski
<i>How does this reduce risk?</i> It is the intent and purpose of this chapter to establish an Emergency Management Office that will ensure the complete and efficient utilization of all of the township's facilities to combat disaster resulting from emergencies, natural or man-made, or nuclear disasters or enemy attack.					
Climate Change Ordinance	No	No	-	-	-
Disaster Recovery Ordinance	No	No	-	-	-
Disaster Reconstruction Ordinance	No	No	-	-	-
Other	No	-	-	-	-
Codes, Ordinances, & Regulations Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? Yes</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>• Do the regulations allow density transfers where hazard areas exist? No</li> <li>• When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
Planning Documents					
Master Plan	Yes	Yes	Adopted 2004 and updated 2017	Local	Planning Board
<i>How does this reduce risk?</i> The plan addresses development and establishes the Rural Residential-Farmland Preservation District.					
Capital Improvement Plan	Yes	Allowed	6-year capital improvement Updated 2020	Local	Public Works/Mike Calvello
<i>How does this reduce risk?</i> Utilizes existing resources and expand capabilities to increase resiliency and preparedness.					
Disaster Debris Management Plan	No – action 005	No	-	-	-
<i>How does this reduce risk?</i> Provides resources for disposal of debris generated from hazard events.					
Floodplain Management or Watershed Plan	No	No	-	-	-
Stormwater Management Plan	Yes	Yes	Article XIII Chapter 175-140	Local	Zoning Board
<i>How does this reduce risk?</i> It is hereby determined that the purpose of the Stormwater Management Plan within the Land Management Ordinance shall play the following role: [1] Land development projects and associated disturbance of vegetation and soil and changes in land cover, including increases in impervious cover, alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes. If inadequately or improperly managed, this stormwater runoff can deplete groundwater resources and increase flooding, stream channel erosion, and sediment transport and deposition. [2] This stormwater runoff from land development projects contributes to increased quantities of waterborne pollutants.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>[3] Increases of stormwater runoff, soil erosion and nonpoint source pollutants have occurred in the past as a result of land development and contribute to the degradation of the water resources of the Township of Monroe and downstream municipalities.</p> <p>[4] Certain lands of the Township of Monroe lie within the Pinelands Area, and therefore, development in this portion of the Township of Monroe is subject to the requirements of the Pinelands Protection Act (N.J.S.A. 13:18A-1 et seq.) and the implementing regulations and minimum standards contained in the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.) (CMP). One purpose and intent of these regulations and standards is to promote orderly development of the Pinelands so as to preserve and protect the significant and unique natural, ecological, agricultural, archaeological, historical, scenic, cultural and recreational resources of the Pinelands.</p> <p>[Amended 4-24-2007 by Ord. No. O:25-2007]</p> <p>[5] Pinelands Area resources are to be protected in accordance with Pinelands Comprehensive Management Plan at N.J.A.C. 7:50 et seq., New Jersey's Stormwater Management Rules at N.J.A.C. 7:8-1.1 et seq., and New Jersey's surface water quality anti-degradation policies contained in the New Jersey Surface Water Quality Standards at N.J.A.C. 7:9B-1.1 et seq. Permitted uses shall maintain the ecological character and quality of the Pinelands, including good water quality and natural rates and volumes of flow.</p> <p>[6] Increased stormwater rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the Pinelands Area have the potential to adversely affect the Township of Monroe's streams and water resources and the streams and water resources of downstream municipalities.</p> <p>[7] Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.</p> <p>[8] It is in the public interest to regulate the discharge of stormwater runoff from major development projects, as defined in Subsection G of this section, conducted within the Pinelands Area, as provided in this section, in order to control and minimize increases in stormwater runoff rates and volumes, to maintain groundwater recharge, and to control and minimize soil erosion, stream channel erosion and nonpoint source pollution associated with stormwater runoff.</p>					
Stormwater Pollution Prevention Plan	Yes	Yes	Municipal Stormwater Management Plan February 2006	Local	Public Works/Mike Calvello
<p><i>How does this reduce risk?</i></p> <p>This article requires the retrofitting of existing storm drain inlets which are in direct contact with repaving, repairing, reconstruction, or resurfacing or alterations of facilities on private property, to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Township of Monroe so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.</p>					
Urban Water Management Plan	No	No	-	-	-
Habitat Conservation Plan	No	No	-	-	-
Economic Development Plan	Yes	No	Chapter 26	Local	Economic Development Advisory Board
<p><i>How does this reduce risk?</i></p> <p>This plan supports economic development in the township, which can free up funding for hazard mitigation.</p>					
Shoreline Management Plan	No	No	-	-	-
Community Wildfire Protection Plan	No	No	-	-	-
Community Forest Management Plan	Yes	No	Community Forestry Management Plan	Local	Environmental Commission
<p><i>How does this reduce risk?</i></p> <p>The Community Forestry Management Plan guides the trimming, planting, and removal of trees in the Township.</p>					
Transportation Plan	No	No	-	-	-
Agriculture Plan	Yes	No	Article XIII Chapter 170-90	Local	Zoning Officer/Tara Nelms
<p><i>How does this reduce risk?</i></p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Climate Action/ Resiliency Plan	No	No	-	-	-
Tourism Plan	No	No	-	-	-
Business/ Downtown Development Plan	Yes	No	Article VII Chapter 4	Local	Economic Development Commission
<i>How does this reduce risk?</i>					
Other	No	-	-	-	-
Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Yes</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. Yes</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Unknown</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Plan Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? N/A</li> <li>Are environmental systems that protect development from hazards identified and mapped? Yes</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
Response/Recovery Planning					
Emergency Operations Plan	Yes	Yes	Chapter 132	Local	OEM/Ryan Borkowski
<i>How does this reduce risk?</i>					
Provides plan for what to do during an emergency to support OEM actions.					
Strategic Recovery Planning Report	No	No	-	-	-
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	-	-	-
Post-Disaster Recovery Plan	No	No	-	-	-
Continuity of Operations Plan	No	No	-	-	-
Public Health Plan	No	No	-	-	-
Other	No	-	-	-	-
Response/Recovery Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards?</li> </ul>					

### 9.12.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Monroe to oversee and track development.



*Table 9.12-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Any construction in a flood plain is subject to regulation under the Flood Hazard Area Control Act, N.I.S.A. 58:16A-50 et seq. and is implemented at N.J.A.C. 7:13. Under these rules any development within the flood hazard area requires a Stream Encroachment Permit or a Letter of Non-Applicability from the New Jersey Department of Environmental Protection (NJDEP). Copies of the rules as well as Permit applications are available on the NJDEP Land Use Regulation Program's website: <a href="http://www.nj.gov/dep/landuse.com">www.nj.gov/dep/landuse.com</a> .
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Municipality is built out

### 9.12.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Monroe and their current responsibilities which contribute to hazard mitigation.

*Table 9.12-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board has appointed members that are volunteer basis.
Zoning Board of Adjustments	Yes	Zoning Enforcement is a volunteer-based group that oversees the zoning and development of the township.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The forming of the Environmental Commission was introduced to Council on 10/17/73, voted on at the 11/7/73 meeting, and signed by the mayor on 11/8/1973. There are currently 6 members and a Town Council Liaison. The members of the Environmental Commission have also taken on the role of the Shade Tree Commission. The most substantial undertaking the past 18 months has been updating the Community Forestry Management Plan. The Commission also hosts several community cleanups throughout the year, does continuing education for



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		good stewardship and sustainability and participated in community outreach and town events. The Commission meets monthly, and has supported the Green Team and our Sustainable Jersey actions.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development
Public Works/Highway Department	Yes	Public Works - Wayne Horbatt
Construction/Building/Code Enforcement Department	Yes	CEO
Emergency Management/Public Safety Department	Yes	OEM
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	OEM Alerts
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Clean Communities Program
Mutual aid agreements	Yes	Fire
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Building Enforcement
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	OEM
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Have active outreach around OEM: <a href="https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/">https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/</a></li> </ul>		

### 9.12.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Monroe.





Table 9.12-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
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
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul>	

### 9.12.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Monroe.

Table 9.12-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Clerk
Personnel skilled or trained in website development	Yes	Clerk
Hazard mitigation information available on your website	Yes	View web page: <a href="https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/">https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/</a>
Social media for hazard mitigation education and outreach	Yes	Facebook: <a href="https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/">https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/</a>
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Municipal warning system: <a href="https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/">https://monroetownshipnj.org/3-2/departments-of-public-safety/oem/</a>



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Natural disaster/safety programs in place for schools	Yes	Safe Routes to School
Other	None	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>Deaf and hard of Hearing CERT</li> <li>Disaster Planning for Special Needs and Disabilities</li> <li>Pet Emergency Preparedness</li> </ul>		

### 9.12.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Monroe.

Table 9.12-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	Yes	Bronze	October 22, 2018
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable  
NP Not participating  
- Unavailable

The Township of Monroe is a bronze certified community in the Sustainable Jersey program. To support certification, the Township earned points for the following hazard mitigation related actions:

- Green Team: The Township established a Green Team in 2018 to lead sustainability efforts.
- Wind Ordinance: The Township adopted a wind ordinance to guide the installation of renewable energy resources.
- Rain Gardens: The Environmental Club at the Williamstown Middle School has designed, prepared, planted and maintained five raingardens on the school campus.
- Environmental Commission: The Environmental Commission was developed in 1973. There are currently six members and a Town Council Liaison. The members of the Environmental Commission have also taken on the role of the Shade Tree Commission. Recently, the Commission was responsible for the updating of the Community Forestry Management Plan.
- Environmental Assessment Ordinance: Monroe Township's Environmental Assessment Ordinance (EAO) is in place to be sure that the land is cared for and developed properly. Required by the ordinance is a Storm Water Management plan for the site, an Environmental Inventory and an Open Space Plan for the proposed area.



### 9.12.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.12-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

### 9.12.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.12-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 63</li> <li># RL properties: 5</li> <li># SRL properties: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$44,187.00</li> <li># claims filed: 43</li> <li>Total loss payments: \$180,898.06</li> </ul>



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>#RL/SRL mitigated: 0</li> </ul>	
Describe areas prone to flooding in your jurisdiction.	Coles Mill Road in the area of Old Black Horse Pike
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	N/A
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Zoning Officer / Tara Nelms
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Zoning Officer / Planning and Construction
What specific training or support does your floodplain management staff need to support its floodplain management program?	Unknown
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Zoning Officer
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None known
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Janary 17, 1995
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> </ul>	<ul style="list-style-type: none"> <li>Article 1</li> <li>2017</li> </ul>



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Unknown
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Yes
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>No</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	None known
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No – addressed in mitigation action

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.12.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.12-10. Recent and Expected Future Development*

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						



	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	65	0	55	0	70	0	75	0	123	0	61	0
Multi-Family	3	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	1	0	2	0	1	0	2	0	2	0	0	0
Total Permits Issued	69	0	57	0	71	0	77	0	125	0	61	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												
Grandview Mews	Residential		37 Single Family Homes		Block 801 Lot 7,8,10,11,14,15.01		-			Completed		
Holly Oak Estates (Morgan Development Group)	Residential		26 Single Family Homes		Block 13001 Lot 9,10,11,11.01,12,13		-			Completed		
Stirling Glen (Hovbros)	Residential		145 Active Adult Community Mobile Home Park		8 Kippen Drive Williamstown, NJ 08094		-			Construction in progress		
The Greens	Residential		195 Single Family Age restricted dwellings		Block 14801 Lot 12		-			Construction in progress		
Whitehall Gardens	Residential		214		3801 Dorchester Drive Williamstown, NJ 08094		-			Construction in progress		
Hamilton Greene (Ryan Homes)	Residential		207 Units		41 Comfort Road		-			Construction in progress		
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Name not designated yet (Philadelphia Suburban )	Residential		101 Single Family Dwellings		Block 2702 Lot 11,15,17,18,40,41		-			Approved by board or committee		
Summerfields West	Residential		173 Single Family dwellings		2010 Cumberland Court Williamstown, NJ 08094		-			Approved by board or committee		
Monroe Pointe (Ryan Homes)	Residential		38 Single Family Homes		Spring Beauty Drive		-			Approved by board or committee		





Tuck Woods	Residential	39 Townhomes	Horton Drive Williamstown, NJ 08094	-	Approved by board or committee
Smithfield Estates	Residential	78 Townhomes	Block 15303 Lot 2,3,3.01,31- 36,37,38,39 Block 15402 Lot 9- 13	-	Approved by board or committee
Equestrian Farms	Residential	89 Single Family Homes	Block 3704 Lot 9,9.01,9.02,9.03	-	Approved by board or committee
Woodview (RJP Homes)	Residential	117 Single family dwellings age restricted	Block 12901 Lot 18	-	Approved by board or committee

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

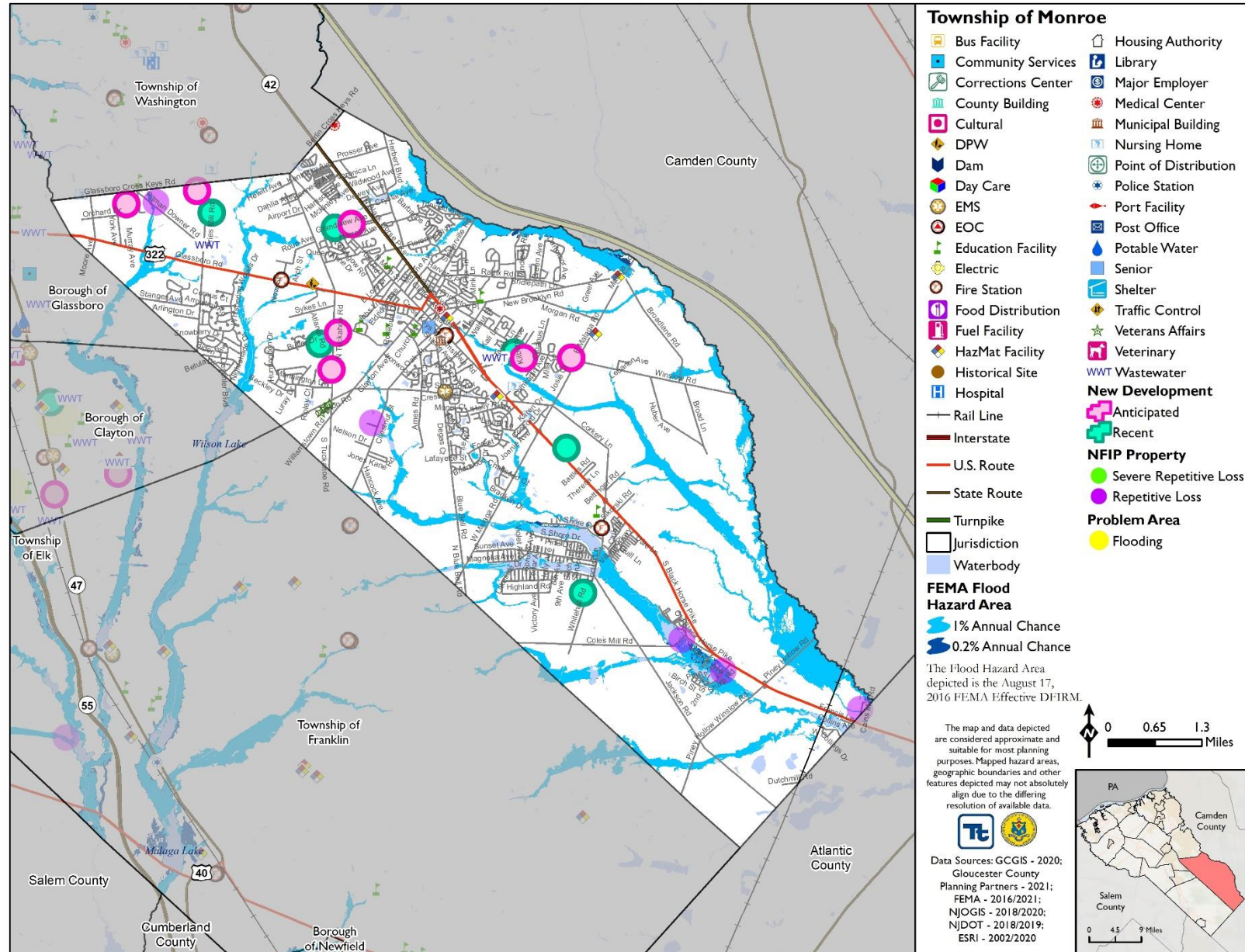
## 9.12.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Monroe's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Monroe has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.12-1. Township of Monroe Hazard Area Extent and Location Map 1







**Map of Gloucester County, New Jersey**

**Legend:**

- Bus Facility
- Community Services
- Corrections Center
- County Building
- Cultural
- DPW
- Dam
- Day Care
- EMS
- EOC
- Education Facility
- Electric
- Fire Station
- Food Distribution
- Fuel Facility
- HazMat Facility
- Historical Site
- Hospital
- Rail Line
- Interstate
- U.S. Route
- State Route
- Turnpike
- Jurisdiction
- Waterbody
- USGS Geologic Hazard Area
  - Steep Slopes (>15% Grade)
  - Carbonate Rock
- Housing Authority
- Library
- Major Employer
- Medical Center
- Municipal Building
- Nursing Home
- Point of Distribution
- Police Station
- Port Facility
- Post Office
- Potable Water
- Senior
- Shelter
- Traffic Control
- Veterans Affairs
- Veterinary
- WWT Wastewater
  - New Development
  - Anticipated
  - Recent
- FEMA Coastal Erosion Hazard Area
  - Coastal Erosion
- NOAA Storm Surge Hazard Area
  - Category 1
  - Category 2
  - Category 3
  - Category 4

**Map Details:**

- Geographic Labels:** Township of Washington, Borough of Glassboro, Borough of Clayton, Township of Elk, Township of Franklin, Borough of Newfield, Camden County, Atlantic County, Salem County, Cumberland County.
- Infrastructure:** Major roads (e.g., 42, 322, 47, 55, 40), water bodies (e.g., Wilson Lake, Malaga Lake), and various facilities (e.g., WWT, Fire Station, Hospital).
- Hazards:** FEMA Coastal Erosion Hazard Area (pink shading), NOAA Storm Surge Hazard Area (green shading).
- Scale:** 0 to 1.3 Miles.
- Inset Map:** Shows the location of Gloucester County within New Jersey, with labels for PA, Camden County, Salem County, and a scale of 0 to 9 Miles.

**Data Sources:** GCGIS - 2020; Gloucester County Planning Partners - 2021; FEMA - 2016; EPA - 2021; NJOGIS - 2018/2020; NJDOT - 2018/2019; ESRI - 2002/2020; USGS - n.d./2014; NOAA - 2014.



Figure 9.12-3. Township of Monroe Hazard Area Extent and Location Map 3

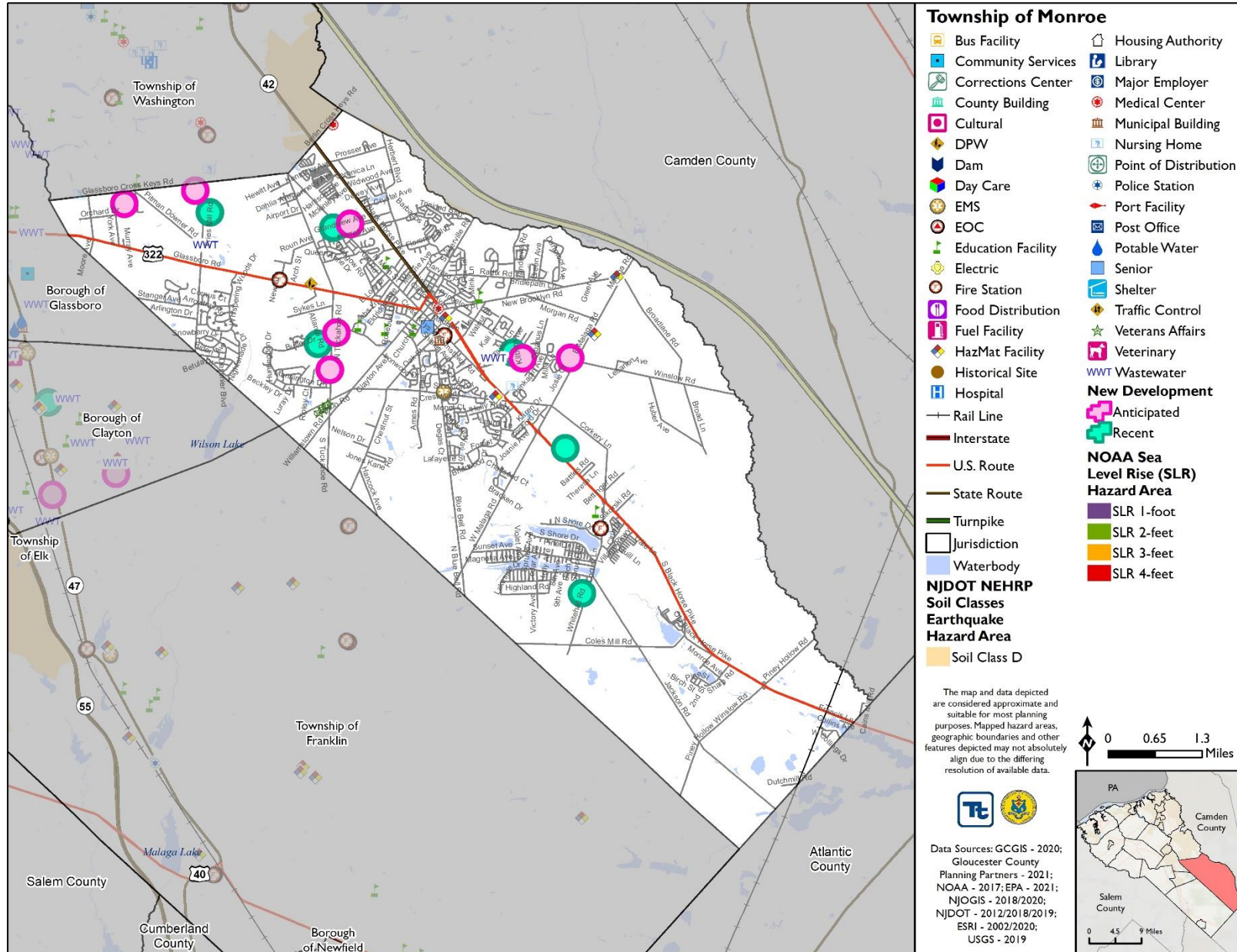
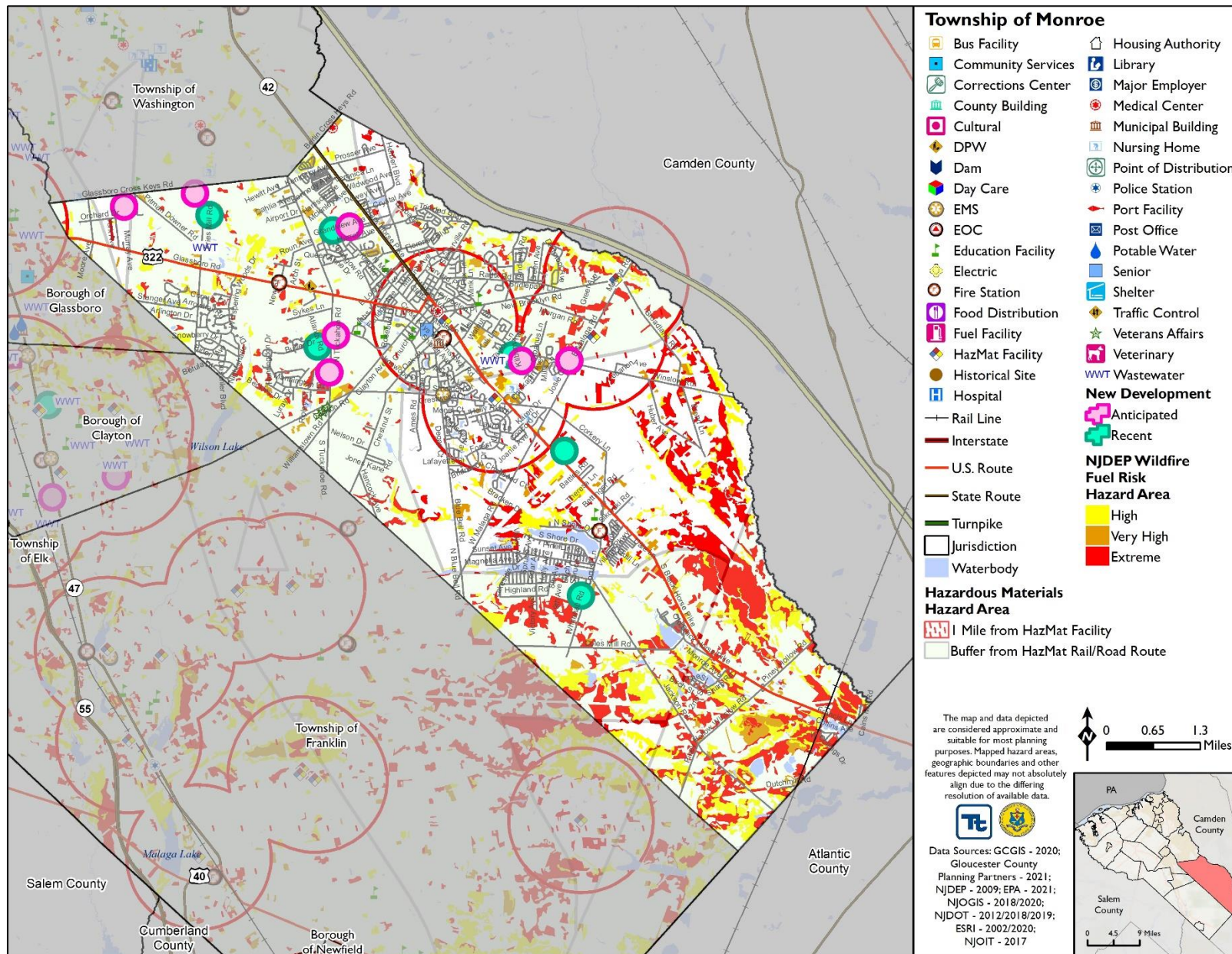






Figure 9.12-4. Township of Monroe Hazard Area Extent and Location Map 4





### 9.12.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Monroe's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.12-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching - 2°F.	Although the County was impacted, the Township did not have significant damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Trees and powerlines down causing roadways and businesses to be closed. Also trees down into houses and businesses causing structural damages. Significant power outages to businesses and residential properties.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Township did not have significant damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Township did not have significant damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Municipal buildings needed to be enhanced to comply with COVID standards.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				Personnel schedules altered causing overtime

### 9.12.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Monroe's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Monroe. The Township of Monroe reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township did not feel that droughts were a significant concern and adjusted the hazard ranking from medium to low.
- The Township did not feel that hazardous materials were a significant concern and adjusted the hazard ranking from high to low.
- The Township noted that severe weather is a recurring issue, but the municipality has good response capabilities. As a result, the Township changed the hazard ranking from high to medium.

*Table 9.12-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Ext Temp	Flood
Low	Low	Low	Low	Low	Medium	Low



Geologic	HazMat	Hurricane	Invasive Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Low	Low	Medium	Medium	Medium	Medium	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.12-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.12.6.3 Identified Issues

After review of the Township of Monroe's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Monroe has identified the following vulnerabilities within their community:

- Black Horse Pike Road at Squakum Branch Continues to flood, especially at Walnut Street. As a result, the roads continue to be inundated with water during storms, causing hazardous driving condition as well as property damage.
- Repetitive flooding continues along Walnut and US 322. This is an issue because the road continues to be closed and have dangerous driving conditions.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has repetitive loss properties, but other properties may be impacted by flooding as well.
- The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.
- The municipality does not have a disaster debris management plan.
- The municipality's stormwater management ordinance is outdated and requires revisions and updating.



## 9.12.7 Mitigation Strategy and Prioritization

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

### 9.12.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.12-14. Status of Previous Mitigation Actions

2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
MJ-1	Alleviate flooding at Black Horse Pike at Squakum Branch.	Township OEM, Gloucester County DPW, NJDEP	No Progress	Yes	2022 Township of Monroe-001
MJ-2	Improve storm drainage at Monroe Village storm water management and overflowing retention basin on Prince Avenue.	Municipal OEM, NJDOT	Complete	No	-
MJ-3	Pitman Downer Road property storm water management.	Municipal OEM, Gloucester County DPW	Complete	No	-
MJ-4	Improve storm drainage at North Blackhorse Pike from Berlin Cross Keys to Lake Avenue.	Municipal OEM, NJDOT	In Progress NJDOT handling Unknown cost and source of funding	Yes	2022 Township of Monroe-001
MJ-5	Improve storm drainage at US 322 and Walnut.	Municipal OEM, NJDOT	In Progress NJDOT Handling Unknown cost and source of funding	Yes	2022 Township of Monroe-002
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability. Source of funding: Monroe OEM Budget: Approximately \$2,000.00	No	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability. Source: Monroe OEM Budget: Hourly Salaries of staff involved	No	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	No Progress, no longer a priority.	No	-
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability. Municipal LEPC meeting are conducted quarterly / Funding Monroe OEM.	No	-
M-05	Enhance floodplain management administration, staffing, and processes through staffing and monetary support.	Municipal OEM and Floodplain Administrator	No Progress, no longer a priority	No	-
M-06	Engineering study to determine evacuation solutions for streets between Victory Lakes and Timber Lakes.	Municipal OEM, Public Works Department, and Engineering	No Progress, no longer a priority	No	-



2017 Action Number and Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP?	
			Check if Yes	Enter 2022 HMP Action #
M-07	Engineering risk study of Upper Victory Dam.	Municipal OEM, Public Works Department, and Engineering	Complete Unknown Cost Unknown funding	No -
M-08	Construction of new Emergency Operations Center in a non-flood / low hazard area (CF-2).	Municipal OEM	Complete. Funding Source: Municipal Budget (Capital) Cost: Unknown	No -
M-09	Upgrade drainage and roadway including culvert reconstruction at North Shore Drive causeway.	Municipal OEM, Public Works Department, and Engineering	Complete	No -
M-10	Engineering study of Diamond Lakes area to identify and determine solutions for flooding issues.	Municipal OEM, Public Works Department, and Engineering	No Progress, no longer a priority	No -
M-11	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	No Progress, no longer a priority	No -
M-12	Harden Holly Glen Elementary School infrastructure to include a new roof to sustain high winds (CF-14).	Municipal OEM and School Board	No Progress, no longer a priority	No -
M-13	Harden Williamstown Middle School infrastructure to include a new roof to sustain high winds (CF-15).	Municipal OEM and School Board	No Progress, no longer a priority	No -
M-14	Harden Williamstown High School infrastructure to include new roof to sustain high winds (CF-16).	Municipal OEM and School Board	No Progress, no longer a priority	No -
M-15	Create safety zones around critical facilities, including Monroe Township fire stations, located in wildfire risk areas (CF-4 / CF-5 / CF-6).	Municipal OEM and Fire Departments	No Progress, no longer a priority	No -



### 9.12.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.12-14, the Township of Monroe identified the following mitigation efforts completed over the last five years:

- **Complete Street Program:** The Township worked with the Transportation Management Association, Cross County Connections, on a Complete Streets Program. The Township then applied and received a grant from the Delaware Valley Regional Planning Commission for a Multi Modal Transportation Master Plan, which address complete streets. With the Tri County Sustainability Alliance, the Township hosted a Complete Streets Program for Gloucester, Salem, and Cumberland Counties. The Township Engineer and other stakeholders adopted a policy that was incorporated into the Multi Modal Transportation Plan and is recommended to be adopted into the next scheduled Master Plan Update. The Planning Board uses the policy in new project reviews.
- **Sustainable Land Use Pledge:** Monroe Township, at the request of Sustainable Monroe Township, initially passed a resolution establishing the Sustainable Land Use Pledge in 2016, renewing the resolution in 2021. The Mayor & Township Council are supportive of participation in the Sustainable Jersey program will expand efforts with the Planning & Zoning Boards to increase the awareness of Sustainable Monroe Township & Sustainable Jersey.
- **Mayors Monarch Pledge:** Since 2015 Green Team volunteers have engaged students, teachers, and community members by planting native milkweed and nectar plants in school gardens in Monroe Township. In spring 2017, the Mayor signed the Mayors' Monarch Pledge sponsored by National Wildlife Federation (NWF). Sustainable Monroe and the Mayor are agreeing to take specific actions to protect and expand monarch butterfly habitat in Williamstown, including identifying locations of the Pfeiffer Community Center and a 2-acre parcel adjacent to an elementary. Once established, each of these locations can be maintained and certified as Monarch Waystations. Educating the greater community on the butterfly life cycle, native species, seed collection, and plant propagation is integral to the success of the action. A fall workshop for milkweed seed collection and germination is planned.
- **Rain Gardens:** The Environmental Club (5th through 8th graders) at the Williamstown Middle School designed, prepared, planted and maintained 5 raingardens on the school campus. The club works during half of their lunch period twice a week to work on the projects and programs. Every year the students learn about the life cycle and migration of the Monarch Butterfly. They have hatched and released them and have established a health patch of *Asclepias syriaca* (Common Milkweed) in one of the courtyards on the campus.
- **Safe Routes to School:** Sustainable Monroe Township partnered with the Transportation Management Association, Cross County Connections, to introduce a SRTS program.
- **Green Team:** The Township has an active Green Team that posts to regularly posts to social media and tables at all town events.





### 9.12.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Monroe participated in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.12-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X				X					
Dam/ Levee	X				X					
Disease Outbreak	X				X					
Drought	X				X					
Earthquake	X				X					
Ext Temp	X				X					
Flood	X	X		X	X	X	X		X	
Geologic	X				X					
Hazmat	X				X					
Hurricane	X				X					
Invasive	X				X					
Nor'Easter	X				X					
Severe Weather	X				X					
Severe Winter Weather	X				X					
Wildfire	X				X					
Utility Failure	X				X					

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.12-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Monroe 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 9.12-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.12-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022 Township of Monroe-001	Structural Flood Control	<p><b>Problem:</b> Black Horse Pike Road at Squakum Branch Continues to flood, especially at Walnut Street. As a result, the roads continue to be inundated with water during storms, causing hazardous driving condition as well as property damage.</p> <p><b>Solution:</b> The town DPW shall work with the local landowners to alleviate flooding through stormwater upgrades. These include rightsizing of culverts and ditch dredging to increase capacity. The DPW shall coordinate with landowners to conduct construction. The town will also work on repairing the riparian buffer to reduce flood inundation and erosion along the creek. Additional work shall be done to alleviate flooding between Berlin Cross Keys to Lake Avenue.</p>	Existing	Flood	1,2,3, 6	2 years	DPW	HMGP	Flood Mitigation	\$200k	High	SIP	SP
2022 Township of Monroe-002	Flood Mitigation on US Route 322	<p><b>Problem:</b> Repetitive flooding continues along Walnut Street and US Route 322. This is an issue because it causes road closures and dangerous driving conditions.</p> <p><b>Solution:</b> The DPW shall work with NJDOT to upgrade the stormwater structure to improve the existing drainage along the US route. The municipality does not have any jurisdiction over US 322 and thus will</p>	Existing	Flood	1,2,3, 5, 6	3 years	NJDOT, DPW	Township budget. NJDOT budgeting	Flood Mitigation	Low	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		be conducting outreach to the state to coordinate construction.											
2022 Township of Monroe-003	Rep Loss Outreach	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has repetitive loss properties, but other properties may be impacted by flooding as well.</p> <p><b>Solution:</b> 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).</p>	Existing	Flood	1,2, 3	5 years	Township Administration	Municipal Budget	FMA, HMGP	Low	High	SIP	PP
2022 Township of Monroe-004	FDPO Update	<p><b>Problem:</b> The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.</p> <p><b>Solution:</b> The Township Board and Administration as well as the NFIP Administrator shall work together to update their FDPO once contacted by the state. The state shall work with</p>	Existing	Flood	4	1-5 years	State of NJ and Township Administration	Municipal Budget	Compliance	Staff time	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		municipality to provide updated guidance and model ordinance as needed.											
2022 Township of Monroe-005	Disaster Debris Management Plan	<p><b>Problem:</b> The municipality does not have a disaster debris management plan.</p> <p><b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the cleanup process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders may be necessary.</p>	New	All	All	2 years	Various Departments and Town Board	Municipal Budget	High	Staff time	High	LPR	PR
2022 Township of Monroe-006	Stormwater Management Ordinance	<p><b>Problem:</b> The municipality's Stormwater Management Ordinance does not reflect current state requirements.</p> <p><b>Solution:</b> The Township Board and Administration as well as the municipal engineer shall work together to update their Stormwater Management Ordinance.</p>	New	All	All	2 years	Various Departments and Town Board	Municipal Budget	High	Low	High	LPR	PR

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
CRS Community Rating System

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program

**Timeline:**

The time required for completion of the project upon implementation



DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
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

BRIC Building Resilient Infrastructure and Communities  
Program

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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022 Township of Monroe-001	Structural Flood Control	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High 
2022 Township of Monroe-002	Flood Mitigation on US Route 322	1	1	1	1	1	0	0	1	1	0	1	1	1	1	11	High
2022 Township of Monroe-003	Rep Loss Outreach	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022 Township of Monroe-004	FDPO Update	1	1	1	1	1	1	1	1	1	0	0	0	0	1	10	High
2022 Township of Monroe-005	Disaster Debris Management Plan	0	1	1	1	0	1	1	1	1	0	1	0	0	1	9	High
2022 Township of Monroe-006	Stormwater Management Ordinance	0	1	1	1	0	1	1	1	1	0	1	0	0	1	9	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.12.8 Action Worksheets

The following action worksheets have been developed by the Township of Monroe to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Structural Flood Control		
<b>Project Number:</b>	2022 Township of Monroe-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Problem: Black Horse Pike Road at Squakum Branch Continues to flood, especially at Walnut Street. As a result, the roads continue to be inundated with water during storms, causing hazardous driving condition as well as property damage.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Solution: The town DPW shall work with the local landowners to alleviate flooding through stormwater upgrades. These include rightsizing of culverts and ditch dredging to increase capacity. The DPW shall coordinate with landowners to conduct construction. The town will also work on repairing the riparian buffer to reduce flood inundation and erosion along the creek. Additional work shall be done to alleviate flooding between Berlin Cross Keys to Lake Avenue.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 3
<b>Estimated Cost:</b>	200,000	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years once funding secured
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP/ BRIC
<b>Responsible Organization:</b>	DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Close Road	High	Infeasible
	Retention Basin	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Structural Flood Control	
<b>Project Number:</b>	2022 Township of Monroe-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	0	Additional Funding is needed
<b>Environmental</b>	1	Has a positive impact on environment
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	1	Flood, Severe storm
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	The town DOW/ OEM
<b>Other Community Objectives</b>	1	Safety
<b>Total</b>	13	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Rep Loss Outreach		
<b>Project Number:</b>	2022 Township of Monroe-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Town has repetitive loss properties, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	Low	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	5 years
<b>Estimated Time Required for Project Implementation:</b>	5 Years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	Township Administration supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Rep Loss Outreach	
Project Number:	2022 Township of Monroe-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 Storm
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	





## 9.13 BOROUGH OF NATIONAL PARK

This section presents the jurisdictional annex for the Borough of National Park and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of National Park's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.13.1 Hazard Mitigation Planning Team

The Borough of National Park followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization. The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of National Park's hazard mitigation plan primary and alternate points of contact. 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 9.13-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Thomas Sullivan, Deputy EMC /OEM Address: 7 South Grove Avenue, National Park, N.J. 08063 Phone Number: 609-381-4333 Email: nova.cat@verizon.net		Name/Title: Joy Gunn, Borough Administrator Address: 7 South Grove Avenue, National Park, N.J. 08063 Phone Number: 856-845-3891 Email: jgunn@nationalparknj.com	
NFIP Floodplain Administrator			
Name/Title: Joy Gunn, Borough Administrator Address: 7 South Grove Avenue, National Park, N.J. 08063 Phone Number: 856-845-3891 Email: jgunn@nationalparknj.com			
Name	Title	Method of Participation	



Thomas Sullivan	Deputy EMC /OEM	Reviewed annex and provided feedback
Edwin Steck, T and M Associates	Borough Engineer	Provided previous events, flood-prone areas, reviewed annex and provided feedback
Joy Gunn	Borough Administrator	Reviewed annex and provided feedback

## 9.13.2 Municipal Profile

In 1777, during the American Revolutionary War, the Continental Army under command of George Washington constructed two forts on the Delaware River to block the approach to Philadelphia: Fort Mifflin on the Pennsylvania side and Fort Mercer on the New Jersey side in what is now National Park. The fort was named in honor of Brigadier General Hugh Mercer who had died earlier that year at the Battle of Princeton. A park, monument, and museum commemorate the fort on its original site. Beginning in 1895, the area was commercially developed as National Park on the Delaware, a religious resort/retreat for members of the Methodist Episcopal Church. National Park was formed as a borough by an Act of the New Jersey Legislature on April 15, 1902, from portions of West Deptford Township.

According to the United States Census Bureau, the borough had a total area of 1.44 square miles, including 1.01 square miles of land and 0.43 square miles of water. The Delaware River shore faces the southern end of Philadelphia, approximately across from the mouth of the Schuylkill River and the site of Fort Mifflin.

National Park is governed under the Borough form of New Jersey municipal government, where the governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of National Park was 3,036. The estimated 2019 population was 2,959, a 2.6 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 13.7 percent of the population is 5 years of age or younger and 5.9 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 Jurisdictional Capability Assessment and Integration

The Borough of National Park performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.13.3). The updated mitigation strategy includes opportunities the Borough of National Park identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.13.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of National Park, what is present in the jurisdiction, and code citation and date.

*Table 9.13-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	2001	State and Local	Borough Construction Official
<i>How does this reduce risk?</i> Follows Uniform Construction Code.					
<b>Zoning/Land Use Code</b>	Yes	Yes	Ordinance 1-88	Local	Zoning and Construction Department
<i>How does this reduce risk?</i> Establishes Zoning Board.					
<b>Subdivision Ordinance</b>	Yes	No	Ordinance 3-07 Chapter 97	Local	Zoning and Construction Department
<i>How does this reduce risk?</i> Prohibits subdivision of areas that are subject to flooding.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Municipal Stormwater Management Plan Master Plan Element, 2005	Local	Borough Engineer
<i>How does this reduce risk?</i> Needs to be updated to include Green Infrastructure. Included in action 2022-NatPark-001.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Environmental Protection Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 86	Federal, State, County and Local	Administrator, Engineering
<i>How does this reduce risk?</i> Needs to be updated. Included in action 2022-NatPark-006.					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, the jurisdiction reviews the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use.</li> <li>• The zoning ordinance discourages development or redevelopment within natural areas including wetlands, floodways, and floodplains.</li> <li>• The zoning ordinance does not contain natural overlay zones that set conditions.</li> <li>• The ordinance requires developers to take additional actions to mitigate natural hazard risk.</li> <li>• Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.</li> <li>• The ordinances prohibit development within, or filling of, wetlands, floodways, and floodplains.</li> <li>• The subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas.</li> <li>• The regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources.</li> <li>• The regulations do not allow density transfers where hazard areas exist.</li> <li>• When updating ordinances, hazard mitigation is considered.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Planning Documents</b>					
<b>Master Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Capital Improvement Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	Public Works
<i>How does this reduce risk?</i>					
Required by Gloucester County.					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Not available		
<i>How does this reduce risk?</i>					
Required to be posted to the website so residents know what is being done for stormwater management. Included in 2022-NatPark-001.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Not available		
<i>How does this reduce risk?</i>					
Required to be posted to the website so residents know what is being done for stormwater management. Included in 2022-NatPark-001.					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards.</li> <li>Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.</li> <li>Budgets provide funding for hazard mitigation projects identified in the County HMP.</li> <li>The future land use map clearly identifies natural hazard areas.</li> <li>Land use policies discourage development or redevelopment with natural hazard areas.</li> <li>The plan does not provide adequate space for expected future growth in areas located outside natural hazard areas.</li> <li>The transportation plan limits access to hazard areas.</li> <li>Transportation policy is used to guide growth to safe locations.</li> <li>Transportation systems designed to function under disaster conditions (e.g., evacuation).</li> <li>Environmental systems that protect development from hazards identified and mapped.</li> <li>Environmental policies maintain and restore protective ecosystems.</li> <li>Environmental policies provide incentives to development that is located outside protective ecosystems.</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	June 2021	Local	OEM
<i>How does this reduce risk?</i>					
Planning, response, mitigation, and recovery to identify risk and reduce so it does not occur.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.13.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of National Park to oversee and track development.





*Table 9.13-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Zoning & Construction Department provides building permits and inspections.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	The Borough is nearly 100 percent built out in areas that are not preserved or ineligible for development.

### 9.13.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of National Park and their current responsibilities which contribute to hazard mitigation.

*Table 9.13-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	-
Zoning Board of Adjustments	Yes	Zoning & Construction Department provides building permits and inspections.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Council Committee
Public Works/Highway Department	Yes	Public Works Council Committee
Construction/Building/Code Enforcement Department	Yes	Zoning & Construction Department provides building permits and inspections.
Emergency Management/Public Safety Department	Yes	Public Safety and Welfare Council Committee
Warning Systems / Services (mass notification system, outdoor warning signals)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	Stormwater maintenance and debris removal in action 2022-NatPark-001.
Mutual aid agreements	No	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Contractor
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contractor



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with an understanding of natural hazards	Yes	Contractor
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	EMC/OEM
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Very limited resources.</li> </ul>		

### 9.13.3.4 Fiscal Capability

The table below summarizes financial resources available to the Borough of National Park.

*Table 9.13-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Fund to form the necessary improvements to reduce risk in identified areas.</li> </ul>	



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<ul style="list-style-type: none"><li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li><li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li><li>Budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards.</li><li>Infrastructure policies do not limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.</li><li>Budgets provide funding for hazard mitigation projects identified in the County HMP.</li></ul>	

### 9.13.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Borough of National Park.

Table 9.13-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Borough staff
Personnel skilled or trained in website development	Yes	Borough staff
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	Yes	OEM Facebook Page, Borough Facebook Page
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission, Board of Health, OEM
Other programs already in place that could be used to communicate hazard-related information	Yes	Borough newsletter
Warning systems for hazard events	Yes	Everbridge, National Park Alert
Natural disaster/safety programs in place for schools	Yes	School staff
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"><li>Everbridge, OEM Facebook Page, Borough Facebook Page</li></ul>		

### 9.13.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Borough of National Park.

Table 9.13-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	Class 8	October 1, 2012
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-



Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	05/5X	July 28, 2014
Sustainable Jersey	Yes	Bronze	October 17, 2017
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

As part of the Borough's certification in the Sustainable Jersey program, the Borough earned credit for installation of a rain garden at the National Park Utilities Department.

### 9.13.3.7 Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). In other words, it describes a jurisdiction's current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction's rating.

Table 9.13-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate – MOUs with County OEM
Dam Failure/Levee Failure	Moderate – MOUs with County OEM
Disease Outbreak/Pandemic	Moderate – MOUs with County OEM
Drought	Moderate – MOUs with County OEM
Earthquake	Moderate – MOUs with County OEM
Extreme Temperatures	Moderate – MOUs with County OEM
Flood	Moderate – MOUs with County OEM
Geological Hazards	Moderate – MOUs with County OEM
High Wind	Moderate – MOUs with County OEM
Invasive Species/Harmful Algal Bloom	Moderate – MOUs with County OEM
Severe Summer Weather	Moderate – MOUs with County OEM
Severe Winter Weather	Moderate – MOUs with County OEM
Wildfire	Moderate – MOUs with County OEM

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.13.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.13-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 69</li><li># RL properties: 7</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$ \$101,121.00</li><li># claims filed: 67</li><li>Total loss payments: \$339,901.22</li></ul>
Describe areas prone to flooding in your jurisdiction.	See section 9.13.6.3.
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, and if so, how many are interested in (elevation or acquisition)?	Yes
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	The Borough submits Damage Assessments in the form from County OEM Survey 123 for ArcGIS. The last set of forms were completed in 2019.
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Borough Administrator
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Yes, Borough Engineer consultant
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Yes, Borough Engineer consultant
What specific training or support does your floodplain management staff need to support its floodplain management program?	Yes, Borough Administrator could use training.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Construction official
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	6/2/2011



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 86 7/13/2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	Yes, Class 8. The Borough is interested in improving its CRS Classification.

Source: FEMA September 16, 2019; NJDEP - 2021

Notes: RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.13.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.13-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	0	0	0	0	0	0	1	0	0	0	5	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	2	0	0	0	0	0	1	0	0	0	0	0
Total Permits Issued	2	0	0	0	0	0	2	0	0	0	5	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												
None anticipated												





SFHA Special Flood Hazard Area (1% annual chance flood event)  
\* Only location-specific hazard zones or vulnerabilities identified.

## 9.13.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of National Park's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of National Park has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.13-1. Borough of National Park Hazard Area Extent and Location Map 1

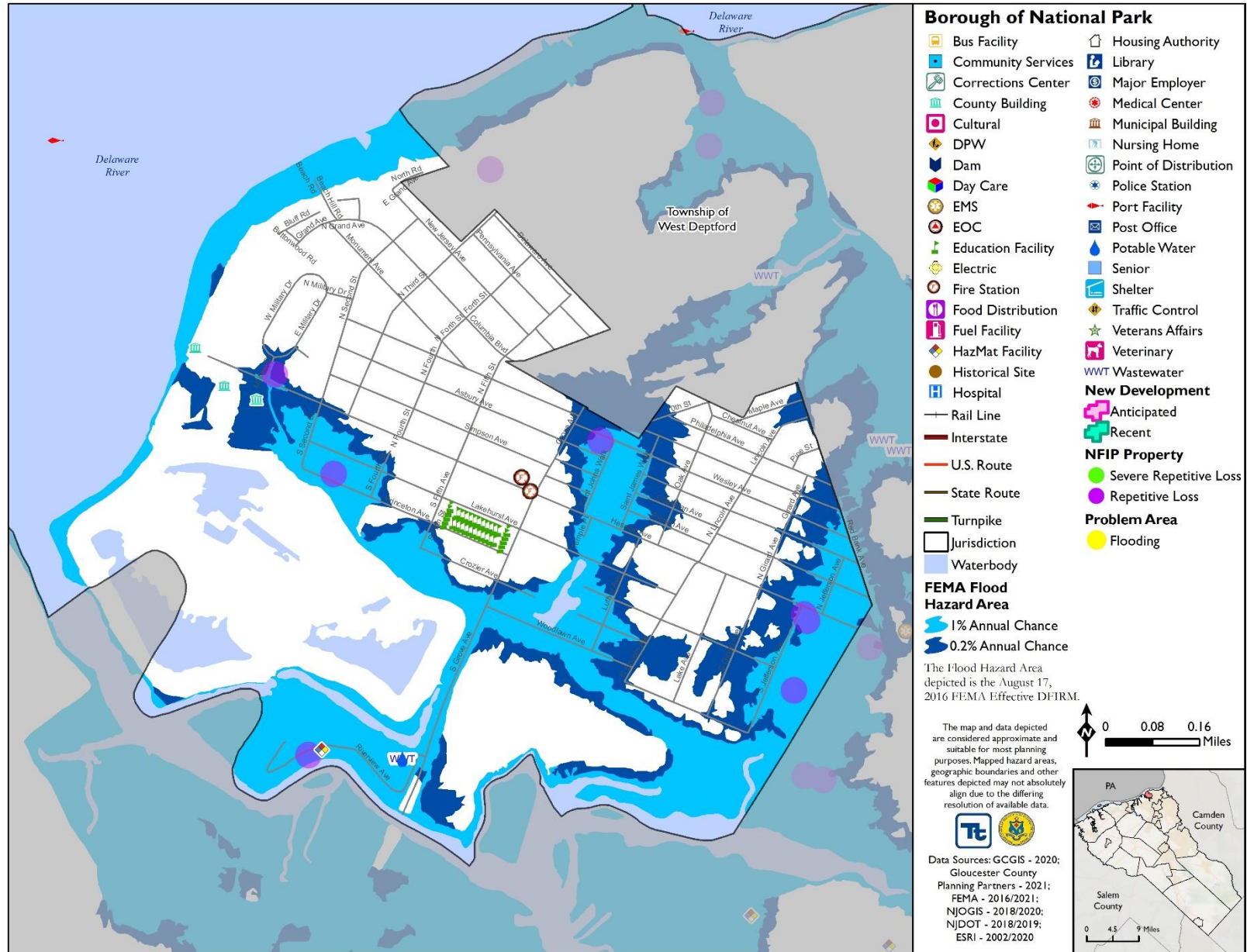






Figure 9.13-2. Borough of National Park Hazard Area Extent and Location Map 2

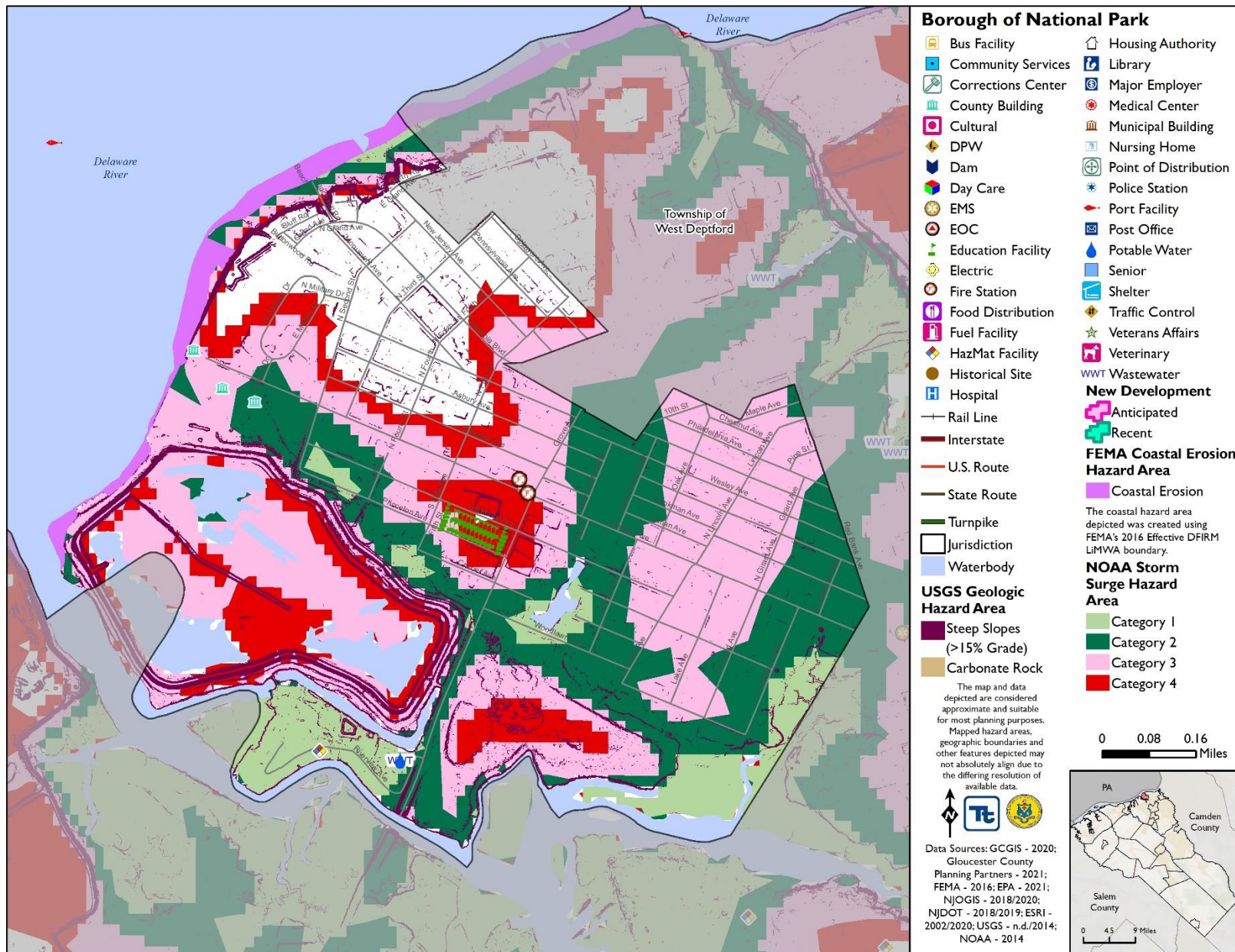






Figure 9.13-3. Borough of National Park Hazard Area Extent and Location Map 3

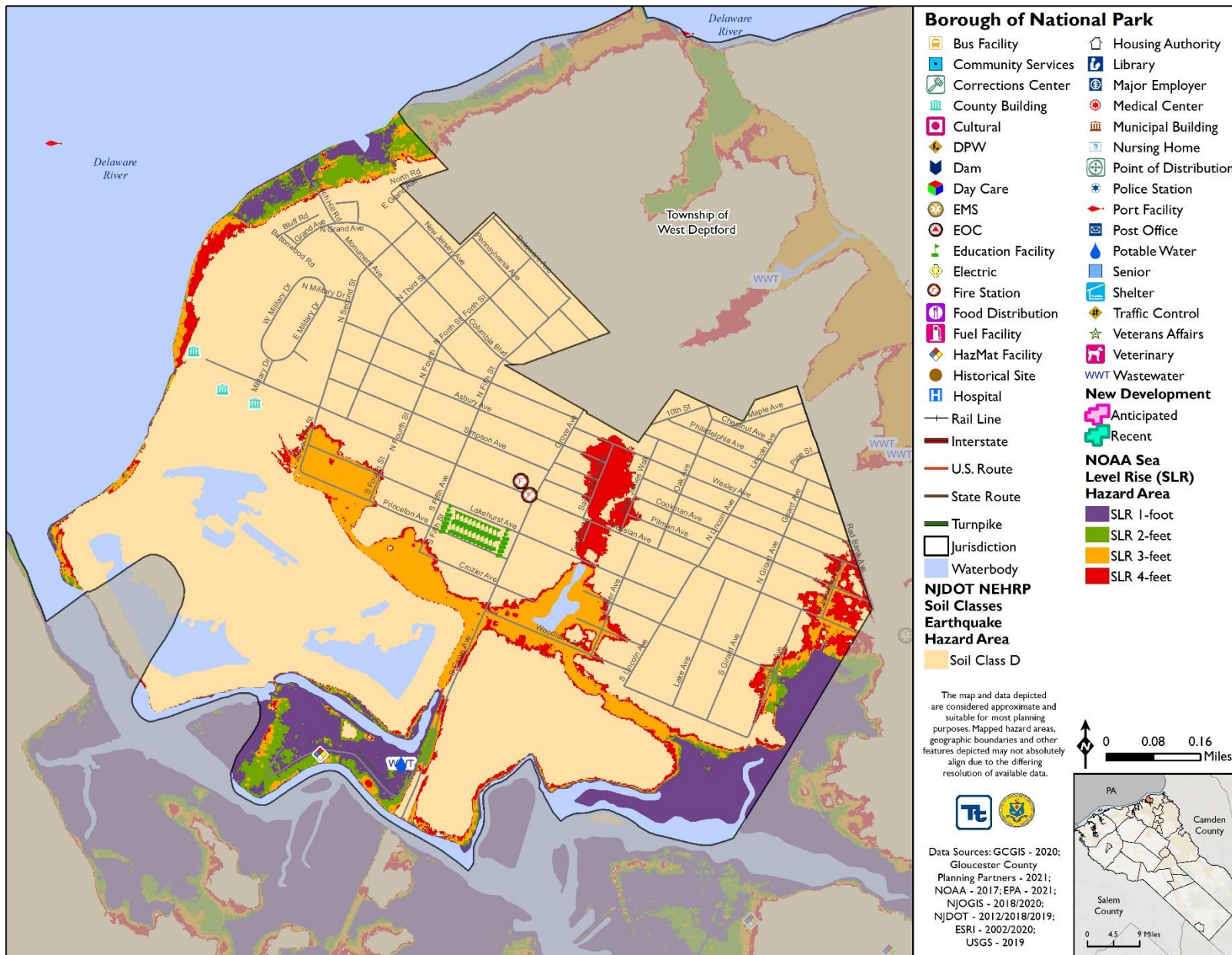
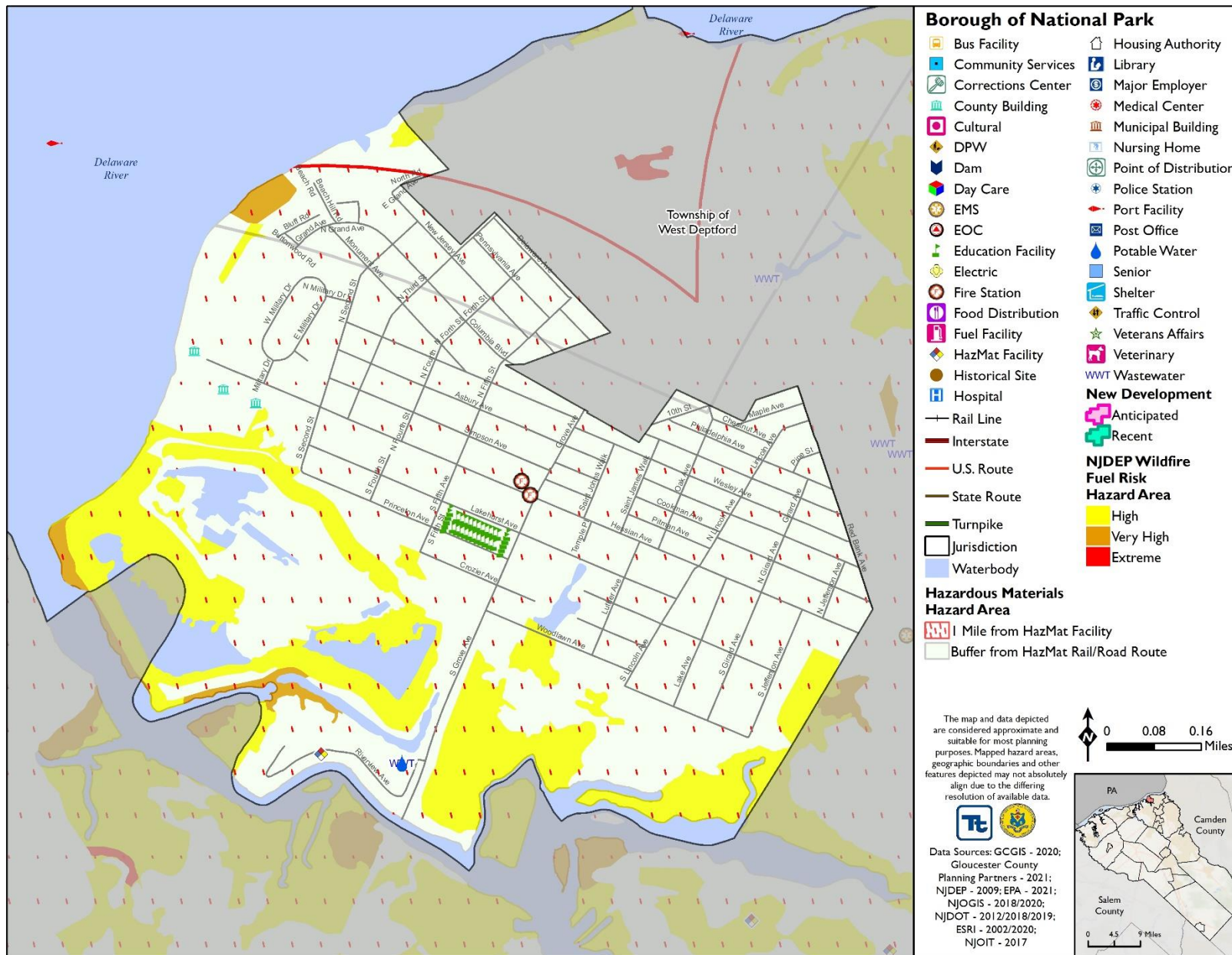




Figure 9.13-4. Borough of National Park Hazard Area Extent and Location Map 4







### 9.13.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of National Park's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.13-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township.	Although the County was impacted, the Borough did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report damages.
April 17, 2017	Spring Storm	No	Standing water in swale starting at Lakehurst/ Second St., south to pump station and east along Princeton.	Borough applied for FEMA funding, but the municipalities did not reach the threshold
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Borough did not report damages.
June 20, 2019	Spring Storm	No	Princeton, Temple, Lakehurst, Luther, Woodlawn, and Crozier – clogged inlet and pipes discharging from Princeton to Temple Place Park pond caused water to flow into neighboring property.	Borough applied for FEMA funding, but the municipalities did not reach the threshold
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	National Park received funding for COVID-19, but not for emergency management.





### 9.13.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of National Park's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of National Park. The Borough of National Park reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough adjusted the ranking from the draft based on the assessment results for Flood from Low to High due to a history of stormwater damages.
- The Borough adjusted the ranking from the draft based on the assessment results for HazMat from High to Medium due to limited vulnerability to that hazard.

*Table 9.13-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee Failure	Disease Outbreak	Drought	Earthquake	Ext Temp	Flood
Low	Medium	Low	Medium	Low	Medium	High

Geologic	HazMat	Hurricane	Invasive	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Medium	High	Low	Medium	High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.13-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Paulsboro, NJ	Port Facility	Y	X	X	Site is reinforced and elevated.
Grove Avenue Pump Station	Hazardous Material Facility	Y	X	X	2022-Nat Park-007

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016; Discussion with National Park 11/22/2021.

### 9.13.6.3 Identified Issues

After review of the Borough of National Park's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of National Park has identified the following vulnerabilities within their community:

- Stormwater infrastructure becomes clogged from debris.
- Clogged inlet and pipes discharging from Princeton to Temple Place Park pond causes flooding. The Temple Place Park pond has accumulated sediment over years, decreasing water storage capacity. Additionally, wetland vegetation and downed trees/branches restrict water flow to the south toward Woodlawn Avenue. Permitting and paying for the pond cleanup exceeds the Borough's stormwater maintenance budget. The corrugated metal pipe beneath Woodlawn and extending under the landfill to the creek is old and deteriorated, reducing water carrying capacity.
- Standing water in the swale starting at Lakehurst/ Second St., south to pump station and east along Princeton. Open pipes cross access roads, and two sets of flood gates are intended to prevent high tides and storm surges in the river from entering the swale. Pipes have become clogged and flood gates obstructed; however, even when the swale/pipes are functioning properly, the ability for the swale to drain water is limited by the very shallow slope and the fluctuating tide in the River. This area of town is only a couple feet above normal high tide elevation and about four feet below the 100-year storm FHA. Flooding will continue to be a problem in the future.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well. Areas prone to flooding include Crozier and Woodlawn Avenues.



- The intersection of Jefferson and Princeton floods about 6"-8" when heavy rains coincide with high tides. Wetlands and a small, tidal tributary are behind (east) of the pump station. A modified curb drain was constructed to allow rainwater to drain toward the creek.
- The Borough's FDPO is not updated to include the regulation requirements.
- Pump station has generator installed above BFE to protect transfer station after last storm. Needs retrofit to mitigate risk for future events.
- The municipality does not have a disaster debris management plan.

## 9.13.7 Mitigation Strategy and Prioritization

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

### 9.13.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



*Table 9.13-14. Status of Previous Mitigation Actions*

2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	
					Enter 2022 HMP Action #
MJ-1	Alleviate flooding at the intersection of County Route 643 (Grove Avenue) and Riverview Avenue.	National Park OEM, County DPW	Complete	No	-
MJ-2	Alleviate flooding at the intersection of County Route 644 (Red Bank Avenue) and County Route 642 (Hessian Avenue).	National Park OEM, County DPW	Complete	No	-



### 9.13.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.14-24, the Borough of National Park identified the following mitigation efforts completed over the last five years:

- Lakehurst/ Second St - Minor maintenance and improvements have been made over the years, including removing debris from the swale, unclogging pipes, and installing a new pipe allowing some rainwater to bypass a portion of the swale.

### 9.13.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of National Park participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.13-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Ext Temp	X									X
Flood	X	X			X	X			X	X
Geologic	X									X
Hazmat	X									X
Hurricane	X	X			X	X			X	X
Invasive	X									X
Nor'Easter	X									X
Severe Weather	X	X			X	X			X	X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X									X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.13-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of National Park 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 9.13-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.





Table 9.13-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-NatPark-001	Stormwater management and debris removal	<p><b>Problem:</b> Stormwater infrastructure becomes clogged from debris.</p> <p><b>Solution:</b> Develop a plan for inspecting and maintaining stormwater pipes/grates, drainage swales, tide gates and inlets; replacing pipes as necessary; and managing debris. Post plan to website, including other stormwater requirements. Update stormwater management ordinance to meet current regulations.</p>	New	Flood, Severe Weather, Hurricane	2, 3, 4, 6	Medium	DPW, Administration, Engineer	Municipal Budget	High	Medium	High	LPR	PR
2022-NatPark-002	Princeton, Temple, Lakehurst, Luther, Woodlawn, and Crozier	<p><b>Problem:</b> Clogged inlet and pipes discharging from Princeton to Temple Place Park pond causes flooding. The Temple Place Park pond has accumulated sediment over years, decreasing water storage capacity. Additionally, wetland vegetation and downed trees/branches restrict water flow to the south toward Woodlawn Avenue. Permitting and paying for the pond cleanup exceeds the Borough's stormwater maintenance budget. The corrugated metal pipe beneath Woodlawn and extending under the landfill to the creek is old and deteriorated, reducing water carrying capacity.</p> <p><b>Solution:</b> . Replace the pipe from Woodlawn to the creek as part of the ongoing landfill closure. Construct the</p>	Existing	Flood, Severe Weather, Hurricane	2, 6	1.5 years	Administration, Engineer	BRIC, HMGP	High	High	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		new pipe system, which is tentatively scheduled for the Spring of 2022. Dredge Temple Place Pond.											
2022-NatPark-003	Lakehurst/ Second St. Detention Basins	<p><b>Problem:</b> Standing water in the swale starting at Lakehurst/ Second St., south to pump station and east along Princeton. Open pipes cross access roads, and two sets of flood gates are intended to prevent high tides and storm surges in the river from entering the swale. Pipes have become clogged and flood gates obstructed; however, even when the swale/pipes are functioning properly, the ability for the swale to drain water is limited by the very shallow slope and the fluctuating tide in the River. This area of town is only a couple feet above normal high tide elevation and about four feet below the 100-year storm FHA. Flooding will continue to be a problem in the future.</p> <p><b>Solution:</b> Create a detention basin to hold flood water and provide a more direct, higher capacity route for water to discharge to the River.</p>	New	Flood, Severe Weather, Hurricane	1, 2, 6	Within 5 years	Administration, Engineer	BRIC, HMGP	Reduction in flood risk in selected areas	High	High	SIP	SP
2022-NatPark-004	Repetitive Loss Mitigation	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well. Areas</p>	Existing	Flood, Severe Weather, Hurricane	1, 3	Within 5 years	Administration, Engineer	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the	High	High	SIP	PP

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Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		prone to flooding include Crozier and Woodlawn Avenues.  <b>Solution:</b> The Borough will develop a list of "At Risk" structures and perform annual inspections and outreach. Conduct outreach to 10 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).							municipality increasing flood storage.				
2022-NatPark-005	Jefferson/Princeton Flood Gate	<b>Problem:</b> The intersection of Jefferson and Princeton floods about 6"-8" when heavy rains coincide with high tides. Wetlands and a small, tidal tributary are behind (east) of the pump station. A modified curb drain was constructed to allow rainwater to drain toward the creek.  <b>Solution:</b> Construct a berm or wall at the rear of the property and discharge pipe fitted with a flood gate.	New	Flood, Severe Weather, Hurricane	2, 6	Within 5 years	Administration, Engineer	HMGP, BRIC, municipal budget	Reduction in flood risk	High	High	SIP	SP
2022-NatPark-006	FDPO Update	<b>Problem:</b> The Borough's FDPO is not updated to include the regulation requirements.	Existing	Flood	4	Within 6 months	Administration	Municipal Budget	High	Low	Medium	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Update the FDPO to include the most recent reg update to include BFE+2..											
2022-NatPark-007	Grove Avenue Pump Station Flood Fortification	<b>Problem:</b> Pump station has generator installed above BFE to protect transfer station after last storm. Needs retrofit to mitigate risk for future events. <b>Solution:</b> Engineer provide full evaluation to design a plan for adequate protection.	Existing	Flood, Severe Weather, Hurricane	1, 2, 6	1.5 years	Administration	BRIC, FMA	High	High	High	SIP	SP, ES
2022-NatPark-008	Disaster Debris Management Plan	<b>Problem:</b> The municipality does not have a disaster debris management plan. <b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the clean up process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders might be necessary.	New	All	5	2 years, 1 year once funding secured	Administration	Municipal Budget	High	Low	High	LPR	PR

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
 CRS Community Rating System  
 DPW Department of Public Works  
 EHP Environmental Planning and Historic Preservation

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program  
 HMGP Hazard Mitigation Grant Program  
 BRIC Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation

**Cost:**



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

*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 also 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 also 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 Evaluation and Action Priority

Project Number	Project 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
2022-NatPark-001	Stormwater management and debris removal	1	1	1	1	1	1	1	1	1	1	1	1	0	1	13	High
2022-NatPark-002	Temple Place Park Pond	0	1	1	1	1	1	1	1	1	1	1	1	0	0	11	High 
2022-NatPark-003	Lakehurst/ Second St. Detention Basins	1	1	1	1	1	1	1	0	1	1	1	0	1	1	12	High
2022-NatPark-004	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022-NatPark-005	Jefferson/Princeton Flood Gate	0	1	1	1	0	0	0	1	1	1	1	0	0	0	7	Medium
2022-NatPark-006	FDPO Update	0	1	1	1	0	1	1	0	1	1	1	0	0	0	8	Medium
2022-NatPark-007	Grove Avenue Pump Station Flood Fortification	1	1	1	1	1	1	1	0	1	1	1	0	0	1	11	High 
2022-NatPark-008	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.13.8 Action Worksheets

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The following action worksheets have been developed by the Borough of National Park to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Temple Place Park Pond		
<b>Project Number:</b>	2022 NatPark-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	A clogged inlet and pipes discharging from Princeton to Temple Place Park pond causes water to flow into neighboring property. Upon inspection, resident noted their back yard historically floods a few times a year when the Temple Place Park pond water level rises. The Temple Place Park pond has accumulated sediment over years, decreasing water storage capacity. Additionally, wetland vegetation and downed trees/branches restrict water flow to the south toward Woodlawn Avenue. Permitting and paying for the pond cleanup exceeds the Borough's stormwater maintenance budget. Emergency assistance was requested from FEMA, but grant money was not awarded. The corrugated metal pipe beneath Woodlawn and extending under the landfill to the creek is old and deteriorated, reducing water carrying capacity.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Replace the pipe from Woodlawn to the creek as part of the ongoing landfill closure. Construct the new pipe system, which is designed, permitted, and tentatively scheduled for installation in Spring 2022. Funding for dredging of Temple Place Pond is needed.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	2, 6
<b>Estimated Cost:</b>	Medium	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	1.5 years	<b>Potential Funding Sources:</b>	BRIC, HMGP
<b>Responsible Organization:</b>	Town Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Relocate Properties prone to flooding	High	Infeasible
	Dredge Temple Place Pond	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Princeton, Temple, Lakehurst, Luther, Woodlawn, and Crozier	
<b>Project Number:</b>	2022 NatPark-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	1	Additional Funding is needed
Environmental	1	Has a positive impact on environment
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	1	This addresses multiple hazards
Timeline	1	The timeline is feasible
Agency Champion	0	-
Other Community Objectives	0	-
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Lakehurst/ Second St. Detention Basins		
<b>Project Number:</b>	2022-NatPark-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Hurricane		
<b>Description of the Problem:</b>	Standing water in the swale starting at Lakehurst/ Second St., south to pump station and east along Princeton. Open pipes cross access roads, and two sets of flood gates are intended to prevent high tides and storm surges in the river from entering the swale. Pipes have become clogged and flood gates obstructed; however, even when the swale/pipes are functioning properly, the ability for the swale to drain water is limited by the very shallow slope and the fluctuating tide in the River. This area of town is only a couple feet above normal high tide elevation and about four feet below the 100-year storm FHA. Flooding will continue to be a problem in the future.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Create a detention basin to hold flood water and provide a more direct, higher capacity route for water to discharge to the River.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk in selected areas
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	5 years	<b>Potential Funding Sources:</b>	HMGP, BRIC, municipal budget
<b>Responsible Organization:</b>	Administration, Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, stormwater planning
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Lakehurst/ Second St. Detention Basins	
Project Number:	2022-NatPark-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	.
Property Protection	1	Reduction in flooding risk
Cost-Effectiveness	1	
Technical	1	Technically feasible project
Political	1	
Legal	1	The Borough has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts.
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Hurricane
Timeline	0	
Agency Champion	1	Administration, Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Mitigation		
<b>Project Number:</b>	2022- NatPark-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Hurricane		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well. Areas prone to flooding include Crozier and Woodlawn Avenues.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will develop a list of "At Risk" structures and perform annual inspections and outreach. Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
Project Name:	Repetitive Loss Mitigation	
Project Number:	2022- NatPark-004	
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 Borough 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 Borough.
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather, Hurricane
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Jefferson/Princeton Flood Gate		
<b>Project Number:</b>	2022-NatPark-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Hurricane		
<b>Description of the Problem:</b>	The intersection of Jefferson and Princeton floods about 6"-8" when heavy rains coincide with high tides. Wetlands and a small, tidal tributary are behind (east) of the pump station. A modified curb drain was constructed to allow rainwater to drain toward the creek.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Construct a berm or wall at the rear of the property and discharge pipe fitted with a flood gate.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	2, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	5 years	<b>Potential Funding Sources:</b>	HMGP, BRIC, municipal budget
<b>Responsible Organization:</b>	Administration, Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, stormwater planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
Project Name:	Jefferson/Princeton Flood Gate	
Project Number:	2022-NatPark-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	.
Property Protection	1	Reduction in flooding risk
Cost-Effectiveness	1	
Technical	1	Technically feasible project
Political	0	
Legal	0	
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts.
Administrative	1	
Multi-Hazard	1	Flood, Severe Weather, Hurricane
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	7	
Priority (High/Med/Low)	Medium	



Action Worksheet			
<b>Project Name:</b>	Grove Avenue Pump Station Flood Fortification		
<b>Project Number:</b>	2022 NatPark-007		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Severe Weather		
<b>Description of the Problem:</b>	The pump station at Grove Avenue had severe damage during storms causing sewer backups into resident homes. The pump station had a generator installed above BFE to protect transfer station after last storm; however, the Needs retrofit to mitigate risk for future events. Solution:		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The engineer should provide a full evaluation of the pump station to design a plan for adequate protection.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>		<b>Goals Met:</b>	
<b>Estimated Cost:</b>	Medium	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	1.5 years	<b>Potential Funding Sources:</b>	BRIC
<b>Responsible Organization:</b>	Town Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Relocate pump station	High	Infeasible
	Fortify pump station	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Grove Avenue Pump Station Flood Fortification	
<b>Project Number:</b>	2022 NatPark-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	1	Additional Funding is needed
Environmental	0	-
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	1	This addresses multiple hazards
Timeline	0	-
Agency Champion	0	-
Other Community Objectives	1	Prevents sewer backups
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



## 9.14 BOROUGH OF NEWFIELD

This section presents the jurisdictional annex for the Borough of Newfield and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Newfield's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.14.1 Hazard Mitigation Planning Team

The Borough of Newfield followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Newfield's hazard mitigation plan primary and alternate points of contact. 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 9.14-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Wayne Johnson, Borough Engineer Address: 299 Silver Lake Road, Bridgeton, New Jersey 08302 Phone Number: 856-453-7755 Email: wejohnsoneng@comcast.net	Name/Title: Toni Van Camp, Borough Administrator Address: 18 Catawba Newfield, NJ 08344 Phone Number: 856-697-1100 x 0 Email: tvancamp@newfieldboro.org
NFIP Floodplain Administrator	
Name/Title: Wayne Johnson, Borough Engineer Address: 299 Silver Lake Road, Bridgeton, New Jersey 08302 Phone Number: 856-453-7755 Email: wejohnsoneng@comcast.net	





Name	Title	Method of Participation
Wayne Johnson, PE	Borough Engineer	Provided information on past events, capabilities. Reviewed previous actions and provided status updates, reviewed annex and provided feedback.
Toni Van Camp	Municipal Clerk/Administrator	Provided information on building permits, reviewed annex and provided feedback.
Robert E Scharle	CFO	Reviewed annex and provided feedback.
Derek Leary	Construction Official	Reviewed annex and provided feedback.
Samuel E. Barbagli	DPW Superintendent	Reviewed annex and provided feedback.
Chief Brian Zimmer	Police Chief	Reviewed annex and provided feedback.

## 9.14.2 Municipal Profile

Newfield was formed as a borough by an act of the New Jersey Legislature on March 8, 1924, from portions of Franklin Township, based on the results of a referendum held on April 1, 1924. Major businesses were McClellon's Rug Mill owned John O'Neil on East Boulevard, where Frank Mangino's home stands and the Frank Morrell Rattan Furniture Mill on Catawba Avenue, East of the Railroad. The Borough steadily grew in population due to the influence of the railroad and the junction of the Atlantic City Spur, which was a double track all the way to the shore. The Borough borders the municipalities of Franklin Township in Gloucester County and Vineland in Cumberland County.

According to the U.S. Census, the 2010 population for the Borough of Newfield was 1,553. The estimated 2019 population was 1,521, a 2 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 2.5 percent of the population is 5 years of age or younger and 17.9 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.

## 9.14.3 Jurisdictional Capability Assessment and Integration

The Borough of Newfield performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.



- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.14.3). The updated mitigation strategy includes opportunities the Borough of Newfield identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.14.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Newfield, what is present in the jurisdiction, and code citation and date.

*Table 9.14-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 102	State and Local	Code Official
<i>How does this reduce risk?</i> There is hereby established in the Borough of Newfield a State Uniform Construction Code enforcing agency to be known as the "Newfield Construction Code Department," consisting of a Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official and such other subcode officials for such additional subcodes as the Commissioner of the Department of Community Affairs, State of New Jersey, shall hereafter adopt as part of the State Uniform Construction Code. The Construction Official shall be the chief administrator of the enforcing agency. Each official shall enforce the subcode corresponding to his title, subject to the supervision of the Construction Official. The individual will oversee the construction and building that occurs in the municipality and ensure the safety and environmental protection.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Article 5 Zoning	Local	Borough Planning
<i>How does this reduce risk?</i> Areas devoted to drainage or stormwater management basins shall not be included in the calculation of lot area or credited towards the minimum area of a lot. The lot area of a freestanding drainage or stormwater management basin shall not be subject to the bulk and area requirements otherwise applicable to the zoning district in which the basin is located.					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Article 260-17	Local	Planning Board
<i>How does this reduce risk?</i> It is the purpose of this chapter to provide rules, regulations and standards that will contribute to the orderly growth and development of the Borough of Newfield; to set forth a clear statement of development application requirements in good civic design and arrangement; to improve the efficiency and safety of circulation systems within and outside individual developments; to encourage positive application to high standards of design and construction; to contribute to the overall quality of the environment and to further the goals and objectives of the Borough's Master Plan and the purposes of the Borough's Zoning Ordinance set forth in § 295-2 of Chapter 295, Zoning.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Ordinance</b>	Yes	Yes	Article 295-11	Local	Engineer
<i>How does this reduce risk?</i> Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	NJ Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Master Plan	Local	Borough of Newfield
<i>How does this reduce risk?</i> The intent of this chapter is to establish a precise and detailed plan for the use of the land in the Borough based on its Master Plan and enacted in order to promote and to protect the public health, safety, morals, comfort, convenience and the general welfare of the people. The purposes of this chapter are those set forth under the zoning provisions of the Municipal Land Use Law, Chapter 291 of the Laws of 1975, N.J.S.A. 40:55D-1 et seq., as amended.					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Article 260-12	Local and County	Engineer
<i>How does this reduce risk?</i> It is the purpose of this chapter to provide rules, regulations and standards that will contribute to the orderly growth and development of the Borough of Newfield; to set forth a clear statement of development application requirements in good civic design and arrangement; to improve the efficiency and safety of circulation systems within and outside individual developments; to encourage positive application to high standards of design and construction; to contribute to the overall quality of the environment and to further the goals and objectives of the Borough's Master Plan and the purposes of the Borough's Zoning Ordinance set forth in § 295-2 of Chapter 295, Zoning.					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 136, Adopted 2013	Federal, State, County and Local	Borough Code Enforcement
<i>How does this reduce risk?</i> It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Protect human life and health; B. Minimize expenditure of public money for costly flood control projects; C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; D. Minimize prolonged business interruptions;					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas; G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? YES</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? YES</li> <li>• Does it contain natural overlay zones that set conditions? N/A</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? N/A</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? N/A</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? YES</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? YES</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? YES</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? N/A</li> <li>• Do the regulations allow density transfers where hazard areas exist? N/A</li> <li>• When updating ordinances, is hazard mitigation considered? N/A</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Adopted 1978, updated in 2004	Local	Borough Planning
<i>How does this reduce risk?</i> The Master Plan guides long term development.					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	Yes	No	Stormwater Unwritten process within DPW	Local	Department of Public Works
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	2021	Local	Planning
<i>How does this reduce risk?</i> Employees are more educated on the best management practices for stormwater, which translates to improved water quality.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	2018	Local	Borough DPW
<i>How does this reduce risk?</i> Development in areas mapped as wetlands, flood prone areas, suitable habitat for endangered and threatened species as identified on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife as Ranks 3, 4 and 5, Natural Heritage Priority Sites, riparian zones, steep slopes, or designated river areas may be subject to special regulation under Federal or State statutes or rules and interested persons should check with the Department for the latest information. Any depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. N/A</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. N/A</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? N/A</li> <li>Does the future land use map clearly identify natural hazard areas? Plan</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? YES</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? N/A</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? N/A</li> <li>Are environmental systems that protect development from hazards identified and mapped? N/A</li> <li>Do environmental policies maintain and restore protective ecosystems? N/A</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? N/A</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? N/A</li> </ul>					

### 9.14.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Newfield to oversee and track development.

Table 9.14-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Code Enforcement





Indicate if your jurisdiction implements the following	Yes/No	Comment
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Built Out

### 9.14.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Newfield and their current responsibilities which contribute to hazard mitigation.

*Table 9.14-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Borough of Newfield Planning Board
Zoning Board of Adjustments	Yes	Combined with Planning Board
Planning Department	Yes	Secretary, Engineer, Solicitor
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Department of Public Works
Construction/Building/Code Enforcement Department	Yes	Code Official
Emergency Management/Public Safety Department	Yes	Department of Public Safety, OEM
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Message Board/One Call
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Department of Public Works
Mutual aid agreements	Yes	Shared Service Agreement
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Public Works and Borough Clerk are drafting a Human Resources Manual
Other	Yes	Shade Tree Commission
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Borough / Planning Board Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Borough Engineer
Planners or engineers with an understanding of natural hazards	Yes	Borough Engineer
Staff with expertise or training in benefit/cost analysis	Yes	Borough staff
Professionals trained in conducting damage assessments	Yes	Borough Engineer



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	GIS familiar Borough Engineer
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	OEM
Grant writer(s)	Yes	Council member is responsible for grants.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater Management Officer
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>The Borough is quick to react whenever there is a problem.</li> <li>Administration moves issues with red tape.</li> </ul>		

### 9.14.3.4 Fiscal Capability

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

*Table 9.14-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Water Utility can increase taxes minimally to cover expenditures. <ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul> </li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> </ul>	



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<ul style="list-style-type: none"> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.14.3.5 Education and Outreach Capability

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

*Table 9.14-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Council member is assigned to Communications and Information Technology.
Personnel skilled or trained in website development	Yes	Council member is assigned to Communications and Information Technology.
Hazard mitigation information available on your website	Yes	The Borough website has information on stormwater management.
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	One Call/Message Board
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	Yes	School Board responsibility
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>None noted.</li> </ul>		

### 9.14.3.6 Community Classifications

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

*Table 9.14-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-



Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.14.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.14-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive	Moderate
Nor’Easter	Moderate
Severe Storm	Moderate
Severe Winter Storm	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.14.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.14-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 0</li><li># RL properties: 0</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$0.00</li><li># claims filed: 0</li><li>Total loss payments: \$0.00</li></ul>
Describe areas prone to flooding in your jurisdiction.	Floodplains
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Unsure
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Code Enforcement
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Code Enforcement and other departments
What specific training or support does your floodplain management staff need to support its floodplain management program?	Not sure
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Unsure
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	None on record with NJ DEP



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Ordinance number 10 of 2013
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets but the flood damage prevention ordinance requires update
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No and not interested

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.14.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.14-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	11	0	10	0	10	0	6	0	2	0	0	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	1	0	0	0	0	0
Total Permits Issued	11	0	10	0	10	0	7	0	2	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												
None anticipated												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.





## 9.14.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Newfield's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Newfield has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.14-1. Borough of Newfield Hazard Area Extent and Location Map 1

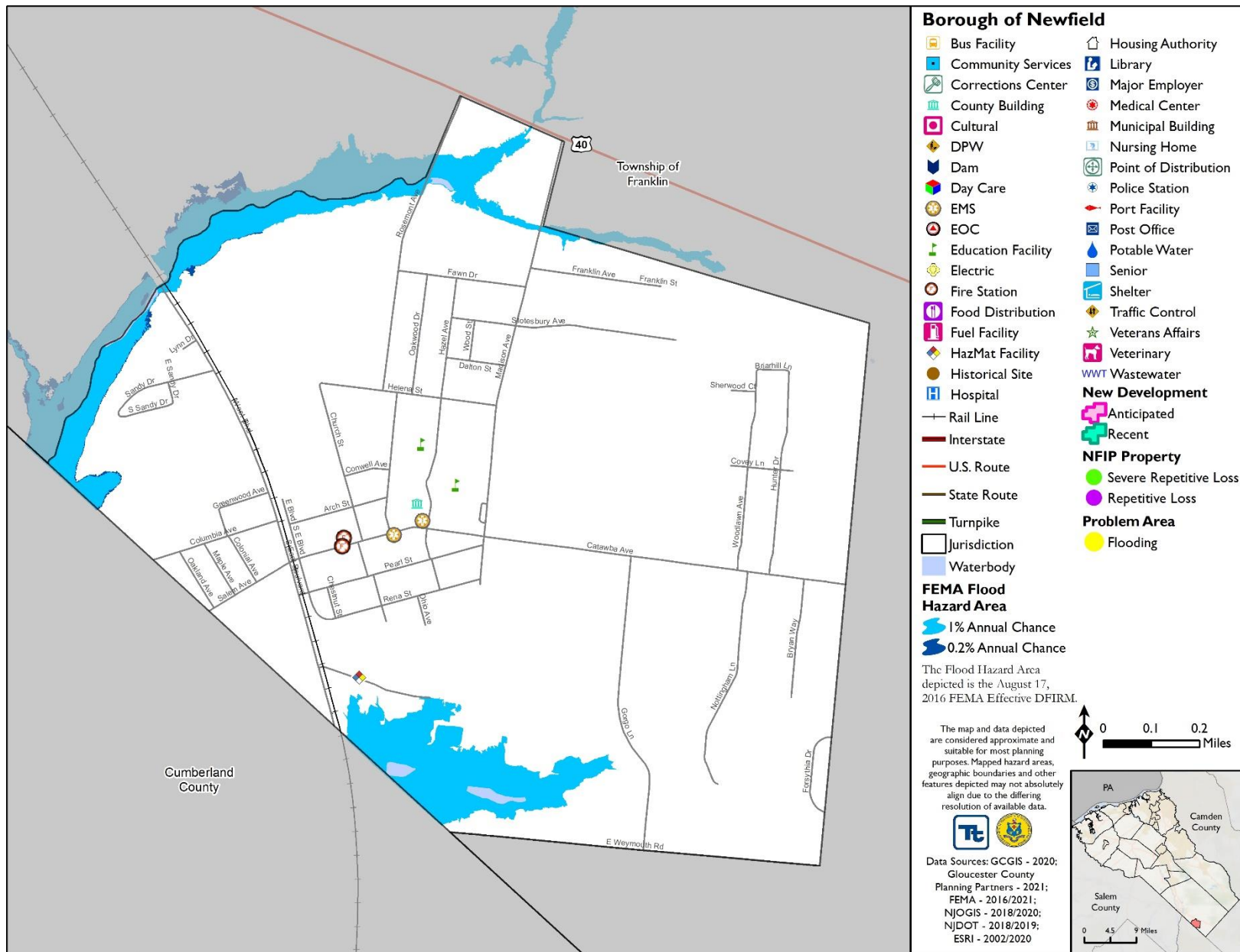




Figure 9.14-2. Borough of Newfield Hazard Area Extent and Location Map 2

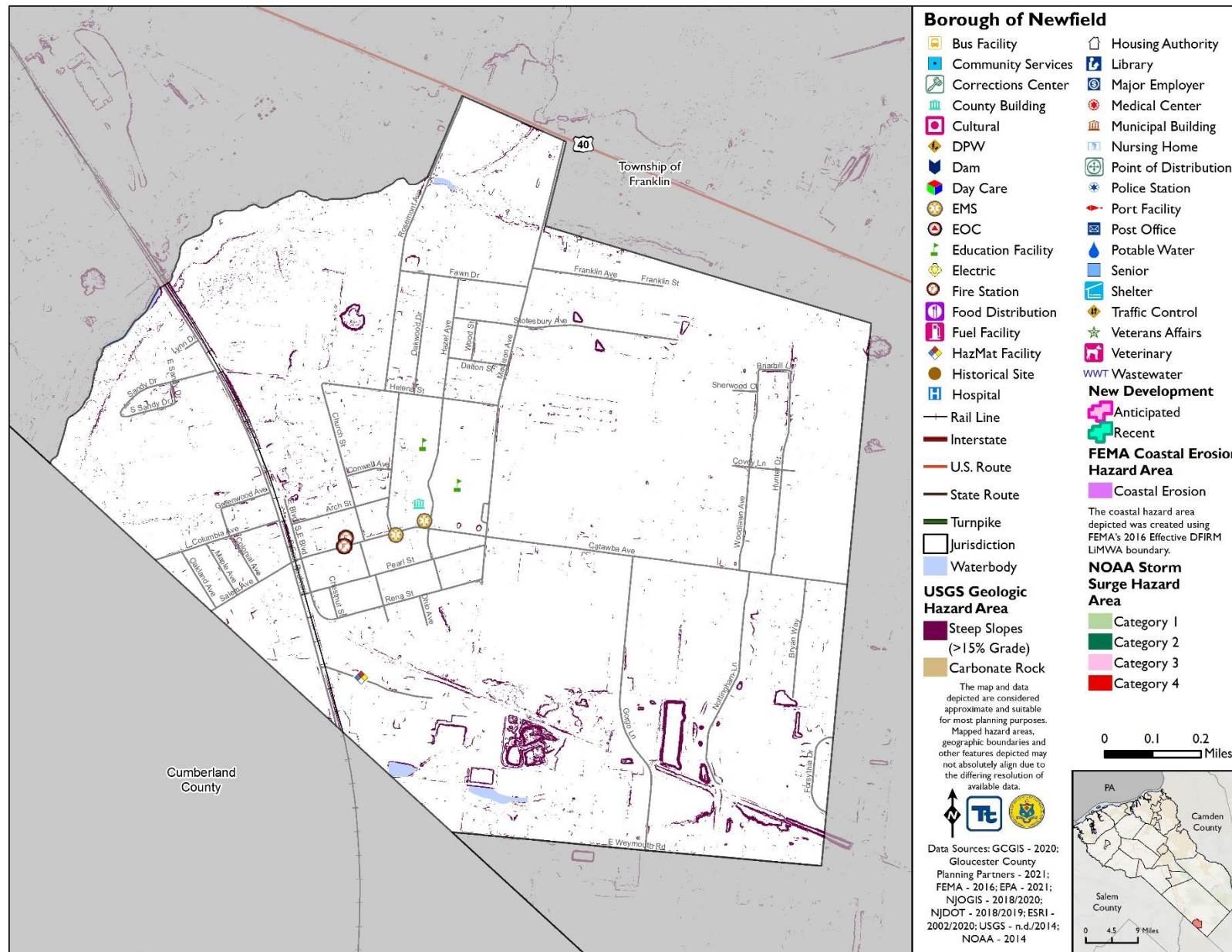




Figure 9.14-3. Borough of Newfield Hazard Area Extent and Location Map 3

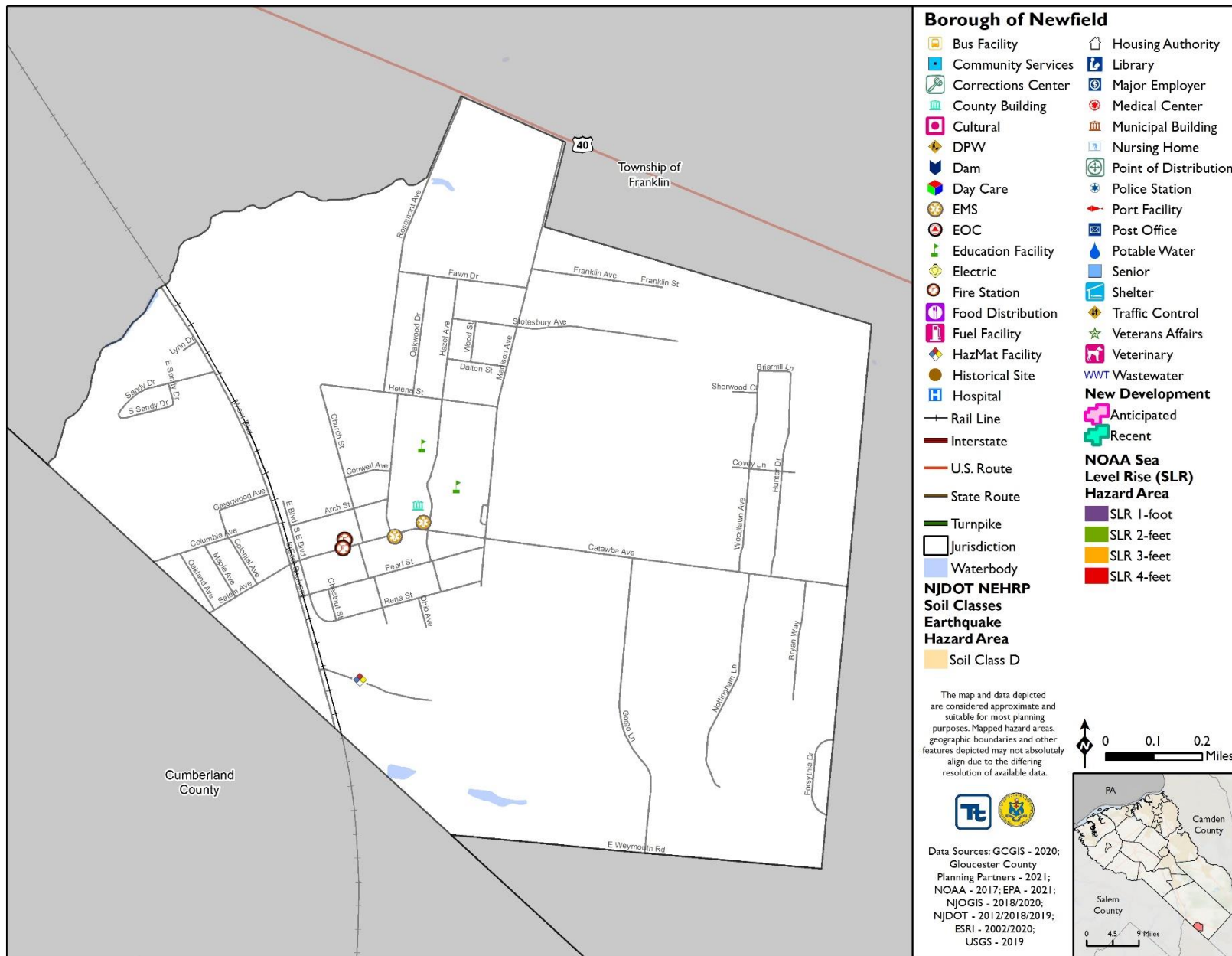
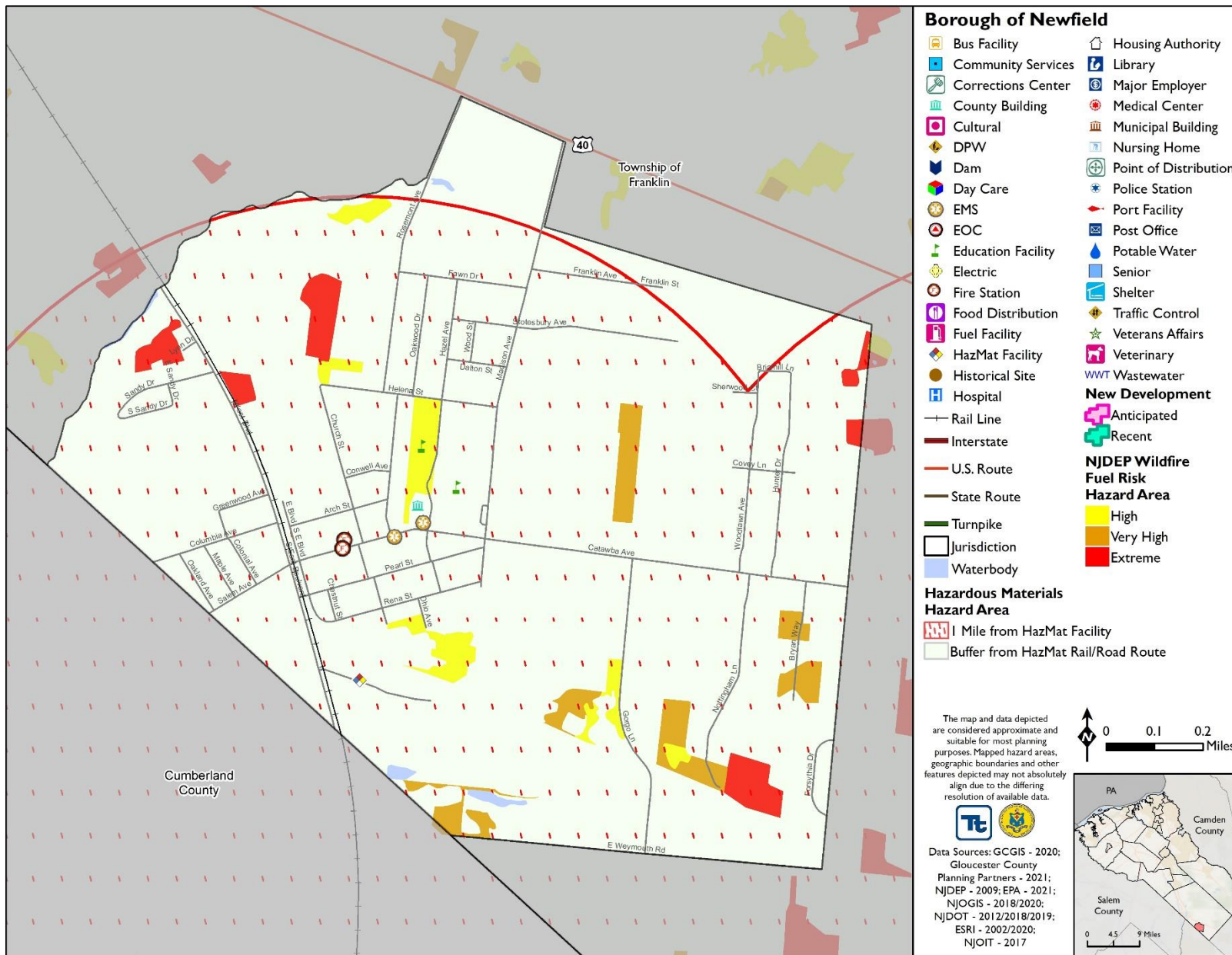






Figure 9.14-4. Borough of Newfield Hazard Area Extent and Location Map 4





### 9.14.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Newfield's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.14-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report significant impacts.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Borough did not report significant impacts.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report significant impacts.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Borough did not report significant impacts.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Borough was subject to closures and masking and social distancing requirements.





## 9.14.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Newfield's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Newfield. The Borough of Newfield reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough noted that hazardous materials is not a significant hazard and adjusted the hazard ranking from high to medium.
- The Borough noted that it has the ability to respond to severe storm events and adjusted the hazard ranking from high to medium.

*Table 9.14-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood
Low	Low	Low	Medium	Low	Medium	Low

Flood	Geologic	Haz Mat	Hurricane	Invasive	Nor'Easter	Severe Storm	Severe Winter Storm	Wildfire	Utility Failure
Low	Low	Medium	Low	Low	Medium	Medium	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.14-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.14.6.3 Identified Issues

After review of the Borough of Newfield's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Newfield has identified the following vulnerabilities within their community:

- Three critical facilities (Edgarton Christian Academy, Water Tower, DPW Building) do not have any backup power to sustain operations during hazard events. As a result, these facilities are not adequately equipped to operate during hazard events. Because these facilities are critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community.
- Historical Flooding on easterly Catawba Avenue at Franklin Township limit occurs during severe and short intense storm events. Farm runoff from Franklin Township causing flooding of Catawba Avenue causes property damage and hazardous driving conditions.
- Flooding on Nottingham Lane occurs during severe storms and Nor'easters resulting from storm water basin overloading.
- The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.
- The municipality does not have a disaster debris management plan.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The municipality repetitive loss properties but other properties may be impacted by flooding as well.

### 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 indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.14-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	
					Enter 2022 HMP Action #
MJ-1	Alleviate flooding at Catawba Avenue and Hazel Avenue.	OEM/DPW	Complete. DPW has completed maintenance cleaning of inlets and storm drains, flooding still occurs during severe storm events.	No	-
MJ-2	Alleviate flooding at Sandy Drive to address drainage issues between Route 40 and Fawn Drive.	OEM/DPW	Complete. DPW has completed maintenance cleaning of inlets and storm drains, flooding still occurs during severe storm events.	No	-
MJ-3	Alleviate flooding at Rosemont Avenue and West Boulevard.	NJDOT	Complete. County with Con Rail completed maintenance cleaning of inlets and storm drains crossing Cr615, flooding still occurs during severe storm events.	No	-
M-05	Install permanent back-up emergency power generator at Public Works building (CF-6).	OEM/DPW	No Progress. No Emergency Power at DPW.	Yes	2022 Borough of Newfield-001
M-06	Install permanent back-up emergency power generator at Water Tower (CF-9).	OEM/DPW	No Progress. No Emergency Power at Water Tower.	Yes	2022 Borough of Newfield-001
M-07	Install permanent back-up emergency power generator Edgerton Christian Academy (CF-10).	OEM/DPW	No Progress. No Emergency Power at Edgerton Christian Academy.	Yes	2022 Borough of Newfield-001
M-08	Engineering study to determine benefit of solar panel usage throughout Newfield Borough.	OEM/DPW	Complete. The party vendor presented preliminary study to the Borough of Newfield.	No	-
M-09	Develop tree removal / maintenance plan to reduce risk of power disruption and damage to critical facilities.	OEM/DPW	Ongoing Capability. Newfield has ongoing tree maintenance program.	No	-
M-10	Harden / construct protective infrastructure for outdoor garage at Public Works facility to protect municipal equipment (CF-6).	OEM/DPW	Complete. Borough of Newfield has ongoing DPW facility maintenance. Six-foot chain-link fence with barb wire and entrance gate installed.	No	-



### 9.14.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.14-14, the Borough did not undertake any additional mitigation efforts in the last five years.

### 9.14.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Newfield participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.14-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X	X			X				X	X
Dam/ Levee	X	X			X				X	X
Disease Outbreak	X	X			X				X	X
Drought	X	X			X				X	X
Earthquake	X	X			X				X	X
Ext Temp	X	X			X				X	X
Flood	X	X			X	X			X	X
Geologic	X	X			X				X	X
Hazmat	X	X			X				X	X
Hurricane	X	X			X				X	X
Invasive	X	X			X				X	X
Nor'Easter	X	X			X				X	X
Severe Storm	X	X			X				X	X
Severe Winter Storm	X	X			X				X	X
Wildfire	X	X			X				X	X
Utility Failure	X	X			X				X	X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.14-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Newfield 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 9.14-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.





Table 9.14-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022 Borough of Newfield-001	Generators for Critical Facilities	<p><b>Problem:</b> Three Critical Facilities (Edgerton Christian Academy, Water Tower, DPW Building) do not have any backup power to sustain operations during hazard events. As a result, these facilities are not adequately equipped to operate during hazard events. Because these facilities are critical and provide essential services to the community, if operations are interrupted with a power outage, it could cause significant issues for the community.</p> <p><b>Solution:</b> The DPW shall work with each facility manager to determine the adequate backup power needed to power the entire facility. The generators will be permanent and will require a site assessment to determine the best location to be placed. The DPW shall coordinate these efforts with each facility manager and help secure adequate funding to purchase and install the generators.</p>	New	All	1, 2, 6	2 years	Facility managers and DPW	Municipal Budget and HMGP	High	\$100,000-500,000/each	High	SIP	SP
2022 Borough of Newfield-002	Flood Mitigation along Catawba Ave.	<p><b>Problem:</b> Historical Flooding on easterly Catawba Avenue at the Franklin township limit occurs during severe and short, intense storm events. Farm runoff from Franklin Township results in flooding of Catawba Avenue and causes property damage and hazardous driving conditions.</p>	New	Flood	1, 2, 3	2 years	Newfield, Franklin, and USDA, DPW	HMGP, BRIC	Flood Mitigation	High	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The municipality is currently coordinating with Franklin Township and USDA for NRCS corrective action, design assistance and funding to develop a better stormwater system to reduce flooding and runoff. Once the plan is complete, the municipality looks to apply for funding to implement the design.											
2022 Borough of Newfield-003	Flood Mitigation Along Nottingham Lane	<b>Problem:</b> Storm water basin overloading causes flooding on Nottingham Lane and occurs during severe storms and Nor'easters.  <b>Solution:</b> Borough of Newfield retained project bond funds and is scheduling field engineering test pits to determine presence of restrictive soil horizons and site conditions. Corrective action will be determined in collaboration with the HOA, Borough of Newfield and Developer, Additional funding might be necessary as project progresses	New	Flood	1, 2, 4, 6	3 years	Developer, HOA, Design Engineer	BRIC/HMGP	Flood Mitigation	\$500,000	High	SIP	SP
2022 Borough of Newfield-004	FDPO Update	<b>Problem:</b> The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.  <b>Solution:</b> The Borough Board and Administration as well as the NFIP Administrator shall work together to update their FDPO once contacted by the state. The state shall work with municipality to provide updated	Existing	Flood	All	1-5 years	State of NJ and Borough Administration	Municipal Budget	Compliance	0-100 dollars	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		guidance and model ordinance as needed.											
2022 Borough of Newfield-005	Disaster Debris Management Plan	<p><b>Problem:</b> The municipality does not have a disaster debris management plan.</p> <p><b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the cleanup process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders might be necessary.</p>	New	All	All	2 years	Various Departments and Borough Board	Municipal Budget	High	Low	High	LPR	ES
2022 Borough of Newfield-006	Rep Loss Outreach	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The municipality has repetitive loss properties, but other properties may be impacted by flooding as well.</p> <p><b>Solution:</b> 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</p>	Existing	Flood	1, 2, 5	5 years	Borough Administration supported by homeowners	FMA, HMGP	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	Low	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		residential homes in the flood prone areas that experience frequent flooding (high risk areas).											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.14-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022 Borough of Newfield-001	Generators for Critical Facilities	1	1	1	1	1	1	-1	0	1	1	1	1	1	1	11	High 
2022 Borough of Newfield-002	Flood Mitigation along Catawba Ave.	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022 Borough of Newfield-003	Flood Mitigation Along Nottingham Lane	1	1	1	1	1	1	-1	1	1	1	0	1	1	1	11	High
2022 Borough of Newfield-004	FDPO Update	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High



Project Number	Project 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
2022 Borough of Newfield-005	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022 Borough of Newfield-006	Rep Loss Outreach	1	1	1	1	1	1	0	1	0	0	0	0	1	1	9	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

**!** This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.14.8 Action Worksheets

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The following action worksheets have been developed by the Borough of Newfield to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Generators for Critical Facilities		
<b>Project Number:</b>	2022 Borough of Newfield-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All		
<b>Description of the Problem:</b>	Three Critical Facilities (Edgerton Christian Academy, Water Tower, DPW Building) do not have any backup power to sustain operations during hazard events. As a result, these facilities are not adequately equipped to operate during hazard events. Because these facilities are critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The DPW shall work with each facility manager to determine the adequate backup power needed to power the entire facility. The generators will be permanent and will require site assessment to determine the best location that the new asset will be placed. The DPW shall coordinate these efforts with each facility manager and help secure adequate funding to purchase and install the generators.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Continued Operation
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$100-500,000/ each	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6 months once plans made and funding secured
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	Municipal Budget and HMGP
<b>Responsible Organization:</b>	Town DPW and Facility Manager	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Structural and Infrastructure Project
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar	High	Dependent on weather
	Install generator	High	Best long-term solution
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Generators for Critical Facilities	
<b>Project Number:</b>	2022 Borough of Newfield-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	This project is most cost effective
Technical	1	There are no technical issues
Political	1	There are no political issues
Legal	1	There are no legal complications
Fiscal	-1	Additional Funding is needed
Environmental	0	Has no adverse impact
Social	1	Has positive impact on society
Administrative	1	No administrative issues
Multi-Hazard	1	This addresses multiple hazards
Timeline	1	The timeline is feasible
Agency Champion	1	The town DPW/Facility Manager
Other Community Objectives	1	Safety
Total	11	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Flood Mitigation along Catawba Ave.		
<b>Project Number:</b>	2022 Borough of Newfield-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Historical Flooding on easterly Catawba Avenue at Franklin township limit occurs during severe and short intense storm events. Farm runoff from Franklin Township causing flooding of Catawba Avenue causes property damage and hazardous driving conditions.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The municipality is currently coordinating with Franklin township and USDA for NRCS corrective action, design assistance and funding to develop a better stormwater system to reduce flooding and runoff. Once the plan is complete, the municipality looks to apply for funding to implement the design.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 3
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years once funding secured
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP, BRIC
<b>Responsible Organization:</b>	Newfield, Franklin, and USDA, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation , Stormwater Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Close Road	High	Infeasible
	Retention Basin	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	Flood Mitigation along Catawba Ave.	
<b>Project Number:</b>	2022 Borough of Newfield-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	-1	Additional Funding is needed
<b>Environmental</b>	1	Has a positive impact on environment
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	0	This addresses a single hazard
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	The town DOW/ OEM
<b>Other Community Objectives</b>	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Flood Mitigation Along Nottingham Lane		
<b>Project Number:</b>	2022 Borough of Newfield-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Flooding on Nottingham lane occurs during severe storms and Nor'easters resulting from storm water basin overloading.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Borough of Newfield retains project bond funds, scheduling to perform field engineering test pits to determine presence of restrictive soil horizons and site conditions. Coordinating with HOA, Borough of Newfield and Developer, corrective action to be determined. Additional funding might be necessary as project progresses		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 4, 6
<b>Estimated Cost:</b>	\$500,000	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years once funding secured
<b>Estimated Time Required for Project Implementation:</b>	3 years	<b>Potential Funding Sources:</b>	HMGP/ BRIC
<b>Responsible Organization:</b>	Developer, HOA, Design Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Close Road	High	Infeasible
	Retention Basin	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Evaluation and Prioritization		
<b>Project Name:</b>	Flood Mitigation Along Nottingham Lane	
<b>Project Number:</b>	2022 Borough of Newfield-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	-1	Additional Funding is needed
<b>Environmental</b>	1	Has a positive impact on environment
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	0	This addresses a single hazard
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	The town DOW/ OEM
<b>Other Community Objectives</b>	1	Safety
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Rep Loss Outreach		
<b>Project Number:</b>	2022 Borough of Newfield-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has repetitive loss properties, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2, 5
<b>Estimated Cost:</b>	\$3 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	5 years
<b>Estimated Time Required for Project Implementation:</b>	5 Years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	Borough Administration supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Rep Loss Outreach	
<b>Project Number:</b>	2022 Borough of Newfield-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Families moved out of high-risk flood areas.
<b>Property Protection</b>	1	Properties removed from high-risk flood areas.
<b>Cost-Effectiveness</b>	1	Cost-effective project
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	0	Project would remove families from the flood prone areas of the Borough.
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	0	Flood
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	NFIP Floodplain Administrator, supported by homeowners
<b>Other Community Objectives</b>	1	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



## 9.15 BOROUGH OF PAULSBORO

This section presents the jurisdictional annex for the Borough of Paulsboro and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Paulsboro's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.15.1 Hazard Mitigation Planning Team

The Borough of Paulsboro followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Paulsboro's hazard mitigation plan primary and alternate points of contact. 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 9.15-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Gary Stevenson, Mayor Address: 1201 North Delaware St, Paulsboro, NJ 08066 Phone Number: 609-617-9493 Email: gstevenson@paulsboronj.org	Name/Title: Susan Jacobucci, Administrator Address: 1201 North Delaware St, Paulsboro, NJ 08066 Phone Number: 856-423-1500 Email: sjacobucci@paulsboronj.org
NFIP Floodplain Administrator	
Name/Title: Eric Bierman, Sickels & Associates, Inc. Address: 833 Kings Highway, Woodbury, NJ 08096 Phone Number: p 856-848-6800 Email: ekb@sickelassoc.com	



Name	Title	Method of Participation
Gary Stevenson	Mayor	Attended annex meeting
Susan Jacobucci	Administrator	Attended annex meeting, reviewed annex and provided feedback
George Marra	Zoning Official	Provided annex information
Judson Moore	CMFO	Reviewed annex and provided feedback

## 9.15.2 Municipal Profile

Paulsboro, New Jersey is an industrial town located on the Delaware River across from Philadelphia. It is bound by the Delaware River on the north, the Mantua Creek on the east, Greenwich Township on the west and East Greenwich Township on the South. 1904 is considered the beginning date for Paulsboro, but its history actually begins with the Leni Lenape Indians who inhabited the area then known as Crown Point. Paulsboro is the home of Fort Billingsport, the first land purchase made by the United States, acquired the day after the signing of the United States Declaration of Independence. The East Jefferson Street railroad bridge over Mantua Creek was built in 1917 and rebuilt in 1940 for the Pennsylvania-Reading Seashore Lines (PRSL).

According to the United States Census Bureau, the Borough had a total area of 2.63 square miles, including 1.92 square miles of land and 0.71 square miles of water. The East Jefferson Street railroad bridge over Mantua Creek was built in 1917 and rebuilt in 1940 for the Pennsylvania-Reading Seashore Lines (PRSL). It is now part of Conrail's Penns Grove Secondary. Unincorporated communities, localities and place names located partially or completely within the Borough include Billingsport.

The municipality is governed under the borough form of municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Paulsboro was 6,097. The estimated 2019 population was 5,904, a 3.3 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 13.5 percent of the population is 5 years of age or younger and 5.9 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.

## 9.15.3 Jurisdictional Capability Assessment and Integration

The Borough of Paulsboro performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 6 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.15.3). The updated mitigation strategy includes opportunities the Borough of Paulsboro identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.15.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Paulsboro, what is present in the jurisdiction, and code citation and date.

*Table 9.15-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 23 Construction Codes, Uniform	State and Local	Construction Code Department
<i>How does this reduce risk?</i> The Borough adopted the New Jersey State Uniform Construction Code.					
<b>Zoning/Land Use Code</b>	Yes	Yes	Chapter 80 Zoning	Local	Land Use Board
<i>How does this reduce risk?</i> The Paulsboro Borough Zoning Ordinance of 1955 is enacted for the following purposes: to promote the health, morals and general welfare of the inhabitants of the Borough of Paulsboro; to lessen congestion in the streets; secure safety from fire, panic and other dangers; provide adequate light and air; prevent the overcrowding of land or buildings; avoid undue concentration of population; and to conserve the value of property and encourage the most appropriate use of land.					
<b>Subdivision Ordinance</b>	Yes	Yes	Chapter 70 Subdivision of Land	Local	Land Use Board
<i>How does this reduce risk?</i> The purpose of this chapter shall be to provide rules, regulations and standards to guide the subdivision of land in the Borough in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities, and services in the Borough of Paulsboro.					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Stormwater Management Ordinance</b>	Yes	Yes	Ordinance 06.21 Adopted October 5, 2021	Local	Stormwater Management Officer
<i>How does this reduce risk?</i> This is required by law to be posted to the municipality's website.					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	Yes	Yes	Chapter 80 Zoning	Local	Land Use Board
<i>How does this reduce risk?</i> The Zoning regulations establishes restrictive zoning.					
<b>Site Plan Ordinance</b>	Yes	Yes	Chapter 65 Site Plan Review	Local	Land Use Board
<i>How does this reduce risk?</i> The purposes of this chapter are as follows: A. To provide rules, regulations and standards to guide the development of lands in this Borough in a manner which will promote the public health, safety, morals and general welfare. B. To ensure the orderly development, conservation, protection and proper use of land and adequate provision for circulation, utilities and services. C. To provide adequate light, air and open space. D. To ensure the coordination of development within the Borough with the development and general welfare of neighboring municipalities, the county and the State of New Jersey as a whole. E. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight. F. To promote a desirable visual environment through creative development techniques and good civic design and arrangement. G. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land. H. To encourage development which incorporates the best features of design and to relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site. I. To encourage coordination of the various public and private procedures and activities shaping land development with a view to lessening the cost of such development, to ensuring the most efficient use of land and to protecting the Borough from undue obligations from land development. J. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources. K. To promote the maximum practical recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the goals of the municipality's recycling program.					
<b>Environmental Protection Ordinance</b>	No	No	-	-	-
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 35A Flood Damage Prevention (6/21/2016)	Federal, State, County and Local	Floodplain Administrator
<i>How does this reduce risk?</i> It is the purpose of this ordinance to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: A. Protect human life and health; B. Minimize expenditure of public money for costly flood control projects; C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; D. Minimize prolonged business interruptions; E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas; G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.					
<b>Wellhead Protection</b>	No	No	-	-	-
<b>Emergency Management Ordinance</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Climate Change Ordinance</b>	No	No	-	-	-
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, the jurisdiction reviews the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use.</li> <li>• The zoning ordinance requires developers to take additional actions to mitigate natural hazard risk.</li> <li>• Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.</li> <li>• The subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas.</li> <li>• When updating ordinances, hazard mitigation is considered.</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes	1962. Updated: 2012	Local	Borough OEM
<i>How does this reduce risk?</i> Identifies guidance for long term development.					
<b>Capital Improvement Plan</b>	Yes	Allowed	2020	Local	Department of Public Works
<i>How does this reduce risk?</i> Used to identify gaps and increase capacity to emergency response.					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<b>Stormwater Management Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i> This plan is required by the NJ Tier A stormwater permit and will be developed via action 2022-Paulsboro-005.					
<b>Stormwater Pollution Prevention Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i> This plan is required by the NJ Tier A stormwater permit and will be developed via action 2022-Paulsboro-005.					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<b>Economic Development Plan</b>	No	No	-	-	-
<b>Shoreline Management Plan</b>	No	No	-	-	-
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<b>Community Forest Management Plan</b>	No	No	-	-	-
<b>Transportation Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Agriculture Plan</b>	No	No	-	-	-
-					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<b>Tourism Plan</b>	No	No	-	-	-
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<b>Other</b>	No	-	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows through the capital improvement program. There is a separate line item for snow emergency. A separate line item would be added to the budget for hazard mitigation actions, as needed and the budget amended to include that action. Construction projects are evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards.</li> <li>Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.</li> <li>Budgets would provide funding for hazard mitigation projects identified in the County HMP, as needed.</li> <li>The land use map clearly identifies natural hazard areas.</li> <li>The land use policies discourage development or redevelopment within natural hazard areas.</li> <li>The plan provides adequate space for expected future growth in areas located outside natural hazard areas, as much as possible.</li> <li>The transportation plan limits access to hazard areas.</li> <li>The transportation policy is used to guide growth to safe locations.</li> <li>Transportation systems are designed to function under disaster conditions (e.g., evacuation).</li> <li>Environmental systems that protect development from hazards are not identified and mapped.</li> <li>Environmental policies are not established to maintain and restore protective ecosystems.</li> <li>Environmental policies to provide incentives to development that is located outside protective ecosystems is not applicable.</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan, 2019	Local	Borough OEM
<i>How does this reduce risk?</i> The plan reduces risk by appropriate allocation of resources during emergency situations.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<b>Public Health Plan</b>	No	No	-	-	-
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>The EOP covers short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards.</li> </ul>					



### 9.15.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Paulsboro to oversee and track development.

*Table 9.15-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"><li>If yes, what department is responsible?</li><li>If no, what is your process for development?</li></ul>	Yes	Land Use Board
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	N/A
Do you have a buildable land inventory? <ul style="list-style-type: none"><li>If yes, describe.</li><li>If no, quantitatively describe the level of buildout in the jurisdiction.</li></ul>	Yes	A spreadsheet with all the vacant lots is available. 90 percent built out

### 9.15.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Paulsboro and their current responsibilities which contribute to hazard mitigation.

*Table 9.15-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Land Use Board
Zoning Board of Adjustments	Yes	Land Use Board
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Committee
Public Works/Highway Department	Yes	Public Works Department
Construction/Building/Code Enforcement Department	Yes	Code Enforcement
Emergency Management/Public Safety Department	Yes	OEM, Police
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Siren and Audible PA, EverBridge
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Street sweeping, clear inlets before storms
Mutual aid agreements	Yes	Police, Fire, EMS (County Dispatch)
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	No specific staff
Other	No	-
<b>Technical/Staffing Capability</b>		



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with knowledge of land development and land management practices	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Engineers or professionals trained in building or infrastructure construction practices	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Planners or engineers with an understanding of natural hazards	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Staff with expertise or training in benefit/cost analysis	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Professionals trained in conducting damage assessments	No	The Joint Insurance Fund provides adjusters after hazard events.
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Municipal Engineer – Sickels and Associates
Scientist familiar with natural hazards	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Surveyor(s)	Yes	Land Use Board – CME Engineering Municipal Engineer – Sickels and Associates
Emergency Manager	No	-
Grant writer(s)	Yes	Triad Associates. Data and maps from the HMP are used to support documentation in grant applications.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> <ul style="list-style-type: none"> <li>The Borough has a very robust assessment system. Land development decisions dealing with natural environments are consulted with the professionals to aid in better planning.</li> </ul>		

### 9.15.3.4 Fiscal Capability

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

Table 9.15-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>Fiscal capabilities contribute to risk reduction in the community by providing grants and funding for restoration projects and hazard mitigation.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards.</li> <li>Infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.</li> <li>Budgets provide funding for hazard mitigation projects identified in the County HMP, when necessary.</li> </ul>	

### 9.15.3.5 Education and Outreach Capability

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

*Table 9.15-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Mayor
Personnel skilled or trained in website development	Yes	Information Technology Consultant
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	Yes	Facebook
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission
Other programs already in place that could be used to communicate hazard-related information	Yes	Police outreach, mailings
Warning systems for hazard events	Yes	EverBridge
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<i>The jurisdiction has public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events through EverBridge and mailings.</i>		

### 9.15.3.6 Community Classifications

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





Table 9.15-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	8	2018
Sustainable Jersey	Yes	Pending	Pending
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.15.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.15-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate/Shared Services
Disease Outbreak/Pandemic	Strong
Drought	Moderate
Earthquake	Weak
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
High Wind	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Moderate
Wildfire	Strong

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.15.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.15-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 48</li><li># RL properties: 1</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li># claims filed: 37</li><li>Total loss payments: \$74,611</li></ul>
Describe areas prone to flooding in your jurisdiction.	Paulsboro Plaza (intersection of Billingsport Road and Broad Street), 7 <sup>th</sup> Street
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, and if so, how many are interested in (elevation or acquisition)?	No.
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Visual and consultation with consultation with municipal engineer, if necessary. Review of contractor quotes.
Detail any RiskMAP projects currently underway in your jurisdiction.	None.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes.
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Code office.
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Consultant.
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Consultant – Municipal Engineer.
What specific training or support does your floodplain management staff need to support its floodplain management program?	None.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Comparison of contractor costs again current market value.
Do you have access to resources to determine possible future flooding conditions from climate change?	NJDEP Guidance.
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	No records available.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	No records available.



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 35A.
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum requirements.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No.
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No.

Source:

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.15.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.15-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	0	-	0	-	0	-	0	-	1	0	2	0
Multi-Family	0	-	0	-	0	-	0	-	0	-	-	-
Other (commercial, mixed-use, etc.)	0	-	0	-	0	-	0	-	1	0	9	9
Total Permits Issued	0	-	0	-	0	-	0	-	2	0	11	9
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 Paulsboro Port	Commercial		1 Dock		Paulsboro Port		In the River		Initial Building Complete, Expansion Ongoing			



Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
The Wind Turbine Plant	Commercial	6 Buildings	Paulsboro Port	None	In construction
295 Corridor	Commercial	3-8 Buildings	Lodge Avenue near I-295	None	In planning

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.15.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Paulsboro's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Paulsboro has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.15-1. Borough of Paulsboro Hazard Area Extent and Location Map 1

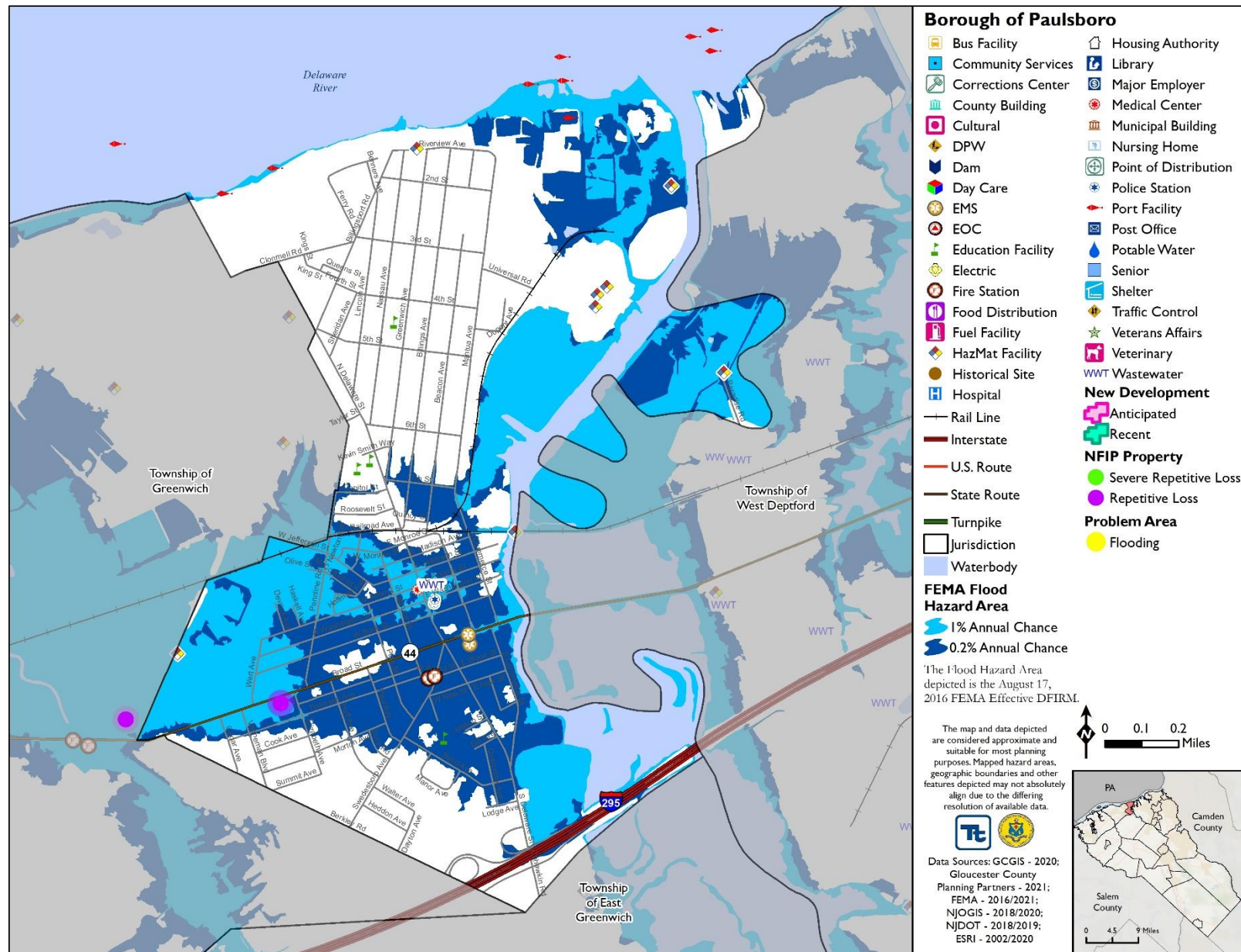






Figure 9.15-2. Borough of Paulsboro Hazard Area Extent and Location Map 2

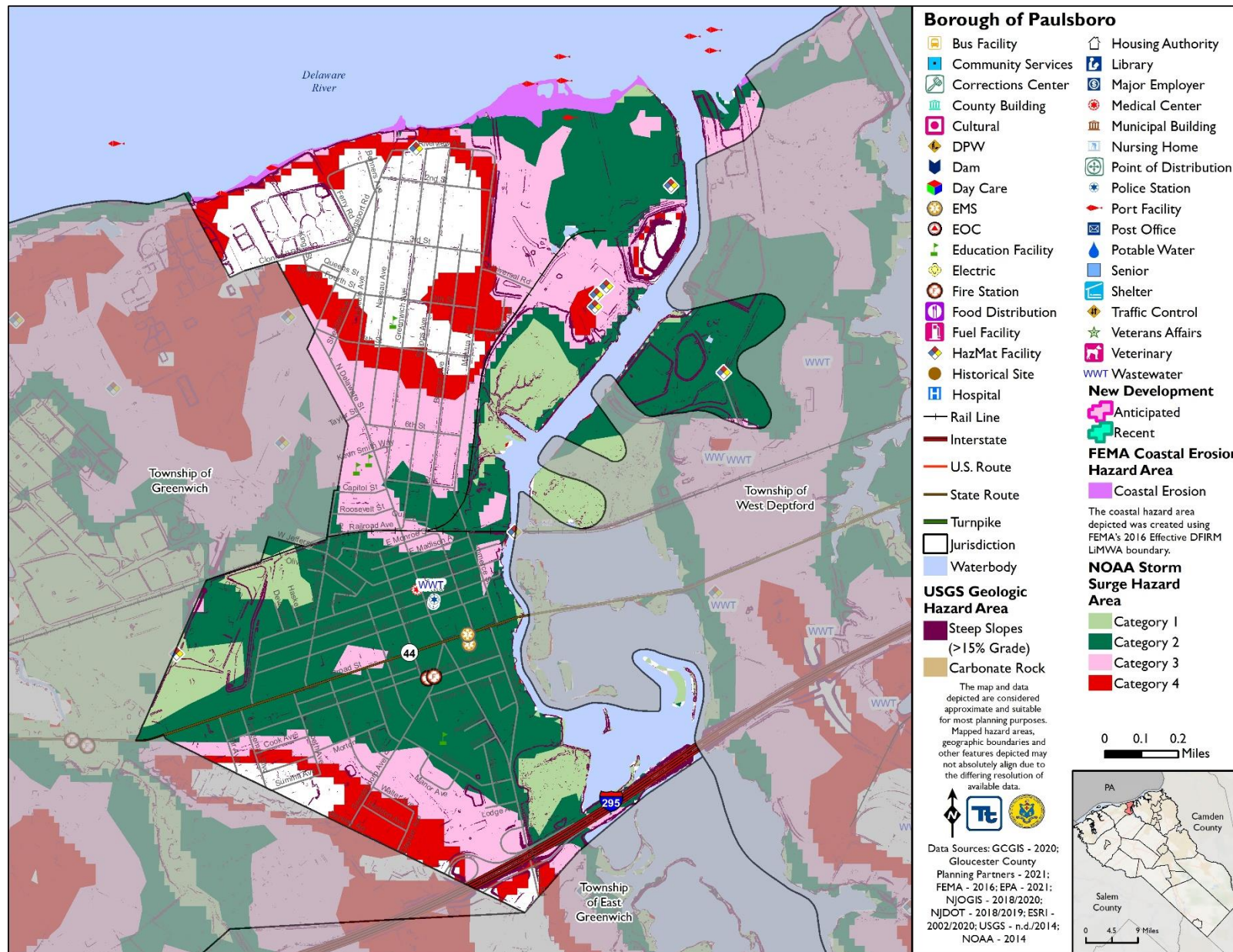






Figure 9.15-3. Borough of Paulsboro Hazard Area Extent and Location Map 3

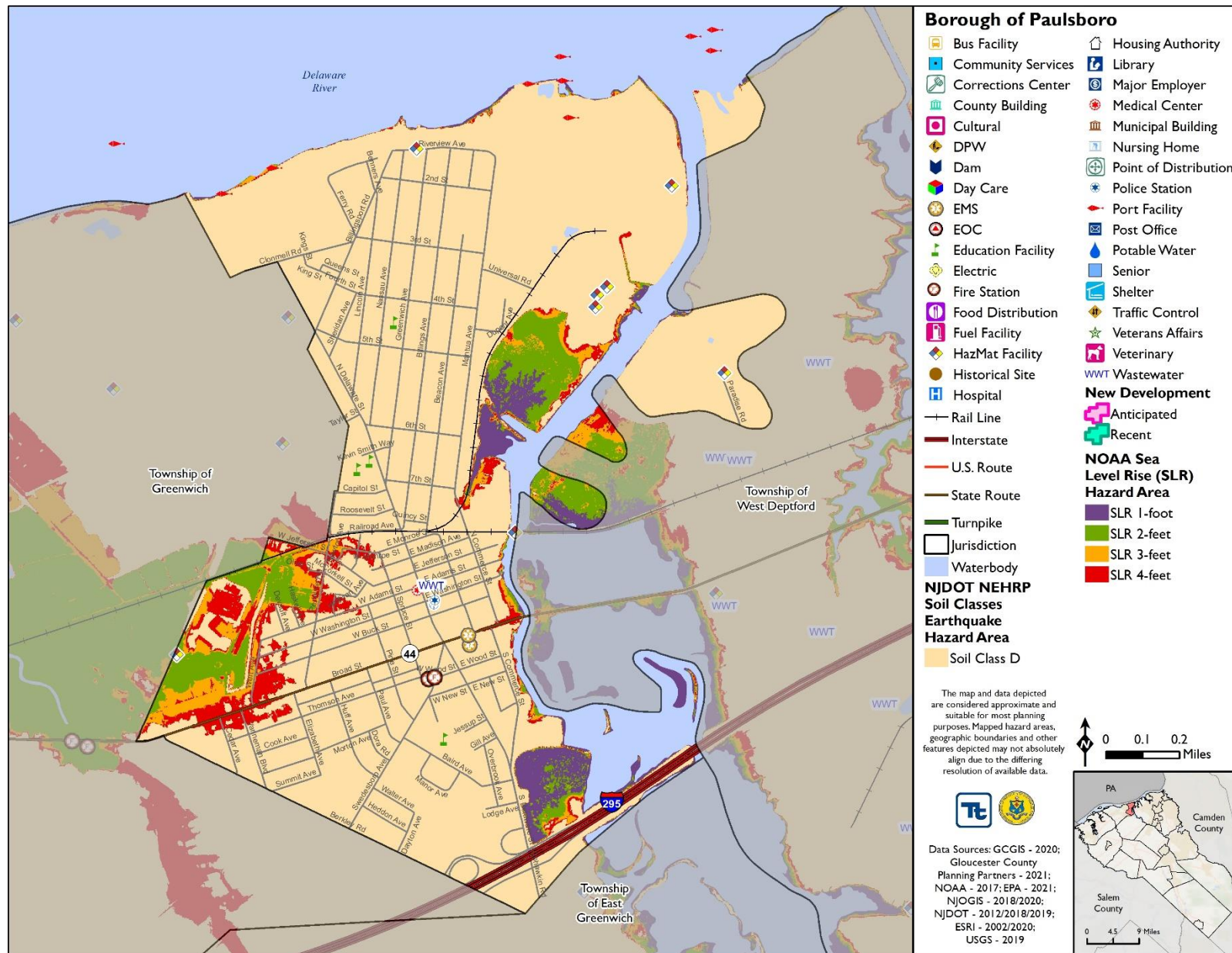
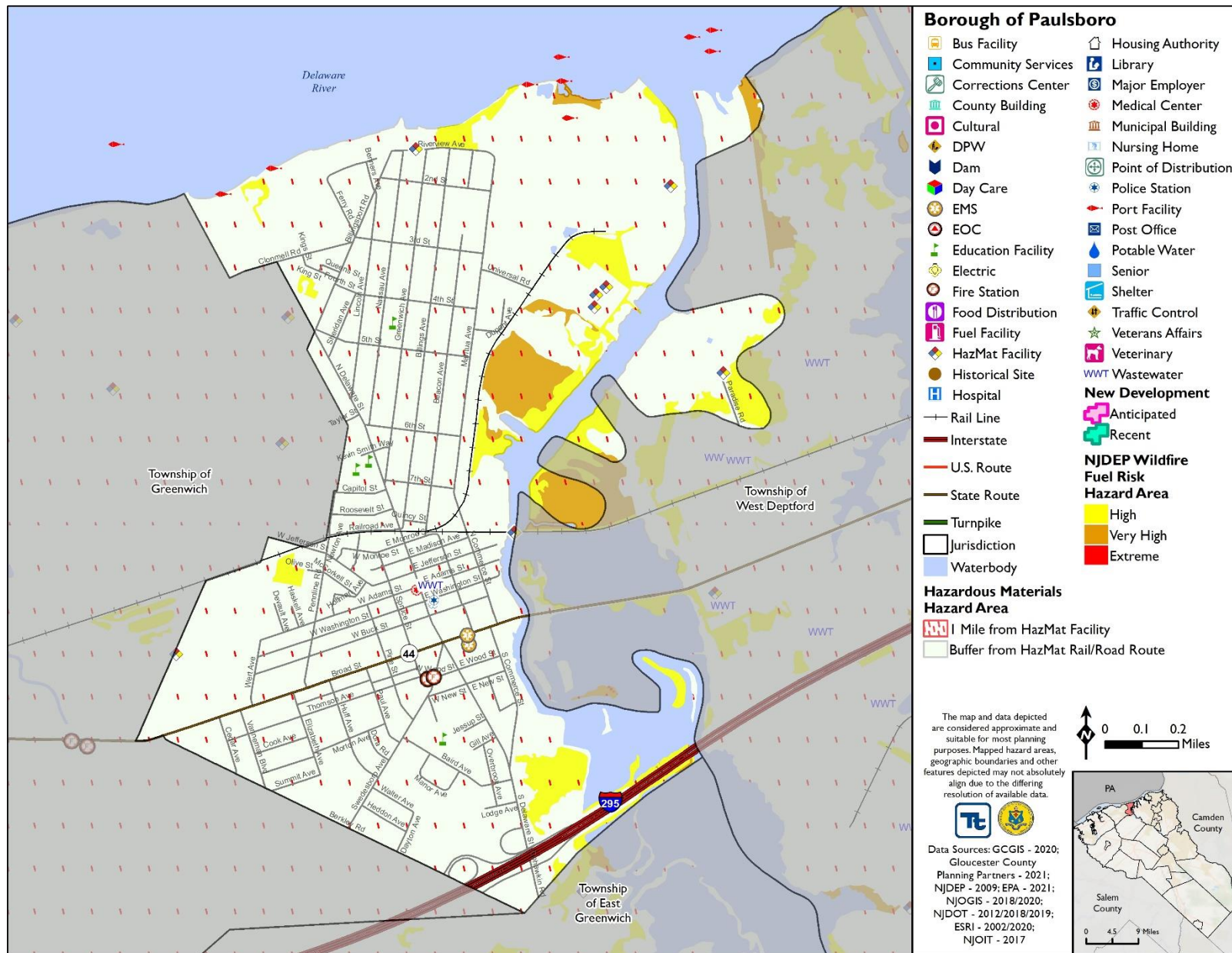




Figure 9.15-4. Borough of Paulsboro Hazard Area Extent and Location Map 4







### 9.15.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Paulsboro's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.15-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	Lightning struck the Paulsboro Refinery in Gibbstown, causing a loss of power and off-gas. Microbursts and wind damages.	Tree loss, but no losses
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Borough did not report damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Borough was subject to closures and masking/social distancing requirements.

### 9.15.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Paulsboro's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Paulsboro. The Borough of Paulsboro reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough changed the risk of drought from medium to low risk.
- The Borough changed hurricane and severe weather to medium risk, as there is no more risk than other types of storms.

*Table 9.15-12. Hazard Ranking Input*

Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temp	Flood	Geologic
Low	Low	Low	Low	Medium	Low	Low

Haz Mat	Hurricane	Invasive	Nor' Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
High	Medium	Low	Medium	Medium	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.15-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
82-3 BLS16	EMS	Y	Y	Y	EMS is moved to East Greenwich during events. No action required.
Paulsboro Train Derailment	Hazardous Material Facility	Y	Y	Y	High bridge over the creek. Flooding not an issue.



Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Cpi Operations Llc	Hazardous Material Facility	Y	Y	Y	Citgo has pumping facility to big retention ponds.
Exxonmobil Paulsboro Lube Plant	Hazardous Material Facility	Y	Y	Y	Two big retention ponds. Not in flood plain.
Paulsboro Police Dept	Police Station	Y	Y	Y	2022-Paulsboro-001
Paulsboro, NJ	Port Facility	Y	Y	Y	On the River
Paulsboro Fire Department - Station 17-1	Fire Station	Y	N	Y	Fire officials would move equipment and operations to firehouses in Gibbstown and East Greenwich.
Loudenslager Elementary School	Primary Education	Y	N	Y	School officials would move operations to other

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021

### 9.15.6.3 Identified Issues

After review of the Borough of Paulsboro's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Paulsboro has identified the following vulnerabilities within their community:

- Current Administration Building is in the floodplain and has severe mold in the Police Station, which is located on the bottom floor of the facility.
- The Borough Hall and Borough Garage require backup power to operate during outages.
- The Borough's FDPO is not updated to include the regulation requirements.
- The municipality does not have a disaster debris management plan.
- Stormwater Management Ordinance and Plans are not on the website, as required by the NJ DEP Tier A stormwater permit.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 1 repetitive loss property, but other properties may be impacted by flooding as well.

### 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 indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.15-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes      Enter 2022 HMP Action #	
1	Identify and pursue outreach and education opportunities.	Mayor	Ongoing capability	No	-
2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Mayor, OEM, Fire Chief	Ongoing capability	No	-
3	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Administration, Engineer	Ongoing capability	No	-
4	Conduct regular Municipal Working Group meetings.	Mayor, Department Head	Ongoing capability	No	-
5	Upgrade backup emergency power generator at Borough Hall and Borough Garage to service Borough administrative, EOC, and police functions located at 1211 North Delaware Road (CF-1, CF-2, and CF-3).	Administration, Engineer	In Progress – Receiving Bids	Yes	2022-Paulsboro-002
6	Install backup emergency power generator at Fire Station facilities located at 1502 Swedesboro Avenue (CF-4).	Fire	Complete	No	-
7	Install backup emergency power generator at Borough Garage located at 300 Baird Avenue (CF-6P).	Administration, Engineer	In Progress – See line 5	Yes	2022-Paulsboro-002
8	Install backup emergency power generator at wastewater pump station located at Broad and Billingsport Road (CF-10).	Administration, Engineer	Complete	No	-
9	Install backup emergency power generator at Paulsboro Senior High (shelter) (CF-11).	School Officials, Engineer	Complete	No	-



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
10	Support installation of backup emergency power generator at Guardian Angels Regional School (shelter) (CF-14).	School Officials, Engineer	Complete	No	-
11	Install backup emergency power generator at Paulsboro Senior Center (shelter) (CF-15).	Mayor	No progress	No, no longer a priority	-
12	Resolve storm drainage problems per engineering report recommendation regarding Huff, Thompson, and Paul Avenues to increase storm drain line diameters and manholes.	Engineer	Complete	No	-
13	Resolve storm drainage problems per engineering report regarding 500 Block of Delaware Street.	Engineer	Complete	No	-
14	Address identified Repetitive Flood Loss Properties	Engineer	In Progress. In litigation with RL property owner, but not Borough's jurisdiction. Including in actions if situation changes.	Yes	2022-Paulsboro-006



### 9.15.7.2 Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Borough of Paulsboro has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2016 HMP:

- None

### 9.15.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Paulsboro was invited to participate in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.15-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam Failure/Levee Failure	X				X					
Disease Outbreak/Pandemic	X				X					
Drought	X				X					
Earthquake	X				X					
Extreme Temperatures	X				X					
Flood	X	X			X	X				X
Geological Hazards	X				X					
Hazmat	X				X					
Hurricane	X				X					
Invasive Species/Harmful Algal Bloom	X				X					
Nor'Easter	X	X			X	X				X
Severe Weather	X	X			X	X				X
Severe Winter Weather	X	X			X	X				X
Wildfire	X				X					
Utility Failure	X				X					

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.15-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Paulsboro 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 9.15-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.15-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Paulsboro-001	New Administration Building	<b>Problem:</b> Current Administration Building is in the floodplain and has severe mold in the Police Station, which is located on the bottom floor of the facility. <b>Solution:</b> Building a new Borough Hall Administration Building	New	Flood, Severe Summer Weather Severe Winter Weather	1, 2, 6	Long	Administration, Engineering	BRIC, HMA	High	\$15M	High	SIP	PP, ES
2022-Paulsboro-002	Administration Building and Garage Backup Generators	<b>Problem:</b> The Borough Hall and Borough Garage require backup power to operate during outages. <b>Solution:</b> Upgrade backup emergency power generator at Borough Hall and Borough Garage to service Borough administrative, EOC, and police functions located at 1211 North Delaware Road and incorporate into new building designs.	New	High Wind Severe Summer Weather Severe Winter Weather	1, 2, 6	Medium	Administration, Engineering	BRIC, HMA	High	High	High	SIP	PR, PP, ES
2022-Paulsboro-003	Flood Damage Prevention Ordinance	<b>Problem:</b> The Borough's FDPO is not updated to include the regulation requirements. <b>Solution:</b> Update the FDPO to include the most recent reg update to include BFE+1'.	Existing	Flood	4	Short	Administration	Municipal Budget	High	Low	Medium	LPR	PR
2022-Paulsboro-004	Debris Management Plan	<b>Problem:</b> The municipality does not have a disaster debris management plan. <b>Solution:</b> The municipality would need to develop a disaster debris management plan to facilitate the cleanup process post disaster. This	New	All	All	2 years	Administration	Municipal Budget	High	Low	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders may be necessary.											
2022-Paulsboro-005	Stormwater Website	<b>Problem:</b> Stormwater Management Ordinance and Plans are not on the website, as required by the NJ DEP Tier A stormwater permit.  <b>Solution:</b> Create Stormwater Webpage and add ordinance and plans.	Existing	Flood, Severe Summer Weather Severe Winter Weather	3, 5	Short	Administration	Municipal Budget	Medium	Low	High	LPR	PR
2022-Paulsboro-006	Repetitive Loss Mitigation	<b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 1 repetitive loss property, but other properties may be impacted by flooding as well.  <b>Solution:</b> The Borough will develop a list of "At Risk" structures and perform annual inspections and outreach. Conduct outreach to 10 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	Existing	Severe Weather, Flood	1, 2	3 years	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	High	High	SIP	PP





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		areas that experience frequent flooding (high risk areas).											

Notes:

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.15-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Paulsboro-001	New Administration Building	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High 



Project Number	Project 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
2022-Paulsboro-002	Administration Building and Garage Backup Generators	1	1	1	1	1	1	1	0	1	1	1	1	0	1	12	High
2022-Paulsboro-003	Flood Damage Prevention Ordinance	0	1	1	1	0	1	1	0	1	1	1	0	0	0	8	Medium
2022-Paulsboro-004	Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	0	1	13	High
2022-Paulsboro-005	Stormwater Website	1	1	1	1	1	1	1	1	1	1	1	1	0	1	13	High
2022-Paulsboro-006	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.15.8 Action Worksheets

The following action worksheets have been developed by the Borough of Paulsboro to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.

Action Worksheet			
<b>Project Name:</b>	New Administration Building		
<b>Project Number:</b>	2022 Paulsboro-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	The current administration building is in the flood plain and has severe mold in the Police Station, which is located on the bottom floor of the facility.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Borough is building a new Borough Hall Administration Building. The project is in the planning phase, with plans expected in 2022 and construction in 2023.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500 year storm	<b>Estimated Benefits (losses avoided):</b>	Flooding Prevention
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$15M	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	1.5 years	<b>Potential Funding Sources:</b>	BRIC, HMA
<b>Responsible Organization:</b>	Administration, Engineering	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Abandon the police station only	High	Infeasible
	Reconstruct building	High	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Evaluation and Prioritization		
<b>Project Name:</b>	New Administration Building	
<b>Project Number:</b>	2022 Paulsboro-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	1	Additional Funding is needed
<b>Environmental</b>	0	-
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	1	This addresses multiple hazards
<b>Timeline</b>	1	The timeline is feasible
<b>Agency Champion</b>	1	Administration and Police Department
<b>Other Community Objectives</b>	1	Would serve community in many purposes.
<b>Total</b>	13	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Administration Building and Garage Backup Generators		
<b>Project Number:</b>	2022 Paulsboro-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane Severe Weather		
<b>Description of the Problem:</b>	The Borough Hall and Borough Garage require backup power to operate during outages.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Upgrade backup emergency power generator at Borough Hall and Borough Garage to service Borough administrative, EOC, and police functions located at 1211 North Delaware Road and incorporate into new building designs.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm	<b>Estimated Benefits (losses avoided):</b>	Sewerage backup prevention
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	Medium	<b>Mitigation Action Type:</b>	Structural and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	1.5 years	<b>Potential Funding Sources:</b>	BRIC, HMA
<b>Responsible Organization:</b>	Administration, Engineering	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Install solar panels	High	Infeasible
	Install backup generator	Medium	Feasible
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Evaluation and Prioritization		
<b>Project Name:</b>	Administration Building and Garage Backup Generators	
<b>Project Number:</b>	2022 Paulsboro-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	This project protects life
<b>Property Protection</b>	1	This project protects property
<b>Cost-Effectiveness</b>	1	This project is most cost effective
<b>Technical</b>	1	There are no technical issues
<b>Political</b>	1	There are no political issues
<b>Legal</b>	1	There are no legal complications
<b>Fiscal</b>	1	Additional Funding is needed
<b>Environmental</b>	0	-
<b>Social</b>	1	Has positive impact on society
<b>Administrative</b>	1	No administrative issues
<b>Multi-Hazard</b>	1	This addresses multiple hazards
<b>Timeline</b>	1	This can occur in a relatively short period.
<b>Agency Champion</b>	0	-
<b>Other Community Objectives</b>	1	Prevents sewer backups
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Mitigation		
<b>Project Number:</b>	2022-Paulsboro-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 1 repetitive loss properties, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will develop a list of "At Risk" structures and perform annual inspections and outreach. Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	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		
<b>Project Name:</b>	Repetitive Loss Mitigation	
<b>Project Number:</b>	2022-Paulsboro-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Families moved out of high-risk flood areas.
<b>Property Protection</b>	1	Properties removed from high-risk flood areas.
<b>Cost-Effectiveness</b>	1	Cost-effective project
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	0	Project would remove families from the flood prone areas of the Borough.
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Severe Weather, Flood
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	NFIP Floodplain Administrator, supported by homeowners
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



## 9.16 BOROUGH OF PITMAN

This section presents the jurisdictional annex for the Borough of Pitman and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Pitman's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.16.1 Hazard Mitigation Planning Team

The Borough of Pitman followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Pitman's hazard mitigation plan primary and alternate points of contact. 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 9.16-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact
Name/Title: Jim Foley, Emergency Management Coordinator Address: 110 South Broadway, Pitman NJ 08071 Phone Number: 609-560-2567 Email: <a href="mailto:Jimfoley2@yahoo.com">Jimfoley2@yahoo.com</a>		Name/Title: Michael Mollet, OEM Deputy Address: 110 South Broadway, Pitman NJ 08071 Phone Number: 856-373-0065 Email: <a href="mailto:Michael.mollet@pitmaneoc.org">Michael.mollet@pitmaneoc.org</a>
NFIP Floodplain Administrator		
Name/Title: Jonathan Bryson, P.E., Borough Engineer, Federici & Akin, P.A. Consulting Engineers Address: 110 South Broadway, Pitman NJ 08071 Phone Number: 856-589-1400 Email: <a href="mailto:jonbryson.fa@gmail.com">jonbryson.fa@gmail.com</a>		
Name	Title	Method of Participation



James Foley	OEM Coordinator	Provided information on past events, capabilities, past action review, and building permits. Contributed to mitigation strategy.
Michael Mollet	OEM Deputy	Contributed to mitigation strategy.

## 9.16.2 Municipal Profile

In 1871, land was chosen in both Glassboro Township and Mantua Township to be set aside for a Methodist summer camp. The New Jersey Camp Meeting Association purchased land from the Jessup family for that purpose. The first Pitman Grove Camp Meeting was held in August 1871. On May 24, 1905, Governor Edward C. Stokes signed the bill authorizing the incorporation of Pitman Borough. The word "Grove" had been inextricably dropped.

According to the United States Census Bureau, the Borough had a total area of 2.26 square miles, including 2.22 square miles of land and 0.04 square miles of water. The Borough borders the Gloucester County municipalities of Glassboro, Mantua Township and Washington Township and does not have any unincorporated municipalities.

The municipality is governed under the borough form of municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Pitman was 9,111. The estimated 2019 population was 8,805, a 2.3 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 4.5 percent of the population is 5 years of age or younger and 18.9 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.

## 9.16.3 Jurisdictional Capability Assessment and Integration

The Borough of Pitman performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities





- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.16.3). The updated mitigation strategy includes opportunities the Borough of Pitman identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.16.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Pitman, what is present in the jurisdiction, and code citation and date.

*Table 9.16-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 10, Building and Construction	State and Local	Borough of Pitman Uniform Construction Code Enforcing Agency, consisting of the Construction Official, Building Subcode Official, Electrical Subcode Official, Plumbing Subcode Official and Fire Protection Subcode Official and such other officials
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>• The Building and Construction Code adopts the Uniform Construction Code for building and construction requirements.</li> </ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 35, Zoning, Updated in 2020	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>• This chapter is enacted for the following purposes: to promote the health, morals and general welfare of the inhabitants of the Borough of Pitman; lessen congestion in the streets; secure safety from fire, panic and other dangers; provide adequate light and air; prevent the overcrowding of land or buildings; avoid undue concentration of population; and conserve the value of property and the most appropriate use of land.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 33, Land Subdivision, 1967	Local	Planning Board
<i>How does this reduce risk?</i>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 26, Stormwater Management	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8-1 and the provisions of the adopted master plan and land use ordinances of the Borough of Pitman.</li> <li>Through this chapter, the Borough of Pitman has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>1. To reduce flood damage, including damage to life and property;</li> <li>2. To minimize any increase in stormwater runoff from new development;</li> <li>3. To reduce soil erosion from any development or construction project;</li> <li>4. To assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;</li> <li>5. To maintain groundwater recharge;</li> <li>6. To minimize any increase in nonpoint pollution;</li> <li>7. To maintain the integrity of stream channels for their biological functions, as well as for drainage;</li> <li>8. To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the Borough of Pitman;</li> <li>9. To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface and groundwaters of the Borough of Pitman, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and</li> <li>10. To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this chapter, the Borough of Pitman has identified the following management techniques: <ul style="list-style-type: none"> <li>1. Implementation of multiple stormwater management Best Management Practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this chapter.</li> <li>2. Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this chapter, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as Low Impact Development (LID) techniques.</li> <li>3. Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</li> <li>4. Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</li> <li>5. Structural BMPs, where necessary shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</li> <li>6. When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this chapter before relying on a single, larger stormwater management measure to achieve these performance standards.</li> </ul> </li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 34, Site Plan Review, 1967	Local and County	Planning Board, with the assistance of the Zoning Officer
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>The purpose of this chapter shall be to provide rules, regulations and standards to guide the development of land and its use in the Borough of Pitman in order to promote the health, safety, convenience and general welfare of the residents.</li> </ul>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 27, Environmental Regulations, 2005	Local	Borough Police Department and Construction Office.
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>The Ordinance prohibits illicit connections to the municipal separate storm sewer system and disposal of materials in the storm sewer system.</li> </ul>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 29, Flood Damage Prevention, 2009	Federal, State, County and Local	Construction Code Official
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:               <ul style="list-style-type: none"> <li>a. Protect human life and health;</li> <li>b. Minimize expenditure of public money for costly flood control projects;</li> <li>c. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>d. Minimize prolonged business interruptions;</li> <li>e. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;</li> <li>f. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>g. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>h. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>The Flood Damage Prevention Ordinance lacks the state's 1-foot freeboard requirement and requires update.</li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 2, Article 45 Office of Emergency Management, 2011	Local	Emergency Management Office
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>It is the intent and purpose of this section to establish an Emergency Management Office that will ensure the complete and efficient utilization of all of the Borough's facilities to combat disaster resulting from major emergencies, natural, man-made or nuclear disasters or enemy attack.</li> </ul>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Master Plan (2002)	Local	Planning Board
<i>How does this reduce risk?</i> Identifies long term development goals.					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan (2006)	Local	Engineer
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	Yes	No	Economic Development Plan (2010)	Local	Administration
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No, but typically current state regulations prohibit much of what could happen in those areas.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Indirectly Yes. The vast majority of Pitman is already built-out. Future potential development will largely not involve Natural Hazard areas. Pitman also has strict compliance with Wetlands Delineations, Buffers and Flood Hazard Areas, as well as Flood Plains and 100 Year Storm Areas.</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Not currently</li> <li>Does the future land use map clearly identify natural hazard areas? Somewhat. More detailed maps are updated as needed.</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes. By Map and by Master Plan.</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? Yes, via outside regulations.</li> <li>Is transportation policy used to guide growth to safe locations? No, but Pitman is almost built-out.</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Not specifically designed that way but believe they function that way.</li> <li>Are environmental systems that protect development from hazards identified and mapped? On a case-by-case basis.</li> <li>Do environmental policies maintain and restore protective ecosystems? It is a goal of Pitman.</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No, but Pitman is virtually built-out.</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operating Plan	Local	OEM
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this Emergency Operating Plan is to protect life and property in emergencies by coordinating response activities of municipal and volunteer entities to ensure their optimum use. It provides for actions to be taken to mitigate, prepare for, respond to, and recover from the effects of an emergency.</li> <li>This plan is an all-hazards approach to emergency management and covers natural disasters, technological disasters, and national security crises.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	Yes	No	Hazard and Vulnerability Analysis	Local	OEM
<i>How does this reduce risk?</i> Hazards identified through the Hazard and Vulnerability Analyses which may impact Borough of Pitman are:					
<b>HAZARD</b>	<b>FREQUENCY</b>	<b>POTENTIAL DAMAGE</b>	<b>CONSEQUENCE</b>		
FLOODING	MODERATE	MODERATE	MODERATE		
HIGH WINDS (30-40 MPH)	HIGH	MODERATE	LOW		
TORNADOS/STRAIGHT LINE	LOW	HIGH	HIGH		
EARTHQUAKES	LOW	MODERATE-HIGH	MODERATE-HIGH		



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
HURRICANES	MODERATE		MODERATE-HIGH	MODERATE-HIGH	
WINTER STORMS	HIGH		LOW	LOW	
PUBLIC FACILITIES	LOW		HIGH	HIGH	
TERRORISM	LOW		HIGH	HIGH	
HAZMAT RELEASE	LOW		HIGH	HIGH	
MAJOR FIRE	LOW		HIGH	MODERATE-HIGH	
RAILROAD ACCIDENT	LOW		HIGH	HIGH	
AIRCRAFT ACCIDENT	LOW		HIGH	HIGH	
INFRASTRUCTURE FAILURE	LOW		HIGH	HIGH	
<b>Post-Disaster Recovery Plan</b>	Yes	No	Included in Emergency Operations Plan	Local	OEM
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The emergency operations plan includes recovery phase for the Borough including damage assessment and debris removal. The EOP coordinated all municipal recovery efforts under the authority of Federal and State law as follows: <ul style="list-style-type: none"> <li>Federal <ul style="list-style-type: none"> <li>a. Federal Civil Defense Act of 1950, as amended (P.L. 81 920)</li> <li>b. The Natural Disaster Recovery Act, as amended (P.L. 91 606), 1969</li> <li>c. The Robert T. Stafford Disaster Relief Act of 1974, (P.L. 93-288), as amended by (P.L. 100-707), 1988</li> </ul> </li> <li>2. State <ul style="list-style-type: none"> <li>a. Emergency Management Act, N.J.S.A., Appendix A:9 30 et seq. (Chapter 251, P.L. 1942, as amended by Chapter 438, P.L. 1953, Chapter 504, P.L. 1985, and Chapter 222, P.L. 1989)</li> <li>b. N.J.S.A. 40A:14 26 Emergency Assistance For Fire &amp; Police Protection From Other Municipalities; Payment; Rights In Event Of Death</li> <li>c. Office of Emergency Management Directives No. 61, 73, 74, 77, 84, 96, 100, 101, 102, 103 and 104</li> </ul> </li> </ul> </li> </ul>					
<b>Continuity of Operations Plan</b>	Yes	No	Included in Emergency Operations Plan	Local	OEM
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Emergency operations plan includes a section on continuity of government in Section VII of the Basic Emergency Operations plan annex.</li> </ul>					
<b>Public Health Plan</b>	Yes	No	Included in Emergency Operations Plan	Local	OEM< County Health Director
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Emergency Operations Plan Health Annex J is handled by the County Health Director.</li> </ul>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes, EOP is approved by both County and State partners to address both short- and long-term recovery depending on the nature of the disaster and/or a federal disaster declaration under the Stafford Act such as COVID-19.</li> </ul>					

### 9.16.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Pitman to oversee and track development.

Table 9.16-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Pursuant to Chapter 32-3.7
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Pursuant to Chapter 26-1.4





Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	Yes	Maintained by Planning & Zoning officer and Construction official

### 9.16.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Pitman and their current responsibilities which contribute to hazard mitigation.

*Table 9.16-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	11 members including alternates
Zoning Board of Adjustments	Yes	Planning & zoning are together
Planning Department	Yes	Planning and zoning board
Mitigation Planning Committee	Yes	Local emergency Planning committee –9 members
Environmental Board/Commission	Yes	7-member Environmental Commission
Open Space Board/Committee	Yes	9 members Park & Recreation Commission
Economic Development Commission/Committee	Yes	13-member Economic development Commission
Public Works/Highway Department	Yes	17 full time employees including staff
Construction/Building/Code Enforcement Department	Yes	Construction official, Four subcode officials, Fire official, 3 fire inspectors (all part time) 2 support staff (full time)
Emergency Management/Public Safety Department	Yes	5 deputy coordinators in Police /Fire Departments
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Operated by OEM, Police, Fire
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works
Mutual aid agreements	Yes	Police, Fire, EMS, Public Works
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Policy and Procedures manual
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Contracted outside engineering firm
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contracted outside engineering firm
Planners or engineers with an understanding of natural hazards	Yes	Contracted outside engineering firm
Staff with expertise or training in benefit/cost analysis	Yes	City clerk
Professionals trained in conducting damage assessments	Yes	Construction / OEM staff



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Fire Official
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Part time
Grant writer(s)	Yes	Are data and maps from the HMP used to support documentation in grant applications? unknown
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

### 9.16.3.4 Fiscal Capability

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

*Table 9.16-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	Yes – depending on project
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	Fees support water & sewer department
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes – depending on project
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes – if grants are available
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Unknown
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No, but typically current state regulations prohibit much of what could happen in those areas.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Indirectly Yes. The vast majority of Pitman is already built-out. Future potential development will largely not involve Natural Hazard areas. Pitman also has strict compliance with Wetlands Delineations, Buffers and Flood Hazard Areas, as well as Flood Plains and 100 Year Storm Areas.</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Not currently</li> </ul>	



### 9.16.3.5 Education and Outreach Capability

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

*Table 9.16-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Police, Fire and OEM
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	OEM
Social media for hazard mitigation education and outreach	Yes	Police, Fire
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Borough of Pitman website
Other programs already in place that could be used to communicate hazard-related information	Yes	County Everbridge alerting system
Warning systems for hazard events	Yes	Reverse 9-1-1 and sirens
Natural disaster/safety programs in place for schools	Yes	Police, Fire, approve school safety plans
Other	No	-

### 9.16.3.6 Community Classifications

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

*Table 9.16-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	3	Unknown	Unknown
Sustainable Jersey	Yes	Bronze	December 17, 2019
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

The Borough is a bronze certified community in the Sustainable Jersey program. The Borough earned credit towards certification from the following actions relating to hazard mitigation:



- *Raingardens*: Pitman Public Works rehabilitated and improved a rain garden between seventh and sixth avenues on Borough property.
- *Environmental Commission*: The Pitman Environmental Commission is well established, working in the community for decades.

### 9.16.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.16-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive	Moderate
Nor’Easter	Moderate
Severe Storm	Moderate
Severe Winter Storm	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

### 9.16.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.



Table 9.16-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 5</li> <li># RL properties: 0</li> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$1,851.00</li> <li># claims filed: 0</li> <li>Total loss payments: \$0.00</li> </ul>
Describe areas prone to flooding in your jurisdiction.	None identified
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Construction Official or Engineer Inspection  None
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction Office/Borough Engineer
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Consultant
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Construction Office/Borough Engineer
What specific training or support does your floodplain management staff need to support its floodplain management program?	Continuous Education Seminars
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Assessment by municipal insurance company
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	11/29/1994
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 29</li> <li>2009</li> </ul>



NFIP Topic	Comments
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	The program meets minimum requirements, but the flood damage prevention ordinance requires update.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Site Plan and Subdivision reviews, Planning and Zoning Board reviews
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>N/A</li> <li>No</li> </ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	The Borough does not have repetitive loss properties.
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.16.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.16-10. Recent and Expected Future Development*

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						





Type of Development	2016		2017		2018		2019		2020		2021	
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	4	0	3	0	5	0	2	0	0	0	0	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	4	0	3	0	5	0	2	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												
None Anticipated												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.16.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Pitman's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Pitman has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.16-1. Borough of Pitman Hazard Area Extent and Location Map 1

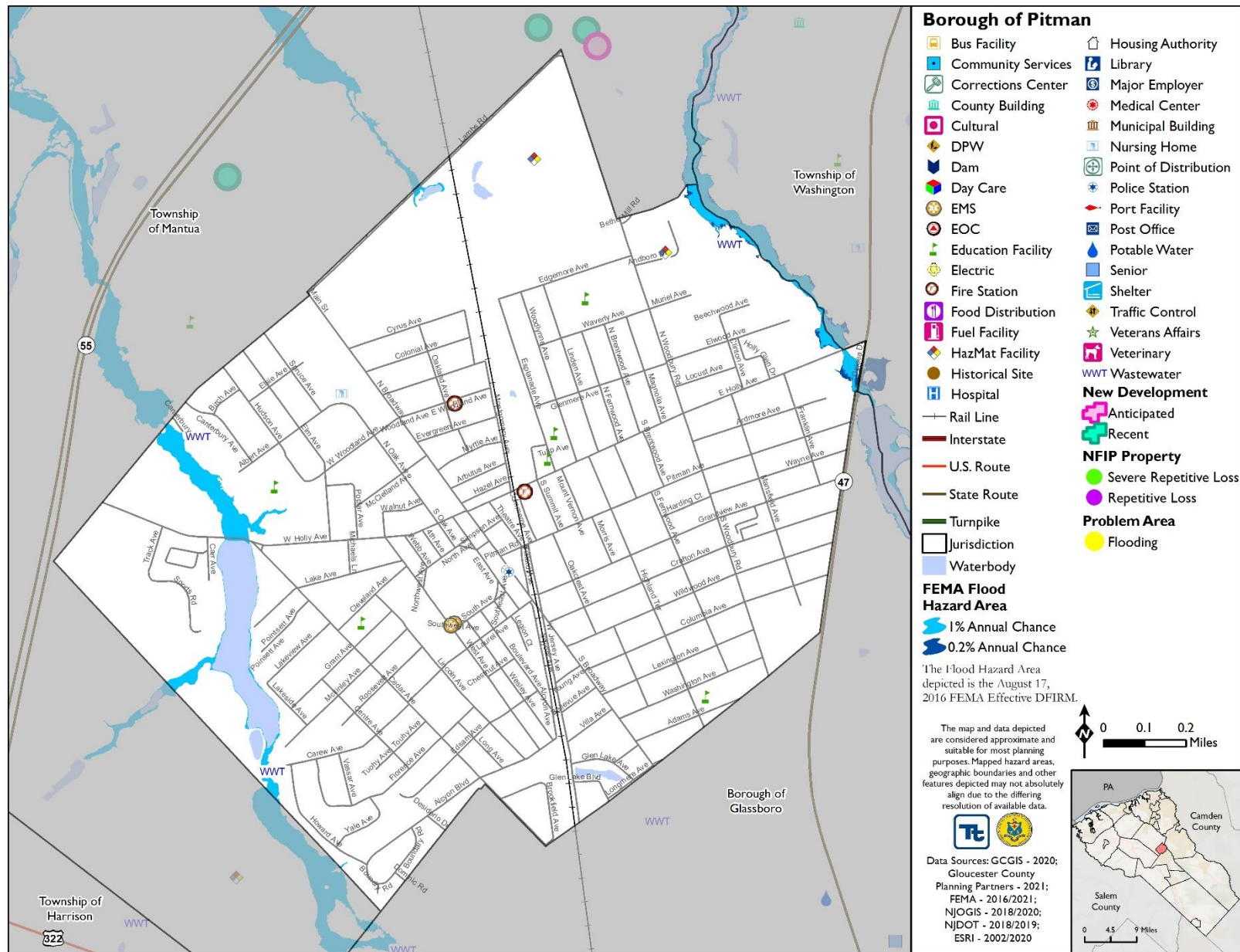






Figure 9.16-2. Borough of Pitman Hazard Area Extent and Location Map 2

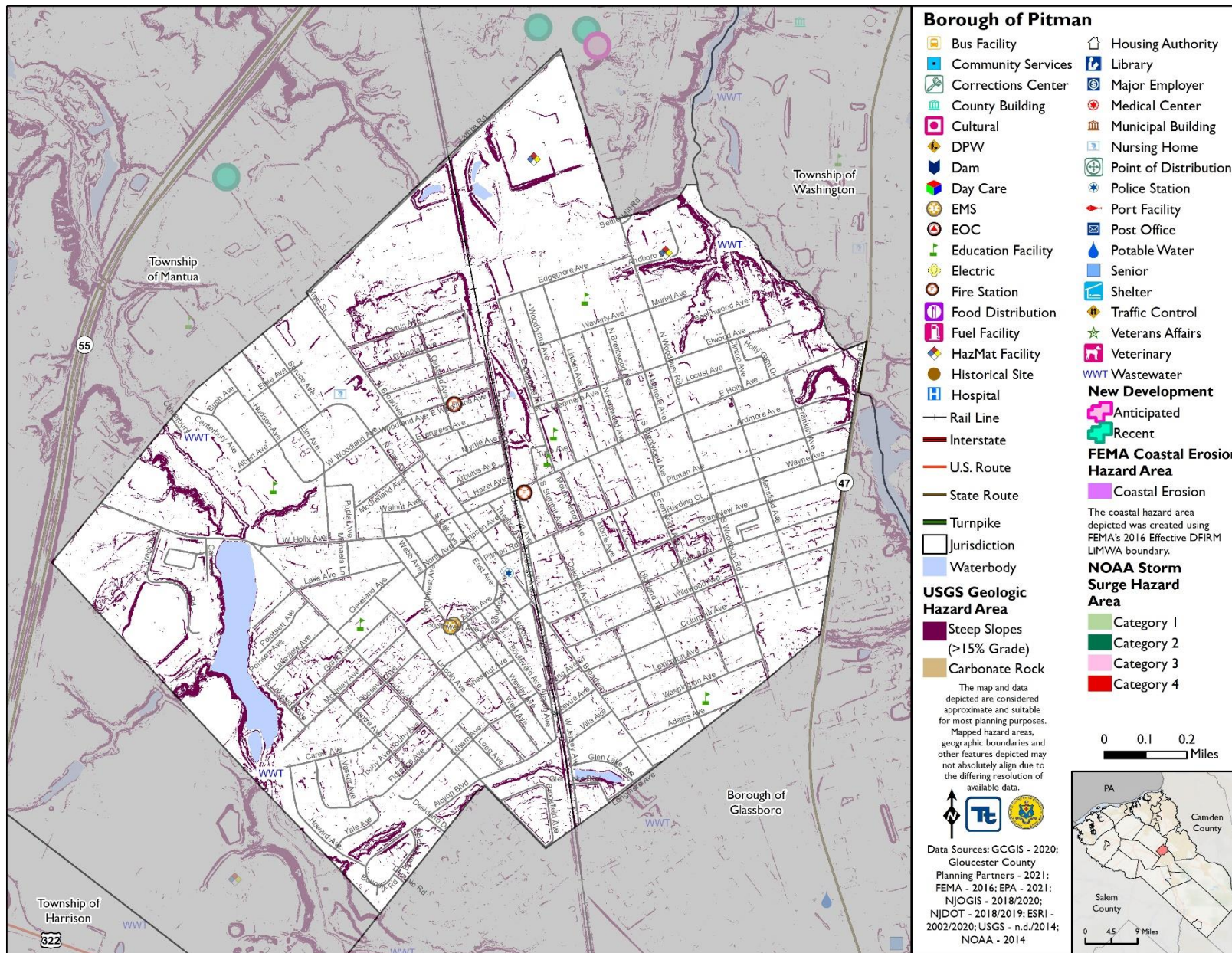






Figure 9.16-3. Borough of Pitman Hazard Area Extent and Location Map 3

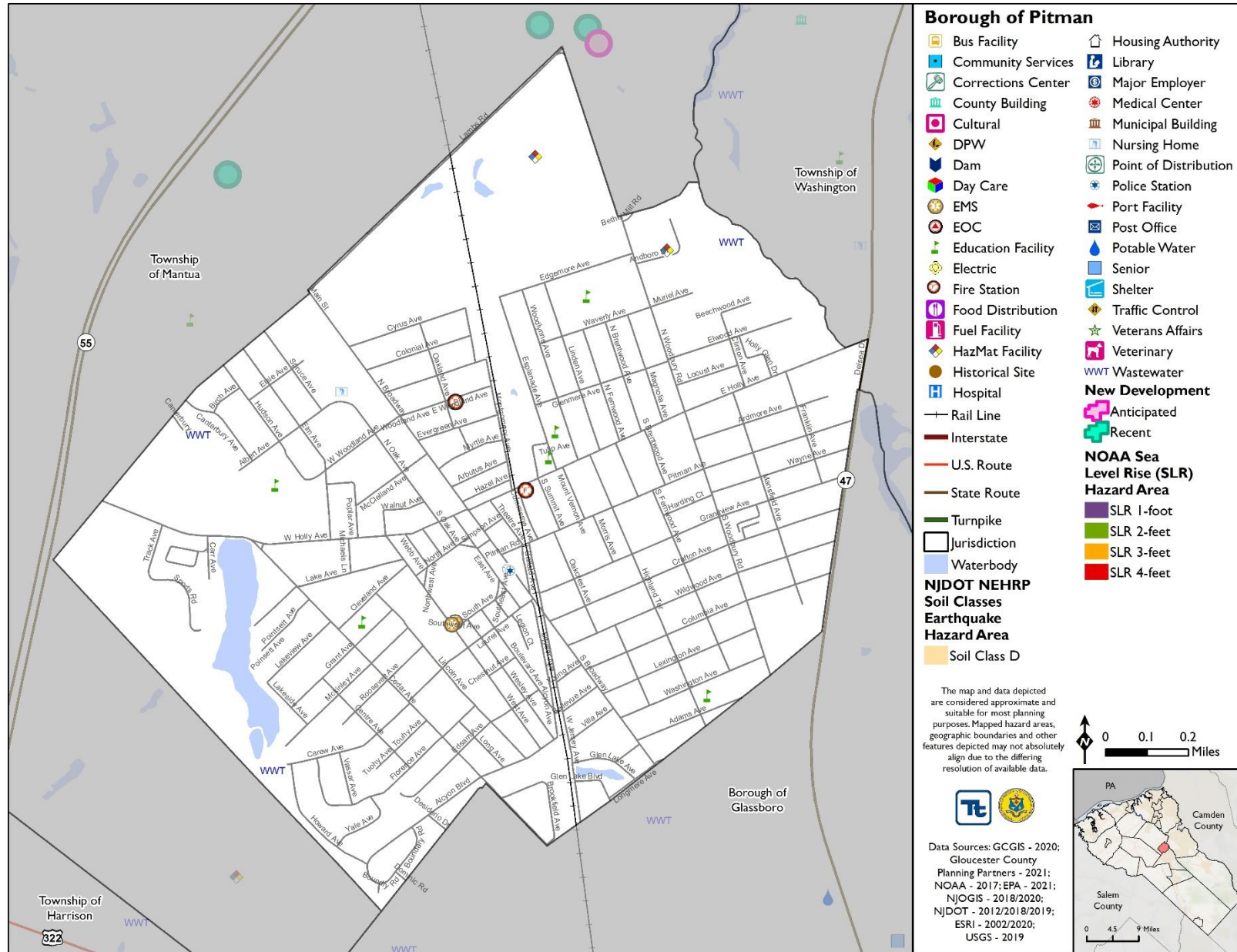
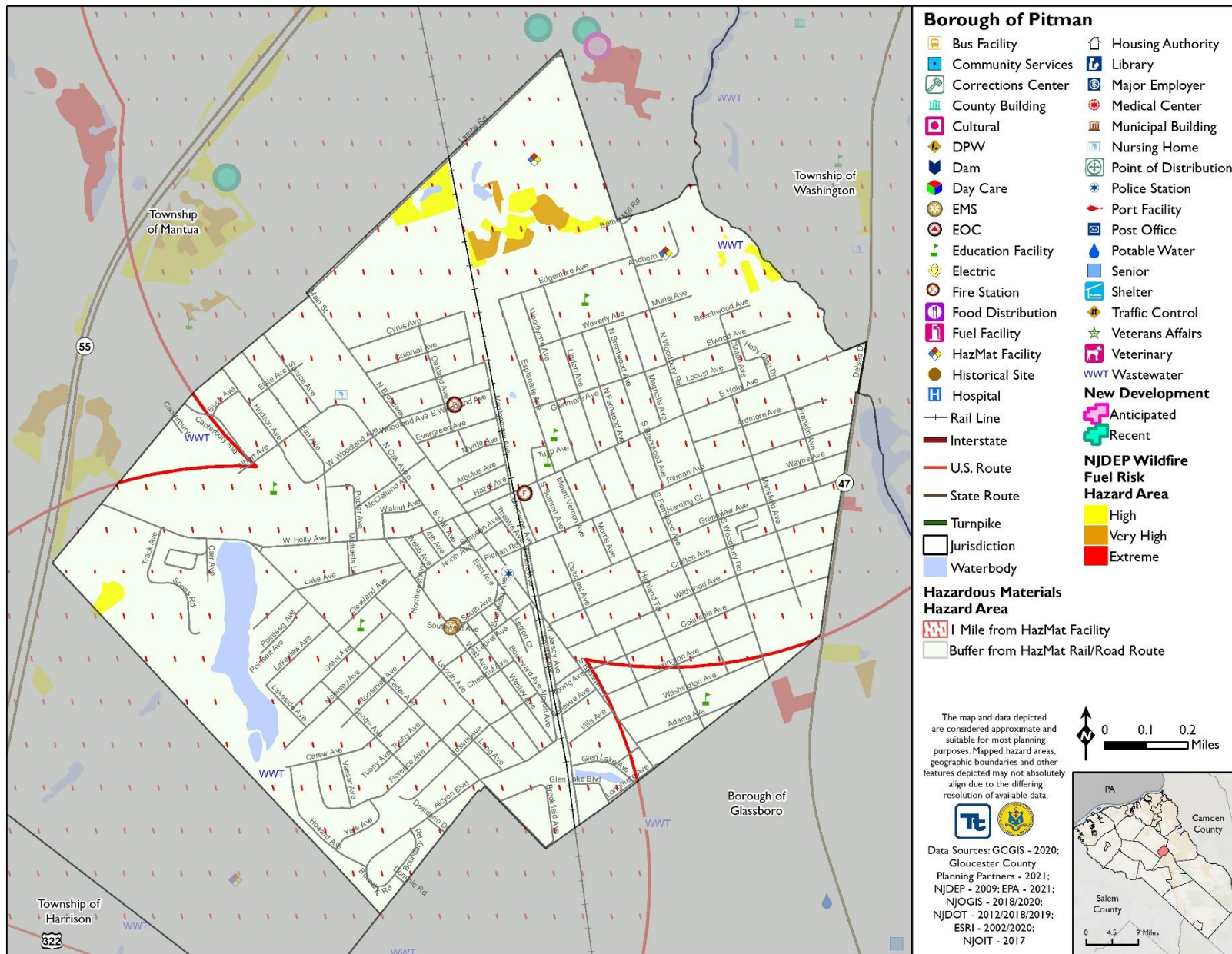




Figure 9.16-4. Borough of Pitman Hazard Area Extent and Location Map 4





### 9.16.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Pitman's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.16-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	The Borough of Pitman had the EOC on standby. There were no incidents requiring activation.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	The Borough of Pitman suffered damage to several single family homes, 2 were destroyed, 6 - had major damage and 11 homes had minor damage, 1 commercial structure suffered major damage. Massive trees were down and blocking street and power was lost in the town for approximately a week. Public sector damage was: \$177,059.94 and private sector damage was \$1,208,059.94
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Borough of Pitman conducted plowing operations, no unusual events occurred, OEM was on standby.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Borough of Pitman conducted plowing operations.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Borough of Pitman declared a state of emergency on 3/21/20 and implemented safety precautions throughout the Borough had 652 COVID-19 cases and 8 deaths.





## 9.16.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Pitman's risk assessment results and data used to determine the hazard ranking.

### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Pitman. The Borough of Pitman reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough agreed with the calculated hazard rankings.

*Table 9.16-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Medium	Low	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Low	Medium	High

Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.16-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021' FEMA 2016

### 9.16.6.3 Identified Issues

After review of the Borough of Pitman's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Pitman has identified the following vulnerabilities within their community:

- The intersection of Pitman Avenue & Commerce Avenue as well as the corner of Grandview Avenue and West Jersey Avenue are prone to flooding. Both areas are under the County's jurisdiction, but the roadways and stormwater systems attached are under the Borough's jurisdiction.
- Backup power sources are necessary to maintain critical services for critical facilities. Public Works lacks a backup power source. Public Works assists with emergency response to hazard events.
- Backup power sources are necessary to maintain critical services for critical facilities. The following wastewater lift stations lack backup power.
  - Wastewater Sewer Lift Station on Lakeview Avenue
  - Wastewater Sewer Lift Station on Lambs Road
- Critical facilities not under the Borough's jurisdiction may not have sufficient backup power to maintain critical services. The following critical facilities are either confirmed to not have backup power or the backup power status is unknown:
  - Elwood Kindle Elementary School
  - W.C.K. Walls Elementary School
  - Memorial Elementary School
  - The First Presbyterian Church in Pitman Preschool
  - Brookfield Group Home
  - Alcyon Group Home
  - Grandview Group Home
- Water pump stations located at Lincoln Avenue and Edgemore Avenue/Lindon Avenue require additional protections to prevent utility failure. Each facility also contains chloring containers that could be vulnerable to tampering.



- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Borough lacks an adopted Disaster Debris Management Plan.
- The Borough's Emergency Operations Plan requires update.

## 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 indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.16-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes      Enter 2022 HMP Action #	
MJ-1	Dredging of storm drains at Alcyon Boulevard and Cedar Avenue.	Municipal OEM, Gloucester County DPW	Ongoing Capability. Department of Public Works cleared storm drains and continues to maintain the drains on a regular basis	No	-
MJ-2	Improve storm drainage at Cedar Avenue.	Municipal OEM, Gloucester County DPW	Ongoing Capability. Department of Public Works cleared storm drains and continues to maintain the drains on a regular basis	No	-
MJ-3	Improve storm drainage at South Broadway & Adams Avenue.	Municipal OEM, Gloucester County DPW	Ongoing Capability. Department of Public Works cleared storm drains and continues to maintain the drains on a regular basis	No	-
MJ-4	Improve storm drainage at East Holly and South Brentwood Avenue.	Municipal OEM, Gloucester County DPW	Ongoing Capability. Department of Public Works cleared storm drains and continues to maintain the drains on a regular basis	No	-
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability. OEM provided community outreach during COVID-19 pandemic and will continue to do so	No	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability. Vulnerability surveys are part of the Emergency Operations Plan which is currently under revision to identify potential mitigation measures.	No	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	Ongoing Capability. Department of Public Works inspects and maintains drainage problem areas and will continue to identify areas in need of maintenance.	No	-
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability. LEPC meetings were conducted in the Borough.	No	-
M-05	Install permanent back-up emergency power generator at Public Works garage (CF-6).	Municipal OEM and Public Works Department	No Progress. This has not been completed due to cost of emergency generator	Yes	2022-Pitman-002
M-06	Install permanent back-up emergency power generator at Wastewater Sewer Lift Station on Lakeview Avenue (CF-7).	Municipal OEM and Public Works Department	No Progress. This project has not been completed due to cost; portable generators are used in emergencies.	Yes	2022-Pitman-003
M-07	Install permanent back-up emergency power generator at Wastewater Sewer Lift Station on Lambs Road (CF-8).	Municipal OEM and Public Works Department	No Progress. This project has not been completed due to cost; portable generators are used in emergencies.	Yes	2022-Pitman-003
M-08	Install permanent back-up emergency power generator at Elwood Kindle Elementary School (CF-13).	Municipal OEM and Board of Education	In Progress. Information was provided to the Board of Education for possible mitigation Grants, it is currently unknown	Yes	2022-Pitman-004



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
			what the status is on installing emergency generators.		
M-09	Install permanent back-up emergency power generator at W.C.K. Walls Elementary School (CF-14).	Municipal OEM and Board of Education	In Progress. Information was provided to the Board of Education for possible mitigation Grants, it is currently unknown what the status is on installing emergency generators.	Yes	2022-Pitman-004
M-10	Install permanent back-up emergency power generator at Memorial Elementary School (CF-15).	Municipal OEM and Board of Education	In Progress. Information was provided to the Board of Education for possible mitigation Grants, it is currently unknown what the status is on installing emergency generators.	Yes	2022-Pitman-004
M-11	Install permanent back-up emergency power generator at The First Presbyterian Church in Pitman Preschool (CF-17).	The First Presbyterian Church in Pitman and Municipal OEM	No Progress. Current status is unknown.	Yes	2022-Pitman-004
M-12	Support acquisition and installation of permanent back-up emergency power generator at Brookfield Group Home (CF-20).	Brookfield Group Home and Municipal OEM	No Progress. Status is currently unknown.	Yes	2022-Pitman-004
M-13	Support acquisition and installation of permanent back-up emergency power generator at Alcyon Group Home (CF-21).	Alcyon Group Home and Municipal OEM	No Progress. Status is currently unknown.	Yes	2022-Pitman-004
M-14	Support acquisition and installation of permanent back-up emergency power generator at Grandview Group Home (CF-22).	Grandview Group Home and Municipal OEM	No Progress. Status is currently unknown.	Yes	2022-Pitman-004
M-15	Engineering study to identify drainage capacity and requirements for upgrades at Pitman Avenue & Commerce Avenue.	Municipal OEM and Public Works Department	No Progress. These areas are on County roads.	Yes	2022-Pitman-001
M-16	Engineering study to identify drainage capacity and requirements for upgrades at West Jersey Avenue & Grandview Avenue.	Municipal OEM and Public Works Department	No Progress. Status currently unknown, Flooding areas are on County road at the corners of Grandview avenue and west Jersey Avenues	Yes	2022-Pitman-001
M-17	Improve drainage system on Spruce Avenue.	Municipal OEM and Public Works Department	Complete. Street was completely re paved and repaired and drainage re-engineered.	No	-
M-18	Harden / retrofit water pump station at Lincoln Avenue (CF-11).	Municipal OEM and Public Works Department	In Progress. Some measures have been taken by clearing out brush and scrubs Buildings contain Chlorine Gas Cylinders.	Yes	2022-Pitman-005
M-19	Harden / retrofit water pump station at Edgemoor Avenue and Lindon Avenue (CF-12).	Municipal OEM and Public Works Department	In Progress. Some measures have been taken by clearing out brush and scrubs Buildings contain Chlorine Gas Cylinders.	Yes	2022-Pitman-005



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-20	Harden / retrofit Public Works garage to include upgrade to roof (CF-6).	Municipal OEM and Public Works Department	Complete. Roofs on both public works buildings have been replaced.	No	-
M-21	Hazard threat assessment related to water pump stations located at Lincoln Avenue / Edgemore Avenue and Lindon Avenue (CF-11 / CF-12).	Municipal OEM	In Progress. OEM recommended the installation of monitored intrusion alarms, better fencing, brush removal, and structure security improvements.	Yes	2022-Pitman-005





### 9.16.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.16-14, the Borough did not undertake any additional mitigation efforts in the last five years.

### 9.16.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Pitman participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.16-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Ext Temp	X									X
Flood	X	X			X				X	X
Geologic	X									X
Hazmat	X	X								X
Hurricane	X									X
Invasive	X									X
Nor'Easter	X									X
Severe Storm	X	X							X	X
Severe Winter Storm	X									X
Wildfire	X									X
Utility Failure	X	X		X			X			X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.16-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Pitman 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 9.16-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.16-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Pitman-001	Work with County to Increase Drainage Capacity on County Roads and Intersections	<p><b>Problem:</b> The intersection of Pitman Avenue &amp; Commerce Avenue as well as the corner of Grandview Avenue and West Jersey Avenue are prone to flooding. Both areas are under the County's jurisdiction, but the roadways and stormwater systems attached are under the Borough's jurisdiction.</p> <p><b>Solution:</b> The Borough will work with Gloucester County to address flooding on County roadways and coordinate Borough actions on adjacent roadways and stormwater systems.</p>	Existing	Flood, Severe Storm	1, 2, 4	Gloucester County, Borough Engineer and Public Works	HMGP, BRIC, County budget, Borough budget	Reduction in flood risk/flood damages	TBD by developed actions. Anticipated High.	Within 5 years	High	SIP	SP
2022-Pitman-002	Backup Power for Public Works Garage	<p><b>Problem:</b> Backup power sources are necessary to maintain critical services for critical facilities. Public Works lacks a backup power source. Public Works assists with emergency response to hazard events.</p> <p><b>Solution:</b> The Engineer will research what size generator is needed to power the Public Works facility. The Borough will then purchase and install</p>	Existing	Utility Failure	1, 2	Engineer, Public Works	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program,	Ensures continuity of operations of Public Works	\$75,000	Within 5 years	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		the selected generator and necessary electrical components to supply backup power to the facility. Public Works will be responsible for testing and maintenance of the generator following installation.					Municipal Budget						
2022-Pitman-003	Backup Power for Wastewater Lift Stations	<p><b>Problem:</b> Backup power sources are necessary to maintain critical services for critical facilities. The following wastewater lift stations lack backup power.</p> <ul style="list-style-type: none"> <li>Wastewater Sewer Lift Station on Lakeview Avenue</li> <li>Wastewater Sewer Lift Station on Lambs Road</li> </ul> <p><b>Solution:</b> The Engineer will research what size generator is needed to power the wastewater lift stations. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power each lift station. Public Works will be responsible for testing and maintenance of the</p>	Existing	Utility Failure	1, 2	Engineer, Public Works	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Ensures continuity of operations of Lift Stations	\$50,000 per generator	Within 5 years	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		generators following installation.											
2022-Pitman-004	Critical Facility Backup Power Support	<p><b>Problem:</b> Critical facilities not under the Borough's jurisdiction may not have sufficient backup power to maintain critical services. The following critical facilities are either confirmed to not have backup power or the backup power status is unknown:</p> <ul style="list-style-type: none"> <li>• Elwood Kindle Elementary School</li> <li>• W.C.K. Walls Elementary School</li> <li>• Memorial Elementary School</li> <li>• The First Presbyterian Church in Pitman Preschool</li> <li>• Brookfield Group Home</li> <li>• Alcyon Group Home</li> <li>• Grandview Group Home</li> </ul> <p><b>Solution:</b> OEM and the Borough Engineer will meet with facility managers to explain potential funding opportunities to provide for backup power installation.</p>	Existing	Utility Failure	1, 3, 6	OEM, Engineer, facility managers	Borough budget	Facility managers aware of potential funding for backup power	Staff time	1 year	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Pitman-005	Increase Protection of Water Pump Stations	<p><b>Problem:</b> Water pump stations located at Lincoln Avenue and Edgemore Avenue/Lindon Avenue require additional protections to prevent utility failure. Each facility also contains chloring containers that could be vulnerable to tampering.</p> <p><b>Solution:</b> OEM will oversee the installation of monitored intrusion alarms, better fencing, brush removal, and structure security improvements.</p>	Existing	Hazardous Materials, Utility Failure	1, 2, 6	OEM	Borough budget	Water pump stations protected	Medium	2 years	High	SIP	ES
2022-Pitman-006	Update the Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Borough will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA)</p>	New	Flood	1, 2	Floodplain Administrator, Administration	Borough budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	Medium	LPR	PR





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.											
2022-Pitman-007	Disaster Debris Management Plan	<b>Problem:</b> The Borough lacks an adopted Disaster Debris Management Plan. <b>Solution:</b> The Borough will complete and adopt the in-progress Disaster Debris Management Plan.	Existing	All Hazards	5	Public Works, OEM	Borough budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LPR	ES
2022-Pitman-008	Update Emergency Operations Plan	<b>Problem:</b> The Borough's Emergency Operations Plan requires update. <b>Solution:</b> The Borough will complete an update of the Emergency Operations Plan using information contained in the Hazard Mitigation Plan.	N/A	All Hazards	5	OEM	Borough budget	HMP integrated in EOP	Staff time	6 months	High	LPR	ES

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
CRS Community Rating System  
DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation  
FEMA Federal Emergency Management Agency  
FPA Floodplain Administrator

**Potential FEMA HMA Funding Sources:**

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program  
BRIC Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation

**Cost:**

The estimated cost for implementation.



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

*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 also 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 also 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 9.16-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Pitman-001	Work with County to Increase Drainage Capacity on County Roads and Intersections	1	1	0	1	1	0	0	1	1	0	1	0	1	1	9	High
2022-Pitman-002	Backup Power for Public Works Garage	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High ⚠
2022-Pitman-003	Backup Power for Wastewater Lift Stations	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High ⚠
2022-Pitman-004	Critical Facility Backup Power Support	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022-Pitman-005	Increase Protection of Water Pump Stations	1	1	1	1	0	1	1	1	1	1	1	0	1	1	12	High
2022-Pitman-006	Update the Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-Pitman-007	Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-Pitman-008	Update Emergency Operations Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

⚠ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.16.8 Action Worksheets

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The following action worksheets have been developed by the Borough of Pitman to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Work with County to Increase Drainage Capacity on County Roads and Intersections		
<b>Project Number:</b>	2022-Pitman-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Summer Weather		
<b>Description of the Problem:</b>	The intersection of Pitman Avenue & Commerce Avenue as well as the corner of Grandview Avenue and West Jersey Avenue are prone to flooding. Both areas are under the County's jurisdiction, but the roadways and stormwater systems attached are under the Borough's jurisdiction.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will work with Gloucester County to address flooding on County roadways and coordinate Borough actions on adjacent roadways and stormwater systems.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by developed actions	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, stormwater flood damage, maintains emergency access
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	TBD by developed actions. Anticipated High.	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP, BRIC, County budget, Borough budget
<b>Responsible Organization:</b>	Gloucester County, Borough Engineer and Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, Stormwater management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate homes in the area	Very High	Costly and would not solve roadway flooding
	Buyout homes in the area	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Work with County to Increase Drainage Capacity on County Roads and Intersections	
<b>Project Number:</b>	2022-Pitman-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects life from flooding and maintains emergency access.
Property Protection	1	Protects buildings and infrastructure from flood damage
Cost-Effectiveness	0	
Technical	1	Technically feasible project
Political	1	
Legal	0	Project requires the cooperation of the County.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Gloucester County, Borough Engineer and Public Works
Other Community Objectives	1	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	

Action Worksheet	
<b>Project Name:</b>	Backup Power for Public Works Garage
<b>Project Number:</b>	2022-Pitman-002





Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Backup power sources are necessary to maintain critical services for critical facilities. Public Works lacks a backup power source. Public Works assists with emergency response to hazard events.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power the Public Works facility. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power to the facility. Public Works will be responsible for testing and maintenance of the generator following installation.		
<b>Is this project related to a Critical Facility?</b>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations of Public Works
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$75,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Engineer, Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Backup Power for Public Works Garage	
<b>Project Number:</b>	2022-Pitman-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of Public Works Maintenance
Property Protection	1	Project will protect facility 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	
Administrative	1	
Multi-Hazard	0	Utility Failure
Timeline	0	Within 5 years
Agency Champion	1	Engineer, Public Works
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup Power for Wastewater Lift Stations		
<b>Project Number:</b>	2022-Pitman-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Backup power sources are necessary to maintain critical services for critical facilities. The following wastewater lift stations lack backup power. <ul style="list-style-type: none"> <li>Wastewater Sewer Lift Station on Lakeview Avenue</li> <li>Wastewater Sewer Lift Station on Lambs Road</li> </ul>		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power the wastewater lift stations. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power each lift station. Public Works will be responsible for testing and maintenance of the generators following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations of Lift Stations
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$50,000 per generator	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Engineer, Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Backup Power for Wastewater Lift Stations	
<b>Project Number:</b>	2022-Pitman-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of Wastewater Lift Stations
<b>Property Protection</b>	1	Project will protect Lift Stations from power loss.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	0	Utility Failure
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, Public Works
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



## 9.17 TOWNSHIP OF SOUTH HARRISON

This section presents the jurisdictional annex for the Township of South Harrison and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of South Harrison's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.17.1 Hazard Mitigation Planning Team

The Township of South Harrison followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of South Harrison's hazard mitigation plan primary and alternate points of contact. 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 9.17-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Tom Luchay, OEM Coordinator Address: 664 Harrisonville Road Mullica Hill, NJ 08062 Phone Number: 856-478-0559, 609-617-5979 Email: <a href="mailto:Luchay@comcast.net">Luchay@comcast.net</a>	Name/Title: Celeste Brennen, Municipal Clerk Address: 664 Harrisonville Road Mullica Hill, NJ 08062 Phone Number: 856-769-3737 Email: <a href="mailto:cbrennen@southharrison-nj.org">cbrennen@southharrison-nj.org</a>
NFIP Floodplain Administrator	
Name/Title: Steven M Bach, Bach Associates, Township Engineer Address: 304 White Horse Pike. Haddon Heights, NJ 08035 Phone Number: 856-546-8611 Email: <a href="mailto:Sbach@bachdesigngroup.com">Sbach@bachdesigngroup.com</a>	





Name	Title	Method of Participation
Tom Luchay	OEM Coordinator	Provided information on past events, capabilities, status of previous actions, contributed to mitigation strategy, reviewed annex and provided feedback
Andrew Warner	Deputy Coordinator	Provided information on past events, capabilities, status of previous actions, and contributed to mitigation strategy
Celeste Brennen	Municipal Clerk	Reviewed annex and provided feedback
Steven M. Bach	Engineer	Reviewed annex and provided feedback
Candace Kanaplue	Land Use Planner	Reviewed annex and provided feedback
Anthony Bertino	Public Works Director	Reviewed annex and provided feedback
Chris Beckett	Police Department	Reviewed annex and provided feedback
William Michels	Fire Department Chief	Reviewed annex and provided feedback
Victoria Holmstrom	CFO	Reviewed annex and provided feedback
James McCall	Building Code Official	Reviewed annex and provided feedback

## 9.17.2 Municipal Profile

South Harrison was formed as a township by an act of the New Jersey Legislature on March 2, 1883, from portions of Harrison Township. Elk Township was formed from portions of South Harrison Township on April 17, 1891.

The Township is bounded on the east by Clayton Township, on the south by Salem County, on the west by Woolwich, and on the north by Harrison Township, from which this township was organized. The surface of the Township is gently undulating, sufficiently so for proper drainage, while the soil produces crops. The Township is watered by the headwaters of the south branch of Raccoon Creek, which forms a part of the north boundary line, and affluent of Oldman's Creek, which forms the south boundary line of the Township. Unincorporated communities, localities and place names located partially or completely within the Township include Cedar Grove, Harrisonville, Jessups Mills and Lincoln. According to the United States Census Bureau, the Township had a total area of 15.96 square miles, including 15.90 square miles of land and 0.06 square miles of water.

South Harrison Township is governed under the Township form of New Jersey municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections to serve three-year terms of office on a staggered basis. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.



The municipality is governed under the borough form of municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Township of South Harrison was 3,162. The estimated 2019 population was 3,148, a 4.4 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 6.4 percent of the population is 5 years of age or younger and 12.9 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.

### 9.17.3 Jurisdictional Capability Assessment and Integration

The Township of South 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) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.17.3). The updated mitigation strategy includes opportunities the Township of South Harrison identified for integration of mitigation concepts to be incorporated into municipal procedures.

#### 9.17.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of South Harrison, what is present in the jurisdiction, and code citation and date.



Table 9.17-2. Planning, Legal, and Regulatory Capability

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 55, Construction Codes, Uniform	State and Local	Construction Code Department
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Chapter 55 adopts the Uniform Construction Code.</li> </ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 90, Land Use and Development	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the intent and purpose of this chapter to establish a pattern for the uses of land and of the buildings and structures thereon based on the Land Use Element of the Master Plan, as adopted and as may be amended from time to time, to effectuate the Master Plan, and to encourage municipal action to guide the appropriate and orderly development of land in a manner which will promote the public health, safety, morals and general welfare of the people. This chapter is intended to: <ul style="list-style-type: none"> <li>A. Guide the appropriate use or development of all lands in the Township in a manner which will promote the public health, safety, morals, and general welfare;</li> <li>B. Secure safety from fire, flood, panic and natural and man-made disasters;</li> <li>C. Provide adequate light, air and open space;</li> <li>D. Ensure that the development of South Harrison Township does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole;</li> <li>E. Promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment;</li> <li>F. Encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies;</li> <li>G. Provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial, and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all residents;</li> <li>H. Encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight;</li> <li>I. Promote a desirable visual environment through creative development techniques and good civic design and arrangements;</li> <li>J. Promote the conservation of open space, energy resources and valuable natural resources in the state and to prevent urban sprawl and degradation of the environment through the improper use of land;</li> <li>K. Encourage planned developments which incorporate the best features of design and relate the type, design and layout of residential, commercial, industrial and recreational development of the particular site;</li> <li>L. Encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land;</li> <li>M. Promote utilization of renewable energy resources; and</li> <li>N. Promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State Recycling Plan goals and to compliment municipal recycling programs.</li> </ul> </li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 90, Land Use and Development, Part 2 Subdivision, 2000	Local	Planning Board/Zoning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this Part 2 shall be to provide rules, regulations and standards to guide land subdivision in South Harrison Township in order to promote the public health, safety, convenience and general welfare of said Township and to carry out the objectives of the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.). It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provisions for circulation, utilities and services, and the conservation and environmental protection of all land, water and air resources within the jurisdiction of South Harrison Township.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Land Use and Development, Article XXII Stormwater Control, 2012	Local	Township Engineer
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>It is the purpose of this article to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted Master Plan and land use ordinances of the Township.</li> <li>Through this article, the Township has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>(a) To reduce flood damage, including damage to life and property;</li> <li>(b) To minimize any increase in stormwater runoff from new development;</li> <li>(c) To reduce soil erosion from any development or construction project;</li> <li>(d) To assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;</li> <li>(e) To maintain groundwater recharge;</li> <li>(f) To minimize any increase in nonpoint pollution;</li> <li>(g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;</li> <li>(h) To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the Township;</li> <li>(i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface waters and groundwaters of the Township, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and</li> <li>(j) To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this article, the Township has identified the following management techniques: <ul style="list-style-type: none"> <li>(a) Implementation of multiple stormwater management best management practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this article.</li> <li>(b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this article, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as low-impact development (LID) techniques.</li> <li>(c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</li> <li>(d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</li> <li>(e) Structural BMPs, where necessary, shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</li> <li>(f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this article before relying on a single, larger stormwater management measure to achieve these performance standards.</li> </ul> </li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Master Plan	Local	Administration
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Township of South Harrison has a Master plan to guide the development of the Township and an environmental commission that is established for the protection, development or use of natural resources, keeps an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, in order to obtain information on the proper use of</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
such areas, as well as keeping an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, in order to obtain information on the proper use of such areas,					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 90, Land Use and Development, Part 3 Site Plan, 2000	Local and County	Planning/Zoning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>This chapter is adopted pursuant to the Municipal Land Use Law (N.J.S.A.A 40:55D-1 et seq.) and subsequent amendments and supplements thereto in order to establish rules, regulations, standards and procedures for approval of all development in order to: <ul style="list-style-type: none"> <li>A. Preserve existing natural resources and give proper consideration to the physical constraints of the land.</li> <li>B. Provide for safe and efficient vehicular and pedestrian circulation.</li> <li>C. Provide for screening, landscaping, signing and lighting.</li> <li>D. Ensure efficient, safe and aesthetic land development.</li> <li>E. Provide for compliance with appropriate design standards to ensure adequate light and air, proper building arrangements, and minimum adverse effect on surrounding property.</li> <li>F. Develop proper safeguards to minimize the impact on the environment including but not limited to soil erosion and sedimentation and air and water pollution.</li> <li>G. Ensure the provision of adequate water supply, drainage and stormwater management, sanitary facilities, and other utilities and services.</li> <li>H. Provide for recreation, open space and public use areas.</li> </ul> </li> </ul>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 82, Hazardous Substances, 1988	Local	Mayor and Township Committee
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Establishes liability for cleanup costs.</li> </ul>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 77, Flood Damage Prevention, 2013	Federal, State, County and Local	Township Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>The ordinance lacks the state mandated 1-foot freeboard requirement and requires an update.</li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 24, Police Assistance, Intermunicipal, 2019	Local	Police Department
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Establishes intermunicipal police assistance.</li> </ul>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	Yes	-	Chapter 90, Land Use and Development, Part 2: Subdivision, Design Standards for Subdivisions, Tree protection and management	Local	Land Use Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the intent of the regulations to: <ul style="list-style-type: none"> <li>(a) Reduce soil erosion and protect surface water quality by minimizing soil and tree root disturbance in existing woodlands, around tree masses or under individual trees.</li> <li>(b) Reduce stormwater runoff, velocity and volume by retaining woodland and forest areas where stormwater can infiltrate easily.</li> <li>(c) Increase groundwater recharge by retaining woodland areas where stormwater can infiltrate easily.</li> <li>(d) Improve air quality throughout the community by conserving existing trees and other mature vegetation which produce oxygen and remove carbon dioxide from the atmosphere.</li> <li>(e) Protect wildlife habitat.</li> <li>(f) Retain existing trees to provide wind breaks, shade and other microclimate benefits.</li> <li>(g) Retain trees and woodlands that are important to the history and beauty of South Harrison Township.</li> <li>(h) Preserve and enhance property values by retaining and properly protecting existing trees.</li> <li>(i) Replace trees removed for land development.</li> <li>(j) Protect trees located on properties adjacent to development from adverse impact.</li> </ul> </li> <li>A tree protection-management plan must be submitted to and approved by the Land Use Board at the time of site plan or major subdivision if there are one or more live trees to be removed from the property. The tree protection plan shall be based upon the existing conditions plan and proposed site improvement plan.</li> </ul>					
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes, engineering review of plans</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>Does it contain natural overlay zones that set conditions? Yes, zoning maps.</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? Yes, Planning/Zoning Law.</li> <li>When updating ordinances, is hazard mitigation considered? Yes, engineering review.</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes – municipality	Master Plan, 2008	Local	Administration
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Identifies long term plans for development.</li> </ul>					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan	Local	Township Engineer
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Included as part of Stormwater Management ordinance.</li> </ul>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Management Plan	Local	Township Engineer
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Included as part of Stormwater Management ordinance.</li> </ul>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>The Township is appointing a representative to the Gloucester County Municipal Economic Development Council.</li> </ul>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	Yes	No	90-5.36 Right to farm et seq	Local	Administration
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Other: Open Space and Recreation Plan</b>	Yes	No	2009	Local	Administration
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes, Master Plan</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes, Master Plan.</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? No (State/County road system)</li> <li>Are environmental systems that protect development from hazards identified and mapped? N/A</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan (2021)	Local	OEM
How does this reduce risk?					
<ul style="list-style-type: none"> <li>Identifies responsibilities for emergency response to hazard events.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
How does this reduce risk?					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	Yes	No	See EOP 2021	Local	OEM
How does this reduce risk?					
<ul style="list-style-type: none"> <li>Provides information to support the HMP.</li> </ul>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
How does this reduce risk?					
<b>Continuity of Operations Plan</b>	Yes	No	See EOP 2021	Local	OEM
How does this reduce risk?					
<b>Public Health Plan</b>	Yes	No	See EOP 2021	Local	OEM
How does this reduce risk?					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes, for short term response. No for long term response (carried out by County and State).</li> </ul>					

### 9.17.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of South Harrison to oversee and track development.



*Table 9.17-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Applications submitted to PZ board for any development within the Township
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Township code (i.e. Section 77 Floodplain) and Township Engineer review
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Not Specific - See Master Plan, Land Use and Zoning maps/ordinances

### 9.17.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of South Harrison and their current responsibilities which contribute to hazard mitigation.

*Table 9.17-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning/Zoning Board of Adjustment
Zoning Board of Adjustments	Yes	Planning/Zoning Board of Adjustment
Planning Department	Yes	Planning/Zoning Board of Adjustment
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission
Open Space Board/Committee	Yes	South Harrison Township's Open Space Committee oversaw the development of the Open Space and Recreation Plan (OSRP), which was prepared by the Delaware Valley Regional Planning Commission (DVRPC) with funding from the Association of New Jersey Environmental Commissions (ANJEC), South Harrison Township, and DVRPC. The draft OSRP document includes information about existing preserved land in South Harrison Township, township open space and recreation needs, and resources for protecting land. It lays out a system of open space that connects larger areas of environmentally important land through greenway corridors. It also identifies farmland that is contiguous to preserved farms and should be a focus for future township preservation efforts.
Economic Development Commission/Committee	N/A	R-21-11 Appointing Representative To The Gloucester County Municipal Economic Development Council
Public Works/Highway Department	Yes	Public Works
Construction/Building/Code Enforcement Department	Yes	Construction/Code Enforcement Office
Emergency Management/Public Safety Department	Yes	Emergency Management



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Limited to Web/Social Media
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	PWD Retention basin maintenance/Twsp Street maintenance/ACE/County Maintenance
Mutual aid agreements	Yes	Fire/Ambulance/Trash/IT
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Municipal Engineer/Planning/Zoning Board Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Municipal Engineer/Planning/Zoning Board Planner
Planners or engineers with an understanding of natural hazards	Yes	Municipal Engineer/Planning/Zoning Board Planner
Staff with expertise or training in benefit/cost analysis	Yes	CFO
Professionals trained in conducting damage assessments	Yes	Construction official
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Municipal Engineer
Emergency Manager	Yes	Tom Luchay, OEM Coordinator
Grant writer(s)	N/A no specific	Are data and maps from the HMP used to support documentation in grant applications? N/A
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes, as Required	Municipal Engineer
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>Ongoing Assessments, Planning/Zoning reviews</li> </ul>		

### 9.17.3.4 Fiscal Capability

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

Table 9.17-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes - as available and applicable
Capital improvements project funding	Tax Cap/no plan to incur debt/increase taxes
Authority to levy taxes for specific purposes	Tax Cap/no plan to incur debt/increase taxes
User fees for water, sewer, gas or electric service	No



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Impact fees for homebuyers or developers of new development/homes	See applicable Land Use Ordinance
Stormwater utility fee	No
Incur debt through general obligation bonds	Tax Cap/no plan to incur debt/increase taxes
Incur debt through special tax bonds	Tax Cap/no plan to incur debt/increase taxes
Incur debt through private activity bonds	Tax Cap/no plan to incur debt/increase taxes
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Depends on availability
Open Space Acquisition funding programs	Depends on availability
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Depends on availability
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? We do not have the financial base.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes, do not have the funds.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No policies.</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.17.3.5 Education and Outreach Capability

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

*Table 9.17-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Mayor/Web/Social media as needed
Personnel skilled or trained in website development	Yes	Volunteer
Hazard mitigation information available on your website	Yes	Stormwater Management information is on the DPW page.
Social media for hazard mitigation education and outreach	Yes	Web/Social media as needed
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	No	(Fire and Police Contact)
Natural disaster/safety programs in place for schools	N/A	School separate taxing entity



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Other	No	-
<b><i>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</i></b> <ul style="list-style-type: none"> <li>Website/Social Media</li> </ul>		

### 9.17.3.6 Community Classifications

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

Table 9.17-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.17.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.17-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate





Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.17.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.17-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 4</li> <li># RL properties: 0</li> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$5,164.00</li> <li># claims filed: 0</li> <li>Total loss payments: \$0.00</li> </ul>
Describe areas prone to flooding in your jurisdiction.	Local areas around creeks.
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Building Code Official inspections
Detail any RiskMAP projects currently underway in your jurisdiction.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	N/A – No high risk flood areas
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Engineering
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Engineering



NFIP Topic	Comments
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Engineering
What specific training or support does your floodplain management staff need to support its floodplain management program?	A Required by Engineering Firm
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	PZ board/Engineer Review of Application
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None on record
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	None on record
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 77, Flood Damage Prevention, 2013
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Stormwater Management
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.17.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.17-10. Recent and Expected Future Development*

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						



Type of Development	2016		2017		2018		2019		2020		2021	
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	5	0	7	0	1	0	6	0	6	0	5	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	4	0	0	0
Total Permits Issued	5	0	7	0	1	0	6	0	10	0	5	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												
None anticipated												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.17.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of South Harrison's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of South Harrison has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.17-1. Township of South Harrison Hazard Area Extent and Location Map 1

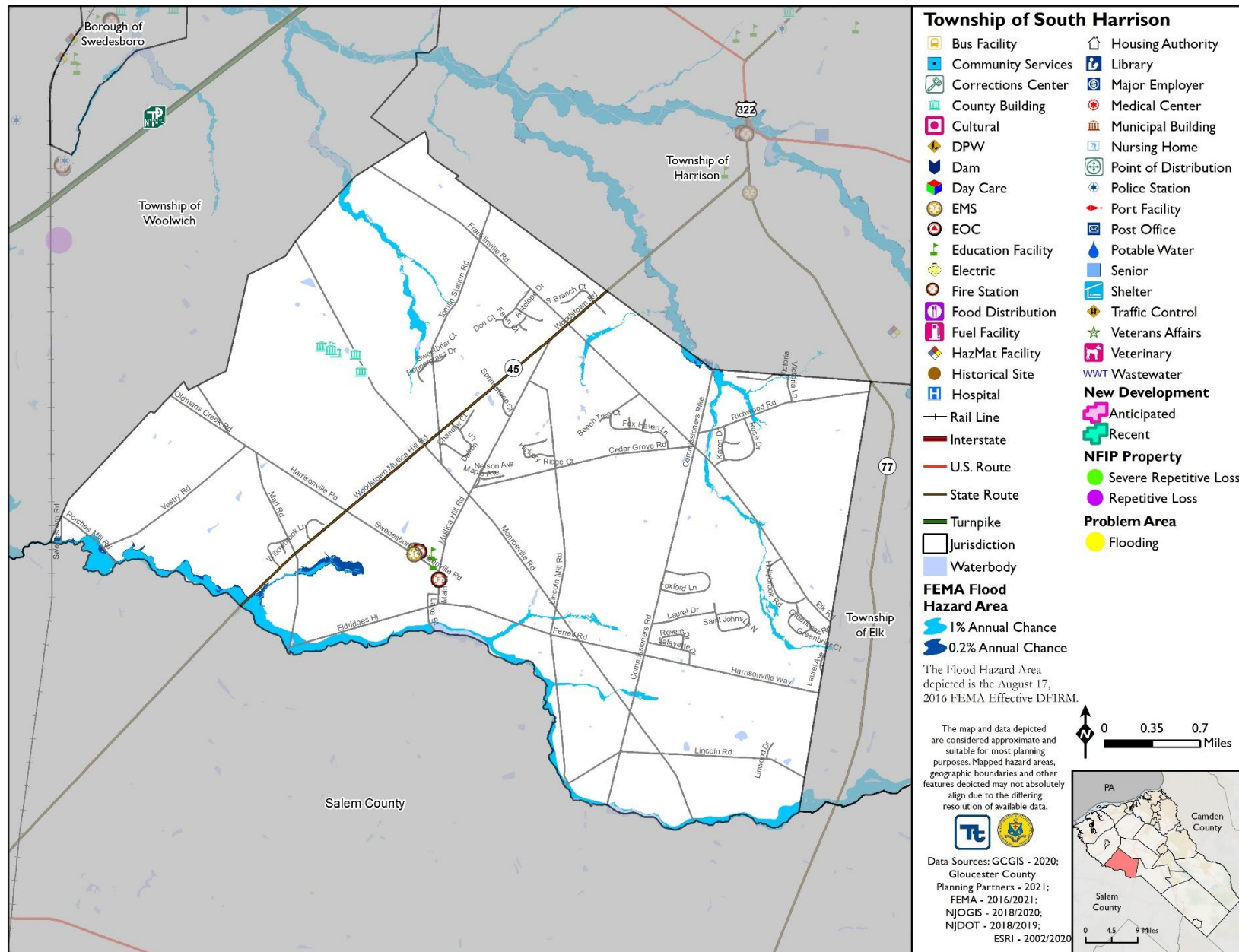






Figure 9.17-2. Township of South Harrison Hazard Area Extent and Location Map 2

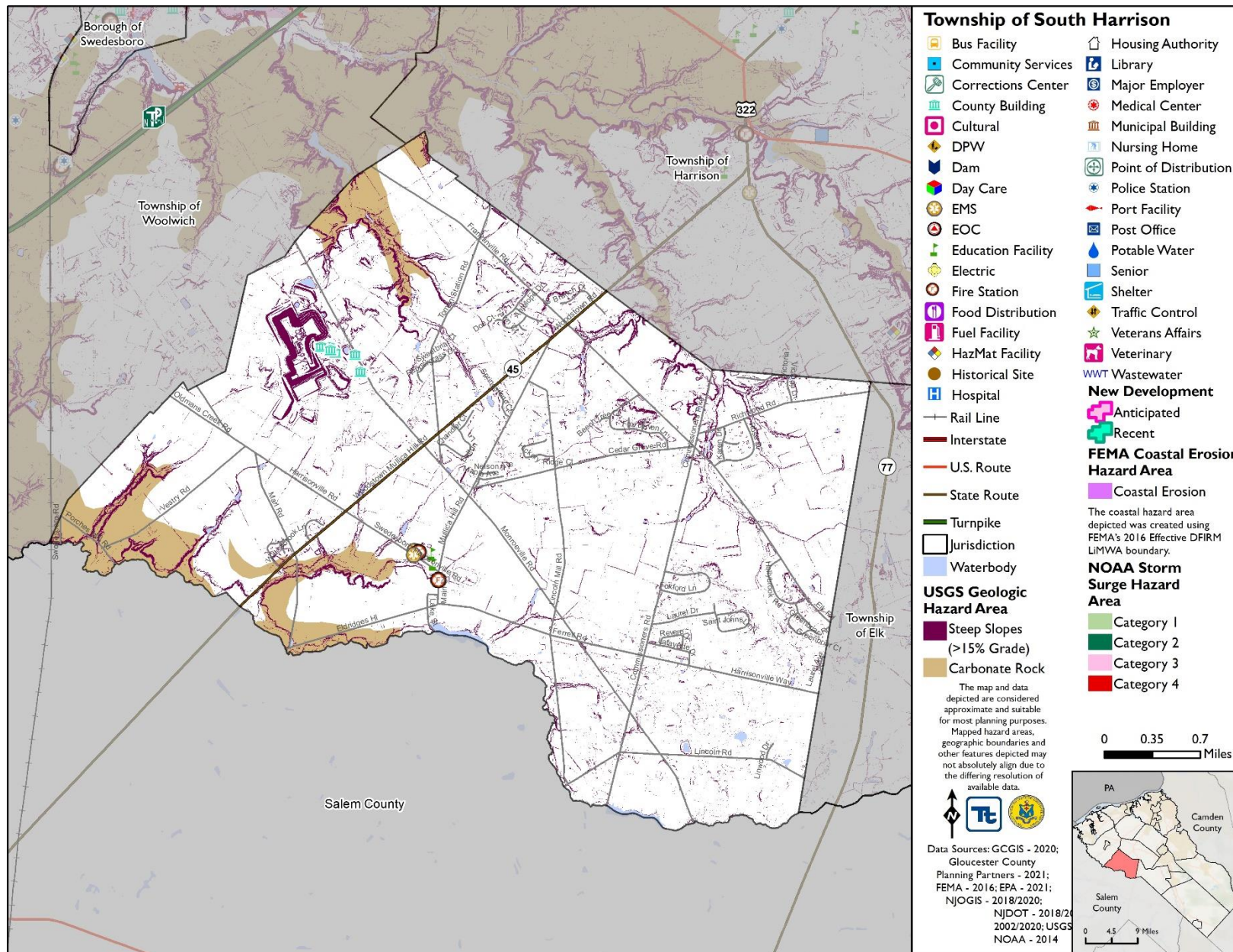




Figure 9.17-3. Township of South Harrison Hazard Area Extent and Location Map 3

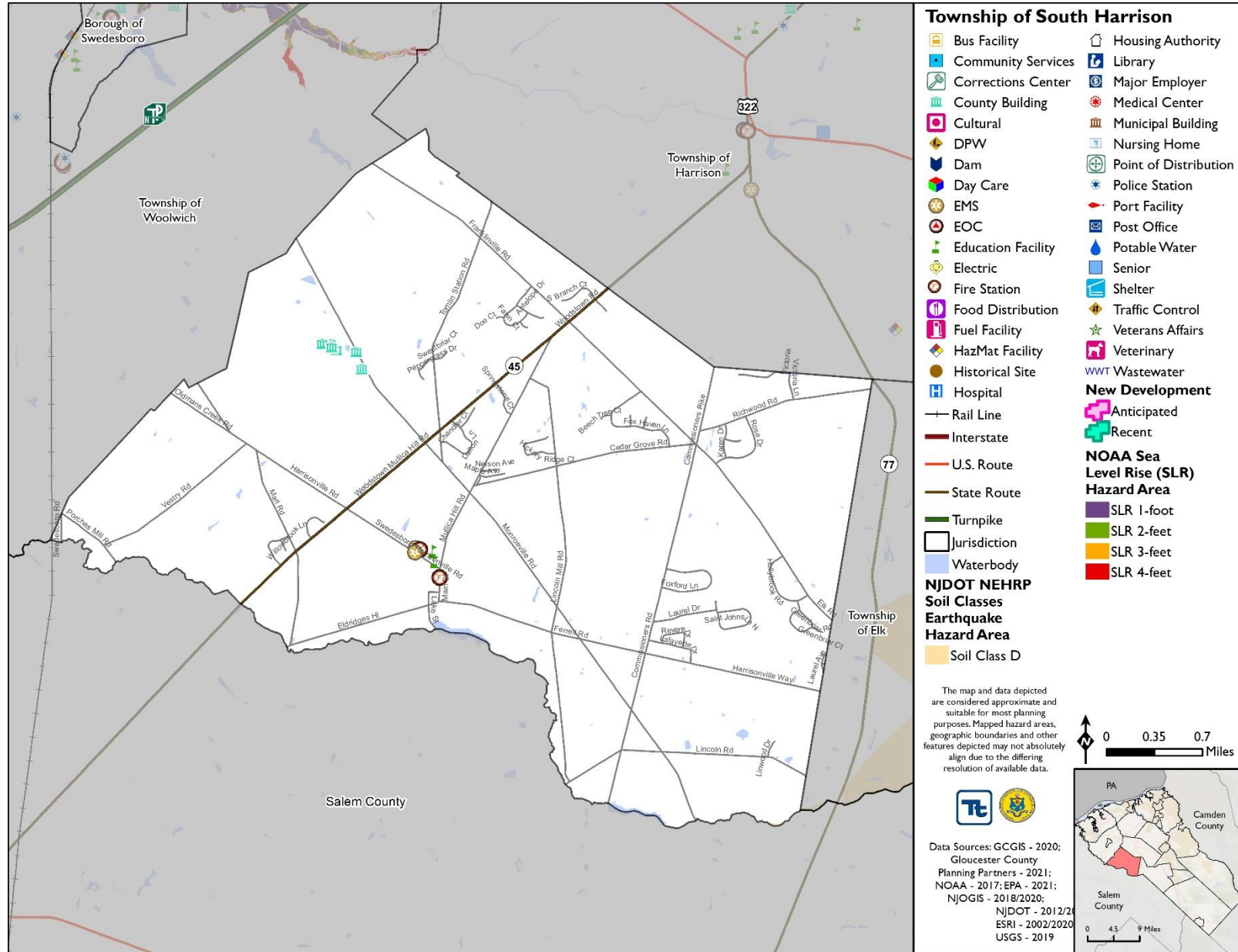
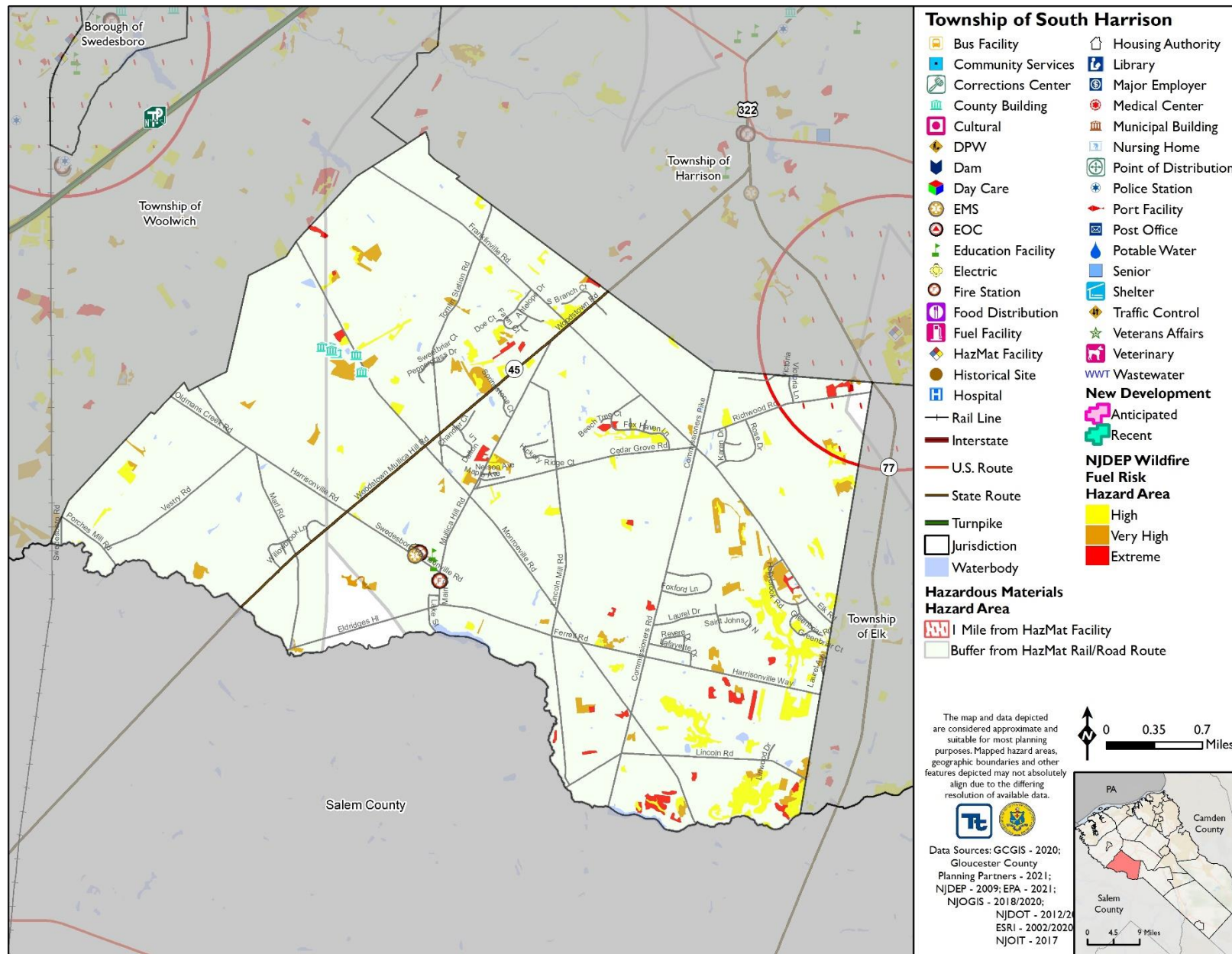






Figure 9.17-4. Township of South Harrison Hazard Area Extent and Location Map 4





### 9.17.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of South Harrison's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.17-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Township did not report substantial impacts.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Township did not report substantial impacts.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Township did not report substantial impacts.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from	Although the County was impacted, the Township did



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			five inches in Pitman to 6.5 inches in West Deptford.	not report substantial impacts.
August 4-5, 2020	Tropical Storm Isaias	No	Tropical Storm Isaias resulted in heavy rains.	Heavy rainfall resulted in flooding and some road washouts.
September 1, 2021	Remnants of Tropical Storm Ida (pending), Tornado	Yes	The remnants of Hurricane Ida passed over the region. Combined with a warm-front, resulting in severe weather. A tornado touched down in Harrisonville and ran through Mullica Hill and Deptford along a 12.6 miles long path with a width up to 400 yards.	A tornado formed over the Township resulting in damage to homes and utility lines along with many downed trees.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Township was subject to closures and masking/social distancing requirements.

### 9.17.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of South Harrison's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of South Harrison. The Township of South Harrison reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township changed the risk ranking for disease outbreak from low to medium, noting limited resources and distance from the nearest hospital.
- The Township agreed with the remainder of the hazard rankings.



Table 9.17-12. Hazard Ranking Input

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Medium	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Low	Medium	High

Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.17-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.17.6.3 Identified Issues

After review of the Township of South Harrison's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of South Harrison has identified the following vulnerabilities within their community:

- The Fire Department's Rescue and Tender vehicles are at the end of their 20-year life span. The Township will lose the capability to respond to hazard events if these vehicles are not replaced.
- The Harrisonville Fire Department lacks backup power. Power loss increases response time as the overhead doors have to be manually opened. The Department also lacks air conditioning, eliminating the ability of the Fire Department to be used as a Cooling Shelter.
- The Township would like to expand the sheltering capabilities of the South Harrison Elementary School. The School currently has an undersized generator. The school also lacks the necessary camera/security system to serve as an official shelter.



- The Township has an undersized tank for water storage for the Fire Department tanker. The current well is undersized. It takes 45 minutes to fill the tender. The Township does not have hydrants and relies on a stored water supply and pump.
- Township stormwater components have been damaged by previous storm events. Future severe weather and flooding events could also result in damages.
- Current fuel tanks are very undersized. The Township has just one tank for diesel and one tank for gas, utilized by the Fire Department, Public Works, EMS, and Police. This poses a large risk in a major, large duration disaster event. Fuel tanks are also needed for backup
- Numerous critical facilities such as the Fire Department, Township Hall, and the Harrison Elementary School do not have proper protection to withstand high wind impacts to their roofs. This could result in loss of these critical facilities.
- Over time the creek banks of Harrisonville Creek have eroded and are in danger of collapse. Stream banks are currently 7-8 foot tall and unstable. This presents a flood and landslide risk. Failure could cause flooding at County Route 617 (Mullica Hill Road), and County Route 668 (Harrisonville Road) and potentially impact the Post Office.
- Heavy rainfall leads to flooding of the intersection. A storm drain has been installed but is undersized. There is a natural gas pumping station at this location that has just been installed that could be impacted by flooding. The intersection is under the County's jurisdiction.
- Standpipes located at Lincoln Lake (Route 581/ Commissioners Road) and Harrisonville Lake (Lake Street) are located on bridges. Use of the standpipes limits traffic flow and siltation of the pipes has occurred and limited flow.
- Dead zones for cellular signal exist in the Township. Recent emergency events have overwhelmed radio channels and placed an emphasis on cellular access.
- The Township would like to expand hazard outreach offerings.
- Falling trees along roadways during strong wind events take down power lines and cut off roadway access.
- Two dams controlled by Fish and Wildlife exist in the Township. The status of these dams is unknown to the Township.
- The Township lacks an adopted Disaster Debris Management Plan.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.

### 9.17.7 Mitigation Strategy and Prioritization

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



### 9.17.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.17-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
MJ-1	Risk Assessment - Lincoln Lake to South Harrison Township	Municipal OEM, Gloucester County DPW, Salem County DPW, Upper Pittsgrove TWP DPW	No Progress. No longer a priority.		
MJ-2	Alleviate inadequate culverts on Mullica Hill.	Municipal OEM, Gloucester County DPW	In Progress. Some work was done post Isaiahs but siltation, potential degradation could exist and be problematic.	X	2022-South Harrison-005
MJ-3	Alleviate flooding at County Route 617 (Mullica Hill Road), and County Route 668 (Harrisonville Road).	Municipal OEM, Gloucester County DPW	No Progress. Over time, the creek banks have eroded and are in danger of collapse. 7-8 foot drop. Could damage the Post Office.	X	2022-South Harrison-008
MJ-4	Alleviate flooding at intersection of State Route 45 and County Route 607 (Tomlin-Station Road).	Municipal OEM, Gloucester County DPW	607 and 538 (Franklinville Road). In Progress. Heavy rainfall leads to flooding. Storm drain has been installed but is undersized. There is a natural gas pumping station at this location that has just been installed. County jurisdiction.	X	2022-South Harrison-009
MJ-5	Wind risk to communications tower (repeater tower).	Municipal OEM, Gloucester County DPW	Encourage County to have additional Cellular on Wheels (COW) and work to achieve repeater for a municipal vehicle. Important for first responders, damage assessments in dead zone areas.	X	2022-South Harrison-011
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Working to create OEM Facebook Page, want to expand outreach to get signups for Register Ready program. Explore mass mailings.	X	2022-South Harrison-012
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Fire House and Municipal Building may need to upgrade wind protection for roof and Quick Response Vehicle.	X	2022-South Harrison-007
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed	Municipal OEM and Municipal Working Group	Discontinue. Repetitive of MJ-2.		



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
	damages and related response and recovery expenses.				
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability. As needed.		
M-05	Install permanent backup emergency power generator at Harrisonville Fire Department (CF-4).	Municipal OEM and Fire Department	No Progress	X	2022-South Harrison-002
M-06	Install permanent backup emergency power generator at South Harrison Elementary School (CF-6).	Municipal OEM and School Board	In Progress, generator exists but not enough capacity	X	2022-South Harrison-003
M-07	Develop and implement tree maintenance plan to assist with the reduction of power outages, damages to homes, and evacuation issues.	Municipal OEM and Public Works Department	No Progress. Need tree trimming to maintain access, reduce damages/outages. Tree trimming around potential medivac locations (would require assessment).	X	2022-South Harrison-013
M-08	Upgrade fuel storage capacity within South Harrison Township.	Municipal OEM and Fire Department	No Progress. Current tanks are very undersized. Poses a large risk in a major, large duration disaster event. Also needed for backup generators. Currently just one tank of diesel, one gas, utilized by fire, public works, EMS, and police.	X	2022-South Harrison-006
M-09	Upgrade water tank storage capacity for use by the Harrisonville Fire Department (CF-4).	Municipal OEM and Fire Department	No Progress. Also need second well.	X	2022-South Harrison-004
M-10	Upgrade culverts along Porches Mill Road.	Municipal OEM and Public Works Department	Discontinue. Repetitive of MJ-2.	X	2022-South Harrison-005
M-11	Upgrade culverts at Marl Road.	Municipal OEM and Public Works Department	Discontinue. Repetitive of MJ-2.	X	2022-South Harrison-005
M-12	Harden / retrofit infrastructure and load path for Township Hall located on Harrisonville Road (CF-1).	Municipal OEM and Public Works Department	No Progress	X	2022-South Harrison-007
M-13	Harden / retrofit infrastructure and load path for Harrisonville Fire Department building located on Harrisonville Road (CF-4).	Municipal OEM, Fire Department, and Public Works Department	No Progress	X	2022-South Harrison-007
M-14	Harden / retrofit infrastructure and load path for South Harrison Elementary School located on Harrisonville Road (CF-6).	Municipal OEM, Public Works Department, and School Board	No Progress	X	2022-South Harrison-007



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-15	Upgrade South Harrison Elementary School security system, specifically camera capabilities to better protect students and employees (CF-6).	Municipal OEM and School Board	No Progress	X	2022-South Harrison-003



### 9.17.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.17-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.17.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of South Harrison participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.17-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X	X		X			X			X
Dam/Levee	X	X		X			X			X
Disease Outbreak	X	X		X			X			X
Drought	X	X		X			X			X
Earthquake	X	X		X			X			X
Extreme Temperature	X	X		X			X			X
Flood	X	X	X	X	X		X	X	X	X
Geologic	X	X	X	X			X	X		X
Hazardous Materials	X	X		X			X			X
Hurricane	X	X	X	X		X	X	X		X
Invasive Species	X	X		X			X			X
Nor'Easter	X	X	X	X		X	X	X		X
Severe Weather	X	X	X	X		X	X	X		X
Severe Winter Weather	X	X	X	X		X	X	X		X
Wildfire	X	X		X			X			X
Utility Failure	X	X		X			X			X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.17-16) summarizes the comprehensive range of specific mitigation initiatives the Township of South 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 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 9.17-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.17-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-South Harrison-001	Rescue Pumper Tanker for Fire Department	<p><b>Problem:</b> The Fire Department's Rescue and Tender vehicles are at the end of their 20-year life span. The Township will lose the capability to respond to hazard events if these vehicles are not replaced.</p> <p><b>Solution:</b> The Fire Department will purchase a Rescue Pumper Tanker to replace the two vehicles. The new vehicle will have a seating capacity of six, hold at least 3,000 gallons of water, and carry necessary response equipment.</p>	Existing	All Hazards	1, 2, 5, 6	Fire Department	Assistance to Firefighters Grant Program	Emergency response maintained	High	Within 5 years	High	SIP	ES
2022-South Harrison-002	Backup Power and Air Conditioning for Harrisonville Fire Department	<p><b>Problem:</b> The Harrisonville Fire Department lacks backup power. Power loss increases response time as the overhead doors have to be manually opened. The Department also lacks air conditioning,</p>	Existing	Utility Failure, Extreme Temperature	1, 2, 6	Municipal Engineer, OEM, and Fire Department	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG)	Ensures continuity of operations, sheltering capability established	High	Within 5 years	High	SIP	ES





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		eliminating the ability of the Fire Department to be used as a Cooling Shelter.  <b>Solution:</b> The Engineer will research what size generator is needed to power the Fire Department and what size air conditioning unit is necessary. The Township will then purchase and install the selected generator, HVAC equipment, and necessary electrical components to supply backup power and air conditioning to the Fire Department.					Program, Municipal Budget						
2022-South Harrison-003	Develop Sheltering Capability at Elementary School	<b>Problem:</b> The Township would like to expand the sheltering capabilities of the South Harrison Elementary School. The School currently has an undersized generator. The school also lacks the necessary camera/security system to serve as an official shelter.	Existing	All Hazards	1, 2, 5, 6	Municipal Engineer, OEM and School Board	HMGP, BRIC, Board of Education	Ensures continuity of operations, sheltering capability established	High	Within 5 years	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Engineer will research what size generator is needed to power the full school. The Township will then work with the Board of Education to purchase and install the selected generator and necessary electrical components to supply backup power to the school. The Township will work with the Board of Education to install necessary security features and purchase sheltering supplies.											
2022-South Harrison-004	Expand Emergency Water Supply	<b>Problem:</b> The Township has an undersized tank for water storage for the Fire Department tanker. The current well is undersized. It takes 45 minutes to fill the tender. The Township does not have hydrants and relies on a stored water supply and pump.  <b>Solution:</b> The Township will explore installation of a larger water tank	Existing	Drought, Wildfire	1, 2, 5, 6	Fire Department, OEM	HMGP, BRIC, Assistance to Firefighters Grant Program	Emergency water supply maintained to allow for response.	High	Within 5 years	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		and a secondary well to maintain the emergency water supply. If feasible the Township will install each feature.											
2022-South Harrison-005	Address Inadequate Stormwater Components	<p><b>Problem:</b> Township stormwater components have been damaged by previous storm events. Future severe weather and flooding events could also result in damages.</p> <p><b>Solution:</b> The Township will survey stormwater components and culverts to determine if improvements are needed. If inadequacies are identified, the Township will complete an engineering analysis and upsize the existing components.</p>	Existing	Flood, Severe Weather	1, 2	Engineer, Public Works	HMGP, BRIC, Township budget	Reduction in flood risk, stormwater flood damage, maintains emergency access	TBD by engineering analysis	Within 5 years	Medium	SIP	SP
2022-South Harrison-006	Upgrade Fuel Storage Capacity	<p><b>Problem:</b> Current fuel tanks are very undersized. The Township has just one tank for diesel and one tank for gas, utilized by the Fire Department, Public Works, EMS, and Police. This poses a</p>	Existing	All Hazards	1, 2, 5	OEM, Administration	Township budget	Fuel supply maintained for emergency response	High	Within 5 years	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<p>large risk in a major, large duration disaster event. Fuel tanks are also needed for backup generators.</p> <p><b>Solution:</b> The Township will install larger fuel storage tanks.</p>											
2022-South Harrison-007	Retrofit Roofs on Critical Facilities to Withstand High Winds	<p><b>Problem:</b> Numerous critical facilities such as the Fire Department, Township Hall, and the Harrison Elementary School do not have proper protection to withstand high wind impacts to their roofs. This could result in loss of these critical facilities.</p> <p><b>Solution:</b> The Township will evaluate critical facilities to determine which facilities require retrofit for their roof to withstand high winds and heavy snow loads. The Township will then carry out the necessary retrofits.</p>	Existing	Severe Weather, Severe Winter Weather, Hurricane, Nor'Easter	1, 2, 5	Engineer, OEM	HMGP, BRIC, USDA Community Facilities Grant Program, Township budget	Reduction in wind damage risk, critical services protected	High	Within 5 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-South Harrison-008	Harrisonville Creek Streambank Restoration	<p><b>Problem:</b> Over time the creek banks of Harrisonville Creek have eroded and are in danger of collapse. Stream banks are currently 7-8 foot tall and unstable. This presents a flood and landslide risk. Failure could cause flooding at County Route 617 (Mullica Hill Road), and County Route 668 (Harrisonville Road) and potentially impact the Post Office.</p> <p><b>Solution:</b> The Township will work to restore the streambank, regrading the slope to prevent collapse and instituting appropriate stabilization techniques.</p>	Existing	Flood, Geologic Hazards	1, 2	Engineer, Public Works	HMGP, BRIC	Flood and landslide risk reduced	Medium	2 years	High	NSP	NR
2022-South Harrison-009	Alleviate Flooding at County Roads 607 and 538	<p><b>Problem:</b> Heavy rainfall leads to flooding of the intersection. A storm drain has been installed but is undersized. There is a natural gas pumping station at this location that has just been installed that could be impacted by</p>	Existing	Flood, Severe Weather	1, 2	County, Township Administration	Township budget	County notified of flooding concern impacting critical facility	Staff time	Within 6 months	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<p>flooding. The intersection is under the County's jurisdiction.</p> <p><b>Solution:</b> The Township will conduct outreach to encourage the County to address flooding at this location, likely through upsizing the current stormwater components.</p>											
2022-South Harrison-010	Relocate Standpipes at Lincoln Lake and Harrisonville Lake	<p><b>Problem:</b> Standpipes located at Lincoln Lake (Route 581/ Commissioners Road) and Harrisonville Lake (Lake Street) are located on bridges. Use of the standpipes limits traffic flow and siltation of the pipes has occurred and limited flow.</p> <p><b>Solution:</b> The Fire Department will explore relocation of the standpipes off each bridge to increase safety and maintain maximum flow.</p>	Existing	Drought, Wildfire	1, 2, 5, 6	Fire Department, Engineer	Assistance to Firefighters Grant Program	Emergency Water Access Maintained	Medium	Within 2 years	High	SIP	ES





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-South Harrison-011	Maintain Emergency Communications and Data Access	<b>Problem:</b> Dead zones for cellular signal exist in the Township. Recent emergency events have overwhelmed radio channels and placed an emphasis on cellular access.  <b>Solution:</b> Encourage County to have additional Cellular on Wheels (COW) and work to purchase a cellular repeater for a municipal vehicle.	New	All Hazards	1, 2, 5, 6	OEM	Township budget, Assistance to Firefighters Grant Program, EMPG	Emergency communications maintained	High	Within 5 years	High	SIP	ES
2022-South Harrison-012	Expand Outreach Offerings	<b>Problem:</b> The Township would like to expand hazard outreach offerings.  <b>Solution:</b> The Township will create an OEM Facebook Page, expand outreach to get signups for Register Ready program, and explore mass mailings of important emergency contact equipment.	N/A	All Hazards	3	OEM	Township budget	Increased awareness	Low	1 year	High	EAP	PI
2022-South Harrison-013	Tree Trimming	<b>Problem:</b> Falling trees along roadways during strong wind events take down power lines and cut off roadway access.	N/A	Severe Weather, Severe Winter Weather,	1, 2	Public Works	Township budget	Reduction in power outages and property damage,	Medium	Within 5 years	High	NSP	NR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Conduct tree trimming to maintain access, reduce damages/outages. Tree trimming around potential medivac locations will be explored via feasibility assessment.		Hurricane, Nor'Easter				emergency access maintained					
2022-South Harrison-014	Outreach on Dams	<b>Problem:</b> Two dams controlled by Fish and Wildlife exist in the Township. The status of these dams is unknown to the Township.  <b>Solution:</b> The Township will conduct outreach to Fish and Wildlife to determine dam status, potential safety concerns, and any necessary mitigation measures the Township could possibly assist with.	Existing	Dam/Levee Failure	3, 7	OEM	Township budget	Dam failure risk evaluated	Staff time	1 year	High	EAP	PI
2022-South Harrison-015	Develop Disaster Debris Management Plan	<b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.  <b>Solution:</b> The Township will complete and adopt the in-progress	Existing	All Hazards	2, 5	Public Works, OEM	Township budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		Disaster Debris Management Plan.											
2022-South Harrison-016	Update the Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	Floodplain Administrator, Administration	Township budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	High	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.



**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.17-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-South Harrison-001	Rescue Pumper Tanker for Fire Department	1	1	1	1	1	1	0	1	1	1	1	0	1	1	13	High ⚠
2022-South Harrison-002	Backup Power and Air Conditioning for Harrisonville Fire Department	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-South Harrison-003	Develop Sheltering Capability at Elementary School	1	1	1	1	1	0	0	1	1	1	1	0	1	1	11	High
2022-South Harrison-004	Expand Emergency Water Supply	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-South Harrison-005	Address Inadequate Stormwater Components	1	1	1	1	1	1	0	1	1	0	1	0	1	1	11	High
2022-South Harrison-006	Upgrade Fuel Storage Capacity	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-South Harrison-007	Retrofit Roofs on Critical Facilities to Withstand High Winds	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-South Harrison-008	Harrisonville Creek Streambank Restoration	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2022-South Harrison-009	Alleviate Flooding at County Roads 607 and 538	1	1	1	0	1	0	1	1	1	1	0	1	1	1	11	High
2022-South Harrison-010	Relocate Standpipes at Lincoln Lake and Harrisonville Lake	1	1	1	1	1	0	0	1	1	1	1	0	1	1	12	High
2022-South Harrison-011	Maintain Emergency Communications and Data Access	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High



Project Number	Project 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
2022-South Harrison-012	Expand Outreach Offerings	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022-South Harrison-013	Tree Trimming	1	1	1	1	1	0	0	0	1	1	1	0	1	1	10	High
2022-South Harrison-014	Outreach on Dams	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022-South Harrison-015	Develop Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-South Harrison-016	Update the Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

⚠ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.17.8 Action Worksheets

The following action worksheets have been developed by the Township of South Harrison to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Backup Power and Air Conditioning for Harrisonville Fire Department		
<b>Project Number:</b>	2022-South Harrison-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure, Extreme Temperature		
<b>Description of the Problem:</b>	The Harrisonville Fire Department lacks backup power. Power loss increases response time as the overhead doors have to be manually opened. The Department also lacks air conditioning, eliminating the ability of the Fire Department to be used as a Cooling Shelter.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power the Fire Department and what size air conditioning unit is necessary. The Township will then purchase and install the selected generator, HVAC equipment, and necessary electrical components to supply backup power and air conditioning to the Fire Department.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations, sheltering capability established
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal Engineer, OEM, and Fire Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Backup Power and Air Conditioning for Harrisonville Fire Department	
<b>Project Number:</b>	2022-South Harrison-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of Fire Department
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	Utility Failure, Extreme Temperature
Timeline	0	Within 5 years
Agency Champion	1	Municipal Engineer, OEM, and Fire Department
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	

Action Worksheet	
<b>Project Name:</b>	Develop Sheltering Capability at Elementary School
<b>Project Number:</b>	2022-South Harrison-003
<b>Risk / Vulnerability</b>	



<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	The Township would like to expand the sheltering capabilities of the South Harrison Elementary School. The School currently has an undersized generator. The school also lacks the necessary camera/security system to serve as an official shelter.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power the full school. The Township will then work with the Board of Education to purchase and install the selected generator and necessary electrical components to supply backup power to the school. The Township will work with the Board of Education to install necessary security features and purchase sheltering supplies.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations, sheltering capability established
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal Engineer, OEM and School Board	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Develop Sheltering Capability at Elementary School	
<b>Project Number:</b>	2022-South Harrison-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of school and develop sheltering capabilities
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	
<b>Political</b>	1	
<b>Legal</b>	0	The Township requires the cooperation of the Board of Education to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	All Hazards
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM and School Board
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Expand Emergency Water Supply		
<b>Project Number:</b>	2022-South Harrison-004		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Drought, Wildfire		
<b>Description of the Problem:</b>	The Township has an undersized tank for water storage for the Fire Department tanker. The current well is undersized. It takes 45 minutes to fill the tender. The Township does not have hydrants and relies on a stored water supply and pump.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township will explore installation of a larger water tank and a secondary well to maintain the emergency water supply. If feasible the Township will install each feature.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year flood level	<b>Estimated Benefits (losses avoided):</b>	Emergency water supply maintained to allow for response.
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$700,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 month	<b>Potential Funding Sources:</b>	HMGP, BRIC, Assistance to Firefighters Grant Program
<b>Responsible Organization:</b>	Fire Department, OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Purchase additional tanker truck	N/A	High cost
	Build additional standpipes	N/A	Not as effective
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Expand Emergency Water Supply	
<b>Project Number:</b>	2022-South Harrison-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Tank and well allow for firefighting ability
Property Protection	1	Tank and well allow for firefighting ability
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	Provides service to the community
Administrative	1	
Multi-Hazard	1	Wildfire, Drought
Timeline	0	Within 5 years
Agency Champion	1	Fire Department, OEM
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Address Inadequate Stormwater Components		
<b>Project Number:</b>	2022-South Harrison-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Township stormwater components have been damaged by previous storm events. Future severe weather and flooding events could also result in damages.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will survey stormwater components and culverts to determine if improvements are needed. If inadequacies are identified, the Township will complete an engineering analysis and upsize the existing components.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by engineering analysis	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, stormwater flood damage, maintains emergency access
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by engineering analysis	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, municipal budget
<b>Responsible Organization:</b>	Engineering, Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	Very High	Costly and would not solve roadway flooding
	Buyout homes	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Address Inadequate Stormwater Components	
<b>Project Number:</b>	2022-South Harrison-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding and maintains emergency access.
<b>Property Protection</b>	1	Protects buildings and infrastructure from flood damage
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineering, DPW
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Retrofit Roofs on Critical Facilities to Withstand High Winds		
<b>Project Number:</b>	2022-South Harrison-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Severe Winter Weather, Hurricane, Nor'Easter		
<b>Description of the Problem:</b>	Numerous critical facilities such as the Fire Department, Township Hall, and the Harrison Elementary School do not have proper protection to withstand high wind impacts to their roofs. This could result in loss of these critical facilities.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will evaluate critical facilities to determine which facilities require retrofit for their roof to withstand high winds and heavy snow loads. The Township will then carry out the necessary retrofits.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year wind event	<b>Estimated Benefits (losses avoided):</b>	Reduction in risk of roof failure and protection of critical services
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	3 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, USDA Community Facilities Grant Program, Township budget
<b>Responsible Organization:</b>	Engineer, OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new DPW Garage	High	Costly, unnecessary
	Build small backup garage in case of failure	High	Costly, facility unlikely to be used
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Retrofit Roofs on Critical Facilities to Withstand High Winds	
<b>Project Number:</b>	2022-South Harrison-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services
Property Protection	1	Protects buildings from wind and snow damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Weather, Severe Winter Weather, Hurricane, Nor'Easter
Timeline	0	5 years
Agency Champion	1	Engineer, OEM
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Harrisonville Creek Streambank Restoration		
<b>Project Number:</b>	2022-South Harrison-008		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood, Geologic Hazards		
<b>Description of the Problem:</b>	Over time the creek banks of Harrisonville Creek have eroded and are in danger of collapse. Stream banks are currently 7-8 foot tall and unstable. This presents a flood and landslide risk. Failure could cause flooding at County Route 617 (Mullica Hill Road), and County Route 668 (Harrisonville Road) and potentially impact the Post Office.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township will work to restore the streambank, regrading the slope to prevent collapse and instituting appropriate stabilization techniques.		
<b>Is this project related to a Critical Facility?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Landslide and flood risk reduced
<b>Useful Life:</b>	1 year	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	Medium	<b>Mitigation Action Type:</b>	Natural Systems Protection
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, Borough budget
<b>Responsible Organization:</b>	Engineer, Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Retreat from areas near stream	High	Costly, unpopular
	Levees along stream	High	Not feasible/environmentally damaging, costly
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Harrisonville Creek Streambank Restoration	
<b>Project Number:</b>	2022-South Harrison-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect from potential injuries from unsafe streambank conditions
Property Protection	1	Project will protect property and infrastructure from potential flood damage
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	Permitting likely required
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Geologic Hazards
Timeline	1	2 years
Agency Champion	1	Engineer, Public Works
Other Community Objectives	1	Restore natural floodplain function
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	





## 9.18 BOROUGH OF SWEDESBORO

This section presents the jurisdictional annex for the Borough of Swedesboro and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Swedesboro's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.18.1 Hazard Mitigation Planning Team

The Borough of Swedesboro followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Swedesboro's hazard mitigation plan primary and alternate points of contact. 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 9.18-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact	
Name/Title: Eric Voight, Emergency Management Coordinator Address: 1500 Kings Highway Swedesboro, NJ 08085 Phone Number: 1-856-304-2706 Email: <a href="mailto:evoight@connerstrong.com">evoight@connerstrong.com</a>		Name/Title: Lois M. Elder, Borough Clerk Address: 1500 Kings Highway Swedesboro, NJ 08085 Phone Number: 856-467-0202 Email: <a href="mailto:lelder@swedesboro-nj.us">lelder@swedesboro-nj.us</a>	
NFIP Floodplain Administrator			
Name/Title: Eric Voight, Emergency Management Coordinator Address: 1500 Kings Highway Swedesboro, NJ 08085 Phone Number: 1-856-304-2706 Email: <a href="mailto:evoight@connerstrong.com">evoight@connerstrong.com</a>			
Name	Title	Method of Participation	



Keith Lamb	Public Works	Attended meetings, reviewed annex and provided feedback, identified mitigation actions
Eric Voight	Emergency Management Coordinator	Attended meetings, reviewed annex and provided feedback, identified mitigation actions
Lois Elder	Borough Clerk	Attended meetings, reviewed annex, identified mitigation actions
Wayne Roorda Jr.	Engineer	Reviewed annex and provided feedback

## 9.18.2 Municipal Profile

This Southern New Jersey town was settled by a small group of Swedes and Finns in the mid-1600s. Originally named Raccoon, the quiet settlement soon transformed into a town with churches, taverns and shoppes for trade. Under a Lease System, unique to New Jersey, the settlement developed south from Raccoon Creek to the present center of town at Borough Hall on King's Highway. In 1765, the Borough's name was changed to Swedesboro; it was incorporated in 1903.

According to the United States Census Bureau, the Borough had a total area of 0.77 square miles, including 0.73 square miles of land and 0.04 square miles of water. The municipality is surrounded by Racoon Creek and has Lake Narraticon that is partially within the Borough. Unincorporated communities, localities and place names located partially or completely within the Borough include Ilyside.

The municipality is governed under the borough form of municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis. The Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Swedesboro was 2,584. The estimated 2019 population was 2,579, a 0.2 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 6.7 percent of the population is 5 years of age or younger and 7.4 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.

## 9.18.3 Jurisdictional Capability Assessment and Integration

The Borough of Swedesboro performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.



- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.18.3). The updated mitigation strategy includes opportunities the Borough of Swedesboro identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.18.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Swedesboro, what is present in the jurisdiction, and code citation and date.

*Table 9.18-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 120 (Uniform Construction Codes)	State and Local	Construction Code Official
<i>How does this reduce risk?</i> The Borough adopted the State Uniform Construction Code and the Construction Code Official enforces this code.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 340 (Zoning)	Local	Zoning Administrative Officer
<i>How does this reduce risk?</i> This chapter is enacted for the following purposes: to promote the health, morals and general welfare of the inhabitants of the Borough of Swedesboro; to lessen congestion in the streets; to secure safety from fire, panic and other dangers; to provide adequate light and air; to prevent the overcrowding of land or buildings; to avoid undue concentration of population; and to conserve the value of property and encourage the most appropriate use of land.					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 290 (Subdivision of Land)	Local	Planning Board
<i>How does this reduce risk?</i> The purpose of this chapter shall be to provide rules, regulations and standards to guide land subdivision in the Borough of Swedesboro, in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 280 (Stormwater Control)	Local	
<i>How does this reduce risk?</i> The purpose of this chapter to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted Master Plan and land use ordinances of the Borough of Swedesboro.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 268 (Site Plan Review)	Local and County	Planning Board
<i>How does this reduce risk?</i> In order to protect and preserve the road network of the Borough, to ensure the movement of traffic, to promote the development of a beautiful and well-ordered community, to further the comprehensive planning and to best serve the interests of the public health, safety and general welfare, no public, professional, commercial, industrial or other nonresidential use and no multifamily dwelling use shall be permitted, nor shall any building permit or occupancy permit be issued for such uses, until the procedure outlined in this chapter has been complied with.					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 162 (Flood Damage Prevention), Adopted 6/20/2016	Federal, State, County and Local	Building Inspector
<i>How does this reduce risk?</i> The purpose of this chapter is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. The building inspector is the appointed floodplain administrator and responsible for reviewing permits, using base flood and floodway data, maintaining information, completing substantial damage reviews, and interpreting flood maps. New construction or substantial improvements in the flood hazard area must have the bottom of the first elevated at or above the base flood elevation.					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>Does it contain natural overlay zones that set conditions? No</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Unknown</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? No</li> <li>When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes - County Yes - municipality	Master Plan General Reexamination Report, 2008	Local	Planning Board
<i>How does this reduce risk?</i> The purpose of this reexamination is to ensure conformity of the Master Plan with the current Municipal Land Use Law and determine if the Master Plan, in particular the Land Use Plan Element, the Housing Plan Element, and the Goals and Objectives, are or are not current and whether they require updating. Several of the goals of the master plan align with those of the HMP include protect life and safety.					
<b>Capital Improvement Plan</b>	Yes	Allowed	Part of the yearly budget	Local	Administration
<i>How does this reduce risk?</i> There is a capital improvement plan as part of the yearly budget. The capital improvement plan can be used to allocate funding for mitigation projects.					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, February 2006; updated May 2018	Local	Planning Board
<i>How does this reduce risk?</i> The MSWMP provides strategies for Swedesboro Borough to follow in addressing stormwater management. The plan is required by N.J.A.C. 7:14A-25, the Municipal Stormwater Regulations, and contains the elements required by N.J.A.C. 7:8, the Stormwater Management Rules.  The MSWMP addresses groundwater recharge and stormwater quantity and quality, by incorporating the stormwater design and performance standards for new major development (defined as projects that disturb one or more acres of land or increase the amount of impervious surface by one-quarter acre or more). These standards are intended to minimize the adverse impact of stormwater runoff on water quality, and to address water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan; December 17, 2018	Local	Planning Board and Public Works
<i>How does this reduce risk?</i> Provides education and outreach programs to residents regarding stormwater and things they can do to assist the Borough.					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	Yes	No	Environmental Resource Inventory (March 2012)	Local	Environmental Commission
<i>How does this reduce risk?</i>					
The purpose of an Environmental Resource Inventory (ERI) is to identify and describe the natural resources of a community. A community's natural resources – its soil, water, air, forests, fields, and waterways – are fundamental to its character. The protection and wise use of those resources is essential to the public health, safety, and welfare of current and future residents. The ERI provides the basis for the development of methods and steps to preserve, conserve, and utilize those resources, although it does not include specific recommendations to those ends. It is, instead, a compendium of all the existing information that can be found about a municipality's natural resources, presented in a form that is useful to a broad audience. The Inventory reflects a particular moment in time and should be updated as new data becomes available. The ERI includes discussions on floodplains and floodprone areas in the Borough.					
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes</li> <li>Does the future land use map clearly identify natural hazard areas? Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Are environmental systems that protect development from hazards identified and mapped? GIS Mapping in Progress</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan, May 2018	Local	OEM
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The EOP is designed to provide guidance during an event. It outlines duties and responsibilities to minimize damage and additional loss. The EOP is state approved.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? The EOP addresses agencies and resources that will cover long and short-term recovery.</li> </ul>					

### 9.18.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Swedesboro to oversee and track development.

*Table 9.18-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Swedesboro issues permits & Approvals from Planning and Zoning Boards.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	No
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	Yes	Construction permits are issued thru Woolwich Township Construction Department.

### 9.18.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Swedesboro and their current responsibilities which contribute to hazard mitigation.





Table 9.18-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning & Zoning Board is a Joint Board that has the power to hear and vote upon land development applications.
Zoning Board of Adjustments	Yes	The Planning & Zoning Board is a Joint Board that has the power to hear and vote upon land development applications.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission. In 2013, the Swedesboro Commission joined with the Woolwich Township Environmental Commission to form the Swedesboro/Woolwich Joint Environmental Commission. The joint commission was established to better protect the development and/or use of natural resources including water sources, located within the territorial limits of the Borough of Swedesboro and Woolwich Township. Shade Tree Commission
Open Space Board/Committee	Yes	Parks and Recreation Committee
Economic Development Commission/Committee	Yes	Economic Development Committee. The Committee was established in order to advertise the advantages of the Borough of Swedesboro, to analyze the economic potential and development in the Borough of Swedesboro and to mobilize and assist in the development of potential resource and economic conditions of the borough. The committee seeks to create a positive push towards more economic opportunities, to revitalize the downtown district through streetscape, and to promote more pedestrian traffic in town. The committee seeks to ensure that the town maintains a focus on the smaller shops and work towards a pedestrian friendly downtown area.
Public Works/Highway Department	Yes	Department of Public Works
Construction/Building/Code Enforcement Department	Yes	Shared service agreement with Woolwich Township
Emergency Management/Public Safety Department	Yes	Emergency Management Coordinator
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Borough website and social media accounts; Gloucester County Alert
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Borough of Swedesboro has a program to clean and request maintenance records of private basins. Inspect outfalls and inspect and clean drainage basins on at least a yearly basis. Cleanup activity for stormwater inlets is increased during the fall months to minimize clogging by leaf debris.
Mutual aid agreements	Yes	Mutual Aid agreements are in place with the County for Department of Health and EMS Services.
Human Resources Manual	Yes	Stormwater Culvert inspections/Cleaning/Inventory



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Other	Yes	The Shade Tree Commission is comprised of resident volunteers. Its primary mission is to sustain and expand the presence of trees along Swedesboro's streets and public places. The Commission undertakes planting and maintenance of trees, in the public right of way, all over town to benefit the community.
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Outside Contractor Professional Services
Engineers or professionals trained in building or infrastructure construction practices	Yes	Outside Contractor Professional Services
Planners or engineers with an understanding of natural hazards	Yes	Outside Contractor Professional Services
Staff with expertise or training in benefit/cost analysis	Yes	Outside Contractor Professional Services
Professionals trained in conducting damage assessments	Yes	Outside Contractor Professional Services
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	Outside Contractor Professional Services
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Outside Contractor Professional Services
Emergency Manager	Yes	Emergency Management Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Outside Contractor Professional Services

### 9.18.3.4 Fiscal Capability

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

*Table 9.18-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes – Limited Areas
Capital improvements project funding	Yes – line item in the annual budget
Authority to levy taxes for specific purposes	Yes – If needed
User fees for water, sewer, gas or electric service	Yes – If needed
Impact fees for homebuyers or developers of new development/homes	Unknown
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes – If needed
Incur debt through special tax bonds	Yes – If needed
Incur debt through private activity bonds	Unknown
Withhold public expenditures in hazard-prone areas	Unknown
Other federal or state funding programs	Yes – NJDOT, NJDEP, etc.



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Open Space Acquisition funding programs	Yes – Green Acres
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes – NJDEP Clean Communities, NJDOT Municipal Aid
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.18.3.5 Education and Outreach Capability

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

*Table 9.18-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	The Borough's website has preparedness information and emergency alerts.
Social media for hazard mitigation education and outreach	Yes	The Borough maintains social media accounts that provides alerts, upcoming meetings and events, and preparedness information.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Borough website and social media accounts; Gloucester County Alert
Natural disaster/safety programs in place for schools	Yes	Kingsway BOE and Swedesboro Woolwich BOE
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> <ul style="list-style-type: none"> <li>Information uploaded to the website</li> </ul>		

### 9.18.3.6 Community Classifications

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



Table 9.18-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.18.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.18-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane / Tropical Storm	Moderate
Invasive and Nuisance Species	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.18.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.18-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 2</li><li># RL properties: 0</li><li># SRL properties: 0</li><li>#RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$934.00</li><li># claims filed: 3</li><li>Total loss payments: \$2,699.14</li></ul>
Describe areas prone to flooding in your jurisdiction.	Minor flooding around the lake; experience stormwater flooding on occasion (depends on the type of storm event coming in)
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Borough would base on the county's plan and damage assessments; have not had to conduct them in the last 10 years
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Emergency Management Coordinator
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Less than one square mile; services are limited.
What specific training or support does your floodplain management staff need to support its floodplain management program?	Yes
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Not done
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	December 14, 1994



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	<ul style="list-style-type: none"> <li>Chapter 162</li> <li>2016</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • 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 at this time

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.18.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.18-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	1	-	1	-	0	-	2	-	0	-	1	-
Multi-Family	0	-	0	-	0	-	0	-	0	-	0	-
Other (commercial, mixed-use, etc.)	0	-	0	-	0	-	0	-	0	-	0	-
Total Permits Issued*	1	-	1	-	0	-	2	-	0	-	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												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												



Type of Development	2016	2017	2018	2019	2020	2021
The business district of the Borough is in the early stages of redevelopment; however, there are no details on types of development to occur.						

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

\*\*Total number of construction permits issued includes any construction that requires permitting.

## 9.18.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Swedesboro's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Swedesboro has significant exposure. The maps also show the location of potential new development, where available.





Figure 9.18-1. Borough of Swedesboro Hazard Area Extent and Location Map 1

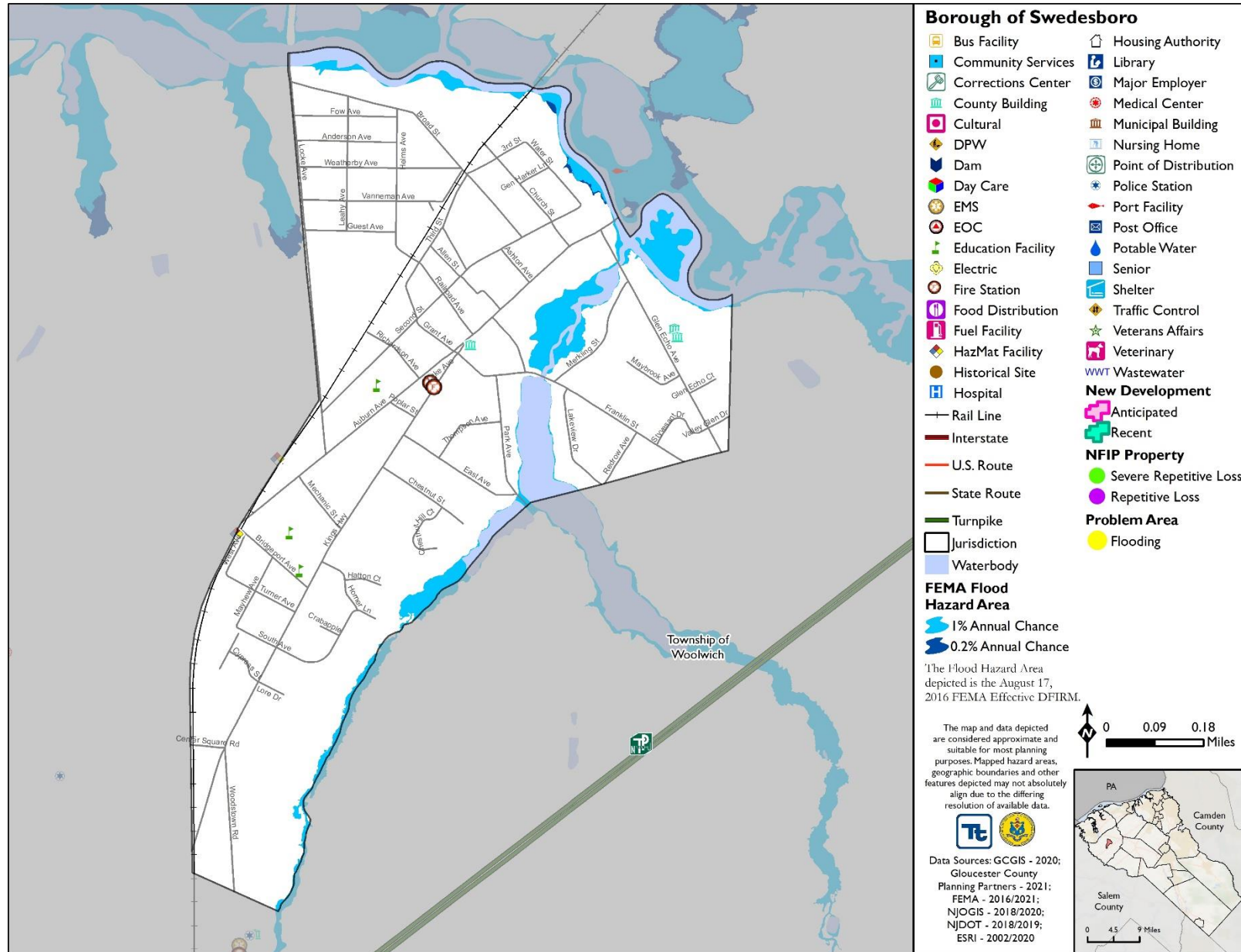




Figure 9.18-2. Borough of Swedesboro Hazard Area Extent and Location Map 2

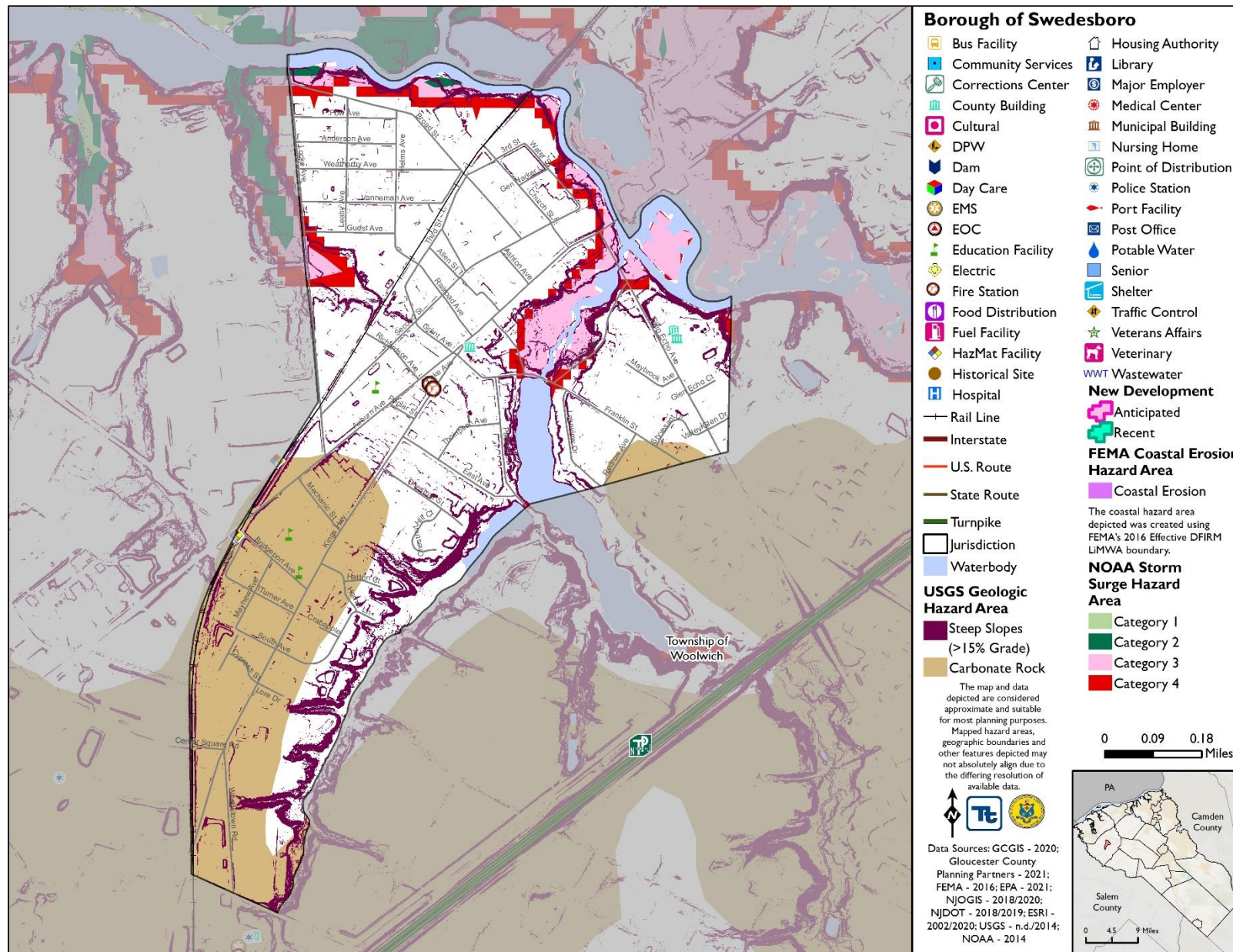






Figure 9.18-3. Borough of Swedesboro Hazard Area Extent and Location Map 3

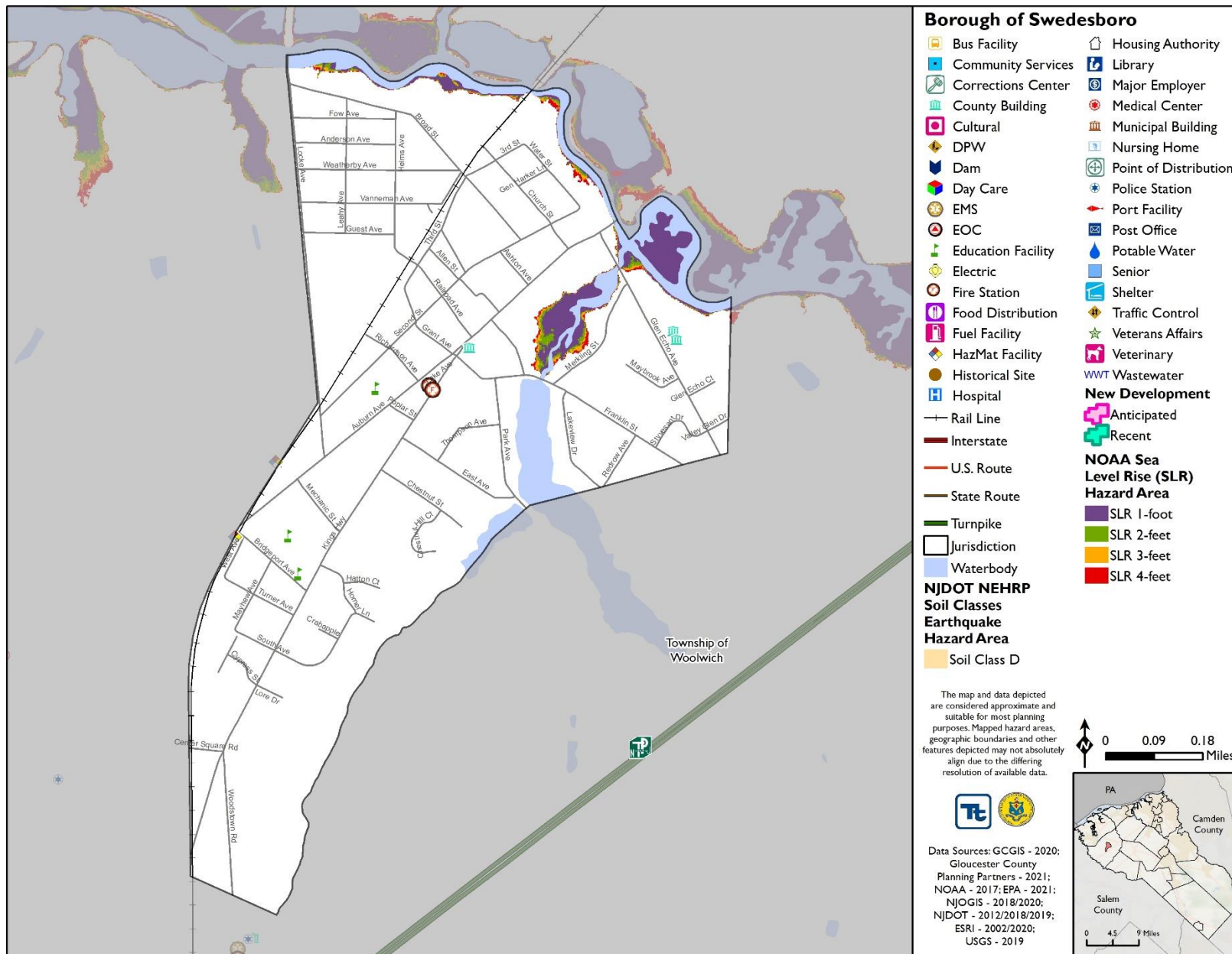
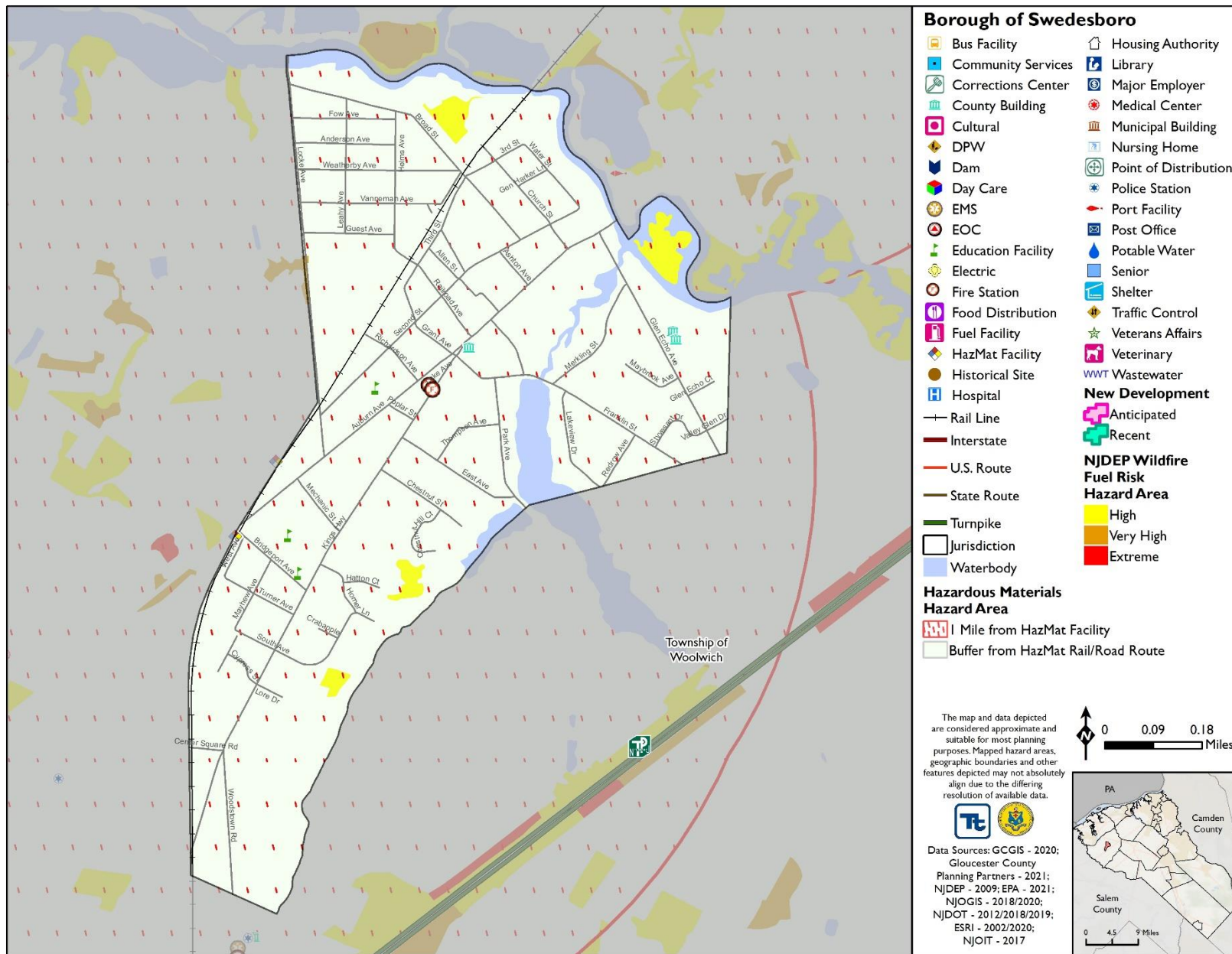




Figure 9.18-4. Borough of Swedesboro Hazard Area Extent and Location Map 4





### 9.18.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Swedesboro's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.18-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	No significant damages or losses associated with this event
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	No significant damages or losses associated with this event
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	No significant damages or losses associated with this event
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	No significant damages or losses associated with this event
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	No significant damages or losses associated with this event
September 1-3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a	Some storm damage – downed trees



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	

### 9.18.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Swedesboro's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Swedesboro. The Borough of Swedesboro reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough modified the ranking for dam/levee failure from low to medium. There is a dam located in the Borough that is currently being remediated in according to NJDEP regulations.
- The Borough agreed with the remainder of the calculated hazard rankings.

*Table 9.18-12. Hazard Ranking Input*

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Medium	Low	Low	Low	Low	Low	Low	Low





Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Low	Low	Low	High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.18-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.18.6.3 Identified Issues

After review of the Borough of Swedesboro's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Swedesboro has identified the following vulnerabilities within their community:

- The Broad Street Pump Station is located in the northern portion of the Borough and provides services to the northwest area. During a power outage, the pump cannot function properly and causes disruption in services.
- The Franklin Street Pump Station is located downstream from the dam and experiences flooding during periods of heavy rain. The pump station does not have backup power and cannot function during power outages.
- The Borough lacks an adopted Disaster Debris Management Plan.
- The Narraticon Lake Dam is a significant hazard dam owned by the Borough. It is a recreational dam located on Church Run. The Borough has begun rehabilitating the dam and in the permit process.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Borough does not have portable backup pumps. In the event a pump fails, the Borough does not have the ability to transfer services using a portable system to make the repairs to the permanent pump. This leads to disruption of services and limited water and sewer services to residents.
- The Borough's current stormwater system consists of aging infrastructure and becomes overwhelmed during periods of heavy rain, particularly near Broad Street.





## 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 indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.18-14. Status of Previous Mitigation Actions

#	2016 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability	No	-	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-	-
M-03	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability	No	-	-
M-04	Install permanent backup emergency power generator at pump station (CF-9).	Municipal OEM	In Progress – the Borough ordered a generator for their Broad Street pump station	Yes	The Broad Street Pump Station is located in the northern portion of the Borough and provides services to the northwest area. During a power outage, the pump cannot function properly and causes disruption in services.	Purchase and install a permanent generator at the Broad Street Pump Station to provide continuity of operations during power outages.



### 9.18.7.2 Additional Mitigation Efforts

In addition to the mitigation initiatives completed in Table 9.18-14, the Borough of Swedesboro identified the following mitigation efforts completed over the last five years:

- The Borough has the ability to move equipment if needed prior to events
- Shared services with Woolwich Township
- Gloucester County and Salem County are creating an integrated wastewater infrastructure. As part of the project, 11 existing wastewater treatment plants will divert flows to the new facility. The plant in Swedesboro will be closed and all flows diverted to the DuPont Wastewater Treatment Plant in Pennsville, NJ.

### 9.18.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Swedesboro participated in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.18-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee Failure	X	X							X	X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Extreme Temp	X									X
Flood	X	X			X				X	X
Geologic	X									X
Hazmat	X									X
Hurricane / Tropical Storm	X									X
Invasive and Nuisance Species	X									X
Nor'Easter	X	X							X	X
Severe Weather	X	X							X	X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X	X							X	X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.18-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Swedesboro 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 9.18-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.18-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Swedesboro-001	Broad Street Pump Station Generator	<p><b>Problem:</b> The Broad Street Pump Station is located in the northern portion of the Borough and provides services to the northwest area. During a power outage, the pump cannot function properly and causes disruption in services.</p> <p><b>Solution:</b> Purchase and install a permanent generator and necessary electrical components at the Broad Street Pump Station to provide continuity of operations during power outages. Public Works will be responsible for maintenance and testing of the generator following installation.</p>	Existing	Utility Failure	1, 2, 6	Within 6 months	Borough Water & Sewer	Municipal Budget	Continuity of operations	\$45,000	High	SIP	SP, ES
2022-Swedesboro-002	Franklin Street Pump Station Generator	<p><b>Problem:</b> The Franklin Street Pump Station is located downstream from the dam and experiences flooding during periods of heavy rain. The pump station does not have backup power and cannot function during power outages.</p> <p><b>Solution:</b> Purchase and install a permanent generator and necessary electrical components. When installed, the generator will be elevated six to eight feet</p>	Existing	Utility Failure	1, 2, 6	Within 6 months	Borough Water & Sewer	FEMA HMGP and BRIC, Municipal Budget	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.	\$65,000	High	SIP	SP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		to protect from flooding. Water & Sewer will be responsible for maintenance and testing of the generator following installation.											
2022-Swedesboro-004	Develop Disaster Debris Management Plan	<b>Problem:</b> The Borough lacks an adopted Disaster Debris Management Plan. <b>Solution:</b> The Borough will complete and adopt the in-progress Disaster Debris Management Plan.	New and Existing	All Hazards	5	6 months	Public Works, OEM	Municipal budget	Increased planning for post-disaster response and cleanup.	Staff time	High	LPR	ES
2022-Swedesboro-005	Narraticon Lake Dam	<b>Problem:</b> The Narraticon Lake Dam is a significant hazard dam owned by the Borough. It is a recreational dam located on Church Run. The Borough has begun rehabilitating the dam and in the permit process. <b>Solution:</b> The Borough will construct a temporary cofferdam, extension of existing reinforced concrete walls, install reno-mats, and install crushed stone fill gabions.	Existing	Dam Failure	1, 2, 5, 7	Within 2 years	Engineer, Borough Council, NJDEP	BRIC, HMGP, High Hazard Potential Dams Grant Program, Municipal budget	Increase protection; improve dam	\$500,000	High	SIP	SP
2022-Swedesboro-006	Update Flood Damage Prevention Ordinance	<b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance. <b>Solution:</b> The Borough will update the flood damage	Existing	Flood	1, 2, 5	6 months	Floodplain Administrator; Administration	Municipal budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff Time	High	LPR	PR





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.											
2022-Swedesboro-007	Portable Pumping Systems	<p><b>Problem:</b> The Borough does not have portable backup pumps. In the event a pump fails, the Borough does not have the ability to transfer services using a portable system to make the repairs to the permanent pump. This leads to disruption of services and limited water and sewer services to residents.</p> <p><b>Solution:</b> Purchase two portable pumping systems to use in the Borough in the event permanent pumps fail. This will provide continuity of operations and limit disruption of services.</p>	Existing	Utility Failure, Severe Weather	1, 2, 6	Within 2 years	Borough Water & Sewer	Municipal Budget	Continuity of operations	\$30,000	High	SIP	SP, ES
2022-Swedesboro-008	Stormwater Feasibility Study	<b>Problem:</b> The Borough's current stormwater system consists of aging infrastructure and becomes overwhelmed during	New and Existing	Flood, Nor'Easter, Severe Weather, Hurricane	1, 2, 5, 6	Within 3 years	Borough Water & Sewer, Borough Engineer	NJDEP Environmental Infrastructure, Municipal	Increase capacity, reduce stormwater flooding,	\$30,000	High	LPR, SIP	SP, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>periods of heavy rain, particularly near Broad Street.</p> <p><b>Solution:</b> The Borough will conduct a stormwater improvement feasibility study to find the source of problems in the Borough and identify solutions to improve the stormwater system in the Borough. This will include an inventory of existing stormwater components and equipment. Once the study is completed, the Borough will begin implementing the identified cost-effective solutions.</p>						Budget, FEMA HMGP	continuity of operations				

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.18-17. Summary Evaluation and Action Priority*

Project Number	Project 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
2022-Swedesboro-001	Broad Street Pump Station Generator	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2022-Swedesboro-002	Franklin Street Pump Station Generator	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High



Project Number	Project 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
2022-Swedesboro-004	Develop Disaster Debris Management Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-Swedesboro-005	Narraticon Lake Dam	1	1	1	1	1	0	0	1	1	1	0	1	1	1	11	High 
2022-Swedesboro-006	Update Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-Swedesboro-007	Portable Pumping Systems	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2022-Swedesboro-008	Stormwater Feasibility Study	1	1	1	0	1	1	0	1	1	0	1	0	1	1	10	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.18.8 Action Worksheets

The following action worksheets have been developed by the Borough of Swedesboro to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Franklin Street Pump Station Generator		
<b>Project Number:</b>	2022-Swedesboro-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	The Franklin Street Pump Station is located downstream from the dam and experiences flooding during periods of heavy rain. The pump station does not have backup power and cannot function during power outages.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Purchase and install a permanent generator and necessary electrical components. When installed, the generator will be elevated six to eight feet to protect from flooding. Water & Sewer will be responsible for maintenance and testing of the generator following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect public health and safety, and ensure continued operation of critical facility and essential functions during power outages.
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$65,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, Municipal Budget
<b>Responsible Organization:</b>	Borough Water & Sewer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Franklin Street Pump Station Generator	
<b>Project Number:</b>	2022-Swedesboro-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of critical facilities
<b>Property Protection</b>	1	Project will protect pump station from power loss.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	The project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	0	Utility Failure
<b>Timeline</b>	1	Within 6 months
<b>Agency Champion</b>	1	Borough Water & Sewer
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Narraticon Lake Dam		
<b>Project Number:</b>	2022-Swedesboro-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Dam Failure		
<b>Description of the Problem:</b>	The Narraticon Lake Dam is a significant hazard dam owned by the Borough. It is a recreational dam located on Church Run. The Borough has begun rehabilitating the dam and in the permit process.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will construct a temporary cofferdam, extension of existing reinforced concrete walls, install reno-mats, and install crushed stone fill gabions.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year flood	<b>Estimated Benefits (losses avoided):</b>	Increase protection; improve dam
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 5, 7
<b>Estimated Cost:</b>	\$500,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 2 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	BRIC, HMGP, High Hazard Potential Dams Grant Program, Municipal budget
<b>Responsible Organization:</b>	Engineer, Borough Council, NJDEP	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Buyout properties downstream of dam	Very High	High cost, high social impact
	Remove dam	\$1.5 million	Dam cannot be removed for safety reason.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Narraticon Lake Dam	
<b>Project Number:</b>	2022-Swedesboro-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project protects life from dam failure
<b>Property Protection</b>	1	Project protects property from dam failure
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	
<b>Political</b>	1	There is public support for the project
<b>Legal</b>	0	The project may require permitting
<b>Fiscal</b>	0	The project requires funding support
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	0	Dam Failure
<b>Timeline</b>	1	Within 2 years
<b>Agency Champion</b>	1	Engineer
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Stormwater Feasibility Study		
<b>Project Number:</b>	2022-Swedesboro-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood		
<b>Description of the Problem:</b>	The Borough's current stormwater system consists of aging infrastructure and becomes overwhelmed during periods of heavy rain, particularly near Broad Street.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will conduct a stormwater improvement feasibility study to find the source of problems in the Borough and identify solutions to improve the stormwater system in the Borough. This will include an inventory of existing stormwater components and equipment. Once the study is completed, the Borough will begin implementing the identified cost-effective solutions.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by feasibility study	<b>Estimated Benefits (losses avoided):</b>	Flood risk identified and reduced by actions
<b>Useful Life:</b>	TBD by feasibility study	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$30,000 for feasibility study	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 3 years
<b>Estimated Time Required for Project Implementation:</b>	5 years	<b>Potential Funding Sources:</b>	NJDEP Environmental Infrastructure, Municipal Budget, FEMA HMGP
<b>Responsible Organization:</b>	Borough Water & Sewer, Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, stormwater planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Buyout homes	High	Costly, negative social impacts
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Feasibility Study	
<b>Project Number:</b>	2022-Swedesboro-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Reduction in risk to life from flooding.
<b>Property Protection</b>	1	Reduction in flooding risk to roadways and residential properties.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	0	Technically feasibility of solutions unknown
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts.
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Nor'Easter, Severe Weather, Hurricane
<b>Timeline</b>	0	Within 3 years
<b>Agency Champion</b>	1	Borough Water & Sewer, Borough Engineer
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



## 9.19 TOWNSHIP OF WASHINGTON

This section presents the jurisdictional annex for the Township of Washington and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Washington's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.19.1 Hazard Mitigation Planning Team

The Township of Washington followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Washington's hazard mitigation plan primary and alternate points of contact. 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 9.19-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Jason Gonter (Business Administrator) Address: 523 Egg Harbor Road, Sewell, NJ 08080 Phone Number: 856-589-2546 Email: jgonter@twp.washington.nj.us	Name/Title: Andrew Yoder (Assistant to Township Engineer) Address: 2059 Springdale Road, Cherry Hill, NJ 08003 Phone Number: 856-795-9595 Email: andrew.yoder@rve.com
NFIP Floodplain Administrator	
Name/Title: Jason Gonter (Business Administrator) Address: 523 Egg Harbor Road, Sewell, NJ 08080 Phone Number: 856-589-2546 Email: jgonter@twp.washington.nj.us	



Name	Title	Method of Participation
Annina Hogan	Township Engineer	Provided information on capabilities, previous actions and contributed to mitigation strategy, reviewed annex and provided feedback.
Frank Altamuro	Public Works Supervisor	Provided information on previous actions, contributed to mitigation strategy.
Brian McCaffery	Public Works Supervisor	Provided information on previous actions, contributed to mitigation strategy.
Andrew Yoder	Assistant to Township Engineer	Provided information on capabilities, previous actions and contributed to mitigation strategy.
Patrick Gurcsik	Washington Township Police Chief	Provided information on previous actions, contributed to mitigation strategy.
Alicia Marini	Business Office	Provided information on previous actions, contributed to mitigation strategy.
Township Construction Office	Administration	Provided information on previous actions, contributed to mitigation strategy.
Jason Gonter	Business Administrator	Reviewed annex and provided feedback.
Colette Bachich	CFO	Reviewed annex and provided feedback.

## 9.19.2 Municipal Profile

The Township of Washington was incorporated on February 17, 1836 as part of Gloucester County during a meeting held at the Green Tree Tavern, at the corner of Egg Harbor Road and Greentree Road. The Township officially moved to the newly created Camden County on March 13, 1844. Most of Washington Township, along with all of Monroe Township, was moved back into Gloucester County on February 28, 1871, with the remaining portions of Washington Township that were still in Camden County being transferred to Gloucester Township. The township was named for George Washington, one of more than ten communities statewide named for the first president. The oldest community in Washington Township, Grenloch Terrace, was a thriving Lenape Native American settlement called Tetamekon.

The Township had a total area of 21.55 square miles, including 21.35 square miles of land and 0.20 square miles of water. Atlantic City Expressway and Route 55 pass through the municipality. Unincorporated communities, localities and place names located partially or completely within the Township include Bells Lake, Cressville, Dilkesboro, Fairview, Green Tree, Grenloch Terrace, Hurffville, Mount Pleasant, Prossers Mill, and Turnersville.





The Township's governing body is comprised of the Mayor and the five-member Township Council. The mayor is directly elected by Township voters and is the chief executive in charge of the administrative functions of the town. Members of the township council are elected on an at-large basis in partisan elections.

According to the U.S. Census, the 2010 population for the Township of Washington was 48,559. The estimated 2019 population was 47,833, a 1.5 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.3 percent of the population is 5 years of age or younger and 17.1 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.

### 9.19.3 Jurisdictional Capability Assessment and Integration

The Township of Washington performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.19.3). The updated mitigation strategy includes opportunities the Township of Washington identified for integration of mitigation concepts to be incorporated into municipal procedures.

#### 9.19.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Washington, what is present in the jurisdiction, and code citation and date.



Table 9.19-2. Planning, Legal, and Regulatory Capability

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 55 Construction Codes, Uniform, 1995	State and Local	Construction Official, Building Subcode Official, Plumbing Subcode Official, Electrical Subcode Official, Fire Protection Subcode Official, and such other subcode officials
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Chapter 55 adopts the Uniform Construction Code for building and construction in the Township.</li> </ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 125, Land Use Procedures, 1995; Chapter 285, Zoning, 1995	Local	Planning Board and Zoning Board of Adjustment; Zoning Officer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Chapter 125: Establishes Planning Board and Zoning Board of Adjustment and provisions applicable to both boards.</li> <li>Chapter 285: The zoning regulations and districts set forth in this chapter are designed to effectuate the Washington Township Master Plan and to make such regulations substantially consistent with the land use plan element of the Master Plan.</li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 220, Subdivision of Land, 1995	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purposes of this chapter shall be to provide rules, regulations and standards to guide land subdivision in Washington Township in order to promote the public health, safety, convenience and general welfare of the Township. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provisions for circulation, utilities and services.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 214, Stormwater Management, 2007	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted Master Plan and land use ordinances of the Township of Washington.</li> <li>Through this chapter, the Township of Washington has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>(a) To reduce flood damage, including damage to life and property;</li> <li>(b) To minimize any increase in stormwater runoff from new development;</li> <li>(c) To reduce soil erosion from any development or construction project;</li> <li>(d) To assure the adequacy of existing and proposed culverts and bridges, and other instream structures;</li> <li>(e) To maintain groundwater recharge;</li> <li>(f) To minimize any increase in nonpoint pollution;</li> <li>(g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;</li> <li>(h) To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the Township of Washington;</li> <li>(i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface waters and groundwaters of the Township of Washington, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and</li> <li>(j) To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this chapter, the Township of Washington has identified the following management techniques:</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>(a) Implementation of multiple stormwater management best management practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this chapter.</li> <li>(b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this chapter, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as low-impact development (LID) techniques.</li> <li>(c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</li> <li>(d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</li> <li>(e) Structural BMPs, where necessary, shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</li> <li>(f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this chapter before relying on a single, larger stormwater management measure to achieve these performance standards.</li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 199, Site Plan Review, 1995	Local and County	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of site plan review is to determine whether the proposed use, building or structure, or addition to any building, structure or use, will conform to the revised statutes; Chapter 185, Zoning; Chapter 220, Subdivision of Land; and other applicable ordinances and requirements of the Township. Site plan review shall work towards the development of an aesthetically acceptable and well-ordered community serving the interest of the public health, safety and general welfare of the Township.</li> <li>The Planning Board and/or Zoning Board of Adjustment shall review the plans, at which time the applicant may be called to explain, amplify or discuss the plan. The appropriate Board shall then prepare its report containing a statement regarding the completeness of the plan and conditions and recommendations for approval. For Zoning Board of Adjustment site plans, the Planning Board shall send a report to the Zoning Board of Adjustment which shall pertain to the site plan only and not to the entire application.</li> </ul>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 82, Fertilizer Application, 2009	Local	Police Department, Public Works Department, Zoning Officer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>This chapter regulates the outdoor application of fertilizer so as to reduce the overall amount of excess nutrients entering waterways, thereby helping to protect and improve surface water quality. This chapter does not apply to fertilizer application on commercial farms.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 96, Flood Damage Prevention, 2016	Federal, State, County and Local	Business Administrator
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>In order to accomplish its purposes, this chapter includes methods and provisions for: <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;</li> <li>B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;</li> <li>C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</li> <li>D. Controlling filling, grading, dredging, and other development which may increase flood damage; and</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</li> </ul> </li> </ul>					
<b>Wellhead Protection</b>	Yes	No	Chapter 273, Wellhead Protection, 2004	Local	Planning Board or Zoning Board.
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>The purpose of the Wellhead Protection Overlay District is to protect public health, welfare and safety of the citizens and institutions that are customers of the Washington Township Municipal Utilities Authority (WTMUA) and community water systems in neighboring communities, by regulating the land use and the storage, handling, use and/or production of hazardous substances and hazardous wastes within wellhead protection areas for existing and proposed municipal wells. The intent of this chapter is to protect community water supplies from contamination. This chapter is also meant to encourage coordinated protection efforts with neighboring municipalities.</li> </ul>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Twp planner/Twp engineer review for consistency.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes.</li> <li>Does it contain natural overlay zones that set conditions? Not within ordinance but within township maps via GIS.</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? TBD.</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes.</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes, regulates permeability by NJDEP</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes.</li> <li>Do the regulations allow density transfers where hazard areas exist? No.</li> <li>When updating ordinances, is hazard mitigation considered? TBD.</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Master Plan, 2004	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Master Plan outlines strategy for long term development and guidance for the Township.</li> </ul>					
<b>Capital Improvement Plan</b>	Yes	Allowed	Capital Improvement Budget, 2014	Local	Administration
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Capital Improvement Budget can be used to allocate funding for mitigation projects.</li> </ul>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, Washington Township, February 2006	Local	Gloucester County Improvement Authority
<i>How does this reduce risk?</i> The Washington Township Watershed Based Municipal Stormwater Management Plan goals are: <ul style="list-style-type: none"> <li>The reduction of flood damage, including damage to life and property.</li> <li>The minimization, to the extent practical, of increases in stormwater runoff from new development.</li> <li>The reduction of soil erosion from construction activities.</li> <li>the insurance of adequate stormwater facilities, including culverts, bridges, and other in-stream structures.</li> <li>The maintenance of groundwater recharge.</li> <li>The prevention, to the extent feasible, of nonpoint stormwater pollution.</li> <li>The maintenance of surface waters to ensure their biological and stormwater management functions, including the restoration, enhancement, and maintenance of their chemical, physical, and biological integrity, in order to protect public health and safeguard aquatic life; the preservation of their scenic and ecological values; and the enhancement of their domestic, municipal, recreational, industrial, and other uses.</li> <li>The protection of public health and welfare, through the planning, engineering, operation and maintenance of stormwater systems.</li> </ul>					
<b>Stormwater Pollution Prevention Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	Yes	No	Community Forestry Management Plan	Local	Public Works, Open Space Advisory Committee
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Washington Township completed and adopted its first Community Forestry Management Plan (CFMP) in 2020. The CFMP was developed through the combined efforts of staff of the Public Works Department and volunteers from the Open Space Advisory Committee, with the assistance of Remington &amp; Vernick Engineers. Washington Township received a Green Communities Grant from the New Jersey Department of Environmental Protection Forestry Program in 2018, which has assisted in the production of the CFMP.</li> </ul>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	Yes	No	Open Space and Recreation Plan Update, 2018	Local	Open Space Committee
<i>How does this reduce risk?</i> The Open Space and Recreation Plan Update: <ul style="list-style-type: none"> <li>Assesses existing open space to prioritize and implement land stewardship initiatives.</li> <li>Produces a targeted, site-specific action program, identifying projects to protect the natural and recreational features in the Township.</li> <li>Reviews and updates the program goals and provides field-based assessments of existing preserved open space.</li> <li>Recommends land for preservation and stewardship. The properties are identified on parcel-based maps. Included within this report is an open space map which identifies public and private lands in the municipality, showing all permanently preserved lands in the community. The final map is a greenway map, which is a conceptual map identifying the proposed corridors for connecting preserved lands based on recreational, cultural, and natural resources in the community.</li> </ul> Recommendations in the plan include:					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Develop a clear vision for acquiring future property and clarify the Township's objectives for currently owned public open space with the development of plans for use, stewardship, maintenance, and assessment of costs related to these concerns. Complete an inventory of municipal conservation easements to support this objective.</li> <li>Consider the establishment of a shade tree or forestry committee to serve the needs of the community to manage its forested lands.</li> <li>Improve existing trail systems and bike paths.</li> <li>Increase communication between all entities involved in the maintenance and acquisition of open space and recreational properties.</li> <li>Enhance the capacity of the Township and Open Space Advisory Committee for grant writing, education, public outreach, and community wellness campaigns.</li> <li>Revisit the municipal Open Space Trust Fund to review the ordinance and how it compares to other communities for conservation, land acquisition, park management, and stewardship. Formulate and adopt policies to guide funding consistent and appropriate with these purposes.</li> <li>Improve signage identifying public open space and improve the public's understanding of the designation and use of these lands.</li> </ul>					
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Yes.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. Yes.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes, must get NJDEP approved limits.</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes, as it can be.</li> <li>Does the future land use map clearly identify natural hazard areas? Yes.</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes.</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes.</li> <li>Does the transportation plan limit access to hazard areas? Yes.</li> <li>Is transportation policy used to guide growth to safe locations? No policy in place</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Pre-existing - NA</li> <li>Are environmental systems that protect development from hazards identified and mapped? Yes.</li> <li>Do environmental policies maintain and restore protective ecosystems? Maintain yes.</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No.</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan and Vulnerability Analysis, 2012	Local	Division of Emergency Management
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Outlines requirements and responsibilities for Emergency Response.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes.</li> </ul>					

### 9.19.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Washington to oversee and track development.

*Table 9.19-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Zoning Office
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	Yes	GIS Mapping

### 9.19.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Washington and their current responsibilities which contribute to hazard mitigation.

*Table 9.19-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board. Supported by the Zoning Officer and Planning Board Secretary.
Zoning Board of Adjustments	Yes	The Zoning Board of Adjustment, established under authority of New Jersey's Municipal Land Use Law, consists of seven regular members and two alternate members appointed by Township Council. All are residents of Washington Township. Regular members serve four-year terms, while alternate members serve two-year terms.
Planning Department	Yes	The Department of Planning & Zoning is responsible for processing zoning permits, setting agendas for



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		Planning and Zoning Board meetings, and for enforcing the Zoning Codes of Washington Township.
Mitigation Planning Committee	Yes	Local Emergency Planning Committee
Environmental Board/Commission	Yes	The mission of the Environmental Commission is to encourage the protection and appropriate development and use of the Township's natural resources. The Environmental Commission advises the Mayor and Council on land and water conservation and protection actions and pollution events; provides recommendations to the Planning Board and Zoning Board of Adjustment on land development applications; and sponsors community education and engagement activities. Projects include Earth Day events, an annual community-wide clean-up, stream sampling with school students, endangered species protection, and activities addressing drinking water protection, tree preservation and reforestation.
Open Space Board/Committee	Yes	The Open Space Committee is responsible for the development of the Open Space and Recreation Plan.  The Township also has a Parks & Recreation Department.
Economic Development Commission/Committee	Yes	The Advisory Board of Economic Development was created to contact, solicit and otherwise investigate all manners of attracting professional and light industry to relocate and build in Washington Township. The Board is comprised of volunteers from various business disciplines and works closely with the Mayor's office and our Planning and Zoning Boards to help guide a business through the application, planning and approval process.
Public Works/Highway Department	Yes	The goal of the Washington Township Municipal Services is to accommodate all residents with regards to services. Services include: <ul style="list-style-type: none"> <li>• Tree maintenance</li> <li>• Snow removal</li> <li>• Stormwater management</li> <li>• Roadway repair</li> </ul> The Washington Township Municipal Utilities Authority is a public body corporate and politic of the state of New Jersey, created by virtue of an ordinance duly adopted on June 22, 1962 by the Township Council of the Township of Washington. The Authority was created for the purpose of construction and operating a sanitary sewerage system for the proper collection and disposal of certain sanitary sewerage and other wastes arising within the Township of



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<p>Washington and a water distribution system within the Township of Washington.</p> <p>The Authority has broad powers including, among others, the following:</p> <ul style="list-style-type: none"> <li>to hold, operate and administer its property,</li> <li>to provide for bonds and the secure the payment and rights of holders thereof,</li> <li>to charge and collect user charges for the use of its facilities and to revise such user charges to ensure that revenues of the Authority will at times be adequate to pay all operating and maintenance expenses including reserves, insurance, extensions and replacements, and to pay the principal of and interest on any bonds and to maintain such reserves or sinking funds that may be required by the terms of any contract of the Authority; and</li> <li>to make and enforce rules and regulations of the management of its business and affairs.</li> </ul>
Construction/Building/Code Enforcement Department	Yes	Washington Township's Department of Code Enforcement and Inspections is responsible for ensuring all construction work in the Township complies with the requirements of the New Jersey Uniform Construction Code.
Emergency Management/Public Safety Department	Yes	Both the Division of Police and Division of Emergency Management fall within the Department of Law Enforcement. As such, the Division of Emergency Management answers to the Director of Law Enforcement, who is the Chief of Police. Emergency Management is responsible for mitigation, preparedness, response, and recovery in the Township.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	The Township utilizes the Everbridge notification warning platform for hazard events. It is a critical communication application offered to the Township through Gloucester County.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Washington Township Municipal Services
Mutual aid agreements	Yes	Washington Township has reciprocal "mutual aid" agreements to assist other public and private sector entities during the course of given emergencies.
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Other	Yes	The Business Administrator oversees the functions of the Finance and Administration Department. The



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		<p>Department of Finance and Administration is responsible for the following functions:</p> <ul style="list-style-type: none"><li>• Department Head Management</li><li>• Budget Preparation</li><li>• Economic Development</li><li>• Personnel</li><li>• Technology</li><li>• Administrative Services</li><li>• Employee Safety</li><li>• Contracted Work</li></ul> <p>The Department of Housing completes Certificate of Occupancy inspections ensure that buyers and tenants moving into properties have a safe environment. All items inspected have an effect on life safety, health, and welfare of occupants or users of buildings. Property records are also checked for work done with no permits and permitted work that was never inspected.</p> <p>The Family &amp; Community Services Committee is a volunteer organization, comprised of municipal officials, educators, police officers and community members, committed to coordinating resources and activities to help educate Washington Township residents battling addiction, poverty and other threats to our families, with a special focus on preventing drug abuse.</p> <p>The Historic Preservation Commission promotes awareness of local culture and history. The Board will preserve, present and educate the public about artifacts and traditions indigenous to Washington Township. The functions and duties of the Commission shall be to establish long-range plans for the development of the Olde Stone House Village, and to plan, organize and implement programs of an entertaining and educational nature.</p> <p>The Green Team encourages both a broad vision of sustainability across the community and a focus on municipal activities and operations. Designated membership of the GTAC includes representatives of the Administration, Township Council, Environmental Commission, Planning Board, Municipal Utilities Authority, Chamber of Commerce, School Board, Public Works Department, and the Public.</p> <p>Senior Citizen Advisory Board</p>
<b>Technical/Staffing Capability</b>		



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with knowledge of land development and land management practices	Yes	Consultants
Engineers or professionals trained in building or infrastructure construction practices	Yes	Consultants
Planners or engineers with an understanding of natural hazards	Yes	Consultants
Staff with expertise or training in benefit/cost analysis	Yes	Consultants (Engineer/Financial Analysis)
Professionals trained in conducting damage assessments	Yes	Consultants
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Consultants
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Consultants
Emergency Manager	Yes	Police Chief
Grant writer(s)	Yes	Consultants
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Stormwater and environmental engineering services available.
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> By addressing items listed in the emergency management plan.		

### 9.19.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Washington.

Table 9.19-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Unknown
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Unknown
Incur debt through private activity bonds	Unknown
Withhold public expenditures in hazard-prone areas	Unknown
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	Yes, Open Space Trust Fund tax. Since 2001, with monies from the Open Space Trust Fund, the



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
	Green Acres Program, and Gloucester County Open Space and Farmland Preservation Funds, some 330 acres of land have been permanently preserved.
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Team looks at infrastructure.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes</li> </ul>	

### 9.19.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Washington.

*Table 9.19-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Internal staff
Personnel skilled or trained in website development	Yes	Internal staff
Hazard mitigation information available on your website	Yes	Information on disaster preparedness, storm readiness, covid-19, and mitigation concepts are hosted on the emergency management page. Information on stormwater management is located on the Municipal Services page. The MUA has water conservation available on their website.
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, Instagram, YouTube
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission, Family & Community Services Committee, Historic Preservation Commission, Senior Citizen Advisory Board, Green Team
Other programs already in place that could be used to communicate hazard-related information	Yes	See above
Warning systems for hazard events	Yes	Township utilizes the Everbridge notification warning platform for hazard events. It is a critical communication application offered through Gloucester County.
Natural disaster/safety programs in place for schools	Yes	Our Schools / Superintendent has a safety / disaster plan in place that addresses emergency preparedness in schools for students and staff.
Other	No	-



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b> Yes. The Township has outreach programs in place Through the Fire Department & Police Department to provide programs and communications to residents. The programs educate the public & provides communications to keep them safe during natural disasters, hazards and risks.		

### 9.19.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Washington.

Table 9.19-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Unknown	-	-
Sustainable Jersey	Yes	Silver	December 16, 2020
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable  
NP Not participating  
- Unavailable

Washington Township is a silver certified community in the Sustainable Jersey program. The community earned points to support certification through the following hazard mitigation related actions:

- **Green Team:** Washington Township Council established the Green Team Advisory Committee (GTAC) in 2015 to encourage both a broad vision of sustainability across the community and a focus on municipal activities and operations. Designated membership of the GTAC includes representatives of the Administration, Township Council, Environmental Commission, Planning Board, Municipal Utilities Authority, Chamber of Commerce, School Board, Public Works Department, and the Public.
- **Water Protection:** The Township and MUA have developed various water protection measures including education, a wellhead protection ordinance, a Land Development Checklist, ground water monitoring, etc.
- **Natural Resource Inventory:** An Environmental Resource Inventory (ERI), also known as a Natural Resource Inventory, is a compilation of information about the natural resource characteristics and environmental features of a community. The ERI for Washington Township was first completed in 1991 and updated in 2017.
- **Environmental Commission:** The Washington Township Environmental Commission (WTEC) was established in 1989. The WTEC's purpose is the protection, development and use of natural resources including water resources in Washington Township. The WTEC reviews land development project plans submitted to our Planning Board and Zoning Board of Adjustment.





- *Open Space Plans:* In 2001, the Township Council established the Open Space Trust Fund and tax. Council created the Open Space Advisory Committee (OSAC), and charged it with developing an Open Space and Recreation Plan (OSRP) for submission to the New Jersey Green Acres Program (qualifying the Township for the Planning Incentive Program). The OSRP was formally reviewed in 2009. An update to the OSRP was initiated in May 2017, with assistance from The Land Conservancy of New Jersey (TLC-NJ).
- *Water Conservation Education Program:* The Washington Township Municipal Utilities Authority (WTMUA) operates the community water system in the Township and completes water conservation education in conjunction with the Environmental Commission.
- *Environmental Assessment Ordinance:* Washington Township requirements for major land development applications include submission of a Phase I Environmental Site Assessment (ESA), and all items included on the Washington Township Land Development Checklist.
- *Tree Protection Ordinance:* In October 2005, Washington Township Council adopted the Tree Preservation and Maintenance Ordinance, 21-2005, developed by the Environmental Commission and the Planning Board Environmental Engineer. Its purposes are to prevent the indiscriminate destruction of trees and to assure the environmental and health benefits that trees provide.
- *Community Forestry Management Plan:* Washington Township completed and adopted its first Community Forestry Management Plan (CFMP) in 2020. The CFMP was developed through the combined efforts of staff of the Public Works Department and volunteers from the Open Space Advisory Committee, with the assistance of Remington & Vernick Engineers. Washington Township received a Green Communities Grant from the New Jersey Department of Environmental Protection Forestry Program in 2018, which has assisted in the production of the CFMP.

### 9.19.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.19-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Invasive	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.19.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.19-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 43</li> <li># RL properties: 1</li> <li># SRL properties: 0</li> <li># RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$21,017.00</li> <li># claims filed: 9</li> <li>Total loss payments: \$24,744.89</li> </ul>
Describe areas prone to flooding in your jurisdiction.	SFHA
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, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Zoning/Construction makes Substantial Damage determinations. None have been declared for recent events.
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> <li>If not, state why.</li> </ul>	Yes.
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Administration/zoning. To be changed to zoning and construction.
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No Township staff. However, consultant municipal engineering firm retains CFMs on staff if needed.
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Permit review: Zoning GIS and engineering through the Township Engineer



NFIP Topic	Comments
What specific training or support does your floodplain management staff need to support its floodplain management program?	Need to revise ordinance and improve training program to determine needs. Have support but need to make sure it is well utilized.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Zoning/Construction Department review
Do you have access to resources to determine possible future flooding conditions from climate change?	the Township has GIS data hosted by the Township engineer and is currently starting the mapping of the stormwater system.
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None that are known.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV conducted on July 18, 2006.
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 96, 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Flood damage prevention ordinance requires update to meet state standards.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Yes. There is a very strong review process at the planning board/zoning board for all major and minor site plans and subdivisions which would address any potential flood concerns.
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.19.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.19-10. Recent and Expected Future Development*

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						



	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	34	-	50	-	82	-	63	-	70	-	32	-
Multi-Family	-	-	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	3	-	3	-	2	-	3	-	3	-	1	-
Total Permits Issued	37	-	53	-	84	-	66	-	73	-	33	-
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												
Lofts at Blackwood	Residential Housing	Six	Block 5, Lot 1 and 1.01		None			Approved by planning and zoning boards				
Wawa	Commercial	One	Block 7, Lot 6.02 and Block 7.04, Lot 6		None			Approved by planning and zoning boards				

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.19.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Washington's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Washington has significant exposure. The maps also show the location of potential new development, where available.





Figure 9.19-1. Township of Washington Hazard Area Extent and Location Map 1

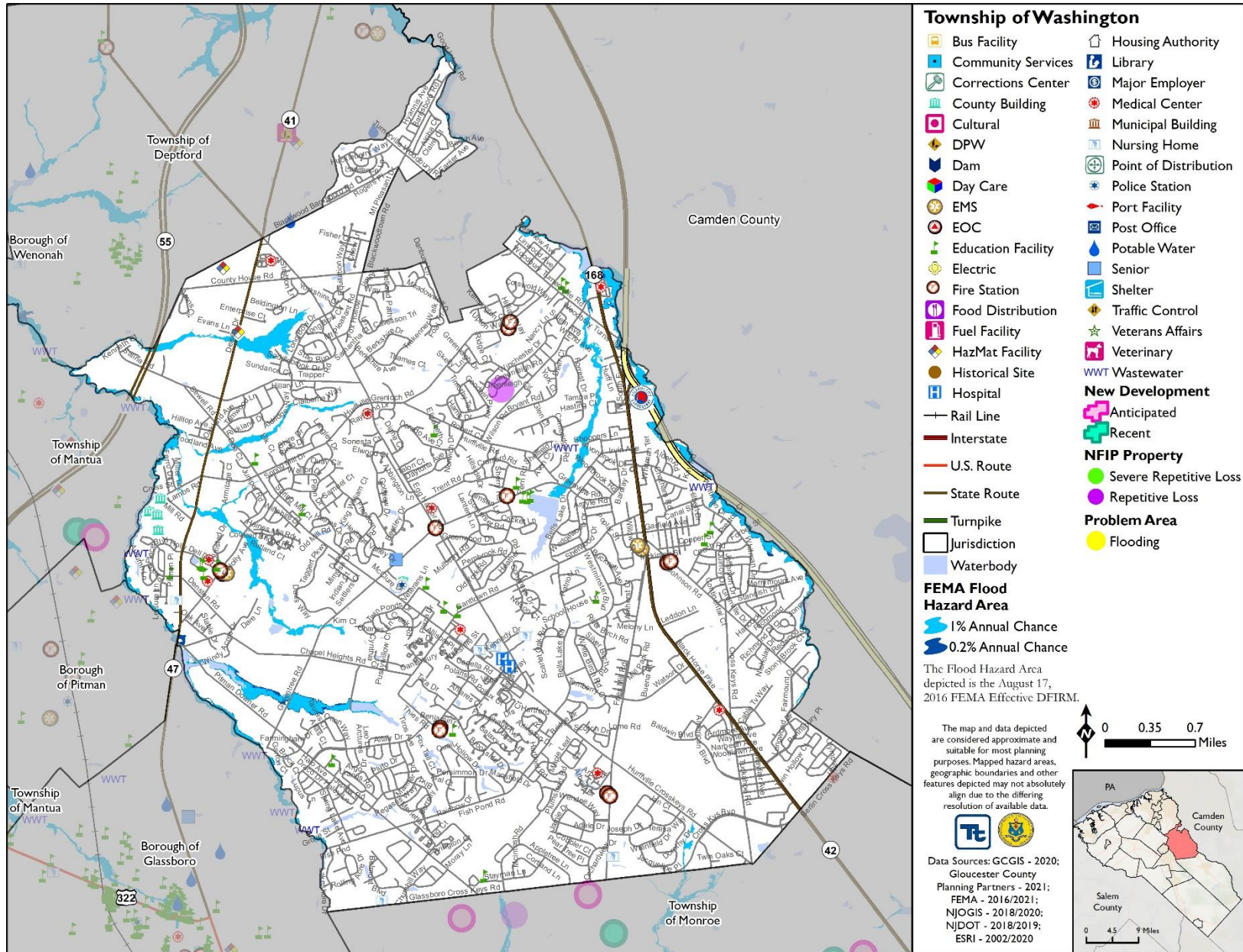






Figure 9.19-2. Township of Washington Hazard Area Extent and Location Map 2

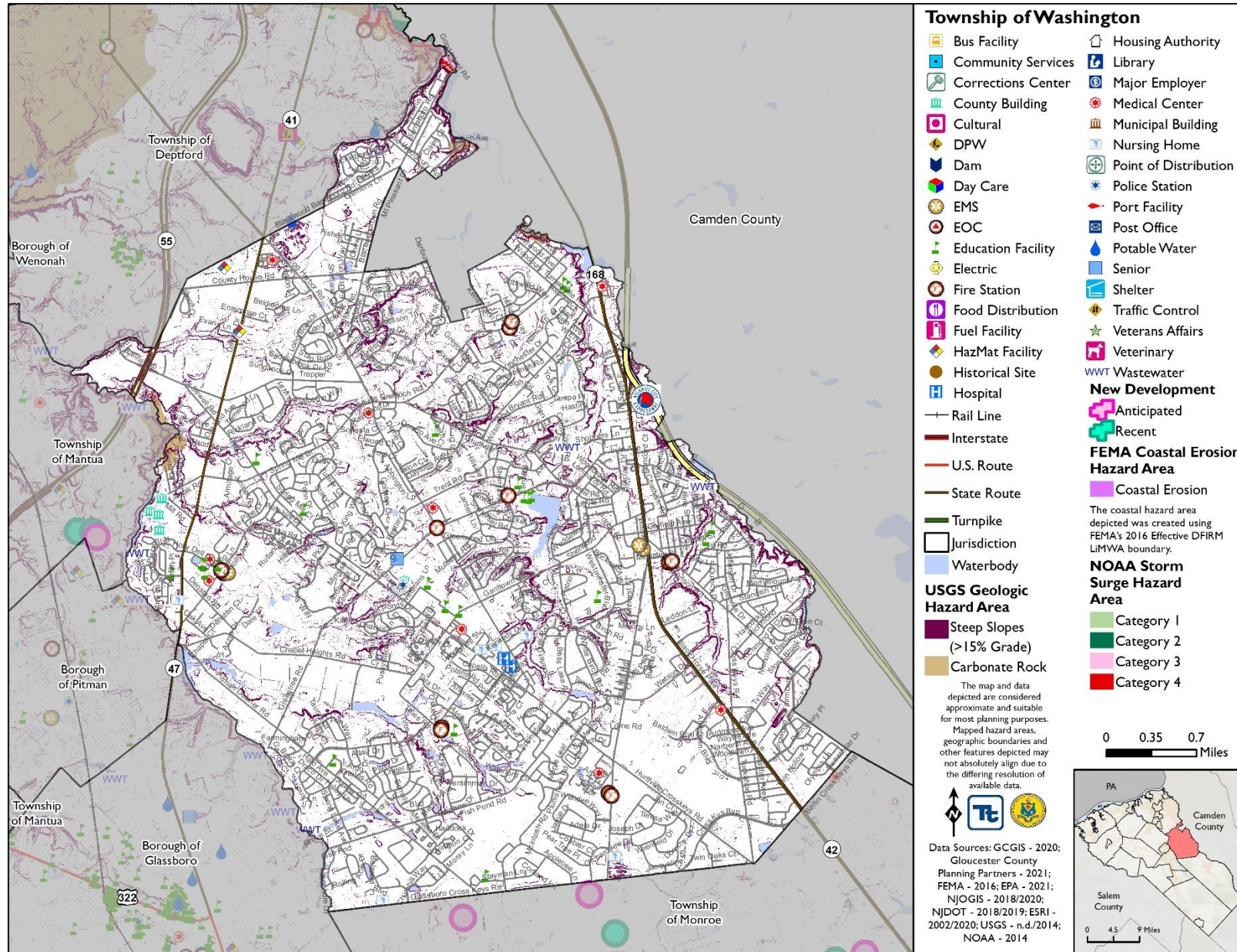






Figure 9.19-3. Township of Washington Hazard Area Extent and Location Map 3

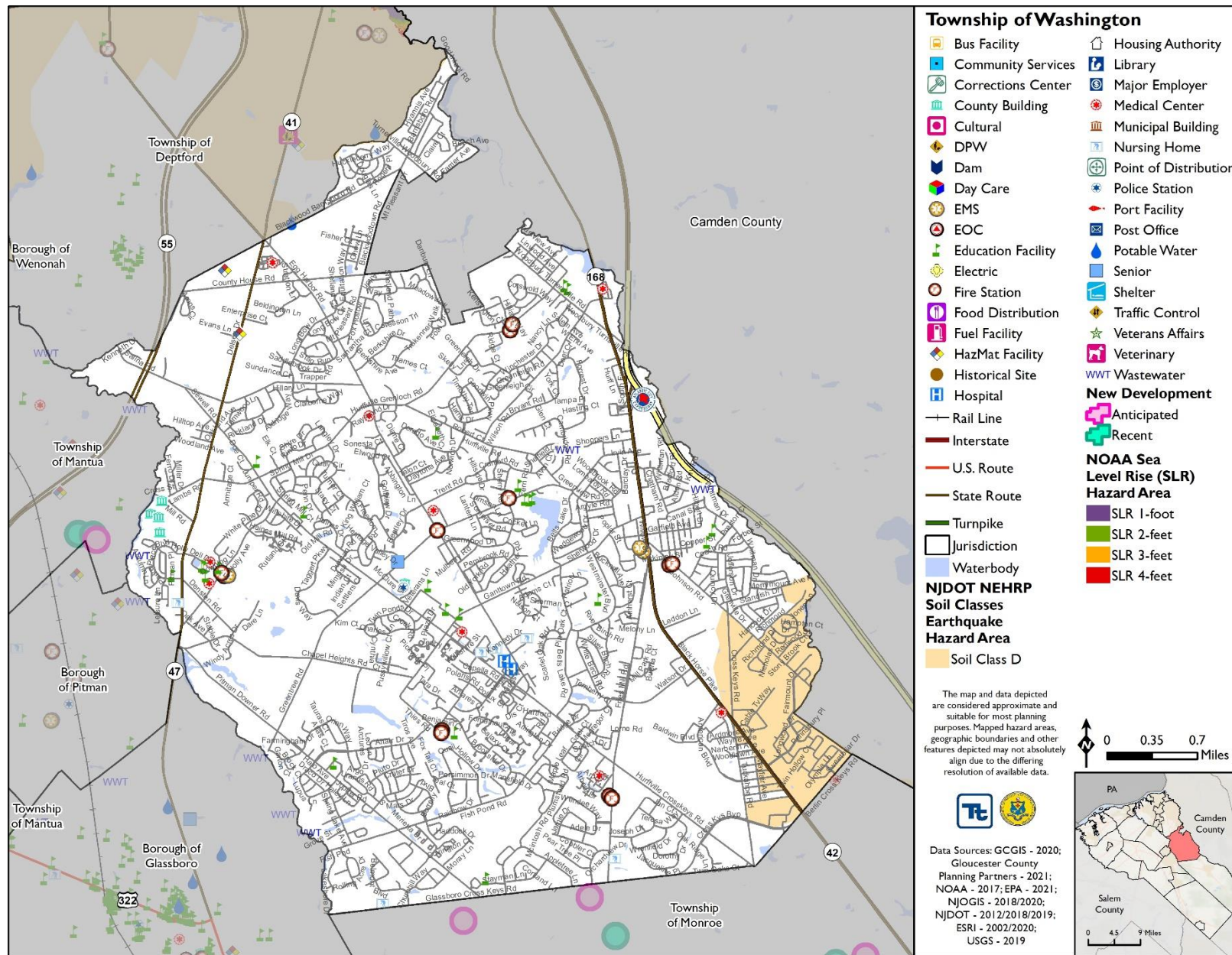
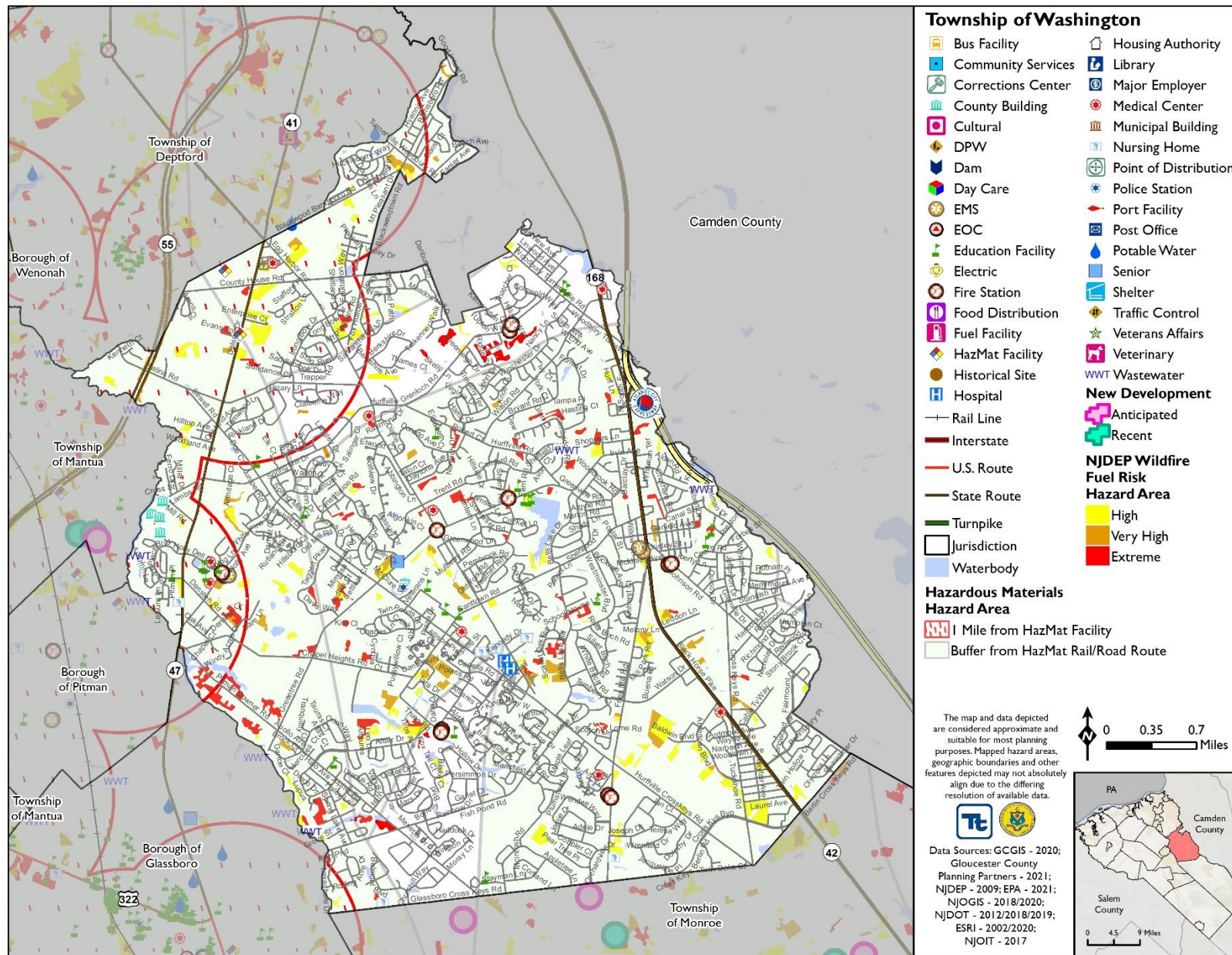






Figure 9.19-4. Township of Washington Hazard Area Extent and Location Map 4





### 9.19.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Washington's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.19-11. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Deicing of roads as a result of low temperatures. Costs for municipal labor, equipment, and salt totaling \$18,900.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	<i>Damages and losses as a result of downed trees and high winds included: tree removal and cleanup, fencing damages, vehicle damages, recreation facilities damages, roofing damages, etc. Cost for labor and equipment to restore damages inflicted by storm estimated \$531,640.</i>
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Snow plowing as a result of winter storm by public works. Costs for municipal labor, equipment, and salt totaling \$40,755.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Snow plowing as a result of winter storm by public works. Costs for municipal labor, equipment, and salt totaling \$60,575.
January 20, 2020 – Present	Covid-19 Pandemic	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Damages and losses as a result of the COVID-19 pandemic include but not limited to: purchasing and



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
	(EM-3451-NJ)  (DR-4488-NJ)			providing PPE, temporary signage and Township owned buildings, cleaning supplies, additional labor for police patrol, etc. Cost incurred during March 2022 September 2020, \$124,635

### 9.19.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Washington's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Washington. The Township of Washington reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township changed the hazard ranking for flood from low to high based on the impacts of stormwater flooding.
- The Township changed the hazard ranking for invasive species from low to medium based on past issues with beavers causing flooding impacts on streams and drainage basins.
- The Township agreed with the remainder of the hazard rankings.

*Table 9.19-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	High





Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Medium	Medium	High

Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.19-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.19.6.3 Identified Issues

After review of the Township of Washington's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Washington has identified the following vulnerabilities within their community:

- Various culverts within the Township contribute to flooding and erosion. A full inventory of these culverts and the necessary improvements needs to be completed.
- Leddon Lane experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.
- Whitman Drive experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.
- Wilson Road experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.
- The Police Department roof is degraded and requires replacement. The current roof does not meet high wind standards and could be threatened by damage in large wind or heavy snow events.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss property. Other areas may be floodprone.



- Due to siltation, flood volume and carrying capacity has been lost and dredging is needed to recover the loss to prevent overflowing of basins and potential flooding.
- The Township lacks an adopted Disaster Debris Management Plan.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.

## 9.19.7 Mitigation Strategy and Prioritization

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

### 9.19.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.19-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP - Action #
MJ-1	Alleviate flooding at Pitman Downer Road and Route 47	Municipal OEM, Gloucester County DPW, NJDOT	In Progress. County and NJDOT responsibility	-	-
MJ-2	Alleviate flooding at Fish Pond Road.	Municipal OEM, Glassboro Borough DPW, Gloucester County OEM	Complete. County has made improvements to Fish Pond Road.	-	-
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability. OEM handouts at buildings, social media pages, Township website curious	-	-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability. No flood damage to Township facilities.	-	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	Ongoing capability	-	-
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability. Quarterly local emergency planning committee meetings and mayor's monthly meeting.	-	-
M-05	Install permanent backup emergency power generator at Fire Station 10-3M Maintenance Facility on East Holly Avenue (CF-10).	Municipal OEM and Fire Department	Complete	-	-
M-06	Install permanent backup emergency power generator at Public Works Facility (CF-12).	Public Works Department	Complete	-	-
M-07	Install permanent backup emergency power generator at Senior Center (CF-80).	Municipal OEM and Public Works Department	Complete	-	-
M-08	Upgrade permanent backup emergency power generator at Police Department (CF-3).	Municipal OEM and Police Department	Complete	-	-
M-09	Engineering evaluation to assess dam on Spring Lake.	Municipal OEM and Public Works Department	Complete. Dam and spillway repaired and roadway reconstructed.	-	-
M-10	Engineering study to identify upgrades to storm water management system on Palomar Road.	Municipal OEM and Public Works Department	Ongoing Capability. Stormwater system continually being monitored and maintained. County performed	-	-





2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP - Action #
			sidewalk work in area on Pitman Downer Road.		
M-11	Stabilize stream bank on Hyannis Drive.	Municipal OEM and Public Works Department	Complete. Initial repairs made and continuing to monitor.	-	-
M-12	Dredge basin on Goodwin Parkway to restore water storage capacity.	Municipal OEM and Public Works Department	In Progress. Dredged previously since last update but need further dredging and maintenance.	X	2022-Washington-007
M-13	Dredge Spring Lake to restore Lake's water storage capacity.	Floodplain Administrator	In Progress. Completing initial study to determine restoration needs.	X	2022-Washington-007
M-14	Improve culvert on Spring Lake Avenue.	Municipal OEM, Public Works Department, and Police Department	Complete	-	-
M-15	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	In Progress	X	2022-Washington-006
M-16	Harden / retrofit Police Department building to include upgrade to roof (CF-3).	Municipal OEM, Public Works Department, and Police Department	No Progress. Responsibility of Public Works and Engineering.	X	2022-Washington-005



### 9.19.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.19-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.19.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Washington participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.19-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Extreme Temperature	X									X
Flood	X	X	X		X			X	X	X
Geologic	X									X
Hazardous Materials	X									X
Hurricane	X									X
Invasive Species	X									X
Nor'Easter	X									X
Severe Weather	X	X	X			X		X	X	X
Severe Winter Weather	X	X				X				X
Wildfire	X									X
Utility Failure	X									X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.19-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Washington 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 9.19-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.19-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Washington-001	Stormwater Culvert Improvements	<b>Problem:</b> Various culverts within the Township contribute to flooding and erosion. A full inventory of these culverts and the necessary improvements needs to be completed.  <b>Solution:</b> The Township Engineer will determine which culverts contribute to flooding and erosion issues and identify the necessary improvements. Township Public Works Department will then replace and upsize the components as necessary.	Existing	Flood, Severe Weather	1, 2	Engineer, DPW	HMGP, BRIC, municipal budget	Reduction in flood risk	High	Within 5 years	High	SIP	SP
2022-Washington-002	Stormwater Improvements on Leddon Lane	<b>Problem:</b> Leddon Lane experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.  <b>Solution:</b> The Township will explore options to increase the capacity and stormwater services provided to Leddon Lane. Once cost-effective measures are identified, the Township Public Works will implement the improvements.	Existing	Flood, Severe Weather	1, 2	Engineer, DPW	HMGP, BRIC, FMA, Township funds	Increased stormwater efficiency	High	Within 5 years	High	SIP	SP
2022-Washington-003	Stormwater Improvements on Whitman Drive	<b>Problem:</b> Whitman Drive experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.	Existing	Flood, Severe Weather	1, 2	Engineer, DPW	HMGP, BRIC, FMA, Township funds	Increased stormwater efficiency	High	Within 5 years	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Township will explore options to increase the capacity and stormwater services provided to Whitman Drive Once cost-effective measures are identified, the Township Public Works will implement the improvements.											
2022-Washington-004	Stormwater Improvements on Wilson Road	<b>Problem:</b> Wilson Road experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.  <b>Solution:</b> The Township will explore options to increase the capacity and stormwater services provided to Wilson Road. Once cost-effective measures are identified, the Township Public Works will implement the improvements.	Existing	Flood, Severe Weather	1, 2	Engineer, DPW	HMGP, BRIC, FMA, Township funds	Increased stormwater efficiency	High	Within 5 years	High	SIP	SP
2022-Washington-005	Retrofit Police Department Roof	<b>Problem:</b> The Police Department roof is degraded and requires replacement. The current roof does not meet high wind standards and could be threatened by damage in large wind or heavy snow events.  <b>Solution:</b> The Township will replace the roof of the Police Department with a roof designed to withstand high wind events and heavy snow loading requirements.	Existing	Severe Weather, Severe Winter Weather	1, 2, 5	Engineering, Public Works Department, and Police Department	HMGP, BRIC, USDA Community Facilities Grant Program, Township budget	Protection of critical facility from wind/snow damages	High	2 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Washington-006	Address Repetitive Loss Properties	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has one repetitive loss property. Other areas may be floodprone.</p> <p><b>Solution:</b> Conduct outreach to 10 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).</p>	Existing	Flood, Severe Weather	1, 2	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$6 Million	3 years	High	SIP	PP
2022-Washington-007	Dredging of Stormwater Basins and Waterways to Reduce Stormwater Storage	<p><b>Problem:</b> Due to siltation, flood volume and carrying capacity has been lost and dredging is needed to recover the loss to prevent overflowing of basins and potential flooding.</p> <p><b>Solution:</b> The Township will survey stormwater basins and waterways to determine which require</p>	Existing	Flood	1, 2	Engineering/DPW	Township budget	Flood risk reduced; natural system restored	High	Within 5 years	Medium	SIP, NSP	SP, NR





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		dredging to restore former flood storage capacity.											
2022-Washington-008	Develop Disaster Debris Management Plan	<p><b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.</p>	Existing	All Hazards	5	Public Works, OEM	Township budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LPR	ES
2022-Washington-009	Update the Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	Floodplain Administrator, Administration	Township budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	Medium	LPR	PR

Notes:

Not all acronyms and abbreviations defined below are included in the table.



**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.19-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Washington-001	Stormwater Culvert Improvements	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High 
2022-Washington-002	Stormwater Improvements on Leddon Lane	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Washington-003	Stormwater Improvements on Whitman Drive	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Washington-004	Stormwater Improvements on Wilson Road	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Washington-005	Retrofit Police Department Roof	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2022-Washington-006	Address Repetitive Loss Properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022-Washington-007	Dredging of Stormwater Basins and Waterways to Reduce Stormwater Storage	0	1	1	1	1	0	0	1	1	1	0	0	1	1	9	High
2022-Washington-008	Develop Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-Washington-009	Update the Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.19.8 Action Worksheets

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The following action worksheets have been developed by the Township of Washington to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Stormwater Culvert Improvements		
<b>Project Number:</b>	2022-Washington-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Various culverts within the Township contribute to flooding and erosion. A full inventory of these culverts and the necessary improvements needs to be completed.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township Engineer will determine which culverts contribute to flooding and erosion issues and identify the necessary improvements. Township Public Works Department will then replace and upsize the components as necessary.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by size selected	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, municipal budget
<b>Responsible Organization:</b>	Engineer, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadway	\$500,000	Costly and may not solve problem
	Relocate roadway	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Culvert Improvements	
<b>Project Number:</b>	2022-Washington-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding.
<b>Property Protection</b>	1	Protects culvert from flood damage
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, DPW
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Stormwater Improvements on Leddin Lane		
<b>Project Number:</b>	2022-Washington-002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Leddin Lane experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will explore options to increase the capacity and stormwater services provided to Leddin Lane. Once cost-effective measures are identified, the Township Public Works will implement the improvements.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by selected improvements	<b>Estimated Benefits (losses avoided):</b>	Increased stormwater efficiency
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, Township budget
<b>Responsible Organization:</b>	Engineer, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate roadway	\$500,000	Costly and may not solve problem
	Relocate roadway	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Improvements on Leddon Lane	
<b>Project Number:</b>	2022-Washington-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding.
<b>Property Protection</b>	1	Protects property from flood damage
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, DPW
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Stormwater Improvements on Whitman Drive		
<b>Project Number:</b>	2022-Washington-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Whitman Drive experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will explore options to increase the capacity and stormwater services provided to Whitman Drive. Once cost-effective measures are identified, the Township Public Works will implement the improvements.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by selected improvements	<b>Estimated Benefits (losses avoided):</b>	Increased stormwater efficiency
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, Township budget
<b>Responsible Organization:</b>	Engineer, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadway	\$500,000	Costly and may not solve problem
	Relocate roadway	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Improvements on Whitman Drive	
<b>Project Number:</b>	2022-Washington-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding.
<b>Property Protection</b>	1	Protects property from flood damage
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, DPW
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Stormwater Improvements on Wilson Road		
<b>Project Number:</b>	2022-Washington-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Wilson Road experiences flooding. Stormwater improvements are necessary to alleviate these flooding conditions.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will explore options to increase the capacity and stormwater services provided to Wilson Road. Once cost-effective measures are identified, the Township Public Works will implement the improvements.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by selected improvements	<b>Estimated Benefits (losses avoided):</b>	Increased stormwater efficiency
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, Township budget
<b>Responsible Organization:</b>	Engineer, DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadway	\$500,000	Costly and may not solve problem
	Relocate roadway	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Improvements on Wilson Road	
<b>Project Number:</b>	2022-Washington-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding.
<b>Property Protection</b>	1	Protects property from flood damage
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Township has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	Engineer, DPW
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Retrofit Roofs on Critical Facilities to Withstand High Winds		
<b>Project Number:</b>	2022-South Harrison-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Severe Winter Weather		
<b>Description of the Problem:</b>	The Police Department roof is degraded and requires replacement. The current roof does not meet high wind standards and could be threatened by damage in large wind or heavy snow events.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will replace the roof of the Police Department with a roof designed to withstand high wind events and heavy snow loading requirements.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year wind event	<b>Estimated Benefits (losses avoided):</b>	Protection of critical facility from wind/snow damages
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, USDA Community Facilities Grant Program, Township budget
<b>Responsible Organization:</b>	Engineering, Public Works Department, and Police Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Build Police Department	High	Costly, unnecessary
	Build backup Police Department of failure	High	Costly, facility unlikely to be used
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Retrofit Police Department Roof	
<b>Project Number:</b>	2022-Washington-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects critical services of Police Department
Property Protection	1	Protects building from wind and snow damages
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	The project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Weather, Severe Winter Weather
Timeline	1	2 years
Agency Champion	1	Engineering, Public Works Department, and Police Department
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Address Repetitive Loss Properties		
<b>Project Number:</b>	2022-Washington-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 1 repetitive loss property, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	\$13 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	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)			



<b>Date of Status Report:</b>	
<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	

Action Worksheet		
<b>Project Name:</b>	Address Repetitive Loss Properties	
<b>Project Number:</b>	2022-Washington-006	
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 Township 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 Township.
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



## 9.20 BOROUGH OF WENONAH

This section presents the jurisdictional annex for the Borough of Wenonah and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and protect people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Wenonah's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.20.1 Hazard Mitigation Planning Team

The Borough of Wenonah followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Wenonah's hazard mitigation plan primary and alternate points of contact. 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 9.20-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Richard Black, Volunteer OEM Address: 1 South West Avenue, Wenonah, NJ 08090 Phone Number: 856-373-2537 Email: Wenonah.oem@gmail.com	Name/Title: Mayor John R Dominy, Mayor; Susan Mayer, Volunteer Councilwoman Address: 1 South West Avenue, Wenonah, NJ 08090 Phone Number: 856-371-5938; 856-220-3843 Email: <a href="mailto:jdominy@boroughofwenonah.com">jdominy@boroughofwenonah.com</a> <a href="mailto:smayer@boroughofwenonah.com">smayer@boroughofwenonah.com</a>
NFIP Floodplain Administrator	



Name/Title: Dave Kreck, Borough Engineer  
Address: 1 South West Avenue, Wenonah, NJ 08090  
Phone Number: 267-972-6317  
Email: dkreck@pettitgroup.com

Name	Title	Method of Participation
Brian Nicholson	Director of Public Works	Assisted in development of HMP annex, reviewed annex and provided feedback
Mike DiPaolo	2 <sup>nd</sup> Deputy Emergency Management Coordinator	Assisted in development of HMP annex
Tim Nessler	Fire Chief	Assisted in development of HMP annex
Karen Sweeney	Borough Clerk	Reviewed draft annex and assisted in its development
John R. Dominy	Mayor	Reviewed annex and provided feedback
Richard Black	Volunteer OEM	Reviewed annex and provided feedback

## 9.20.2 Municipal Profile

Wenonah was established as a Borough by an act of the New Jersey Legislature on March 10, 1883, from portions of Deptford Township. The Mantua Land and Improvement Company was incorporated on February 21, 1871 with the goal to develop a suburban community located around the newly built New Mantua train station. The company marked out the town plots into fourteen squares of twelve building lots, each measuring 75 X 150 feet deep. The railroad station, which was situated on the West side of the tracts, was the core of the rectangle, which was one-half mile in length and one-third more in width. On April 3, 1871, it was resolved that the name of the new town would be Wenonah. It is an Indian name meaning first-born daughter. Henry Wadsworth Longfellow's poem, "The Song of Hiawatha", presumes that Wenonah was Hiawatha's mother.

According to the United States Census Bureau, the Borough had a total area of 1.01 square miles, including 1.00 square miles of land and 0.02 square miles (0.04 km<sup>2</sup>) of water. Major roads that pass through or adjacent to the municipality are the New Jersey Turnpike, Route 45 and Highway 55. It is located approximately 10 miles (16 km) south of Philadelphia, Pennsylvania.

Wenonah is governed under the Borough form of New Jersey municipal government. The governing body is comprised of a Mayor and a Borough Council, with all positions elected at-large on a partisan basis as part of the November general election. A Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis, with two seats coming up for election each year in a three-year cycle.

According to the U.S. Census, the 2010 population for the Borough of Wenonah was 2,278. The estimated 2019 population was 2,259, a .83 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.9 percent of the population is 5 years of age or younger and 15.9 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.





## 9.20.3 Jurisdictional Capability Assessment and Integration

The Borough of Wenonah performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.20.3). The updated mitigation strategy includes opportunities the Borough of Wenonah identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.20.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Wenonah, what is present in the jurisdiction, and code citation and date.

*Table 9.20-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 18A – Uniform Construction Code	State and Local	Construction Code Official/Construction Code Enforcement Agency
<i>How does this reduce risk?</i> The Borough adopted the current New Jersey Uniform Construction Code, and the Construction Code Official enforces the code. The Construction Code Official is primarily responsible for enforcing the building codes as established by New Jersey's Division of Codes and Standards to protect the health and safety of residents. The codes are set forth in the Uniform Construction Code, which includes the subcode requirements for building, electrical, plumbing, fire protection, energy, mechanical, elevator, radon, asbestos, rehabilitation and barrier-free subcodes, and lead hazard abatement.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 72 – Land Use – Article VII Zoning Regulations, amended August 27, 2020	Local	Administrative Officer/Combined Planning Board
<p><i>How does this reduce risk?</i></p> <p>The Administrative Officer is primarily responsible for enforcing the Zoning code of the Borough which pertains to what can be built on a specific property and what restrictions and requirements are needed for each improvement. The purpose of this chapter is to promote and protect the public health, safety, and general welfare and in the furtherance of the following specific objectives: ensuring the coordinated development of the Borough in accordance with its master plan; lessening congestion on the streets and ensuring access to the circulation system; providing for adequate light and air; preventing the overcrowding of land and buildings; promoting a desirable visual environment through creative development techniques and good civic design and arrangements; providing a full range of housing choices to meet the needs of households in all income levels; avoiding the undue concentration of population; ensuring the conservation and protection of open space and natural features; and conserving the value of property.</p> <p>The Borough is divided up into 11 zoning districts and the zoning map was adopted on September 9, 2014. The Borough has a parks and conservation district which is intended to promote Conservation and/or recreational purposes and shall not permit exploitation and destructive use of the Borough's natural resources and which shall provide for their long-range preservation.</p>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 58, Subdivision of Land – Chapter 72 – Land Use – Article IV Subdivision and Site Plan Review	Local	Combined Planning Board
<p><i>How does this reduce risk?</i></p> <p>Approval of subdivision plats by the Combined Planning Board shall be required as a condition for filing of such plats with the County Recording Officer. The design of a subdivision shall be reviewed for environmental elements relating to the preservation of trees and woodlands; the protection of steep slopes; the protection of watercourses and water resources; soil erosion control; the preservation of natural features; the reduction of noise, heat, glare, and vibration; the preservation of cultural resources, and the reduction of impacts on wildlife. Subdivision plans must identify the general location of any water courses, flood plans, wetlands, significant woodland cover, steep slopes, or other environmentally sensitive lands or significant physical features on and within 200 feet of the subject parcel.</p>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 72 – Land Use	Local	Combined Planning Board/Borough Engineer
<p><i>How does this reduce risk?</i></p> <p>While the borough does not have a separate stormwater ordinance, State stormwater quantity and quality controls are a significant component of all development reviews included in Chapter 72. The Ordinance formally adopts the NJDEP Stormwater Management Regulations which include provisions for stormwater quantity control for Major Development whose purposes is to reduce the potential for flooding.</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	Yes	Yes	Chapter 46B, Debris Recovery Plan	Local	Municipal Recycling Coordinator
<p><i>How does this reduce risk?</i></p> <p>Although not a complete Post-Disaster Recovery Plan, the Borough's Debris Recovery Plan Ordinance would certainly be an element of such a Plan.</p> <p>A debris recovery plan shall identify the types and estimated quantities of construction and demolition debris to be generated from a project, how each material will be managed, and the name of each facility or service provider that the entity will use to manage each material. Upon completion of the covered project, but before the final inspection, the owner of the entity carrying out a covered project shall submit in person or by certified mail to the Municipal Recycling Coordinator, the documentation required to demonstrate that the applicant has met the diversion requirement for recyclable materials.</p>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<p><i>How does this reduce risk?</i></p> <p>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Planning for the Future, Wenonah Borough Master Plan, October 28, 1992	Local	Combined Planning Board
<p><i>How does this reduce risk?</i></p> <p>The Master Plan contains a Conservation Element focused on growth management. It forms part of the background information gathered in the master plan process leading to the land use plan. By identifying environmentally sensitive lands, this element conversely provides a basis for those lands capable of sustaining development and redevelopment at appropriate densities as noted in the Land Use Plan.</p> <p>The environmentally sensitive land areas depicted on the conservation plan are directly linked to the land development policies described in the Land Use Plan as areas to be protected as conservation land. These lands include alluvial soils, freshwater wetlands, floodplains, and steep slopes. Those land development regulations that have been retained at the local level, for instance, pertaining to steep slopes, should be reviewed specifically for their ability to grant protection of these environmentally sensitive lands. This policy of conserving environmentally sensitive directing land development to upland areas, with adequate soils provides the Borough with a good foundation by which to manage growth.</p>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a Planning Board	Chapter 58, Subdivision of Land – Chapter 72 – Land Use – Article IV Subdivision and Site Plan Review	Local and County	Combined Planning Board
<p><i>How does this reduce risk?</i></p> <p>Site plan review and approval shall be required before any development, change of use, or before any excavation, removal of soil, clearing of a site, or placing of fill on lands contemplated for development; and, except as otherwise provided, no building permit shall be issued for any building use or reduction, or enlargement in size or other alteration of any building or change in the use of a building, including accessory structures, unless a site plan or is first submitted and approved by the Combined Planning Board, and no certificate of occupancy shall be given unless all construction and development conform to the plans as approved by the Board.</p> <p>The design of a site plan shall include but not be limited to environmental elements relating to preservation of trees and woodlands; the protection of steep slopes; the protection of watercourses and water resources; soil erosion control; the preservation of natural features; the reduction of noise, heat, glare, and vibration; the preservation of cultural resources, and the reduction of impacts on wildlife. Site plans must identify the general location of any water courses, flood plans, wetlands, significant woodland cover, steep slopes, or other environmentally sensitive lands or significant physical features on and within 200 feet of the subject parcel.</p>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 20, Environmental Commission	Local	Environmental Commission
<p><i>How does this reduce risk?</i></p> <p>The Commission is established for the protection, development or use of natural resources, including water resources, located within the territorial limits of the Borough of Wenonah. The Commission shall have the power to conduct research into the use and possible use of the open land areas of the borough.</p> <p>The Environmental Commission may, subject to the prior approval of the Borough Council, acquire property, both real and personal, in the name of the Borough Council by gift, purchase, grant, bequest, devise or lease for any of its purposes and shall administer the same for such purposes subject to the terms of the conveyance or gift.</p>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 23, Flood Damage Prevention, Amended and adopted in its entirety, 5-2016.	Federal, State, County and Local	Construction Code Official
<p><i>How does this reduce risk?</i></p> <p>The flood hazard areas of the Borough of Wenonah are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazard which increase flood heights and velocities, and when inadequately anchored, causes damage in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.</p> <p>It is the purpose of this ordinance to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. It applies to all special flood hazard areas within the Borough as shown on the flood insurance rate maps dated August 17, 2016. The Construction Code Official is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.</p> <p>New construction and substantial improvement of any residential or nonresidential structure located in an A or AE Zone shall have the lowest floor, including basement together with the attendant utilities and sanitary facilities, elevated at or above the base flood elevation plus one foot or as required by ASCE/SEI 24-14, Table 2-1, whichever is more restrictive. Nonresidential structures may also be floodproofed</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
so that below the base flood level plus one foot or as required by ASCE/SEI 24-14, Table 6-1, whichever is more restrictive the structure is watertight with walls substantially impermeable to the passage of water. Wenonah is currently reviewing the NJDEP's Model Flood Plain Management Ordinance and anticipates adoption of a new, or amended, Flood Damage Prevention Ordinance in accordance with the applicable provisions of NJDEP's Model Ordinance.					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	Yes	No	Chapter 18, Conservation, Park and Recreation Areas	Local	Parks and Playgrounds Committee – Borough Committee
<i>How does this reduce risk?</i> The Conservation, Park and Recreation Ordinance is not intended to be a Climate Change Ordinance, but the conservation of woodlands and wildlife protection help to curb the impacts of Climate Change. This ordinance is deemed necessary in the interest of public health, safety, and as a proper exercise of police power in regulating the conservation of woodlands and wildlife for the protection and general welfare of the people of the Borough of Wenonah.					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	Np	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>• Does it contain natural overlay zones that set conditions? No</li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? No</li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? No</li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</li> <li>• Do the regulations allow density transfers where hazard areas exist? No</li> <li>• When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Master Plan of the Borough of Wenonah - Adopted October 28, 1992	Local	Combined Planning Board
<i>How does this reduce risk?</i> The Master Plan is designed to do the following: <ul style="list-style-type: none"> <li>• Guide the physical and economic development of the Borough toward its goals.</li> <li>• Provide harmonious and efficient allocation and arrangements of land uses and protect property values.</li> <li>• Preserve environmentally sensitive lands from development or other factors that may negatively influence them.</li> <li>• Preserve and enhance the character of the built environment through the promotion of good design.</li> <li>• Promote the preservation of historically significant structures and districts that reflect the diversity of architectural styles in the evolution of Wenonah.</li> <li>• Encourage and promote the social interaction of groups and individuals to maintain the strength of the community.</li> <li>• Provide for efficiency and economy in governmental administration.</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Goals of the Plan are to provide for the continued scenic and residential nature of Wenonah by guiding development and land uses to protect its character. Maintain the predominantly residential nature of the municipality. The lakes of Wenonah define much of the Borough's character and must be preserved.					
<b>Capital Improvement Plan</b>	Yes	Allowed	3-year Capital Plan	Local	Administration
<i>How does this reduce risk?</i> The Borough has a 3-year Capital Plan included in their annual budget. The Borough's 2021 Budget proposes infrastructure improvements to the South Marion Sewer.					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i> While the Borough does not have a debris management plan at the time of the plan update, they will begin the process of developing one as identified in Table 9.20-16.					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, February 2006	State	Borough Engineer
<i>How does this reduce risk?</i> The Wenonah Borough MSWMP was prepared as part of Gloucester County's Stormwater Management Program. The MSWMP addresses groundwater recharge and stormwater quantity and quality, by incorporating the stormwater design and performance standards for new major development (defined as projects that disturb one or more acres of land or increase the amount of impervious surface by one-quarter acre or more). These standards are intended to minimize the adverse impact of stormwater runoff on water quality, and to address water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies.					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, February 1, 2021	State	Borough Engineer
<i>How does this reduce risk?</i> The Plan documents the locations of stormwater system facilities and sets forth a maintenance schedule whose activities aid in the prevention of flooding. The Plan covers all the required reporting on efforts by the Borough to address water quality by limiting known sources of stormwater pollution.					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	Yes	No	Wenonah Borough NJ Urban and Community Forestry Program – Approved Status 2017/2021	Local	CORE Trained Community Representatives/Shade Tree Commission
<i>How does this reduce risk?</i> Approved status confirms compliance with the requirements to receive and maintain local urban and community forestry program					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
accreditation by the NJ Urban and Community Forestry Program in accordance with the NJ Shade Tree and Community Forestry Assistance Act. Reaching and maintaining Approved Status offers many benefits and opportunities to a municipality or county. These benefits include liability protection from hazardous tree situations for your municipality or county including its volunteers, promotion of training and tree related educational opportunities, and sets a foundation for the proper care and management your tree resource. Having Approved Status opens the door for valuable Community Stewardship Incentive Program (CSIP) Grants to assist in plan implementation.					
<b>Transportation Plan</b>	Yes	No	Borough of Wenonah Downtown Traffic Circulation and Parking Management Study June 29, 2012	Local/DVRP	Planning Board
<p><i>How does this reduce risk?</i></p> <p>The Borough has identified an inherent need to create a more user-friendly downtown area while enhancing commerce and maintaining the current small-town charm. With this in mind, the area surrounding "Downtown" is the focus of this Parking Management and Traffic Circulation study and for reasons described in within this report, the focus of this study has been narrowed down to include the area specifically bounded by Marion Avenue to the east, Monroe Avenue to the west, Poplar Street to the north, and Cherry Street to the south, with Mantua Avenue as the centerpiece.</p> <p>With respect to traffic circulation and accessibility, the adequacy of the existing facilities for vehicular, pedestrian, bicycle, and public transportation were analyzed and recommendations were developed for improvements that would increase accessibility, resiliency and the efficiency of circulation within the downtown area.</p> <p>Public participation in the study was a vital component in the analysis of the problems and the subsequent development of recommendations for improvements. The Borough solicited specific information from existing business owners and residents about their current parking and transportation needs, their concerns, and their experience in the interaction with other businesses and residents regarding same.</p> <p>As a follow-up to the Plan, the Borough submitted an application to the NJDOT that was approved for various improvements to Mantua Avenue that will facilitate pedestrian and bicycle transportation, as well as increase public safety, street trees, and aesthetics.</p>					
<b>Agriculture Plan</b>	-	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	Yes	No	Getting to Resilience Wenonah 2018	Local	Administration
<p><i>How does this reduce risk?</i></p> <p>The Getting to Resilience (GTR) questionnaire was originally developed and piloted by the New Jersey Department of Environmental Protection's Office of Coastal Management in an effort to foster municipal resiliency in the face of flooding, coastal storms, and sea level rise. The questionnaire was designed to be used by municipalities to assist reduce vulnerability and increase preparedness by linking planning, mitigation, and adaptation. Developed by the State of New Jersey's Coastal Management Program, the Getting to Resilience process was later adapted by the Coastal Training Program of the Jacques Cousteau National Estuarine Research Reserve (JCNER), converted into a digital format, and placed on an interactive website. The GTR has become an important first step towards municipal flood disaster preparedness and resilience in New Jersey.</p>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p> <p>The Borough of Wenonah Downtown Traffic Circulation and Parking Management Study does contribute to improved downtown development.</p>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Yes</li> <li>Are environmental systems that protect development from hazards identified and mapped? No</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan, Borough of Wenonah, October 5, 2020	State and Local	Emergency Management Coordinator
<i>How does this reduce risk?</i> Reviewed and approved by the NJ Office of The Attorney General Department of Law and Public Safety as meeting all of the criteria of an Emergency Operations Plan.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.20.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Wenonah to oversee and track development.



*Table 9.20-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	The Planning Board Engineer issues Land Use approvals for new development projects and the Borough's Construction Code Office issues Building Permits
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	Wenonah's level of buildout is approximately 90%

### 9.20.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Wenonah and their current responsibilities which contribute to hazard mitigation.

*Table 9.20-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Combined Planning Board
Zoning Board of Adjustment	Yes	Combined Planning Board
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The Environmental Commission was established for the protection, development or use of natural resources within the borough, including water resources. The Environmental Commission may, subject to the prior approval of the Borough Council, acquire property, both real and personal, in the name of the Borough Council.
Open Space Board/Committee	No	While there is not an Open Space Board, the Environmental Commission takes actions as necessary to acquire, maintain, improve, protect, limit the future use or otherwise conserve and properly utilize open spaces and other land and water areas in the Borough.
Economic Development Commission/Committee	Yes	There is a Borough economic development representative.
Public Works/Highway Department	Yes	The Public Works Department is responsible for trash, recycling and leaf collection and snow removal.
Construction/Building/Code Enforcement Department	Yes	The Borough of Wenonah is a member of the Construction Inter-local Services Program with the Township of Mantua.
Emergency Management/Public Safety Department	Yes	The Department consists of the Volunteer Fire Company and the Police Department. There is a borough emergency management coordinator and deputy coordinator, and a Bureau of Fire Prevention.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	System for mass emergency contact of residents, Everbridge And Gloucester County App.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Storm water inlet cleaning Public Works Department clears debris from stormwater system structures prior to anticipated heavy rainfall events.
Mutual aid agreements	Yes	Mutual aid construction permitting and inspections with the Township of Mantua. Mantua Township also provides the Borough with services related to Public Works, such as mechanics services, salt storage, and truck washing.
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	No	-
Shade Tree Commission	Yes	-The Wenonah Shade Tree Commission is a group of volunteers dedicated to caring for and preserving trees. Members are appointed by the Mayor. The Commission oversees tree maintenance and trimming, removal of dead trees and the planting of new trees. The Commission's oversight is limited to trees in the clear zone defined as the area between the sidewalk and the curb or if there is no sidewalk then up to 12 feet onto the property. The Clear zone is also where water and sewer utilities run through as well as gas lines
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Borough Engineer. Borough Engineer is fully versed in the local Land Development Ordinances and Stormwater Management Regulations and is tasked with enforcing them through the review of Land Development Applications
Engineers or professionals trained in building or infrastructure construction practices	Yes	Mantua Township Construction Office and the Borough Engineer is responsible for ensuring that construction activities comply with applicable environmental protection requirements
Planners or engineers with an understanding of natural hazards	Yes	Borough Engineer Borough Engineer has completed Flood Hazard Training
Staff with expertise or training in benefit/cost analysis	Yes	Borough Administrator
Professionals trained in conducting damage assessments	No	Gloucester County OEM has an App that is utilized by the Borough to conduct damage assessments. Tablets are used to record damage in the field and the information is uploaded to the App.
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	On an as-needed basis as a consultant.
Emergency Manager	Yes	Richard Black, Volunteer Emergency Manager



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Grant writer(s)	Yes	Are data and maps from the HMP used to support documentation in grant applications? No
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> The Borough's combined administrative and technical capabilities aid in the identification of features and facilities that are subject potentially hazardous events. Furthermore, said capabilities assist in the determination and subsequent implementation of measures to remediate and recover from such events as they may occur.		

### 9.20.3.4 Fiscal Capability

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

*Table 9.20-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No, Borough is ineligible for mitigation purposes
Capital improvements project funding	Yes, as the need arises
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No, strictly used for utility improvements
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes, as needed
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes, programs available through NJDEP
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? The Borough assesses its needs annually and funds capital projects as needed that provide risk reduction.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Yes</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. Yes</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	



### 9.20.3.5 Education and Outreach Capability

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

*Table 9.20-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Mayor Dominy is listed as the Public Information Officer
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	The website is updated as needed and posts are made relative to preparedness and in response to hazard events.
Social media for hazard mitigation education and outreach	Yes	The Fire Department and Emergency Management post alerts and educational information on Facebook
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	Facebook, Borough Web page, Blackboard notice system, Email blasts
Warning systems for hazard events	Yes	Information is posted on Fire and OEM webpage
Natural disaster/safety programs in place for schools	Yes	Elementary school has plan
Other	No	-
<b><i>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</i></b>		
<ul style="list-style-type: none"> <li>No, but the Borough is adding it as Mitigation Action in this Plan.</li> </ul>		

### 9.20.3.6 Community Classifications

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

*Table 9.20-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Sustainable Jersey	Yes	Bronze	October 22, 2018
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable



The Borough is a bronze certified community in the Sustainable Jersey program. The Borough earned credit towards certification from the following actions relating to hazard mitigation:

- *Brownfields*: Wenonah used the New Jersey Searchable Database and found a report on the Wenonah Brownfield sites to identify potential locations.
- *Raingardens*: The residents of Wenonah participated in a community volunteer event installing a raingarden at the Wenonah Library.
- *Environmental Commission*: The Wenonah Environmental Commission is well established, working in the community since 1974.
- *Community Forestry Management*: The Wenonah Environmental Commission (WEC) and the Wenonah Shade Tree Commission (STC) work together with volunteers from the community to protect and care for the Wenonah Conservation Area and the trees of Wenonah.
- *Municipal Communications Strategy*: Wenonah effectively blends old fashion notification systems with the new technologies when it comes to communicating to the residents of the borough
- *Climate Adaption: Flood Risk*: The Green Team used the NJ Flood Mapper Tool and the GTR tool on prepareyourcommunitynj.org. By working with Borough Professionals, the Team has completed the GTR Community Survey .

### 9.20.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.20-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazmat	Moderate
High Wind/Hurricane	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Nor’easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate





\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.20.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.20-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 3</li><li># RL properties: 0</li><li># SRL properties: 0</li><li># RL/SRL mitigated: (elevation or acquisition and funding source)</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$ 1,435.00</li><li># claims filed: 0</li><li>Total loss payments: \$0.00</li></ul>
Describe areas prone to flooding in your jurisdiction.	Undeveloped floodplains located adjacent to existing water bodies
Do you maintain a list of properties that have been damaged by flooding?	Yes, at the Construction Code Office
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	<p>After an event resulting in building damages, assess the damage to structures due to flood and non-flood causes.</p> <p>Record and maintain the flood and non-flood damage of substantial damage structures and provide a letter of Substantial Damage Determination to the owner and the New Jersey Department of Environmental Protection, Dam Safety and Flood Control Section.</p> <p>Flooding not an issue. No recent substantial damage determinations were necessary.</p>
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Engineering/Public Works/Construction Code Office
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Borough Engineer/Flood Plain Administrator



NFIP Topic	Comments
What specific training or support does your floodplain management staff need to support its floodplain management program?	CFM Training
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Substantial improvement is defined by Ordinance as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the "start of construction" of the improvement.
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None known
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	12/14/1994
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 23, Flood Damage Prevention, dated 4-49-1981, and amended in its entirety on 5-26-2016.
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Yes, meets minimum requirements
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Yes, Land Use Ordinance and Stormwater Control Ordinance
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	<ul style="list-style-type: none"><li>• No</li><li>• No</li></ul>
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most flood prone and likely to incur flood damage?	N/A
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	Yes. However, Wenonah is currently reviewing the Model Ordinance and anticipates adoption of a new, or amended, Flood Damage Prevention Ordinance in accordance with the applicable provisions of the Model Ordinance.

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.20.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of



concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.20-10. Recent and Expected Future Development*

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	0	0	0	0	0	0	0	0	0	0	1	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	0	0	0	0	0	0	0	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												
Residential	Single Family		1		505 N Stockton		Earthquake, Hazardous Materials			Completed		
Residential	Single Family		1		507 N Stockton		Earthquake, Hazardous Materials			Completed		
Residential	Single Family		1		404 S Clinton		Earthquake, Hazardous Materials			Completed		
Wenonah Well #3	Infrastructure – New Potable Water Well		1		Block 11; Lot 1		Earthquake, Hazardous Materials			Completed		
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
Residential	Single Family		1		211 E Buttonwood		Earthquake, Hazardous Materials			Approved		

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.20.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Wenonah's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Wenonah has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.20-1. Borough of Wenonah Hazard Area Extent and Location Map 1

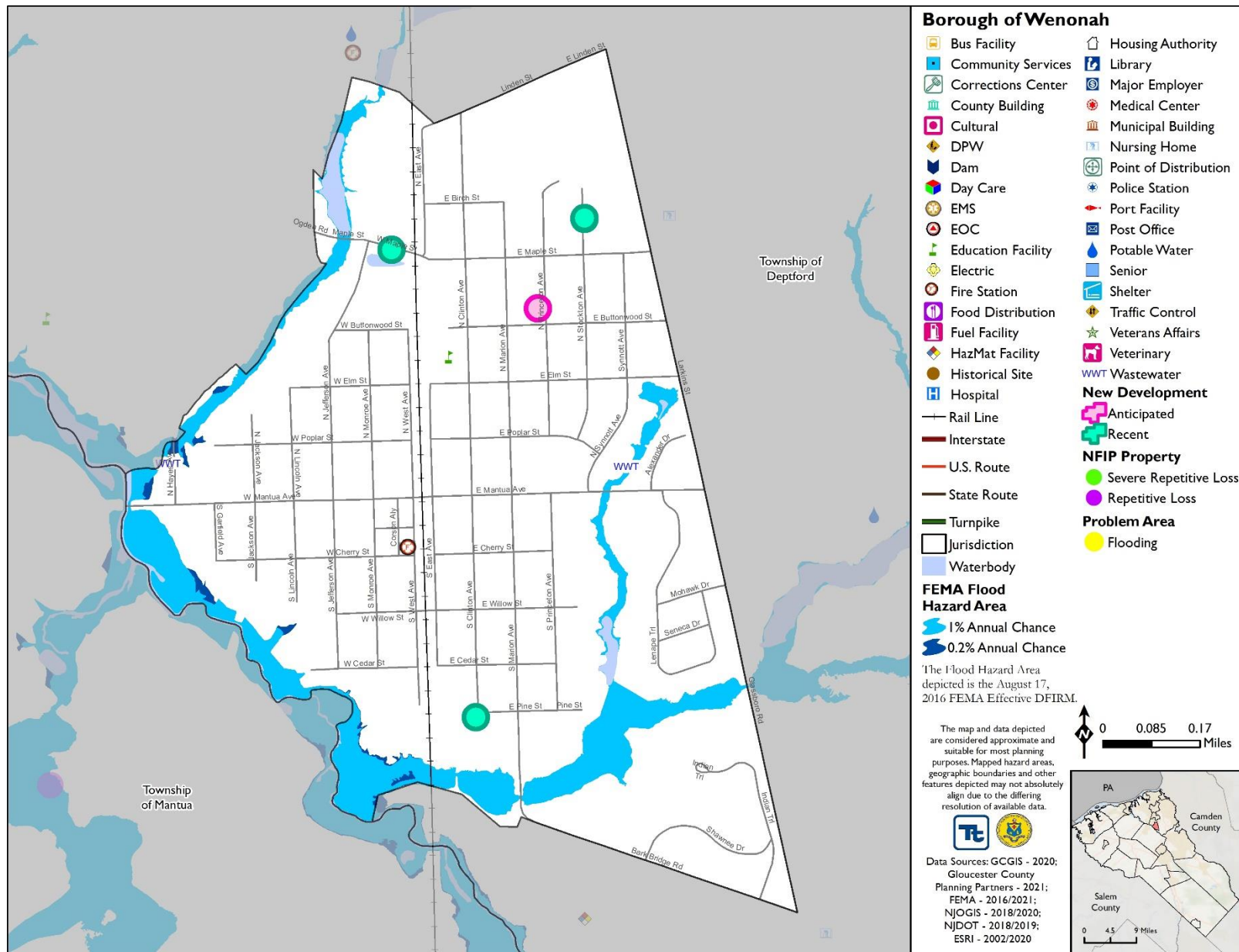






Figure 9.20-2. Borough of Wenonah Hazard Area Extent and Location Map 2

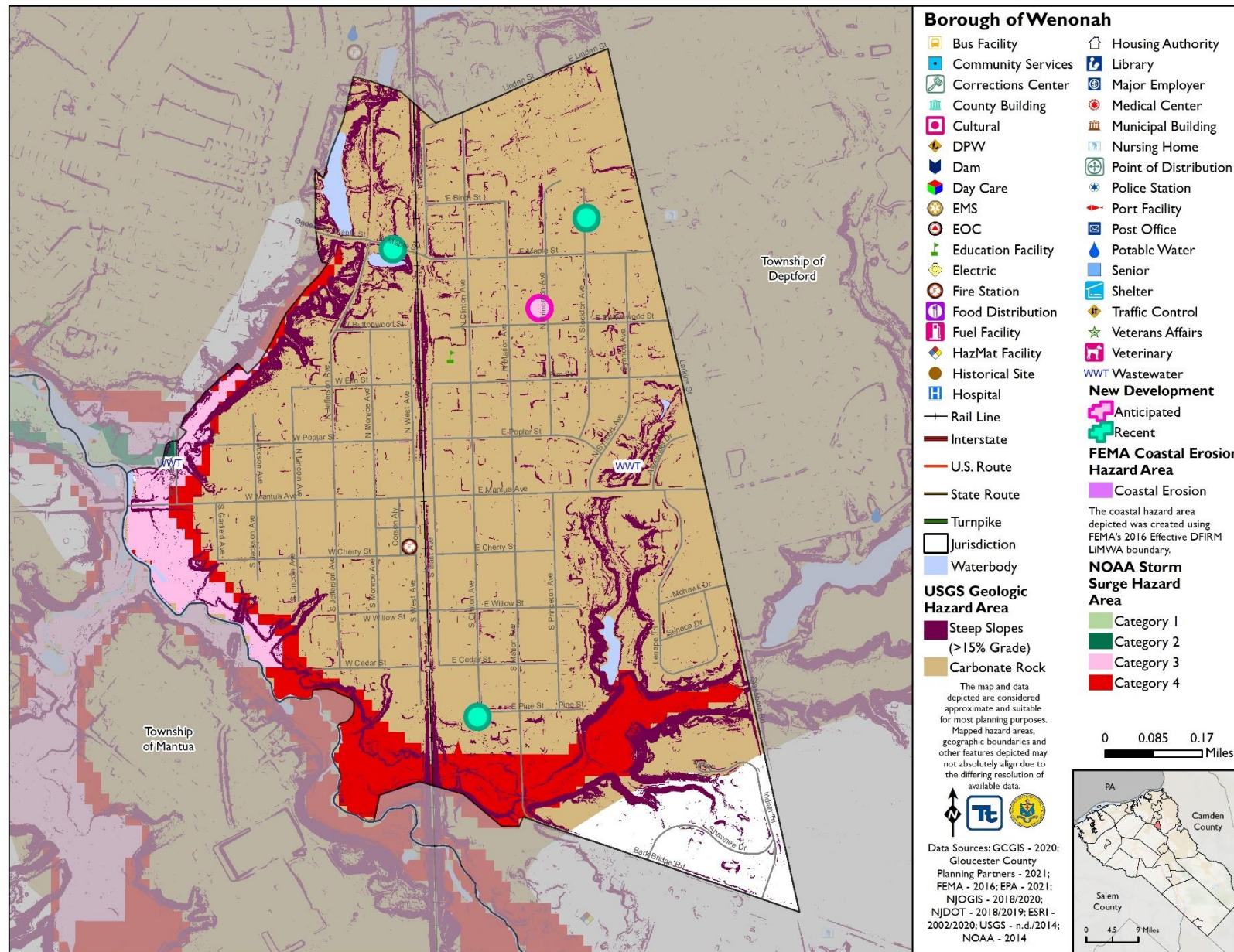






Figure 9.20-3. Borough of Wenonah Hazard Area Extent and Location Map 3

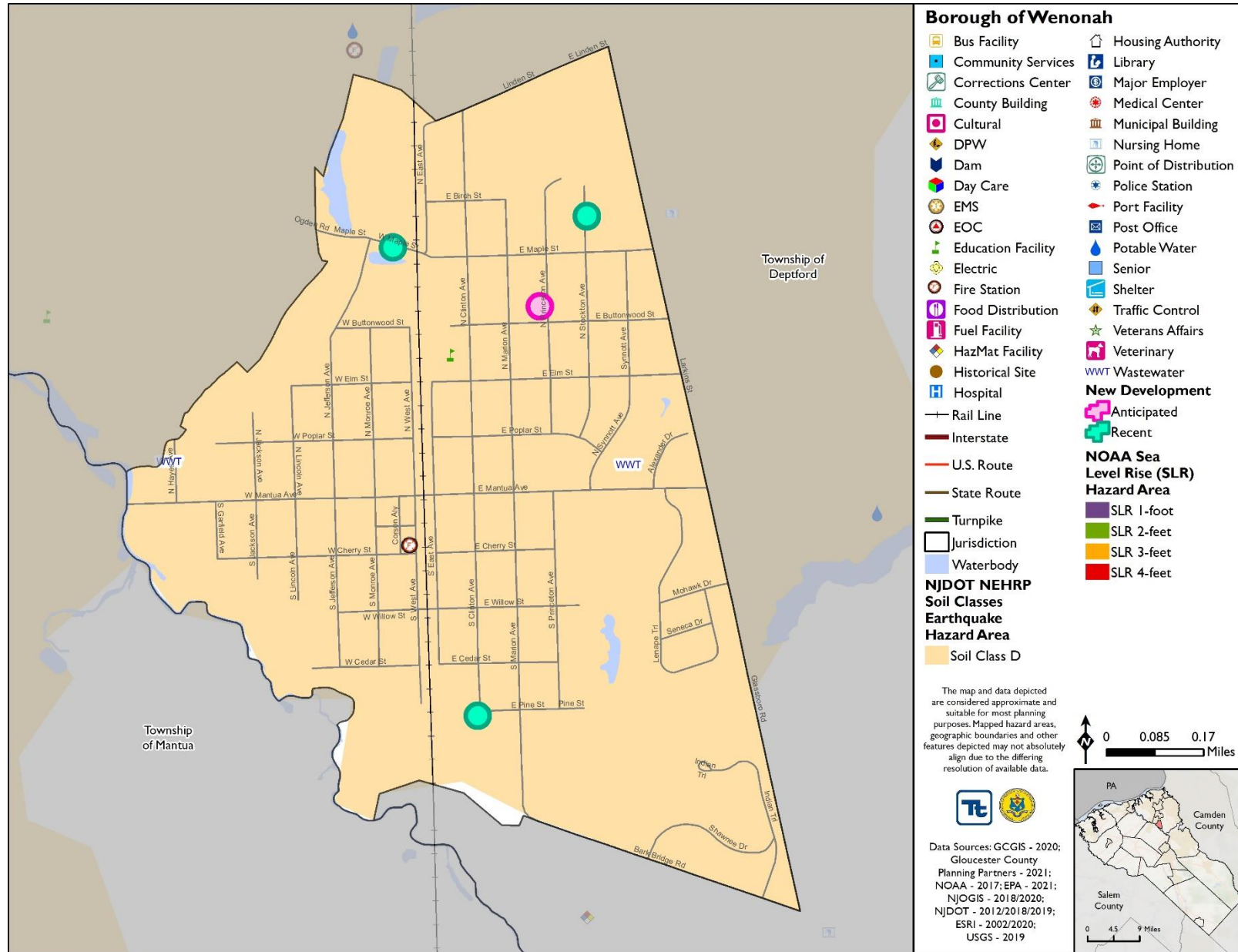
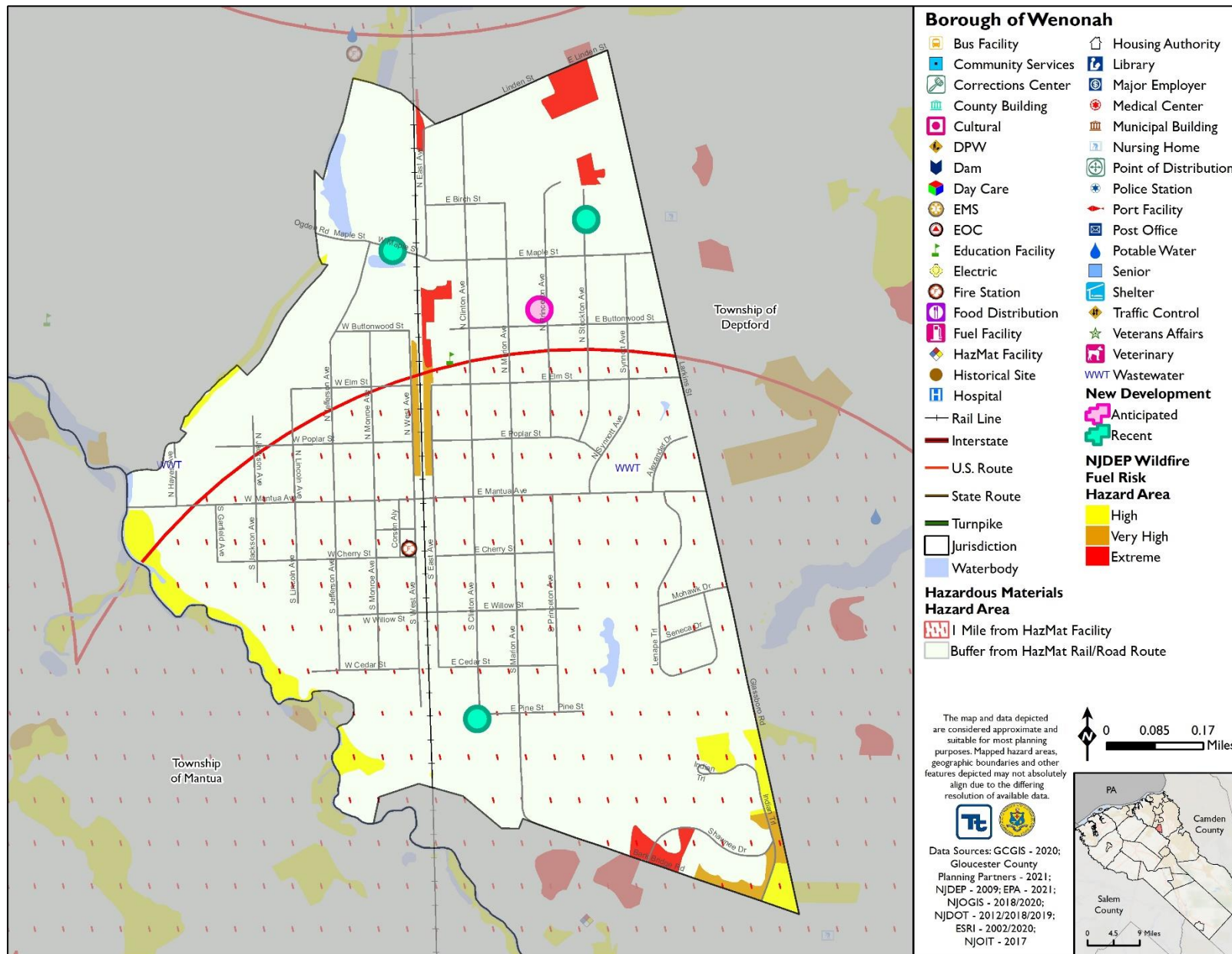




Figure 9.20-4. Borough of Wenonah Hazard Area Extent and Location Map 4





### 9.20.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Wenonah's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.20-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	<p>\$133,289.68 – FEMA Grant</p> <p>\$106,201.10 – Paid</p> <p>Unknown on total loss to Borough residents due to storm damage to roofs, houses, cars</p> <p>Estimated 1000 trees lost</p> <p>Borough without power for 6 days</p>
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from	Although the County was impacted, the Borough did not report damages.



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			five inches in Pitman to 6.5 inches in West Deptford.	
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	\$6,470.90 – FEMA grant for deep cleaning Borough building
September 1- 3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	The remnants of Hurricane Ida passed over the region. Combined with a warm-front, resulting in severe weather. A tornado touched down in Harrisonville and ran through Mullica Hill, Wenonah and Deptford along a 12.6 miles long path with a width up to 400 yards	The Borough was substantially impacted by the storm. Approximately 150 homes were damaged, power was lost and 100's of tree were downed preventing travel on many Borough roadways

### 9.20.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Wenonah's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Wenonah. The Borough of Wenonah reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough agreed with the calculated hazard rankings.





Table 9.20-12. Hazard Ranking Input

Coastal Erosion	Dam/Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive	Nor'Easter
Low	High	Low	Low	Medium

Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.20-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.20.6.3 Identified Issues

After review of the Borough of Wenonah's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Wenonah has identified the following vulnerabilities within their community:

- There is a lack of adequate public outreach for education, disaster preparedness, warning systems, and pre and post hazard events.
- The Borough does not have a completed survey prioritizing critical facilities, identifying vulnerabilities, and potential mitigation measures.
- The Borough does not prioritize recurrent drainage problem areas, or initiate data collection to track unreimbursed damages and related response and recovery expenses.
- Water Well #1 does not have back up power to sustain operations during a hazard event: Water Well #1 is critical and do provide essential services to the community, if operations were interrupted with a



power outage, this could cause significant issue to the community. The Wenonah elementary school which would be used as shelter lacks backup power.

- The Borough Elementary School does not have back up power to sustain operations during a hazard event: The Borough Elementary School also serves as an emergency shelter. In the event of a power outage, it cannot provide continuity of operations or its sheltering function. The Elementary School is critical and provides essential services to the community. If operations were interrupted with a power outage, this could cause significant issues for the community.
- The Borough Community Center does not have back up power to sustain operations during a hazard event: The Center also serves as an emergency shelter. In the event of a power outage, it cannot provide continuity of operations or its sheltering function. The Community Center is critical and provides essential services to the community. If operations were interrupted with a power outage, this could cause significant issues for the community.
- The Borough's Stormwater Management Plan has not been recently updated.
- Stream banks and drainage easements in the Borough are not stabilized.
- The Borough does not have a maintenance plan for tree debris clearing of conservation areas bordering public / private properties and from public rights of way. The trees along certain rights-of-ways are older trees with shallow root systems. They pose a risk to the roadways and properties. During more recent events, downed branches have led to closed roadways and power outages.
- The Borough needs a threat recognition plan related to hazardous materials being transferred by rail within the community.
- The municipality does not have a disaster debris management plan.
- The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.
- The Borough needs to Improve and strengthen infrastructure, such as elevating roadways, improving drainage systems, and increasing damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)
- There are property owners in the Borough that are subject to period flooding and property damage and seek a funding source to flood proof the homes.

Specific areas of concern based on resident response to the citizen survey include:

- Improve and strengthen infrastructure, such as elevating roadways and improving drainage systems.
- Work on improving the damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)
- Assist vulnerable property owners with securing funding to mitigate their properties.

## 9.20.7 Mitigation Strategy and Prioritization

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





### 9.20.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.20-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	No Progress	X	2022-B. Wenonah-001
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	No Progress	X	2022-B. Wenonah-002
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	In Progress – the Borough is currently working on prioritizing recurrent drainage problem areas and addressing as needed.	X	2022-B. Wenonah-003
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	No Progress	-	-
M-05	Install permanent backup emergency power generator at Wenonah Elementary School (CF-14).	Municipal OEM, Wenonah Elementary School, and Borough Council	Elementary school has applied for grant, unknown status. Bond issue passed.	X	2022-B. Wenonah-005
M-06	Engineering study to (1) evaluate condition of existing storm sewer system and (2) identify areas subject to frequent erosion in order to update stormwater management plan accordingly.	Municipal OEM, Borough Council, and Borough Engineer	In Progress – the Borough completes the studies as needed when funding is available	X	2022-B. Wenonah-007
M-07	Remedial measures to stabilize stream banks and stormwater drainage easements.	Municipal OEM, Borough Council, Borough Engineer, and Environmental Commission	In Progress – the Borough is working with the Environmental Commission on identifying areas of concern	X	2022-B. Wenonah-008
M-08	Maintenance plan update and continuing implementation of tree debris clearing of conservation areas bordering public / private properties and from public rights of way.	Municipal OEM, Public Works Department, and Environmental Commission	No Progress	X	2022-B. Wenonah-009
M-09	Threat recognition of railroad tracks carrying hazardous materials near Wenonah Borough critical facilities.	Municipal OEM	No Progress	X	2022-B. Wenonah-010



### 9.20.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.20-14, the Borough did not undertake any additional mitigation efforts in the last five years.

### 9.20.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Wenonah participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.20-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X	X			X					X
Dam/ Levee	X	X			X					X
Disease Outbreak	X	X			X					X
Drought	X	X			X					X
Earthquake	X	X			X					X
Ext Temp	X	X			X					X
Flood	X	X			X	X			X	X
Geologic	X	X			X					X
Hazmat	X	X		X	X		X			X
Hurricane	X	X			X	X			X	X
Invasive	X	X			X					X
Nor'Easter	X	X			X	X			X	X
Severe Weather	X	X			X	X			X	X
Severe Winter Weather	X	X			X					X
Wildfire	X	X			X					X
Utility Failure	X	X			X	X			X	X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.20-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Wenonah 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 9.20-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.20-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-B. Wenonah-001	Increase Public Outreach Program	<b>Problem:</b> There is a lack of adequate public outreach for education, disaster preparedness, warning systems, and pre and post hazard events. <b>Solution:</b> Improvement of the Borough's website and newsletter resulting in more interaction with residents.	New and Existing	All	1, 2, 3	1 Year	Borough Administration and OEM Coordinator	Municipal Budget	High	Low	High	EAP	PI
2022-B. Wenonah-002	Critical Facilities Survey	<b>Problem:</b> The Borough does not have a completed survey prioritizing critical facilities, identifying vulnerabilities, and potential mitigation measures. <b>Solution:</b> The Borough Engineer and OEM Director will conduct a survey of the community's critical facilities, to document vulnerabilities and mitigation measures.	Existing	All	1, 2, 4, 6	2 Years	Borough Engineer and OEM Director	Municipal Budget	High	Low	High	LPR	PR
2022-B. Wenonah-003	Identify Problem Drainage Areas	<b>Problem:</b> The Borough does not prioritize recurrent drainage problem areas, or initiate data collection to track unreimbursed damages and related response and recovery expenses.	New	Flood, Severe Weather	1, 2, 4	2 Years	Borough Engineer, DPW	Municipal Budget	Medium	Low	High	LPR,	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The Borough is currently working on prioritizing recurrent drainage problem areas and addressing as needed.											
2022-B. Wenonah-004	Backup Power for Water Well #1	<p><b>Problem:</b> Water Well #1 does not have back up power to sustain operations during a hazard event: Water Well #1 is critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community.</p> <p><b>Solution:</b> The Borough will install a generator at Water Well #1, for backup power during utility failure. DPW will be responsible for maintenance and testing following installation.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	2 years	Facility managers and DPW	Municipal Budget and HMGP	Continuity of operations; potable water	50,000+	High	SIP	SP
2022-B. Wenonah-005	Backup Power for Elementary School	<b>Problem:</b> The Borough Elementary School does not have back up power to sustain operations during a hazard event: The Borough Elementary School also serves as an emergency shelter. In the event of a power outage, it cannot	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather,	1, 2, 5, 6	2 years	School Facility managers	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management	Continuity of operations	100,000	High	SIP	SP





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>provide continuity of operations or its sheltering function. The Elementary School is critical and provides essential services to the community. If operations were interrupted with a power outage, this could cause significant issues for the community.</p> <p><b>Solution:</b> Install a generator and necessary electrical components at the Borough Elementary School for backup power during a utility failure. The Elementary School has applied for a ND were grant funding. The School will be responsible for testing and maintenance of the generator following installation.</p>		Utility Failure				Performance Grants (EMPG) Program, Municipal Budget					
2022-B. Wenonah-006	Backup power for the Community Center	<p><b>Problem:</b> The Borough Community Center does not have back up power to sustain operations during a hazard event: The Center also serves as an emergency shelter. In the event of a power outage, it cannot provide continuity of operations or its sheltering function. The Community</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	2 years	Engineer, Facility managers and DPW	Municipal Budget and HMGP	Continuity of operations	\$100,000	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Center is critical and provides essential services to the community. If operations were interrupted with a power outage, this could cause significant issues for the community  <b>Solution:</b> The Borough Engineer will identify the proper sized generator to power the Community Center during a utility failure. Once identified, DPW will install the generator and necessary electrical components. Following installation, the DPW will be responsible for testing and maintenance.											
2022-B. Wenonah-007	Stormwater Management Plan Update	<b>Problem:</b> The Borough's Stormwater Management Plan has not been recently updated.  <b>Solution:</b> The Borough will complete an engineering study to (1) evaluate condition of existing storm sewer system and (2) identify areas subject to frequent erosion in order to update the Stormwater Management Plan accordingly.	Existing	Flood, Severe Weather, Nor'Easter	1, 2	2 Years	Borough Engineer and DPW	BRIC, Municipal Budget	Reduce flooding and increase stormwater quality	Low	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-B. Wenonah-008	Stabilize Stream Banks and Drainage Easements	<p><b>Problem:</b> Stream banks and drainage easements in the Borough are not stabilized, leading to erosion and flooding.</p> <p><b>Solution:</b> The Borough Engineer is working with the Environmental Commission on identifying areas of concern to prepare a plan to address the issue. Upon Plan completion, the Borough will seek funding for stabilizing the stream banks and drainage easements through structural and non-structural means.</p>	New and Existing	Flood, Severe Weather, Nor'easter	1, 2	Within 5 Years	Borough Engineer and DPW, Environmental Commission	BRIC, HMGP, Municipal Budget	Reduce erosion, sedimentation, and flooding	Low for Plan Prep. High for Drainage Improvements	High	SIP	SP
2022-B. Wenonah-009	Tree Maintenance Program	<p><b>Problem:</b> The Borough does not have a maintenance plan for tree debris clearing of conservation areas bordering public / private properties and from public rights of way. The trees along certain rights-of-ways are older trees with shallow root systems. They pose a risk to the roadways and properties. During more recent events, downed branches have led to closed</p>	Existing	All	1, 2, 5	1 year	Public Works, Shade Tree Commission	Municipal Budget	Reduce or eliminate damage from trees	Staff Time	Medium	NSP	NR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		roadways and power outages.  <b>Solution:</b> The Borough will implement a tree maintenance program and will initially focus on the most problematic areas. The Borough will develop a list of trees that need to be removed first in order to avoid further damage.											
2022-B. Wenonah-010	Hazmat Threat Recognition Plan	<b>Problem:</b> The Borough needs a threat recognition plan related to hazardous materials being transferred by rail within the community.  <b>Solution:</b> The Borough's Director of OEM will initiate coordination with the County OEM, to develop a Hazmat threat recognition plan to put in place a process of addressing Hazmat events that could impact the Borough.	New and Existing	Hazmat, Severe Weather, Severe Winter Weather	1, 2, 5, 6	2 Years	Borough OEM, County OEM	BRIC, Municipal Budget	Protect residents from Hazmat events	Staff Time	High	LPR, EAP	PI, ES
2022-B. Wenonah-011	Disaster Debris Management Plan	<b>Problem:</b> The municipality does not have a disaster debris management plan.  <b>Solution:</b> The municipality would need to develop a disaster debris management	New	All	5	2 years	Various Departments and Borough Board	Municipal Budget	Increased planning for post-disaster response and cleanup	Low	High	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		plan to facilitate the clean-up process post disaster. This plan can be developed by the municipality and does not require external assistance, however, coordination with neighboring municipalities and stakeholders might be necessary.											
2022-B. Wenonah-012	FDPO Update	<p><b>Problem:</b> The municipality's flood damage prevention ordinance is outdated and requires revisions and updating.</p> <p><b>Solution:</b> The Borough Board and Administration as well as the NFIP Administrator shall work together to update their FDPO once contacted by the state. The state shall work with municipality to provide updated guidance and model ordinance as needed.</p>	Existing	Flood, Hurricane, Nor'easter, Severe Weather	1, 2	1-5 years	State of NJ and Borough Administration	Municipal Budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development.	\$1,000, staff time	High	LPR	PR
2022-B. Wenonah-013	Study and Strengthen Infrastructure and Utilities	<p><b>Problem:</b> The Borough needs to improve and strengthen infrastructure, such as elevating roadways, improving drainage systems, and increasing damage resistance of utilities (electricity,</p>	Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Utility Failure	1, 2, 4	Within 5 Years	Borough Engineer, DPW, Utility Companies	Municipal Budget, BRIC, HMGP	Maintain critical facilities for residents and support continuity of operations	High for both phases, study, then implementation	High	LPR, SIP	PR, PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		communications, water/wastewater facilities etc.)  <b>Solution:</b> The Borough proposes to conduct an Engineering Study to determine what methods will work best to harden infrastructure and utilities and then will implement those methods.											
2022-B. Wenonah-014	Flood Protection	<b>Problem:</b> There are property owners in the Borough that are subject to period flooding and property damage and seek a funding source to flood proof the homes.  <b>Solution:</b> Assist property owners vulnerable to flood damage with securing funding to mitigate their properties.	Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2,	Within 5 Years	Borough Administration, Borough Engineer, NFIP Administrator – support from Homeowners	BRIC, HMGP, FMA	Protect property from flood damage	High for elevation projects	High	SIP	PP

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CAV Community Assistance Visit  
CRS Community Rating System  
DPW Department of Public Works  
EHP Environmental Planning and Historic Preservation

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program  
HMGP Hazard Mitigation Grant Program  
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation

Cost:





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

*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 also 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 also 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 9.20-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-B. Wenonah-001	Increase Public Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022-B. Wenonah-002	Critical Facilities Survey	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
2022-B. Wenonah-003	Identify Problem Drainage Areas	1	1	1	0	1	1	1	1	1	1	1	0	1	1	12	High
2022-B. Wenonah-004	Backup Power for Water Well #1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2022-B. Wenonah-005	Backup Power for Elementary School	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2022-B. Wenonah-006	Backup power for the Community Center	1	1	0	1	1	1	0	1	1	1	1	0	1	1	11	High
2022-B. Wenonah-007	Stormwater Management Plan Update	1	1	1	0	1	1	1	1	1	1	0	1	1	1	12	High
2022-B. Wenonah-008	Stabilize Stream Banks and Drainage Easements	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
2022-B. Wenonah-009	Tree Maintenance Program	0	0	1	1	1	1	1	1	0	0	1	1	0	0	8	Medium
2022-B. Wenonah-010	Hazmat Threat Recognition Plan	1	1	1	0	1	0	1	1	1	1	1	0	1	1	11	High
2022-B. Wenonah-011	Disaster Debris Management Plan	1	1	1	1	1	1	1	0	0	1	0	1	1	0	10	High
2022-B. Wenonah-012	FDPO Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-B. Wenonah-013	Study and Strengthen Infrastructure and Utilities	1	1	1	0	1	0	0	1	1	1	1	0	1	1	10	High
2022-B. Wenonah-014	Flood Protection	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High



Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

⚠ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.20.8 Action Worksheets

The following action worksheets have been developed by the Borough of Wenonah to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Backup Power for Water Well #1		
<b>Project Number:</b>	2022-B. Wenonah-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	Water Well #1 does not have back up power to sustain operations during a hazard event: Water Well #1 is critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will install a generator at Water Well #1, for backup power during utility failure. DPW will be responsible for maintenance and testing following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations; potable water
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$50,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	Municipal Budget and HMGP
<b>Responsible Organization:</b>	Facility managers and DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Backup Power for Water Well #1	
<b>Project Number:</b>	2022-B. Wenonah-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical service of providing potable water to the Borough residents
<b>Property Protection</b>	1	Project will protect Water Well from power loss
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	0	2 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM, PW
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Backup Power for Elementary School		
<b>Project Number:</b>	2022-B. Wenonah-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Borough Elementary School does not have back up power to sustain operations during a hazard event: The Borough Elementary School also serves as an emergency shelter. In the event of a power outage, it cannot provide continuity of operations or its sheltering function. The Elementary School is critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	. Install a generator and necessary electrical components at the Borough Elementary School for backup power during a utility failure. The Elementary School has applied for ND grant funding. The School will be responsible for testing and maintenance of the generator following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	\$100,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	School Facility managers	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			



<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	



Action Worksheet		
<b>Project Name:</b>	Backup Power for Elementary School	
<b>Project Number:</b>	2022-B. Wenonah-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services as a school and temporary capabilities and as an emergency shelter
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	0	2 years
<b>Agency Champion</b>	1	OEM and School District
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup power for the Community Center		
<b>Project Number:</b>	2022-B. Wenonah-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Borough Community Center does not have back up power to sustain operations during a hazard event: The Center also serves as an emergency shelter. In the event of a power outage, it cannot provide continuity of operations or its sheltering function. The Community Center is critical and do provide essential services to the community, if operations were interrupted with a power outage, this could cause significant issue to the community		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough Engineer will identify the proper sized generator to power the Community Center during a utility failure. Once identified, DPW will install the generator and necessary electrical components. Following installation, the DPW will be responsible for testing and maintenance.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of operations ensured, sheltering capability maintained
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	100,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Facility managers and DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			



<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	



Action Worksheet		
<b>Project Name:</b>	Backup power for the Community Center	
<b>Project Number:</b>	2022-B. Wenonah-006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services and maintain sheltering capabilities at the Community Center.
<b>Property Protection</b>	1	Project will protect building from power loss.
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
<b>Timeline</b>	0	2 years
<b>Agency Champion</b>	1	Municipal Engineer, OEM, and PW
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Stormwater Management Plan Update		
<b>Project Number:</b>	2022-B. Wenonah-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Nor'easter		
<b>Description of the Problem:</b>	The Borough's Stormwater Management Plan has not been recently updated.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will complete an engineering study to (1) evaluate condition of existing storm sewer system and (2) identify areas subject to frequent erosion in order to update the Stormwater Management Plan accordingly.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	TBD by engineering analysis	<b>Estimated Benefits (losses avoided):</b>	Reduce flooding and increase stormwater quality
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by engineering analysis. Initial cost low.	<b>Mitigation Action Type:</b>	Local Plans and Regulations leading to infrastructure projects.
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	BRIC, Municipal Budget
<b>Responsible Organization:</b>	Borough Engineer and DPW	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Move forward with improvements without study	High	Infrastructure Project would result in high cost – low benefit due to lack of a Plan
	Channelize streams with hard structure	Very High	Not feasible/environmentally damaging, costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater Management Plan Update	
<b>Project Number:</b>	2022-B. Wenonah-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding and maintains emergency access.
<b>Property Protection</b>	1	Protects buildings and infrastructure from flood damage
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	0	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	1	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	0	Flood, Severe Weather, Nor'easter
<b>Timeline</b>	1	2 Years
<b>Agency Champion</b>	1	Engineering, PW
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Stabilize Stream Banks and Drainage Easements		
<b>Project Number:</b>	2022-B. Wenonah-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather, Nor'easter		
<b>Description of the Problem:</b>	Stream banks and drainage easements in the Borough are not stabilized, leading to erosion and flooding.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough Engineer is working with the Environmental Commission on identifying areas of concern to prepare a plan to address the issue. Upon Plan completion, the Borough will seek funding for stabilizing the stream banks and drainage easements through structural and non-structural means.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Reduce erosion, sedimentation, and flooding
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	Medium	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	BRIC, HMGP, Municipal Budget
<b>Responsible Organization:</b>	Borough Engineer, DPW and Environmental Commission	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Retreat from areas near stream	High	Costly, unpopular
	Levees along stream	High	Not feasible/environmentally damaging, costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stabilize Stream Banks and Drainage Easements	
<b>Project Number:</b>	2022-B. Wenonah-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect from potential injuries from unsafe streambank conditions
<b>Property Protection</b>	1	Project will protect property and infrastructure from potential flood damage
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	Permitting likely required
<b>Fiscal</b>	0	Project requires funding support
<b>Environmental</b>	0	Use of hard structure may have some negative impacts on the natural environment
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Weather, Nor'easter
<b>Timeline</b>	0	Within 5 Years
<b>Agency Champion</b>	1	Engineer, Public Works, Environmental Commission
<b>Other Community Objectives</b>	1	Restore natural floodplain function
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Hazmat Threat Recognition Plan		
<b>Project Number:</b>	2022-B. Wenonah-010		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Hazmat, Severe Weather, Severe Winter Weather		
<b>Description of the Problem:</b>	The Borough needs a threat recognition plan related to hazardous materials being transferred by rail within the community.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough's Director of OEM will initiate coordination with the County OEM, to develop a Hazmat threat recognition plan to put in place a process of addressing Haz-mat events that could impact the Borough.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect residents from Hazmat events
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	Staff Time	<b>Mitigation Action Type:</b>	Local Plans and Regulations
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6 to 12 months
<b>Estimated Time Required for Project Implementation:</b>	2 Years	<b>Potential Funding Sources:</b>	BRIC, Municipal Budget
<b>Responsible Organization:</b>	Borough OEM, County OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Relocate homes and Critical Facilities from proximity to rail	Very High	Too costly and impractical
	Relocate rail to unpopulated areas	Very High	Too costly and impractical
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Hazmat Threat Recognition Plan	
<b>Project Number:</b>	2022-B. Wenonah-010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Public Safety increased from potential hazard events
<b>Property Protection</b>	1	Property damage reduced from potential hazard event
<b>Cost-Effectiveness</b>	1	Cost-effective project
<b>Technical</b>	0	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	0	The legal authority exists for County and Municipal government to work together
<b>Fiscal</b>	1	
<b>Environmental</b>	1	
<b>Social</b>	1	Residents benefit from coordinated Hazmat planning with the County
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Hazmat, Severe Weather, Severe Winter Weather
<b>Timeline</b>	0	2 Years
<b>Agency Champion</b>	1	Municipal and County Administrations and Offices of Emergency Management
<b>Other Community Objectives</b>	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Study and Strengthen Infrastructure and Utilities		
<b>Project Number:</b>	2022-B. Wenonah-013		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Utility Failure		
<b>Description of the Problem:</b>	The Borough needs to Improve and strengthen infrastructure, such as elevating roadways, improving drainage systems, and increasing damage resistance of utilities (electricity, communications, water/wastewater facilities etc.)		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough proposes to conduct an Engineering Study to determine what methods will work best to harden infrastructure and utilities and then will implement those methods.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Maintain critical facilities for residents and support continuity of operations
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	High for both phases, study, then implementation	<b>Mitigation Action Type:</b>	Local Plans and Regulations
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year once funding secured
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	Municipal Budget, BRIC, HMGP
<b>Responsible Organization:</b>	Borough Engineer, DPW, Utility Companies	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Relocate pump stations and other vulnerable utilities	High	Infeasible
	Elevate roadways	High	Costly and may lead to other flooding problems
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Study and Strengthen Infrastructure and Utilities	
<b>Project Number:</b>	2022-B. Wenonah-013	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	Benefits outweigh costs
Technical	0	
Political	1	There are no political issues
Legal	0	There are no legal complications but permitting likely
Fiscal	0	Additional Funding is needed
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'easter, Severe Weather, Utility Failure
Timeline	0	Within 5 Years
Agency Champion	1	Borough Engineer, DPW, Utility Companies
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Flood Protection		
<b>Project Number:</b>	2022-B. Wenonah-014		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather		
<b>Description of the Problem:</b>	There are property owners in the Borough that are subject to period flooding and property damage and seek a funding source to flood proof the homes.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Assist property owners vulnerable to flood damage with securing funding to mitigate their properties.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard <i>(in accordance with flood ordinance)</i>	<b>Estimated Benefits (losses avoided):</b>	Protect property from flood damage
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High for elevation and acquisition projects	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	BRIC, HMGP, FMA
<b>Responsible Organization:</b>	Borough Administration, Borough Engineer, NFIP Administrator, support from Homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate roads	\$500,000	Elevated roadways would not protect the homes from flood damages
	Flood proof homes		When this area floods, the entire area is impacted; flood proofing homes would not eliminate the problem and still lead to restrictions to home access, road closures and impassable roads
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			



<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	



Action Worksheet		
<b>Project Name:</b>	Flood Protection	
<b>Project Number:</b>	2022-B. Wenonah-014	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Families' homes elevated or families moved out of high-risk flood areas.
<b>Property Protection</b>	1	Properties removed from high-risk flood areas.
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	If homes are acquired as part of the program, areas will be restored to natural condition
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather
<b>Timeline</b>	0	Within 5 Years
<b>Agency Champion</b>	1	Borough Administration, Borough Engineer, NFIP Administrator – support from Homeowners
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



## 9.21 TOWNSHIP OF WEST DEPTFORD

This section presents the jurisdictional annex for the Township of West Deptford and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of West Deptford's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.21.1 Hazard Mitigation Planning Team

The Township of West Deptford followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of West Deptford's hazard mitigation plan primary and alternate points of contact. 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 9.21-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Bill Gigliotti, Public Works Manager, OEM Address: 400 Crown Point Road, West Deptford, NJ 08086 Phone Number: 856-970-6325 c – 856-845-4004 ext. 137 Email: bgigliotti@westdeptford.com	Name/Title: Lee Ann DeHart, Township Administrator, RMC Address: 400 Crown Point Road, West Deptford, NJ 08086 Phone Number: 856-628-3502 c – 856-845-4004 ext. 131 Email: ldehart@westdeptford.com
NFIP Floodplain Administrator	
Name/Title: Ashton Jones PP/AICP, CFM – Acting Floodplain Administrator Address: Remington & Vernick Engineers – 2059 Springdale Road Cherry Hill, NJ 08003 Email: Ashton.Jones@RVE.com Phone Number: 856-795-9595	



Name	Title	Method of Participation
Dan Phelps	Deputy Superintendent	Provided input on annex development call
Mike Kwasizur	Chief Financial Officer	Assisted in Worksheet preparation
Bill Gigliotti	Public Works Manager, OEM	Completed Worksheets, attended Workshops and annex development meetings, reviewed annex and provided feedback
Lee Ann DeHart	Township Administrator	Attended Workshops and annex development meetings, reviewed annex and provided feedback
Ashton Jones PP/AICP, CFM	Acting Floodplain Administrator	Attended annex development meetings

## 9.21.2 Municipal Profile

West Deptford Township was formed as a township by an act of the New Jersey Legislature on March 1, 1871, from portions of Deptford Township. Ladd's Castle (also known as Candor Hall) is a historic building located in the Colonial Manor section that is Gloucester County's oldest brick home. Added to the National Register of Historic Places in 1972, it was constructed around 1688 by William Ladd, a surveyor who is said to have helped William Penn to lay out a master design for the city of Philadelphia. The township was named for Deptford, which in turn was named after the English port of Deptford.

According to the United States Census Bureau, the township had a total area of 17.81 square miles, including 15.36 square miles of land and 2.45 square miles of water. Unincorporated communities, localities and place names located partially or completely within the township include Colonial Manor, Eagle Point, Greenfields Village, Hoffman Wharf, League Island, Leonards, North Woodbury, Ogens, Paradise, Parkville, Pierces Corner, Red Bank, Tatens, Thorofare, Verga, Washington Park and West End.

The township's governing body is comprised of the Mayor and the four-member Township Council. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections to serve three-year terms of office on a staggered basis. The mayor is directly elected by township voters and is the chief executive in charge of the administrative functions of the town. Members of the township council are elected on an at-large basis in partisan elections.

According to the U.S. Census, the 2010 population for the Township of West Deptford was 21,667. The estimated 2019 population was 21,149, a 2.4 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.4 percent of the population is 5 years of age or younger and 18.1 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.



## 9.21.3 Jurisdictional Capability Assessment and Integration

The Township of West Deptford performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.21.3). The updated mitigation strategy includes opportunities the Township of West Deptford identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.21.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of West Deptford, what is present in the jurisdiction, and code citation and date.

*Table 9.21-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 78 – Uniform Construction Code, last amended March 10, 2011	State and Local	Department of Inspections
<i>How does this reduce risk?</i> The Township adopted the current New Jersey Uniform Construction Code, and the Construction Code Official enforces the code. The Construction Code Official is primarily responsible for enforcing the building codes as established by New Jersey's Division of Codes and Standards to protect the health and safety of residents. The codes are set forth in the Uniform Construction Code, which includes the subcode requirements for building, electrical, plumbing, fire protection, energy, mechanical, elevator, radon, asbestos, rehabilitation and					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
barrier-free subcodes, and lead hazard abatement. Flood Hazard Reduction is incorporated as part of Chapter 94 of the Township's General Ordinances.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 166 - Zoning	Local	Zoning Administrative Officer
<p><i>How does this reduce risk?</i></p> <p>The Zoning Administrative Officer is primarily responsible for enforcing the Zoning code of the Township which pertains to what can be built on a specific property and what restrictions and requirements are needed for each improvement. The purpose of this chapter is to promote and protect the public health, safety, and general welfare and in the furtherance of the following specific objectives: ensuring the coordinated development of the Township in accordance with its master plan; lessening congestion on the streets and ensuring access to the circulation system; providing for adequate light and air; preventing the overcrowding of land and buildings; promoting a desirable visual environment through creative development techniques and good civic design and arrangements; providing a full range of housing choices to meet the needs of households in all income levels; avoiding the undue concentration of population; ensuring the conservation and protection of open space and natural features; and conserving the value of property.</p> <p>West Deptford is divided into 13 zoning districts and the zoning map was last amended on December 2, 2004. An effort to conserve and protect floodplains, stream valleys, steep slopes or other environmentally sensitive areas is incorporated into the district planning and regulation.</p>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 143 – Subdivision and Development	Local	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i></p> <p>The purpose of this chapter is to provide rules, regulations and standards to guide the subdivision and development of lands in this township, in a manner which will promote the public health, safety, morals and general welfare. In West Deptford, natural features such as live trees, groves, brooks, hilltops, scenic points, historic landmarks and other natural community assets shall be preserved whenever possible in designing any subdivision containing such features. Due consideration is given to the preservation of such natural features which enhance the beauty of the terrain, as well as to the laying out of adequate parks and playgrounds in residential areas for dedication to the township or reservation for the common use of the public by deed, covenants or agreements which subject such areas to the control of the township under conditions recommended by the Planning Board.</p> <p>No land shall be subdivided for residential purposes unless on-site hazards to life, health or property from flood, fire disease, smoke, excessive vibration, noise, odor and dangerous terrain conditions shall have been eliminated or unless the plans for the subdivision provide adequate safeguards against such hazards.</p>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 141 – Stormwater Control Procedures	Local	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i></p> <p>It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted master plan and land use ordinances of the township. The goals of the ordinance are to reduce flood damage, minimize stormwater runoff, reduce soil erosion, maintain groundwater recharge, minimize nonpoint pollution, and to restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the township.</p> <p>Chapter 81 – Detention/Retention Basins. This chapter regulates the maintenance of detention/retention basins. The Stormwater Control Ordinance (Chapter 141) was recently revised in 2021 to comply with NJDEP's Model Stormwater Control Ordinance (adopted by the State in 2020).</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	CERCLA	State/Local	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i></p> <p>The Township provides Real Estate Disclosure Acknowledgment &amp; Release of On-Site Conditions for the area known as the Woodlane Development, as there are potentially hazardous materials located within the development due to the Matteo &amp; Sons Superfund Site.</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 166 – Zoning	Local	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i></p> <p>The Zoning Administrative Officer is primarily responsible for enforcing the Zoning code of the Township which pertains to what can be built on a specific property and what restrictions and requirements are needed for each improvement. The purpose of this chapter is to promote and protect the public health, safety, and general welfare and in the furtherance of the following specific objectives: ensuring the coordinated development of the Township in accordance with its master plan; lessening congestion on the streets and ensuring access to the circulation system; providing for adequate light and air; preventing the overcrowding of land and buildings; promoting a desirable visual environment through creative development techniques and good civic design and arrangements; providing a full range of housing choices to meet the needs of households in all income levels; avoiding the undue concentration of population; ensuring the conservation and protection of open space and natural features; and conserving the value of property.</p> <p>West Deptford is divided into zoning districts and the zoning map was last amended on December 2, 2004. An effort to conserve and protect floodplains, stream valleys, steep slopes or other environmentally sensitive areas is incorporated into the district planning and regulation.</p>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 143 – Subdivision and Development	Local	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i></p> <p>The purpose of this chapter is to provide rules, regulations and standards to guide the subdivision and development of lands in this township, in a manner which will promote the public health, safety, morals and general welfare. In West Deptford, natural features such as live trees, groves, brooks, hilltops, scenic points, historic landmarks and other natural community assets shall be preserved whenever possible in designing any subdivision containing such features. Due consideration is given to the preservation of such natural features which enhance the beauty of the terrain, as well as to the laying out of adequate parks and playgrounds in residential areas for dedication to the township or reservation for the common use of the public by deed, covenants or agreements which subject such areas to the control of the township under conditions recommended by the Planning Board.</p> <p>The design standards included in the Gloucester County Land Development Review Resolution shall also be used as a guide in reviewing site plans.</p>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 18 – Environmental Commission	Local	Environmental Commission
<p><i>How does this reduce risk?</i></p> <p>The Environmental Commission in the Township of West Deptford is established for the protection, development or use of natural resources, including water resources, located within the territorial limits of this township. The Commission shall have the power to conduct research into the use and possible use of the open land areas of West Deptford Township and may coordinate the activities of unofficial bodies organized for similar purposes, and may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which in its judgment it deems necessary for its purposes. The Environmental Commission may, subject to the approval of the Township Committee, acquire property, both real and personal, in the name of the township, by gift, purchase, grant, bequest, devise or lease for any of its purposes and shall administer the same for such purposes subject to the terms of the conveyance or gift.</p>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 94 – Flood Damage Prevention	Federal, State, County and Local	Ashton Jones Floodplain Administrator
<p><i>How does this reduce risk?</i></p> <p>The purpose of this chapter is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. Prior to developing in any flood area, a development permit must be applied for obtained. The Construction Code Official/Zoning Officer is the floodplain administrator for the Township and responsibilities include development permit review. All subdivision proposals and other proposed new development shall be consistent with the need to minimize flood damage. New construction and substantial improvement of any residential structure located in an A or AE Zone shall have the lowest floor, including basement together with the attendant utilities and sanitary facilities, elevated at or above the base flood elevation plus one foot or as required by ASCE/SEI 24-14, Table 2-1, whichever is more restrictive. All new construction and substantial improvement of any commercial, industrial or other nonresidential structure located in an A or AE Zone (for Coastal A Zone construction see Section 94-24 Coastal High Hazard Area and Coastal A Zone) shall have the lowest floor, including basement together with the attendant utilities and sanitary facilities: Elevated to or above the base flood elevation plus one foot or as required by ASCE/SEI 24-14, Table 2-1, whichever is more restrictive; or floodproofed so that below the base flood level plus one foot or as required by ASCE/SEI 24-14, Table 6-1,</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
whichever is more restrictive, the structure is watertight with walls substantially impermeable to the passage of water.					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	West Deptford Office of Emergency Management	Local	Township Committee
<i>How does this reduce risk?</i> Provides trained emergency responders to respond to emergencies within the Township of West Deptford.					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	Yes	No	Chapter 163 – Water	Local	Township Water and Sewer Department
<i>How does this reduce risk?</i> Drought and Water Shortages. Upon independent investigation, the Director of Public Works may certify that an emergency exists in the water supply. The Township Committee, or if the emergency will not permit delay, then the Mayor, may proclaim a water emergency and prescribe regulations to do the following: (1) Prohibit the use of water for any purpose not necessary to the health and safety of the public. (2) Allocate the available water supply. (3) Reduce consumption of water. (4) Prevent use of water for the period of the emergency.					
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? <ul style="list-style-type: none"> <li>- Yes.</li> </ul> </li> <li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? <ul style="list-style-type: none"> <li>- To the extent that Federal and/or State regulations limits development by rule or regulation.</li> </ul> </li> <li>• Does it contain natural overlay zones that set conditions? <ul style="list-style-type: none"> <li>- No.</li> </ul> </li> <li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? <ul style="list-style-type: none"> <li>- Yes - through the Flood Damage Prevention Ordinance.</li> </ul> </li> <li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? <ul style="list-style-type: none"> <li>- ?? To the extent that Federal and/or State regulations limits development by rule or regulation.</li> </ul> </li> <li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? <ul style="list-style-type: none"> <li>- Yes</li> </ul> </li> <li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? <ul style="list-style-type: none"> <li>- Yes. To the extent that Federal and/or State regulations limits development by rule or regulation.</li> </ul> </li> <li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? <ul style="list-style-type: none"> <li>- Yes - Section 166-40 of the Zoning Ordinance provides for cluster development.</li> </ul> </li> <li>• Do the regulations allow density transfers where hazard areas exist? <ul style="list-style-type: none"> <li>- No.</li> </ul> </li> <li>• When updating ordinances, is hazard mitigation considered? <ul style="list-style-type: none"> <li>- Yes.</li> </ul> </li> </ul>					
<b>Planning Documents</b>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Master Plan</b>	Yes	Yes – County Yes -municipality	2019 Master Plan Reexamination, latest revised Master Plan adopted May 28, 2003-	-	Tyler Rost Planning/Zoning Board
<p><i>How does this reduce risk?</i> Pursuant to NJSA 40:55D-89 of the Municipal Land Use Law, at least once every 10 years municipal master plans and development regulations are to be reexamined for the purpose of determining continued viability and the need for amendments. Consideration is given to the emergence of land use issues and external influences, such as statutory mandates, which might impact the underlying basis of the Master Plan. The 2019 Master Plan Reexamination recommends the following: additional open space preservation, comprehensive ordinance rewrite, a Green Buildings &amp; Environmental Sustainability Plan Element, a Housing Element and a comprehensive update to the Land Use Element.</p>					
<b>Capital Improvement Plan</b>	Yes	Allowed	Annual Capital Improvement Plan	Local	Administration and Township Council
<p><i>How does this reduce risk?</i> Capital Improvement programming and planning allows municipalities to prioritize infrastructure improvements to address adverse issues related to public health (i.e. - water and sewer conveyance) and welfare (i.e. - stormwater infrastructure and capacity). It allows for comprehensive review and projection of potential impacts depending on the age of the infrastructure, sequencing of improvements and urgency and need for realization of such projects</p>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i> While the Township does not have a debris management plan at the time of the plan update, they will begin the process of developing one as identified in Table 9.21-16.</p>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Stormwater Management Plan</b>	Yes	Yes	Watershed Based Municipal Stormwater Management Plan – February 2006	State	West Deptford Stormwater Program Coordinator
<p><i>How does this reduce risk?</i> The MSWMP outlines specific stormwater standards for new development and propose stormwater management controls that address impacts from existing development. Preventative and corrective maintenance strategies are included to ensure the long-term effectiveness of stormwater management facilities. The MSWMP provide recommendations for stormwater systems to protect the public health and welfare.</p>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, September 8, 2020	State	Director of Public Works
<p><i>How does this reduce risk?</i> Provides check to ensure hazardous materials are kept out of storm water system. The Township completes the required SPPP reporting and forms and performs the required stormwater quality tasks on an ongoing basis.</p>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
<b>Economic Development Plan</b>	Yes	No	Redevelopment Plan, River Center at West Deptford – last revised January 2020	State	Redevelopment Agency
<p><i>How does this reduce risk?</i> The purpose of the Redevelopment Plan is to serve as the principal tool to guide the revitalization of the RiverCenter Redevelopment Area. Successful implementation will require outreach to community stakeholders, commercial and residential developers with the sensitive use of</p>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
redevelopment powers and financial incentives by the Township to facilitate site specific redevelopment projects. The Plan will balance efforts to attract new commercial development to the Redevelopment Area with the need and desire to preserve a significant portion of the site as open space for passive and active recreation and as habitat in its natural state.					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding. <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? <ul style="list-style-type: none"> <li>-N/A.</li> </ul> </li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? <ul style="list-style-type: none"> <li>Yes</li> </ul> </li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Does the future land use map clearly identify natural hazard areas? <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? <ul style="list-style-type: none"> <li>Yes.</li> </ul> </li> <li>Does the transportation plan limit access to hazard areas? <ul style="list-style-type: none"> <li>N/A</li> </ul> </li> <li>Is transportation policy used to guide growth to safe locations?</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>- While transportation infrastructure is largely conducted on regional levels, the Township has not extended any new road infrastructure into vulnerable locations without the required environmental permitting.</li> <li>• Are transportation systems designed to function under disaster conditions (e.g., evacuation)? <ul style="list-style-type: none"> <li>- Yes - Intra-state, inter-state and regional transportation systems all serve West Deptford Township for evacuation routing.</li> </ul> </li> <li>• Are environmental systems that protect development from hazards identified and mapped? <ul style="list-style-type: none"> <li>- Yes (see Environmental Resource Inventory (ERI)).</li> </ul> </li> <li>• Do environmental policies maintain and restore protective ecosystems? <ul style="list-style-type: none"> <li>- Yes.</li> </ul> </li> <li>• Do environmental policies provide incentives to development that is located outside protective ecosystems? <ul style="list-style-type: none"> <li>- No.</li> </ul> </li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan. Valid June 7, 2021 – March 31, 2025	Local	OEM
<i>How does this reduce risk?</i> Identifies areas and potential types of events and guides responses.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	In Process	Local	OEM
<i>How does this reduce risk?</i> This is in the process of being completed.					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>• Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes.</li> </ul>					

### 9.21.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of West Deptford to oversee and track development.

Table 9.21-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>• If yes, what department is responsible?</li> <li>• If no, what is your process for development?</li> </ul>	Yes	The Department of Construction & Inspections.



Indicate if your jurisdiction implements the following	Yes/No	Comment
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	All environmental permits are required as Prior Approvals, but permits are tracked by Block and Lot
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	While there is no buildable land inventory, the Township does have an Environmental Resource Inventory (ERI), which identifies and addresses such local environmental issues as land use, water quality and quantity, flooding, wildlife habitat, natural vegetation, open space and recreation, and how these issues factor into future development.

### 9.21.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of West Deptford and their current responsibilities which contribute to hazard mitigation.

*Table 9.21-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Planning Board shall make its decisions on subdivision and site plans according to the purposes stated in the Municipal Land Use Law (1975) and this chapter and according to the standards of design set forth in this chapter. Staff includes the Director of Planning & Code Enforcement, which also serves as the Secretary to the Board, as well as the Zoning Officer. Planning Board professionals also include a Planning Board Solicitor, Engineer and Planner.
Zoning Board of Adjustment	Yes	The Zoning Board has jurisdiction over matters in accordance with Municipal Land Use Law (1975). Staff includes the Director of Planning & Code Enforcement, which also serves as the Secretary to the Board, as well as the Zoning Officer. Zoning Board professionals also include a Zoning Board Solicitor, Engineer and Planner.
Planning Department	Yes	Staff includes the Director of Planning & Code Enforcement, which also serves as the Secretary to both the Planning Board and Zoning Board, as well as the Zoning Officer.
Mitigation Planning Committee	Yes	Office of Emergency Management personnel.
Environmental Board/Commission	Yes	Environmental Commission in the Township was established for the protection, development and use of natural resources, including water resources.
Open Space Board/Committee	Yes	The Environmental Commission may be tasked with the acquisition of open space in the name of the Township.
Economic Development Commission/Committee	No	-





Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Public Works/Highway Department	Yes	The department is responsible for solid waste disposal and collection of recyclables, street maintenance and repair, maintenance of storm water collection basins and pipes, street signs, snow removal, and response to other weather emergencies. The department also provides fleet maintenance services for all township vehicles and equipment, including fire apparatus and police vehicles
Construction/Building/Code Enforcement Department	Yes	Construction and Inspections. The responsibilities of the Department of Inspections include: Construction code enforcement; Certificate of Continued Use and Occupancy (resale inspection of property prior to sale or re-occupancy); Zoning code enforcement; Property maintenance enforcement; Rental registration and inspection; Vacant and abandoned properties registration; and Fire prevention, inspections and enforcement. The Division also provides construction permitting and inspection services for the City of Woodbury and Woodbury Heights Borough. However, Woodbury City is directly responsible for issuing/denying Zoning Permits (prior approvals) and conducting Housing Inspections for certificates of Occupancy (COs) for the City of Woodbury and Woodbury Heights Borough. The City will verify, as part of those processes, that all open permits are closed prior to issuance of certain permits or housing COs for Woodbury City & Woodbury Heights Borough
Emergency Management/Public Safety Department	Yes	Within the Department of Public Safety is the Division of Emergency Management Services. All ambulance operated by Gloucester County.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Everbridge/Nixle – supported by County
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Stormwater Control Procedures Ordinance. If inadequately or improperly managed, stormwater runoff can deplete groundwater resources and increase flooding, stream channel erosion, and sediment transport and deposition. This Ordinance establishes minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements.
Mutual aid agreements	Yes	The Township of West Deptford established a reciprocal agreement with each and every municipality within the County of Gloucester for intermunicipal fire assistance at times of any and all emergencies.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Fire Chief, OEM and Deputy OEM have that responsibility.
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Professional Engineers and Planners staff the Planning Board & Zoning Boards. Municipal and Redevelopment Engineers also consult the Township.
Engineers or professionals trained in building or infrastructure construction practices	Yes	Municipal and Redevelopment Engineers consult the Township.
Planners or engineers with an understanding of natural hazards	Yes	Professional Engineers and Planners staff the Planning Board & Zoning Boards. Municipal and Redevelopment Engineers also consult the Township.
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	The Department of Public Works through County damage assessment system.
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	The Township runs a GIS system for assets that include storm water, critical facilities, fire hydrants and various other assets.
Scientist familiar with natural hazards	Yes	Through Municipal and Redevelopment Engineering Services.
Surveyor(s)	Yes	Through Municipal and Redevelopment Engineering Services.
Emergency Manager	Yes	West Deptford Office of Emergency Management.
Grant writer(s)	Yes	The Township utilizes a combination of grant consultants, professionals, inhouse personal, which includes grants prepared by the Police Department.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Municipal and Redevelopment Engineers.
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> <ul style="list-style-type: none"> <li>Reviewers and regulators familiar with Federal, State and local regulations are able to make more informed decision-making on future permitting and hazard planning.</li> </ul>		

### 9.21.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of West Deptford.

Table 9.21-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community Development Block Grants (CDBG, CDBG-DR)	Yes, through Gloucester County. The Township seeks infrastructure grants <i>via</i> CDBG on an annual basis for road reconstruction, which includes stormwater upgrades.



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Capital improvements project funding	Yes, major resource for completing large, capital projects.
Authority to levy taxes for specific purposes	Yes, through general and open space tax only.
User fees for water, sewer, gas or electric service	Yes, through water and sewer combine utility fee.
Impact fees for homebuyers or developers of new development/homes	Yes, through Housing Impact Fees (HIFs) for the Township's Affordable Housing Trust Fund (AHTF).
Stormwater utility fee	No.
Incur debt through general obligation bonds	Yes, for large, capital projects.
Incur debt through special tax bonds	N/A (not needed).
Incur debt through private activity bonds	N/A
Withhold public expenditures in hazard-prone areas	N/A
Other federal or state funding programs	Various grants, mostly for public health, safety and major roadway/infrastructure improvements.
Open Space Acquisition funding programs	Yes, through Green Acres and open space tax.
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	N/A
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? <ul style="list-style-type: none"> <li>The Township has a 5-year Capital Plan, which provides a projected outlook for those improvements.</li> </ul> </li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? <ul style="list-style-type: none"> <li>N/A.</li> </ul> </li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? <ul style="list-style-type: none"> <li>N/A.</li> </ul> </li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? <ul style="list-style-type: none"> <li>Yes, projects will be included as necessary - either in budget or capital improvements ordinances.</li> </ul> </li> </ul>	

### 9.21.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of West Deptford.

Table 9.21-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Police Chief or Emergency Management Coordinator per EOP.



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Personnel skilled or trained in website development	Yes	Assistant Administrator.
Hazard mitigation information available on your website	Yes	Link to FEMA Firmette Mapping provided on Construction/Zoning website.
Social media for hazard mitigation education and outreach	Yes	Stormwater, Recycling Hazardous Waste, Fire Safety.
Citizen boards or commissions that address issues related to hazard mitigation	Yes	LEPC, Environmental Commission.
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Gloucester County Everbridge and mass notification system.
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"> <li>Yes, the Township utilizes Register Ready and a mass notification system.</li> </ul>		

### 9.21.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of West Deptford.

Table 9.21-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Class 4	Unknown
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.21.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard



event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction's rating.

*Table 9.21-8. Adaptive Capacity*

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate (based on size of area)
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
High Wind	Moderate
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.21.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

*Table 9.21-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 88</li> <li># RL properties: 20</li> <li># SRL properties: 1</li> <li># RL/SRL mitigated: 2</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$134,962.00</li> <li># claims filed: 143</li> <li>Total loss payments: \$1,433,874.92</li> </ul>
Describe areas prone to flooding in your jurisdiction.	As a coastal Delaware River community, there are several tributaries and creeks that feed the Delaware River
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, and if so, how many are interested in (elevation or acquisition)?	No.



How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	Yes - Through County based Survey123 application also Township based Survey123 for local reporting.
Detail any RiskMAP projects currently underway in your jurisdiction.	No.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes.
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Department of Construction & Inspections.
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	A consultant is retained presently Remington and Vernick Engineers
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Ashton Jones, AICP/PP, CFM of Remington& Vernick Engineers is the acting Floodplain Administrator; Bill Rebel, Construction Official; Bill Gigliotti, DPW Director
What specific training or support does your floodplain management staff need to support its floodplain management program?	GIS mapping.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Any expansion or improvement of a structure that has a cost in excess of 50% of the value of that structure would constitute a substantial improvement in a flood hazard area.
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes.
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	Not aware of any.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	11/30/1994
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 94, adopted in 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Yes. The Ordinance meets the 1 foot of freeboard and water-proofing requirements.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No.
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No • N/A • Potentially
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most flood prone and likely to incur flood damage?	Willow Woods Trailer Park and West 1st Avenue (between Mantua Township and West Deptford Township) Asbury Ave to Delaware River tidal controlled gate Sunoco Property (as shown in prior HMPs).



Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language (<https://www.nj.gov/dep/floodcontrol/modelord.htm>) including the state mandated one-foot freeboard requirement?

The Township will readopt the Flood Prevention Ordinance once the NJDEP provides instruction and makes the new model ordinance available to the municipalities.

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.21.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.21-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	11	0	11	0	8	0	17	0	6	0	5	0
Multi-Family	1	0	0	0	0	0	0	0	2	0	14	0
Other (commercial, mixed-use, etc.)	8	0	10	0	8	0	5	0	6	0	8	0
Total Permits Issued	20	0	21	0	16	0	22	0	14	0	27	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												
Amazon	Commercial-Warehouse	One structure		240 Mantua Grove Road		None, flood hazard to the rear of the property but building isn't located in the zone			Complete			
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None Anticipated												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.





## 9.21.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of West Deptford's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of West Deptford has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.21-1. Township of West Deptford Hazard Area Extent and Location Map 1

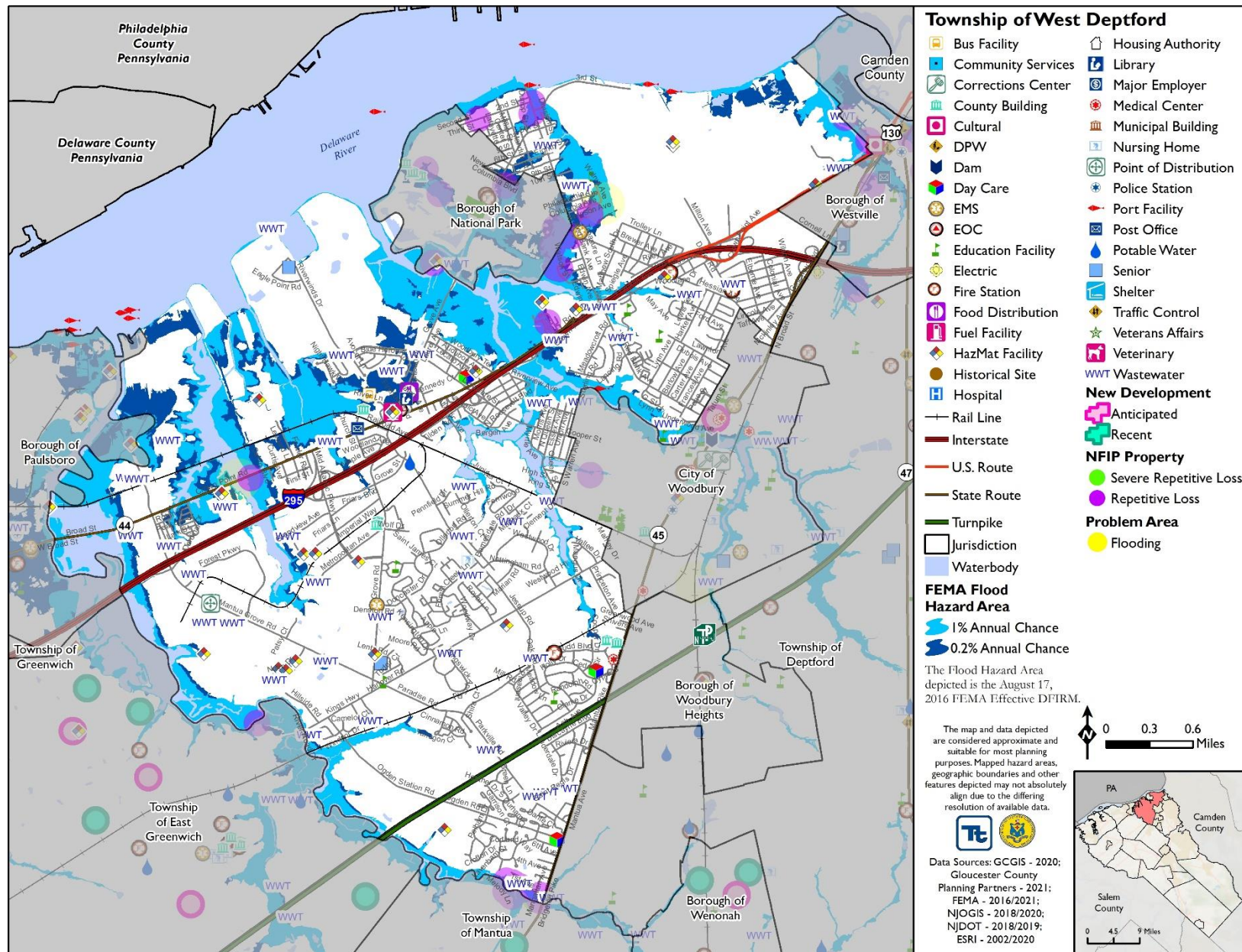






Figure 9.21-2. Township of West Deptford Hazard Area Extent and Location Map 2

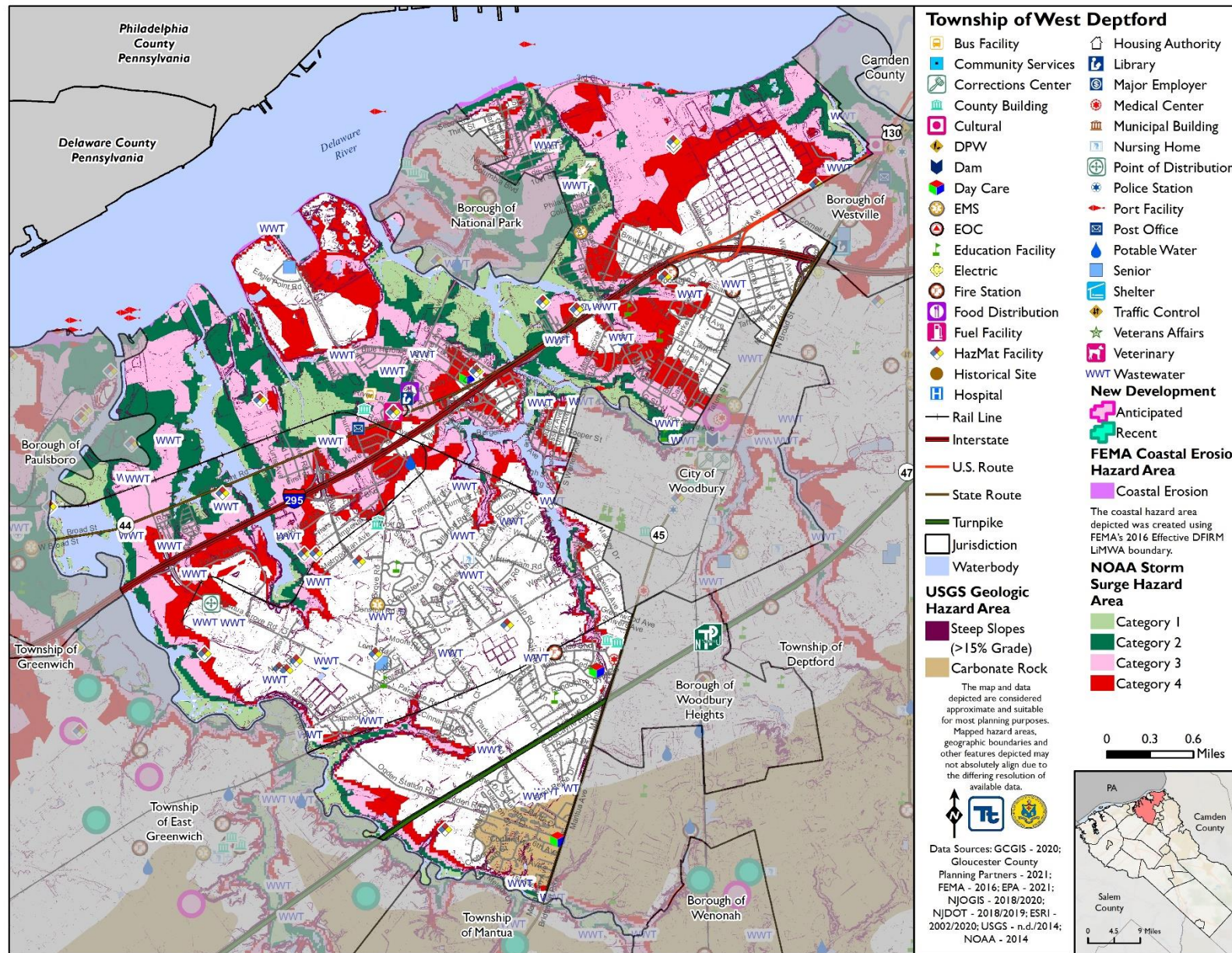






Figure 9.21-3. Township of West Deptford Hazard Area Extent and Location Map 3

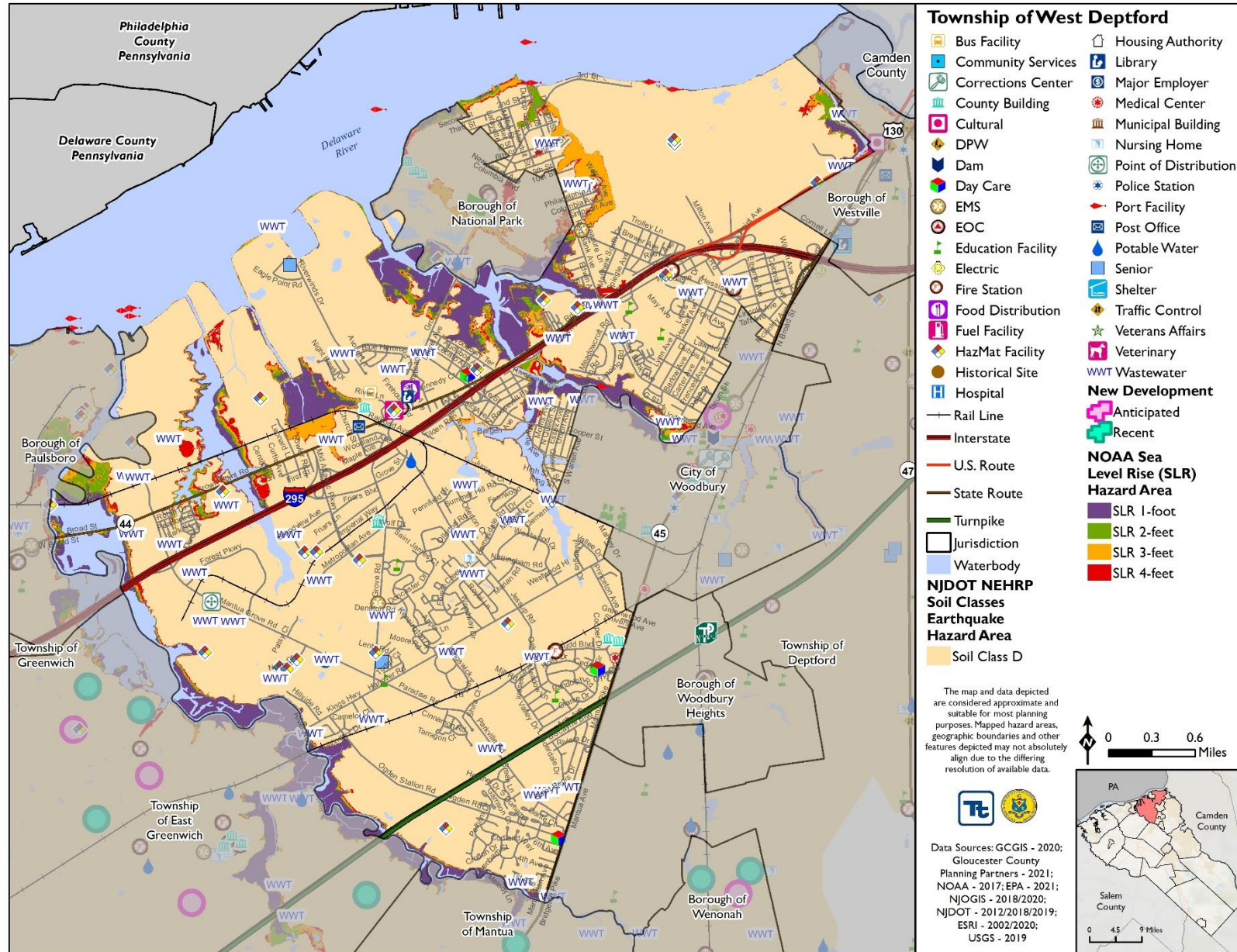
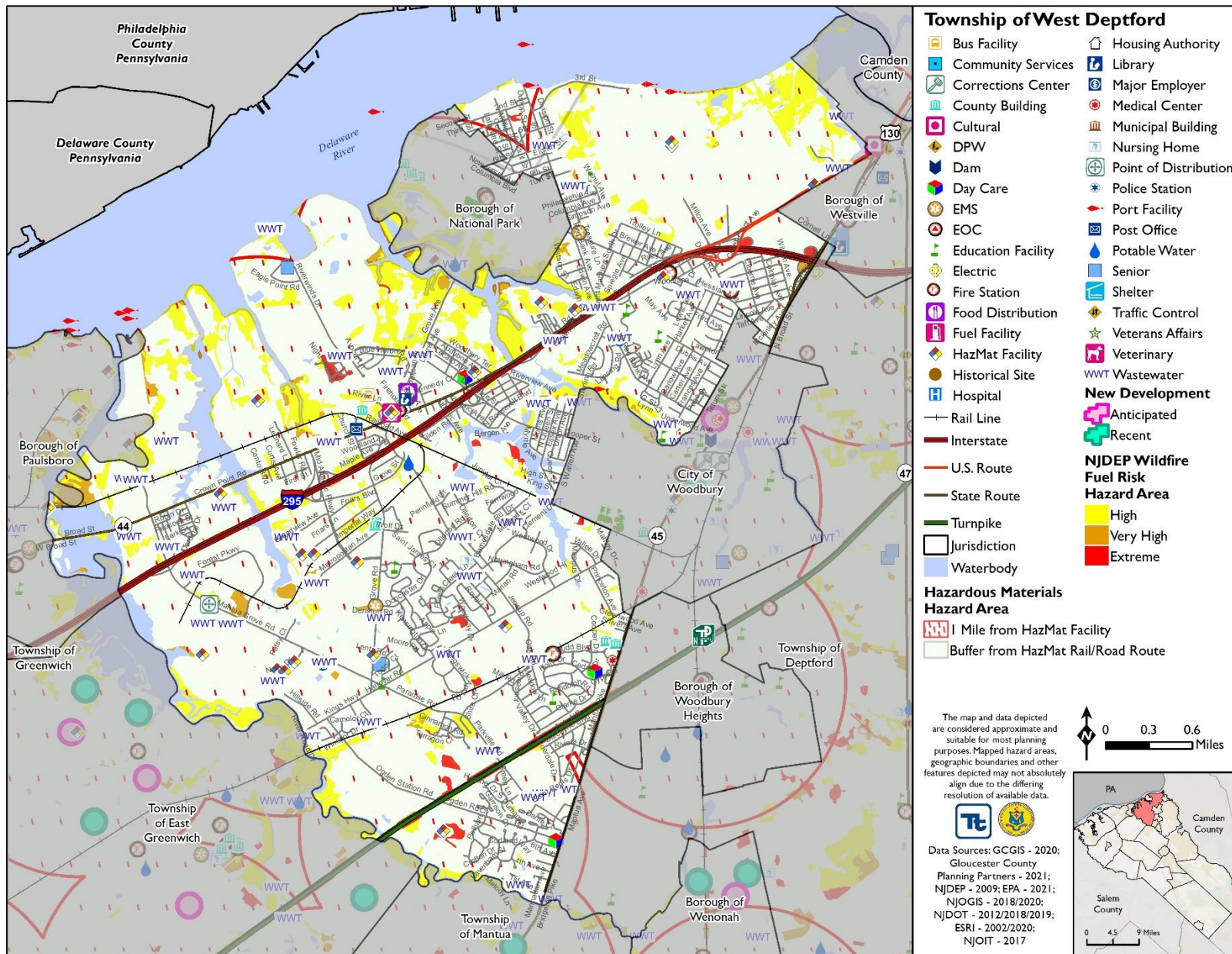






Figure 9.21-4. Township of West Deptford Hazard Area Extent and Location Map 4





### 9.21.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of West Deptford's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.21-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Township did not report impacts.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	\$94,000.00 for employee, equipment and materials.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	\$76,562.25 for employee. Equipment and materials for cost of storm.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Township did not report impacts.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	To date approximately \$150,000.00 of category B has been reimbursed
June 20, 2019	Flooding, Severe Storm	Yes	In the early morning hours 5 inches of rain fell on the North Western part of Gloucester County.	Multiple tours with FEMA. \$2,000,000.00 for damages



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
				to areas of Town infrastructure.
September 1-3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	The remnants of Hurricane Ida passed over the region. Combined with a warm-front, resulting in severe weather. A tornado touched down in Harrisonville and ran through Mullica Hill and Deptford along a 12.6 miles long path with a width up to 400 yards	While areas of the County received significant damage from Ida, the Township recorded no damages

### 9.21.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of West Deptford's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of West Deptford. The Township of West Deptford reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township adjusted the ranking for dam/levee failure from medium to low because they do not have dams or levees located in the community.
- The Township has decided to adjust the risk ranking for Flood from low to medium due to recent extreme rain events that have caused localized flooding and changed Dam/Levee from medium to low because the Township doesn't have Dam structures.

Table 9.21-12. Hazard Ranking Input

Coastal Erosion	Dam/Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
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Medium	Low	Medium	Medium	Low	Medium	Medium
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Geologic	Hazardous Materials	Hurricane	Invasive	Nor'Easter
Low	High	Medium	Low	Medium

Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
High	Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.21-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Thorofare Fire Company	Food Pantry	Y	N	Y	-
MATTEO & SONS INC.	Hazardous Material Facility	Y	Y	Y	-
SHOREWOOD DISPLAY	Hazardous Material Facility	Y	N	Y	-
Ferry Lot	Port Facility	Y	Y	Y	-
SPMT - EAGLE POINT TERMINAL	Port Facility	Y	N	Y	-
RED BANK ELEMENTARY SCHOOL	Primary Education	Y	Y	Y	-
WD PS01 Cumberland	Wastewater Pump Station	Y	N	Y	-
WD PS21 Jobstown Rd	Wastewater Pump Station	Y	N	Y	-
WS PS10 Church	Wastewater Pump Station	Y	Y	Y	-
WD PS08 1st Ave	Wastewater Pump Station	Y	Y	Y	-
WD PS02 7 <sup>TH</sup> & Red Bank	Wastewater Pump Station	Y	Y	Y	-
WD PS03 Philadelphia & Cedar (Asbury)	Wastewater Pump Station	Y	Y	Y	-
WD PS23 Kings Crossing (River Rd.)	Wastewater Pump Station	Y	Y	Y	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016



### 9.21.6.3 Identified Issues

After review of the Township of West Deptford's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of West Deptford has identified the following vulnerabilities within their community:

- The Township's outreach to inform and educate the public regarding potential hazard events is not sufficient. Outreach to property owners is also needed regarding periodic maintenance to remove brush and debris along gutters and inlets to promote system function.
- Stormwater flooding and erosion is a recurring problem in many sections of the Township causing temporary street closings and property damage. In particular, the areas of West 1st Avenue, Asbury Avenue, Walnut Avenue, Crown Point Road and others in proximity to Mantua and Woodbury Creeks.
- The Township identified the following pump stations as needing flood protection:
  - 1. Locksley pump station
  - 2. Asbury Pump Station
  - 3. Crown Point Pump station
  - 4. Church Street Pump Station
- The Township identified the following pump stations as needing backup power:
  - 1. Locksley pump station
  - 2. Asbury Pump Station
  - 3. Crown Point Pump station
  - 4. Church Street Pump Station
- The Township has identified Critical Facilities that require backup power, including
  - 1. Thorofare Fire House. Also houses Meals on Wheels.
  - 2. Township Municipal Building
  - 3. Public Works Building
- The Township identified the following culverts that are undersized or in need of repair causing localized flooding: Budd Blvd drainage ditch, Meravan Farms Drainage Ditch, and the Sunoco tributary from Asbury Avenue to the Tidal gate drainage Ditch.
- The Township identified areas that have experienced repetitive losses due to flooding causing property damage and life- threatening events. A total of 20 Repetitive Loss properties have been Identified in the Sherwood Lane, Verga, Thorofare, Meravan and Mantua Terrace neighborhoods.
- The Township lacks a standalone Disaster Debris Management Plan.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Township also experiences urban flooding as the result of heavy rains that floods basements and some first floors near the Sunoco Property along the Blue Line Creek that runs from Hessian Ave to River Tidal gate behind homes on Asbury to Spring Stream. The flooding is likely the result of poor drainage from the Sunoco property that has continually caused flooding for multiple Township residents that live adjacent to it.



- The Township needs a threat recognition plan related to hazardous materials being transported through the community and to address existing businesses that produce and/or store hazardous materials.
- The Township lacks a Continuity of Operations Plan. The Plan is currently in development.

Specific areas of concern based on resident response to the citizen survey include:

- The Township received citizen input regarding stormwater flooding and putting in place a maintenance program to keep inlets and conveyance structures in proper working order and free of debris.

## 9.21.7 Mitigation Strategy and Prioritization

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

### 9.21.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.21-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-01	Identify and pursue outreach and education opportunities.	Municipal OEM	No Progress	Yes	2022-T.W. Deptford-001
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No. The Survey is ongoing and varies from year to year as the critical facility priorities change.	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	Ongoing Capability	No. Ongoing capability.	-
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability	Meetings are being held with the working group for this project and will continue.	-
M-05	Upgrade permanent back-up emergency power generator at Municipal Hall on 400 Crown Point Road (CF-1).	Municipal OEM and Public Works Department	No Progress	Yes – Possible refurbishment of building.	2022- T. W Deptford -005
M-06	Upgrade permanent back-up emergency power generator at Colonial Manor Fire Association (CF-5).	Municipal OEM, Public Works Department, and Fire Department	No Progress	No	-
M-07	Upgrade permanent back-up emergency power generator at Thorofare Fire Association (CF-6).	Municipal OEM, Public Works Department, and Fire Department	No Progress	Yes- This is used for the County Meals on Wheels.	2022- T. W Deptford -005
M-08	Upgrade permanent back-up emergency power generator at Public Works facility (CF-8).	Municipal OEM and Public Works Department	No Progress	Yes – Possible replacement of building.	2022- T. W Deptford -005
M-09	Address identified Repetitive Flood Loss / Severe Repetitive Flood Loss Properties.	Floodplain Administrator	In Progress	Yes – Sunoco Property stream clean-out.	2022- T. W Deptford -007
M-10	Harden / retrofit Municipal Hall located on 400 Crown Point Road. Sally Port	Municipal OEM and PD	No Progress	No	-



### 9.21.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.21-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.21.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of West Deptford participated in a mitigation action workshop in August 2021 and was provided 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 Flood prone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories.

*Table 9.21-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X			X			X			X
Dam/ Levee	X			X			X			X
Disease Outbreak	X			X			X			X
Drought	X			X			X			X
Earthquake	X			X			X			X
Extreme Temp	X			X			X			X
Flood	X	X		X		X	X		X	X
Geologic	X			X			X			X
Hazmat	X			X		X	X			X
Hurricane	X	X		X		X	X		X	X
Invasive	X			X			X			X
Nor'easter	X	X		X		X	X		X	X
Severe Weather	X	X		X		X	X		X	X
Severe Winter Weather	X	X		X			X			X
Wildfire	X			X			X			X
Utility Failure	X	X		X			X			X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.21-16) summarizes the comprehensive range of specific mitigation initiatives the Township of West Deptford 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 9.21-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.21-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022- T.W. Deptford-001	Public Outreach	<p><b>Problem:</b> The Township's outreach to inform and educate the public regarding potential hazard events is not sufficient. Outreach to property owners is also needed regarding periodic maintenance to remove brush and debris along gutters and inlets to promote system function.</p> <p><b>Solution:</b> Identify and pursue outreach and education opportunities through social media and in-person events.</p>	Existing	All	1, 2, 3, 4	1 Year	OEM and Administration	Municipal Budget	Protect life and property through better outreach and preparedness	Low	High	EAP	PI
2022- T. W Deptford -002	Stormwater/Urban Flooding	<p><b>Problem:</b> Stormwater flooding and erosion is a</p>	New and Existing	Flood, Hurricane, Nor'easter,	1, 2, 5, 6	Within 5 Years	Township Public Works and Engineer	HMGP, FMA, BRIC	Allow for safe passage on roadways and reduce	High	High	SIP	SP





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>recurring problem in many sections of the Township causing temporary street closings and property damage. In particular, the areas of West 1<sup>st</sup> Avenue, Asbury Avenue, Walnut Avenue, Crown Point Road and others in proximity to Mantua and Woodbury Creeks.</p> <p><b>Solution:</b> The Township will take a systematic approach to the upgrading of the entire drainage system. The process will begin with the completion of an Engineering Study, leading to repairing and increasing the size of conveyance</p>		Severe Weather					property damage.				



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		structures, developing nonstructural drainage systems and regularly maintaining stormwater inlets and other drainage structures.											
2022- T. W Deptford -003	Infrastructure Protection	<p><b>Problem:</b> The Township identified the following pump stations as needing flood protection:</p> <ol style="list-style-type: none"> <li>1. Locksley pump station</li> <li>2. Asbury Pump Station</li> <li>3. Crown Point Pump station</li> <li>4. Church Street Pump Station</li> </ol> <p><b>Solution:</b> Provide for a combination of station elevations and flood walls to maintain operation.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	Within 5 Years	Township Engineer	HMGP, FMA, BRIC	Ensure operation of pump stations maintains sanity conditions	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022- T. W Deptford -004	Backup Power for Pump Stations	<p><b>Problem:</b> The Township identified the following pump stations as needing backup power:</p> <ol style="list-style-type: none"> <li>1. Locksley pump station</li> <li>2. Asbury Pump Station</li> <li>3. Crown Point Pump station</li> <li>4. Church Street Pump Station</li> </ol> <p><b>Solution:</b> Acquire and install properly sized generators. Public Works will be responsible for maintenance and testing following installation.</p>	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	Within 4 Years	Township Engineer, Department of Public Works	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Maintains sanitary conditions	High	High	SIP	ES
2022- T. W Deptford -005	Backup power for Critical Facilities	<p><b>Problem:</b> The Township has identified Critical Facilities that require backup power, including 1. Thorofare Fire House. Also houses Meals on Wheels.</p>	Now and Existing	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure	1, 2, 5, 6	Within 3 Years	Township Engineer, Department of Public Works, Fire Department	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance	Provides for the operation or Lifeline facilities and continuity of operations	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		2. Township Municipal Building 3. Public Works Building  <b>Solution:</b> Identify the properly sized Generator for each facility's needs and apply for grant funding to purchase. Public Works and the Fire Department will be responsible for maintenance and testing following installation.						Grants (EMPG) Program, Municipal Budget					
2022- T. W Deptford -006	Undersized Culverts	<b>Problem:</b> The Township identified the following culverts that are undersized or in need of repair causing localized flooding: Budd Blvd drainage ditch, Meravan Farms Drainage Ditch,	New and Existing	Flood, Hurricane, Nor'Easter, Severe Weather	1, 2, 5, 6	Within 5 Years	Township Administration, Public Works and Engineer	HMGP, FMA, BRIC	Reduced flooding and property damage	High	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		and the Sunoco tributary from Asbury Avenue to the Tidal gate drainage Ditch.  <b>Solution:</b> Identify problem culverts along the above drainage ways and replace them with culverts of increased size beginning with those having the greatest benefits.											
2022- T. W Deptford -007	Repetitive Loss Areas	<b>Problem:</b> The Township identified areas that have experienced repetitive losses due to flooding causing property damage and life-threatening events. A total of 20 Repetitive Loss properties have been Identified in the Sherwood Lane, Verga, Thorofare, Meravan and	Existing	Flood, Hurricane, Nor'easter, Severe Weather	1, 2, 5, 6	Within 3 Years	Township Engineer, NFIP Floodplain Administrator, supported by homeowners	HMGP, FMA	Increased protection to life and property, and reduced costs due to repetitive flooding	High	High	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>Mantua Terrace neighborhoods.</p> <p><b>Solution:</b> Repair and upgrade stormwater systems. Identify, reach out and inform 40 homeowners of mitigation alternatives in the flood prone neighborhoods. Pursue grants for elevation and acquisition of Repetitive loss properties.</p>											
2022- T. W Deptford -008	Disaster Debris Management Plan	<p><b>Problem:</b> The Township lacks a standalone Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will develop and adopt a standalone Disaster Debris Management Plan.</p>	New	All	5	2 years	Various Departments and Township Council	Municipal Budget	Planned clean-up following a hazard event increases public safety and a quicker return to normal activities.	Low	High	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022- T. W Deptford-009	Update the Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at</p>	New	Flood, Hurricane, Nor'easter, Severe Weather	1, 2	6 months	Floodplain Administrator, Administration	Township Budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	High	LPR	PR





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.											
2022- T. W Deptford -010	Sunoco- Blue Line Creek Project	<b>Problem:</b> The Township also experiences urban flooding as the result of heavy rains that floods basements and some first floors near the Sunoco Property along the Blue Line Creek that runs from Hessian Ave to River Tidal gate behind homes on Asbury to Spring Stream. The flooding is likely the result of poor drainage from the Sunoco property that has continually caused flooding for multiple Township	New and Existing	Flood, Hurricane, Nor'easter, Severe Weather	1, 2	Within 3 Years	Private Property owner, Engineer, and Department of Public Works	HMGP, FMA, BRIC	Reduce property damage and increase public safety	High	High	SIP, NSP	NRP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>residents that live adjacent to it.</p> <p><b>Solution:</b> Coordinate with the Sunoco Stream property owner to clean out and repair drainage areas within its holdings. Increase size of upstream culverts and clean stream of restrictions on flow. Install a Permanent Pump at west end of drainage system to relieve upstream flooding.</p>											
2022- T. W Deptford -011	Haz-mat Preparedness	<p><b>Problem:</b> The Township needs a threat recognition plan related to hazardous materials being transported through the community and to address existing businesses that</p>	New and Existing	Haz-mat, Severe Weather, Severe Winter Weather	1, 2, 5, 6	2 Years	Township OEM, County OEM, Administration	BRIC, Municipal Budget	Protect residents from Hazmat events	Staff Time	High	LPR, EAP	PI, ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>produce and/or store hazardous materials.</p> <p><b>Solution:</b> Gloucester County has a Haz-Mat/CBRNE response team. It is a highly trained professional group that is specially equipped to respond to the release of the hazardous materials that threaten the citizens of our County, their property, or the environment. The Township will coordinate with the County's Haz-Mat Team, to cross check all known haz-mat facilities within the Township limits, and the potential for Haz-mat materials in transit and</p>											



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		enhance the continuity of local/county operations.											
2022- T. W Deptford -012	Continuity of Operations Plan	<b>Problem:</b> The Township lacks a Continuity of Operations Plan. The Plan is currently in development.  <b>Solution:</b> The Township will complete the Plan.	N/A	All Hazards	6	6 months	OEM, Administration	Municipal budget	Continuity of operations	Staff time	High	LPR	ES

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV Community Assistance Visit  
 CRS Community Rating System  
 DPW Department of Public Works  
 EHP Environmental Planning and Historic Preservation  
 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  
 BRIC Building Resilient Infrastructure and Communities 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 also 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 also 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 9.21-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-T.W. Deptford-001	Public Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- T. W Deptford -002	Stormwater/Urban Flooding	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
2022- T. W Deptford -003	Infrastructure Protection	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022- T. W Deptford -004	Backup Power for Pump Stations	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High



Project Number	Project 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
2022- T. W Deptford -005	Back-up power for Critical Facilities	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022- T. W Deptford -006	Undersized Culverts	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	⚠️ High
2022- T. W Deptford -007	Repetitive Loss Areas	1	1	1	1	0	1	0	1	1	1	0	0	1	1	10	⚠️ High
2022- T. W Deptford -008	Disaster Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- T. W Deptford-009	Update the Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2022- T. W Deptford -010	Sunoco- Blue Line Creek Project	1	1	1	1	1	1	0	0	1	0	1	0	1	1	10	High
2022- T. W Deptford -011	Haz-mat Preparedness	1	1	1	1	1	1	1	1	1	0	1	1	1	1	13	High
2022- T. W Deptford -012	Continuity of Operations Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

⚠️ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.

The Township identified Stormwater Management as a high priority item. Pointing out that an overall change in direction within the Municipality to the upgrading of the entire system. This area is expensive to repair and upgrade and requires specialized training and equipment. This would be a sound investment and eligible funding would make a huge difference. Does the Township want to make the Stormwater related mitigation actions one the highest priority projects??



## 9.21.8 Action Worksheets

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The following action worksheets have been developed by the Township of West Deptford to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.





Action Worksheet			
<b>Project Name:</b>	Stormwater/Urban Flooding		
<b>Project Number:</b>	2022- T. W Deptford -002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather		
<b>Description of the Problem:</b>	Stormwater flooding and erosion is a recurring problem in many sections of the Township causing temporary street closings and property damage. In particular, the areas of West 1 <sup>st</sup> Avenue, Asbury Avenue, Walnut Avenue, Crown Point Road and others in proximity to Mantua and Woodbury Creeks.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will take a systematic approach to the upgrading of the entire drainage system. The process will begin with the completion of an Engineering Study, leading to repairing and increasing the size of conveyance structures, developing nonstructural drainage systems and regularly maintaining stormwater inlets and other drainage structures.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined by extent of restoration of SW system.	<b>Estimated Benefits (losses avoided):</b>	Allow for safe passage on roadways and reduce property damage.
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Carried out annually with available funding
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	HMGP, FMA, BRIC
<b>Responsible Organization:</b>	Township Public Works and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate or Buyout homes	Very High	Stormwater system fails flooding continues - Costly
	Elevate roads	High	Stormwater system fails flooding continues
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Stormwater/Urban Flooding	
<b>Project Number:</b>	2022- T. W Deptford -002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects life from flooding.
Property Protection	1	Protects property from flood damage
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	The Township has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	0	
Social	1	Project would reduce flooding impacts
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'easter, Severe Weather
Timeline	0	Within 5 Years
Agency Champion	1	
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Infrastructure Protection		
<b>Project Number:</b>	2022- T. W Deptford -003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Township identified the following pump stations as needing flood protection: 1. Locksley pump station 2. Asbury Pump Station 3. Crown Point Pump station 4. Church Street Pump Station		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Provide for a combination of station elevations and flood walls to maintain operation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	High	<b>Estimated Benefits (losses avoided):</b>	Ensure operation of pump stations maintains sanity conditions
<b>Useful Life:</b>	10 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 Years
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	HMGP, FMA, BRIC
<b>Responsible Organization:</b>	Township Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Relocate pump stations to protected areas	High	Infeasible
	Total replacement of pump stations with a less vulnerable model	High	Too costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Infrastructure Protection	
<b>Project Number:</b>	2022- T. W Deptford -003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	This project protects life
Property Protection	1	This project protects property
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	There are no political issues
Legal	1	There are no legal complications but permitting likely
Fiscal	0	Additional Funding is needed
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
Timeline	0	Within 5 Years
Agency Champion	1	
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup Power for Pump Stations		
<b>Project Number:</b>	2022- T. W Deptford -004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Township identified the following pump stations as needing backup power: 1. Locksley pump station 2. Asbury Pump Station 3. Crown Point Pump station 4. Church Street Pump Station		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Acquire and install properly sized generators. Public Works will be responsible for maintenance and testing following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Maintains sanitary conditions
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 1 year of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 4 Years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Township Engineer, Department of Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	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; 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)			
<b>Date of Status Report:</b>			



<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	



Action Worksheet		
<b>Project Name:</b>	Backup Power for Pump Stations	
<b>Project Number:</b>	2022- T. W Deptford -004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical service of maintaining sanitary conditions for the Borough residents
Property Protection	1	Project will protect sanitary conditions during a power loss
Cost-Effectiveness	1	
Technical	1	Project is technically feasible
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	Flood, Hurricane, Nor'Easter, Severe Weather, Severe Winter Weather, Utility Failure
Timeline	0	Within 4 Years
Agency Champion	1	Municipal Engineer and PW
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	





Action Worksheet			
<b>Project Name:</b>	Back-up power for Critical Facilities		
<b>Project Number:</b>	2022- T. W Deptford -005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure		
<b>Description of the Problem:</b>	The Township has identified Critical Facilities that require backup power, including 1. Thorofare Fire House. Also houses Meals on Wheels. 2. Township Municipal Building 3. Public Works Building		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Identify the properly sized Generator for each facility's needs and apply for grant funding to purchase. Public Works and the Fire Department will be responsible for maintenance and testing.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Provides for the operation or Lifeline facilities and continuity of operations
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	
<b>Estimated Time Required for Project Implementation:</b>	Within 3 Years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Township Engineer, Department of Public Works, Fire Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	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; 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)			
<b>Date of Status Report:</b>			



<b>Report of Progress:</b>	
<b>Update Evaluation of the Problem and/or Solution:</b>	



Action Worksheet		
<b>Project Name:</b>	Back-up power for Critical Facilities	
<b>Project Number:</b>	2022- T. W Deptford -005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services as the fire house is the home of meals on wheels and the buildings can function as emergency shelter and are critical to continuity of operations during a hazard event
Property Protection	1	Project will protect buildings from power loss.
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
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	Flood, Hurricane, Nor'easter, Severe Weather, Severe Winter Weather, Utility Failure
Timeline	0	Within 3 Years
Agency Champion	1	Township Engineer, Department of Public Works, Fire Department
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Undersized Culverts		
<b>Project Number:</b>	2022- T. W Deptford -006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather		
<b>Description of the Problem:</b>	The Township identified the following culverts that are undersized or in need of repair causing localized flooding: Budd Blvd drainage ditch, Meravan Farms Drainage Ditch, and the Sunoco tributary from Asbury Avenue to the Tidal gate drainage Ditch.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Identify problem culverts along the above drainage ways and replace them with culverts of increased size beginning with those having the greatest benefits.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Reduced flooding and property damage
<b>Useful Life:</b>	30 Years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 Years
<b>Estimated Time Required for Project Implementation:</b>	Within 5 Years	<b>Potential Funding Sources:</b>	HMGP, FMA, BRIC
<b>Responsible Organization:</b>	Township Administration, Public Works and Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove and relocate flooded roads	Very High	Roadways cannot be removed and replaced in another location in a developed community
	Dredge streams and drainage ditches and add more structure	High	A dredging project would be costly and detrimental to the environment
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Undersized Culverts	
<b>Project Number:</b>	2022- T. W Deptford -006	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Project will protect roadways from flooding, culvert damages
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	Township has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Hurricane, Nor'easter, Severe Weather
Timeline	0	Within 5 Years
Agency Champion	1	Township Administration, Engineer and PW
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Areas		
<b>Project Number:</b>	2022- T. W Deptford -007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather		
<b>Description of the Problem:</b>	The Township identified areas that have experienced repetitive losses due to flooding causing property damage and life- threatening events. A total of 20 Repetitive Loss properties have been Identified in the Sherwood Lane, Verga, Thorofare, Meravan and Mantua Terrace neighborhoods.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Repair and upgrade stormwater systems. Identify, reach out and inform 40 homeowners of mitigation alternatives in the flood prone neighborhoods. Pursue grants for elevation and acquisition of Repetitive loss properties.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	100 Year Flood	<b>Estimated Benefits (losses avoided):</b>	Increased protection to life and property, and reduced costs due to repetitive flooding
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 1 year of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 3 Years	<b>Potential Funding Sources:</b>	HMGP, FMA
<b>Responsible Organization:</b>	Township Engineer, NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			



<b>Update Evaluation of the Problem and/or Solution:</b>	
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Action Worksheet		
<b>Project Name:</b>	Repetitive Loss Areas	
<b>Project Number:</b>	2022- T. W Deptford -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 removed from high-risk flood areas.
Cost-Effectiveness	1	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	0	
Legal	1	The Township has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood, Hurricane, Nor'Easter, Severe Weather
Timeline	0	Within 3 Years
Agency Champion	1	Township Engineer, NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Sunoco- Blue Line Creek Project		
<b>Project Number:</b>	2022- T. W Deptford -010		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Hurricane, Nor'easter, Severe Weather		
<b>Description of the Problem:</b>	The Township also experiences urban flooding as the result of heavy rains that floods basements and some first floors near the Sunoco Property along the Blue Line Creek that runs from Hessian Ave to River Tidal gate behind homes on Asbury to Spring Stream. The flooding is likely the result of poor drainage from the Sunoco property that has continually caused flooding for multiple Township residents that live adjacent to it.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Coordinate with the Sunoco Stream property owner to clean out and repair drainage areas within its holdings. Increase size of upstream culverts and clean stream of restrictions on flow. Install a Permanent Pump at west end of drainage system to relieve upstream flooding.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Reduce property damage and increase public safety
<b>Useful Life:</b>	10 Years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project, Natural Systems Protection
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 to 12 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Within 3 Years	<b>Potential Funding Sources:</b>	HMGP, FMA, BRIC
<b>Responsible Organization:</b>	Private Property owner, Engineer, and Department of Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Retreat from areas near stream	High	Costly, unpopular
	Levees along stream	High	Not feasible/environmentally damaging, costly
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Sunoco- Blue Line Creek Project	
<b>Project Number:</b>	2022- T. W Deptford -010	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect from potential injuries from unsafe streambank conditions and excessive flooding conditions
<b>Property Protection</b>	1	Project will protect property and infrastructure from potential flood damage
<b>Cost-Effectiveness</b>	1	Benefits outweigh costs
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	Permitting likely required
<b>Fiscal</b>	0	Project requires funding support
<b>Environmental</b>	0	The need for hard structure may have some negative impacts on the natural environment
<b>Social</b>	1	
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Hurricane, Nor'easter, Severe Weather
<b>Timeline</b>	0	Within 3 Years
<b>Agency Champion</b>	1	Private Property owner, Engineer, and Department of Public Works
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Haz-mat Preparedness		
<b>Project Number:</b>	2022- T. W Deptford -011		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Hazmat, Severe Weather, Severe Winter Weather		
<b>Description of the Problem:</b>	The Township needs a threat recognition plan related to hazardous materials being transported through the community and to address existing businesses that produce and/or store hazardous materials.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Gloucester County has a Haz-Mat/CBRNE response team. It is a highly trained professional group that is specially equipped to respond to the release of the hazardous materials that threaten the citizens of our County, their property, or the environment. The Township will coordinate with the County's Haz-Mat Team, to cross check all known haz-mat facilities within the Township limits, and the potential for Haz-mat materials in transit and enhance the continuity of local/county operations.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Protect residents from Hazmat events
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2, 5, 6
<b>Estimated Cost:</b>	Staff Time	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Education and Awareness Programs
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6 to 12 months
<b>Estimated Time Required for Project Implementation:</b>	2 Years	<b>Potential Funding Sources:</b>	BRIC, Municipal Budget
<b>Responsible Organization:</b>	Township OEM, County OEM and Administration	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate homes and Critical Facilities distant from to transit and haz-mat businesses	Very High	Too costly and impractical
	Reroute transit and businesses to unpopulated areas	Very High	Too costly and impractical
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			



<b>Update Evaluation of the Problem and/or Solution:</b>	
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Action Worksheet		
<b>Project Name:</b>	Haz-mat Preparedness	
<b>Project Number:</b>	2022- T. W Deptford -011	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Public Safety increased from potential hazard events
Property Protection	1	Property damage reduced from potential hazard event
Cost-Effectiveness	1	Cost-effective project
Technical	1	Project is technically feasible
Political	1	
Legal	1	The legal authority exists for County and Municipal government to work together
Fiscal	1	
Environmental	1	
Social	1	Residents benefit from coordinated Hazmat planning with the County
Administrative	0	
Multi-Hazard	1	Hazmat, Severe Weather, Severe Winter Weather
Timeline	1	2 Years
Agency Champion	1	Municipal and County Administrations and Offices of Emergency Management
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



## 9.22 BOROUGH OF WESTVILLE

This section presents the jurisdictional annex for the Borough of Westville and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Westville's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.22.1 Hazard Mitigation Planning Team

The Borough of Westville followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Westville's hazard mitigation plan primary and alternate points of contact. 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 9.22-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Ryan Giles, Borough Administrator Address: 165 Broadway Westville, NJ 08093-1148 Phone Number: 856-456-0030 Email: <a href="mailto:rgiles@westville-nj.com">rgiles@westville-nj.com</a>	Name/Title: Kathleen Carroll, Deputy Clerk Address: 165 Broadway Westville, NJ 08093-1148 Phone Number: 856-456-0030 Email: <a href="mailto:kcarrroll@westville-nj.com">kcarrroll@westville-nj.com</a>
NFIP Floodplain Administrator	
Name/Title: Anthony Dariano, Construction Official Address: 165 Broadway Westville, NJ 08093-1148 Phone Number: 856-456-0030 Email: <a href="mailto:Adriano@westville-nj.com">Adriano@westville-nj.com</a>	





Name	Title	Method of Participation
Ryan Giles	Borough Administrator	Provided information on past events, reviewed risk rankings, contributed to mitigation strategy, reviewed annex and provided feedback
Anthony Dariano	Construction Official	Provided information on NFIP administration, permits for new construction, reviewed annex and provided feedback
Christine Byrne	Department of Public Works and Engineer	Provided update on past actions.
Candance Kanaplue	Bach Associates	Provided information on Borough capabilities
John A. Bruno, Jr.	CFO	Reviewed annex and provided feedback
Martin Finger	Public Works Superintendent	Reviewed annex and provided feedback
Michael Packer	Acting Police Chief	Reviewed annex and provided feedback

## 9.22.2 Municipal Profile

Westville was formed as a borough by an Act of the New Jersey Legislature on April 7, 1914, from portions of Deptford Township and West Deptford Township, based on the results of a referendum held on April 28, 1914. The Borough was reincorporated on March 8, 1924. The Borough of Westville is known as "The Gateway to South Jersey!".

According to the United States Census Bureau, the Borough had a total area of 1.38 square miles, including 1.02 square miles of land and 0.36 square miles of water. Route 295 and 130 are the major routes that pass through the municipality. Unincorporated communities, localities and place names located partially or completely within the Borough include Newbold, South Westville and Westville Manor.

Westville is governed under the Borough form of New Jersey municipal government. The governing body is comprised of a Mayor and a Borough Council, with all positions elected at-large on a partisan basis as part of the November general election. A Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Westville was 4,288. The estimated 2019 population was 4,169, a 2.9 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.5 percent of the population is 5 years of age or younger and 12.9 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.



## 9.22.3 Jurisdictional Capability Assessment and Integration

The Borough of Westville performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.22.3). The updated mitigation strategy includes opportunities the Borough of Westville identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.22.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Westville, what is present in the jurisdiction, and code citation and date.

*Table 9.22-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 142, Construction Codes, Uniform, 1978	State and Local	Construction Code Enforcement Agency," consisting of a Construction Official, a Building Subcode Official, a Plumbing



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
					Subcode Official, an Electrical Subcode Official, a Fire Protection Subcode Official and such other subcode officials
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Adopts the uniform Construction Code for all new building and development.</li> </ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 205, Land Use and Development	Local	Planning Board and Zoning Board of Adjustment
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Establishes the Planning Board and Zoning Board procedures.</li> <li>Establishes zoning regulations.</li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 340, Subdivision of Land	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this chapter shall be to provide rules, regulations and standards to guide subdivision in the Borough of Westville in order to promote the public health, safety, convenience and general welfare of the municipality. It shall be administered to ensure the orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 330, Stormwater Control, 2007	Local	
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted Master Plan and land use ordinances of the Borough of Westville.</li> <li>Through this chapter, the Borough of Westville has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>(a) To reduce flood damage, including damage to life and property;</li> <li>(b) To minimize any increase in stormwater runoff from new development;</li> <li>(c) To reduce soil erosion from any development or construction project;</li> <li>(d) To assure the adequacy of existing and proposed culverts and bridges and other in-stream structures;</li> <li>(e) To maintain groundwater recharge;</li> <li>(f) To minimize any increase in nonpoint pollution;</li> <li>(g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;</li> <li>(h) To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the Borough of Westville;</li> <li>(i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface and groundwaters of the Borough of Westville, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and</li> <li>(j) To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this chapter, the Borough of Westville has identified the following management techniques: <ul style="list-style-type: none"> <li>(a) Implementation of multiple stormwater management best management practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this chapter.</li> <li>(b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this chapter, shall be accomplished, to the maximum extent practicable, through the use of nonstructural BMPs before relying on structural BMPs. Nonstructural BMPs are also known as "low-impact development (LID) techniques."</li> <li>(c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</li> </ul> </li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>o (d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</li> <li>o (e) Structural BMPs, where necessary, shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</li> <li>o (f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this chapter before relying on a single, larger stormwater management measure to achieve these performance standards.</li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
How does this reduce risk? <ul style="list-style-type: none"> <li>• 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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	Local	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 298, Site Plan Review, 1986	Local and County	Planning Board
How does this reduce risk? <ul style="list-style-type: none"> <li>• The purposes of this chapter shall be as follows:               <ul style="list-style-type: none"> <li>o A. To provide rules, regulations and standards to guide the development of lands in this Borough in a manner which will promote the public health, safety, morals and general welfare.</li> <li>o B. To ensure the orderly development, conservation, protection and proper use of land and adequate provision for circulation, utilities and services.</li> <li>o C. To provide adequate light, air and open space.</li> <li>o D. To ensure the coordination of development within the Borough with the development and general welfare of neighboring municipalities, the county and the State of New Jersey as a whole.</li> <li>o E. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight.</li> <li>o F. To promote a desirable visual environment through creative development techniques and good civic design and arrangement.</li> <li>o G. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>o H. To encourage development which incorporates the best features of design and to relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site.</li> <li>o I. To encourage coordination of the various public and private procedures and activities shaping land development with a view to lessening the cost of such development, to ensuring the most efficient use of land and to protecting the Borough from undue obligations from land development.</li> <li>o J. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources.</li> </ul> </li> </ul>					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 180, Flood Damage Prevention, 2016	Federal, State, County and Local	Construction Official
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>In order to accomplish its purposes, this chapter includes methods and provisions for: <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;</li> <li>B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;</li> <li>C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</li> <li>D. Controlling filling, grading, dredging, and other development which may increase flood damage; and</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</li> </ul> </li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 56, Police Department, 2000	Local	Police Department
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>Lays out responsibilities for Police Department.</li> </ul>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>Does it contain natural overlay zones that set conditions? No</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? No</li> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? No</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? No</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? No</li> <li>When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes – municipality	Master Plan Reexamination and Recommendations, 2018	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Provides long term goals for development.</li> </ul>					
<b>Capital Improvement Plan</b>	Yes	Allowed	Yearly Municipal Budget	Local	Administration office-CFO
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Available to potentially allocate funds to hazard mitigation projects.</li> </ul>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan, 2020	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Sets standards for stormwater management.</li> </ul>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Annual certification	State	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Sets standards for stormwater management reporting.</li> </ul>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding within the budget.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Planning</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes</li> <li>Does the transportation plan limit access to hazard areas? Yes</li> <li>Is transportation policy used to guide growth to safe locations? No</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? Somewhat</li> <li>Are environmental systems that protect development from hazards identified and mapped? Yes</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan – Base Plan, 2020	Local	OEM
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Establishes requirements and responsibilities for emergency management during disaster events.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes</li> </ul>					

### 9.22.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Westville to oversee and track development.

*Table 9.22-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Land Use Board approval
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	There are limited areas of open land remaining in the Borough. Most open land does not meet minimal land use requirements to allow for development.

### 9.22.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Westville and their current responsibilities which contribute to hazard mitigation.

*Table 9.22-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board and Planning Secretary
Zoning Board of Adjustments	Yes	Planning Board and Planning Secretary
Planning Department	Yes	Planning Board and Planning Secretary
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Environmental Commission-Joyce Lovell
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Council Members and Administrator
Public Works/Highway Department	Yes	Superintendent of Public Works
Construction/Building/Code Enforcement Department	Yes	Code Enforcement Officer & Construction Official and Zoning Official
Emergency Management/Public Safety Department	Yes	LEPC
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	County with no outdoor warning signal
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Department of Public Works



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Mutual aid agreements	Yes	Countywide all hazards
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Administrator
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Appointed Engineering firms
Engineers or professionals trained in building or infrastructure construction practices	Yes	Appointed Engineering firms
Planners or engineers with an understanding of natural hazards	Yes	Appointed Engineering firms
Staff with expertise or training in benefit/cost analysis	Yes	Appointed Engineering firms
Professionals trained in conducting damage assessments	Yes	Appointed Engineering firms
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Appointed Engineering firms
Scientist familiar with natural hazards	Yes	Appointed Engineering firms
Surveyor(s)	No	-
Emergency Manager	Yes	Steve Cope
Grant writer(s)	No	Are data and maps from the HMP used to support documentation in grant applications?
Resilience Officer	Yes	Police Department
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
<ul style="list-style-type: none"> <li>They help to ensure compliance with State and Federal regulations.</li> </ul>		

### 9.22.3.4 Fiscal Capability

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

Table 9.22-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	Yes, could be costly for small towns
Authority to levy taxes for specific purposes	Yes, could be costly for residents
User fees for water, sewer, gas or electric service	Yes, but could increase fees
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? It doesn't because the cost is too high <ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul> </li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.22.3.5 Education and Outreach Capability

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

*Table 9.22-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Through social media
Personnel skilled or trained in website development	Yes	Deputy Clerk
Hazard mitigation information available on your website	No	In progress
Social media for hazard mitigation education and outreach	Yes	Weekly ongoing of the Municipality
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Environmental Commission and Town Watch
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	County
Natural disaster/safety programs in place for schools	Yes	Snow plan and Active Shooter
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
<ul style="list-style-type: none"> <li>Use of social media.</li> </ul>		

### 9.22.3.6 Community Classifications

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

Table 9.22-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	Unknown	Unknown
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.22.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.22-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazardous Materials	Moderate
Hurricane	Moderate
Invasive Species	Moderate



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Nor'Easter	Moderate
Severe Storm	Moderate
Severe Winter Storm	Moderate
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.22.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.22-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 66</li> <li># RL properties: 7</li> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$117,547.00</li> <li># claims filed: 82</li> <li>Total loss payments: \$523,000.48</li> </ul>
Describe areas prone to flooding in your jurisdiction.	Broadway, Willow, Delsea Drive, Woodbine, Boundary Lane and E. Olive, High Street, Timber Park and Delaware View and Route 45, Duncan
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, and if so, how many are interested in (elevation or acquisition)?	No
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Market Value of Structure  1
Detail any RiskMAP projects currently underway in your jurisdiction.	One project is currently underway
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction Office
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Yes, Anthony Dariano
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Construction Official



NFIP Topic	Comments
What specific training or support does your floodplain management staff need to support its floodplain management program?	Continuing education
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	50 percent of fair market cost of structure
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	12/6/1994
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> </ul> What is the date that your flood damage prevention ordinance was last amended?	<ul style="list-style-type: none"> <li>Chapter 180</li> <li>2016</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Minimum but flood damage prevention ordinance requires update.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.22.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.22-10. Recent and Expected Future Development*

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						



Type of Development	2016		2017		2018		2019		2020		2021	
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	0	0	2	0	1	0	0	0	0	0	1	0
Multi-Family	0	0	1	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	0	0	3	0	1	0	0	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												
None identified												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
None anticipated												

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.22.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Westville's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Westville has significant exposure. The maps also show the location of potential new development, where available.





Figure 9.22-1. Borough of Westville Hazard Area Extent and Location Map 1

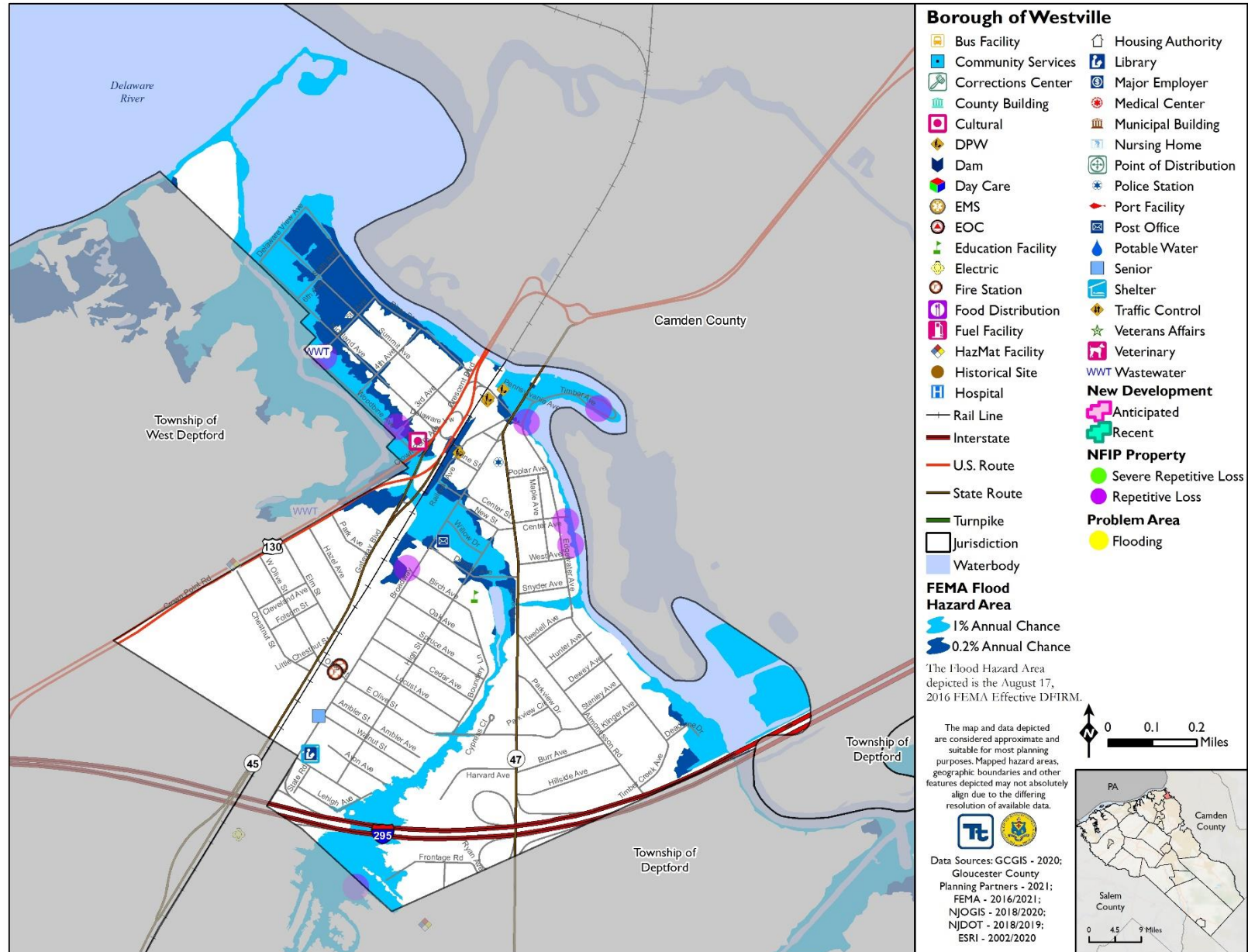




Figure 9.22-2. Borough of Westville Hazard Area Extent and Location Map 2

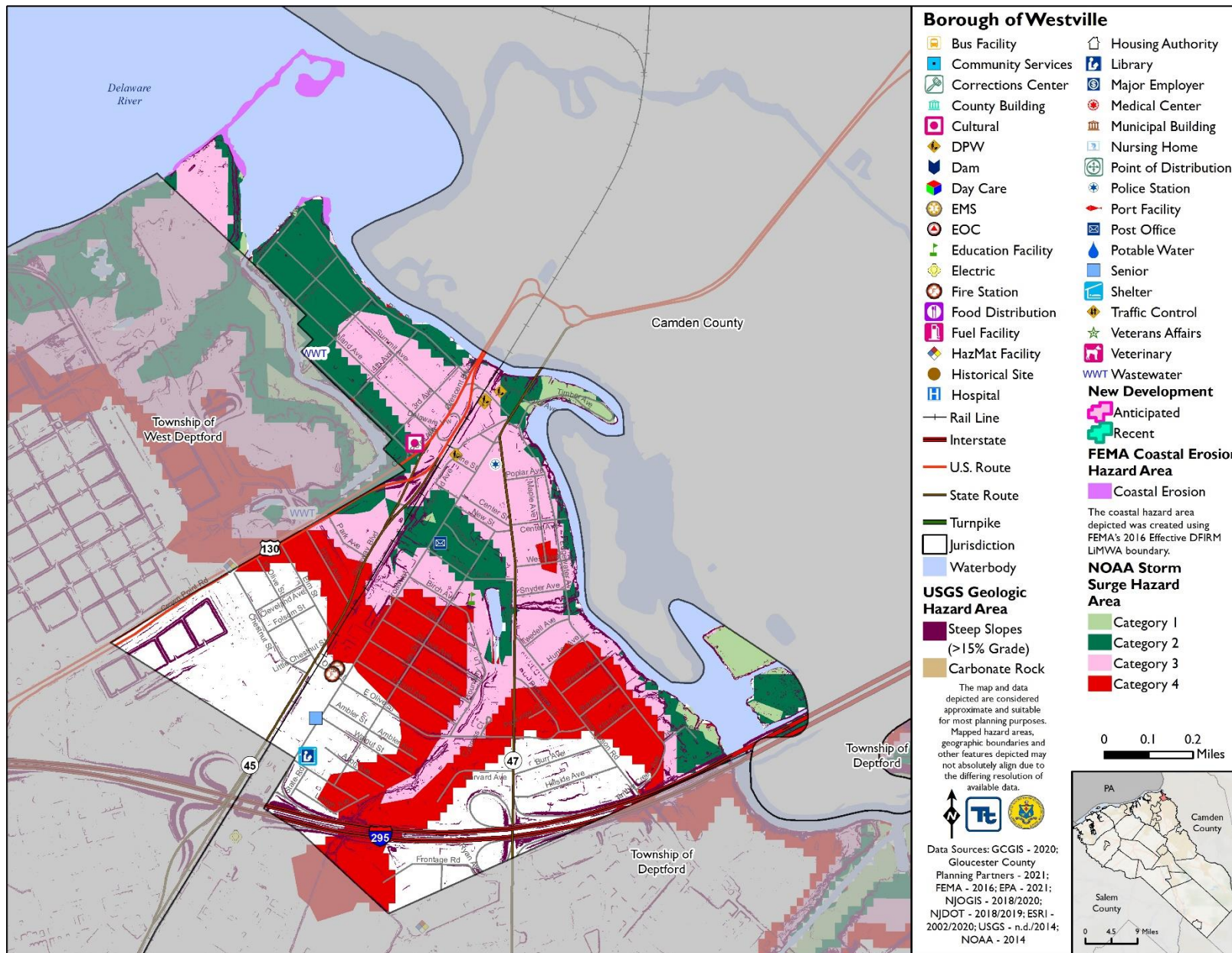






Figure 9.22-3. Borough of Westville Hazard Area Extent and Location Map 3

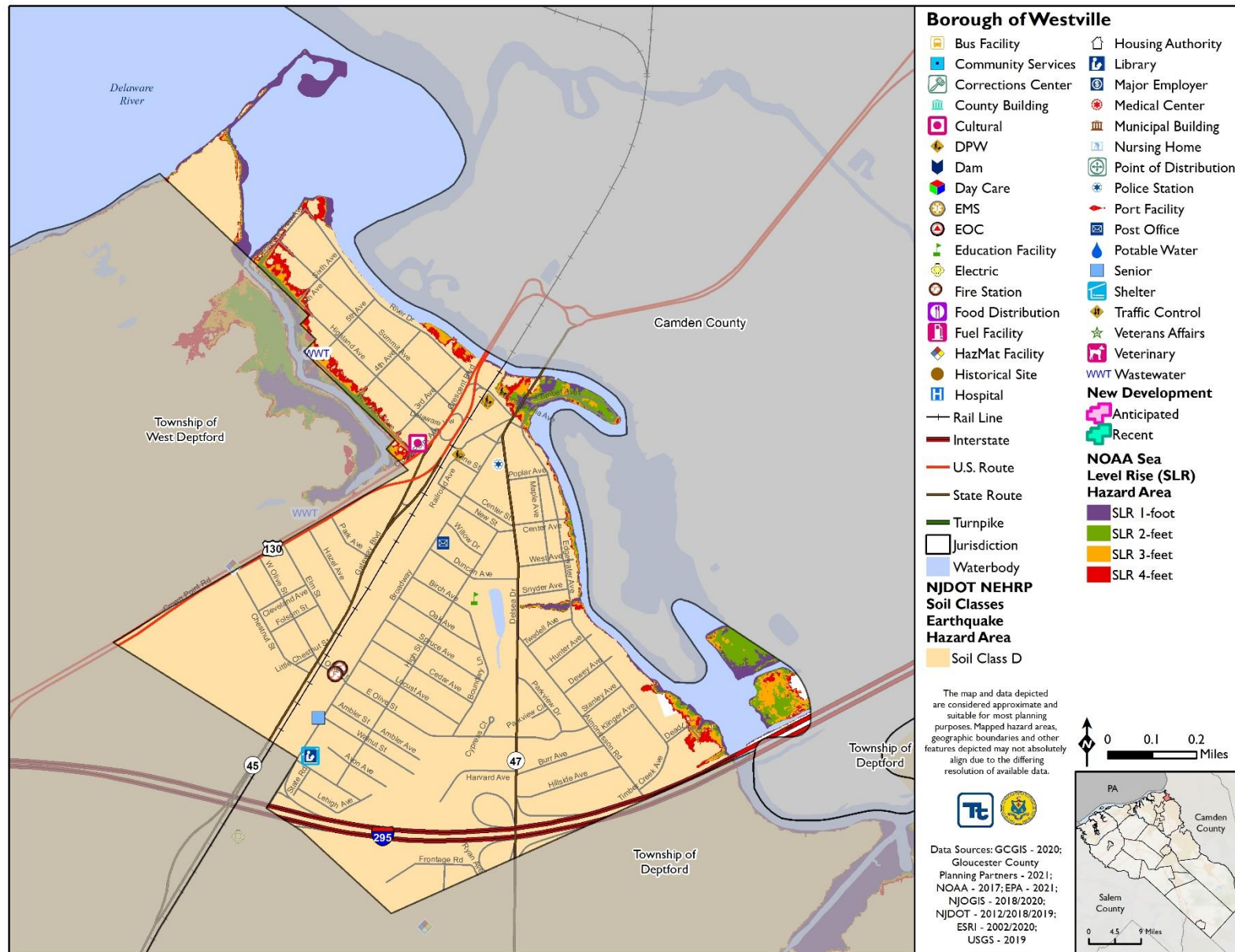
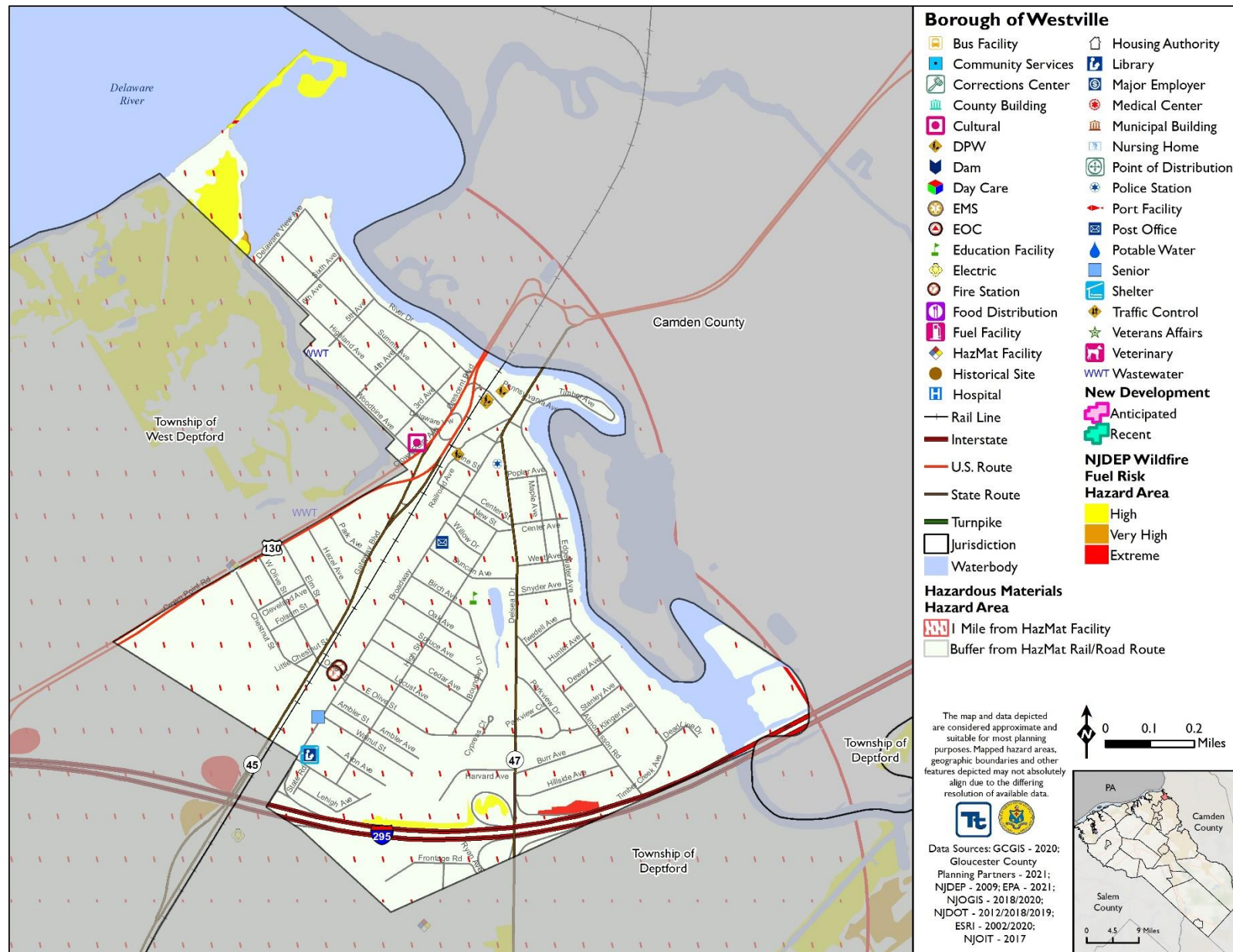




Figure 9.22-4. Borough of Westville Hazard Area Extent and Location Map 4





### 9.22.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Westville's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.22-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Borough did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from	Although the County was impacted, the Borough did not report damages.





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			five inches in Pitman to 6.5 inches in West Deptford.	
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Borough was subject to closures and social distancing requirements.
June 19, 2019	Severe storm flooding event	No	Westville was hit with a severe summer thunderstorm that resulted of 5 inches of rain that caused localized and significant flooding with significant property damage.	60 residents were evacuated from their homes to the Borough's local shelter. Local, county and state OEM were onsite. The Municipal building operated by the Lions Club was damaged as well.
Last 5 years	Heavy rain and full moons	No	Localized flooding along Broadway, Woodbine, Duncan, Route 45, Delsea Drive, Highland Avenue, Timber Park, Willow Street, Boundary Lane, East Olive, High Street and Delaware View residents	Although the County was impacted, the Borough did not report damages.

### 9.22.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Westville's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Westville. The Borough of Westville reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.



During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough changed the hazard ranking for dam and levee failure from medium to low due to lack of levee systems.
- The Borough changed the hazard ranking for drought from medium to low based on lack of drought events.
- The Borough changed the hazard ranking for flood from low to medium due to historic flooding in the past five years.
- The Borough agreed with the remainder of the calculated hazard rankings.

Table 9.22-12. Hazard Ranking Input

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Low	Low	Medium	Medium

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Storm
Low	High	High	Low	Medium	High

Severe Winter Storm	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.22-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Westville Water Department Well #6	DPW	Y	X	X	-
Westville Water Department Well #5	DPW	Y	-	X	-
St. Anne's/St. Joachim's Parish Hall	Cultural Site	Y	-	X	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016





### 9.22.6.3 Identified Issues

After review of the Borough of Westville's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Westville has identified the following vulnerabilities within their community:

- Flooding along Broadway (County Route 551) is problematic. The Borough does not have jurisdiction to complete work on its own. Flooding has resulted in damages. The area is not in the special flood hazard area.
- Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well.
- Backup power sources are necessary to maintain critical services for critical facilities. The Community Center lacks a backup power source.
- Parkview Elementary School lacks back up power. The school is not under the Borough's jurisdiction.
- The culvert at East Olive Street and Boundary Lane over Clear Creek is undersized and contributes to flooding.
- Various roadways and infrastructure under NJ DOT jurisdiction are in need of replacement or upgrade. Numerous projects are planned.
- The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.
- The Borough lacks an adopted Disaster Debris Management Plan.
- Hazard outreach is limited in the Borough. An educated public is needed in order to reduce the level of response needed by municipal staff.

Specific areas of concern based on resident response to the citizen survey include:

- Various areas in the Borough were identified as being floodprone including:
  - Forbidden Circle
  - Newbold section of Westville, 600 block of Highland Avenue
  - Brooklawn Circle
  - Broadway in front of Gateway diner
  - Broadway at 1st Colonial National Bank
  - Duncan Avenue by the park
  - Willow Street
  - Thomas West Park
  - Route 45
  - High Street
  - Duncan
  - East Olive Street
  - Boundary



- Delsea Drive
- Delaware View
- Highland Avenue
- Woodbine Avenue
- Crown Point Road
- Route 130
- Flood prone areas should include a large portion of Broadway (Westville, NJ) as the damage a flood caused millions of dollars of damage without any help from FEMA due to not being designated as a flood zone.
- Flooding causes sewer backup.

## 9.22.7 Mitigation Strategy and Prioritization

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

### 9.22.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.22-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	
					Enter 2022 HMP Action #
MJ-1	Improve drainage at State Route 45 and railroad.	Municipal OEM, NJDOT	No Progress	Yes	2022-Westville-006
MJ-2	Improve drainage on Willow Drive between High Street and Broadway (County Route 551).	Municipal OEM, Gloucester County DPW	No Progress	Yes	2022-Westville-001
MJ-3	Maintain duckbill valves along Broadway (County Route 551).	Municipal OEM, NJ DOT	No Progress	Yes	2022-Westville-001
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	No Progress	Yes	2022-Westville-009
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-
M-03	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability	No	-
M-04	Install permanent backup emergency power generator at Parkview Elementary School (CF-6).	Municipal OEM and School Board	No Progress	Yes	2022-Westville-004
M-05	Conduct study to determine flood and erosion remedial related mitigation measures along Woodbine Avenue and Lake Martha.	Municipal OEM and Public Works Department	No Progress	Yes	2022-Westville-006
M-06	Elevate / acquire homes along Big Timber Creek, particularly around Route 47 bridge.	Floodplain Administrator	No Progress	Yes	2022-Westville-002
M-07	Elevate / acquire homes on Edge Water Avenue	Floodplain Administrator	No Progress	Yes	2022-Westville-002
M-08	Address identified Repetitive Flood Loss Properties to include areas such as Big Timber Creek and Edge Water Avenue.	Floodplain Administrator	No Progress	Yes	2022-Westville-002



### 9.22.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.22-14, the Borough did not undertake any additional mitigation efforts in the last five years.

### 9.22.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Westville participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.22-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise	X			X			X			X
Dam Failure/Levee Failure	X			X			X			X
Disease Outbreak/Pandemic	X			X			X			X
Drought	X			X			X			X
Earthquake	X			X			X			X
Extreme Temperatures	X			X			X			X
Flood	X	X		X	X	X	X		X	X
Geological Hazards	X			X			X			X
Hazardous Materials	X			X			X			X
Hurricane	X			X			X			X
Invasive Species	X			X			X			X
Nor'Easter	X			X			X			X
Severe Storm	X	X		X		X	X		X	X
Severe Winter Storm	X			X			X			X
Wildfire	X			X			X			X
Utility Failure	X	X		X			X			X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.22-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Westville 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 9.22-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.22-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Westville-001	Flooding at Broadway	<p><b>Problem:</b> Flooding along Broadway (County Route 551) is problematic. The Borough does not have jurisdiction to complete work on its own. Flooding has resulted in damages. The area is not in the special flood hazard area.</p> <p><b>Solution:</b> The Borough will work with the State and County to complete stormwater upgrades. Upgrades could include:</p> <ul style="list-style-type: none"> <li>Improved drainage</li> <li>Installation of backflow prevention devices on outfalls</li> <li>Rebuild/restore flaps on 300 block and remove debris</li> </ul>	Existing	Flood, Severe Storm	1, 2	State of New Jersey, County of Gloucester, Borough of Westville	BRIC, HMGP	Reduction in flooding	High	Within 5 years	High	SIP	SP
2022-Westville-002	Address Identified Repetitive Flood Loss Properties	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well. There are several areas in the Borough that are flood prone including:</p> <ul style="list-style-type: none"> <li>Forbidden Circle</li> <li>Newbold section of Westville, 600 block of Highland Avenue</li> <li>Brooklawn Circle</li> </ul>	Existing	Flood, Severe Storm	1, 2, 3	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$2 million	3 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<ul style="list-style-type: none"> <li>Broadway in front of Gateway diner</li> <li>Broadway at 1st Colonial National Bank</li> <li>Duncan Avenue by the park</li> <li>Willow Street</li> <li>Thomas West Park</li> <li>Route 45</li> <li>High Street</li> <li>Duncan</li> <li>East Olive Street</li> <li>Boundary</li> <li>Delsea Drive</li> <li>Delaware View</li> <li>Highland Avenue</li> <li>Woodbine Avenue</li> <li>Crown Point Road</li> <li>Route 130</li> </ul> <p><b>Solution:</b> Conduct outreach to 20 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).</p>											





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Westville-003	Backup Power for Community Center	<p><b>Problem:</b> Backup power sources are necessary to maintain critical services for critical facilities. The Community Center lacks a backup power source.</p> <p><b>Solution:</b> The Engineer will research what size generator is needed to power the Community Center. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power to the Community Center. The Department of Public Works will be responsible for maintenance of the generator.</p>	Existing	Utility Failure	1, 2, 6	Engineer, Public Works	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Municipal Budget	Ensures continuity of operations	\$50,000	Within 5 years	High	SIP	ES
2022-Westville-004	Backup Power for Parkview Elementary School	<p><b>Problem:</b> Parkview Elementary School lacks backup power. The school is not under the Borough's jurisdiction.</p> <p><b>Solution:</b> OEM and the Borough Engineer will meet with the facility managers to explain potential funding opportunities to provide for backup power installation.</p>	Existing	Utility Failure	1, 3, 6	OEM, Engineer, facility manager	Borough budget	Facility manager aware of potential funding for backup power	Staff time	1 year	High	EAP	PI
2022-Westville-005	Upsize Culvert at East Olive and Boundary	<p><b>Problem:</b> The culvert at East Olive Street and Boundary Lane over Clear Creek is undersized and contributes to flooding.</p> <p><b>Solution:</b> The Borough Engineer will determine the proper size for the culvert. Public Works will be responsible for the replacement and upsizing of the culvert and future maintenance.</p>	Existing	Flood, Severe Storm	1, 2	DPW, Engineer	BRIC, HMGP, Municipal budget	Reduction in flood risk, culvert damage	High	Within 5 years	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Westville-006	Support NJ DOT Infrastructure Improvements	<p><b>Problem:</b> Various roadways and infrastructure under NJ DOT jurisdiction are in need of replacement or upgrade. Numerous projects are planned.</p> <p><b>Solution:</b> The Borough will provide input and data to support potential NJ DOT projects. Particular projects include:</p> <ul style="list-style-type: none"> <li>Improve drainage at State Route 45 and railroad.</li> <li>Conduct study to determine flood and erosion remedial related mitigation measures along Woodbine Avenue and Lake Martha.</li> <li>Forbidden Circle flooding: Rebuild two bridges from Brooklawn and create retaining ponds.</li> <li>Route 130 flooding</li> </ul>	Existing	Flood, Severe Storm	1, 2, 3, 4	OEM, Administration	Borough budget	Reduction in flooding of critical infrastructure	Staff time	Within 6 months	High	EAP	PI
2022-Westville-007	Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Borough will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood</p>	New	Flood	1, 2	Floodplain Administrator, Administration	City budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	Medium	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.											
2022-Westville-008	Disaster Debris Management Plan	<b>Problem:</b> The Borough lacks an adopted Disaster Debris Management Plan. <b>Solution:</b> The Borough will complete and adopt the in-progress Disaster Debris Management Plan.	Existing	All Hazards	5	Public Works, OEM	Borough budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LPR	ES
2022-Westville-009	Expand Hazard Outreach	<b>Problem:</b> Hazard outreach is limited in the Borough. An educated public is needed in order to reduce the level of response needed by municipal staff. <b>Solution:</b> The Borough will expand hazard outreach, including outreach on mitigation opportunities for homeowners and business owners.	N/A	All Hazards	3	Administration	Borough budget	Increased public awareness, reduced need for municipal response	Low	Within 2 years	High	EAP	PI

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
BRIC	Building Resilient Infrastructure and Communities Program

**Timeline:**

The time required for completion of the project upon implementation

**Cost:**

The estimated cost for implementation.

**Benefits:**



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 also 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 also 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 9.22-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Westville-001	Flooding at Broadway	1	1	0	1	1	0	0	1	1	0	1	0	1	1	9	High



Project Number	Project 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
2022-Westville-002	Address Identified Repetitive Flood Loss Properties	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022-Westville-003	Backup Power for Community Center	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2022-Westville-004	Backup Power for Parkview Elementary School	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2022-Westville-005	Upsize Culvert at East Olive and Boundary	1	1	1	1	1	0	0	1	1	0	1	0	1	1	10	High
2022-Westville-006	Support NJ DOT Infrastructure Improvements	1	1	1	1	1	0	1	1	1	1	1	1	0	1	12	High
2022-Westville-007	Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-Westville-008	Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2022-Westville-009	Expand Hazard Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.

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

**!** This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.22.8 Action Worksheets

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The following action worksheets have been developed by the Borough of Westville to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Flooding at Broadway		
<b>Project Number:</b>	2022-Westville-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	Flooding along Broadway (County Route 551) is problematic. The Borough does not have jurisdiction to complete work on its own. Flooding has resulted in damages. The area is not in the special flood hazard area.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough will work with the State and County to complete stormwater upgrades. Upgrades could include: <ul style="list-style-type: none"> <li>Improved drainage</li> <li>Installation of backflow prevention devices on outfalls</li> <li>Rebuild/restore flaps on 300 block and remove debris</li> </ul>		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by developed actions	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, stormwater flood damage, maintains emergency access
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by developed actions. Anticipated High.	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC
<b>Responsible Organization:</b>	State of New Jersey, County of Gloucester, Borough of Westville	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, Stormwater management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate buildings	Very High	Costly and would not solve roadway flooding
	Buyout buildings	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Flooding at Broadway	
<b>Project Number:</b>	2022-Westville-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects life from flooding and maintains emergency access.
Property Protection	1	Protects buildings from flood damage
Cost-Effectiveness	0	
Technical	1	Technically feasible project
Political	1	
Legal	0	The Borough does not have the legal authority to conduct the project alone.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	State of New Jersey, County of Gloucester, Borough of Westville
Other Community Objectives	1	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Address Identified Repetitive Flood Loss Properties		
<b>Project Number:</b>	2022-Westville-002		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Storm, Flood		
<b>Description of the Problem:</b>	<p>Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Borough has 7 repetitive loss properties, but other properties may be impacted by flooding as well. There are several areas in the Borough that are flood prone including:</p> <ul style="list-style-type: none"> <li>• Forbidden Circle</li> <li>• Newbold section of Westville, 600 block of Highland Avenue</li> <li>• Brooklawn Circle</li> <li>• Broadway in front of Gateway diner</li> <li>• Broadway at 1st Colonial National Bank</li> <li>• Duncan Avenue by the park</li> <li>• Willow Street</li> <li>• Thomas West Park</li> <li>• Route 45</li> <li>• High Street</li> <li>• Duncan</li> <li>• East Olive Street</li> <li>• Boundary</li> <li>• Delsea Drive</li> <li>• Delaware View</li> <li>• Highland Avenue</li> <li>• Woodbine Avenue</li> <li>• Crown Point Road</li> <li>• Route 130</li> </ul>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 20 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2, 3
<b>Estimated Cost:</b>	\$2 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>



	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Address Identified Repetitive Flood Loss Properties	
<b>Project Number:</b>	2022-Westville-002	
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 Borough 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 Borough.
Administrative	0	
Multi-Hazard	1	Severe Storm, Flood
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup Power for Community Center		
<b>Project Number:</b>	2022-Westville-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Backup power sources are necessary to maintain critical services for critical facilities. The Community Center lacks a backup power source.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will research what size generator is needed to power the Community Center. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power to the Community Center. The Department of Public Works will be responsible for maintenance of the generator.		
<b>Is this project related to a Critical Facility?</b>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Ensures continuity of operations of Community Center
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	\$50,000	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Municipal Budget
<b>Responsible Organization:</b>	Engineer, Public Works	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Backup Power for Community Center	
<b>Project Number:</b>	2022-Westville-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical services of Community Center
Property Protection	1	Project will protect building 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	
Administrative	1	
Multi-Hazard	0	Utility Failure
Timeline	0	Within 5 years
Agency Champion	1	Engineer, Public Works
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Upsize Culvert at East Olive and Boundary		
<b>Project Number:</b>	2022-Westville-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Storm		
<b>Description of the Problem:</b>	The culvert at East Olive Street and Boundary Lane over Clear Creek is undersized and contributes to flooding.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Borough Engineer will determine the proper size for the culvert. Public Works will be responsible for the replacement and upsizing of the culvert and future maintenance.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by size selected	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, culvert damage
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, municipal budget
<b>Responsible Organization:</b>	DPW, Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadway	\$500,000	Costly and may not solve problem
	Relocate roadway	N/A	Not possible
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Upsize Culvert at East Olive and Boundary	
<b>Project Number:</b>	2022-Westville-005	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects life from flooding.
Property Protection	1	Protects culvert from flood damage
Cost-Effectiveness	1	
Technical	1	Technically feasible project
Political	1	
Legal	0	Project may require permitting
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	DPW, Engineer
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



## 9.23 CITY OF WOODBURY

This section presents the jurisdictional annex for the City of Woodbury and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the City participated in the planning process, an assessment of the City of Woodbury's risk and vulnerability, the different capabilities used in the City, and an action plan that will be implemented to achieve a more resilient community.

### 9.23.1 Hazard Mitigation Planning Team

The City of Woodbury followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many City departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the City of Woodbury's hazard mitigation plan primary and alternate points of contact. 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 9.23-1. Hazard Mitigation Planning Team*

Primary Point of Contact		Alternate Point of Contact
Name/Title: John Leech, Emergency Manager Address: 33 Delaware Street Woodbury, NJ 08096 Phone Number: 856-845-0066 Email: <a href="mailto:jleech@woodbury.nj.us">jleech@woodbury.nj.us</a>		Name/Title: Joseph Buono, Deputy OEM Address: 33 Delaware Street Woodbury, NJ 08096 Phone Number: 856-845-0066 Email: <a href="mailto:jbuono@woodbury.nj.us">jbuono@woodbury.nj.us</a>
NFIP Floodplain Administrator		
Name/Title: William Rebel, Construction Official Address: 400 Crown Point Road West Deptford, NJ Phone Number: 856-345-7772 Email: <a href="mailto:brebel@westdeptford.com">brebel@westdeptford.com</a>		
Name	Title	Method of Participation



John Leech, Emergency Manager	John Leech, Emergency Manager	Provided information on past events, capabilities, NFIP administration, and building permits. Reviewed hazard rankings, provided update on previous actions, and contributed to mitigation strategy.
Joseph Buono, Deputy OEM	Joseph Buono, Deputy OEM	Provided information on past events, capabilities, NFIP administration, and building permits. Reviewed hazard rankings, provided update on previous actions, and contributed to mitigation strategy.

## 9.23.2 Municipal Profile

The City of Woodbury, one of the oldest “small cities” in the United States, had its beginning in 1683 when Henry Wood, a Quaker from Bury, England, settled in the region. By 1715 Woodbury had become a Quaker religious center and was a thriving hamlet at the onset of the American Revolution. The famous British General Lord Cornwallis, who would later surrender to George Washington at Yorktown, had his headquarters in Woodbury during his advance to capture the City of Philadelphia in 1777. By the mid-nineteenth century Woodbury had grown considerably and was incorporated as a City in 1854. Woodbury has been the County Seat of Gloucester County for over two centuries. Recently, Woodbury has also begun to experience a commercial rebirth owing greatly to the efforts of Woodbury Main Street Inc.

According to the United States Census Bureau, the City had a total area of 2.10 square miles, including 2.02 square miles of land and 0.08 square miles of water. The City borders Deptford Township, West Deptford Township and Woodbury Heights. North Broad Street is the main arterial that passes through the municipality.

Woodbury is governed under the City form of New Jersey municipal government. The governing body is comprised of the Mayor and the City Council. A Mayor is elected at-large directly by the voters for a four-year term of office. The City Council is comprised of nine members, three from each of three wards, elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the City of Woodbury was 10,174. The estimated 2019 population was 9,861, a 3.2 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 6.5 percent of the population is 5 years of age or younger and 16.3 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.



## 9.23.3 Jurisdictional Capability Assessment and Integration

The City of Woodbury performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.23.3). The updated mitigation strategy includes opportunities the City of Woodbury identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.23.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the City of Woodbury, what is present in the jurisdiction, and code citation and date.

*Table 9.23-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 73, Construction Codes, Uniform, 1976	State and Local	Building and Construction Department
<i>How does this reduce risk?</i> <ul style="list-style-type: none"><li>• Adopts the Uniform Construction Code as the construction code.</li></ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 35, Land Use Procedures, 1976; Chapter 202, Zoning, 1976	Local	Planning Board, Zoning Board of Adjustment
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Chapter 35 establishes the procedures of the Planning Board and Zoning Board of Adjustment.</li> <li>Chapter 202 is enacted for the following purposes: <ul style="list-style-type: none"> <li>A. To promote the health, safety, morals and general welfare of the inhabitants of the City of Woodbury.</li> <li>B. To secure safety from fire, flood, panic and other natural and man-made disasters.</li> <li>C. To provide adequate light, air and open space.</li> <li>D. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment.</li> <li>E. To provide sufficient space in appropriate locations for a variety of residential, recreational, commercial and industrial uses and open space, both public and private.</li> <li>F. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight.</li> <li>G. To promote a desirable visual environment through creative development techniques and good civic design and arrangements.</li> <li>H. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> </ul> </li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 170, Subdivision and Land Development, 1981	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purposes of this chapter are as follows: <ul style="list-style-type: none"> <li>A. To provide rules, regulations and standards to guide the subdivision and development of lands in this City in a manner which will promote the public health, safety, morals and general welfare.</li> <li>B. To ensure the orderly development, conservation, protection and proper use of land and adequate provision for circulation, utilities and services.</li> <li>C. To provide adequate light, air and open space.</li> <li>D. To ensure the coordination of development within the City with the development and general welfare of neighboring municipalities, the county and the State of New Jersey as a whole.</li> <li>E. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight.</li> <li>F. To promote a desirable visual environment through creative development techniques and good civic design and arrangement.</li> <li>G. To promote the conservation of open space and valuable natural resources, and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>H. To encourage development which incorporates the best features of design, and to relate the type, design and layout of residential, commercial, industrial and recreational development to the particular site.</li> <li>I. To encourage coordination of the various public and private procedures and activities shaping land development with a view to lessening the cost of such development, to ensuring the most efficient use of land and to protecting the City from undue obligations from land subdivision and development.</li> <li>J. To promote the conservation of energy through the use of planning practices designed to reduce energy consumption and to provide for maximum utilization of renewable energy sources.</li> <li>K. To promote the maximum practical recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the goals of the recycling element of the adopted City Master Plan and the municipality's recycling program.</li> </ul> </li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 165, Stormwater Control, 2006	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Sets standards for stormwater management within the City.</li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for</li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 170, Article 6 Site Plan Review, 1982	Local and County	Planning Board
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Establishes site plan and approval requirements.</li> </ul>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 103, Hazardous Substances, 1988	Local	Mayor and Council
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Establishes liability for cleanup and removal costs of hazardous substances.</li> </ul>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 92, Flood Damage Prevention, 2009	Federal, State, County and Local	Floodplain Administrator
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>In order to accomplish its purposes, this chapter includes methods and provisions for: <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities;</li> <li>B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;</li> <li>C. Controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters;</li> <li>D. Controlling filling, grading, dredging and other development which may increase flood damage; and</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</li> </ul> </li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 82, Emergency Management, 1976	Local	Emergency Management
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Appoints the Director of Emergency Management and their powers during an emergency.</li> </ul>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Comprehensive Master Plan, 2019 (updated)	Local	Planning
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The Plan identifies the following goals related to hazards and hazard mitigation: <ul style="list-style-type: none"> <li>Preserve and protect the natural heritage, both environmental and cultural.</li> <li>Balance new development and ratables with the needs of the community.</li> <li>Preserve and improve open space systems.</li> <li>Revise the land use ordinances to ensure compatibility with new growth demands for housing, commercial and industrial uses within the community</li> </ul> </li> </ul>					
<b>Capital Improvement Plan</b>	Yes	Allowed	Capital Improvement Budget, 2021	Local	Administration
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Allocates potential funding for mitigation projects.</li> </ul>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	Yes	No	Broad Street Business District Redevelopment Plan, 2010	Local	Administration
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Identifies redevelopment goals.</li> </ul>					
<b>Other</b>	No	No	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan – Base Plan, 2014	Local	OEM
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Establishes emergency procedures for disaster response.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-

### 9.23.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the City of Woodbury to oversee and track development.



*Table 9.23-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	All construction permits for the City of Woodbury are processed at the West Deptford Construction Office
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	SFHA
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	-	-

### 9.23.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Woodbury and their current responsibilities which contribute to hazard mitigation.

*Table 9.23-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Planning Board
Zoning Board of Adjustments	Yes	Zoning Board
Planning Department	Yes	Planning Department
Mitigation Planning Committee	Yes	Emergency Management
Environmental Board/Commission	Yes	Environmental Commission
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Woodbury Economic Development
Public Works/Highway Department	Yes	The Public Works Department is responsible for providing the following City services: trash and recycling collection, leaf collection, yard debris (grass, weeds, brush and tree parts) and removal of snow from City streets.
Construction/Building/Code Enforcement Department	Yes	<p>The Woodbury Code Enforcement Office consists of the following departments:</p> <ul style="list-style-type: none"> <li>Construction Office</li> <li>Planning/Zoning Board</li> <li>Zoning Officer</li> <li>Housing Office</li> <li>Landlord Licensing Office</li> </ul> <p>The Construction Department is responsible to enforce the Building Codes adopted by the Department of Community Affairs of the State of New Jersey.</p>
Emergency Management/Public Safety Department	Yes	The Office of Emergency Management is responsible for coordinating the necessary actions to protect lives and property during times of disaster and emergency.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		During periods where no emergency conditions exist, the Office is responsible for disaster planning, preparation, rehearsal and review of the "all hazard" emergency operations plan for the City of Woodbury. This involves the coordination with and cooperation of federal, state, county and municipal agencies that would respond or be affected in cases of disaster.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	The City of Woodbury participates in NAWAS (North American Warning and Alert System). In the event of any type emergency situation Gloucester County Communications will notify each municipality of the specific emergency. Once an emergency notification is received the Woodbury Emergency Officials will determine the need to alert the public as to what actions the public needs to take. Woodbury does not have an emergency warning siren system in place. POLICE, FIRE, EMS and whatever city vehicles equipped with public address systems will be utilized to make notification to residents should the need arise.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works
Mutual aid agreements	Yes	The Office enters into mutual aid agreements and conducts training exercises within the community.
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	-
Planners or engineers with an understanding of natural hazards	Yes	-
Staff with expertise or training in benefit/cost analysis	Yes	-
Professionals trained in conducting damage assessments	Yes	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	-
Emergency Manager	Yes	John Leech, Emergency Manager
Grant writer(s)	Yes	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-



### 9.23.3.4 Fiscal Capability

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

*Table 9.23-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	TBD
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
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? <ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul> </li> </ul>	

### 9.23.3.5 Education and Outreach Capability

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

*Table 9.23-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Through Administration.
Personnel skilled or trained in website development	Yes	Through Administration.
Hazard mitigation information available on your website	Yes	Through Emergency Management.
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-



Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	The City of Woodbury participates in NAWAS (North American Warning and Alert System). In the event of any type emergency situation Gloucester County Communications will notify each municipality of the specific emergency. Once an emergency notification is received the Woodbury Emergency Officials will determine the need to alert the public as to what actions the public needs to take. Woodbury does not have an emergency warning siren system in place. POLICE, FIRE, EMS and whatever city vehicles equipped with public address systems will be utilized to make notification to residents should the need arise.
Natural disaster/safety programs in place for schools	Yes	Local schools
Other	No	-

### 9.23.3.6 Community Classifications

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

*Table 9.23-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	Yes	Unknown	Unknown

Note:

N/A Not applicable  
NP Not participating  
- Unavailable

### 9.23.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.



Table 9.23-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Weak
Dam/ Levee	Moderate
Disease Outbreak	Strong
Drought	Moderate
Earthquake	Weak
Ext Temp	Moderate
Flood	Strong
Geologic	Weak
Hazmat	Moderate
Hurricane	Moderate
Invasive	Weak
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Moderate
Wildfire	Weak
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

## 9.23.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.23-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"> <li># NFIP Policies: 21</li> <li># RL properties: 1</li> <li># SRL properties: 0</li> <li>#RL/SRL mitigated: 0</li> </ul>	<ul style="list-style-type: none"> <li>Total premium in force: \$28,869.00</li> <li># claims filed: 9</li> <li>Total loss payments: \$61,269.03</li> </ul>
Describe areas prone to flooding in your jurisdiction.	South Evergreen Ave under the Railroad Bridge.
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, and if so, how many are interested in (elevation or acquisition)?	No



NFIP Topic	Comments
<ul style="list-style-type: none"> <li>How do you make Substantial Damage determinations?</li> <li>How many were declared for recent flood events in your jurisdiction?</li> </ul>	Onsite inspections
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Construction
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Minimum NFIP requirements
What specific training or support does your floodplain management staff need to support its floodplain management program?	Course through NJ Office of Emergency Management.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Construction Department is responsible for determinations.
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	12/2/2002
<ul style="list-style-type: none"> <li>What is the local law number or municipal code of your flood damage prevention ordinance?</li> <li>What is the date that your flood damage prevention ordinance was last amended?</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 92</li> <li>2009</li> </ul>
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Meets but update to the Flood Damage Prevention Ordinance is required.
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	Site Plan Review by combined planning/ zoning board.





NFIP Topic	Comments
<ul style="list-style-type: none"> <li>Does your jurisdiction participate in CRS?</li> <li>If yes, is your jurisdiction interested in improving its CRS Classification?</li> <li>If no, is your jurisdiction interested in joining the CRS program?</li> </ul>	<ul style="list-style-type: none"> <li>No</li> <li>-</li> <li>No</li> </ul>

Notes: FEMA September 16, 2019; NJDEP - 2021

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

CRS – Community Rating System

## 9.23.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.23-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	1	0	2	0	3	0	0	0	1	0	2	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	1	0	2	0	3	0	0	0	1	0	2	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												
Inspira Hospital Site	Mixed Use		TBD		509 N Broad Street		Storm Surge, Earthquake, Hazardous Materials		Anticipated complete within next 5 years			

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.



## 9.23.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the City of Woodbury's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the City of Woodbury has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.23-1. City of Woodbury Hazard Area Extent and Location Map 1

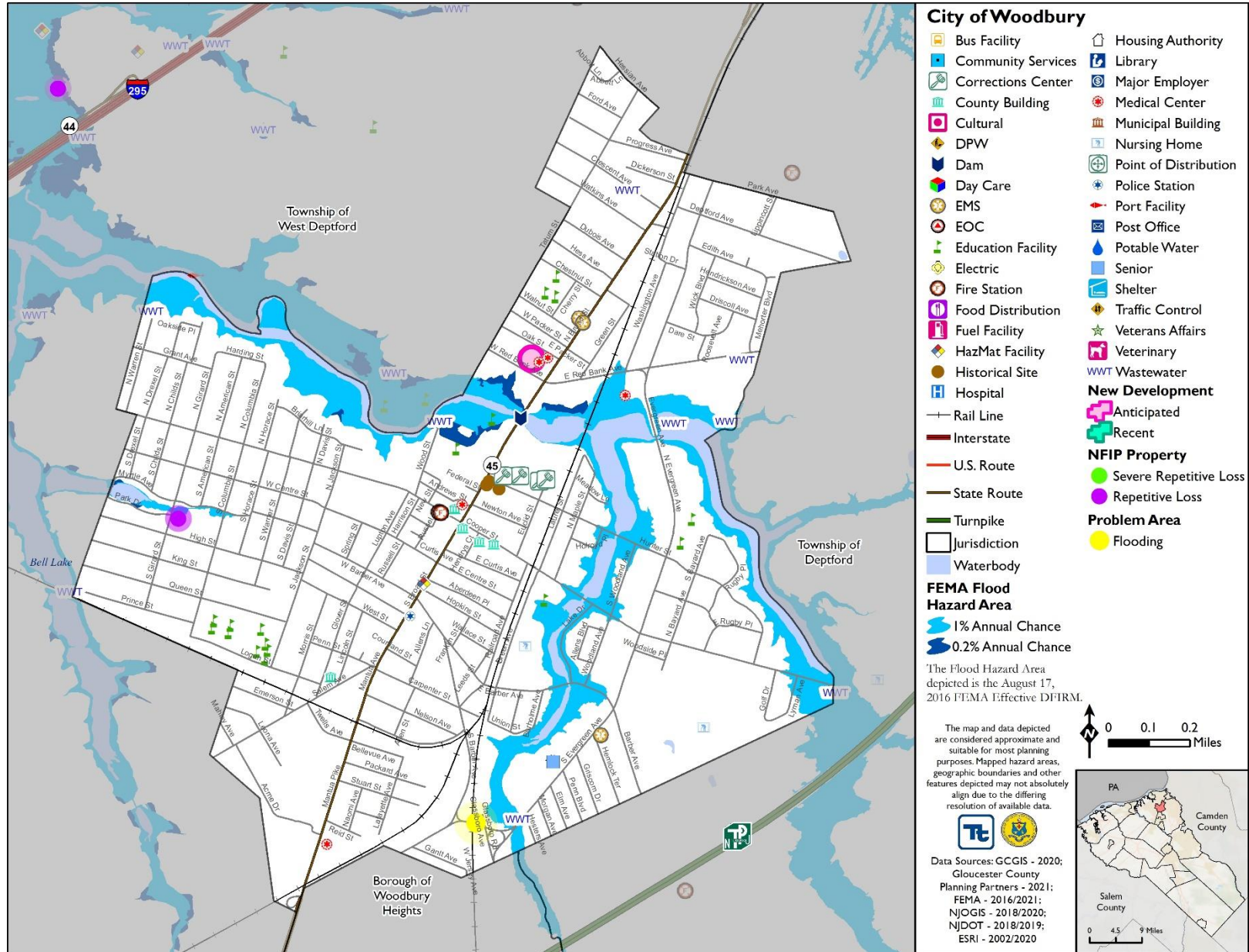






Figure 9.23-2. City of Woodbury Hazard Area Extent and Location Map 2

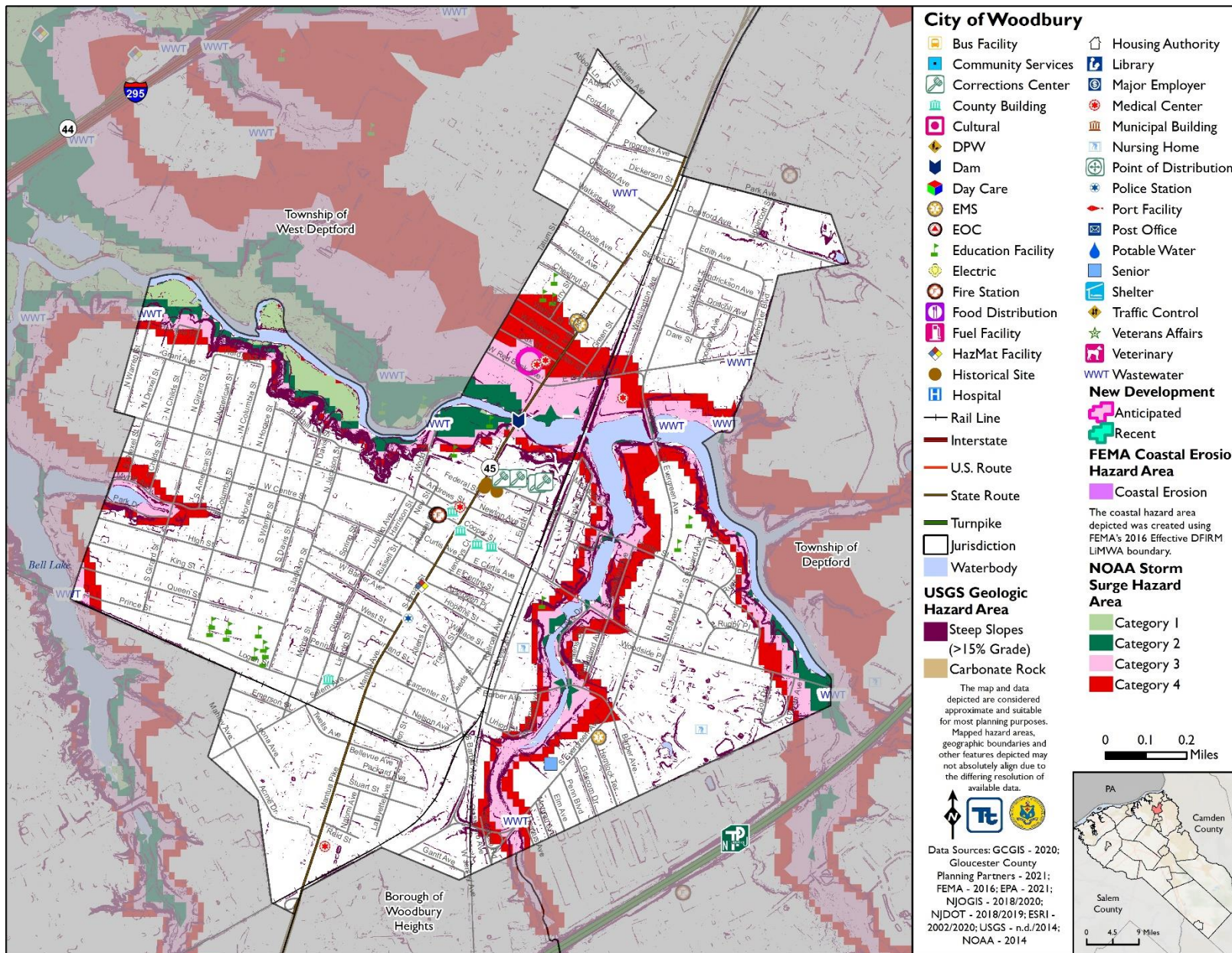






Figure 9.23-3. City of Woodbury Hazard Area Extent and Location Map 3

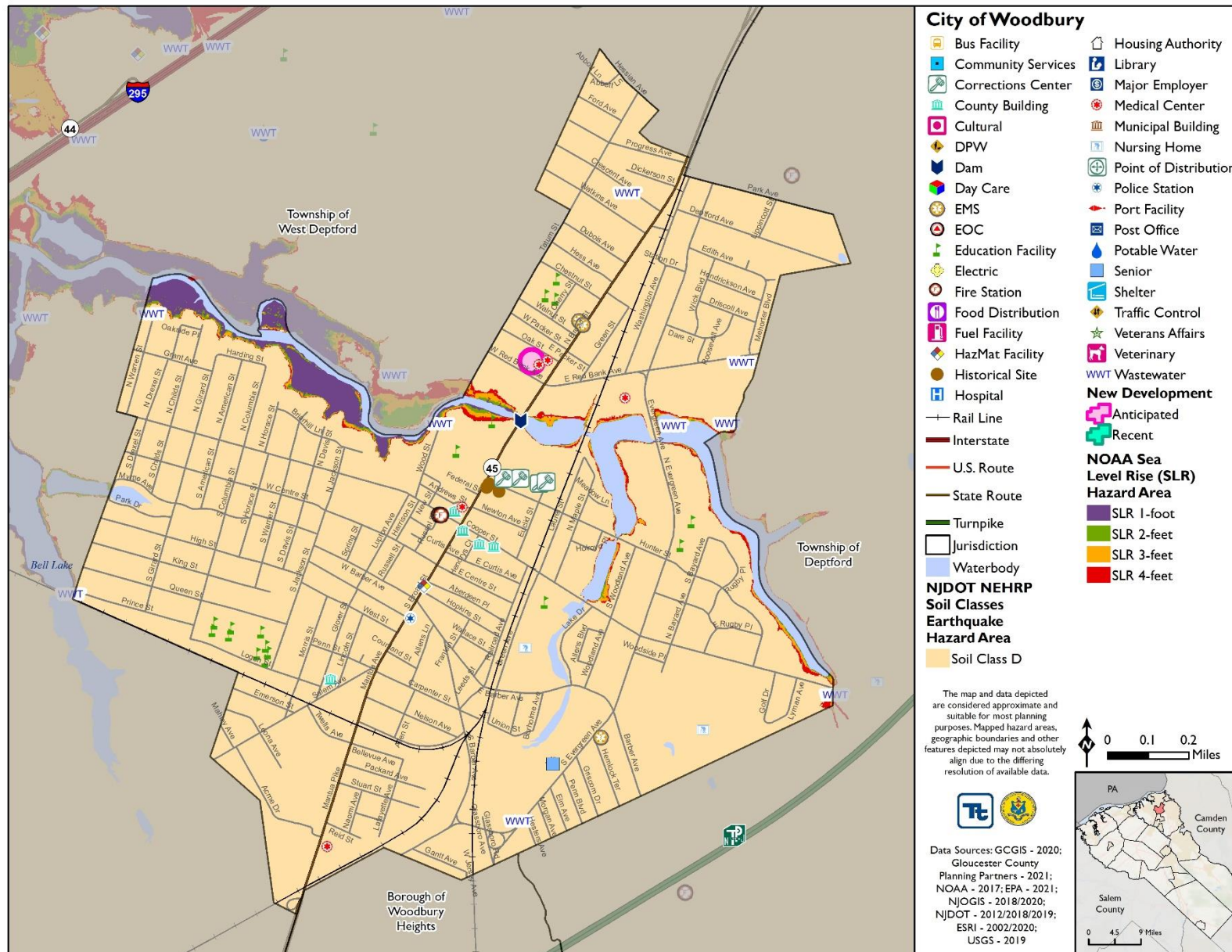
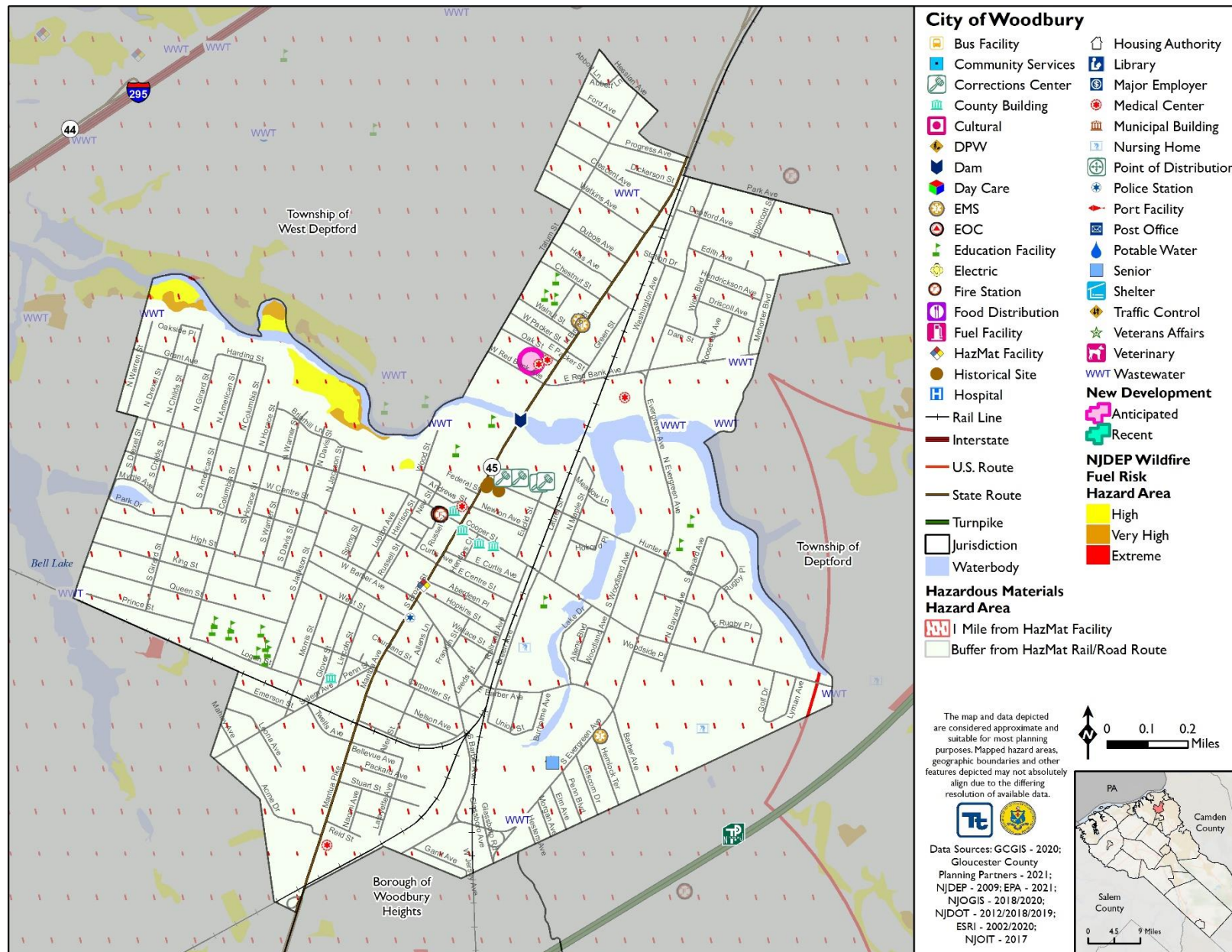




Figure 9.23-4. City of Woodbury Hazard Area Extent and Location Map 4







### 9.23.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The City of Woodbury's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the City experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.23-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the City did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the City did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the City did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the City did not report damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The City was subject to closures and masking/social distancing requirements.





### 9.23.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Woodbury's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Woodbury. The City of Woodbury reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City indicated the following:

- The City agreed with the calculated hazard rankings.

*Table 9.23-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Low	Medium	High

Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

*Table 9.23-13. Potential Flood Losses to Critical Facilities*

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Evergreen Court Adult Day Services	Medical Center	X	X	X	-
WOODBURY JUNIOR & SENIOR HIGH	Secondary Education	X	X	X	-
Paulsboro, NJ	Port Facility	X	X	X	-
Broad Street Lake Dam	Dam	X	X	X	-
CPI	Wastewater Metering Station	X	X	X	-
Wood Street	Wastewater Metering Station	X	X	X	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.23.6.3 Identified Issues

After review of the City of Woodbury's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Woodbury has identified the following vulnerabilities within their community:

- 555 S Evergreen Ave. Woodbury NJ Storm Drains in area. Heavy Rain creates 6-7 feet of flood waters. Swift water rescue, cars and trucks. The City needs to perform swift water rescue of cars and trucks. This impacts access to Inspira emergency room, EMS, Fire, Police response to an incident.
- Improvement of the stormwater management system is needed at Conrail railroad and S. Evergreen Avenue.
- Multiple areas of flooding impact critical facilities. A complete site and facility survey is needed to determine flood impacts and potential mitigation measures.
- A system is needed to track recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.
- Regular municipal working group meetings are needed to discuss emergency management and hazard mitigation issues.
- The City has one repetitive loss property.
- Critical facilities not under the City's jurisdiction may not have sufficient backup power to maintain critical services.
- The flood damage prevention ordinance requires update to meet new recommended language from NJ DEP.
- The City lacks a disaster debris management plan.



## 9.23.7 Mitigation Strategy and Prioritization

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

### 9.23.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.23-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes		Enter 2022 HMP Action #
MJ-1	Storm sewer system at Evergreen Avenue and County Road 650.	Municipal OEM, Gloucester County DPW, Conrail	No Progress. Responsibility of County Highway/Conrail.	X,		2022- Woodbury-001
MJ-2	Improve storm water management system at Conrail railroad and S. Evergreen Ave.	Municipal OEM, Gloucester County DPW, Conrail	No Progress. Responsibility of County Highway/Conrail.	X		2022- Woodbury-002
MJ-3	Alleviate flooding and hardening of Colonial Park Senior Citizen Center.	Municipal OEM, Gloucester County DPW	No Progress	-		-
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	No Progress	-		-
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	No Progress. Multiple areas of flooding. Responsibility of local OEM/Public Works	X		2022- Woodbury-003
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	No Progress. Multiple areas of flooding. Responsibility of local OEM/Public Works	X		2022- Woodbury-004
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	No Progress	X		2022- Woodbury-005
M-05	Upgrade permanent back-up emergency power generator at City Hall (CF-1).	Municipal OEM and Public Works Department	Completed	-		-
M-06	Upgrade permanent back-up emergency power generator at Woodbury Fire Department (CF-6).	Municipal OEM, Public Works Department, and Fire Department	Completed	-		-
M-07	Install permanent back-up emergency power generator at Public Works Fleet Maintenance (CF-9).	Municipal OEM and Public Works Department	No Progress, no longer a priority	-		-
M-08	Install permanent back-up emergency power generator at Well #1A (CF-12).	Municipal OEM and Public Works Department	Completed	-		-
M-09	Install permanent back-up emergency power generator at Well #2A (CF-13).	Municipal OEM and Public Works Department	No Progress	-		-
M-10	Install permanent back-up emergency power generator at Pump Station (CF-14).	Municipal OEM and Public Works Department	No Progress	-		-
M-11	Install permanent back-up emergency power generator at Evergreen Avenue Elementary School (CF-24).	Municipal OEM Public Works Department, and School Board	No Progress	X		2022- Woodbury-007



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes		Enter 2022 HMP Action #
M-12	Install permanent back-up emergency power generator at Walnut Street Elementary School (CF-25).	Municipal OEM Public Works Department, and School Board	No Progress	X		2022- Woodbury-007
M-13	Install permanent back-up emergency power generator at West End Memorial Elementary School (CF-26).	Municipal OEM Public Works Department, and School Board	No Progress	X		2022- Woodbury-007
M-14	Install permanent back-up emergency power generator at Holy Angels Parish (shelter) (CF-31).	Municipal OEM Public Works Department, and Holy Angels Parish	No Progress	X		2022- Woodbury-007
M-15	Upgrade dam flood gates for Woodbury Creek Park Dam.	Municipal OEM and Public Works Department	Completed	-		-
M-16	Upgrade dam flood gates for Bell Lake Dam.	Municipal OEM and Public Works Department	No Progress	-		-
M-17	Engineering study to determine appropriate flood mitigation action for EOC / data storage at City Hall facility located at 33 Delaware Street (CF-1).	Municipal OEM and Public Works Department	No Progress	-		-
M-18	Upgrade storm management system at Packard Avenue.	Municipal OEM and Public Works Department	No Progress	-		-
M-19	Upgrade storm management system at Stewart Avenue.	Municipal OEM and Public Works Department	Completed	-		-
M-20	Engineering study to determine appropriate flood mitigation action on the following streets: East Red Bank Avenue, S. Evergreen Avenue, S. Barber Avenue, Packard Avenue between Logan and S. Columbia Street, Delaware Street, Drexel Street, Child Street, Gerard Street between Salem Avenue and Glover Street, Cooper Street at Almonesson Lake.	Municipal OEM and Public Works Department	No Progress	-		-



### 9.23.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in 9.23-14, the City did not undertake any additional mitigation efforts in the last five years.

### 9.23.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The City of Woodbury participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.23-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X									X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Ext Temp	X									X
Flood	X	X		X	X		X		X	X
Geologic	X									X
Hazmat	X									X
Hurricane	X									X
Invasive	X									X
Nor'Easter	X					X				X
Severe Weather	X	X							X	X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X			X			X			X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.23-16) summarizes the comprehensive range of specific mitigation initiatives the City of Woodbury 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 9.23-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.





Table 9.23-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Woodbury-001	South Evergreen Avenue Flooding	<p><b>Problem:</b> Heavy Rain creates 6-7 feet of flood waters on South Evergreen Avenue. Swift water rescue, cars and trucks. The City needs to perform swift water rescue of cars and trucks. This impacts access to Inspira emergency room, EMS, Fire, Police response to an incident.</p> <p><b>Solution:</b> The Engineer and Public Works will evaluate stormwater components to determine if improvements are necessary. Once evaluated, mitigation measures will be made as necessary such as upsizing of stormwater features, increased drainage, etc. As improvements are made, Public Works and OEM will monitor the areas to determine performance of the improvements and if additional measures are necessary.</p>	Existing	Flood, Severe Weather	1, 2	Engineer, Public Works, OEM	HMGP, BRIC, City budget	Reduction in flood risk, reduction in need for emergency response	TBD by developed actions. Anticipated High.	Within 5 years	High	SIP	SP
2022-Woodbury-002	Conrail Railroad Stormwater Protections	<p><b>Problem:</b> Improvement of the stormwater management system is needed at Conrail railroad and S. Evergreen Avenue to prevent flooding.</p> <p><b>Solution:</b> The City will encourage the County Highway</p>	Existing	Flood, Severe Weather	1, 2	OEM, Administration	City budget	Reduction in flooding of critical infrastructure	Staff time	Within 6 months	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		Department and Conrail to address the flooding concerns at the Conrail Railroad.											
2022-Woodbury-003	Critical Facility Flood Survey	<p><b>Problem:</b> Multiple areas of flooding impact critical facilities. A complete site and facility survey is needed to determine flood impacts and potential mitigation measures.</p> <p><b>Solution:</b> The City engineer will complete flood studies for critical facilities in the City. Facilities with identified flood exposure will have feasibility assessments completed to determine cost effective mitigation measures. Identified cost effective measures will be implemented.</p>	Existing	Flood, Severe Weather	1, 2	Engineer	HMGP, BRIC, FMA, USDA Community Facilities Grant Program, City budget	Protection of critical facilities and critical services from flood damages	High	Within 5 years	High	LPR, SIP	PP
2022-Woodbury-004	Flood and Hazard Data Collection	<p><b>Problem:</b> A system is needed to track recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.</p> <p><b>Solution:</b> The City will develop and implement a system to track recurrent drainage problem areas and damages/related response and recovery expenses.</p>	N/A	All Hazards	4	Administration, OEM	City budget	Data available for mitigation planning, reimbursement following disaster events	Low	1 year	High	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Woodbury-005	Working Group Meetings	<p><b>Problem:</b> Regular municipal working group meetings are needed to discuss emergency management and hazard mitigation issues.</p> <p><b>Solution:</b> The City will establish a working group, led by OEM, and meet regularly.</p>	N/A	All Hazards	1, 4, 5	OEM, City Departments	City budget	Increased integration of hazard mitigation in City discussions and Department coordination	Staff time	6 months	High	LPR	ES
2022-Woodbury-006	Repetitive Loss Mitigation	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has one repetitive loss property. Other areas may be floodprone. Flooding is known to be an issue in the Evergreen Avenue area.</p> <p><b>Solution:</b> Conduct outreach to 10 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/e</p>	Existing	Flood, Severe Weather	1, 2, 3	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1 Million	3 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		levating residential homes in the flood prone areas that experience frequent flooding (high risk areas).											
2022-Woodbury-007	Critical Facility Backup Power Support	<p><b>Problem:</b> Critical facilities not under the City's jurisdiction may not have sufficient backup power to maintain critical services.</p> <p><b>Solution:</b> OEM and the City Engineer will meet with facility managers to explain potential funding opportunities to provide for backup power installation.</p>	Existing	Utility Failure	1, 3, 6	OEM, Engineer, facility managers	City budget	Facility managers aware of potential funding for backup power	Staff time	1 year	High	EAP	PI
2022-Woodbury-008	Update the Flood Damage Prevention Ordinance	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The City will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform</p>	New	Flood	1, 2	Floodplain Administrator, Administration	City budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	Medium	LPR	PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		Construction Code (UCC) implemented by the Construction Official.											
2022-Woodbury-009	Disaster Debris Management Plan	<b>Problem:</b> The City lacks an adopted Disaster Debris Management Plan.  <b>Solution:</b> The City will complete and adopt the in-progress Disaster Debris Management Plan.	Existing	All Hazards	5	Public Works, OEM	City budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LPR	ES

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.23-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022- Woodbury-001	South Evergreen Avenue Flooding	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High ⚠
2022- Woodbury-002	Conrail Railroad Stormwater Protections	1	1	1	1	1	0	1	1	1	1	1	1	0	1	12	High
2022- Woodbury-003	Critical Facility Flood Survey	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022- Woodbury-004	Flood and Hazard Data Collection	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High



Project Number	Project 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
2022- Woodbury-005	Working Group Meetings	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- Woodbury-006	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022- Woodbury-007	Critical Facility Backup Power Support	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- Woodbury-008	Update the Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022- Woodbury-009	Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

 This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.23.8 Action Worksheets

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The following action worksheets have been developed by the City of Woodbury to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	South Evergreen Avenue Flooding		
<b>Project Number:</b>	2022- Woodbury-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Heavy Rain creates 6-7 feet of flood waters on South Evergreen Avenue. Swift water rescue, cars and trucks. The City needs to perform swift water rescue of cars and trucks. This impacts access to Inspira emergency room, EMS, Fire, Police response to an incident.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Engineer and Public Works will evaluate stormwater components to determine if improvements are necessary. Once evaluated, mitigation measures will be made as necessary such as upsizing of stormwater features, increased drainage, etc. As improvements are made, Public Works and OEM will monitor the areas to determine performance of the improvements and if additional measures are necessary.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by developed actions	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, reduction in need for emergency response
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by developed actions. Anticipated High.	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, City budget
<b>Responsible Organization:</b>	Engineer, DPW, OEM	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning, Stormwater management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	Very High	Costly and would not solve roadway flooding
	Buyout homes	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	South Evergreen Avenue Flooding	
<b>Project Number:</b>	2022- Woodbury-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects life from flooding and maintains emergency access.
Property Protection	1	Protects buildings from flood damage
Cost-Effectiveness	0	
Technical	1	Technically feasible project
Political	1	
Legal	1	The City has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	Within 5 years
Agency Champion	1	Engineer, DPW, OEM
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Critical Facility Flood Survey		
<b>Project Number:</b>	2022- Woodbury-003		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Multiple areas of flooding impact critical facilities. A complete site and facility survey is needed to determine flood impacts and potential mitigation measures.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The City engineer will complete flood studies for critical facilities in the City. Facilities with identified flood exposure will have feasibility assessments completed to determine cost effective mitigation measures. Identified cost effective measures will be implemented.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year flood level	<b>Estimated Benefits (losses avoided):</b>	Protection of critical facilities and critical services from flood damages
<b>Useful Life:</b>	TBD by feasibility assessment	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by feasibility assessment	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	HMGP, BRIC, FMA, USDA Community Facilities Grant Program, City budget
<b>Responsible Organization:</b>	Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Relocate facilities	N/A	Not possible
	Build levee around facilities	N/A	No space for full levee system
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Critical Facility Flood Survey	
<b>Project Number:</b>	2022- Woodbury-003	
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 flood damage.
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	0	Flood, Severe Weather
Timeline	0	Within 5 years
Agency Champion	1	Engineer
Other Community Objectives	1	Protection of critical services
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Mitigation		
<b>Project Number:</b>	2022- Woodbury-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The City has 1 repetitive loss property, but other properties may be impacted by flooding as well. Flooding is known to be an issue in the Evergreen Avenue area.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 3
<b>Estimated Cost:</b>	\$1 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Repetitive Loss Mitigation	
<b>Project Number:</b>	2022- Woodbury-006	
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 City 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 City.
Administrative	0	
Multi-Hazard	1	Severe Weather, Flood
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





## 9.24 BOROUGH OF WOODBURY HEIGHTS

This section presents the jurisdictional annex for the Borough of Woodbury Heights and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Woodbury Heights's risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

### 9.24.1 Hazard Mitigation Planning Team

The Borough of Woodbury Heights followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Woodbury Heights's hazard mitigation plan primary and alternate points of contact. 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 9.24-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: John Witasick, OEM Coordinator Address: 534 Elm Avenue, Office 303, Woodbury Heights, NJ Phone Number: 856-300-2622 Email: oem@BWHNJ.com	Name/Title: Shannon Elton, Municipal Clerk Address: 500 Elm Avenue, Woodbury Heights, NJ Phone Number: (856) 848-2832 ext 10 Email: RMC@bwhnj.com
NFIP Floodplain Administrator	
Name/Title: Sickels & Associates Address: 833 Kings Hwy, West Deptford, NJ 08096 Phone Number: (856) 848-6800 Email: info@sickelsassoc.com	



Name	Title	Method of Participation
John Witasick	OEM Coordinator	Provided information on capabilities, contributed to mitigation strategy
Mark Brunermer	Borough Engineer	Assisted in development of HMP Annex
Scott Norcross	President, Fire Association	Assisted in development of HMP Annex
Steve Christinzio	Chief, Fire Department	Assisted in development of HMP Annex
Josh Moline	Chief, Police Department	Assisted in development of HMP Annex
Ryan Wells	Director, Public Works Department	Assisted in development of HMP Annex
Vikki Holmstrom	Municipal CFO	Assisted in its development
Robbie Conley	Deputy EMC	Assisted in development of HMP Annex

## 9.24.2 Municipal Profile

Woodbury Heights was incorporated on May 25, 1915 when Borough Council was formed with the first Mayor Harold Buzby. The area was first developed in the year 1771. Many of the older homes can still be seen in the area. In 1892 six businessmen from the areas of Philadelphia and Camden formed the Land Title Company. They bought land west of the town railroad from Deptford Township.

According to the United States Census Bureau, the borough had a total area of 1.25 square miles, including 1.25 square miles of land and 0.01 square miles of water. Glen Lake, although no longer open for swimming, is available for fishing and non-motorized boating and is one of the main waterbodies in the municipality. The borough borders the Gloucester County municipalities of Deptford Township, West Deptford Township and Woodbury. Main arterials include the New Jersey Turnpike and Mantua Pike which converge within the Borough.

Woodbury Heights is governed under the Borough form of New Jersey municipal government. The governing body is comprised of the Mayor and the Borough Council, with all positions elected at-large on a partisan basis as part of the November general election. A Mayor is elected directly by the voters to a four-year term of office. The Borough Council is comprised of six members elected to serve three-year terms on a staggered basis.

According to the U.S. Census, the 2010 population for the Borough of Woodbury Heights was 3,055. The estimated 2019 population was 2,986, a 2.3 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 7.9 percent of the population is 5 years of age or younger and 14.0 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.

## 9.24.3 Jurisdictional Capability Assessment and Integration

The Borough of Woodbury Heights performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability



Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.24.3). The updated mitigation strategy includes opportunities the Borough of Woodbury Heights identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.24.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Woodbury Heights, what is present in the jurisdiction, and code citation and date.

*Table 9.24-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 18A – Uniform Construction Code, BOCA National Building Code	State and Local	Construction Code Official
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>• The Borough of Woodbury Heights has adopted the current New Jersey Uniform Construction Code and relies on the BOCA National Building Code, and the Construction Code Official is responsible for enforcing the Construction Code. A FEMA study, "Building Codes Save: A Nationwide Study," from November 2020, shows that modern building codes lead to major reduction in property losses from natural disaster</li> </ul>					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 70, Land Development, Updated in 2020	Local	Planning Board Zoning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>• This chapter is adopted pursuant to N.J.S.A. 40:55D-1 et seq., in order to promote and protect the public health, safety, morals and general welfare and in furtherance of the following related and more specific objectives: <ul style="list-style-type: none"> <li>A. To secure safety from fire, flood, panic and other natural and man-made disasters.</li> <li>B. To provide adequate light, air and open space.</li> </ul> </li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>C. To ensure that the development of the Borough of Woodbury Heights does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole.</li> <li>D. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods and preservation of the environment.</li> <li>E. To encourage the appropriate and efficient expenditure of public funds by the coordination of public development with land use policies.</li> <li>F. To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private according to their respective environmental requirements.</li> <li>G. To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion, blight or hazards.</li> <li>H. To promote a desirable visual environment through creative development techniques and good civic design and arrangements.</li> <li>I. To promote the conservation of open space and valuable natural resources and to prevent urban sprawl and degradation of the environment through improper use of land.</li> <li>J. To encourage senior citizen community housing construction consistent with provisions permitting other residential uses of a similar density in the same zoning district.</li> <li>K. To encourage coordination of the various public and private procedures and activities shaping land development with a view to lessening the cost of such development and to the more efficient use of land.</li> </ul> <ul style="list-style-type: none"> <li>Establishes the Planning Board, Zoning Board of Adjustment, Zoning map and districts.</li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 70, Land Development, Article VIII	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Provides rules, regulations and standards to guide land subdivision in order to promote the public health, safety, convenience and general welfare of the Borough. Administered to ensure orderly growth and development, the conservation, protection and proper use of land and adequate provision for circulation, utilities and services.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 70, Land Development, Article IXA Design and Performance Standards, Stormwater control and management, 2021	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this section to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8 and the provisions of the adopted Master Plan and Land Use Ordinances of the Borough.</li> <li>Through this section, the borough has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>A. To reduce flood damage, including damage to life and property.</li> <li>B. To minimize any increase in stormwater runoff from new development.</li> <li>C. To reduce soil erosion from any development or construction project.</li> <li>D. To assure the adequacy of existing and proposed culverts and bridges, and other in- stream structures.</li> <li>E. To maintain groundwater recharge.</li> <li>F. To minimize any increase in nonpoint pollution.</li> <li>G. To maintain the integrity of stream channels for their biological functions, as well as for drainage.</li> <li>H. To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of the borough.</li> <li>I. To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface and groundwaters of the borough, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water.</li> <li>J. To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this section, the borough has identified the following management techniques: <ul style="list-style-type: none"> <li>A. Implementation of multiple stormwater management Best Management Practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this section.</li> </ul> </li> </ul>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<p>B. Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this section, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as Low Impact Development (LID) techniques.</p> <p>C. Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</p> <p>D. Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</p> <p>E. Structural BMPs, where necessary shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</p> <p>F. When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this section before relying on a single, larger stormwater management measure to achieve these performance standards.</p>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Master Plan Reexamination Report, 2020	Local	Planning Board Zoning Board
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>Used to ensure there are services available to meet their demands. Growth management goes beyond traditional land use planning, zoning and subdivision controls. Also includes the protection of natural spaces, sufficient and affordable housing, delivery of utilities, preservation of buildings and places of historical value, and sufficient places for the conduct of business.</li> </ul>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 70, Land Development, Article VIII Development Application Review Procedures, Updated 2020	Local and County	Planning Board and Zoning Board of Adjustment
<p><i>How does this reduce risk?</i></p> <ul style="list-style-type: none"> <li>Determines whether the proposed use, building structure, development or addition to any building, use, structure or development conforms to applicable regulations. Encourages adequate provision for traffic and circulation, the provision of recreation and open space when required, the promotion of safety from hazards, adequate provision for light and air, the promotion of good design, the general purpose of guiding the development of the Borough, and to best promote the health, safety, order, convenience and general welfare as well as efficiency and economy in the process of development and the maintenance of established property values.</li> </ul>					
<b>Environmental Protection Ordinance</b>	No	Yes, depends on type of environmental areas	-	-	-
<i>How does this reduce risk?</i>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 57, Flood Damage Prevention, 2016	Federal, State, County and Local	Floodplain administrator
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health.</li> <li>B. Minimize expenditure of public money for costly flood control projects.</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.</li> <li>D. Minimize prolonged business interruptions.</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard.</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas.</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard.</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>In order to accomplish its purposes, this chapter includes methods and provisions for: <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities.</li> <li>B. Requiring that uses vulnerable to floods including facilities which serve such uses, be protected against flood damage at the time of initial construction.</li> <li>C. Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters.</li> <li>D. Controlling filling, grading, dredging, and other development which may increase flood damage.</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.</li> </ul> </li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Emergency Management Ordinance</b>	Yes	No	Chapter 13, Fire Assistance, Intermunicipal 1977; Chapter 14 Fire Department, 1963; Chapter 26, Police Assistance Intermunicipal, 1977; Chapter 27 Police Department, 2011	Local	Police and Fire Departments
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Establishes the procedures of the Fire and Police Departments and intermunicipal assistance procedures.</li> </ul>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li> <li>Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li> <li>Does it contain natural overlay zones that set conditions? No</li> <li>Does the ordinance require developers to take additional actions to mitigate natural hazard risk? No</li> </ul>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<ul style="list-style-type: none"> <li>Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li> <li>Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li> <li>Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li> <li>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li> <li>Do the regulations allow density transfers where hazard areas exist? No</li> <li>When updating ordinances, is hazard mitigation considered? Yes</li> </ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Master Plan Reexamination Report, 2020	Local	Planning Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>As stated in NJSA 40:55D-89 - Periodic examination, the Borough shall, at least every 10 years, provide for a general reexamination of its master plan and development regulations by the planning board, which shall prepare and adopt by resolution a report on the findings of such reexamination. The reexamination report shall state: <ul style="list-style-type: none"> <li>The major problems and objectives relating to land development in the municipality at the time of the adoption of the last reexamination report.</li> <li>The extent to which such problems and objectives have been reduced or have increased subsequent to such date.</li> <li>The extent to which there have been significant changes in the assumptions, policies, and objectives forming the basis for the master plan or development regulations as last revised, with particular regard to the density and distribution of population and land uses, housing conditions, circulation, conservation of natural resources, energy conservation, collection, disposition, and recycling of designated recyclable materials, and changes in State, county and municipal policies and objectives.</li> <li>The specific changes recommended for the master plan or development regulations, if any, including underlying objectives, policies and standards, or whether a new plan or regulations should be prepared.</li> <li>The recommendations of the planning board concerning the incorporation of redevelopment plans adopted pursuant to the "Local Redevelopment and Housing Law," P.L.1992, c.79 (C.40A:12A-1 et al.) into the land use plan element of the municipal master plan, and recommended changes, if any, in the local development regulations necessary to effectuate the redevelopment plans of the municipality.</li> </ul> </li> </ul>					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan, 2021	Local	Planning Board Zoning Board Engineer
<i>How does this reduce risk?</i> Minimizes sediment and other pollutants in stormwater runoff					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	2021 Stormwater Pollution Prevention Plan	Local	Public Works Department
<i>How does this reduce risk?</i> Minimizes sediment and other pollutants in stormwater runoff					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? N/A</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> <li>Does the future land use map clearly identify natural hazard areas? Yes</li> <li>Do the land use policies discourage development or redevelopment with natural hazard areas? Yes</li> <li>Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? N/A</li> <li>Does the transportation plan limit access to hazard areas? N/A</li> <li>Is transportation policy used to guide growth to safe locations? N/A</li> <li>Are transportation systems designed to function under disaster conditions (e.g. evacuation)? Yes</li> <li>Are environmental systems that protect development from hazards identified and mapped? No</li> <li>Do environmental policies maintain and restore protective ecosystems? Yes</li> <li>Do environmental policies provide incentives to development that is located outside protective ecosystems? No</li> </ul>					
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan – Base Plan, 2012 2020	Local	Office of Emergency Management
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Emergency Operations Plan provides the structure and processes that the Borough utilizes to respond to and initially recover from an event. It serves to document the recovery strategies, essential resources, and procedures necessary to implement response and recovery process.					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	Yes	No	Emergency Operations Plan – Base Plan, 2020	Local	Office of Emergency Management
<i>How does this reduce risk?</i> Continuity of Government is addressed in Section VI of the Emergency Operations Plan – Base Plan, 2020. Ensures that a plan is in place for sustaining governing when routine operations are disrupted.					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"> <li>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? The EOP touches on communications, evacuation and housing</li> </ul>					

### 9.24.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Woodbury Heights to oversee and track development.

Table 9.24-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Planning Board Development Applications
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	No	BWHNJ level of buildout is approximately 95%



### 9.24.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Woodbury Heights and their current responsibilities which contribute to hazard mitigation.

*Table 9.24-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Combined Planning & Zoning Board
Zoning Board of Adjustments	No	Combined Planning & Zoning Board
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	Yes	Shade Tree Advisory Committee
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Public Works – provides brush collection, garbage and recycling collection, tree trimming/cutting, snow removal, general maintenance of public buildings and grounds, water main repairs, sewer and stormwater maintenance and repairs, borough roadway maintenance and repairs
Construction/Building/Code Enforcement Department	Yes	Shared services agreement with West Deptford Township for construction and UCC code inspection and enforcement services; shared services agreement with the City of Woodbury for zoning, housing, and general code inspection and enforcement
Emergency Management/Public Safety Department	Yes	Police and Fire Departments
Emergency Management/Public Safety Department	Yes	Police and Fire Departments Office of Emergency Management Public Safety Committee
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Limited – Firehouse siren
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works performs routine maintenance on sewer and stormwater systems and tree trimming
Mutual aid agreements	Yes	Participation in the Gloucester County Mutual Aid Agreement
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Retained
Engineers or professionals trained in building or infrastructure construction practices	Yes	Retained
Planners or engineers with an understanding of natural hazards	Yes	Retained
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Limited – Architect, Planning Board Chairman and Borough Engineer



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		Through use of the GCOEM's DA App
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Retained
Scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Retained
Emergency Manager	Yes	OEM Coordinator
Grant writer(s)	No	Are data and maps from the HMP used to support documentation in grant applications?
Resilience Officer	Yes	Police Department Only
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b> Administrative and technical staff have the skills and tools that can be used for mitigation planning, implement specific mitigation actions and the ability to access and coordinate these resources effectively.		

### 9.24.3.4 Fiscal Capability

The table below summarizes financial resources available to the Borough of Woodbury Heights.

Table 9.24-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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 Department and Public Works Department
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	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
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	NJDEP Green Areas
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	None
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community?               <ul style="list-style-type: none"> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul> </li> </ul>	



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? No</li> </ul>	

### 9.24.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Borough of Woodbury Heights.

*Table 9.24-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	PIO (Mayor) and Deputy PIO (Council President)
Personnel skilled or trained in website development	Yes	Retained
Hazard mitigation information available on your website	Yes	Limited – Needs enhancement
Social media for hazard mitigation education and outreach	Yes	Limited – Needs enhancement
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Firehouse Siren Emergency Management Blast – Needs Enhancement
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
<ul style="list-style-type: none"> <li>No. This is being addressed as part of this Annex</li> </ul>		

### 9.24.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Borough of Woodbury Heights.

*Table 9.24-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-



Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Sustainable Jersey	No	-	-
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.24.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.24-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Moderate
Extreme Temperatures	Moderate
Flood	Moderate
Geological Hazards	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive Species	Moderate
Nor’Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.24.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.24-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 4</li><li># RL properties: 0</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0 (elevation or acquisition and funding source: N/A)</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$3,123.00</li><li># claims filed: 3</li><li>Total loss payments: \$118,014.90</li></ul>
Describe areas prone to flooding in your jurisdiction.	Central Avenue, Glassboro Road
Do you maintain a list of properties that have been damaged by flooding?	Unofficially
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Visual and Engineer reports  None
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	Code Official and Public Works Department
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	Consultant
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	Consultant – Sickels & Associates
What specific training or support does your floodplain management staff need to support its floodplain management program?	Training seminars and webinars
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Any reconstruction, rehabilitation, addition or other improvement to a structure, the total cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement
Do you have access to resources to determine possible future flooding conditions from climate change?	No
<b>NFIP Compliance</b>	





NFIP Topic	Comments
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	December 14, 1994
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 57, 2016
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.24.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.24-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	0	0	0	0	1	0	0	0	0	0	1	0
Multi-Family	0	0	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	1	0	1	0	0	0
Total Permits Issued	0	0	0	0	1	0	1	0	1	0	1	0
Property or Development Name	Type of Development		# of Units / Structures		Location		Known Hazard Zone(s)*			Description / Status of Development		



	(address and/or block and lot)
<b>Recent Major Development and Infrastructure from 2015 to Present</b>	
None Identified	
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>	
None Anticipated	

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.24.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of Woodbury Heights's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Woodbury Heights has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.24-1. Borough of Woodbury Heights Hazard Area Extent and Location Map 1

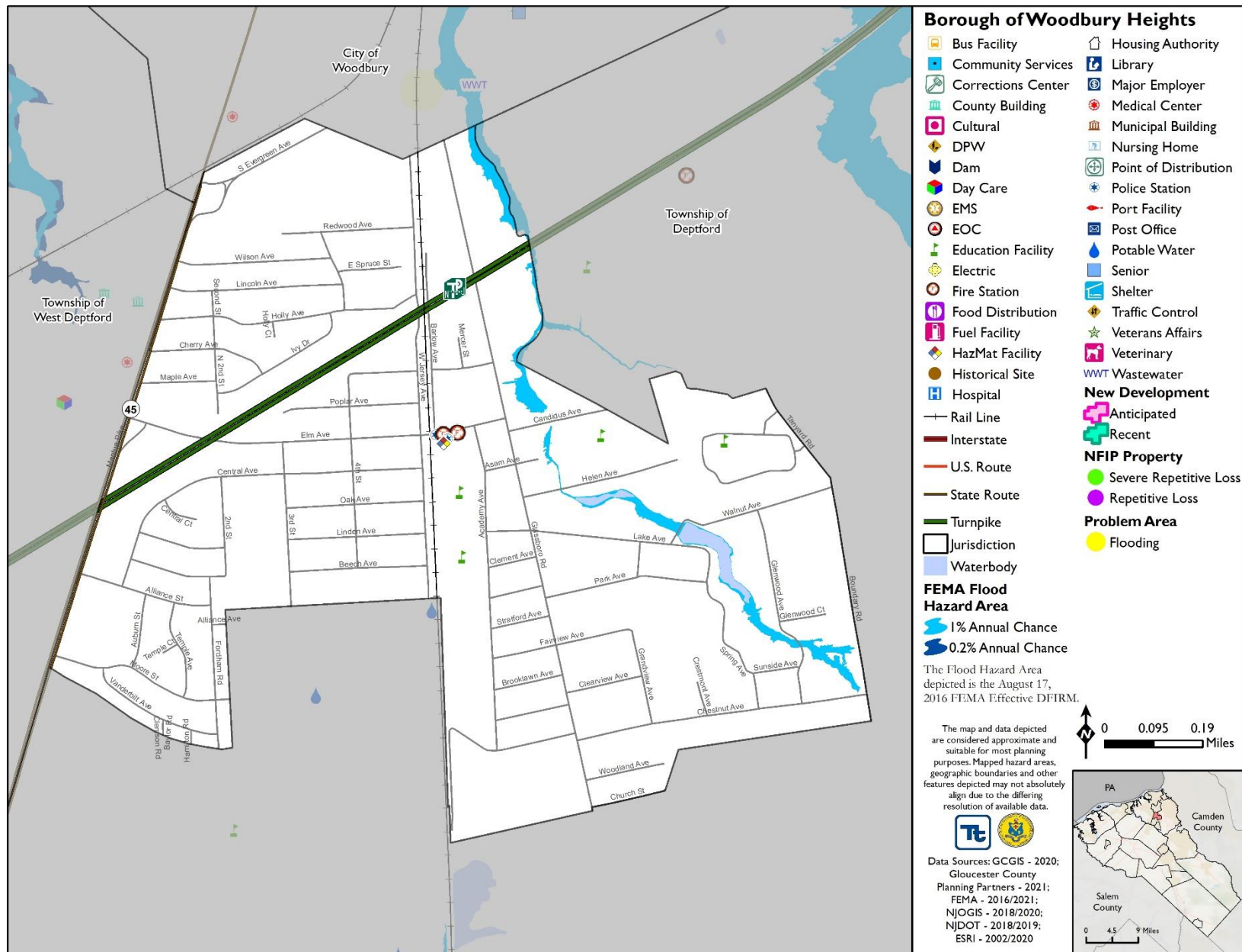






Figure 9.24-2. Borough of Woodbury Heights Hazard Area Extent and Location Map 2

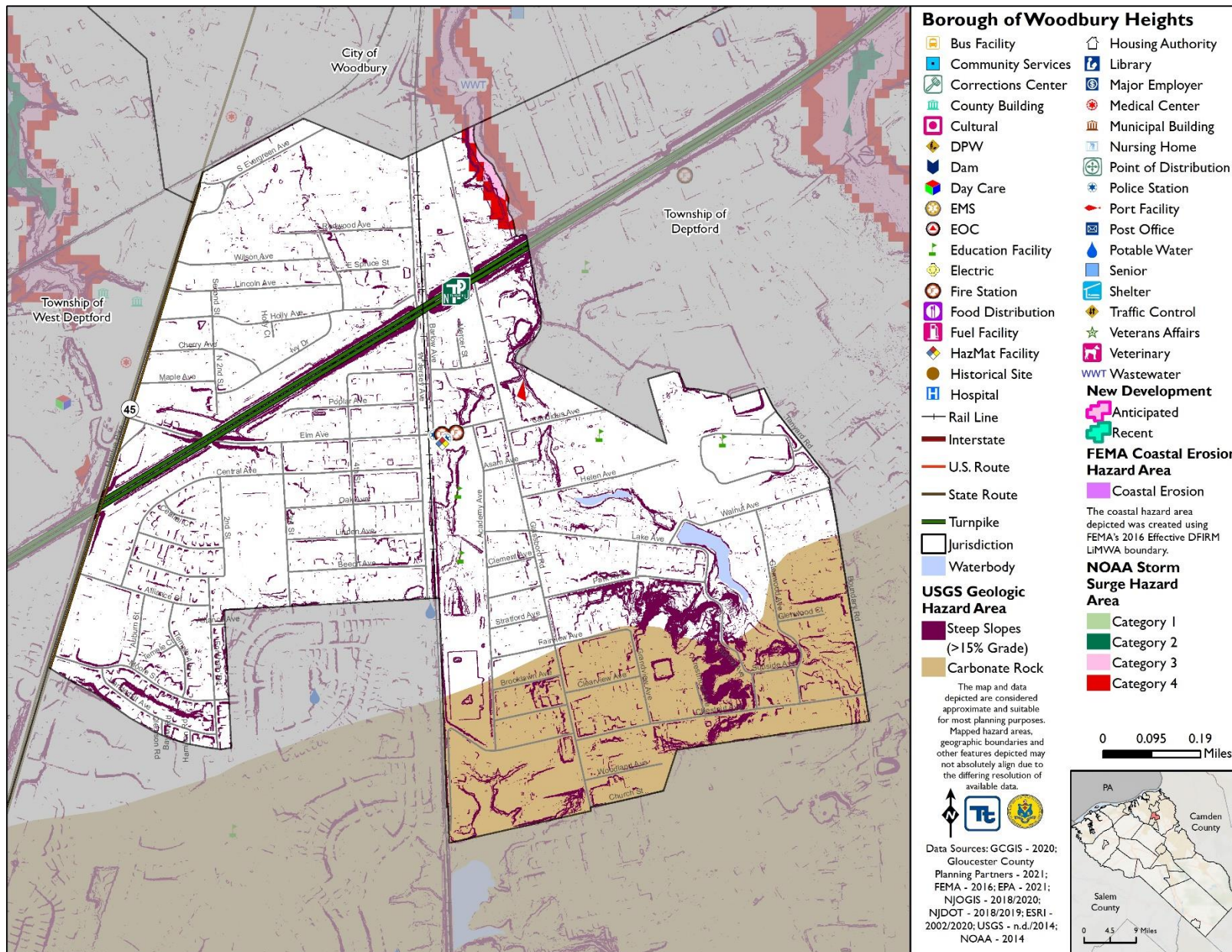




Figure 9.24-3. Borough of Woodbury Heights Hazard Area Extent and Location Map 3

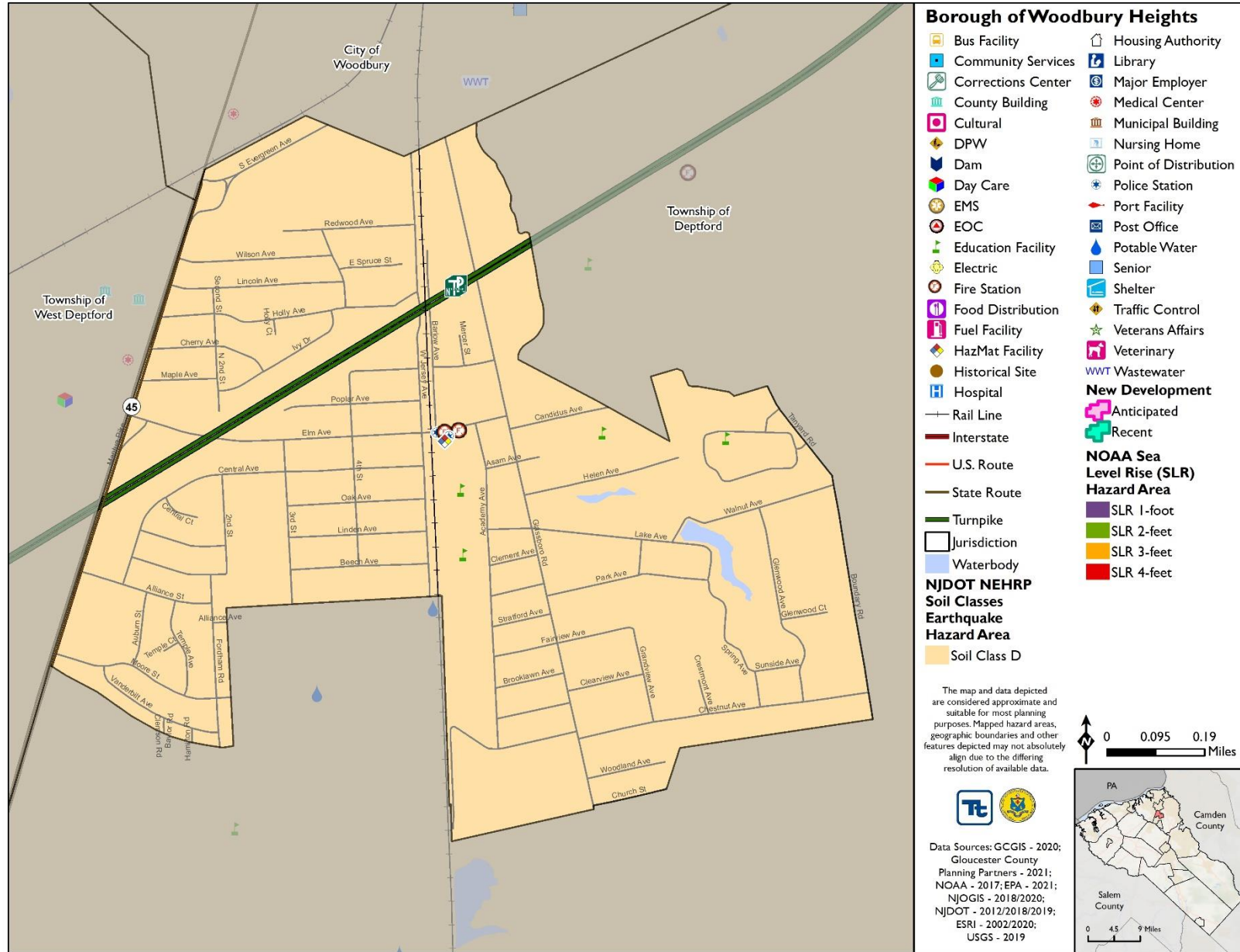
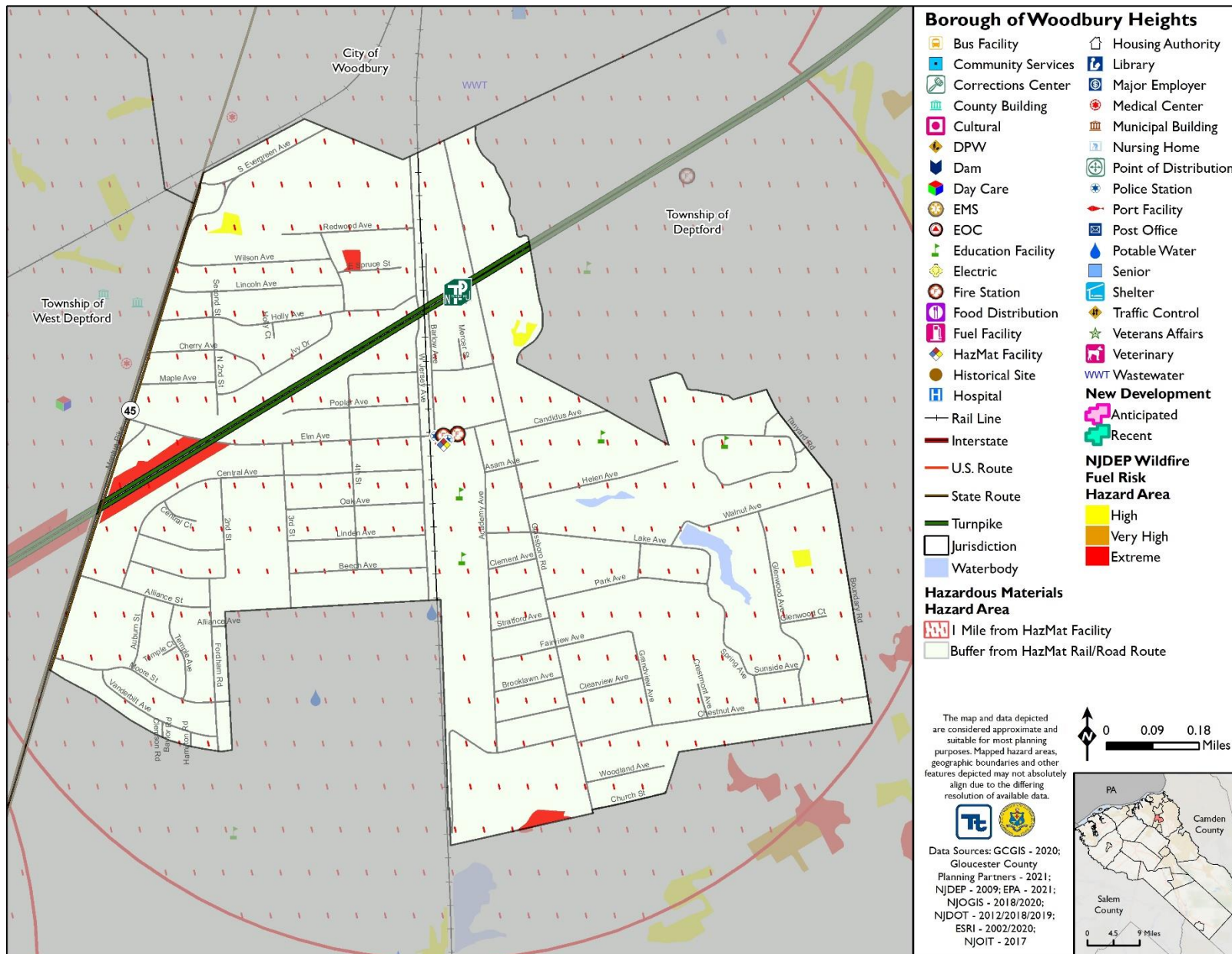






Figure 9.24-4. Borough of Woodbury Heights Hazard Area Extent and Location Map 4





### 9.24.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Borough of Woodbury Heights's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.24-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Borough did not report impacts.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Borough did not report impacts.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Borough did not report impacts.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Above average snowfall amount resulted in overtime expense from plowing operations.
June 19 - 20, 2019	Summer Storm & Flash Flooding	State of Emergency declared by Governor Murphy for Burlington, Camden and Gloucester Counties	Slow-moving thunderstorms spawned a significant flooding event across southeastern Pennsylvania and southern New Jersey. During the late afternoon and early evening, storms developed from the north side of Philadelphia eastward to the Fort Dix area, where several reports of 2-4 inches of rain occurred in a 2-hour period,	Damage to several pump stations, with one needing to be completely rebuilt; damage to west wall of Borough Hall; damage to / sinkhole around openings of drainage system running under FD parking lot and Elm Avenue; partial





Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			along with reports of road closures from flooding. Late in the evening into the overnight hours, more storms developed to the south of Philadelphia, spreading very slowly northward. Numerous instances of flash flooding were reported from the Reading area in Berks County eastward to Gloucester, Camden, and Burlington Counties in southern New Jersey.	washout of sections of retention wall on Moore Street and Vanderbilt Avenue; interior and exterior property damage due to flash flooding to approximately seven homes, including several basement wall collapses.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Borough Hall was closed to the public. Some staff worked remotely. Council, Planning Board and other meetings were held over Zoom.
September 1-3, 2021	Remnants of Hurricane Ida (DR-4614)	Yes	The remnants of Hurricane Ida passed over the region. Combined with a warm-front, resulting in severe weather. An EF3 tornado touched down in Harrisonville and ran through Mullica Hill, Wenonah, Woodbury Heights and Deptford along a 12.6 miles long path with a width up to 400 yards.	Major impact to southeast section of town. Trees and wires down resulting in impassable roads. Widespread power outages. Approximately 100 homes affected, ranging from minor damage to total loss. Damage and loss of power to several wastewater pump stations. Temporary loss of power to EOC and FD. Extended loss of communications (internet and landline) to EOC, FD, PD and BH.

### 9.24.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Borough of Woodbury Heights's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Woodbury Heights. The



Borough of Woodbury Heights reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough changed the hazard ranking for flood from low to medium, noting that some sections of the Borough are susceptible to flash flooding during heavy storms.
- The Borough agreed with the remaining calculated hazard rankings.

Table 9.24-12. Hazard Ranking Input

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	Medium

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Low	Medium	High

Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.24-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
No critical facilities located in the floodplain.					

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016



### 9.24.6.3 Identified Issues

After review of the Borough of Woodbury Heights's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Woodbury Heights has identified the following vulnerabilities within their community:

- The current Public Works garage is old and in need of repairs. Repair or replace the current structure to provide sound environmental protections to the Borough equipment used to service the town during summer and winter storms. Also provide a separate structure to allow for the secure storage of any hazardous materials that may be kept onsite.
- National Critical Infrastructure (Colonial Pipeline) and State Critical Infrastructure (NJ Turnpike) traverse the entire Borough.
- The siren at the Woodbury Heights Firehouse is currently configured to provide three different blasts - Fire, EMS (no longer used) and Emergency Management (old Civil Defense). While the Fire and EMS blasts are set off remotely by Gloucester County Communications, there is no remote way to trigger the Emergency Management blast. This Emergency Management blast could have been used to alert the residents about the EF3 tornado that traversed the town on 01 September 2021.
- The facilities at the Borough Complex (Borough Hall / Emergency Operations Center / Fire Department / Police Department) have disparate landline-based internet and telephone systems. During some storms, communications have been disrupted to one or more systems.
- The Borough Complex currently has a small, single color (red) free-standing digital sign to use for town notifications.
- The Fire Department is on pace to receive 250 calls in 2021. Historically, the Woodbury Heights Fire Department is given a retired police vehicle to use as a Chief's vehicle. These vehicles are usually close to / at end-of-life. The maintenance required to keep the vehicles operational is, at times, excessive. When the vehicle is inoperable, the Fire Chief's call response time could be impacted. And, if the provided vehicle is inoperable and the Chief is forced to use their personal vehicle, equipment that is currently outfitted in the Chief's vehicle would not be available. In addition, past vehicles have been sedans while the later vehicles have been SUV's. These vehicles require the Chief's gear and other supplies to be located in the same space in which the Chief sits, potentially exposing this individual to dangerous discharges and odors off-put by the gear and supplies carried in the back of the vehicle.
- There is a significant elevation difference along the adjoining (back to back) properties between the fork at Vanderbilt Avenue and Moore Street, and Fordham Road. During the heavy rain event on 20 June 2019, several sections of the retaining wall partially collapsed and the higher elevation back yards on Vanderbilt washed down onto the lower elevation yards on Moore Street, damaging several backyard structures, pools and houses. In addition, there are many large trees in the Vanderbilt yards that are close to the retaining wall. Repair / replace the entire length of retaining wall.
- The lowest section in the Borough is located at Central Avenue between Central Court and Beech Avenue. Four to five homes along the west side of Central Avenue have experienced continued



flooding events with very heavy rains. Some drainage work was performed in this location, but the success of the mitigation will not be known until the next heavy rain event.

- Flooding and soil erosion takes place due to stormwater discharge from West Jersey Avenue beneath the railroad tracks.
- Sinkholes and deteriorated drainage flows. The corrugated metal pipe (CMP) throughout the Borough is at or beyond end of life. During high rain events, runoff from holes in the pipes have resulted in soil erosion / sinkholes and deteriorated drainage flows.
- Sinkholes and deteriorated drainage flows. The corrugated metal pipe (CMP) in this location is at or beyond end of life. During high rain events, runoff from holes in the pipes have resulted in soil erosion / sinkholes and deteriorated drainage flows.
- Poor stormwater drainage exists on Route 45 between Holly Avenue and Lincoln Avenue.
- Poor stormwater drainage on Candidus Avenue results in sinkholes, deteriorated drainage flows.
- The Storm drainage system and sanitary sewer line capacities on Glassboro Road (County 553) are frequently exceeded.
- Dissemination of pre- and post-disaster information to Borough residents is in need of enhancement.
- Recurrent drainage problem areas require data collection to provide the necessary information for expense reimbursement.
- The Woodbury Heights Firehouse hosts the Woodbury Heights Fire Department, the Borough's Office of Emergency Management and the Borough's Emergency Operations Center. The Firehouse does not have back up power to sustain operations during a hazard event. In the event of a power outage, the Fire Department would not be able to adequately respond to a hazard and OEM would not be able to provide continuity of operations. This could result in significant hardship to the community.
- Critical facilities require backup power to maintain critical services during hazard events. The Public Works facility lacks backup power.
- In the event of a power outage, pump stations without backup power would cease to operate; an extended outage would cause the reservoir tanks to overfill, resulting in an unsanitary health and safety issue. This could result in significant hardship to the community. The following pump stations require backup power to provide continuity of service:
  - Candidus Avenue pump station
  - Central Avenue pump station
- Backup power sources are necessary to maintain critical services for critical facilities. The Gateway School provides immediate sheltering for students in the event of a hazard event and is identified as an emergency shelter on the BWHNJ EOP. The school lacks backup power.
- The Community Center can serve as a warming center, as-is, or as an emergency shelter, with modifications. The Community Center currently lacks backup power.
- In the event of a power outage, pump stations without backup power would cease to operate; an extended outage would cause the reservoir tanks to overfill, resulting in an unsanitary health and safety issue. This could result in significant hardship to the community. The following pump stations require backup power to provide continuity of service and cannot be serviced by fixed site generators:
  - Chestnut Avenue pump station



- Helen Avenue pump station
- Route 45 pump station
- Woodland Avenue pump station
- The Woodbury Heights Borough Hall is the central governing point for the Borough. The Hall does not have back up power to sustain full governing operations during a hazard event. In the event of a power outage, the Borough's Emergency Operations Plan does allow for some governing activities to shift to the adjacent Woodbury Heights Firehouse. However, these activities are limited to the Mayor (PIO) and Council President (Deputy PIO). During an extended power outage, Borough Council and staff would not be able to adequately respond to a hazard and continuity of government would be impacted. This could result in significant hardship to the community.

## 9.24.7 Mitigation Strategy and Prioritization

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

### 9.24.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.



Table 9.24-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	
					Enter 2022 HMP Action #
MJ-1	Improve storm drainage system at Glassboro Road (County 553).	Municipal OEM, Gloucester County DPW	No Progress	Yes	2022- Woodbury Heights-014
MJ-2	Sanitary sewer line on Glassboro Road (County 553).	Municipal OEM, Gloucester County DPW	No Progress	Yes	2022- Woodbury Heights-014
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	No Progress	Yes	2022- Woodbury Heights-015
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability	No	-
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	No Progress	Yes	2022- Woodbury Heights-016
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability	No	-
M-05	Install permanent backup emergency power generator for Borough Hall / EOC (CF-1).	Municipal OEM and Public Works Department	No Progress  *Note – The EOC is now located in the Firehouse  *Note – This generator installation will also require the installation of a transfer case, larger natural gas meter and a pipe run from the building under the parking.	No	-
M-06	Upgrade permanent backup emergency power generator for Fire Station / EMS (CF-4).	Municipal OEM, Public Works Department, Fire Department / EMS	No Progress  *Note – The EOC is now located in the Firehouse  *Note – EMS is now provided by GCEMS	No	-
M-07	Upgrade permanent backup emergency power generator for Public Works facility (CF-5).	Municipal OEM and Public Works Department	No Progress	Yes	2022- Woodbury Heights-018
M-08	Install permanent backup emergency power generator for Candidus Avenue pump station (CF-8).	Municipal OEM and Public Works Department	In Progress  Design phase, at Borough Engineer's Office	Yes	2022- Woodbury Heights-019



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-09	Install permanent backup emergency power generator for Central Avenue pump station (CF-9).	Municipal OEM and Public Works Department	In Progress  Design phase, at Borough Engineer's Office	Yes	2022- Woodbury Heights-019
M-10	Install permanent backup emergency power generator for Chestnut Avenue pump station (CF-10).	Municipal OEM and Public Works Department	No Progress  *Note – This location will not accommodate a permanent backup power source and will require a tow-behind generator	Yes	2022- Woodbury Heights-022
M-11	Install permanent backup emergency power generator for Helen Avenue pump station (CF-12).	Municipal OEM and Public Works Department	No Progress  *Note – This location will not accommodate a permanent backup power source and will require a tow-behind generator	Yes	2022- Woodbury Heights-022
M-12	Install permanent backup emergency power generator for Route 45 pump station (CF-13).	Municipal OEM and Public Works Department	No Progress  *Note – This location will not accommodate a permanent backup power source and will require a tow-behind generator	Yes	2022- Woodbury Heights-022
M-13	Install permanent backup emergency power generator for Woodland Avenue pump station (CF-14).	Municipal OEM and Public Works Department	No Progress  *Note – This location will not accommodate a permanent backup power source and will require a tow-behind generator	Yes	2022- Woodbury Heights-022
M-14	Install permanent backup emergency power generator for Gateway Regional School (CF-16).	Municipal OEM and Public Works Department	No Progress	Yes	2022- Woodbury Heights-020
M-15	Install permanent backup emergency power generator for Community Center (CF-20).	Municipal OEM and Public Works Department	No Progress	Yes	2022- Woodbury Heights-021
M-16	System redundancy of water facility (town well) located on Helen Avenue (water tank is on Grand View Street).	Municipal OEM and Public Works Department	Completed - Second Well Added / Backup Power Added	No	-
M-17	Install under-drains in Summit Section of Woodbury Heights (Alliance Street between Fordham Road and Central Avenue; sections of Auburn Street and Fordham Road) connecting to the storm sewer; new drainage would drop the groundwater level below the sanitary sewer system to avoid infiltration .	Municipal OEM and Public Works Department	In Progress  Fordham Rd underdrain installed 2021	Yes	2022- Woodbury Heights-011





2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-18	Upgrade stormwater collection capacity on Alliance Street.	Municipal OEM and Public Works Department	No Progress	Yes	2022- Woodbury Heights-011
M-19	Upgrade storm collection system on Grandview Avenue through Fairview Avenue.	Municipal OEM and Public Works Department	Completed	No	-
M-20	Dredge Glen Lake to improved storm water collection.	Municipal OEM and Public Works Department	Ongoing Capability	No	-
M-21	Floodproof / retrofit & harden Public Works Department Facility (CF-5).	Municipal OEM and Public Works Department	No Progress	Yes	2022-Woodbury Heights-001
M-22	Retrofit / harden Police Department building (CF-3).	Municipal OEM, Public Works Department, Fire Department	No Progress	No	-



### 9.24.7.2 Additional Mitigation Initiatives

In addition to the mitigation initiatives completed in Table 9.24-14, the Borough of Woodbury Heights identified the following mitigation efforts completed over the last five years:

- None identified

### 9.24.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Woodbury Heights participated in a mitigation action workshop in May 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.24-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise		X		X		X	X			X
Dam Failure/Levee Failure		X		X		X	X			X
Disease Outbreak/Pandemic		X		X		X	X			X
Drought		X		X		X	X			X
Earthquake		X		X		X	X			X
Extreme Temperatures		X		X		X	X			X
Flood	X	X		X		X	X		X	X
Geological Hazards		X		X		X	X		X	X
Hazmat		X		X		X	X			X
Hurricane		X		X		X	X			X
Invasive Species		X		X		X	X			X
Nor'Easter		X		X		X	X			X
Severe Weather	X	X		X		X	X		X	X
Severe Winter Weather		X		X		X	X			X
Wildfire		X		X		X	X			X
Utility Failure		X		X		X	X			X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.24-16) summarizes the comprehensive range of specific mitigation initiatives the Borough of Woodbury Heights 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 9.24-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.24-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Woodbury Heights-001	Public Works Garage	<p><b>Problem:</b> The current garage is old and in need of repairs. Repair or replace the current structure to provide sound environmental protections to the Borough equipment used to service the town during summer and winter storms. Also provide a separate structure to allow for the secure storage of any hazardous materials that may be kept onsite.</p> <p><b>Solution:</b> The Borough Public Works Department will complete a feasibility assessment for the repair / Hardening / Floodproofing, or replacement of the Public Works garage. The cost-effective solution will be implemented.</p>	Existing	All Hazards	1, 2, 6	Within 5 years	BWHNJ OEM, WHPWD	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Protection of critical facility and critical services	High	High	SIP	PP
2022-Woodbury Heights-002	Facilities Security	<p><b>Problem:</b> National Critical Infrastructure (Colonial Pipeline) and State Critical Infrastructure (NJ Turnpike) traverse the entire Borough.</p> <p><b>Solution:</b> Provide centralized monitoring of the Borough Complex and Public Works grounds to quickly address any</p>	Existing	Hazmat, Utility Failure	6	Within 5 years	BWHNJ OEM, WHFD, WHPD, WHPWD	Municipal budget	Increased security to reduce threat of hazardous material spill or utility failure	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		targeted action to this infrastructure that would impede a response to any event.											
2022-Woodbury Heights-003	Emergency Alerting	<p><b>Problem:</b> The siren at the Woodbury Heights Firehouse is currently configured to provide three different blasts - Fire, EMS (no longer used) and Emergency Management (old Civil Defense). While the Fire and EMS blasts are set off remotely by Gloucester County Communications, there is no remote way to trigger the Emergency Management blast. This Emergency Management blast could have been used to alert the residents about the EF3 tornado that traversed the town on 01 September 2021.</p> <p><b>Solution:</b> Investigate and implement a solution to remotely activate the Firehouse siren Emergency Management blast, educate the community for the purpose of the blast and advise the community prior to conducting regular tests.</p>	Existing	All Hazards	1, 2, 6	Within 5 years	BWHNJ OEM	Municipal budget	Increased emergency warning capabilities	Medium	High	EAP	ES
2022-Woodbury Heights-004	Communications	<p><b>Problem:</b> The facilities at the Borough Complex (Borough Hall / Emergency Operations Center / Fire Department / Police Department) have</p>	Existing	All Hazards	3	Within 5 years	BWHNJ OEM, WHFD, WHPD, WHPWD	Municipal budget	Increased communications during	Medium	High	EAP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		disparate landline-based internet and telephone systems. During some storms, communications have been disrupted to one or more systems.  <b>Solution:</b> Investigate and implement a consolidated complex-wide landline-based system, while also providing for backup / secondary satellite communications. Implement backup / secondary satellite-based communications for the Public Works garage.							hazard events				
2022-Woodbury Heights-005	Signage	<b>Problem:</b> The Borough Complex currently has a small, single color (red) free-standing digital sign to use for town notifications.  <b>Solution:</b> Investigate and procure a larger, color digital sign can be programmed by Borough Hall, Fire Department and Police Department personnel for not only emergency use, but also for proactive notifications and alerts.	N/A	All Hazards	3	Within 5 years	BWHNJ OEM, WHFD	Municipal budget	Increased communications during hazard events, increased outreach capabilities	Medium	High	SIP	ES
2022-Woodbury Heights-006	Transportation	<b>Problem:</b> The Fire Department is on pace to receive 250 calls in 2021. Historically, the Woodbury Heights Fire	N/A	All Hazards	1	Within 5 years	BWHNJ OEM, WHFD	Municipal budget, Assistance to Firefighters	Increased emergency response capabilities	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>Department is given a retired police vehicle to use as a Chief's vehicle. These vehicles are usually close to / at end-of-life. The maintenance required to keep the vehicles operational is, at times, excessive. When the vehicle is inoperable, the Fire Chief's call response time could be impacted. And, if the provided vehicle is inoperable and the Chief is forced to use their personal vehicle, equipment that is currently outfitted in the Chief's vehicle would not be available. In addition, past vehicles have been sedans while the later vehicles have been SVU's. These vehicles require the Chief's gear and other supplies to be located in the same space in which the Chief sits, potentially exposing this individual to discharges and odors off-put by the gear and supplies carried in the back of the vehicle.</p> <p>There is also limited/no-access for Fire/Police/Public Works emergency/response vehicles to areas made impassable by downed trees and/or wires,</p>							Grant Program				





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		possibly impacting emergency response.  <b>Solution:</b> Procure a ½ ton pickup truck – 4x4, crew cab, short bed with cap and bed pull-out storage tray – for Fire Chief / Fire Department use.  Secure a 4-seat Polaris Ranger Crew SP570 UTV Northstar (enclosed cab w/ heat, 3,500lb winch, 1,500lb towing capacity, rear box, power steering, full-body skid plate, full-coverage front bumper), include snow plow.											
2022-Woodbury Heights-007	Upgrade Retention Wall between Vanderbilt Street and Moore Street	<b>Problem:</b> There is a significant elevation difference along the adjoining (back to back) properties between the fork at Vanderbilt Avenue and Moore Street, and Fordham Road. During the heavy rain event on 20 June 2019, several sections of the retaining wall partially collapsed and the higher elevation back yards on Vanderbilt washed down onto the lower elevation yards on Moore Street, damaging several backyard structures, pools and houses. In addition, there are many large trees in the	Existing	Severe Weather, Flood	1, 2	Within 5 years	BWHNJ OEM, WHPWD	BRIC, HMGP, Municipal budget	Restore wall, prevent future erosive damages	High	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Vanderbilt yards that are close to the retaining wall.  <b>Solution:</b> Upgrade / repair / replace the entire length of the retention wall between Vanderbilt Avenue and Moore Street.											
2022-Woodbury Heights-008	Upgrade Stormwater Collection System at Central Avenue / Property Acquisition / Basin Construction	<b>Problem:</b> The lowest section in the Borough is located at Central Avenue between Central Court and Beech Avenue. Four to five homes along the west side of Central Avenue have experienced continued flooding events with very heavy rains. Some drainage work was performed in this location, but the success of the mitigation will not be known until the next heavy rain event.  <b>Solution:</b> Monitor recently completed work. If the mitigation proves to be unsuccessful, future mitigation may include elevation of the homes (may be difficult due split-level construction) or the acquisition of one or more of the impacted properties, razing of those properties and installation of a retention basin in their place.	Existing	Flood, Severe Weather	1, 2, 4	Within 5 years	BWHNJ OEM, WHPWD	HMGP, BRIC, Municipal budget	Reduction in flooding	High	High	SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Woodbury Heights-009	Restore Storm Water Discharge from West Jersey Avenue beneath Railroad Tracks	<b>Problem:</b> Flooding and soil erosion takes place due to stormwater discharge from West Jersey Avenue beneath the railroad tracks. <b>Solution:</b> Install storm water drainage to mitigate flooding and soil erosion along West Jersey Avenue and Railroad right of way.	Existing	Flood, Severe Weather	1, 2, 5	Within 5 years	BWHNJ OEM, Conrail, WHPWD	HMGP, BRIC, Municipal budget, Conrail budget	Reduction in flooding and erosion	High	High	SIP	SP
2022-Woodbury Heights-010	Replace CMP Drainage Pipe throughout the Borough	<b>Problem:</b> Sinkholes and deteriorated drainage flows. The corrugated metal pipe (CMP) throughout the Borough is at or beyond end of life. During high rain events, runoff from holes in the pipes have resulted in soil erosion / sinkholes and deteriorated drainage flows. <b>Solution:</b> Install large capacity pipes to replace the CMP.	Existing	Flood, Severe Weather, Geological Hazards	1, 2	Within 5 years	BWHNJ OEM, WHPWD	HMGP, BRIC, Municipal budget	Reduce flooding, erosion, sinkholes	High	High	SIP	SP
2022-Woodbury Heights-011	Replace CMP Drainage Pipe on Rt. 45 between Alliance and the NJ Turnpike	<b>Problem:</b> Sinkholes and deteriorated drainage flows. The corrugated metal pipe (CMP) in this location is at or beyond end of life. During high rain events, runoff from holes in the pipes have resulted in soil erosion / sinkholes and deteriorated drainage flows.	Existing	Flood, Severe Weather, Geological Hazards	1, 2, 5	Within 5 years	BWHNJ OEM, NJ DOT, WHPWD	NJ DOT budget	Reduce flooding, erosion, sinkholes	High	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Work with NJ DOT to replace CMP drainage pipe on Route 45 between Alliance Street and the NJ Turnpike with RCP or HDPE. Install large capacity pipes to replace the CMP.											
2022-Woodbury Heights-012	Improve Rt. 45 Drainage System between Holly Ave and Lincoln Ave	<b>Problem:</b> Poor stormwater drainage exists on Route 45 between Holly Avenue and Lincoln Avenue.  <b>Solution:</b> Work with NJ DOT to improve Route 45 drainage between Holly Avenue and Lincoln Avenue; upgrade size and capacity.	Existing	Flood, Severe Weather	1, 2, 5	Within 5 years	BWHNJ OEM, NJ DOT, WHPWD	NJ DOT budget	Reduce flooding	High	High	SIP	SP
2022-Woodbury Heights-013	Replace Drainage System on Candidus Avenue	<b>Problem:</b> Poor stormwater drainage on Candidus Avenue results in sinkholes, deteriorated drainage flows.  <b>Solution:</b> Replace existing CMP pipe drainage system on Candidus Avenue; upgrade size and capacity.	Existing	Flood, Severe Weather	1, 2	Within 5 years	BWHNJ OEM, WHPWD	HMGP, BRIC, Municipal budget	Reduce flooding	High	High	SIP	SP
2022-Woodbury Heights-014	Glassboro Road	<b>Problem:</b> The Storm drainage system and sanitary sewer line capacities on Glassboro Road (County 553) are frequently exceeded.  <b>Solution:</b> Provide input and request GC DPW replace the storm drainage system and	Existing	Flood, Severe Weather	1, 2, 5	Within 5 years	BWHNJ OEM, GC DPW	GC DPW budget	Reduce flooding	High	High	SIP	SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		sanitary sewer line on Glassboro Road (County 553) between Elm Avenue and Maple Avenue by replacing / increasing the diameter of the pipes.											
2022-Woodbury Heights-015	Enhance Emergency Readiness and Alerting Capabilities	<p><b>Problem:</b> Dissemination of pre- and post-disaster information to Borough residents is in need of enhancement.</p> <p><b>Solution:</b> Develop and implement community-wide awareness and education programs that address specific preparations residents can make before an event, what should be done during an event and what actions to take in its aftermath. Discuss mitigation and preparedness activities by engaging with the community through social media, newsletters, and in-person. Advise the public what types(s) of response activities / alerts to expect before a natural disaster (if possible), and immediately after a natural or man-made event. Set a level of expectation regarding Borough response activities and capabilities.</p>	N/A	All Hazards	1, 2, 3	2 years	Municipal OEM, PIO (Mayor) and Deputy PIO (Council President)	Municipal budget	Increased public awareness	Low	High	EAP	PI



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>Undertake a multi-pronged approach to disseminating information by:</p> <ul style="list-style-type: none"> <li>Enhancing the technological capacities of the Borough: <ul style="list-style-type: none"> <li>Strengthen the Borough's social media, newsletter and website presence</li> </ul> </li> <li>Engaging the Community: <ul style="list-style-type: none"> <li>Attend select Borough events</li> <li>Attend select GRHS, WHES and SMRS events</li> <li>Provide regular readiness workshops</li> </ul> </li> <li>Develop a RACI (responsible, accountable,</li> </ul>											



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		consulted and informed) quick-view chart to better delineate roles / responsibilities / activities and decision making authorities throughout all levels of government, external partners, constituency, etc.											
2022-Woodbury Heights-016	Prioritize Recurrent Drainage Problem Areas and Initiate Data Collection to Track Unreimbursed Damages and Related Response and Recovery Expenses	<p><b>Problem:</b> Recurrent drainage problem areas require data collection to provide the necessary information for expense reimbursement.</p> <p><b>Solution:</b> Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.</p>	Existing	Severe Weather, Flood	4	2 years	Municipal OEM and Municipal Working Group	Municipal budget	Increased data collection to support mitigation efforts.	Low	High	LPR	ES
2022-Woodbury Heights-017	Permanent Backup Power - Woodbury Heights Firehouse	<p><b>Problem:</b> The Woodbury Heights Firehouse hosts the Woodbury Heights Fire Department, the Borough's Office of Emergency Management and the Borough's Emergency Operations Center. The Firehouse does not have back up power to sustain operations during a hazard event. In the</p>	Existing	Utility Failure	1, 2, 3, 4, 6	2 years	Municipal OEM, PDW & FD Borough Engineer	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants	Continuity of Emergency and Response Services	\$150,000+	High	SIP	ES





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>event of a power outage, the Fire Department would not be able to adequately respond to a hazard and OEM would not be able to provide continuity of operations. This could result in significant hardship to the community.</p> <p>Note that the municipality contains National Critical Infrastructure (Colonial Pipeline) and State Critical Infrastructure (NJ Turnpike).</p> <p><b>Solution:</b> Determine the correct size permanent generator, large-capacity natural gas meter and transfer switch; trench 30' – 50' of parking lot for underground gas and electrical lines; install same. Install external gas line connects and develop a priority contract with a mobile gas provider for a tank-on-trailer should the natural gas supply become interrupted. DPW will be responsible for maintenance and testing following installation.</p>						(EMPG) Program, Assistance to Firefighters Grant Program, Municipal budget					
2022-Woodbury Heights-018	Upgrade Permanent Backup Emergency Power	<p><b>Problem:</b> Critical facilities require backup power to maintain critical services during</p>	Existing	Utility Failure	1, 2, 4	Within 5 years	Municipal OEM and Public Works Department	FEMA HMGP and BRIC, USDA Community	Continuity of Emergency and	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
	Generator for Public Works Facility	hazard events. The Public Works facility lacks backup power.  <b>Solution:</b> The Engineer will determine what size generator is needed to supply backup power to the Public Works facility. The Borough will then purchase and install the selected generator and necessary electrical components and transfer switch to supply backup power to the Public Works facility. DPW will be responsible for maintenance and testing following installation.						Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Response Services				
2022-Woodbury Heights-019	Install Permanent Backup Generator at Pump Stations	<b>Problem:</b> In the event of a power outage, pump stations without backup power would cease to operate; an extended outage would cause the reservoir tanks to overfill, resulting in an unsanitary health and safety issue. This could result in significant hardship to the community. The following pump stations require backup power to provide continuity of service: <ul style="list-style-type: none"> <li>Candidus Avenue pump station</li> <li>Central Avenue pump station</li> </ul>	Existing	Utility Failure	1, 2, 4	1 year	BWHNJ OEM and Public Works Department	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Municipal Budget	Continuity of Municipal Services	\$150,000+	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> Public Works will oversee installation of fixed site generators and necessary electrical components to supply backup power. Public Works will be responsible for maintenance and testing of the generator following installation.											
2022-Woodbury Heights-020	Backup Power for Gateway Regional School	<p><b>Problem:</b> Backup power sources are necessary to maintain critical services for critical facilities. The Gateway School provides immediate sheltering for students in the event of a hazard event and is identified as an emergency shelter on the BWHNJ EOP. The school lacks backup power.</p> <p><b>Solution:</b> The Engineer will work with the Board of Education to research what size generator is needed to supply backup power to the school. The Borough will then provide guidance and support during the purchase and installation of the selected generator and necessary electrical components to supply backup power to the school.</p>	Existing	Utility Failure	1, 2, 4	1 year	Gateway Regional School, Municipal OEM and Public Works Department	Municipal budget	Continuity of Municipal Services, Sheltering	High	High	SIP	ES
2022-Woodbury	Backup Power for Community Center	<p><b>Problem:</b> The Community Center can serve as a warming center, as-is, or as an</p>	Existing	Utility Failure	1, 2, 4	1 year	Municipal OEM and	FEMA HMGP and BRIC, USDA	Continuity of	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
Heights-021		<p>emergency shelter, with modifications. The Community Center currently lacks backup power.</p> <p><b>Solution:</b> The Engineer will determine what size generator is needed to supply backup power to the school. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power to the Community Center. DPW will be responsible for maintenance and testing following installation.</p>					Public Works Department	Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Municipal Services				
2022-Woodbury Heights-022	Tow-Behind Generators	<p><b>Problem:</b> In the event of a power outage, pump stations without backup power would cease to operate; an extended outage would cause the reservoir tanks to overfill, resulting in an unsanitary health and safety issue. This could result in significant hardship to the community. The following pump stations require backup power to provide continuity of service and cannot be serviced by fixed site generators:</p> <ul style="list-style-type: none"> <li>Chestnut Avenue pump station</li> <li>Helen Avenue pump station</li> </ul>	Existing	Utility Failure	1, 2	Within 5 years	Public Works	Municipal Budget	Continuity of critical services	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<ul style="list-style-type: none"> <li>Route 45 pump station</li> <li>Woodland Avenue pump station</li> </ul> <p><b>Solution:</b> The Borough will purchase tow-behind generators to service these pump stations.</p>											
2022-Woodbury Heights-023	Permanent Backup Power – Borough Hall	<p><b>Problem:</b> The Woodbury Heights Borough Hall is the central governing point for the Borough. The Hall does not have back up power to sustain full governing operations during a hazard event. In the event of a power outage, the Borough's Emergency Operations Plan does allow for some governing activities to shift to the adjacent Woodbury Heights Firehouse. However, these activities are limited to the Mayor (PIO) and Council President (Deputy PIO). During an extended power outage, Borough Council and staff would not be able to adequately respond to a hazard and continuity of government would be impacted. This could result in significant hardship to the community.</p>	Existing	Utility Failure	1, 2, 3, 4, 6	Within 5 years	Municipal OEM, PWD & Borough Engineer	FEMA HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Town Budget	Continuity of Government	High	High	SIP	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p><b>Solution:</b> Option 1 – Determine the correct size permanent generator, large-capacity natural gas meter, transfer switch and required electrical modifications, concrete pad and sound attenuated enclosure (to decrease operational noise in a residential environment); trench for underground gas and electrical lines; install same.</p> <p>Option 2 – Share permanent generator with the police station. Determine the correct size upgraded permanent generator, large-capacity natural gas meter, transfer switches and required electrical modifications, concrete pad and sound attenuated enclosure (to decrease operational noise in a residential environment); trench for underground gas line and electrical lines to from police station and Borough Hall; install same.</p> <p>For either option, install external gas line connects and develop a priority contract with a mobile gas provider for a tank-on-trailer should the natural gas supply become interrupted.</p>											



**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.24-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Woodbury Heights-001	Public Works Garage	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Woodbury Heights-002	Facilities Security	1	1	1	1	1	0	1	1	1	0	1	0	1	1	11	High
2022- Woodbury Heights-003	Emergency Alerting	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2022- Woodbury Heights-004	Communications	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2022- Woodbury Heights-005	Signage	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2022- Woodbury Heights-006	Transportation	1	1	0	1	1	1	1	1	1	1	1	0	1	1	12	High
2022- Woodbury Heights-007	Upgrade Retention Wall between Vanderbilt Street and Moore Street	0	1	1	1	1	1	0	1	1	1	1	0	1	1	11	High
2022- Woodbury Heights-008	Upgrade Stormwater Collection System at Central Avenue / Property Acquisition / Basin Construction	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High
2022- Woodbury Heights-009	Restore Storm Water Discharge from West Jersey Avenue beneath Railroad Tracks	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High
2022- Woodbury Heights-010	Replace CMP Drainage Pipe throughout the Borough	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High



Project Number	Project 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
2022- Woodbury Heights-011	Replace CMP Drainage Pipe on Rt. 45 between Alliance and the NJ Turnpike	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High
2022- Woodbury Heights-012	Improve Rt. 45 Drainage System between Holly Ave and Lincoln Ave	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High
2022- Woodbury Heights-013	Replace Drainage System on Candidus Avenue	1	1	0	1	1	1	0	1	1	0	1	0	1	1	10	High
2022- Woodbury Heights-014	Glassboro Road	1	1	1	1	0	0	0	1	1	1	1	0	1	1	10	High
2022- Woodbury Heights-015	Identify and Pursue Outreach and Education Opportunities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2022- Woodbury Heights-016	Prioritize Recurrent Drainage Problem Areas and Initiate Data Collection to Track Unreimbursed Damages and Related Response and Recovery Expenses	0	0	1	1	1	1	1	1	1	1	1	1	1	1	12	High
2022- Woodbury Heights-017	Permanent Backup Power - Woodbury Heights Firehouse	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2022- Woodbury Heights-018	Upgrade Permanent Backup Emergency Power Generator for Public Works Facility	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High



Project Number	Project 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
2022- Woodbury Heights-019	Install Permanent Backup Generator at Pump Stations	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2022- Woodbury Heights-020	Backup Power for Gateway Regional School	1	1	1	1	1	0	0	1	1	1	0	0	1	1	10	High
2022- Woodbury Heights-021	Backup Power for Community Center	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2022- Woodbury Heights-022	Tow-Behind Generators	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2022- Woodbury Heights-023	Permanent Backup Power – Borough Hall	1	1	0	1	1	1	0	1	1	1	0	0	1	1	11	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

⚠ This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.24.8 Action Worksheets

The following action worksheets have been developed by the Borough of Woodbury Heights to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Public Works Garage		
<b>Project Number:</b>	2022-Woodbury Heights-001		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	The current garage is old and in need of repairs. Repair or replace the current structure to provide sound environmental protections to the Borough equipment used to service the town during summer and winter storms. Also provide a separate structure to allow for the secure storage of any hazardous materials that may be kept onsite.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Borough Public Works Department will complete a feasibility assessment for the repair / Hardening / Floodproofing, or replacement of the Public Works garage. The cost effective solution will be implemented.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year storm event	<b>Estimated Benefits (losses avoided):</b>	Protection of critical facility and critical services
<b>Useful Life:</b>	15 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Town Budget
<b>Responsible Organization:</b>	BWHNJ OEM, WHPWD	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Rebuild facility to new standards	High	Costly and not necessary
	Build secondary facility protected to new standards	High	Costly and not necessary
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			



<b>Update Evaluation of the Problem and/or Solution:</b>	
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Action Worksheet		
<b>Project Name:</b>	Public Works Garage	
<b>Project Number:</b>	2022-Woodbury Heights-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Project will protect critical services of Public Works Garage.
<b>Property Protection</b>	1	Project will protect Public Works Garage from storm damage.
<b>Cost-Effectiveness</b>	1	
<b>Technical</b>	1	The project is technically feasible
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to complete the project.
<b>Fiscal</b>	0	Project requires funding support.
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	All Hazards
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	BWHNJ OEM, WHPWD
<b>Other Community Objectives</b>	1	Protection of critical services
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	





Action Worksheet			
<b>Project Name:</b>	Upgrade Retention Wall between Vanderbilt Street and Moore Street		
<b>Project Number:</b>	2022- Woodbury Heights-007		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	There is a significant elevation difference along the adjoining (back to back) properties between the fork at Vanderbilt Avenue and Moore Street, and Fordham Road. During the heavy rain event on 20 June 2019, several sections of the retaining wall partially collapsed and the higher elevation back yards on Vanderbilt washed down onto the lower elevation yards on Moore Street, damaging several backyard structures, pools and houses. In addition, there are many large trees in the Vanderbilt yards that are close to the retaining wall. Repair / replace the entire length of retaining wall.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	Upgrade / repair / replace the entire length of the retention wall between Vanderbilt Avenue and Moore Street.		
<b>Is this project related to a Critical Facility?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD	<b>Estimated Benefits (losses avoided):</b>	Restore wall, prevent future erosive damages
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	BRIC, HMGP, Municipal budget
<b>Responsible Organization:</b>	BWHNJ OEM, WHPWD	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Conduct annual maintenance	Medium	Continued degradation of wall
	Remove roadway and buyout properties	High	High cost, Loss of access
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Upgrade Retention Wall between Vanderbilt Street and Moore Street	
<b>Project Number:</b>	2022- Woodbury Heights-007	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protect properties from washout damage.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Borough has the legal authority to complete the project.
Fiscal	0	The project requires grant funding support.
Environmental	1	
Social	1	Roadways preserved
Administrative	1	
Multi-Hazard	1	Severe Weather, Flood
Timeline	0	Within 5 years
Agency Champion	1	BWHNJ OEM, WHPWD
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Upgrade Stormwater Collection System at Central Avenue / Property Acquisition / Basin Construction		
<b>Project Number:</b>	2022- Woodbury Heights-008		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	The lowest section in the Borough is located at Central Avenue between Central Court and Beech Avenue. Four to five homes along the west side of Central Avenue have experienced continued flooding events with very heavy rains. Some drainage work was performed in this location, but the success of the mitigation will not be known until the next heavy rain event.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Monitor recently completed work. If the mitigation proves to be unsuccessful, future mitigation may include elevation of the homes (may be difficult due split-level construction) or the acquisition of one or more of the impacted properties, razing of those properties and installation of a retention basin in their place.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by developed actions	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, stormwater flood damage, maintains emergency access
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	TBD by developed actions. Anticipated High.	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, Municipal budget
<b>Responsible Organization:</b>	BWHNJ OEM, WHPWD	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation, Stormwater management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Only elevate homes	Very High	Costly and would not solve roadway flooding
	Buyout all homes	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Upgrade Stormwater Collection System at Central Avenue / Property Acquisition / Basin Construction	
<b>Project Number:</b>	2022- Woodbury Heights-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding and maintains emergency access.
<b>Property Protection</b>	1	Protects buildings from flood damage
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	BWHNJ OEM, WHPWD
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Replace Drainage System on Candidus Avenue		
<b>Project Number:</b>	2022- Woodbury Heights-013		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Flood, Severe Weather		
<b>Description of the Problem:</b>	Poor stormwater drainage on Candidus Avenue results in sinkholes, deteriorated drainage flows.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Replace existing CMP pipe drainage system on Candidus Avenue; upgrade size and capacity.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	TBD by developed actions	<b>Estimated Benefits (losses avoided):</b>	Reduction in flood risk, stormwater flood damage, maintains emergency access
<b>Useful Life:</b>	30 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by developed actions. Anticipated High.	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	6 months	<b>Potential Funding Sources:</b>	HMGP, BRIC, Municipal budget
<b>Responsible Organization:</b>	BWHNJ OEM, WHPWD	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation, Stormwater management
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	Very High	Costly and would not solve roadway flooding
	Buyout homes	Very High	Costly and would not solve roadway flooding
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Replace Drainage System on Candidus Avenue	
<b>Project Number:</b>	2022- Woodbury Heights-013	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Protects life from flooding and maintains emergency access.
<b>Property Protection</b>	1	Protects buildings from flood damage
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Technically feasible project
<b>Political</b>	1	
<b>Legal</b>	1	The Borough has the legal authority to conduct the project.
<b>Fiscal</b>	0	Project will require grant funding.
<b>Environmental</b>	1	
<b>Social</b>	1	Project would reduce flooding impacts
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Severe Weather
<b>Timeline</b>	0	Within 5 years
<b>Agency Champion</b>	1	BWHNJ OEM, WHPWD
<b>Other Community Objectives</b>	1	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Permanent Backup Power - Woodbury Heights Firehouse		
<b>Project Number:</b>	2022- Woodbury Heights-017		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	<p>The Woodbury Heights Firehouse hosts the Woodbury Heights Fire Department, the Borough's Office of Emergency Management and the Borough's Emergency Operations Center. The Firehouse does not have back up power to sustain operations during a hazard event. In the event of a power outage, the Fire Department would not be able to adequately respond to a hazard and OEM would not be able to provide continuity of operations. This could result in significant hardship to the community.</p> <p>Note that the municipality contains National Critical Infrastructure (Colonial Pipeline) and State Critical Infrastructure (NJ Turnpike).</p>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	<p>Determine the correct size permanent generator, large-capacity natural gas meter and transfer switch; trench 30' – 50' of parking lot for underground gas and electrical lines; install same. Install external gas line connects and develop a priority contract with a mobile gas provider for a tank-on-trailer should the natural gas supply become interrupted. DPW will be responsible for maintenance and testing following installation.</p>		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	100% from utility failure	<b>Estimated Benefits (losses avoided):</b>	Continuity of Emergency and Response Services
<b>Useful Life:</b>	15 – 20 years	<b>Goals Met:</b>	1, 2, 3, 4, 6
<b>Estimated Cost:</b>	\$150,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	2 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Assistance to Firefighters Grant Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal OEM, PDW & FD Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Tesla Battery Wall	High	≈ 5 year battery lifespan





	Solar Panels	High	Weather dependent
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
<b>Project Name:</b>	Backup Power - Woodbury Heights Firehouse	
<b>Project Number:</b>	2022- Woodbury Heights-017	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	High visibility project
Legal	1	
Fiscal	0	Requires funding support
Environmental	1	Natural gas is cleaner than diesel
Social	1	
Administrative	1	
Multi-Hazard	1	Utility failure
Timeline	1	2 years
Agency Champion	1	
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Upgrade Permanent Backup Emergency Power Generator for Public Works Facility		
<b>Project Number:</b>	2022- Woodbury Heights-018		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	Critical facilities require backup power to maintain critical services during hazard events. The Public Works facility lacks backup power.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will determine what size generator is needed to supply backup power to the Public Works facility. The Borough will then purchase and install the selected generator and necessary electrical components and transfer switch to supply backup power to the Public Works facility. DPW will be responsible for maintenance and testing following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of Emergency and Response Services
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal OEM and Public Works Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Upgrade Permanent Backup Emergency Power Generator for Public Works Facility	
<b>Project Number:</b>	2022- Woodbury Heights-018	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical service of building and allow for sheltering.
Property Protection	1	Project will protect building 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	
Administrative	1	
Multi-Hazard	0	Utility Failure
Timeline	0	Within 5 years
Agency Champion	1	Municipal OEM and Public Works Department
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Install Permanent Backup Generator at Pump Stations		
<b>Project Number:</b>	2022- Woodbury Heights-019		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility failure		
<b>Description of the Problem:</b>	<p>In the event of a power outage, pump stations without backup power would cease to operate; an extended outage would cause the reservoir tanks to overfill, resulting in an unsanitary health and safety issue. This could result in significant hardship to the community. The following pump stations require backup power to provide continuity of service:</p> <ul style="list-style-type: none"> <li>Candidus Avenue pump station</li> <li>Central Avenue pump station</li> </ul>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Public Works will oversee installation of fixed site generators and necessary electrical components to supply backup power. Public Works will be responsible for maintenance and testing of the generator following installation.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	100% from utility failure	<b>Estimated Benefits (losses avoided):</b>	Continuity of Municipal Services
<b>Useful Life:</b>	≈10 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	\$150,000+	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal OEM, PWD & Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Tow behind generators	\$150,000+	Require deployment
	Solar panels	High	Weather Dependent
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Install Permanent Backup Generator at Pump Stations	
<b>Project Number:</b>	2022- Woodbury Heights-019	
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	Project is technically feasible
Political	1	High visibility project
Legal	1	
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Utility failure
Timeline	1	1 year
Agency Champion	1	Municipal OEM, PWD & Borough Engineer
Other Community Objectives	1	
<b>Total</b>	13	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup Power for Community Center		
<b>Project Number:</b>	2022- Woodbury Heights-021		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	The Community Center can serve as a warming center, as-is, or as an emergency shelter, with modifications. The Community Center currently lacks backup power.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Engineer will determine what size generator is needed to supply backup power to the school. The Borough will then purchase and install the selected generator and necessary electrical components to supply backup power to the Community Center. DPW will be responsible for maintenance and testing following installation.		
<b>Is this project related to a Critical Facility?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Continuity of Municipal Services
<b>Useful Life:</b>	20 years	<b>Goals Met:</b>	1, 2, 4
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Projects (SIP)
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	1 year	<b>Potential Funding Sources:</b>	FEMA HMGP and BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
<b>Responsible Organization:</b>	Municipal OEM and Public Works Department	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation, Emergency Management
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	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
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Backup Power for Community Center	
<b>Project Number:</b>	2022- Woodbury Heights-021	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will protect critical service of building and allow for sheltering.
Property Protection	1	Project will protect building 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	
Administrative	1	
Multi-Hazard	0	Utility Failure
Timeline	0	Within 5 years
Agency Champion	1	Municipal OEM and Public Works Department
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Permanent Backup Power – Borough Hall		
<b>Project Number:</b>	2022- Woodbury Heights-023		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure		
<b>Description of the Problem:</b>	<p>The Woodbury Heights Borough Hall is the central governing point for the Borough. The Hall does not have back up power to sustain full governing operations during a hazard event. In the event of a power outage, the Borough's Emergency Operations Plan does allow for some governing activities to shift to the adjacent Woodbury Heights Firehouse. However, these activities are limited to the Mayor (PIO) and Council President (Deputy PIO). During an extended power outage, Borough Council and staff would not be able to adequately respond to a hazard and continuity of government would be impacted. This could result in significant hardship to the community.</p> <p>Note that the municipality contains National Critical Infrastructure (Colonial Pipeline) and State Critical Infrastructure (NJ Turnpike)</p>		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	<p>Option 1 – Determine the correct size permanent generator, large-capacity natural gas meter, transfer switch and required electrical modifications, concrete pad and sound attenuated enclosure (to decrease operational noise in a residential environment); trench for underground gas and electrical lines; install same.</p> <p>Option 2 – Share permanent generator with the police station. Determine the correct size upgraded permanent generator, large-capacity natural gas meter, transfer switches and required electrical modifications, concrete pad and sound attenuated enclosure (to decrease operational noise in a residential environment); trench for underground gas line and electrical lines to from police station and Borough Hall; install same.</p> <p>For either option, install external gas line connects and develop a priority contract with a mobile gas provider for a tank-on-trailer should the natural gas supply become interrupted.</p>		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	100% from utility failure	<b>Estimated Benefits (losses avoided):</b>	Continuity of Government
<b>Useful Life:</b>	15 – 20 years	<b>Goals Met:</b>	1, 2, 3, 4, 6
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	FEMA HMGP, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Town Budget
<b>Responsible Organization:</b>	Municipal OEM, PWD & Borough Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Tesla Battery Wall	High	≈ 5 year battery lifespan



	Solar Panels	Medium	Weather dependent
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
<b>Project Name:</b>	Permanent Backup Power – Borough Hall	
<b>Project Number:</b>	2022- Woodbury Heights-023	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	Benefits outweigh costs
Technical	1	Project is technically feasible
Political	1	High visibility project
Legal	1	
Fiscal	0	Requires fiscal support
Environmental	1	Natural gas is cleaner than diesel
Social	1	
Administrative	1	
Multi-Hazard	0	Utility failure
Timeline	0	Within 5 years
Agency Champion	1	
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



## 9.25 TOWNSHIP OF WOOLWICH

This section presents the jurisdictional annex for the Township of Woolwich and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Township participated in the planning process, an assessment of the Township of Woolwich's risk and vulnerability, the different capabilities used in the Township, and an action plan that will be implemented to achieve a more resilient community.

### 9.25.1 Hazard Mitigation Planning Team

The Township of Woolwich followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Township departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of Woolwich's hazard mitigation plan primary and alternate points of contact. 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 9.25-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Chris Beckett, Police Department Sergeant and OEM Coordinator Address: 120 Village Green Drive Woolwich Township, NJ 08085 Phone Number: 856-467-1667 x1224 Email: cbeckett@woolwichtwp.org NFIP Floodplain Administrator	Name/Title: Joe Morgan, Police Department Chief Address: 120 Village Green Drive Woolwich Township, NJ 08085 Phone Number: 856-467-1667 ext. 1133 Email: jmorgan@woolwichtwp.org



Name/Title: Chris Beckett, Police Department Sergeant and OEM Coordinator  
Address: 120 Village Green Drive Woolwich Township, NJ 08085  
Phone Number: 856-467-1667 x1224  
Email: cbeckett@woolwichtwp.org

Name	Title	Method of Participation
Chris Beckett	Police Department Sergeant and OEM Coordinator	Provided information on past events, previous action status, contributed to mitigation strategy development, reviewed annex and provided feedback
Matthew O'Loughlin	Deputy OEM Coordinator	Provided information on past events, previous action status, and contributed to mitigation strategy development
Joe Morgan	Police Department Chief	Reviewed annex and provided feedback

## 9.25.2 Municipal Profile

Woolwich was formed by royal charter on March 7, 1767, from portions of Greenwich Township, and was incorporated as one of New Jersey's initial 104 townships by an act of the New Jersey Legislature on February 21, 1798. The Township was named for Woolwich, England.

According to the United States Census Bureau, the Township had a total area of 21.39 square miles, including 21.07 square miles of land and 0.32 square miles of water. Swedesboro is an independent municipality entirely surrounded by the Township. Unincorporated communities, localities and place names located partially or completely within the Township include Asbury, Dilkes Mills, Lippencott, Porches Mill, Robbins, Rulons and Scull. The New Jersey Turnpike and Route 322 are the main roads that pass through the municipality. Racoon creek passes through the community which ultimately feeds into the Delaware River.

Woolwich Township is governed under the Township form of New Jersey municipal government. The Township Committee is comprised of five members, who are elected directly by the voters at-large in partisan elections to serve three-year terms of office on a staggered basis, with either one or two seats coming up for election each year as part of the November general election in a three-year cycle. At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.

According to the U.S. Census, the 2010 population for the Township of Woolwich was 10,200. The estimated 2019 population was 12,549, an 18.7 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 6.3 percent of the population is 5 years of age or younger and 10.6 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.



## 9.25.3 Jurisdictional Capability Assessment and Integration

The Township of Woolwich performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.25.3). The updated mitigation strategy includes opportunities the Township of Woolwich identified for integration of mitigation concepts to be incorporated into municipal procedures.

### 9.25.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Township of Woolwich, what is present in the jurisdiction, and code citation and date.

*Table 9.25-2. Planning, Legal, and Regulatory Capability*

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Chapter 68, Building Construction, 1977	State and Local	Woolwich Township Construction Code Department
<i>How does this reduce risk?</i>					
• Establishes the Uniform Construction Code for construction within the Township.					





	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 203, Zoning, 1992	Local	Joint Land Use Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this chapter is to regulate the nature and extent of the uses of land and of buildings and structures thereon for the purposes set forth in the Municipal Land Use Law and to exercise the power to zone granted to municipalities of the State of New Jersey.</li> </ul>					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 163, Subdivision of Land, 1977	Local	Joint Land Use Board
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this chapter is to require approval of subdivisions within the Township of Woolwich by the Planning Board or, in appropriate cases, by the Board of Adjustment, for the purposes set forth in the Municipal Land Use Law and to exercise the power to regulate subdivisions granted to municipalities of the State of New Jersey.</li> </ul>					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 157, Stormwater Management, 2006	Local	Engineer
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Through this article, Woolwich Township has established the following goals for stormwater control: <ul style="list-style-type: none"> <li>(a) To reduce flood damage, including damage to life and property;</li> <li>(b) To minimize any increase in stormwater runoff from new development;</li> <li>(c) To reduce soil erosion from any development or construction project;</li> <li>(d) To assure the adequacy of existing and proposed culverts and bridges, and other instream structures;</li> <li>(e) To maintain groundwater recharge;</li> <li>(f) To minimize any increase in nonpoint pollution;</li> <li>(g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;</li> <li>(h) To restore, protect, maintain and enhance the quality of the streams and water resources and the ecological character and quality of Woolwich Township;</li> <li>(i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface and ground waters of Woolwich Township, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and</li> <li>(j) To protect public safety through the proper design and operation of stormwater management basins.</li> </ul> </li> <li>In order to achieve the goals for stormwater control set forth in this article, Woolwich Township has identified the following management techniques: <ul style="list-style-type: none"> <li>(a) Implementation of multiple stormwater management best management practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this article.</li> <li>(b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this article, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as low-impact development (LID) techniques.</li> <li>(c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.</li> <li>(d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.</li> <li>(e) Structural BMPs, where necessary, shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.</li> <li>(f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this article before relying on a single, larger stormwater management measure to achieve these performance standards.</li> </ul> </li> </ul>					
<b>Post-Disaster Recovery/ Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Real Estate Disclosure</b>	Yes	Yes	N.J.A.C. 13:45A-29.1	State	State, Division of Consumer Affairs
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>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 estimated completion dates for improvements, fees for services and amenities, the type of title and ownership interest being offered, its proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.</li> </ul>					
<b>Growth Management</b>	No	Yes, if the jurisdiction has a planning board	-	-	-
<i>How does this reduce risk?</i>					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 149, Site Plan Review, 1978	Local and County	Planning Board, Board of Adjustment
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>The purpose of this chapter is to require approval of proposed site plans within the Township of Woolwich by the Planning Board or, in appropriate cases, by the Board of Adjustment, for the purposes set forth in the Municipal Land Use Law and to exercise the power of site plan review and approval granted to municipalities of the State of New Jersey.</li> </ul>					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 113, Hazardous Waste, 2005	Local	Mayor and Township Committee
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>Establishes the responsibility for cleanup and costs of hazardous waste spills in the Township.</li> </ul>					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 103, Flood Damage Prevention, 2010	Federal, State, County and Local	Floodplain administrator
<i>How does this reduce risk?</i> <ul style="list-style-type: none"> <li>It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize private and public losses due to flood conditions in specific areas by provisions designed to: <ul style="list-style-type: none"> <li>A. Protect human life and health;</li> <li>B. Minimize expenditure of public money for costly flood insurance control projects;</li> <li>C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>D. Minimize prolonged business interruptions;</li> <li>E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;</li> <li>F. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;</li> <li>G. Ensure that potential buyers are notified that property is in an area of special flood hazard; and</li> <li>H. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.</li> </ul> </li> <li>In order to accomplish its purpose, this chapter includes methods and provisions for: <ul style="list-style-type: none"> <li>A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;</li> <li>B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;</li> <li>C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</li> <li>D. Controlling filling, grading, dredging, and other development which may increase flood damage; and</li> <li>E. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</li> </ul> </li> <li>The ordinance includes the state mandated one-foot freeboard requirement.</li> </ul>					
<b>Wellhead Protection</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes - municipality	Master Plan, 2008	Local	Administration, Planning
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Provides guidance for long term development.</li> </ul>					
<b>Capital Improvement Plan</b>	No	Allowed	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Floodplain Management or Watershed Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Stormwater Management Plan</b>	Yes	Yes	Stormwater Management Plan, 2006	Local	Engineer
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Sets standards and provides guidance for stormwater management.</li> </ul>					
<b>Stormwater Pollution Prevention Plan</b>	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Tourism Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Business/ Downtown Development Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-
<b>Response/Recovery Planning</b>					
<b>Emergency Operations Plan</b>	Yes	Yes	Emergency Operations Plan, 2013	Local	OEM
<i>How does this reduce risk?</i>					
<ul style="list-style-type: none"> <li>Sets responsibilities and procedures for disaster response.</li> </ul>					
<b>Strategic Recovery Planning Report</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Post-Disaster Recovery Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Continuity of Operations Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Public Health Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	-	-	-	-

### 9.25.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Township of Woolwich to oversee and track development.



*Table 9.25-3. Development and Permitting Capability*

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? <ul style="list-style-type: none"> <li>If yes, what department is responsible?</li> <li>If no, what is your process for development?</li> </ul>	Yes	Code Enforcement and Community Development
Are permits tracked by hazard area? (For example, floodplain development permits.)	-	-
Do you have a buildable land inventory? <ul style="list-style-type: none"> <li>If yes, describe.</li> <li>If no, quantitatively describe the level of buildout in the jurisdiction.</li> </ul>	-	-

### 9.25.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Woolwich and their current responsibilities which contribute to hazard mitigation.

*Table 9.25-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	Joint Land Use Board. The Woolwich Township Joint Land Use Board (JLUB) is established pursuant to the Municipal Land Use Law and has the power to hear and vote upon land development applications.
Zoning Board of Adjustments	Yes	Joint Land Use Board
Planning Department	Yes	Zoning Office
Mitigation Planning Committee	-	
Environmental Board/Commission	Yes	Swedesboro-Woolwich Joint Environmental Commission: The Environmental Commission researches and develops ways to promote environmental causes and investigates and remediates environmental concerns.
Open Space Board/Committee	Yes	Open Space Committee and Agriculture Development Committee: The purpose of this Committee is to review and establish ways and means to guide the preservation of open space and agricultural lands and to help to retain and enhance the farming industry as whole.
Economic Development Commission/Committee	Yes	Business and Economic Development Advisory Committee
Public Works/Highway Department	Yes	Public Works Department
Construction/Building/Code Enforcement Department		Code Enforcement and Community Development
Emergency Management/Public Safety Department	Yes	Public Safety
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Public Safety
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works Department



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Mutual aid agreements	-	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	-	-
Other	-	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	-	-
Engineers or professionals trained in building or infrastructure construction practices	-	-
Planners or engineers with an understanding of natural hazards	-	-
Staff with expertise or training in benefit/cost analysis	-	-
Professionals trained in conducting damage assessments	-	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	-	-
Scientist familiar with natural hazards	-	-
Surveyor(s)	-	-
Emergency Manager	Yes	Chris Beckett, Police Department Sergeant and OEM Coordinator
Grant writer(s)	-	-
Resilience Officer	-	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-

### 9.25.3.4 Fiscal Capability

The table below summarizes financial resources available to the Township of Woolwich.

*Table 9.25-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	-
Capital improvements project funding	-
Authority to levy taxes for specific purposes	-
User fees for water, sewer, gas or electric service	-
Impact fees for homebuyers or developers of new development/homes	-
Stormwater utility fee	-
Incur debt through general obligation bonds	-
Incur debt through special tax bonds	-



Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Incur debt through private activity bonds	-
Withhold public expenditures in hazard-prone areas	-
Other federal or state funding programs	Yes, HMA grants
Open Space Acquisition funding programs	-
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

### 9.25.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Township of Woolwich.

*Table 9.25-6. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	-	-
Personnel skilled or trained in website development	-	-
Hazard mitigation information available on your website	Yes	Emergency management and stormwater management
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, Youtube
Citizen boards or commissions that address issues related to hazard mitigation	-	-
Other programs already in place that could be used to communicate hazard-related information	-	-
Warning systems for hazard events	-	-
Natural disaster/safety programs in place for schools	-	-
Other	-	-

### 9.25.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Township of Woolwich.

*Table 9.25-7. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Unknown	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Unknown	-	-





Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Sustainable Jersey	Yes	Registered	7/20/2009
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.25.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.25-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Moderate
Dam/ Levee	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Earthquake	Moderate
Ext Temp	Moderate
Flood	Moderate
Geologic	Moderate
Hazmat	Moderate
Hurricane	Moderate
Invasive	Moderate
Nor'Easter	Moderate
Severe Weather	Moderate
Severe Winter Weather	Strong
Wildfire	Moderate
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.25.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.25-9. NFIP Summary

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 23</li><li># RL properties: 1</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0 (elevation or acquisition and funding source: N/A)</li></ul>	<ul style="list-style-type: none"><li># claims filed: 6</li><li>Total loss payments: \$129,747</li></ul>
Describe areas prone to flooding in your jurisdiction.	-
Do you maintain a list of properties that have been damaged by flooding?	-
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	-
How do you make Substantial Damage determinations? <ul style="list-style-type: none"><li>How many were declared for recent flood events in your jurisdiction?</li></ul>	Unknown
Detail any RiskMAP projects currently underway in your jurisdiction.	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"><li>If not, state why.</li></ul>	Yes
<b>NFIP Administration</b>	
What local department is responsible for floodplain management?	OEM
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	No
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	-
What specific training or support does your floodplain management staff need to support its floodplain management program?	-
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	-
Do you have access to resources to determine possible future flooding conditions from climate change?	-
<b>NFIP Compliance</b>	
List any outstanding NFIP compliance violations.	-
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown



NFIP Topic	Comments
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 103, Flood Damage Prevention, 2010
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting height variances) that support floodplain management and meeting the NFIP requirements?	No
Does your jurisdiction participate in CRS? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

## 9.25.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.25-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	66	0	12	0	25	0	29	0	17	0	38	0
Multi-Family	3	0	0	0	0	0	1	0	0	0	0	0
Other (commercial, mixed-use, etc.)	3	0	1	0	2	0	0	0	2	0	2	0
Total Permits Issued	72	0	13	0	27	0	30	0	19	0	40	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												



None Anticipated

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.25.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Township of Woolwich's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Woolwich has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.25-1. Township of Woolwich Hazard Area Extent and Location Map 1

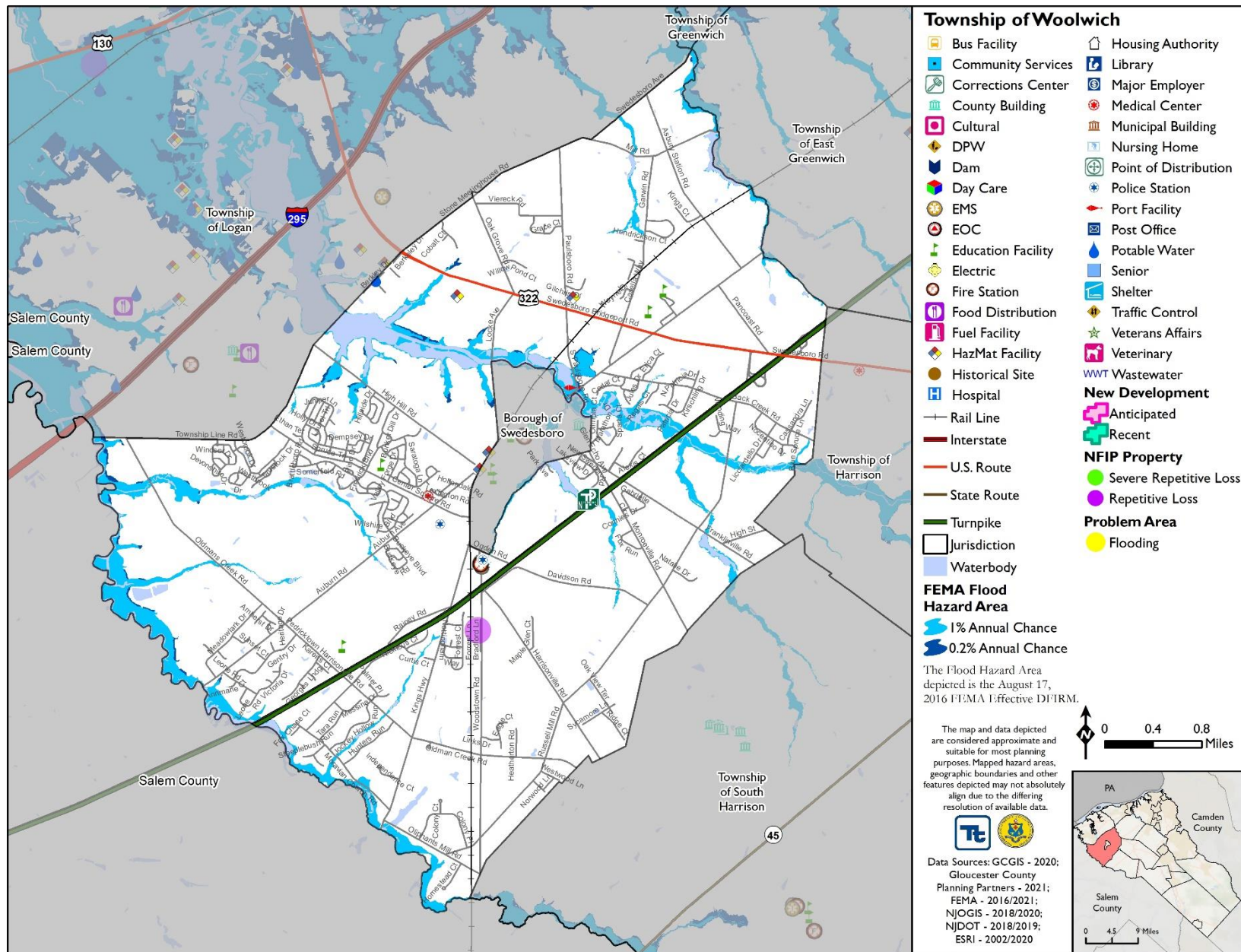






Figure 9.25-2. Township of Woolwich Hazard Area Extent and Location Map 2

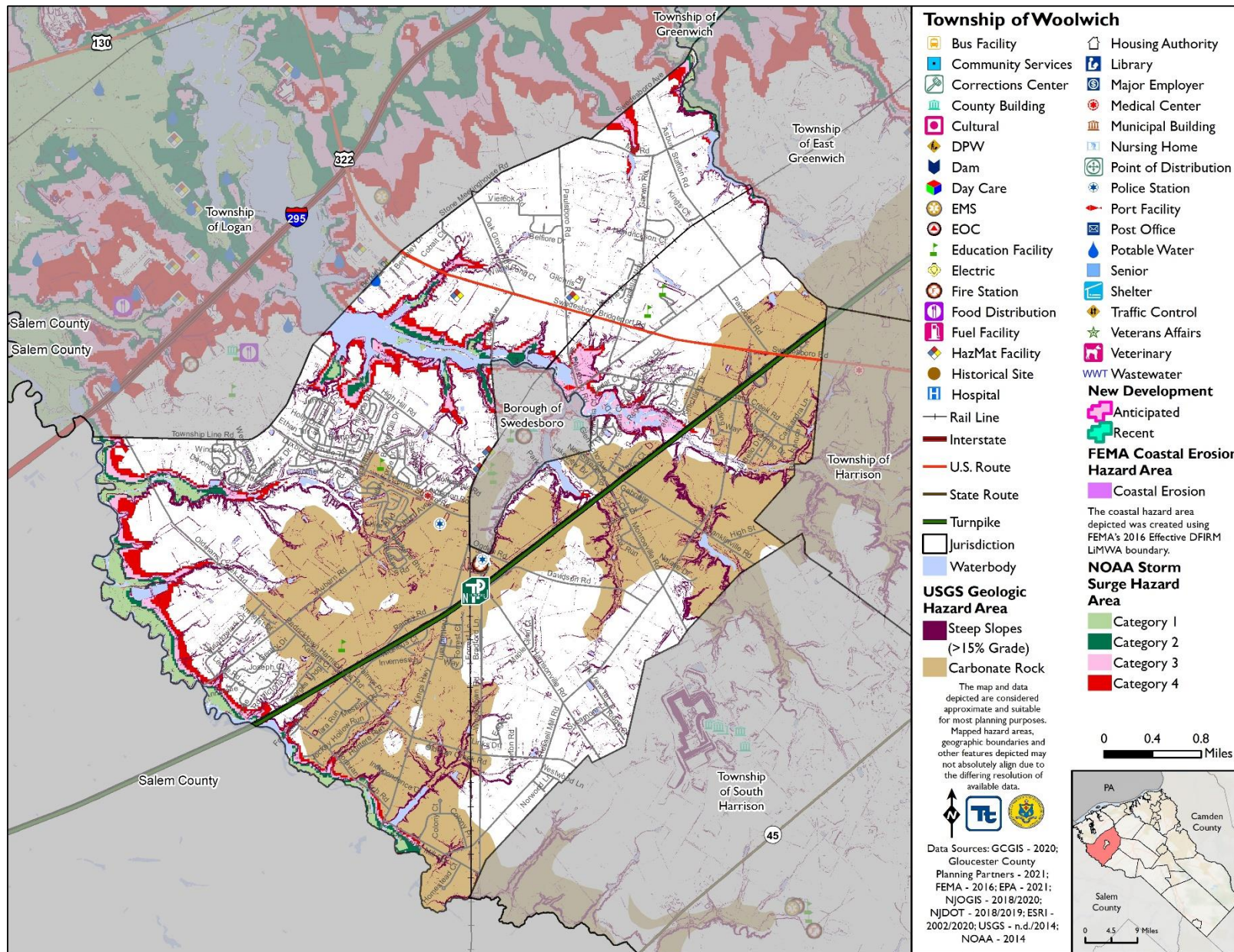






Figure 9.25-3. Township of Woolwich Hazard Area Extent and Location Map 3

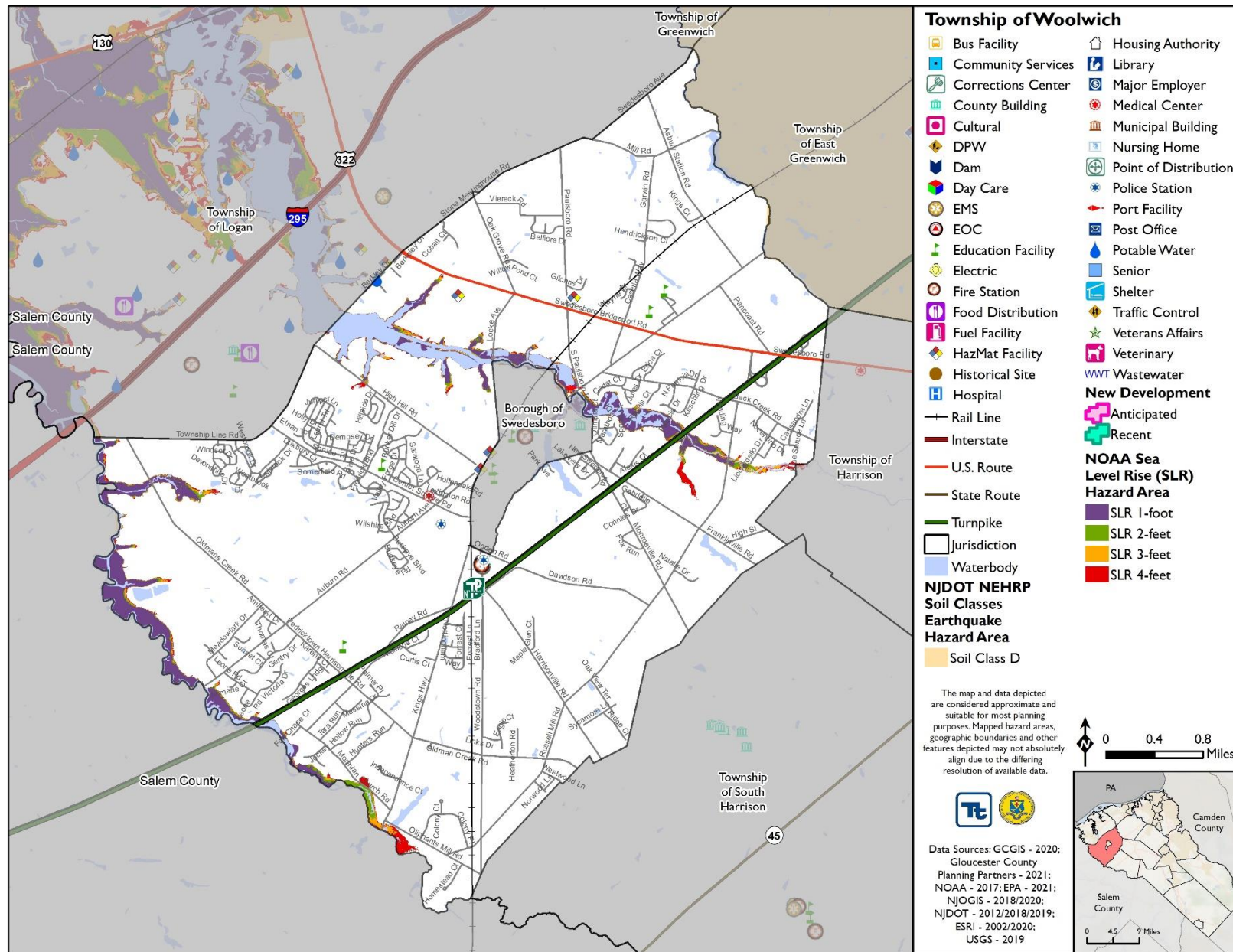
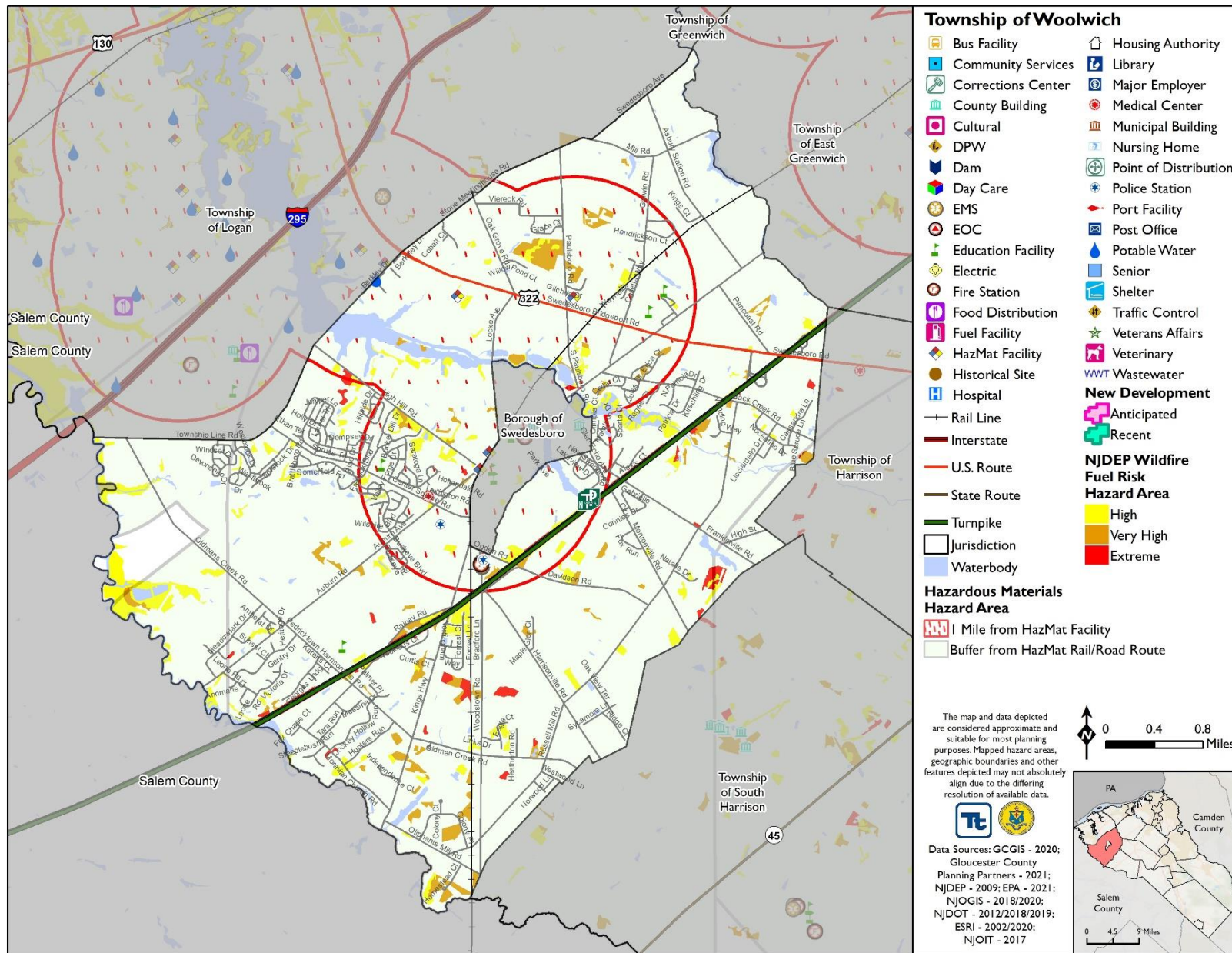






Figure 9.25-4. Township of Woolwich Hazard Area Extent and Location Map 4





### 9.25.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

The Township of Woolwich's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the Township experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.25-11. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	Although the County was impacted, the Township did not report damages.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	Although the County was impacted, the Township did not report damages.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	Although the County was impacted, the Township did not report damages.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	Although the County was impacted, the Township did not report damages.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	The Township was subject to closures and social distancing/masking requirements.



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
August 4, 2020 and August 7, 2020	Tropical Storm Isaias	Yes	On August 4, 2020 TS Isaias moved through the region dropping significant rain throughout Woolwich Township. A subsequent storm moved through the area on August 7, 2020 bringing additional rainfall that was unable to properly drain into already overflowing waterways and storm sewers.	Roadway and drainage areas resulted.

### 9.25.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Identification of Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Township of Woolwich's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Woolwich. The Township of Woolwich reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- The Township agreed with the calculated hazard rankings.

*Table 9.25-12. Hazard Ranking Input*

Coastal Erosion	Dam/ Levee	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Low	Medium	Low	Medium	Low

Geologic	Hazardous Materials	Hurricane	Invasive Species	Nor'Easter	Severe Weather
Low	High	Low	Low	Medium	High



Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.25-13. Potential Flood Losses to Critical Facilities

Name	Type	Lifeline?	Exposure		Comment
			1% Event	0.2% Event	
Thompson Point NJ and Vicinity	Port Facility	X	X	X	-

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.25.6.3 Identified Issues

After review of the Township of Woolwich's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Township of Woolwich has identified the following vulnerabilities within their community:

- Oliphant's Mill Dam is degraded and requires rehabilitation to prevent failure. Failure would impact at least one property. The dam is privately owned but the Township will work to assist the property owner as failure would impact Oliphant's Mill Road.
- High Hill Road floods during heavy rains and with high tides. There some coastal flooding impacts.
- The Township has one repetitive loss property.
- Dryden Driving Bridge at Russell Mill Road and Winding Way is an older bridge that will eventually need replacement at a higher standard.
- The Flood Damage Prevention Ordinance requires update.
- The Township lacks a Disaster Debris Management Plan.

## 9.25.7 Mitigation Strategy and Prioritization

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



### 9.25.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.25-14. Status of Previous Mitigation Actions

2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
MJ-1	Alleviate flooding at High Hill Road.	Municipal OEM, Gloucester County DPW	No Progress; floods during heavy rains up to a foot, some coastal flooding impacts.	X	2022-Woolwich-002
MJ-2	Floodwalls for High Hill Road and Moravian Road.	Municipal OEM, Gloucester County DPW	No Progress. Other methods of ingress/egress are available when flooding does occur in rare instances. Floodwalls would not be cost effective.		
MJ-3	Alleviate flooding at Woodstown Road at Salem County border.	Municipal OEM, Gloucester County DPW, Salem County DPW	No Progress. Not a large concern.		
MJ-4	Alleviate flooding at Kings Highway County Line Bridge.	Municipal OEM, Gloucester County DPW, Salem County DPW	No Progress. Not a large concern.		
MJ-5	Critical facilities protection / hazard threat recognition of HazMat (Grasso Foods Inc is the largest pepper packing plant in the country. Services all 50 state & designated a Tier I facility).	Municipal OEM, Grasso Foods Inc	Ongoing Capability. Company is very cooperative with the Township and shares information regularly.		
M-01	Identify and pursue outreach and education opportunities	Municipal OEM	Ongoing Capability		
M-02	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Ongoing Capability		
M-03	Prioritize recurrent drainage problem areas and initiate data collection to track unreimbursed damages and related response and recovery expenses.	Municipal OEM and Municipal Working Group	Ongoing Capability		
M-04	Conduct Regular Municipal Working Group Meetings	Municipal OEM and Municipal Working Group	Ongoing Capability		
M-05	Upgrade back-up emergency power generator at Governor Charles C. Stratton School (CF-9).	Municipal OEM, Public Works Department, School Board	In Progress		
M-06	Upgrade back-up emergency power generator at General Charles G. Harker School (CF-10).	Municipal OEM, Public Works Department, School Board	In Progress		



2016 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2022 HMP? Check if Yes	Enter 2022 HMP Action #
M-07	Upgrade back-up emergency power generator at Kingsway Regional Middles School (CF-11).	Municipal OEM, Public Works Department, School Board			
M-08	Upgrade back-up emergency power generator at Kingsway Regional High School (CF-12).	Municipal OEM, Public Works Department, School Board			
M-09	Assessment of two private dams	Municipal OEM, Public Works, Private Owners	In Progress. Pursuing Oliphant's Mill Dam.	x	2022-Woolwich-004
M-10	Elevation / acquisition of home on Liscardello Drive.	Floodplain Administrator and Private Owners	Complete. No longer on RL list.		
M-11	Upgrade Dryden Driving Bridge at Russell Mill Road and Winding Way.	Municipal OEM, Public Works Department	No Progress. Older bridge will eventually need replacement at higher standard.	X	2022-Woolwich-001





### 9.25.7.2 Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.25-14, the Township did not undertake any additional mitigation efforts in the last five years.

### 9.25.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Township of Woolwich participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.25-15. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion	X									X
Dam/ Levee	X	X							X	X
Disease Outbreak	X									X
Drought	X									X
Earthquake	X									X
Ext Temp	X									X
Flood	X	X			X	X			X	X
Geologic	X									X
Hazmat	X									X
Hurricane	X	X				X				X
Invasive	X									X
Nor'Easter	X	X				X				X
Severe Weather	X	X				X				X
Severe Winter Weather	X									X
Wildfire	X									X
Utility Failure	X									X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.25-16) summarizes the comprehensive range of specific mitigation initiatives the Township of Woolwich 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 9.25-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.25-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets ?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Woolwich-001	Oliphant's Mill Dam	<p><b>Problem:</b> Oliphant's Mill Dam is degraded and requires rehabilitation to prevent failure. Failure would impact at least one property. The dam is privately owned but the Township will work to assist the property owner as failure would impact Oliphant's Mill Road.</p> <p><b>Solution:</b> The Township will work with the private owner to provide input on necessary repairs and improvements, secure funding, and implement the desired actions.</p>	Existing	Dam Failure, Flood	1, 2, 7	Township of Woolwich OEM, Engineer, private property owner	HMGP, BRIC, Rehabilitation of High Hazard Dam Program, private owner	Dam failure avoided, meet safety requirements	High	1 year	High	SIP	SP
2022-Woolwich-002	High Hill Road	<p><b>Problem:</b> A section of High Hill Road floods during heavy rains and with high tides.</p> <p><b>Solution:</b> The Township will complete an engineering study to determine if raising the elevation of High Hill Road is possible. Roadway raising would need to take place without increasing the runoff and flooding risk to adjacent private properties. If roadway raising is able to be implemented and is cost-effective, the Township will complete the action.</p>	Existing	Severe Weather, Flood, Nor'Easter, Hurricane	1	Engineer	FEMA HMGP, BRIC, Township budget	Reduction in flooding frequency	TBD by engineering study	Within 5 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets ?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Woolwich-003	Repetitive Loss Mitigation	<p><b>Problem:</b> Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 1 repetitive loss property, but other properties may be impacted by flooding as well.</p> <p><b>Solution:</b> Conduct outreach to 10 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).</p>	Existing	Severe Weather, Flood	1, 2, 3	NFIP Floodplain Administrator, supported by homeowners	FEMA HMGP and FMA, local cost share by residents	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.	\$1 Million	3 years	High	SIP	PP
2022-Woolwich-004	Dryden Driving Bridge	<p><b>Problem:</b> Dryden Driving Bridge at Russell Mill Road and Winding Way is an older bridge that will eventually need replacement at a higher standard.</p> <p><b>Solution:</b> The Engineer will identify design deficiencies and assess and carry out replacement or retrofit of the Dryden Driving Bridge.</p>	Existing	Severe Weather, Flood	1, 2	Engineer	FEMA HMGP, BRIC, Township budget	Reduces flood risk to life, maintain access for emergency services	High	Within 5 years	High	SIP	PP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets ?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-Woolwich-005	Flood Damage Prevention Ordinance Update	<p><b>Problem:</b> The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p><b>Solution:</b> The Township will update the flood damage prevention ordinance using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>	New	Flood	1, 2	FPA, Administration	Township budget	Meet state and FEMA standards for flood damage prevention, reduce flood risk on new development	Staff time	6 months	Medium	LP R	PR
2022-Woolwich-006	Disaster Debris Management Plan	<p><b>Problem:</b> The Township lacks an adopted Disaster Debris Management Plan.</p> <p><b>Solution:</b> The Township will complete and adopt the in-progress Disaster Debris Management Plan.</p>	Existing	All Hazards	5	OEM	Township budget	Increased planning for post-disaster response and cleanup.	Staff time	6 months	High	LP R	ES

Notes:

Not all acronyms and abbreviations defined below are included in the table.



**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.25-17. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Woolwich-001	Oliphant's Mill Dam	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2022-Woolwich-002	High Hill Road	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Woolwich-003	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2022-Woolwich-004	Dryden Driving Bridge	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2022-Woolwich-005	Flood Damage Prevention Ordinance Update	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2022-Woolwich-006	Develop Disaster Debris Management Plan	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

**!** This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.





## 9.25.8 Action Worksheets

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The following action worksheets have been developed by the Township of Woolwich to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Oliphant's Mill Dam		
<b>Project Number:</b>	2022-Woolwich-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Dam Failure, Flood		
<b>Description of the Problem:</b>	Oliphant's Mill Dam is degraded and requires rehabilitation to prevent failure. Failure would impact at least one property. The dam is privately owned but the Township will work to assist the property owner as failure would impact Oliphant's Mill Road.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Township will work with the private owner to provide input on necessary repairs and improvements, secure funding, and implement the desired actions.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	500-year flood	<b>Estimated Benefits (losses avoided):</b>	Dam failure avoided, meet safety requirements
<b>Useful Life:</b>	50 years	<b>Goals Met:</b>	1, 2, 7
<b>Estimated Cost:</b>	High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	1 year
<b>Estimated Time Required for Project Implementation:</b>	2 years	<b>Potential Funding Sources:</b>	HMGP, BRIC, Rehabilitation of High Hazard Dam Program, private owner
<b>Responsible Organization:</b>	Township of Woolwich OEM, Engineer, private property owner	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Repair Only	High	May result in continued future damages
	Remove Dam	High	Dam cannot be removed for safety reason.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Oliphant's Mill Dam	
<b>Project Number:</b>	2022-Woolwich-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project protects life from dam failure
Property Protection	1	Project protects property from dam failure
Cost-Effectiveness	1	
Technical	1	
Political	1	There is public support for the project
Legal	0	The Township requires the legal cooperation of the private owner to complete the project
Fiscal	0	The project requires funding support
Environmental	1	Prevents environmental damage that would be caused by dam failure
Social	1	
Administrative	1	
Multi-Hazard	1	Dam Failure, Flood
Timeline	1	1 year
Agency Champion	1	Township of Woolwich OEM, Engineer, private property owner
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
<b>Project Name:</b>	High Hill Road		
<b>Project Number:</b>	2022-Woolwich-002		
<b>Risk / Vulnerability</b>			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood, Nor'Easter, Hurricane		
<b>Description of the Problem:</b>	A section of High Hill Road floods during heavy rains and with high tides.		
<b>Action or Project Intended for Implementation</b>			
<b>Description of the Solution:</b>	The Township will complete an engineering study to determine if raising the elevation of High Hill Road is possible. Roadway raising would need to take place without increasing the runoff and flooding risk to adjacent private properties. If roadway raising is able to be implemented and is cost-effective, the Township will complete the action.		
<b>Is this project related to a Critical Facility?</b>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Level of Protection:</b>	Roadway raised	<b>Estimated Benefits (losses avoided):</b>	Reduction in flooding frequency
<b>Useful Life:</b>	15 years	<b>Goals Met:</b>	1, 2
<b>Estimated Cost:</b>	TBD by engineering study	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
<b>Plan for Implementation</b>			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	3 months	<b>Potential Funding Sources:</b>	FEMA HMGP, BRIC, Township budget
<b>Responsible Organization:</b>	Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard mitigation planning
<b>Three Alternatives Considered (including No Action)</b>			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Problem continues.
	Retreat from roadway end		
	Replace bulkhead but not raise road		Roadway flooding still likely
<b>Progress Report (for plan maintenance)</b>			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Brown's Lane	
<b>Project Number:</b>	2020-Bellport-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Project will allow for maintained emergency access during flooding events
Property Protection	1	Project will protect roadway from flood damage
Cost-Effectiveness	1	
Technical	1	The project is technically feasible
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	Severe Weather, Flood, Nor'Easter, Hurricane
Timeline	0	Within 5 years
Agency Champion	1	Engineer
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Repetitive Loss Mitigation		
<b>Project Number:</b>	2022-Woolwich-003		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	Frequent flooding events have resulted in damages to residential properties. These properties have been repetitively flooded as documented by paid NFIP claims. The Township has 1 repetitive loss property, but other properties may be impacted by flooding as well.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct outreach to 10 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).		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	1% annual chance flood event + freeboard ( <i>in accordance with flood ordinance</i> )	<b>Estimated Benefits (losses avoided):</b>	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
<b>Useful Life:</b>	Acquisition: Lifetime Elevation: 30 years (residential)	<b>Goals Met:</b>	1, 2, 3
<b>Estimated Cost:</b>	\$1 Million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	6-12 months
<b>Estimated Time Required for Project Implementation:</b>	Three years	<b>Potential Funding Sources:</b>	FEMA HMGP and FMA, local cost share by residents
<b>Responsible Organization:</b>	NFIP Floodplain Administrator, supported by homeowners	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	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)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Repetitive Loss Mitigation	
<b>Project Number:</b>	2022-Woolwich-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 Township 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 Township.
Administrative	0	
Multi-Hazard	1	Severe Weather, Flood
Timeline	0	
Agency Champion	1	NFIP Floodplain Administrator, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	





Action Worksheet			
<b>Project Name:</b>	Dryden Driving Bridge		
<b>Project Number:</b>	2022-Woolwich-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Severe Weather, Flood		
<b>Description of the Problem:</b>	Dryden Driving Bridge at Russell Mill Road and Winding Way is an older bridge that will eventually need replacement at a higher standard.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The Engineer will identify design deficiencies and assess and carry out replacement or retrofit of the Dryden Driving Bridge.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	• 500-year event	<b>Estimated Benefits (losses avoided):</b>	Infrastructure protected from hazard damages
<b>Useful Life:</b>	• 25 years	<b>Goals Met:</b>	
<b>Estimated Cost:</b>	• High	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 5 years
<b>Estimated Time Required for Project Implementation:</b>	Within 5 years	<b>Potential Funding Sources:</b>	FEMA HMGP, BRIC, Township budget
<b>Responsible Organization:</b>	Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Remove bridges and causeways	High	Loss of access
	Rebuild all bridges and causeways	High	Costly and unnecessary.
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Dryden Driving Bridge	
<b>Project Number:</b>	2022-Woolwich-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduces flood risk to life, maintain access for emergency services
Property Protection	1	Reduces damage risk to bridges and causeways
Cost-Effectiveness	1	Cost-effective project
Technical	1	Technically feasible project
Political	1	
Legal	1	The Township has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Severe Weather, Flood
Timeline	0	Within 5 years
Agency Champion	1	Engineer
Other Community Objectives	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



## 9.26 ROWAN UNIVERSITY

This section presents the jurisdictional annex for Rowan University and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the University and who participated in the planning process, an assessment of Rowan University's risk and vulnerability, the different capabilities used, and an action plan that will be implemented to achieve a more resilient community.

### 9.26.1 Hazard Mitigation Planning Team

Rowan University followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from several University departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. Representatives from the University 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 coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including Rowan University's hazard mitigation plan primary and alternate points of contact. 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 9.26-1. Hazard Mitigation Planning Team*

Primary Point of Contact	Alternate Point of Contact
Name/Title: Michael H. Kantner, Assistant VP OEM/DPS Address: 201 Mullica Hill Rd., Glassboro, NJ Phone Number: 856-256-4566 Email: kantner@rowan.edu	Name/Title: Steven Rolando, Associate Director OEM Address: 201 Mullica Hill Rd., Glassboro, NJ Phone Number: 856-256-4955 Email: rolando@rowan.edu
NFIP Floodplain Administrator	
Name/Title: Lorraine Sacchetti, Senior Director Risk Management Address: 201 Mullica Hill Rd., Glassboro, NJ Phone Number: 856-256-4128 Email: sacchetti@rowan.edu	



Name	Title	Method of Participation
Michael H. Kantner	Assistant VP OEM/DPS	Attended meetings, provided input throughout the planning process, identified mitigation actions
Steven Rolando	Associate Director OEM	Provided input throughout the planning process

## 9.26.2 Municipal Profile

Rowan University was founded in 1923, starting as a teacher preparation college to now a regional university. Rowan offers bachelor's through doctoral programs to nearly 20,000 students through its campuses in Glassboro, Camden and Stratford, New Jersey, and online. The University is made up of eight colleges and five schools. The main campus is located in the Borough of Glassboro.

Undergraduate and graduate student body totals 19,678 across all campuses.

- Undergraduate – 15,963 students
- Graduate – 2,466 students
- Professional/medical – 1,249 students

Rowan University sits at the headwaters of Chestnut Branch, a tributary to Mantua Creek. Mantua Creek, which eventually empties into the Delaware River, drains over 50 square miles of Gloucester County and is characterized by gently rolling, wood terrain dotted by small lakes. Chestnut Branch bisects the Rowan Campus. It enters on the eastern edge at Main Street, and then Bowe Boulevard acts as the downstream most boundary. Over the past 80 years, the campus and surrounding City of Glassboro have transitioned from a predominantly rural landscape of farms and peach orchards to mixed, medium density (suburban) development and urban land. This transition has increased the volume and rate of stormwater runoff from the watershed, due to an increase in impervious surfaces and improved drainage infrastructure (Rowan University Stormwater Management and Landscape Master Plan 2014).

## 9.26.3 Jurisdictional Capability Assessment and Integration

Rowan University performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 4 (Capability Assessment) 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 planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities



- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

### 9.26.3.1 Planning, Legal, and Regulatory Capability

Refer to the Borough of Glassboro's annex (Section 9.7) for information on planning, legal, and regulatory capabilities in the Borough. Rowan University did not provide anything in addition to what is captured in Section 9.7.

### 9.26.3.2 Development and Permitting Capability

Permitting is performed by the Borough of Glassboro. Refer to Section 9.7 for details on the permitting process in the Borough.

### 9.26.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to Rowan University and their current responsibilities which contribute to hazard mitigation.

*Table 9.26-2. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	No	-
Zoning Board of Adjustments	No	-
Planning Department	Yes	Rowan University Department of Planning and Real Estate - part of the Division of Facilities, Planning and Operations. Its mission is to plan and promote a safe, sustainable, healthy and visually appealing campus environment and aesthetic. The Department leads master planning and design processes for campus development, interior renovations, adaptive reuse and open space initiatives. It is also responsible for space planning and the management of related data for the University.
Mitigation Planning Committee	Yes	Rowan University VP Facilities, AVP OEM, and Assoc. Director OEM
Environmental Board/Commission	Yes	Rowan University Office of Environmental Health & Safety serves the University by promoting health, safety, environmental protection, and regulatory compliance.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Rowan University Facilities & Operations performs these tasks



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Construction/Building/Code Enforcement Department	Yes	Rowan University Facilities & Operations in conjunction with the State of New Jersey DCA is responsible for this function. This includes Rowan's Facilities Design & Construction, Facilities Planning & Real Estate, EHS and Fire Safety.
Emergency Management/Public Safety Department	Yes	Rowan University Department of Public Safety – provide numerous services through the following sections: Police, Security, Parking, Dispatch Center, Crime Prevention and the Office of Emergency Management. They focus on preventive patrols, crime prevention programming, and the physical establishment of Crime Prevention Through Environmental Design standards throughout our campuses. The department is dually accredited through the Commission on Accreditation of Law Enforcement Agencies (CALEA) and the International Association of Campus Law Enforcement Administrators (IACLEA).
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Rowan Alert – the University's mass notification system where students and staff can register to receive emergency text messages, warnings, and advisories. The University also posts weather emergencies and closings the website and social media. They also have a radio station that they use to make announcements.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Rowan University Department of Facilities Operations is responsible for the overall maintenance of Rowan University's three campuses. The Department provides daily maintenance and repair of existing facilities infrastructure, manages and maintains University landscaping and grounds, utilities, custodial services, and environmental health and safety issues.
Mutual aid agreements	Yes	MOUs with Glassboro PD and Glassboro FD
Human Resources Manual	No	-
Other	No	-
<b>Technical/Staffing Capability</b>		
Planners or engineers with knowledge of land development and land management practices	Yes	Rowan University Facilities & Operations has professionals that have knowledge of these practices.
Engineers or professionals trained in building or infrastructure construction practices	Yes	Rowan University employs project managers to oversee construction projects and well as seasoned employees with many years of experience in operating and maintain infrastructure
Planners or engineers with an understanding of natural hazards	Yes	Rowan University Facilities & Operations has professionals that have knowledge of these practices.
Staff with expertise or training in benefit/cost analysis	Yes	Rowan University Director of Financial Planning
Professionals trained in conducting damage assessments	Yes	Rowan University OEM and EHS have trained personnel.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Rowan University OEM and EHS have trained personnel.
Scientist familiar with natural hazards	No	
Surveyor(s)	No	
Emergency Manager	Yes	Through the Office of Emergency Management that provides information about communications and basic safety procedures to use in the event of an emergency that threatens public safety.
Grant writer(s)	Yes	Rowan University Grants & Contracts Analyst
Resilience Officer	Yes	Rowan University Lieutenant of Police
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Rowan University Asst. VP in Facilities & Operations

### 9.26.3.4 Fiscal Capability

The table below summarizes financial resources available to Rowan University.

*Table 9.26-3. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	No
Capital improvements project funding	Yes Rowan University Asst. VP in Facilities & Operations
Authority to levy taxes for specific purposes	N/A
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	N/A
Stormwater utility fee	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	N/A
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
<ul style="list-style-type: none"> <li>How do your fiscal capabilities contribute to risk reduction in your community? Fiscal planning for future events enhances risk reduction for Rowan University.</li> <li>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals. Rowan University Facilities &amp; Operations Department includes potential hazard mitigation actions in their fiscal budget.</li> <li>Annually, the jurisdiction will review mitigation actions when allocating funding.</li> </ul>	





Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<ul style="list-style-type: none"> <li>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? The University budget for projects is planned but changes can occur due to natural events.</li> <li>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Usually No, but is always assessed.</li> <li>Do budgets provide funding for hazard mitigation projects identified in the County HMP? Included in the Rowan University Annex when completing.</li> </ul>	

### 9.26.3.5 Education and Outreach Capability

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

*Table 9.26-4. Education and Outreach Capabilities*

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	Yes	Rowan University VP Media & Public Relations
Personnel skilled or trained in website development	Yes	Rowan University VP Media & Public Relations and Rowan's Information Resources & Technology Department.
Hazard mitigation information available on your website	Yes	Rowan University OEM website
Social media for hazard mitigation education and outreach	Yes	Rowan University VP Media & Public Relations
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Rowan University Facilities & Operations Committee
Other programs already in place that could be used to communicate hazard-related information	Yes	Due to the changing populations in student population during semesters, public notices can be issued bi-monthly via Rowan University Daily Mail system
Warning systems for hazard events	Yes	Rowan Alert – the University's mass notification system where students and staff can register to receive emergency text messages, warnings, and advisories. The University also posts weather emergencies and closings the website and social media. They also have a radio station that they use to make announcements.
Natural disaster/safety programs in place for schools	Yes	Rowan University Emergency Operations Plan
Other	No	-

### 9.26.3.6 Community Classifications

The table below summarizes classifications for community programs available to Rowan University.

*Table 9.26-5. Community Classifications*

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	NP	-	-



Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Building Code Effectiveness Grading Schedule (BCEGS)	NP	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	NP	-	-
Sustainable Jersey	NP	-	-
StormReady Certification	NP	-	-
Firewise Communities classification	NP	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

### 9.26.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.26-6. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion	Weak
Dam/ Levee	Weak
Disease Outbreak	Strong
Drought	Weak
Earthquake	Weak
Ext Temp	Moderate
Flood	Moderate
Geologic	Weak
Hazmat	Strong
Hurricane	Moderate
Invasive	Weak
Nor’Easter	Moderate
Severe Storm	Moderate
Severe Winter Storm	Strong
Wildfire	Weak
Utility Failure	Moderate

\*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.



## 9.26.4 National Flood Insurance Program (NFIP) Compliance

This is performed at the municipal level. Refer to Section 9.7 (Glassboro) for details on how the Borough implements their NFIP program.

## 9.26.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

*Table 9.26-7. Recent and Expected Future 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
<b>Recent Major Development and Infrastructure from 2016 to Present</b>					
Refer to the Glassboro Annex (Section 9.7)					
<b>Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years</b>					
Refer to the Glassboro Annex (Section 9.7)					

SFHA Special Flood Hazard Area (1% annual chance flood event)

\* Only location-specific hazard zones or vulnerabilities identified.

## 9.26.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Identification of Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for Rowan University's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below 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 adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which Rowan University has significant exposure. The maps also show the location of potential new development, where available.



Figure 9.26-1. Rowan University Hazard Area Extent and Location Map 1

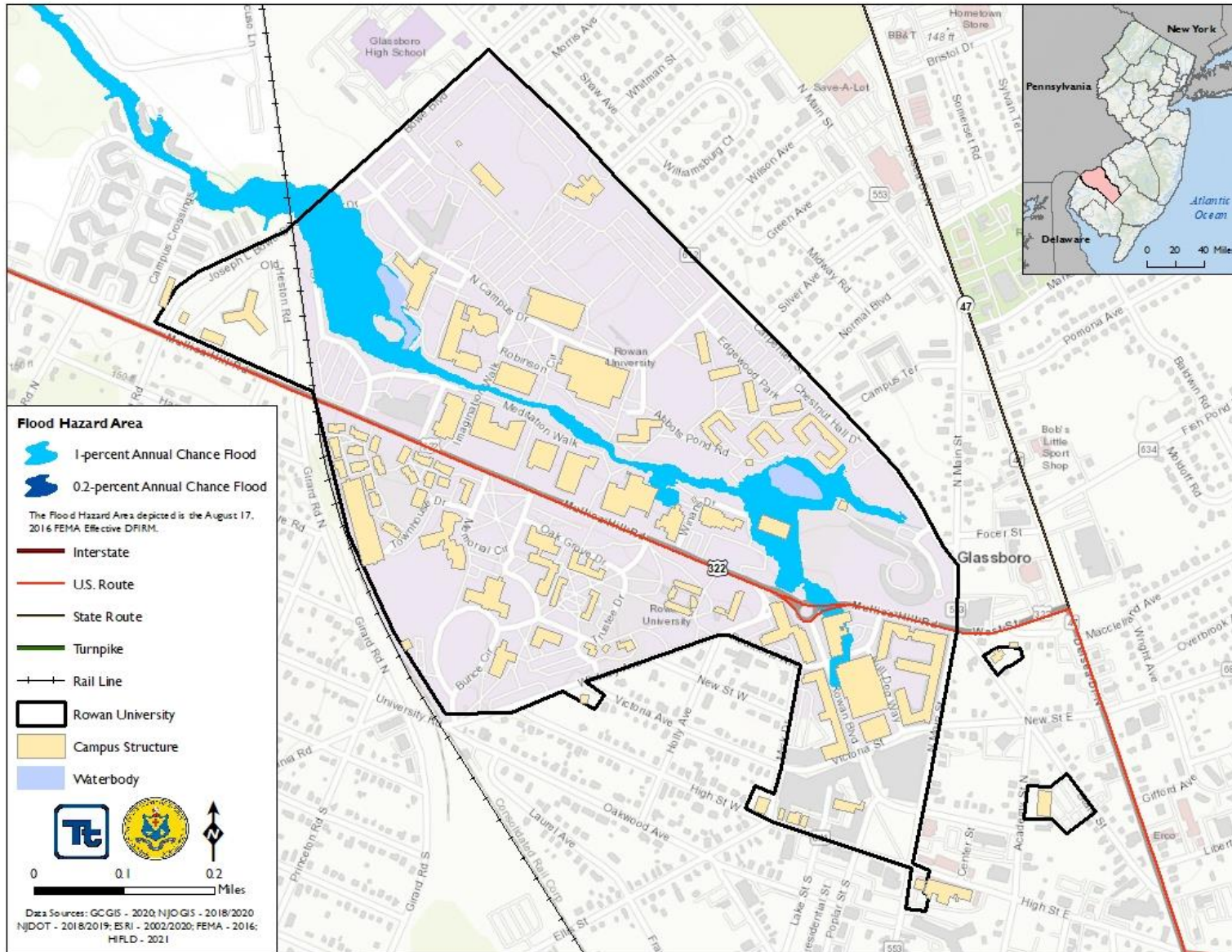
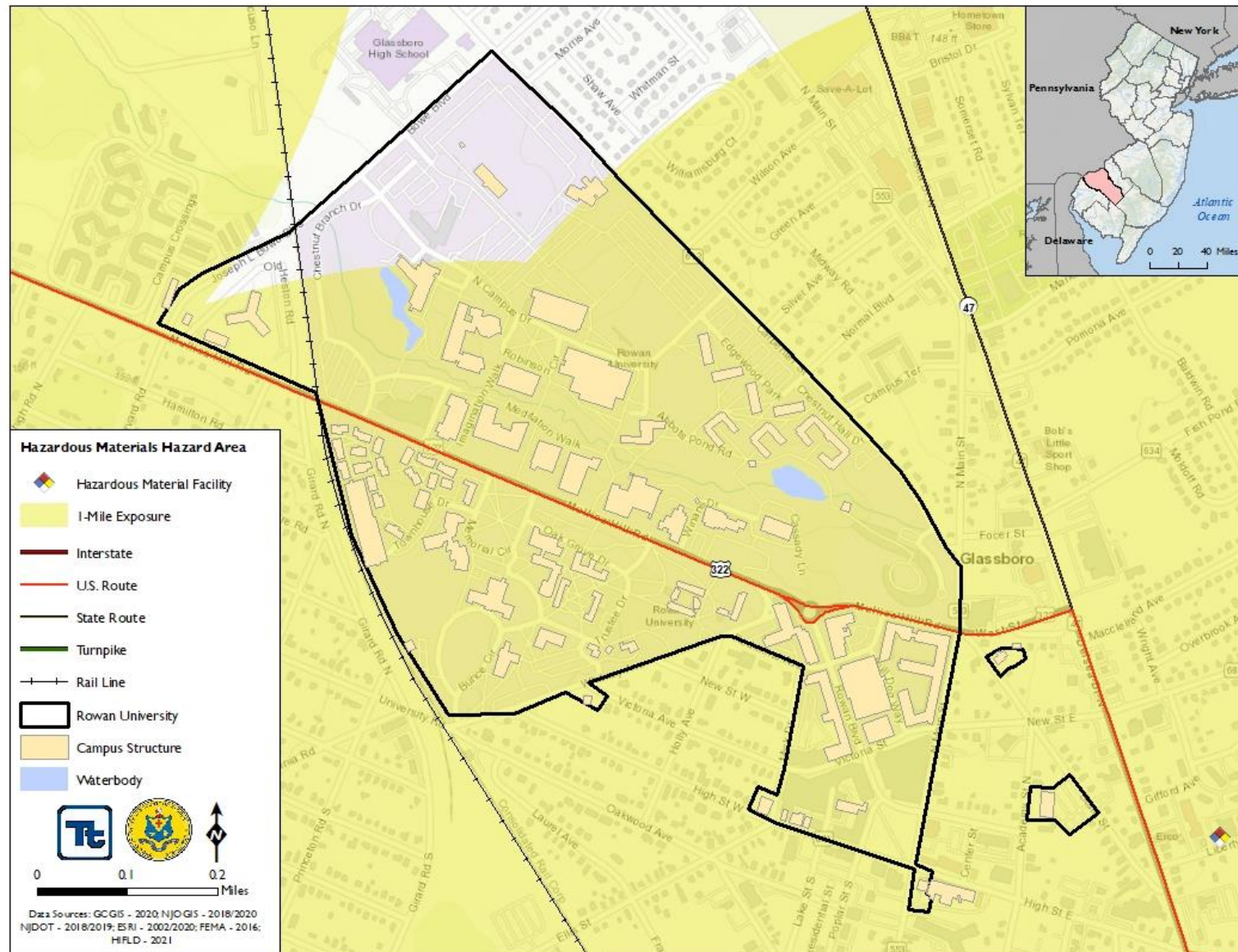






Figure 9.26-2. Rowan University Hazard Area Extent and Location Map 2



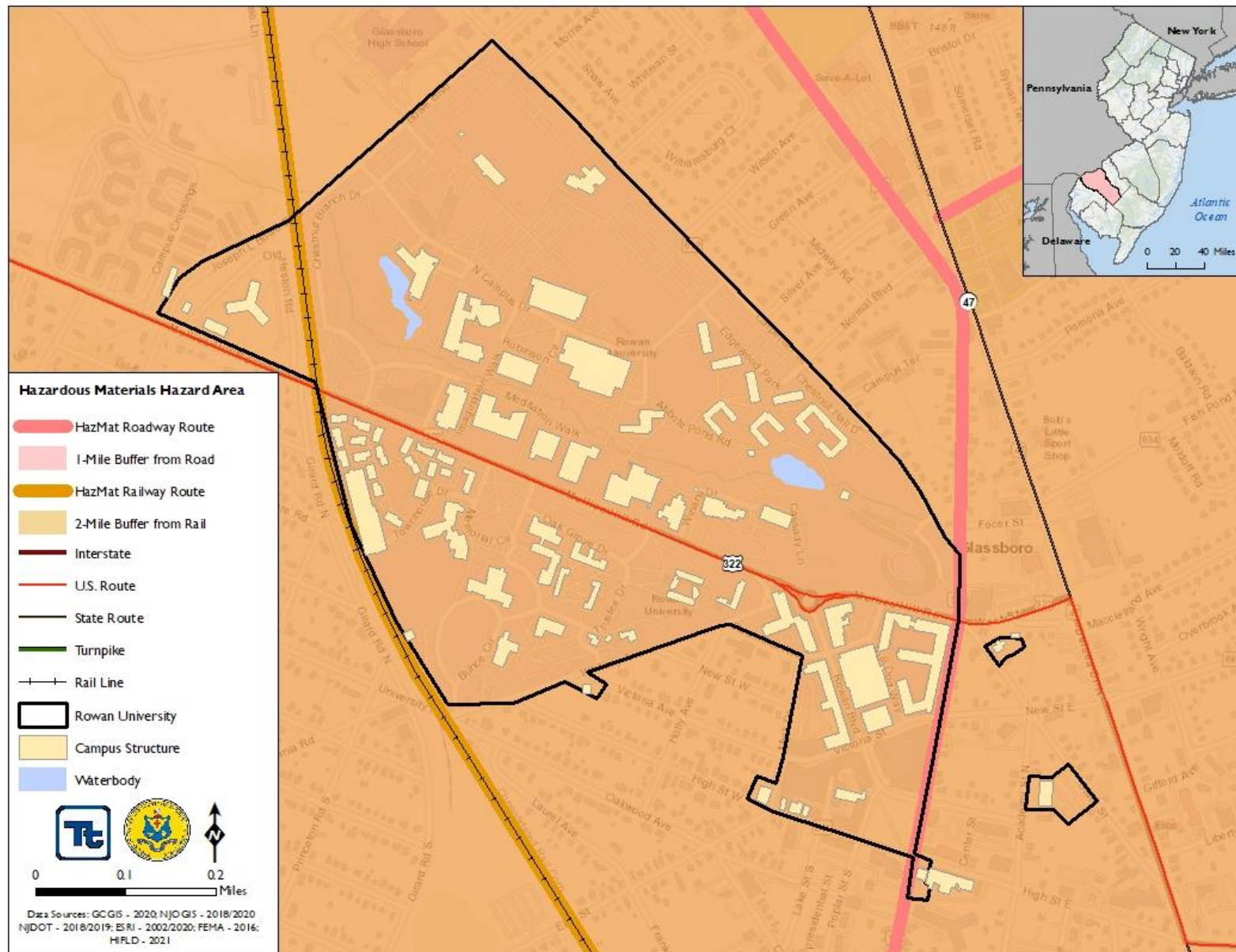






Figure 9.26-3. Rowan University Hazard Area Extent and Location Map 3

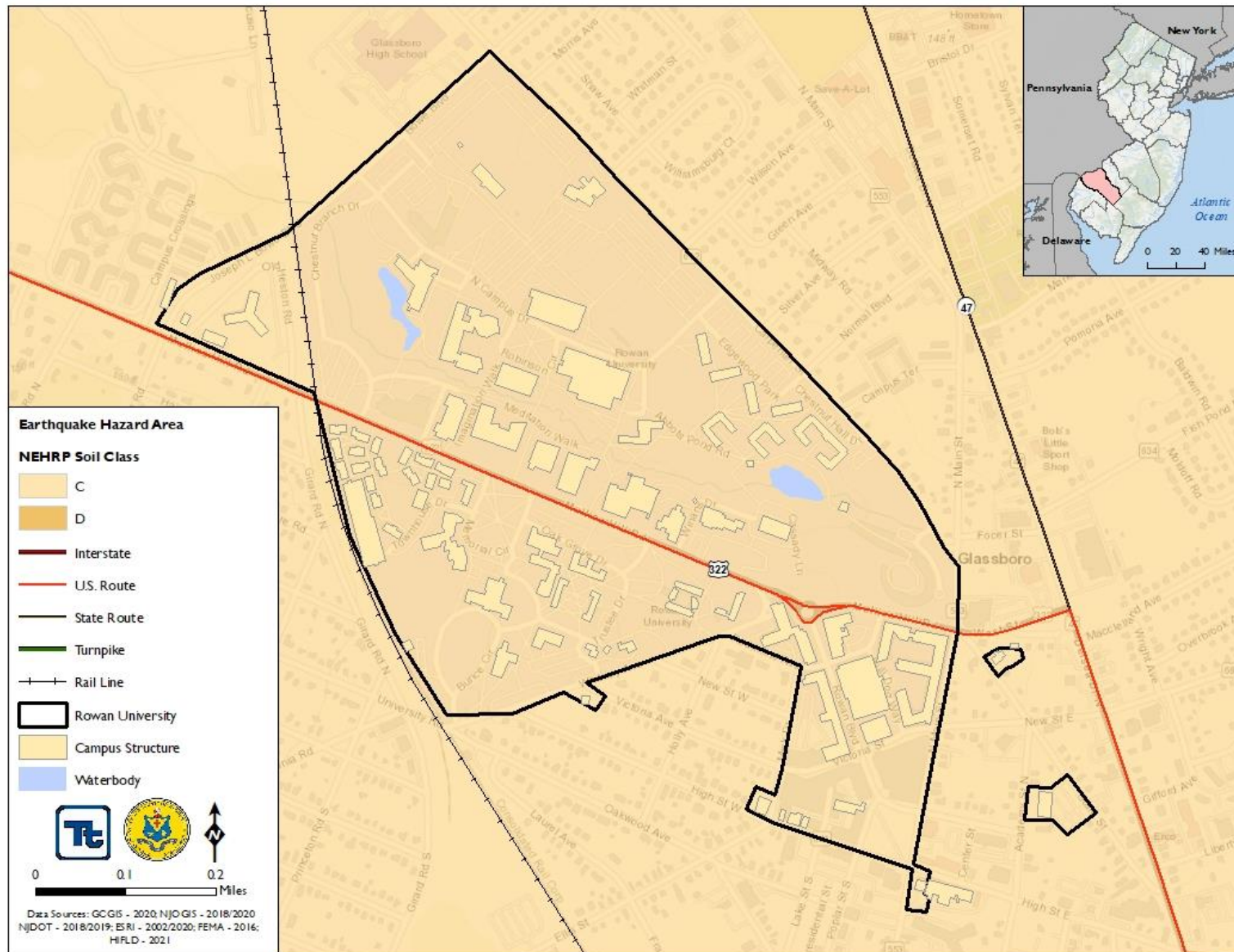






Figure 9.26-4. Rowan University Hazard Area Extent and Location Map 4

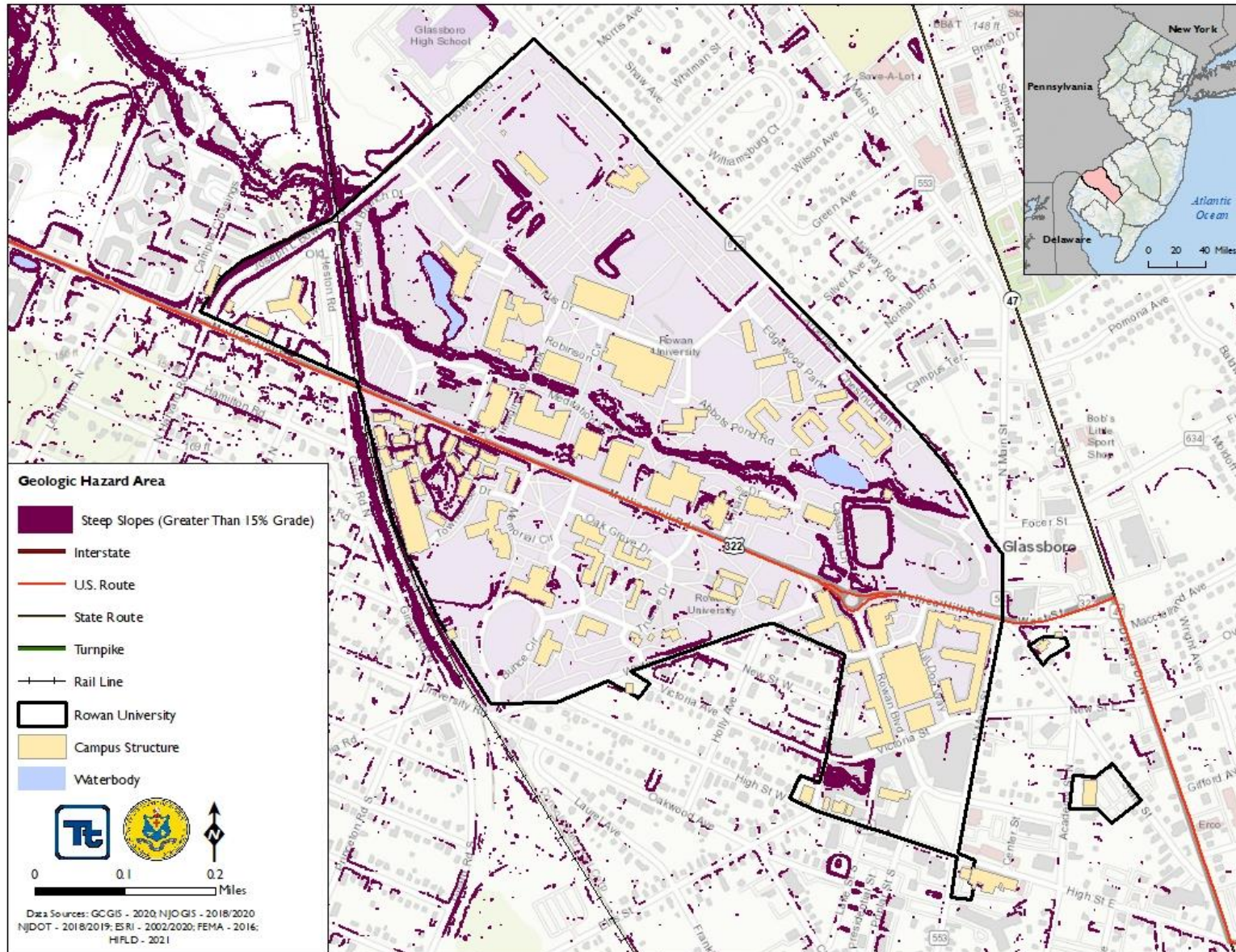
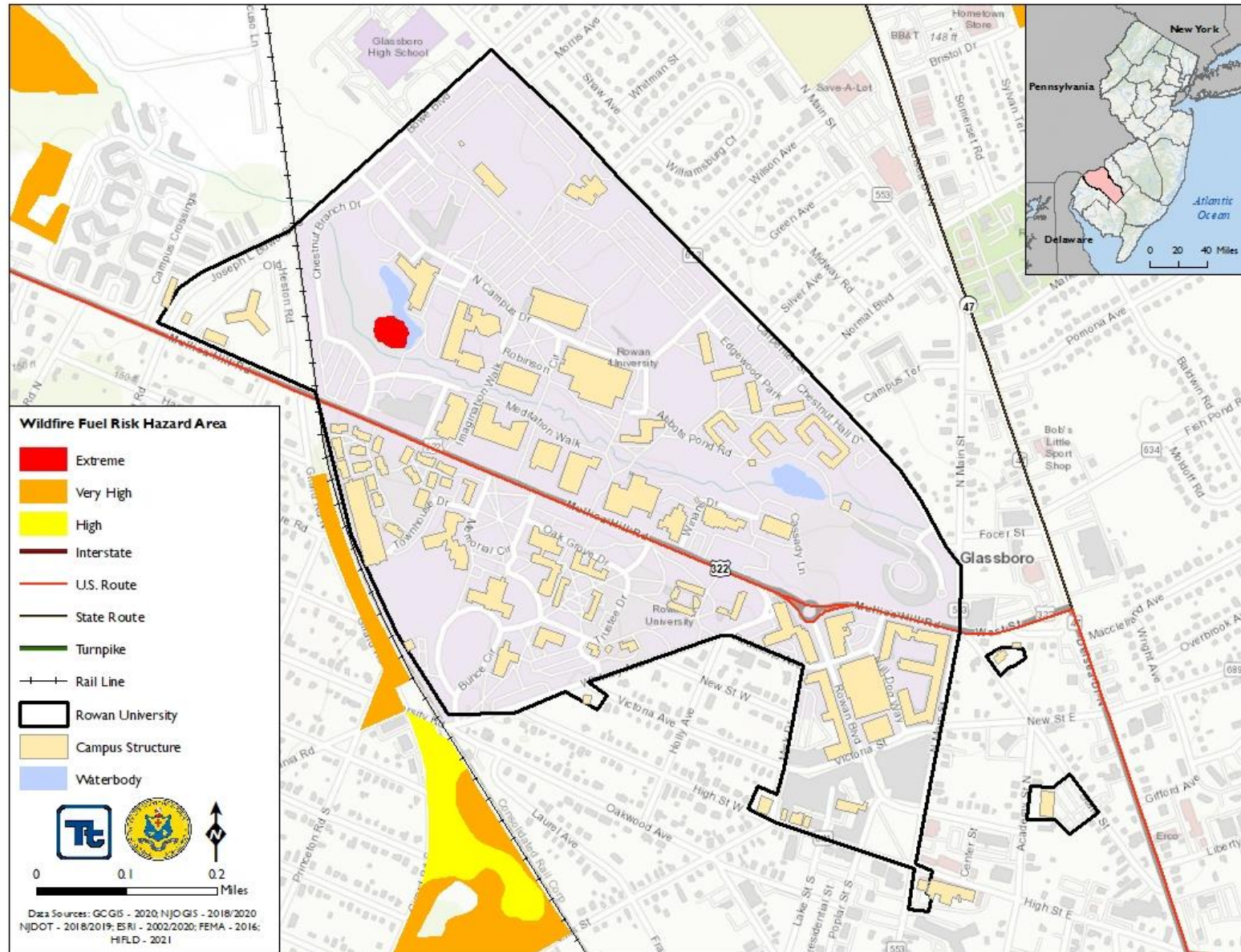
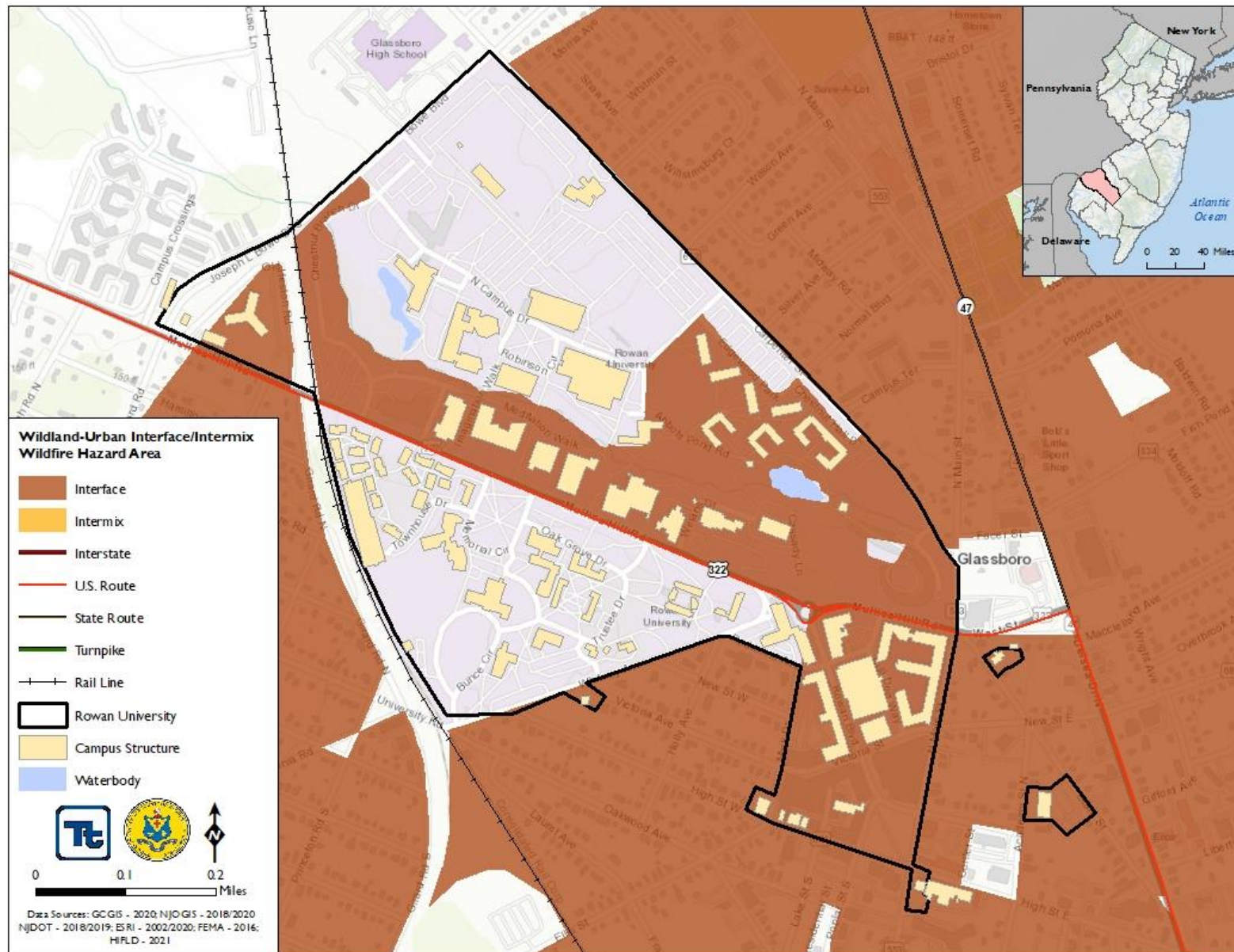






Figure 9.26-5. Rowan University Hazard Area Extent and Location Map 5









### 9.26.6.1 Hazard Event History

Gloucester County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the county and its municipalities.

Rowan University's history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Gloucester County. The table below provides details regarding municipal-specific loss and damages the University experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

*Table 9.26-8. Hazard Event History*

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	While this event impacted Gloucester County, the University did not experience damages or losses.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	In Gloucester County, the Red Cross opened two comfort stations. Wind damage was most severe between Greenwich Township and Mantua Township. Lightning struck a refinery in Paulsboro, causing a loss of power and off-gas. In Wenonah, wind damage knocked down several massive oak trees. In Mantua, the microburst knocked down an estimated 2,800 trees and 100 poles. The Township's Fire Department building was severely damaged. Wind also knocked down power poles in East Greenwich along Kings Highway. Roads throughout East Greenwich were impassable. Damage was estimated at \$10 million.	While this event impacted Gloucester County, the University did not experience damages or losses.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	Snow totals in Gloucester County included 21 inches in Deptford, 20.9 inches in Pitman, 17.5 inches in Turnersville, 14.5 inches in Williamstown, and one foot in Mullica Hill.	While this event impacted Gloucester County, the University did not experience damages or losses.
March 6, 2018	Winter Storm	No	Gloucester County was hit with isolated heavy snow, with totals ranging from five inches in Pitman to 6.5 inches in West Deptford.	While this event impacted Gloucester County, the University did not experience damages or losses.



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
August 7, 2019	Severe Rain event	No	A quick storm resulted in flooding in Rowan Hall and Westby Hall, causing remediation from our on call vendor	While this event impacted Gloucester County, the University did not experience damages or losses.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Between March 1, 2020 and March 15, 2021, Gloucester County reported 21,065 confirmed cases of COVID-19, and 530 total fatalities.	Rowan University had no COVID-19 related fatalities
September 1-3, 2021	Hurricane Ida (DR-4614)	Yes	On September 1st, Gloucester County and surrounding areas received a tornado warning issued by the NWS telling people to move indoors, to stay away from windows and avoid traveling. Shortly after, the tornado touched down in Mullica Hills, Woodbury Heights, Deptford, and West Deptford. It was a confirmed EF-3 tornado with winds of up to 150 mph. Over 90,000 residents were without power statewide. In addition to the devastating tornado, the County experienced rainfall totals ranging from 1.6 inches to 2 inches. The Delaware River at Washington Street (just north of Gloucester County) crested 9.69 feet on September 1st (moderate flood stage).	While this event impacted Gloucester County, the University did not experience damages or losses.

### 9.26.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes Rowan University's risk assessment results and data used to determine the hazard ranking.

#### Hazard Ranking

This section provides 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 4 (Risk Assessment) 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 participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for Rowan University. Rowan University reviewed



the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the University indicated the following:

- Disease Outbreak – the University adjusted the ranking from low to high due to the student population that creates a potentially higher transmission rate during pandemics.
- Extreme Temperature – the University adjusted the ranking from medium to high based on the increase in average temperatures that puts a strain on existing infrastructure.
- Hurricane – the University adjusted the ranking from low to medium due to the increase in severe weather events and the fact that coastal storms are impacting areas further inland.
- Wildfire – the University adjusted the ranking from medium to low because there are minimum areas exposed to wildfires; however, there is always risk.
- Utility Failure – the University adjusted the ranking from medium to high because it is one of the greatest risk to its aging utility infrastructure. There is outdated design and equipment that struggles to meet the current demand.

Table 9.26-9. Hazard Ranking Input

Coastal Erosion / Sea Level Rise	Dam / Levee Failure	Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood	Geologic	Hazardous Materials
Low	Low	High	Medium	Low	High	Low	Low	Medium

Hurricane / Tropical Storm	Invasive and Nuisance Species	Nor'Easter	Severe Weather	Severe Winter Weather	Wildfire	Utility Failure
Medium	Low	Medium	High	Medium	Low	High

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

## Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.26-10. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Comment
		1% Event	0.2% Event	
ROWAN UNIVERSITY	Post-Secondary Education	X	X	2022-Rowan-001 and 005
ROWAN UNIVERSITY	Post-Secondary Education	X	X	2022-Rowan-001 and 005
ROWAN UNIVERSITY	Post-Secondary Education	X	X	2022-Rowan-001 and 005



Name	Type	Exposure		Comment
		1% Event	0.2% Event	
ROWAN UNIVERSITY	Post-Secondary Education	X	X	2022-Rowan-001 and 005

Source: Gloucester County Planning Partners - 2021; HIFLD - 2020; EPA - 2021; FEMA 2016

### 9.26.6.3 Identified Issues

After review of Rowan University's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, Rowan University has identified the following vulnerabilities within their community:

- Campus/utility infrastructures underground utility distribution systems are aged and in need of repair or replacement across campus
- Response to large-scale/cumulative environmental emergencies. Preparedness essential
- The University experiences severe weather emergencies throughout the year. Damages and impacts vary with each storm event; however, current policies and procedures do not always address specific events.
- Utility failures that impact the University lead to disruption in services throughout campus and can limit emergency response.
- Several university buildings are located in the floodplain. During heavy rain events, the buildings are at increased risk of flooding and being damaged.
- S curve outfall pipes – Area experienced flooding during severe storms
- Triad parking lot inlet – Occasional flooding
- As a large university, there is a change in population and students each semester. If the students are new to the university, they may not know the emergency procedures for the campus or how to get emergency notifications.

## 9.26.7 Mitigation Strategy and Prioritization

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

### 9.26.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 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 are discussed in the 'Capability Assessment' presented previously in this annex.





Table 9.26-11. Status of Previous Mitigation Actions

2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Check if Yes	Include in the 2022 HMP? Enter 2022 HMP Action #
MJ-1	Alleviate flooding at Triad Hall Apartments (pending recommendations in Rowan University SWM Master Plan).	Rowan University OEM, Glassboro Borough	No Progress - Stormwater back-up issue; stormwater backs up and floods into lower level of Triad Building; \$50,000/incident. The University does not have jurisdiction over this issue. It is the responsibility of Glassboro, Gloucester County and NJDEP.	-	-
MJ-2	Alleviate flooding at Recreation Center (pending recommendations in Rowan University SWM Master Plan).	Rowan University OEM, Glassboro Borough	Ongoing Capability – the University installed inlets to retention basins	-	-
MJ-3	Alleviate flooding at Chestnut Hall Parking Lot (pending recommendations in Rowan University SWM Master Plan).	Rowan University OEM, Glassboro Borough, Gloucester County	No Progress - Glassboro stormwater system becomes overwhelmed by volume of water; spills into the parking lot of Chestnut Hall. The University does not have jurisdiction over this issue. It is the responsibility of Glassboro.	-	-
MJ-4	Improve conveyance and retention in Chestnut Branch Creek and S-Curve Road (pending recommendations in Rowan University SWM Master Plan).	Rowan University OEM, Glassboro Borough	Ongoing Capability – the University is working on green infrastructure projects to slow down water to the creek and decrease impermeable surfaces.	-	-
MJ-5	Identify potential watershed improvements to reduce storm water inflow and/or increase storm water outflow from Rowan University Main Campus	Rowan University OEM, Neighboring Municipalities, Gloucester County, New Jersey	Ongoing Capability – the University is following recommendations of the Stormwater Management Plan.	-	-
M-1	Identify and pursue outreach and education opportunities.	Rowan University OEM	Ongoing Capability – the University exploring possible communication and training tools to work with public & employees.	-	-
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Rowan University Facilities and Operations and Facility Managers	Ongoing Capability – the University is following recommendations of the Stormwater Management Plan.	-	-
M-3	Conduct regular Working Group meetings.	Rowan University OEM and Working Group	Ongoing Capability - EHS meets with OEM; and University Stormwater Team meets periodically.	-	-
M-4	Install campus-wide surveillance camera system	Rowan University Public Safety and Rowan University Information Systems	Complete using University funds	-	-



2017 Action Number and Action Description		Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Check if Yes	Include in the 2022 HMP? Enter 2022 HMP Action #
M-5	Alleviate ground water infiltration in steam distribution system manholes.	Rowan University Facilities and Operations	Ongoing Capability - Water infiltration into manholes and piping causes damage to valves and pipes; est \$100K/incident; the University performs ongoing replacement	-	-
M-6	Alleviate flooding at College of Osteopathic Medicine parking lot.	Rowan University Facilities and Operations	N/A (Camden County)	-	-
M-7	Install Fuel Containment at Fueling Station for Campus Vehicles	Rowan University Facilities and Operations	Complete using University Funds of \$35,000; compliant fuel tank was built at new location	-	-



### 9.26.7.2 Additional Mitigation Initiatives

In addition to the mitigation initiatives completed in Table 9.26-14, Rowan University identified the following mitigation efforts completed over the last five years:

- County/Glassboro installed new storm drainage configuration from Rowan Blvd and surrounding streets and increase drainage to Retention Basin south of Hollypointe.
- There are stormwater management practices on campus in the form of wet ponds, underground storage, and bio-infiltration swales. This helps mitigate runoff in upland areas prior to discharging to Chestnut Branch.
- The University is constantly upgrading their camera system to increase security throughout the campus.

### 9.26.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

Rowan University participated in a mitigation action workshop in August 2021 and was provided 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).

The table below indicates the range of proposed mitigation action categories.

*Table 9.26-12. Analysis of Mitigation Actions by Hazard and Category*

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion and Sea Level Rise	X	X		X		X	X		X	X
Dam/ Levee Failure	X	X		X		X	X		X	X
Disease Outbreak	X	X		X		X	X		X	X
Drought	X	X		X		X	X		X	X
Earthquake	X	X		X		X	X		X	X
Extreme Temp	X	X		X		X	X		X	X
Flood	X	X		X		X	X		X	X
Geologic	X	X		X		X	X		X	X
Hazardous Materials	X	X		X		X	X		X	X
Hurricane / Tropical Storm	X	X		X		X	X		X	X
Invasive and Nuisance Species	X	X		X		X	X		X	X
Nor'Easter	X	X		X		X	X		X	X
Severe Storm	X	X		X		X	X		X	X
Severe Winter Storm	X	X		X		X	X		X	X
Wildfire	X	X		X		X	X		X	X
Utility Failure	X	X		X		X	X		X	X

*Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.*

The table below (Table 9.26-13) summarizes the comprehensive range of specific mitigation initiatives Rowan University 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 9.26-14 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.26-13. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2022-Rowan-001	Infrastructure Improvements	<p><b>Problem:</b> Campus/utility infrastructures Underground utility distribution systems are aged and in need of repair or replacement across campus</p> <p><b>Solution:</b> Projects to upgrade areas of concern Replace damaged underground distribution piping – Completion expected Summer 2022</p>	Existing	All	1, 2, 5	Estimated completion Summer 2022	Rowan University and on call contractors	University Budget; FEMA BRIC	Increased reliability of utility distribution system	\$2.0 M	High	SIP	PP, SP
2022-Rowan-002	Environmental Emergencies	<p><b>Problem:</b> Response to large-scale/cumulative environmental emergencies. Preparedness essential</p> <p><b>Solution:</b> Work with county/state/federal partners to develop response plans for multi-jurisdictional environmental emergencies. Training exercise with Local and County partners</p>	Existing	All	1, 2, 3, 4, 5, 6	Based on time of event	Rowan University and Local & County OEM partners	University Budget	Enhanced safety	Unknown depends on event	High	LPR	ES
2022-Rowan-003	Severe Weather Emergencies	<p><b>Problem:</b> The University experiences severe weather emergencies throughout the year. Damages and impacts vary with each storm event; however, current policies and procedures do not always address specific events.</p>	Existing	All	1, 2, 3, 6	Based on time of event	Rowan University DPS & OEM. Local and County Agencies	University Budget	Enhances Safety	Unknown, depending on event	High	LPR	ES



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<b>Solution:</b> The University will further develop policies and procedures to better manage response and recovery needs arising from acute instances of severe weather. This will include identifying shelters for facility and students, Shelter agreements with Local Red Cross and DHS											
2022-Rowan-004	Backup Power for University Facilities	<b>Problem:</b> Utility failures that impact the University lead to disruption in services throughout campus and can limit emergency response.  <b>Solution:</b> The University will conduct a feasibility study to determine which buildings are essential and need backup power. Additionally, the study will include what additional measures are needed to protect generators once installed (e.g., barriers, pumps, drains, etc.). Once identified, the University will begin purchasing and installing generators at the appropriate facilities.	New and Existing	Utility Failure	1, 2, 6	Within 2 years	Facilities Operations, Engineer	FEMA HMGP, University Budget	Increase capabilities, continuity of operations	\$20,000/generator	High	SIP	PP, ES
2022-Rowan-005	Facilities in the Floodplain	<b>Problem:</b> Several university buildings are located in the floodplain. During heavy rain events, the buildings are at	Existing	Hurricane, Flood, Nor'Easter,	1, 2, 6	Within 2 years	Facilities Operations, Emergency Management	FEMA HMGP, FMA and BRIC,	Increased protection from floods,	TBD	High	LPR, SIP	PP, SP



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		increased risk of flooding and being damaged.  <b>Solution:</b> Conduct a feasibility study to determine the proper improvements to the floodprone facilities. Once identified, the University will seek funding to install mitigation measures at each facility that requires it. This could include structural elevations, installation of floodwalls, or other appropriate improvements.		Severe Storm				University Budget	reduce flood losses				
2022-Rowan-006	S Curve Outfall Pipe Improvement	<b>Problem:</b> S curve outfall pipes – Area experienced flooding during severe storms  <b>Solution:</b> Increase size of Conrail outfall pipe – Facilities & Operations project, unknown pipe size.	Existing	Hurricane, Flood, Nor'Easter, Severe Storm	1, 2, 6	Within 3 years	Facilities Operations, Emergency Management	FEMA HMGP, FMA and BRIC, University Budget	Increased protection, reduce flooding, increased capacity	Unknown	High	LPR, SIP	PP, SP
2022-Rowan-007	Triad Parking Lot Improvement	<b>Problem:</b> Triad parking lot inlet – Occasional flooding <b>Solution:</b> Increase size of outfall pipe if persist (unknown size). Drains have been cleaned out.	Existing	Hurricane, Flood, Nor'Easter, Severe Storm	1, 2, 6	Within 3 years	Facilities Operations, Emergency Management	FEMA HMGP, FMA and BRIC, University Budget	Increased protection, reduce flooding, increased capacity	Unknown	Medium	LPR, SIP	PP, SP
2022-Rowan-008	Public Notices Regarding Emergencies	<b>Problem:</b> As a large university, there is a change in population and students each semester. If the students are new to the university, they may not know the emergency	N/A	All	1, 2, 3, 4, 5, 6	1 years	Emergency Management, Public Safety, IRT	University Budget	Enhance outreach materials	Unknown	High	LPR, EAP	PI, ES





Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>procedures for the campus or how to get emergency notifications.</p> <p><b>Solution:</b> The University will development bi-monthly public safety notifications using the Rowan University daily mail system. Notifications will include how to access emergency alerts, what to do in an emergency, and other important topics that come up throughout the semester.</p>											

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
EHP	Environmental Planning and Historic Preservation
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
BRIC	Building Resilient Infrastructure and Communities 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 also 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 also 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 9.26-14. Summary Evaluation and Action Priority

Project Number	Project 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
2022-Rowan-001	Infrastructure Improvements	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
2022- Rowan -002	Environmental Emergencies	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2022- Rowan -003	Severe Weather Emergencies	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2022- Rowan -004	Backup Power for University Facilities	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High



Project Number	Project 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
2022- Rowan -005	Facilities in the Floodplain	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High
2022- Rowan -006	S Curve Outfall Pipe Improvement	1	1	1	1	1	1	0	1	0	1	1	1	1	0	11	High
2022- Rowan -007	Triad Parking Lot Improvement	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
2022- Rowan -008	Public Notices Regarding Emergencies	1	1	1	1	1	1	1	0	0	1	1	1	1	0	11	High

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions.  
Low (0-4), Medium (5-8), High (9-14).

**▲** This action has been identified as being of highest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



## 9.26.8 Action Worksheets

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The following action worksheets have been developed by Rowan University to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.



Action Worksheet			
<b>Project Name:</b>	Infrastructure Improvements		
<b>Project Number:</b>	2022-Rowan-001		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	All Hazards		
<b>Description of the Problem:</b>	Campus/utility infrastructures underground utility distribution systems are aged and in need of repair or replacement across campus		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Projects to upgrade areas of concern; replace damaged underground distribution piping – Completion expected Summer 2022		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increased reliability of utility distribution system
<b>Useful Life:</b>	25+ years	<b>Goals Met:</b>	1, 2, 5
<b>Estimated Cost:</b>	\$2.0 million	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of funding
<b>Estimated Time Required for Project Implementation:</b>	Estimated completion Summer 2022	<b>Potential Funding Sources:</b>	University Budget; FEMA BRIC
<b>Responsible Organization:</b>	Rowan University and on call contractors	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install generators at every building	\$1 million+	Costly; maintenance; not all buildings need generators; does not address water and sewer utilities
	Replace damaged piping	\$2 million	Project selected
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Infrastructure Improvements	
<b>Project Number:</b>	2022-Rowan-001	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	1	Estimated completion Summer 2022
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Backup Power for University Facilities		
<b>Project Number:</b>	2022-Rowan-004		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Utility Failure, Severe Weather		
<b>Description of the Problem:</b>	Utility failures that impact the University lead to disruption in services throughout campus and can limit emergency response.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	The University will conduct a feasibility study to determine which buildings are essential and need backup power. Additionally, the study will include what additional measures are needed to protect generators once installed (e.g., barriers, pumps, drains, etc.). Once identified, the University will begin purchasing and installing generators at the appropriate facilities.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	N/A	<b>Estimated Benefits (losses avoided):</b>	Increase capabilities, continuity of operations
<b>Useful Life:</b>	25 years	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	\$20,000/generator	<b>Mitigation Action Type:</b>	Structure and Infrastructure Project
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP, University Budget
<b>Responsible Organization:</b>	Facilities Operations, Engineer	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	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 for long-term power outages; need space to install
	Install wind turbines	\$50,000+	Weather dependent; not for long-term power outages; need space to install
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			





Action Worksheet		
<b>Project Name:</b>	Backup Power for University Facilities	
<b>Project Number:</b>	2022-Rowan-004	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Utility Failure, Severe Weather
Timeline	1	Within 2 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	High	



Action Worksheet			
<b>Project Name:</b>	Facilities in Floodplain		
<b>Project Number:</b>	2022-Rowan-005		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Hurricane, Flood, Nor'Easter, Severe Storm		
<b>Description of the Problem:</b>	Several university buildings are located in the floodplain. During heavy rain events, the buildings are at increased risk of flooding and being damaged.		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Conduct a feasibility study to determine the proper improvements to the floodprone facilities. Once identified, the University will seek funding to install mitigation measures at each facility that requires it. This could include structural elevations, installation of floodwalls, or other appropriate improvements.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Increased protection from floods, reduce flood losses
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	To be determined	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months
<b>Estimated Time Required for Project Implementation:</b>	Within 2 years	<b>Potential Funding Sources:</b>	FEMA HMGP, FMA, and BRIC, University Budget
<b>Responsible Organization:</b>	Facilities Operations, Emergency Management	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate all structures in the floodplain	\$1 million+	Costly; not all buildings need to be elevated
	Construct flood walls around buildings	\$25,000+	Maintenance; other areas will still flood
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Facilities in Floodplain	
<b>Project Number:</b>	2022-Rowan-005	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Hurricane, Flood, Nor'Easter, Severe Storm
Timeline	1	Within 2 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	10	
<b>Priority (High/Med/Low)</b>	1	



Action Worksheet			
<b>Project Name:</b>	S Curve Outfall Pipe Improvement		
<b>Project Number:</b>	2022-Rowan-006		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Hurricane, Flood, Nor'Easter, Severe Storm		
<b>Description of the Problem:</b>	S curve outfall pipes – Area experienced flooding during severe storms		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Increase size of Conrail outfall pipe – Facilities & Operations project, unknown pipe size		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Increased protection, reduce flooding, increased capacity
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	Unknown	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	High	<b>Desired Timeframe for Implementation:</b>	Within 6 months of obtaining funds
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP, FMA, and BRIC, University Budget
<b>Responsible Organization:</b>	Facilities Operations, Emergency Management	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Routine maintenance	\$0	Currently problem continues
	Install additional piping	\$10,000+	May not be necessary
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	S Curve Outfall Pipe Improvement	
<b>Project Number:</b>	2022-Rowan-006	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	
Multi-Hazard	1	Hurricane, Flood, Nor'Easter, Severe Storm
Timeline	1	Within 3 years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	1	



Action Worksheet			
<b>Project Name:</b>	Triad Parking Lot Improvement		
<b>Project Number:</b>	2022-Rowan-007		
Risk / Vulnerability			
<b>Hazard(s) of Concern:</b>	Hurricane, Flood, Nor'Easter, Severe Storm		
<b>Description of the Problem:</b>	Triad parking lot inlet – Occasional flooding		
Action or Project Intended for Implementation			
<b>Description of the Solution:</b>	Increase size of outfall pipe if persist (unknown size). Drains have been cleaned out.		
<b>Is this project related to a Critical Facility or Lifeline?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<b>Level of Protection:</b>	To be determined	<b>Estimated Benefits (losses avoided):</b>	Increased protection, reduce flooding, increased capacity
<b>Useful Life:</b>	To be determined	<b>Goals Met:</b>	1, 2, 6
<b>Estimated Cost:</b>	Unknown	<b>Mitigation Action Type:</b>	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
<b>Prioritization:</b>	Medium	<b>Desired Timeframe for Implementation:</b>	Within 6 months of obtaining funds
<b>Estimated Time Required for Project Implementation:</b>	Within 3 years	<b>Potential Funding Sources:</b>	FEMA HMGP, FMA, and BRIC, University Budget
<b>Responsible Organization:</b>	Emergency Management, Public Safety, IRT	<b>Local Planning Mechanisms to be Used in Implementation if any:</b>	Hazard Mitigation
Three Alternatives Considered (including No Action)			
<b>Alternatives:</b>	<b>Action</b>	<b>Estimated Cost</b>	<b>Evaluation</b>
	No Action	\$0	Current problem continues
	Elevate parking lot	\$100,000+	Costly; surrounding areas will still flood
	Routine maintenance	\$0	Currently problem continues
Progress Report (for plan maintenance)			
<b>Date of Status Report:</b>			
<b>Report of Progress:</b>			
<b>Update Evaluation of the Problem and/or Solution:</b>			



Action Worksheet		
<b>Project Name:</b>	Triad Parking Lot Improvement	
<b>Project Number:</b>	2022-Rowan-007	
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 costs
Technical	1	Project is technically feasible
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	Hurricane, Flood, Nor'Easter, Severe Storm
Timeline	1	Within 3 years
Agency Champion	0	
Other Community Objectives	0	
<b>Total</b>	8	
<b>Priority (High/Med/Low)</b>	1	