



9.32 TOWNSHIP OF PEQUANNOCK

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

9.32.1 Hazard Mitigation Planning Team

The following individuals are the Township of Pequannock's identified HMP update primary and alternate points of contact and NFIP Floodplain Administrator.

Table 9.32-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Jennifer McCulloch, Flood Resilience Officer Address: 530 Newark-Pompton Turnpike Pompton Plains, NJ 07444 Phone Number: 973-835-5700 x164 Email: JMcCulloch@Peqtwp.org	Name / Title: Frank Russo, Township Engineer Address: 530 Newark-Pompton Turnpike Pompton Plains, NJ 07444 Phone Number: 973-835-5700 x188 Email: frusso@peqtwp.org
NFIP Floodplain Administrator	
Name / Title: Jennifer McCulloch, Flood Resilience Officer Address: 530 Newark-Pompton Turnpike Pompton Plains, NJ 07444 Phone Number: 973-835-5700 x164 Email: JMcCulloch@Peqtwp.org	

9.32.2 Jurisdiction Profile

The Township of Pequannock is located in the northeastern portion of Morris County in the Highlands Region of the State of New Jersey. The Township encompasses two communities, Pequannock and Pompton Plains, each served by their own post office. It has a total area of 7.17 square miles. The Township lies between the foothills of the Waughaw Mountains and the courses of the Pequannock and Pompton Rivers.

According to the U.S. Census, the 2010 population for the Township of Pequannock was 15,420. The estimated 2017 population was 15,499, a 2.2 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 2.9 percent of the population is 5 years of age or younger and 25.0 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.

9.32.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have, or are likely to, increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.32-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.32-1 and 9.32-2 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development.



Table 9.32-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	4	3	8	4	4
Multi-Family	2	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Township-wide	Sewers installed	390 +/- SFD	various	Special Flood Hazard Area	Complete
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
None anticipated					

* Only location-specific hazard zones or vulnerabilities identified.

9.32.4 Capability Assessment

The Township of Pequannock performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. This section describes the components included in the capability assessment and their significance for hazard mitigation planning. Specific areas of assessment include:

- Legal and regulatory capabilities
- Development and permitting capabilities
- Fiscal capabilities
- Education and Outreach capabilities
- Information on National Flood Insurance Program (NFIP) compliance
- Classification under various community mitigation programs
- The community's adaptive capacity for the impacts of climate change

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. Areas in which mitigation is currently integrated are summarized in Tables 9.32-3 through 9.32-12. The Township of Pequannock identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Township of Pequannock and where hazard mitigation has been integrated.



Table 9.32-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	State, Local	Yes	No	-
Comment: State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 64 of the municipal code. Uniform Construction Codes. Administered by the Construction official.					
Zoning Code	Yes	Local	Yes	No	-
Comment: Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Chapter 189 of the municipal code. Zoning. Administered by the Zoning Officer. The Zoning Ordinance) was adopted to: •To secure safety from fire, flood, panic and other natural and man-made disasters. •To provide adequate light, air and open space. •To ensure that the development of Pequannock Township does not conflict with the development and general welfare of neighboring municipalities, the county and the state as a whole. •To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and the preservation of the environment. •To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open spaces, both public and private, according to their respective environmental requirements in order to meet the needs of Township residents and the region of which the Township is a part. •To promote a desirable visual environment through creative development techniques and good civic design and arrangements. •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.					
Subdivisions	Yes	Local	Yes	No	-
Comment: Chapter 163 of the municipal code: Subdivision of land. Administered by the Planning Department.					
Stormwater Management	Yes	State, Local	Yes	No	-
Comment: Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Chapter 157 of the municipal code; Stormwater Management Regulations; Rev. June 2006.					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
Comment: N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.					
Growth Management	Yes	Local	Yes	Yes	No
Comment: State mandated at local level; Incorporated into Flood Damage Prevention Ordinance; June 2014. Administered by the Planning Department.					
Shoreline Development	No	-	-	-	-
Comment: NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.					
Site Plan Review	Yes	Local	No	No	-
Comment: Chapter 189 of the municipal code, Zoning. Updated periodically. Administered by the Engineering Department.					
Environmental Protection	Yes	State, Local	Yes	No	-
Comment: The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 39 Air Pollution, Chapter 73 Environmental Impact.					
Flood Damage Prevention	Yes	Local	Yes	-	-
Comment: Chapter 85 of the municipal code, Flood Damage Prevention. Administered by the Floodplain Administrator. Ordinance includes 3 feet of freeboard for residential construction. 2 feet of freeboard for non-residential construction.					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	Yes	Local	No	-	-
Comment: Chapter 74, Emergency Medical Service. Chapter 83, Fire Protection					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	Yes	-
Comment: Reexamined in 2003, 2009, and 2019. Administered by the Planning department. The plan includes goals to preserve lakes and wetlands, clean up refuse, limit development, promote clean air, promote vegetative buffers, preserve and protect area of confluence along Pequannock and Wanaque Rivers, protect aquifer recharge areas, protect groundwater quality, and preserve Pio Costa tract's floodwater retention capability. The December 9, 2019 Master Plan Reexamination includes new categories in the Land Use Element – Storm Resiliency, Smart Growth, Environmental Sustainability.					
Capital Improvement Plan	Yes	Local	Allowed	Yes	No
Comment: Per NJSA 40:55D-29 the governing body is authorized to direct the Planning Board to prepare a CIP with at least a six-year planning horizon. The Township's plan is updated annually and is administered by the Township Manager.					
Disaster Debris Management Plan	No	-	No	-	-
Comment:					
Floodplain or Watershed Plan	Yes	Local, County	No	No	-
Comment: Elements of Master Plan and 2012 Flood Acquisition Plan (with Morris County), are administered by the Engineer and Flood Resilience Officer. Pequannock Township and Borough of Lincoln Park intend to jointly develop a Watershed Management Plan for the Pompton River Watershed in 2020/2021. Additionally, a new Floodplain Management Plan that meets CRS requirements is currently being developed.					
Stormwater Management Plan	Yes	Local and State	Yes	Yes	-
Comment: Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). The Stormwater Management Plan is incorporated in the Master Plan and Ordinances, 2009 and PEQ 2019 Master Plan. The Plan is administered by the Township Engineer.					
Stormwater Pollution Prevention Plan	No	-	Yes	-	-
Comment:					
Urban Water Management Plan	No	-	No	-	-
Comment:					
Habitat Conservation Plan	No	-	No	-	-
Comment:					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Economic Development Plan	Yes	Local	No	Yes	No
<i>Comment: part of 2019 Master Plan</i>					
Shoreline Management Plan	No	-	No	-	-
<i>Comment:</i>					
Community Wildfire Protection Plan	No	-	No	-	-
<i>Comment:</i>					
Community Forest Management Plan	No	-	No	-	-
<i>Comment:</i>					
Transportation Plan	Yes	Local	No	Yes	No
<i>Comment: Circulation Element is a part of 2019 Master Plan</i>					
Agriculture Plan	No	-	No	-	-
<i>Comment:</i>					
Climate Action Plan	Yes	Local	No	Yes	No
<i>Comment: Storm Resiliency, Smart Growth, Environmental Sustainability Element were adopted as part of 2019 Master Plan/Land Use Element</i>					
Tourism Plan	No	-	No	-	-
<i>Comment:</i>					
Business Development Plan	Yes	Local	No	Yes	-
<i>Comment: Economic Development Element, part of 2019 Master Plan</i>					
Open Space Plan	Yes	Local	No	No	-
<i>Comment: The Open Space Plan (2012) has a goal to maintain a balance between preserving its natural and historic places and redeveloping its landscape to both protect its residents from the flood risk inherent to the rivers, while also furthering the enjoyment of those sites. The Plan includes a recommended action to use land acquisition to create buffers and seek financial assistance for buyouts. A map of hazard areas is included.</i>					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
<i>Comment: Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The Township's Emergency Operations Plan has Hazardous Materials and Hazardous Weather annexes. The Hazardous weather annex includes information in alignment with the Hazard Mitigation Plan. The Plan also has an evacuation annex. Plan last updated in 2012. The plan is administered by the Township Manager/OEM Coordinator.</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
<i>Comment:</i>					
Post-Disaster Recovery Plan	No	-	No	-	-
<i>Comment:</i>					
Continuity of Operations Plan	Yes	Local	No	No	No
<i>Comment: 2012 Emergency Operations Plan, will update in 2020</i>					
Public Health Plan	No	-	-	-	-
<i>Comment:</i>					



	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Other	No	-	-	-	-
Comment:					

Table 9.32-4. Development and Permitting Capability

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

ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Township of Pequannock.

Table 9.32-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning, Volunteers, Professionals
Mitigation Planning Committee	Yes	Township Manager, Flood Resilience Officer, OEM, Township Engineer, DPW, Construction Official, Police, Fire, Planning, Zoning and Volunteers
Environmental Board / Commission	Yes	Volunteers
Open Space Board / Committee	Yes	Volunteers
Economic Development Commission / Committee	Yes	Volunteers
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	Smart 911, Nixle, Pequannock Flood App (phone), Reverse 911, radio station 1620 AM, dedicated Public Information phone line, website: Notify Me, Announcements, News Flash, Severe Weather Alert, Flood Information page, (USGS) Pompton River Hydrograph & Inundation mapping
Maintenance program to reduce risk	Yes	Flood Resilience Officer, Township Engineer, Department of Public Works
Mutual aid agreements	Yes	Verbal agreement with Lincoln Park
Flood Control Advisory Committee	Yes	Volunteers, Twp Council liaison, Flood Resilience Officer (staff liaison)
Technical/Staffing Capability		
Planners or engineers with knowledge of land	Yes	Professional Engineer, Planners and Staff



Staff/Personnel Resource	Available?	Department/Agency/Position
development and land management practices		
Engineers or professionals trained in building or infrastructure construction practices	Yes	Construction Official, multiple Trade Inspectors
Planners or engineers with an understanding of natural hazards	Yes	Township Engineer, Planners, Flood Resilience Officer and Staff
Staff with training in benefit/cost analysis	Yes	Flood Resilience Officer
Staff with training in green infrastructure	Yes	Township Engineer is a Certified Rain Garden Specialist.
Staff with education/knowledge/training in low impact development	Yes	Township Engineer
Surveyor	Yes	The township retains a contract surveyor
Stormwater engineer	Yes	Township retains a contract stormwater engineer
Personnel skilled or trained in GIS applications	Yes	Zoning Department staff, Flood Resilience Officer
Local or state water quality professional		Superintendent of DPW
Scientist familiar with natural hazards in local area	No	Member of Flood Control Advisory Committee
Emergency manager	Yes	OEM Coordinator, (2) Deputy Coordinators
Watershed planner	No	
Environmental specialist	Yes	Flood Resilience Officer
Grant writers	Yes	Township Administrator, Flood Resilience Officer, Engineer
Resilience Officer	Yes	Flood Resilience Officer
Other	No	-

FISCAL CAPABILITY

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

Table 9.32-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants (CDBG, CDBG-DR)	Yes, limited availability based on demographics
Capital Improvements Project Funding	Yes, directed by Township Manager & Council
Authority to Levy Taxes for Specific Purposes	Yes, limited by statute
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	Yes



Financial Resource	Accessible or Eligible to Use?
Other	Yes, Morris County Flood Mitigation Program (acquisitions)

EDUCATION AND OUTREACH CAPABILITY

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

Table 9.32-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	Yes: FAQs, Public Alerts, Mitigation Tips & Resources, Flood Maps, Hydrographs, Rain Gages
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes: Facebook page, Shelter Info
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes, Flood Control Advisory Committee meets monthly
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Yes: Smart 911, Reverse 911, Nixle, Pequannock Flood App (phone), Township website: Notify Me, Announcements, News Flash, Severe Weather Alert
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Yes; Smart 911, Nixle, Pequannock Flood App (phone), Reverse 911, radio station 1620 AM, dedicated Public Information phone line, Township website: Notify Me, Announcements, News Flash, Severe Weather Alert, Flood Information page, (USGS) Pompton River Hydrograph & Inundation mapping

COMMUNITY CLASSIFICATIONS

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

Table 9.32-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	Yes	5	February 20, 2019
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	4 - Residential, 3 - Non-Residential	April 18, 2012
Public Protection (Fire ISO Protection Class)	Yes	3	December 1, 2011
Storm Ready Certification	Lapsed	-	2002
Firewise Community Classification	No	-	-
Sustainable Jersey	Yes	None	July 12, 2011

ADAPTIVE CAPACITY

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of





local capacity for adapting to current and future risks and changing conditions. The table below summarizes the adaptive capacity for each hazard and the jurisdiction's rating.

- The Township of Pequannock utilizes many preventative measures tied to the CRS program.
- The Township's green infrastructure programs work to address expected increases in flooding issues.

Table 9.32-9. Adaptive Capacity

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Dam Failure	High
Disease Outbreak	High
Drought	Medium
Earthquake	Low
Extreme Temperature	High
Flood	High
Geologic	Low
Harmful Algal Bloom	Low
Hazardous Substances	High
Infestation	Medium
Severe Weather	High
Severe Winter Weather	High
Wildfire	Low

Notes:

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

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

NATIONAL FLOOD INSURANCE PROGRAM

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

Table 9.32-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Dept. Public Works/Engineer
Who is your floodplain administrator? (name, department/position)	Manager's Office/Flood Resilience Officer
Are any certified floodplain managers on staff in your jurisdiction?	Yes, four in all
What is the date that your flood damage prevention ordinance was last amended?	June 10, 2014
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds. The Township has a freeboard requirement of +3 feet.
When was the most recent Community Assistance Visit or Community Assistance Contact?	September 20, 2018.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	Yes, PFIRMs.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	No, PFIRMs are currently being appealed by Township.
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes



Criterion	Response
<input type="checkbox"/> If so, what type of assistance/training is needed?	Written assistance request was made to USACE-Silver Jackets division on May, 30, 2019
Does your jurisdiction participate in the Community Rating System (CRS)? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	Yes and Yes
How many flood insurance policies are in force in your jurisdiction? <ul style="list-style-type: none"> What is the insurance in force? What is the premium in force? 	Flood insurance policies: 704 Insurance in force: \$164,198,700 Premium in force: \$1,455,885
How many total loss claims have been filed in your jurisdiction? <ul style="list-style-type: none"> How many claims are still open or were closed without payment? What were the total payments for losses? 	Total loss claims: 2,223 Claims open or closed without payment: 196 Total payments for losses: \$66,248,514
Do you maintain a list of properties that have been damaged by flooding?	Yes - substantially damaged homes
Do you maintain a list of property owners interested in flood mitigation?	Yes

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

ADDITIONAL AREAS OF EXISTING INTEGRATION

- **Flood Information Page:** The homepage on Pequannock's website (<https://peqtwp.org/>) has button for the "Flood Information Page", designed to provide residents with accurate information about flood issues and the most effective flood mitigation measures.
- **Flood Resilience Officer:** The Township's Flood Resilience Officer is a full-time, dedicated resource for the community and provides information on FEMA home elevation grants, flood hazards, flood mitigation, FEMA flood maps, flood insurance, and information on possible flooding conditions. Additionally, they are the Flood Plain Administrator for the NFIP's CRS Program.
- **Department of Public Works (DPW):** The DPW facility is located at 99 Alexander Avenue in Pompton Plains. Public Works staff consists of sixteen full time employees in the areas of: Construction, Engineering, Planning, Zoning, Roads, Water, Sewer, Parks/Grounds operations. The Planning/Construction Official reviews and inspects all construction plans/sites, issues permits and enforces development ordinances. The Township Engineer is the regulatory Flood Plain Manager, conducts site plan reviews and oversees many DPW projects, especially those that increase flood resilience. The Zoning Associate is facile with GIS mapping, especially creating FIRMettes. Other services include maintenance of all Township owned vehicles, road maintenance including snow and ice control, shade tree maintenance, stormwater maintenance, street sweeping, and water system distribution and maintenance.
- **Fire Department:** The Pequannock Township Fire Department includes two volunteer Fire Companies. Engine Company Number 1, located on Jackson Avenue, serves the area north of Tilley Avenue. Engine Company Number 2, located on Oak Avenue, serves the area south of Tilley. Both fire companies respond to all serious incidents including structure fires and to all calls during daytime hours. Each year the Fire Department, which is staffed completely by volunteers, responds to approximately 300 calls for service. All members receive basic training at the Morris County Fire Academy. Both fire companies drill regularly.
- **Emergency Management:** The Pequannock Township Office of Emergency Management (OEM) reports to the Township Manager but is organizationally a part of the New Jersey Department of Homeland Security through the Morris County Office of Emergency Management. The primary focus of the department is in planning for events that are more likely to affect the Township like storm damage



and flooding. The OEM Coordinators are also available to assist, advise and guide community leaders in pro-active initiatives in emergency preparedness and response. The office staff is expanded when the Emergency Operations Center is activated in preparation for, or in response to a large-scale emergency. A state requirement of the planning responsibilities of OEM is to maintain an Emergency Operations Plan that is reviewed and certified by the New Jersey Department of Homeland Security. Under current legislation, this certification is required in order for the Township to apply for certain Federal and State grants.

- **Zoning Officer:** The Zoning Officer is an outside consultant appointed by the Township Manager. The Zoning Officer is authorized to delegate the enforcement of all provisions of the Land Development Ordinance.

9.32.5 Hazard Event History Specific to the Jurisdiction

Morris County has a history of 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 in Section 4.4 (Hazard Profiles) and includes a chronology of events that affected Morris County and its jurisdictions. The Township of Pequannock's history of federally-declared disasters (as per FEMA) and significant hazard events (as per NOAA-NCEI) is consistent with that of Morris County. Table 9.32-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.32-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-24, 2016	Severe Winter Storm and Snowstorm (DR-4264)	Yes	Wind gusts up to 60 MPH produced blizzard conditions as visibilities dropped to one-quarter mile or less in spots. Snow began during the evening hours on the 22nd, then continued, heavy at times through the 23rd before ending early on the 24th. Snowfall totals included 30.0 inches in Long Valley, 29.0 inches in Madison, 26.0 inches in Budd Lake, 25.3 inches in Green Pond, 22.5 inches in Butler, 21.0 inches in Chatham, and 18.0 inches in Marcella. At one point during the storm, up to 270,000 customers were without power.	Although the county was impacted, the township did not report damages.
March 6-7, 2018	Severe Winter Storm and Snowstorm (DR-4368)	Yes	12 to 24 inches of snow was observed across large parts of Morris County. The snow contained large amounts of liquid, making it heavy and wet. This resulted in downed trees, limbs, and wires, leading to numerous power outages across	The township incurred costs for snow removal and was reimbursed \$48,372.28.



Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
			portions of New Jersey, especially where the heaviest snow was reported. Many customers were still without power from the previous storm when this storm struck. Governor Murphy estimated about 350,000 customers state-wide lost power as a result of this second storm. Governor Phil Murphy declared a state of emergency which went into effect at 8 PM Tuesday March 6th.	

9.32.6 Jurisdiction-Specific Vulnerabilities and Hazard Ranking

The hazard profiles in this section provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.32-12 summarizes the Township of Pequannock risk assessment results and data used to determine the hazard ranking.

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

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



Table 9.32-12. Summary of Risk Assessment Results

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Dam Failure	Partial or complete failure of a dam There is 1 dam in the Township, according to NJDEP.	Population impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		The number of building impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		Economic impacts include dam/building/infrastructure repairs; debris removal/disposal; utility impacts.		Low
Disease Outbreak	Disease Outbreaks which include: Mosquito-Borne Diseases, Tick-Borne Diseases, Campylobacteriosis, Influenza, Mumps, Ebola	Population impacted is dependent on the disease and severity of the outbreak; in some cases immuno-compromised persons are more vulnerable.		Structural impacts due to disease outbreak would be limited.		Economic losses can include County financial impacts to monitor/address outbreaks; lost wages or commercial interruptions; depends on the severity and type of disease outbreak. .		Low
Drought	Prolonged drought event - the County is serviced by water suppliers who primarily get water from groundwater sources; some surface water sources.	Entire population exposed. Population on surface water supplies may be impacted first; water restrictions/contamination; increased wildfire risk.		Droughts are not expected to cause direct damage to buildings.		Losses include aesthetic, landscape/nursery/agricultural industry impacts.		Low
Earthquake	100-, 500-, 2,500-Year Mean Return Period (MRP) events evaluated NEHRP Soils D&E (soft soils that amplify ground shaking are present in the County)	NEHRP D&E:	14,633	NEHRP D&E:	5,348	100-year Loss:	\$169,503	High
						500-year Loss:	\$9,596,778	
		Liquefaction Class 4:	8,308	Liquefaction Class 4:	3,008	2,500-year Loss:	\$142,922,372	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	3,869	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	744					



Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Flood	100- and 500-Year Mean Return Period Event	100-year	2,831	100-year	1,164	100-year Loss: \$1,330,167,376		High
		500-year	3,377	500-year	1,368			
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	20	Class B:	6	Class B:	\$1,715,180	
		Carbonate Bedrock:	0	Carbonate Bedrock:	0	Carbonate Bedrock:	\$0	
Harmful Algal Bloom	Any body of water or area adjacent that is susceptible to harmful algal bloom.	Population in contact (e.g., swimming) or drinking water from surface water impacted can result in a range of health effects		General building stock impacts due to harmful algal bloom are not anticipated. Critical facilities (i.e., water treatment plants) could lead to plant closures.		Economic impacts range from recreational closure of impacted waterbodies; cost to sample/monitor/remediate.		Low
Hazardous Substance	Release of a hazardous substance from a fixed site.	Population impacted will depend on the type of material and scale of the incident. May include population within small radii of site.		The degree of damages to a building depends on the scale of the incident.		The degree of damages depends on the scale of the incident.		Low
Infestation	Infestation including: Insects [e.g. Gypsy Moth, Mosquitoes, Spotted Lanternfly, Emerald Ash Borer], White-Tailed Deer, Rodents	Population impacted will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Physical impacts will be limited to indirect impacts from invasive species which affect crops and vegetation.		Economic impact will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Low
Severe Weather	Severe Weather Event	Entire population exposed; the degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Annualized Loss:	\$76,141	High
						100 -Year Loss:	\$832,154	
						500-year Loss:	\$5,029,598	
Severe Winter Weather	Severe Winter Weather Event	All residents/commuters/visitors are exposed; socially-vulnerable populations may be at increased risk.		All buildings are exposed; the degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads/infrastructure can impact operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	7	Wildfire:	3	Wildfire:	\$7,950,550	Moderate



REPETITIVE FLOOD LOSSES

Below is a summary of the repetitive and severe repetitive flood losses in the Township of Pequannock.

- Number of repetitive loss (RL) properties: 241
- Number of severe repetitive loss (SRL) properties: 123
- Number of RL/SRL properties that have been mitigated: Total = 93 homes: 57 flood acquisitions and 36 home elevations

Source: FEMA BureauNet, 2019

Note: RL and SRL as of 04/26/2019; The number of SRL properties excludes RL properties and includes properties that have been verified only (SRL_Indicator = V).

CRITICAL FACILITIES

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

Table 9.32-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Chilton Memorial Hospital*	Hospital	X	X	2020-Township of Pequannock-023
Netherlands Reformed Christian	School	X	X	2020-Township of Pequannock-024
Chancellor Academy	School		X	

*Identified lifeline

ADDITIONAL IDENTIFIED VULNERABILITIES

The jurisdiction has identified the following vulnerabilities within their community:

- The Township has 241 repetitive loss properties and 123 severe repetitive loss properties with many flood prone properties.
- Foothills Pond is prone to flooding due to high water table issues. The pond lacks an outfall path. If pond floods, it could block access to the Chilton Memorial Hospital and flood the industrial/commercial zone.
- Sewage treatment facility is having issues with high volume during times of high water table.
- The Pompton River needs de-snagging and debris removal. Clogs are causing flood concerns and the resulting standing water encourages mosquitos. Currently seeking NJ-DEP permits.
- Mosquito populations seem to be increasing, partly due to high water table. This increases disease risk.
- Heavy snow brings down trees, resulting in power loss and property damages.
- The Township lacks an automatic flood warning system.
- The Emergency Operations Plan lacks a clear evacuation plan and does not cover disease outbreak.

HAZARD AREA EXTENT AND LOCATION

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



that can be clearly identified using mapping techniques and technologies and for which the Township of Pequannock has significant exposure. A map of the Township of Pequannock hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain, as well as identified critical facilities within the municipality.

HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Table 9.32-12 (Summary of Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

Each plan participant may have differing degrees of risk exposure and vulnerability compared to Morris County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community factoring in their capabilities to withstand impacts and bounce back after the event. The table below summarizes the hazard rankings of potential natural hazards for the Township of Pequannock. The Township of Pequannock has reviewed the Morris County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Township changed the municipal ranking for:

- Dam Failure - from low to high.
- Drought - from medium to low.
- Earthquake - from medium to low.
- Temperature - from medium to high.
- Geological Hazards - from medium to low.
- Hazardous Substances - from high to medium.

Table 9.32-14. Township of Pequannock Hazard Ranking Input

Dam Failure	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazard
High	Low	Low	High	High	Low

Harmful Algal Bloom	Severe Storm	Severe Winter Storm	Wildfire	Hazardous Substances	Disease Outbreak	Infestation
Low	High	High	Low	Medium	High	Medium

9.32.7 Mitigation Strategy and Prioritization

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



PAST MITIGATION INITIATIVE STATUS

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

Table 9.32-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
TPQ-1: Chilton Memorial Hospital Nuclear Medicine Department; hazard identification marking.	Valley Medical Group	No Progress	X	2020-Township of Pequannock-001
TPQ-2: The Glens Apartment complex; engineering study for flood control measures (berms) downstream of Untermeyer Dam.	Township Engineer, Private Owner	No Progress	X	2020-Township of Pequannock-002
TPQ-3: Elevate/acquire flood-vulnerable properties, including severe repetitive and repetitive loss properties located in the Township.	Flood Resilience Officer	In progress; funding for 63 elevations	X	2020-Township of Pequannock-003
TPQ-4: Arundel Road Sewage Pumping Station and Beverly Avenue Sewage Pumping Station; engineering study to determine appropriate mitigation action	Township Engineer, Planning and Zoning	No progress	X	2020-Township of Pequannock-004
TPQ-5: Recognize high hazard areas in zoning code.	Township Council	Complete		
TPQ-6: Develop/Enhance all-hazards public education and outreach program for hazard mitigation and preparedness.	Flood Resilience Officer, County and Municipal OEM	In progress	X	2020-Township of Pequannock-006
TPQ-7: Forest restoration on buyout/demolished properties along river	Open Space Committee	Complete		
TPQ-8: Banding High Water Marks	Township Engineer and Flood Resilience Officer	No Progress	X	2020-Township of Pequannock-007
TPQ-9: Install automated sluice gate allowing the lake to be lowered in advance of major storm events	Township Engineer	No Progress	X	2020-Township of Pequannock-008
TPQ-10: Install conveyance system from the Village to Woodland Lake	Township Engineer	No Progress	X	2020-Township of Pequannock-009
TPQ-11: Install cofferdams to prevent flooding	Township Engineer	No progress; Not likely to have public support of staffing capacity to carry out.		
TPQ-12: Update ordinances to require the infiltration of 3inches of stormwater	Township Engineer	Complete		
TPQ-13: Publish a comprehensive document addressing pre, post and in-storm activities	Flood Resilience Officer	In Progress; working with Silver Jackets	X	2020-Township of Pequannock-010
TPQ-14: Purchase, standardize, train staff with current technology to expedite NFIP claims	Construction, Planning Department, Township Engineer	No Progress	X	2020-Township of Pequannock-011



2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
TPQ-15: Create a needs assessment and priority property list for home elevation above BFE	Flood Resilience Officer	Complete		

In addition to the above progress, the Township of Pequannock identified the following mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy:

- Many flood prone properties in the township have been moved from sewer to septic.
- DPW conducted a thorough clean-up and maintenance program for drainage ditches to increase flood attenuation.

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

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

Table 9.32-16 summarizes the comprehensive range of specific mitigation initiatives the Township of Pequannock would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the 4 FEMA mitigation action categories and the 6 CRS mitigation action categories are listed in the table below to further demonstrate the wide range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, including an evaluation of the benefits and costs. For each new mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria. The results of this evaluation, in addition to input from the jurisdiction, were then used to prioritize the mitigation initiatives as ‘High’, ‘Medium’, or ‘Low.’ Table 9.32-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.



Table 9.32-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Township of Pequannock-001	Chilton Memorial Hospital Nuclear Medicine Department	Hazardous materials at the hospital.	Complete hazard identification marking.	Existing	Hazardous Materials	1, 2	<u>Valley Medical Group</u>	Private	Hazardous materials identified	\$1,000	Within 3 years	Medium	LPR	PR
2020-Township of Pequannock-002	Glens Apartment Complex Engineering Study	The Glens Apartment complex is flood prone.	Complete engineering study for flood control measures (berms) downstream of Untermeyer Dam. Implement measures.	Existing	Flood	3	<u>Township Engineer, Private Owner</u>	HMA Grants	Flood risk reduced.	\$25,000 for study	Within 5 years	Medium	LPR, SIP	SP
2020-Township of Pequannock-003	Home Elevation/Acquisition Program	The township has numerous repetitive loss properties.	Elevate/acquire flood-vulnerable properties, including severe repetitive and repetitive loss properties located in the Township.	Existing	Flood	3	<u>Flood Resilience Officer</u>	HMA Grants, FMA	Flood risk reduced	\$3 Million	3 years	High	SIP	PP
2020-Township of Pequannock-004	Sewage Pumping Stations Mitigation Plan	The Arundel Road Sewage Pumping Station and Beverly Avenue Sewage Pumping Station is flood prone.	Complete engineering study to determine appropriate mitigation action.	Existing	Flood	3	<u>Township Engineer, Planning</u>	HMGP, Municipal Budget	Flood risk reduced, continuity of operations	\$200,000	1 year	High	LPR, SIP	PP
2020-Township of Pequannock-005	Evacuation Plan	Current plan for OEM only, need comprehensive, public evacuation plan	Create a comprehensive evacuation plan for public use	New, Existing	All hazards	1, 2, 3	<u>Flood Resilience Officer; USACE Silver Jackets</u>	Municipal budget	Evacuation planning improved	\$5,000	Within 2 years	High	LPR	ES
2020-Township of Pequannock-006	All-hazards Public Education and Outreach Program	Residents need to be educated on hazards.	Develop/ Enhance all-hazards public education and outreach program for hazard mitigation and preparedness.	New, Existing	All hazards	1	<u>County OEM, Municipal OEM, Flood Resilience Officer</u>	Municipal budget	Improved education on hazards	\$5,000	Within 1 year	High	EAP	PI



Section 9.32 – Township of Pequannock

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Township of Pequannock-007	High Water Mark Program	Residents need to be aware of possible and past flooding extents	Work with NWS and local universities to establish banding high water marks.	Existing, future	Flood	1	<u>Township Engineer</u> , Flood Resilience Officer, NWS	NWS, Township Budget	Improved education and record keeping	\$2,000	Within 5 years	High	EAP	PI
2020-Township of Pequannock-008	Woodland Lake Sluice Gate	Flooding can occur if the lake is not lowered prior to major storm events.	Install automated sluice gate allowing Woodland Lake to be lowered in advance of major storm events.	Existing	Flood	3	<u>Township Engineer</u>	HMA Grants	Flood risk reduced	\$10,000	Within 5 years	High	SIP	SP
2020-Township of Pequannock-009	Village Area Conveyance System	Village area is prone to flooding, need to create a mitigating conveyance system	Install a pipe conveyance system from the Village area to Woodland Lake	Existing	Flood, Severe Storm	3	<u>Township Engineer</u>	HMGP, municipal budget	Flood risk reduced	\$50,000	Within 3 years	High	SIP	SP
2020-Township of Pequannock-010	Storm Event Guide	Pre, post, and in storm activities need to be identified, organized and captured in a formal public outreach document	Publish a comprehensive document addressing pre, post and in-storm activities	Existing	Flood, Severe Storm, Severe Winter Storm	1, 3	<u>Flood Resilience Officer</u> , USACE Silver Jackets	Municipal Budget	Increased	Staff time	Within 2 years	High	LPR	ES
2020-Township of Pequannock-011	NFIP/Substantial Damage (SD) Training	Staff requires additional training for SD determinations in post-flood events.	Purchase, standardize, train staff with current technology to expedite NFIP claims	Existing, Future	Flood	3	<u>Construction, Engineer and Zoning staff</u>	FEMA NFIP Program Assistance, Municipal Budget	Increased capabilities of staff	Staff time	Within 5 years	High	LPR	ES
2020-Township of Pequannock-012	Develop a CRS-approved Floodplain Management Plan.	The 2016 Floodplain Management Plan was not approved by the NFIP's CRS program.	The Township will write a new Floodplain Management Plan to earn CRS credit.	Existing, Future	Flood	1, 2, 3, 4	<u>Flood Resilience Officer</u>	Municipal budget, USACE Silver Jackets	Improved Floodplain planning	Staff time	Within 5 years	High	LPR	PR
2020-Township of Pequannock-013	Develop Watershed Management Plan	The Pompton Watershed lacks a Watershed Management Plan.	The Township will work with Lincoln Park to develop a Watershed Management Plan.	Existing, Future	Flood	1, 2, 3, 4	<u>Township Flood Resilience Officer</u>	Municipal budget, USACE Silver	Improved watershed	Staff time	Within 5 years	High	LPR	PR



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Township of Pequannock-014	Updated Emergency Operations Plan (EOP)	The EOP does not address all hazards.	The Township will update the EOP to include additional details and address more hazards.	Existing, Future	All hazards	2, 3	Lincoln Park <u>OEM Director</u> , Township staff	Jackets, PDM Municipal budget	planning Improved emergency planning and response	Staff time	Within 5 years	High	LPR	ES
2020-Township of Pequannock-015	Debris Removal and Management Plan	Massive post-flood debris to be managed	Create a specific debris removal plan that includes NJDEP pre-permitting of sites chosen	Existing, Future	Flood	2, 3	<u>Superintendent of Public Works</u> , Engineer	Municipal Budget	Improved emergency planning and response	Staff time	Within 5 years	High	LPR	ES
2020-Township of Pequannock-016	Automated Flood Warning System	No automated Public Alert system for PEQ residents in major flood events	Research, chose and publicly launch an automated Flood Warning System	Existing, Future	Flood	1, 2, 3	<u>Flood Resilience Officer</u> , Twp Manager	Municipal Budget	Improved emergency warning	\$5,000	Within 3 years	High	EAP	ES
2020-Township of Pequannock-017	Storm Ready certification	The Township's Storm Ready certification has lapsed	Regain our Storm Ready certification	Existing, Future	Severe Storm, Severe Winter Storm	1	<u>Flood Resilience Officer</u> , OEM Manager, NWS	Municipal Budget	Increased emergency preparedness and outreach	Staff time	Within 2 years	High	LPR	PR, ES
2020-Township of Pequannock-018	Pompton Dam Failure Protocol	Need a defined, local action plan in the event of the Pompton Dam failing	Work with Pompton Dam officials to develop local protocol	Existing, Future	Flood, Dam Failure	2	<u>Flood Resilience Officer</u> , OEM Manager, Dam Officials	Municipal Budget	Improved emergency warning	\$5,000	Within 3 years	High	LPR	ES
2020-Township of Pequannock-019	Elevation Certification Workshop	Increase SFHA homeowners' awareness of their specific flood risk	Organize an Elevation Certification Workshop for	Existing	Flood	1	<u>Flood Resilience Officer</u>	Municipal Budget	Increased homeowner	Staff time	Within 1 year	High	EAP	PI



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
			homes in the SFHA						awareness					
2020-Township of Pequannock-020	Problem Tree Mitigation Program	Heavy snows/rains bring down trees resulting in power loss and property damage	Hire a contractor to identify and remove problem trees as a preventative measure	Existing	Severe Storm, Severe Winter Storm	2, 3	<u>Superintendent of Public Works</u>	Municipal Budget	Reduction in falling trees and power loss	\$5,000	Within 2 years	High	NSP	PR
2020-Township of Pequannock-021	Mosquito Control Program	Mosquito populations are increasing due to high water table; this increases disease risk	Work with Morris County Mosquito Commission	Existing	Flood, Disease Outbreak, Infestation	2, 3	<u>Township Manager, Superintendent of Public Works, County Mosquito Commission</u>	Municipal Budget	Reduction in mosquitoes and insect borne disease	Staff time	Within 5 years	Medium	NSP	NR
2020-Township of Pequannock-022	Foothills Pond Flood Mitigation Plan	Foothills Pond floods when water table is high and blocks access to Chilton Hospital	Develop a specific flood mitigation plan to rent pumps when the need arises	Existing	Flood	3	<u>Superintendent of Public Works</u>	Municipal budget	Reduction in flooding, maintained access to Hospital	Staff time, \$5,000	Within 2 years	High	SIP	ES
2020-Township of Pequannock-023	Chilton Memorial Hospital - Mitigation Options	Chilton Memorial Hospital is in the 100-yr floodplain; it is a lifeline facility	Conduct outreach to hospital ownership and provide mitigation options	Existing	Flood	1, 3	<u>Flood Resilience Officer</u>	Municipal budget	Increased flood awareness	Staff time	Within 6 months	High	EAP	PI



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-Township of Pequannock-024	Mitigation Outreach to Privately-held Critical Facilities in the SFHA	Two critical facilities (Netherland Reformed Christian Church & Chancellor Academy) are located in the 100-yr floodplain	Conduct outreach to church/school ownership and provide mitigation options	Existing	Flood	1, 3	Flood Resilience Officer	Municipal budget	Increased flood awareness	Staff time	Within 6 months	High	EAP	PI
2020-Township of Pequannock-025	Pompton River De-snagging and Debris Removal Program	Pompton River (main flooding source) is clogged with debris and silt	Design and execute an annual de-silting program to enhance flood attenuation	Existing	Flood	3	Township Engineer, DPW	Municipal budget, PDM	Increased flood attenuation	Staff time	Within 6 months	High	NSP	NR

Notes:

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

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

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

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

Mitigation Category:

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



- **Structure and Infrastructure Project (SIP)** - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- **Natural Systems Protection (NSP)** – These are actions that minimize damage and losses and preserve or restore the functions of natural systems.
- **Education and Awareness Programs (EAP)** – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.

CRS Category:

- **Preventative Measures (PR)** - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection (PP)** - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information (PI)** - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and preserve or restore the functions of natural systems. 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. 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 9.32-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-Township of Pequannock-001	Chilton Memorial Hospital Nuclear Medicine Department	1	0	1	1	1	0	0	1	0	1	0	1	0	0	7	Medium
2020-Township of Pequannock-002	Glens Apartment Complex Engineering Study	1	1	1	1	1	0	0	0	0	1	0	0	0	1	7	Medium
2020-Township of Pequannock-003	Home Elevation/Acquisition Program	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2020-Township of	Sewage Pumping Stations Mitigation Plan	0	1	1	1	1	1	0	1	1	1	0	1	1	1	11	High



Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
Pequannock-004																	
2020-Township of Pequannock-005	Evacuation Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2020-Township of Pequannock-006	All-hazards Public Education and Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Township of Pequannock-007	High Water Mark Program	0	1	1	1	0	0	1	0	1	1	0	1	1	1	9	High
2020-Township of Pequannock-008	Woodland Lake Sluice Gate	1	1	0	1	1	1	0	0	0	1	0	0	1	1	8	Medium
2020-Township of Pequannock-009	Village Area Conveyance System	1	1	0	1	1	1	0	1	1	1	0	1	0	1	10	High
2020-Township of Pequannock-010	Storm Event Guide	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Township of Pequannock-011	NFIP/Substantial Damage (SD) Training	1	1	1	1	1	0	1	0	1	1	1	1	1	1	12	High
2020-Township of Pequannock-012	Develop CRS-approved Floodplain Management Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-Township of	Develop Watershed Management Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High



Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
Pequannock-013																	
2020-Township of Pequannock-014	Updated Emergency Operations Plan (EOP)	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2020-Township of Pequannock-015	Debris Removal and Management Plan	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2020-Township of Pequannock-016	Automated Flood Warning System	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2020-Township of Pequannock-017	Storm Ready certification	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Township of Pequannock-018	Pompton Dam Failure Protocol	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2020-Township of Pequannock-019	Elevation Certification Workshop	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Township of Pequannock-020	Problem Tree Mitigation Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Township of Pequannock-021	Mosquito Control Program	1	0	0	1	1	1	1	1	1	0	1	0	0	0	8	Medium
2020-Township of	Foothills Pond Flood Mitigation Plan	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High



Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
Pequannock-022																	
2020-Township of Pequannock-023	Chilton Memorial Hospital -Mitigation Options	1	1	1	1	1	0	1	1	1	1	0	1	1	1	13	High
2020-Township of Pequannock-024	Mitigation Outreach to Privately-held Critical Facilities in SFHA	1	1	1	1	1	0	1	1	1	1	0	1	1	1	13	High
2020-Township of Pequannock-025	Pompton River De-snagging and Debris Removal Program	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Notes: Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions.



Table 9.32-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014, 2020-Township of Pequannock -018			
Disease Outbreak			2020-Township of Pequannock -006	2020-Township of Pequannock -021	2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Drought			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Earthquake			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Extreme Temperature			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Flood	2020-Township of Pequannock -012, 2020-Township of Pequannock -013, 2020-Township of Pequannock -025	2020-Township of Pequannock -003, 2020-Township of Pequannock -004	2020-Township of Pequannock -006, 2020-Township of Pequannock -007, 2020-Township of Pequannock -019, 2020-Township of Pequannock -023, 2020-Township of Pequannock -024	2020-Township of Pequannock -021	2020-Township of Pequannock -005, 2020-Township of Pequannock -010, 2020-Township of Pequannock -011, 2020-Township of Pequannock -014, 2020-Township of Pequannock -015, 2020-Township of Pequannock -016, 2020-Township of Pequannock -018, 2020-Township of Pequannock -022	2020-Township of Pequannock -002, 2020-Township of Pequannock -008, 2020-Township of Pequannock -009		



Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Geologic			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Harmful Algal Bloom			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Hazardous Substances	2020-Township of Pequannock -001		2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Infestation			2020-Township of Pequannock -006	2020-Township of Pequannock -021	2020-Township of Pequannock -005, 2020-Township of Pequannock -014			
Severe Weather	2020-Township of Pequannock -017, 2020-Township of Pequannock -020, 2020-Township of Pequannock -025		2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -010, 2020-Township of Pequannock -014, 2020-Township of Pequannock -017			
Severe Winter Weather	2020-Township of Pequannock -017, 2020-Township of Pequannock -020, 2020-Township of Pequannock -025		2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -010, 2020-Township of Pequannock -014, 2020-Township of Pequannock -017			
Wildfire			2020-Township of Pequannock -006		2020-Township of Pequannock -005, 2020-Township of Pequannock -014			

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



9.32.8 Staff and Local Stakeholder Involvement in Annex Development

The Township of Pequannock followed the planning process described in Section 2 (Planning Process). This annex was developed over the course of several months with input from many jurisdiction representatives. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization. The following table summarizes who participated and in what capacity. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.32-19. Contributors to the Annex

Entity	Title	Method of Participation
Jennifer McCulloch	Flood Resilience Officer	Primary POC, NFIP-CRS FPA, reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Robert Grant	Construction Official	Reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Adam Brewer	Township Manager	Reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Joseph Golden	Township Engineer	Secondary POC, regulatory FPM, reviewed annex, attended plan participant meetings, provided impact data, contributed to the mitigation strategy



Figure 9.32-1. Township of Pequannock Hazard Area Extent and Location Map

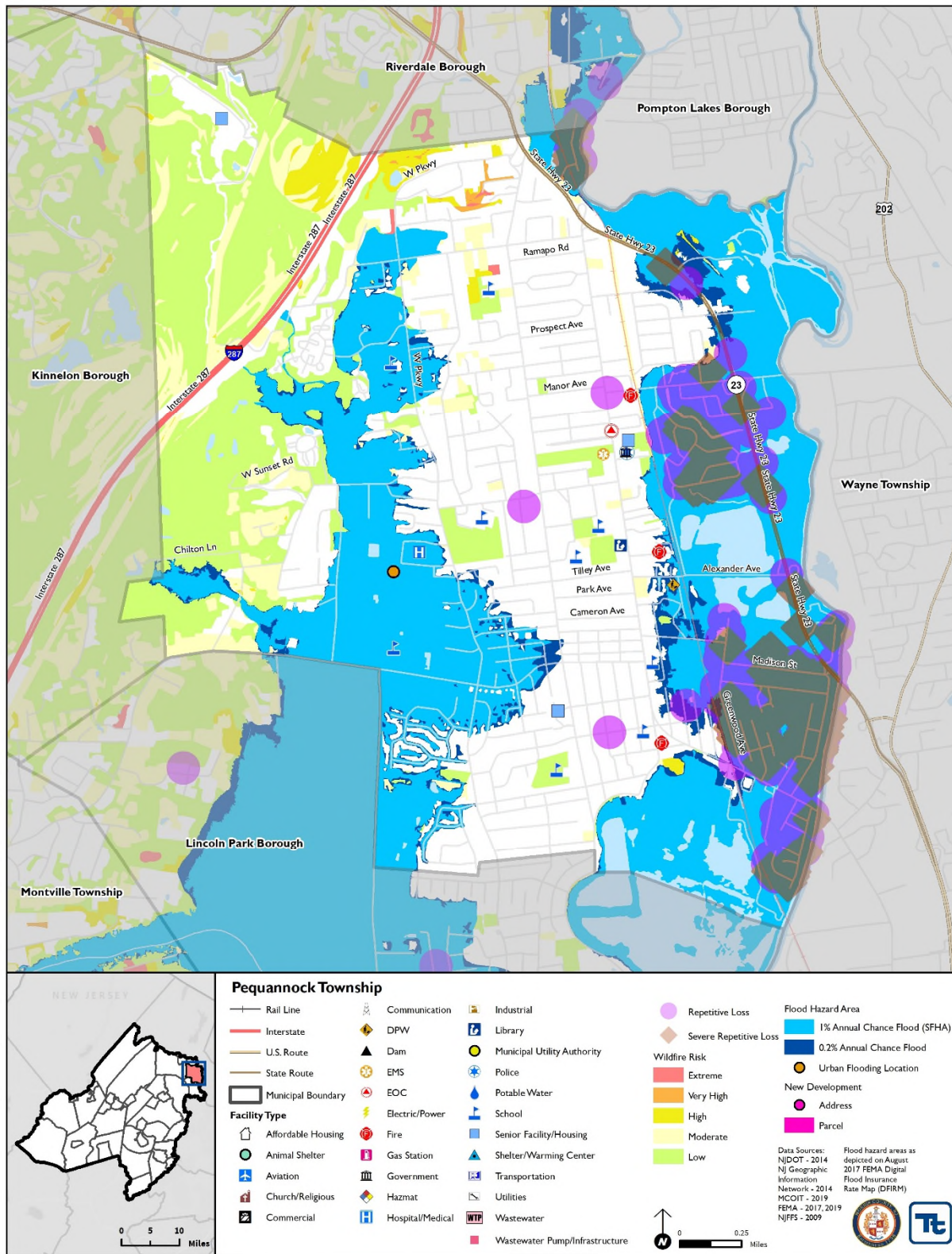
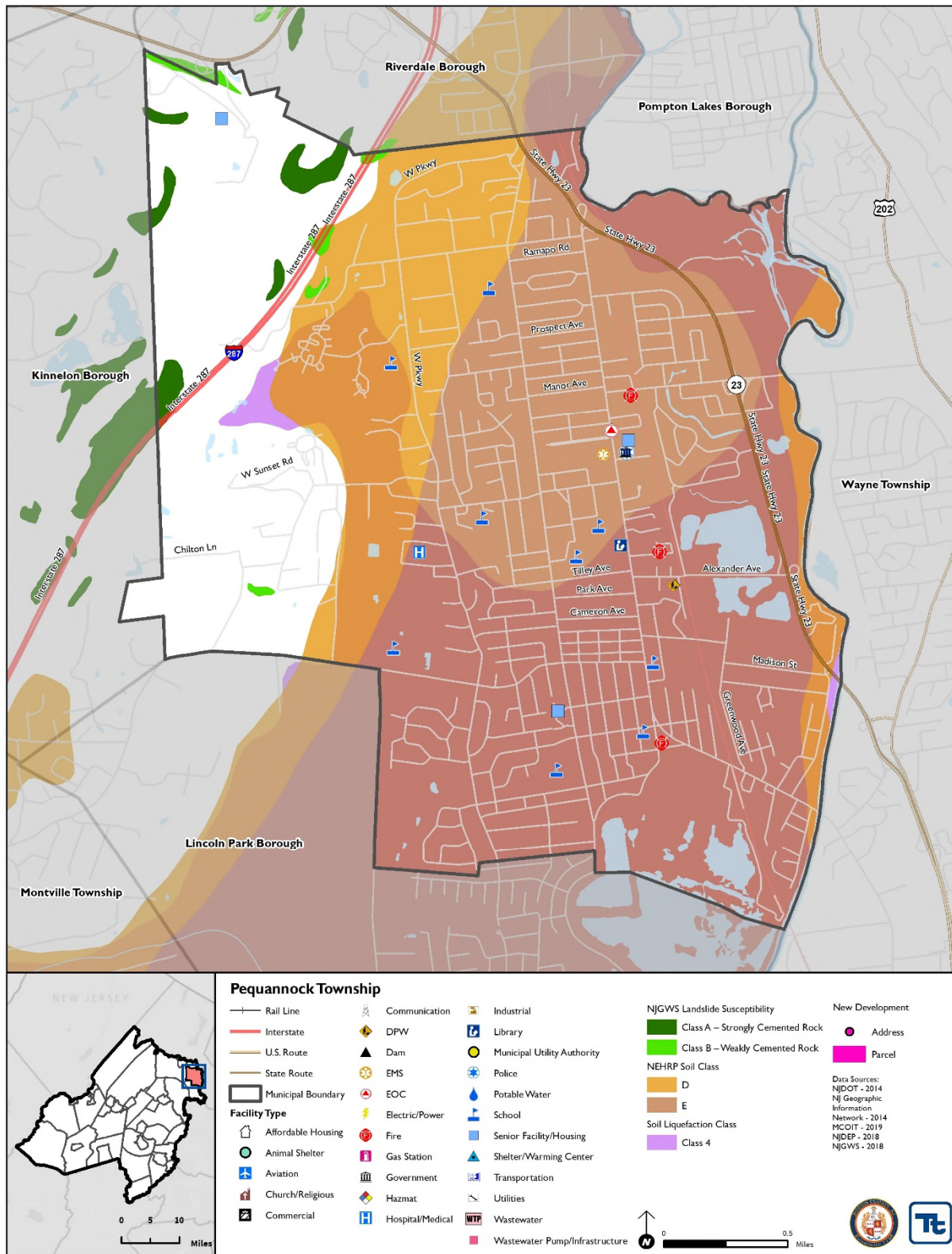




Figure 9.32-2. Township of Pequannock Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Glens Apartment Complex Engineering Study		
Project Number:	2020-Township of Pequannock-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Glens Apartment complex is flood prone.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will work with the property owner to complete an engineering study for flood control measures (berms) downstream of Untermeyer Dam. The Township and property owner will then implement the selected measures.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	500-year flood level	Estimated Benefits (losses avoided):	Flood risk reduced to Apartment complex
Useful Life:	25 years	Goals Met:	3
Estimated Cost:	\$25,000 for study	Mitigation Action Type:	Local Plans and Regulations, Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	2 years	Potential Funding Sources:	HMA grants
Responsible Organization:	Township Engineer, Private Owner	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Buyout Glens Apartment complex	\$150 million	Not cost effective
	Elevate apartment complex	\$30 million	Not cost effective
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Glens Apartment Complex Engineering Study	
Project Number:	2020-Township of Pequannock-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects residents of Apartment Complex
Property Protection	1	Protects Apartment Complex
Cost-Effectiveness	1	
Technical	1	
Political	1	There is public support for the project
Legal	0	Requires private owner's cooperation
Fiscal	0	Requires funding support
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	0	
Other Community Objectives	1	Reduction of flood risk
Total	7	
Priority (High/Med/Low)	Medium	



Action Worksheet			
Project Name:	Home Elevation/Acquisition Program		
Project Number:	2020-Township of Pequannock-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Frequent flooding events have resulted in damages in the Pompton River area and other flood prone regions. This area is residential, and these properties have been repetitively flooded as documented by paid NFIP claims.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct outreach to eligible RL/SRL property owners. Collect required property owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/ elevating residential homes in the high-risk flood prone areas, manage projects through to completion.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	1% annual chance flood event + freeboard (<i>in accordance with flood ordinance</i>)	Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage.
Useful Life:	Acquisition: Lifetime Elevation: 30 years (residential)	Goals Met:	3
Estimated Cost:	\$3 Million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	6-12 months
Estimated Time Required for Project Implementation:	Three years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Flood Resilience Officer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate homes	\$500,000	When this area floods, the entire area is impacted; elevating homes would not eliminate the problem and still lead to road closures and impassable roads
	Elevate roads	\$500,000	Elevated roadways would not protect the homes from flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Home Elevation/Acquisition Program	
Project Number:	2020-Township of Pequannock-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/protect families from the flood prone areas of the Township.
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	Flood Resilience Officer, supported by homeowners
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Sewage Pumping Stations Mitigation Plan		
Project Number:	2020-Township of Pequannock-004		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Arundel Road Sewage Pumping Station and Beverly Avenue Sewage Pumping Station is flood prone.		
Action or Project Intended for Implementation			
Description of the Solution:	Complete engineering study to determine appropriate mitigation action. Likely measures involve flood proofing. Complete identified mitigation actions.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	1-percent plus 2 feet	Estimated Benefits (losses avoided):	Reduction in flood exposure to pump station
Useful Life:	50 years	Goals Met:	3
Estimated Cost:	\$200,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMGP, Municipal budget
Responsible Organization:	Township Engineer, DPW	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Build new pump stations uphill	\$500,000	Too expensive
	Sandbags	\$1,000	Requires deployment
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet



Project Name:	Sewage Pumping Stations Mitigation Plan	
Project Number:	2020-Township of Pequannock-004	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protects pump station
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	0	Flood
Timeline	1	2 years
Agency Champion	1	Engineering
Other Community Objectives	1	Protection of critical facilities
Total	11	
Priority (High/Med/Low)	High	





Action Worksheet			
Project Name:	Woodland Lake Sluice Gate		
Project Number:	2020-Township of Pequannock-008		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Flooding can occur if Woodland Lake is not lowered prior to major storm events. This requires staff to monitor the condition of the lake, weather events, and respond accordingly.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will install an automated sluice gate allowing Woodland Lake to be lowered in advance of major storm events without the response of staff.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	Lake level maintained below flood levels	Estimated Benefits (losses avoided):	Flood risk reduced
Useful Life:	15 years	Goals Met:	3
Estimated Cost:	\$10,000	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	3 months	Potential Funding Sources:	HMGP
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove sluice and keep lake low at all times	\$3,000	Environmental damage to lake ecosystem. Decrease in aesthetics of lake.
	Replace sluice with spill over dam	\$150,000	Not cost effective
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Project Name:	Woodland Lake Sluice Gate	
Project Number:	2020-Township of Pequannock-008	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protects lives from flooding
Property Protection	1	Protects properties from flooding
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	Within 5 years
Agency Champion	1	Township Engineer
Other Community Objectives	1	
Total	8	
Priority (High/Med/Low)	Medium	

Action Worksheet	
Project Name:	Village Area Conveyance System



Project Number:	2020-Township of Pequannock-009		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Village area is prone to flooding, need to create a mitigating conveyance system		
Action or Project Intended for Implementation			
Description of the Solution:	The Township Engineer will design and install a pipe conveyance system from the Village area to Woodland Lake.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	25 year storm	Estimated Benefits (losses avoided):	Reduction in flood risk
Useful Life:	30 years	Goals Met:	3
Estimated Cost:	\$50,000	Mitigation Action Type:	Structure and Infrastructure Projects
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 3 years
Estimated Time Required for Project Implementation:	6 months	Potential Funding Sources:	HMGP, municipal budget
Responsible Organization:	Township Engineer	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate roadways	\$500,000	Costly and may not solve problem
	Relocate roadways	N/A	Not possible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet	
Project Name:	Village Area Conveyance System



Project Number:	2020-Township of Pequannock-009	
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	0	
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	Project would reduce flooding impacts
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 3 years
Agency Champion	1	Engineering
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	

Action Worksheet	
Project Name:	Develop Watershed Management Plan
Project Number:	2020-Township of Pequannock-013



Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Pompton Watershed lacks a Watershed Management Plan. The Township has reached out to the USACE Silver Jackets program for technical assistance.		
Action or Project Intended for Implementation			
Description of the Solution:	The Township will work with Lincoln Park to develop a Watershed Management Plan.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	TBD	Estimated Benefits (losses avoided):	Reduction in flood risk in selected areas
Useful Life:	TBD	Goals Met:	1, 2, 3, 4
Estimated Cost:	TBD	Mitigation Action Type:	Local Plans and Regulations
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	Municipal budget, USACE Silver Jackets, PDM
Responsible Organization:	Township Flood Resilience Officer, Borough of Lincoln Park	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation planning, watershed management planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Encourage state to develop watershed management plan	Staff time	Unlikely to occur
	Remove all development and infrastructure from watershed	N/A	Not possible
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet	
Project Name:	Develop Watershed Management Plan
Project Number:	2020-Township of Pequannock-013



Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Plan will identify opportunities to protect life in the watershed
Property Protection	1	Plan will identify opportunities to protect property in the watershed
Cost-Effectiveness	1	
Technical	1	The Township has reached out to the USACE Silver Jackets for technical support
Political	1	
Legal	1	The Township has the legal authority to complete the project
Fiscal	1	Fiscal sources have been identified
Environmental	1	Would identify environmental improvements
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	1 year
Agency Champion	1	Township Flood Resilience Officer, Lincoln Park
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	