



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: oem@greenwichtwp.com	Name/Title: Kirk Fairley, Deputy Coordinator Address: 420 Washington St., Gibbstown, NJ Phone Number: 856-224-0373 Email: pwclerk@greenwichtwp.com
NFIP Floodplain Administrator	
Name/Title: Joseph Giordano, Floodplain Administrator Address: 420 Washington St., Gibbstown, NJ Phone Number: 856-423-9129 ext. 214 Email: jgiordano@greenwichtwp.com / floodadmin@greenwichtwp.com	



Name	Title	Method of Participation

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
Codes, Ordinances, & Regulations					
Building Code	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					
Zoning/Land Use Code	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"> • To promote the public health, safety, morals and general welfare of the inhabitants of the Township of Greenwich. • To secure safety from fire, flood, panic and other natural and man-made disasters. • To provide adequate light, air and open space. • 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. • 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. • 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. • 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. 					
Subdivision Ordinance	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
<i>How does this reduce risk?</i> The purpose of this ordinance is as follows: <ul style="list-style-type: none"> • 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. 					



	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"> To ensure the orderly development, conservation, protection and proper use of land and adequate provision for circulation, utilities and services. To provide adequate light, air and open space. 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. 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. To promote a desirable visual environment through creative development techniques and good civic design and arrangement. 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. 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. 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. 					
Stormwater Management Ordinance	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>					
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Real Estate Disclosure	Yes/No	Yes		State	
<p><i>How does this reduce risk?</i></p>					
Growth Management	Yes/No	Yes, if the jurisdiction has a planning board		Local	
<p><i>How does this reduce risk?</i></p>					
Site Plan Ordinance	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>					
Environmental Protection Ordinance	No	Yes, depends on type of environmental areas	-	-	-
<p><i>How does this reduce risk?</i></p>					
Flood Damage Prevention Ordinance	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> 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"> Protect human life and health; Minimize expenditure of public money for costly flood-control projects; 					



	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"> Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; Minimize prolonged business interruptions; 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; 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; Ensure that potential buyers are notified that property is in an area of special flood hazard; and Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. <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>					
Wellhead Protection	No	No	-	-	-
<i>How does this reduce risk?</i>					
Emergency Management Ordinance	No	No	-	-	-
<i>How does this reduce risk?</i>					
Climate Change Ordinance	No	No	-	-	-
<i>How does this reduce risk?</i>					
Disaster Recovery Ordinance	No	No	-	-	-
<i>How does this reduce risk?</i>					
Disaster Reconstruction Ordinance	No	No	-	-	-
<i>How does this reduce risk?</i>					
Other	No	No	-	-	-
Codes, Ordinances, & Regulations Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> 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/No Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes/No Does it contain natural overlay zones that set conditions? Yes/No Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes/No Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes/No Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes/No Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes/No Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes/No Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes/No Do the regulations allow density transfers where hazard areas exist? Yes/No When updating ordinances, is hazard mitigation considered? Yes/No 					
Planning Documents					
Master Plan	Yes	Yes – County Yes/No - municipality	Master Plan, adopted 9/13/1999	Local	Planning/Zoning Board
<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 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.					
Capital Improvement Plan	Yes	Allowed	Annual Budget	Local	Township Council
<i>How does this reduce risk?</i> The annual budget contains a 3-year capital program					
Disaster Debris Management Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Floodplain Management or Watershed Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Stormwater Management Plan	Yes/No	Yes	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Stormwater Pollution Prevention Plan	Yes/No	Yes	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Urban Water Management Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Habitat Conservation Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Economic Development Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Shoreline Management Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Community Wildfire Protection Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Community Forest Management Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Transportation Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Agriculture Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Climate Action/ Resiliency Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Tourism Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<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
Business/ Downtown Development Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Other	Yes/No		If yes, provide	If yes, provide	If yes, provide
Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes/No Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes/No Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes/No Does the future land use map clearly identify natural hazard areas? Yes/No Do the land use policies discourage development or redevelopment with natural hazard areas? Yes/No Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes/No Does the transportation plan limit access to hazard areas? Yes/No Is transportation policy used to guide growth to safe locations? Yes/No Are transportation systems designed to function under disaster conditions (e.g., evacuation)? Yes/No Are environmental systems that protect development from hazards identified and mapped? Yes/No Do environmental policies maintain and restore protective ecosystems? Yes/No Do environmental policies provide incentives to development that is located outside protective ecosystems? Yes/No 					
Response/Recovery Planning					
Emergency Operations Plan	Yes/No	Yes	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Strategic Recovery Planning Report	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Post-Disaster Recovery Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Continuity of Operations Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Public Health Plan	Yes/No	No	If yes, provide	If yes, provide	If yes, provide
<i>How does this reduce risk?</i>					
Other	Yes/No	-	If yes, provide	If yes, provide	If yes, provide
Response/Recovery Planning Connection to Mitigation and Safe Growth					
<ul style="list-style-type: none"> Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes/No 					

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?	Yes/No	If yes, provide



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

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)
Administrative Capability		
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	Yes/No	If yes, provide
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	Yes/No	If yes, provide
Economic Development Commission/Committee	Yes/No	If yes, provide
Public Works/Highway Department	Yes/No	If yes, provide
Construction/Building/Code Enforcement Department	Yes/No	If yes, provide
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.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes/No	If yes, provide
Mutual aid agreements	Yes/No	If yes, provide
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes/No	If yes, provide
Other	Yes/No	If yes, provide
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes/No	If yes, provide
Engineers or professionals trained in building or infrastructure construction practices	Yes/No	If yes, provide
Planners or engineers with an understanding of natural hazards	Yes/No	If yes, provide
Staff with expertise or training in benefit/cost analysis	Yes/No	If yes, provide
Professionals trained in conducting damage assessments	Yes/No	If yes, provide
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes/No	If yes, provide
Scientist familiar with natural hazards	Yes/No	If yes, provide
Surveyor(s)	Yes/No	If yes, provide
Emergency Manager	Yes	
Grant writer(s)	Yes/No	If yes, provide
Resilience Officer	Yes/No	If yes, provide
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes/No	If yes, provide
How do your administrative/technical capabilities contribute to risk reduction in your community?		
<ul style="list-style-type: none"> If yes, provide 		

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)	Yes/No
Capital improvements project funding	Yes/No
Authority to levy taxes for specific purposes	Yes/No
User fees for water, sewer, gas or electric service	Yes/No
Impact fees for homebuyers or developers of new development/homes	Yes/No
Stormwater utility fee	Yes/No
Incur debt through general obligation bonds	Yes/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	Yes/No
Incur debt through private activity bonds	Yes/No
Withhold public expenditures in hazard-prone areas	Yes/No
Other federal or state funding programs	Yes/No
Open Space Acquisition funding programs	Yes/No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes/No
Fiscal Connection to Mitigation and Safe Growth	
<ul style="list-style-type: none"> How do your fiscal capabilities contribute to risk reduction in your community? Yes/No Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? Yes/No Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes/No Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes/No 	

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/No	If yes, provide
Personnel skilled or trained in website development	Yes/No	If yes, provide
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/No	If yes, provide
Citizen boards or commissions that address issues related to hazard mitigation	Yes/No	If yes, provide
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	Yes/No	If yes, provide
Other	Yes/No	If yes, provide
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. <ul style="list-style-type: none"> If yes, provide 		



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/No		
Building Code Effectiveness Grading Schedule (BCEGS)	Yes/No		
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes/No		
Sustainable Jersey	Yes/No		
StormReady Certification	Yes/No		
Firewise Communities classification	Yes/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



Hazard	Adaptive Capacity - Strong/Moderate/Weak*
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
Flood Vulnerability Summary	
# NFIP Policies: 238 # RL properties: 4 # SRL properties: 0 #RL/SRL mitigated: none	Total premium in force: \$363,305.00 # claims filed: 102 Total loss payments: \$189,352.85
Describe areas prone to flooding in your jurisdiction.	Low lying areas south east 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
NFIP Administration	
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?	NEED



NFIP Topic	Comments
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes
NFIP Compliance	
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
Additional Information	
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 (https://www.nj.gov/dep/floodcontrol/modelord.htm) 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

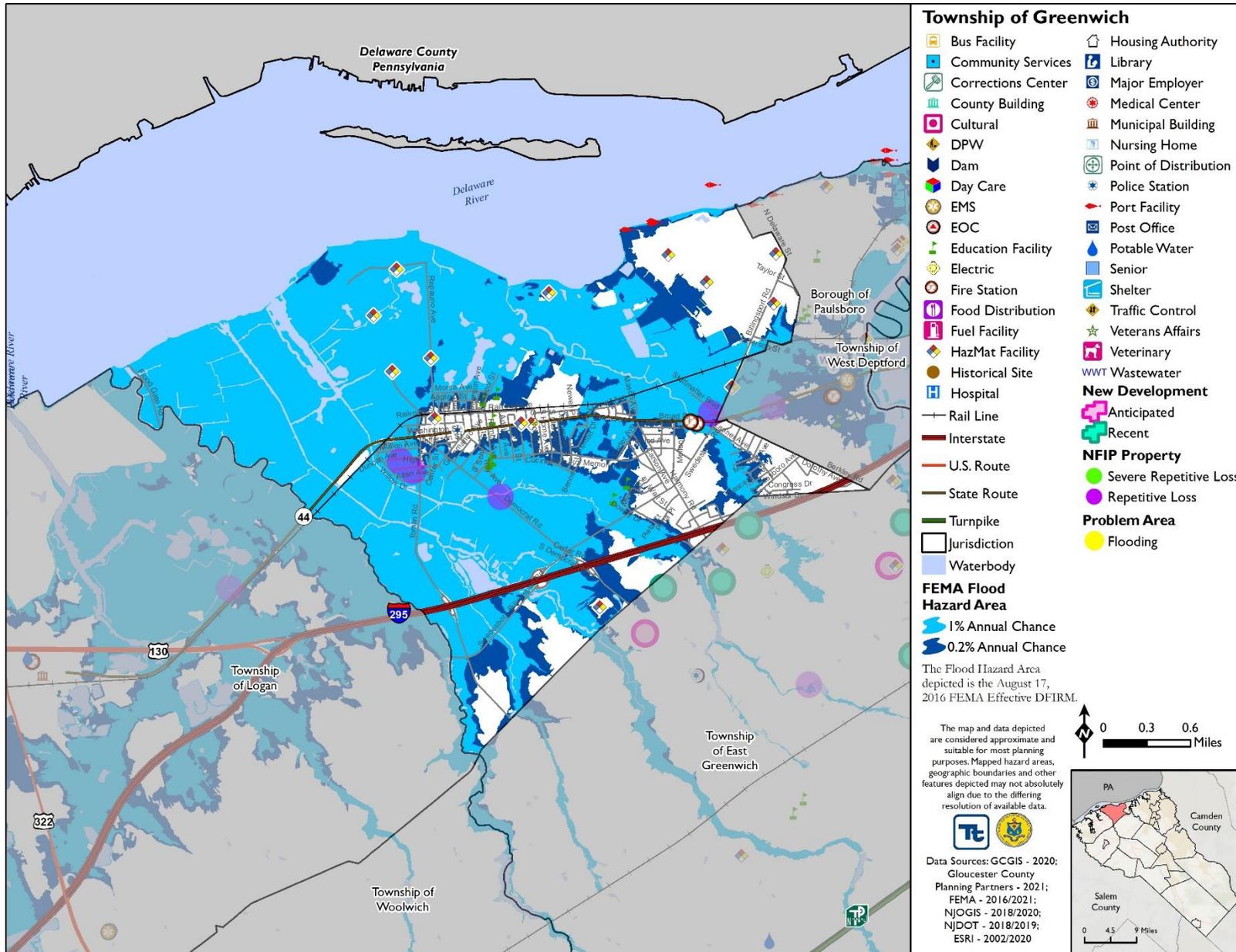




Figure 9.8-2. Township of Greenwich Hazard Area Extent and Location Map 2

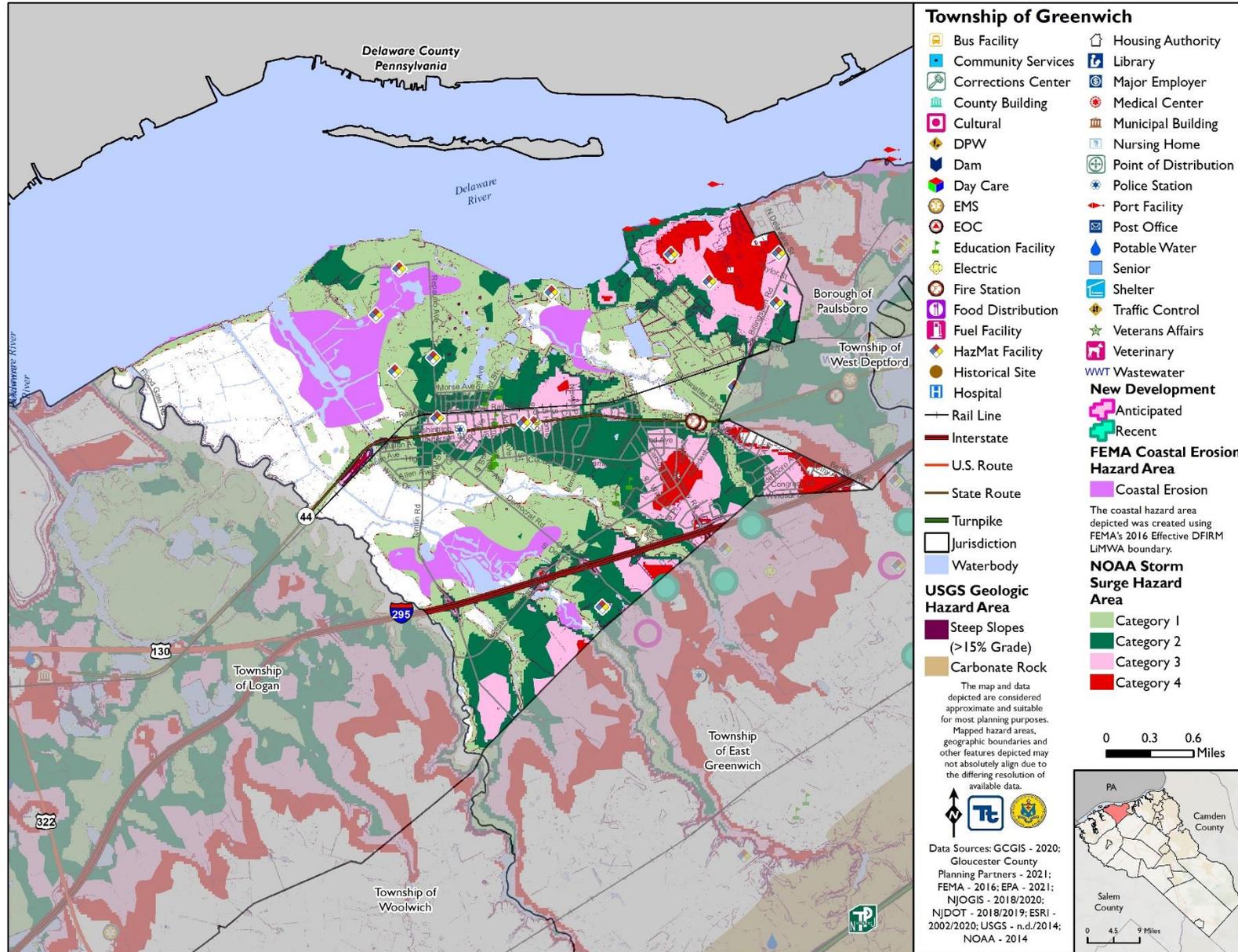




Figure 9.8-3. Township of Greenwich Hazard Area Extent and Location Map 3

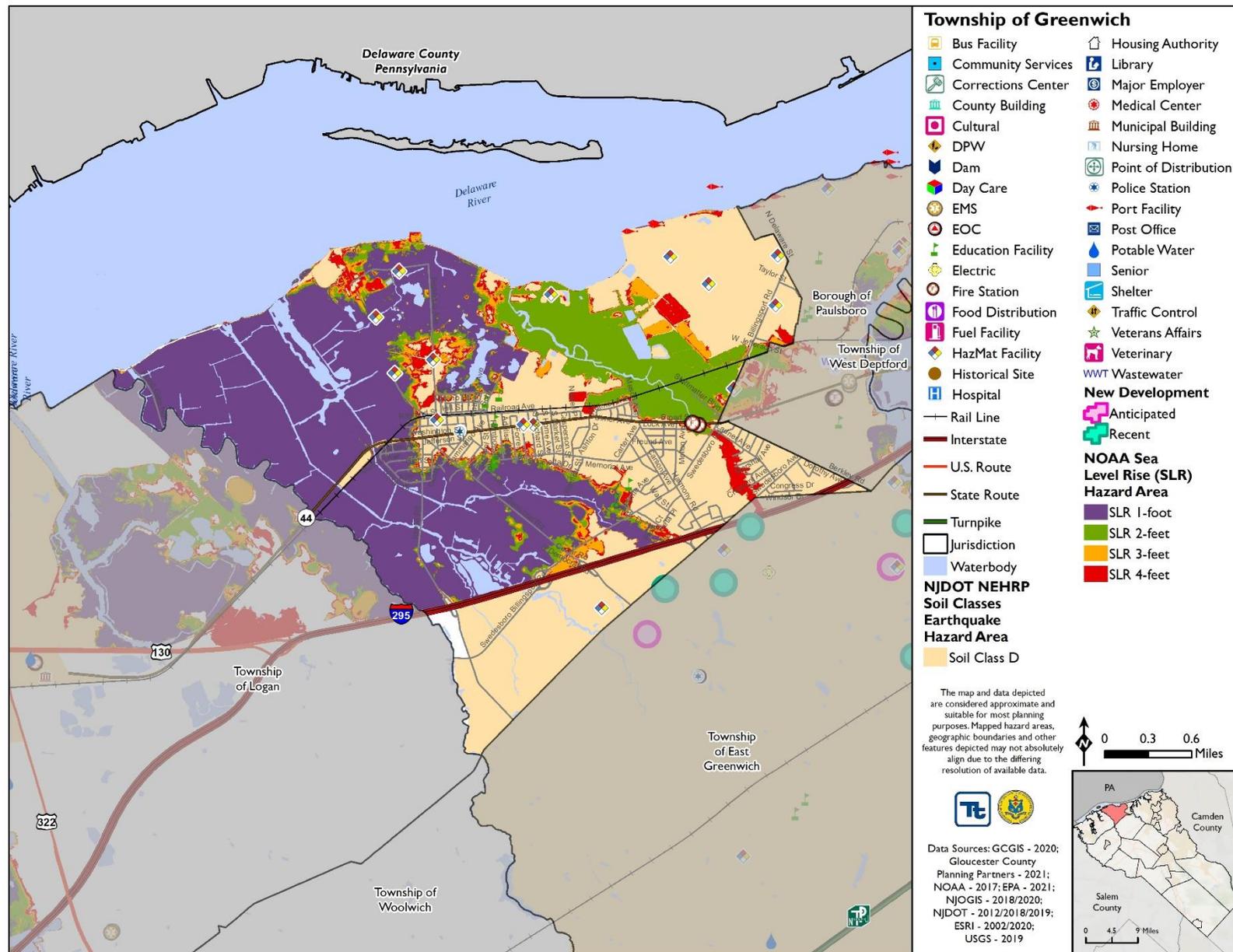
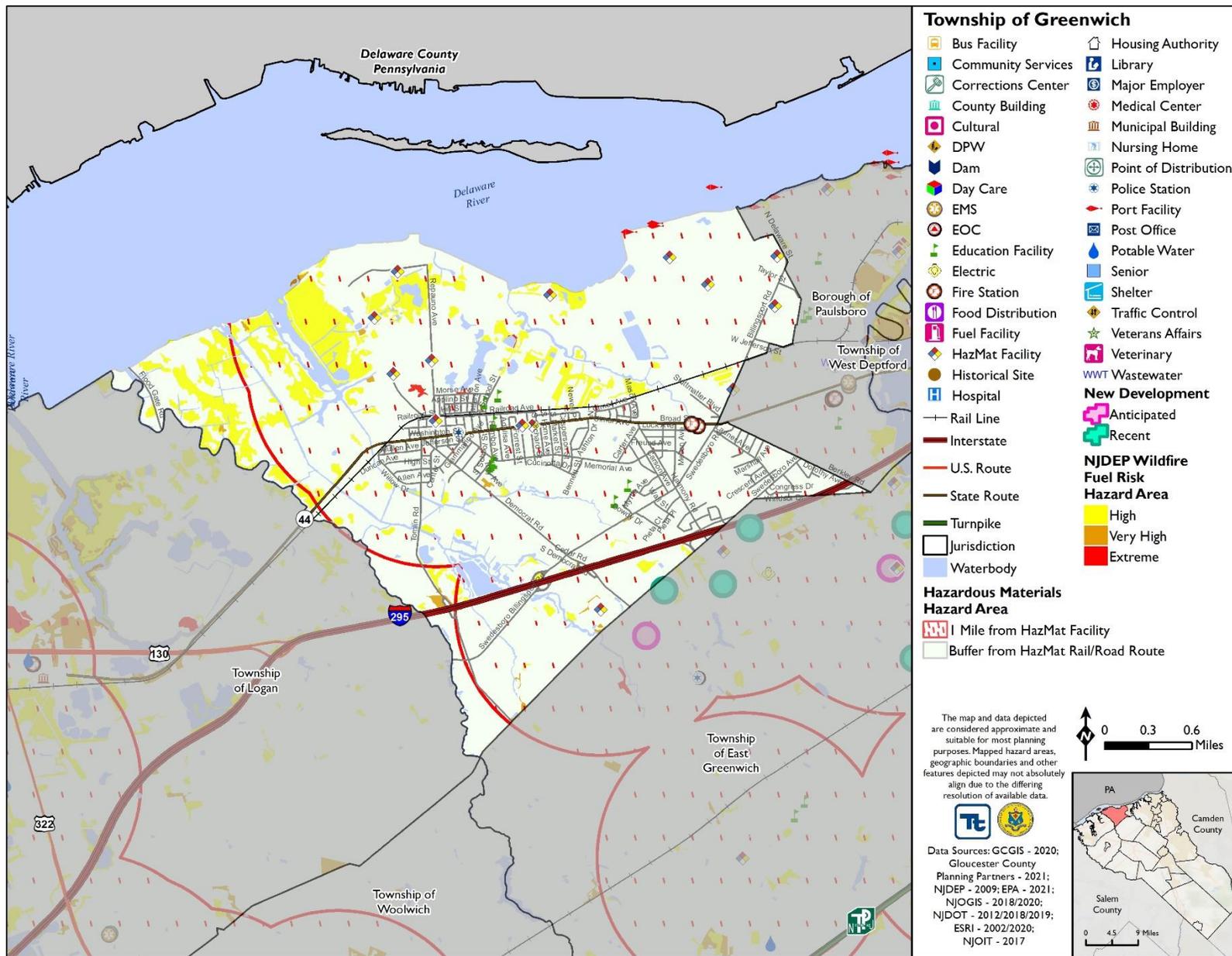




Figure 9.8-4. Township of Greenwich Hazard Area Extent and Location Map 4



Section 9.8 | Township of Greenwich



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
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	NEED



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			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).	

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:

- Phyllis and Marshall Avenues – bulkhead needs to be repaired
- Groundwater infiltration of sanitary sewer system – line and seal sewer system
- Issues with the responsibility and maintenance of levee and tide gates on Floodgate Road



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.

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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). ²	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). ²	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). ²	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). ²	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). ²	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). ²	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 Harmony 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	-	-

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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/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	X
Geologic	X									X
Hazardous Materials	X									X
Hurricane/Tropical Storm	X	X				X			X	X
Invasive and Nuisance Species	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.

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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	Problem: 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. Solution: 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+	NEED	SIP	ES
2022-Greenwich-002 (previous action)	Generator at Nehaunsey Middle School	Problem: 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+	NEED	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
		Solution: 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	Problem: The wastewater treatment facility located along North School Street is located in a floodplain (AE Zone). The facility is prone to flooding and damages. Solution: 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 Storm	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+	NEED	LPR, SIP	PP, ES, SP
2022-Greenwich-004 (previous action)	Engineering Study at Nehaunsey Middle School	Problem: Nehaunsey Middle School, an identified community lifeline, is located along Swedesboro Road 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 Storm	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+	NEED	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
		<p>Solution: 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.</p>											
2022-Greenwich-005	Flood Damage Prevention Ordinance	<p>Problem: The current flood damage prevention ordinance does not meet the state's recommendation for a code-coordinated flood damage prevention ordinance.</p> <p>Solution: 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 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>Problem: The Borough lacks an adopted Disaster Debris Management Plan.</p> <p>Solution: The Borough 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	Medium	LPR	ES
2022-Greenwich-007	RL/SRL Property Outreach	<p>Problem: 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>Solution: 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																
2022-Greenwich-002	Generator at Nehaunsey Middle School																
2022-Greenwich-003	Engineering Study at Wastewater Treatment Facility on North School Street																
2022-Greenwich-004	Engineering Study at Nehaunsey Middle School																
2022-Greenwich-005	Flood Damage Prevention Ordinance																
2022-Greenwich-006	Municipal Debris Management Plan																
2022-Greenwich-007	RL/SRL Property Outreach																

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.

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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.

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Action Worksheet			
Project Name:	Generator at Broad Street Elementary School		
Project Number:	2022-Greenwich-001 (previous action)		
Risk / Vulnerability			
Hazard(s) of Concern:	Utility Failure		
Description of the Problem:	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			
Description of the Solution:	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.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	Continuity of operations; protection population
Useful Life:		Goals Met:	1, 2, 5, 6
Estimated Cost:	\$30,000+	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:		Potential Funding Sources:	FEMA HMGP; Municipal Budget
Responsible Organization:	Township BOE, Township ORM	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
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Generator at Broad Street Elementary School	
Project Number:	2022-Greenwich-001 (previous action)	
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		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		Utility Failure
Timeline		Within 2 years
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		



Action Worksheet			
Project Name:	Generator at Nehaunsey Middle School		
Project Number:	2022-Greenwich-002 (previous action)		
Risk / Vulnerability			
Hazard(s) of Concern:	Utility Failure		
Description of the Problem:	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			
Description of the Solution:	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.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	Continuity of operations; protection population
Useful Life:		Goals Met:	1, 2, 5, 6
Estimated Cost:	\$30,000+	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	Within 2 years
Estimated Time Required for Project Implementation:	Within 2 years	Potential Funding Sources:	FEMA HMGP; Municipal Budget
Responsible Organization:	Township BOE, OEM	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
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Generator at Nehaunsey Middle School	
Project Number:	2022-Greenwich-002 (previous action)	
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		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		Utility Failure
Timeline		Within 2 years
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		



Action Worksheet			
Project Name:	Engineering Study at Wastewater Treatment Facility on North School Street		
Project Number:	2022-Greenwoch-003 (previous action)		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Storm		
Description of the Problem:	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			
Description of the Solution:	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.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	Continuity of operations; increase protection
Useful Life:		Goals Met:	1, 2, 5, 6
Estimated Cost:	\$1 million+	Mitigation Action Type:	Local Plans and Regulations, Structure and Infrastructure Project
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	Municipal Budget for study, FEMA FMA and BRIC for implementation
Responsible Organization:	Township Engineer and Public Works	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Engineering Study at Wastewater Treatment Facility on North School Street	
Project Number:	2022-Greenwoch-003 (previous action)	
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		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Storm
Timeline		3 years
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		



Action Worksheet			
Project Name:	Engineering Study at Nehaunsey Middle School		
Project Number:	2022-Greenwich-004 (previous action)		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Storm		
Description of the Problem:	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			
Description of the Solution:	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.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	Continuity of operations; increase protection
Useful Life:		Goals Met:	1, 2, 5, 6
Estimated Cost:	\$1 million+	Mitigation Action Type:	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
Prioritization:		Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	Municipal budget for study, FEMA FMA and BRIC for implementation
Responsible Organization:	Township Engineer and School BOE	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Engineering Study at Nehaunsey Middle School	
Project Number:	2022-Greenwich-004 (previous action)	
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		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		Flood, Hurricane/Tropical Storm, Nor'Easter, Severe Storm
Timeline		3 years
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)		



Action Worksheet			
Project Name:	RL/SRL Property Outreach		
Project Number:	2022-Greenwich-007		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	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			
Description of the Solution:	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).		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:		Estimated Benefits (losses avoided):	Eliminates flood damage to homes and residents, creates open space for the municipality increasing flood storage
Useful Life:		Goals Met:	1, 2
Estimated Cost:	\$1 million+	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	
Estimated Time Required for Project Implementation:	3 years	Potential Funding Sources:	FEMA HMGP and FMA, local cost share by residents
Responsible Organization:	Floodplain administrator, supported by homeowners	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
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-Greenwich-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		
Legal		
Fiscal		
Environmental		
Social		
Administrative		
Multi-Hazard		Flood, Severe Weather
Timeline		3 years
Agency Champion		
Other Community Objectives		
Total		
Priority (High/Med/Low)	High	