



## 9.4 TOWNSHIP OF EAST GREENWICH

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

### 9.4.1 Hazard Mitigation Planning Team

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

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

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Township of East Greenwich's hazard mitigation plan primary and alternate points of contact. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

*Table 9.4-1. Hazard Mitigation Planning Team*

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



Name	Title	Method of Participation
Kyle Messick	OEM Coordinator	Point of contact for the municipality; represented the Township on the planning partnership; attended meetings; provided information for annex; and reviewed previous actions and identified new actions
Anthony Rossett	Public Works Manager	Attended meetings; reviewed previous actions and identified new actions; provided information for annex; reviewed municipal annex
James Sabetta	Construction Official	Attended meetings; reviewed previous actions and identified new actions; provided information for annex; reviewed municipal annex

## 9.4.2 Municipal Profile

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

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

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

According to the U.S. Census, the 2010 population for the Township of East Greenwich was 9,555. The estimated 2019 population was 10,488, an 8.89 percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 7.5% percent of the population is 5 years of age or younger and 14.8% percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

## 9.4.3 Jurisdictional Capability Assessment and Integration

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

- An assessment of planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.



- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

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

### 9.4.3.1 Planning, Legal, and Regulatory Capability

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

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

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Codes, Ordinances, &amp; Regulations</b>					
<b>Building Code</b>	Yes	Yes	Title 15 Buildings and Construction; Municipal Code	State and Local	East Greenwich Township Construction Code Department
<i>How does this reduce risk?</i> The Construction Code Department enforces the building code and is made up of a construction official, building subcode official, fire protection subcode official and other subcode officials. Permits are required for new construction, additions, swimming pools, and satellite dishes and towers. It also includes the Flood Damage Prevention Code in Chapter 15.32.					
<b>Zoning/Land Use Code</b>	Yes	Yes, if the jurisdiction has a planning board	Title 16 Land Development Code; Municipal Code	Local	Combined Land Use Board – Planning/Zoning
<i>How does this reduce risk?</i> This chapter is intended to be a comprehensive ordinance regulating and limiting the uses of land and the uses and locations of buildings and structures; regulating and restricting the height and bulk of buildings and structures; regulating and restricting the area of yards and other open spaces; regulating and restricting the density of population; sectioning the township into districts for such purposes as provided on the adopted zoning map of the township showing boundaries and the classification of such districts; establishing rules, regulations and standards governing the subdivision and development of land within the township; establishing a planning board; and prescribing penalties for the violation of its provisions. Several of the purposes of the chapter align with the goals and objectives of the County's HMP including to secure safety from fire, flood, panic and other natural and manmade disasters.					
Section 86 of the zoning code includes floodplain regulations. The purpose of this section is to permit only that development of floodprone areas which: is appropriate in light of the probability of flood damage and the need to preclude flood losses; represents an acceptable social and economic use of the land relative to the hazards involved; and does not increase danger to life or property anywhere adjacent to or in the floodplain area.					
<b>Subdivision Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 16.16 - Subdivision Plat and Site Plan Procedures; Municipal Code	Local	Combined Land Use Board – Planning/Zoning
<i>How does this reduce risk?</i>					



	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
Prior to subdividing or resubdividing land, the land owner must submit a sketch plat, survey prints, and a land development checklist to the Land use Board.					
<b>Stormwater Management Ordinance</b>	Yes	Yes	Chapter 16.45 – Stormwater Control; Municipal Code; Updated 3/23/2021	Local	
<i>How does this reduce risk?</i> In accordance with our NJOEP Tier A Municipal Stormwater General Permit, the Township has adopted various Ordinances to regulate the impact of stormwater runoff and pollutants to the environment. The purpose of stormwater ordinance is to establish minimum stormwater management requirements and controls for "major development. Flood control, groundwater recharge, and pollutant reduction shall be achieved through using stormwater management measures in the Township, including green infrastructure and nonstructural stormwater management strategies.					
<b>Post-Disaster Recovery/Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Real Estate Disclosure</b>	No	Yes	-	State	-
<i>How does this reduce risk?</i>					
<b>Growth Management</b>	Yes	Yes, if the jurisdiction has a planning board	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	Joint Land Use Board
<i>How does this reduce risk?</i> This is outlined in the Township's Master Plan (2004) and Reexamination report (2018). One of the goals of the plan is to preserve and protect the character of established residential neighborhoods as well as agricultural uses to ensure any future growth compliments and enhances the character of the overall community.					
<b>Site Plan Ordinance</b>	Yes	Yes, if the jurisdiction has a planning board	Chapter 16.16 - Subdivision Plat and Site Plan Procedures; Municipal Code	Local and County	Combined Land Use Board – Planning/Zoning
<i>How does this reduce risk?</i> The site plan ordinance is part of Chapter 16 (Subdivision Plat and Site Plan Procedures). The Planning Board is responsible for reviewing and determining non-residential site plans and subdivisions with non-use related variances.					
<b>Environmental Protection Ordinance</b>	Yes	Yes, depends on type of environmental areas	Chapter 16.59	Local	Environmental Commission
<i>How does this reduce risk?</i> The Township has an environmental overlay district used to protect and conserve environmentally sensitive areas from inappropriate development. This district includes floodplains and wetlands as mapped by the U.S. Department of the Interior and the U.S. Department of Housing and Urban Development. Also included are those lands that have been identified as a National Heritage Priority Site due to the presence of endangered plant species, as identified by the National Land Management Plan (1999 Natural Features Map) and lands identified as Regional Freshwater Wetland Habitat (Natural Resource Inventory 1998—Priorities Map). Environmental impact statements are required for any development proposals within the environmental overlay district.					
<b>Flood Damage Prevention Ordinance</b>	Yes	Yes	Chapter 15.32 – Flood Damage Prevention; Municipal Code	Federal, State, County and Local	Planning Board
<i>How does this reduce risk?</i> This chapter applies to all special flood hazard areas within the Township. The purpose of the chapter is to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. The Planning Board is appointed to administer and implement the flood damage prevention ordinance. Duties include permit review, using base flood data, obtaining information, and interpreting the FIRM boundaries. The current ordinance requires new construction and substantial improvements in the					



	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
floodplain must have the lowest floor elevate to or above the BFE. This does not meet the minimum set by NJDEP. During the next update of the ordinance, the Township will work with NJDEP to ensure the ordinance meets the minimum requirements.					
<b>Wellhead Protection</b>	Yes	No	Through NJDEP that the municipality has a wellhead protection program	State	DEP
<i>How does this reduce risk?</i> Part of the Stormwater Ordinance					
<b>Emergency Management Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Change Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Recovery Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Disaster Reconstruction Ordinance</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Other</b>	No	No	-	-	-
<b>Codes, Ordinances, &amp; Regulations Connection to Mitigation and Safe Growth</b>					
<ul style="list-style-type: none"><li>• Prior to, zoning changes, or development permitting, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? Yes</li><li>• Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? Yes</li><li>• Does it contain natural overlay zones that set conditions? Yes</li><li>• Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Yes</li><li>• Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? Yes</li><li>• Do the ordinances prohibit development within, of filling of, wetlands, floodways, and floodplains? Yes</li><li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li><li>• Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes</li><li>• Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? Yes</li><li>• Do the regulations allow density transfers where hazard areas exist? No</li><li>• When updating ordinances, is hazard mitigation considered? Yes</li></ul>					
<b>Planning Documents</b>					
<b>Master Plan</b>	Yes	Yes – County Yes/No - municipality	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	East Greenwich Township Planning Board
<i>How does this reduce risk?</i> The master plan contains several elements: land use, circulation, recreation, open space, farmland, housing and population, community facilities, utility facilities, recycling, economic, and historic preservation.					
<b>Capital Improvement Plan</b>	Yes	Allowed	Part of the general budget	Local	Township Council
<i>How does this reduce risk?</i> Varies year to year – 5-year projection for each department of equipment					
<b>Disaster Debris Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i> While the County maintains a countywide Debris Management Plan, the Township does not have one specific to their community and needs. Refer to Table 9.4-16 as the Township identified this as a mitigation action.					



	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<b>Floodplain Management or Watershed Plan</b>	Yes	No	FEMA	Federal	Floodplain Manager
<i>How does this reduce risk?</i> Floodplain ordinance (not a plan) – use the FIRMs for permitting process					
<b>Stormwater Management Plan</b>					
	Yes	Yes	Watershed Based Municipal Stormwater Management Plan, 2/2006	County and Local	Gloucester County Improvement Authority; East Greenwich Township Planning Board & Stormwater Program Coordinator
<i>How does this reduce risk?</i>					
<b>Stormwater Pollution Prevention Plan</b>	Yes	Yes	Stormwater Pollution Prevention Plan, 2/9/2021	Local	East Greenwich Stormwater Program Coordinator
<i>How does this reduce risk?</i>					
<b>Urban Water Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Habitat Conservation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Economic Development Plan</b>	Yes	No	Comprehensive Master Plan, 3/25/2004; Reexamination and Land Use Plan Amendment 9/18/2018	Local	Planning Board
<i>How does this reduce risk?</i> An element of the master plan					
<b>Shoreline Management Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Wildfire Protection Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Community Forest Management Plan</b>	Yes	No	Community Forest Management Plan, 11/2016	Local	East Greenwich Shade Tree Commission
<i>How does this reduce risk?</i> The Community Forestry plan was developed by the Shade Tree Commission and consultant. We are in year of the fourth of 5 year plan. The community was accredited in 2018 and 2019.					
<b>Transportation Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Agriculture Plan</b>	No	No	-	-	-
<i>How does this reduce risk?</i>					
<b>Climate Action/ Resiliency Plan</b>	No	No	-	-	-

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

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	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
• Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards? Yes					

### 9.4.3.2 Development and Permitting Capability

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

*Table 9.4-3. Development and Permitting Capability*

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

### 9.4.3.3 Administrative and Technical Capability

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

*Table 9.4-4. Administrative and Technical Capabilities*

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
<b>Administrative Capability</b>		
Planning Board	Yes	The Combined Land Use Board oversees site plan reviews and subdivision applications and other planning and zoning needs including Master Planning.
Zoning Board of Adjustments	Yes	See Above
Planning Department	Yes	See Above
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The Environmental Commission of East Greenwich works to preserve natural resources and provide environmental protection information education to residents. The Commission assists with site reviews environmental workshops, and habitat cleanups. The Commission also oversees participation in Sustainable Jersey, where the Township was certified Bronze on 12/16/2020.
Open Space Board/Committee	Yes	Township Committee recommends for Master Plan



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Economic Development Commission/Committee	Yes	The Mayor oversees the economic development commission.
Public Works/Highway Department	Yes	The Public Works Department is responsible for the construction, maintenance, and operation of township streets, landscaping and other public facilities.
Construction/Building/Code Enforcement Department	Yes	The Construction Department enforces the New Jersey State Uniform Building Code and local building and zoning codes.
Emergency Management/Public Safety Department	Yes	The East Greenwich Office of Emergency Management works to prevent emergencies and to be prepared for any type of emergency that might occur through effective mitigation, preparedness, response, and recovery.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Gloucester Alert, and NJ Register Ready are available to residents for emergency notifications.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works Dept. maintains roadways, township building maintenance, tree maintenance, and debris disposal
Mutual aid agreements	Yes	Emergency Services county wide/ Construction Department
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	Construction
Other	Yes	Water & Sewer Department - responsible for delivering quality water to homes within the water service areas of the town. The sewer department provides public sewer service to homes within the sanitary sewer service areas of the Township.
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Engineers or professionals trained in building or infrastructure construction practices	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Planners or engineers with an understanding of natural hazards	Yes	Land Use Professionals – Planning Engineer, Traffic Engineer, Planner, Solicitor
Staff with expertise or training in benefit/cost analysis	Yes	Construction Officials
Professionals trained in conducting damage assessments	Yes	Construction Officials
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Management Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Other	Yes	East Greenwich Stormwater Program Coordinator; Green Team
<b>How do your administrative/technical capabilities contribute to risk reduction in your community?</b>		
• Construction Department reviews permit applications, etc. to ensure new development is not within hazard areas and if so, the construction is built to meet the municipal codes		

#### 9.4.3.4 Fiscal Capability

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

*Table 9.4-5. Fiscal Capabilities*

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No
<b>Fiscal Connection to Mitigation and Safe Growth</b>	
• How do your fiscal capabilities contribute to risk reduction in your community? When the Township improves roadways or upgrade roadways, they will look at the stormwater and construct the roads accordingly. • Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards? No • Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? No • Do budgets provide funding for hazard mitigation projects identified in the County HMP? Yes	

#### 9.4.3.5 Education and Outreach Capability

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



Table 9.4-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comments (available staff, responsibilities, etc.)
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	Emergency Management Department webpage
Social media for hazard mitigation education and outreach	Yes	East Greenwich OEM Facebook Page
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Green Team
Other programs already in place that could be used to communicate hazard-related information	Yes	East Greenwich Township Newsletter
Warning systems for hazard events	Yes	Gloucester Alert, NJ Register Ready, Everbridge
Natural disaster/safety programs in place for schools	No	-
Other	No	-
<b>Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.</b>		
• OEM Facebook page posts regularly on these topics.		

#### 9.4.3.6 Community Classifications

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

Table 9.4-7. Community Classifications

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

Note:

- N/A Not applicable  
NP Not participating  
- Unavailable



### 9.4.3.7 Adaptive Capacity

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

*Table 9.4-8. Adaptive Capacity*

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

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

### 9.4.4 National Flood Insurance Program (NFIP) Compliance

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

*Table 9.4-9. NFIP Summary*

NFIP Topic	Comments
<b>Flood Vulnerability Summary</b>	
<ul style="list-style-type: none"><li># NFIP Policies: 17</li><li># RL properties: 2</li><li># SRL properties: 0</li><li># RL/SRL mitigated: 0</li></ul>	<ul style="list-style-type: none"><li>Total premium in force: \$ 7,756</li><li># claims filed: 10</li><li>Total loss payments: \$ 25,156.62</li></ul>



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



NFIP Topic	Comments
<b>Additional Information</b>	
If you have repetitive loss properties in your community, what residential streets/neighborhoods are most floodprone and likely to incur flood damage?	No
Does your municipality's flood damage prevention ordinance follow the NJDEP model ordinance language ( <a href="https://www.nj.gov/dep/floodcontrol/modelord.htm">https://www.nj.gov/dep/floodcontrol/modelord.htm</a> ) including the state mandated one-foot freeboard requirement?	Yes

Source: FEMA September 16, 2019; NJDEP - 2021

Notes:

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

## 9.4.5 Growth/Development Trends

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

Table 9.4-10. Recent and Expected Future Development

Type of Development	2016	2017	2018	2019	2020	2021
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)						
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
<b>Single Family</b>	28	0	28	0	38	0
<b>Multi-Family</b>	3	0	0	0	4	0
<b>Other (commercial, mixed-use, etc.)</b>	3	0	5	0	11	0
<b>Total Permits Issued</b>	<b>34</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>49</b>	<b>0</b>
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development	
<b>Recent Major Development and Infrastructure from 2015 to Present</b>						
Johnson Warehouse	Commercial	1	450 Swedesboro Ave Mickleton NJ 8056	Storm Surge, Earthquake, Hazardous Materials	Completed	
CRG	Commercial	1	191 Harmony Rd Mickleton NJ 08056	Storm Surge, Earthquake, Hazardous Materials	Completed	



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

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

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

## 9.4.6 Jurisdictional Risk Assessment

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

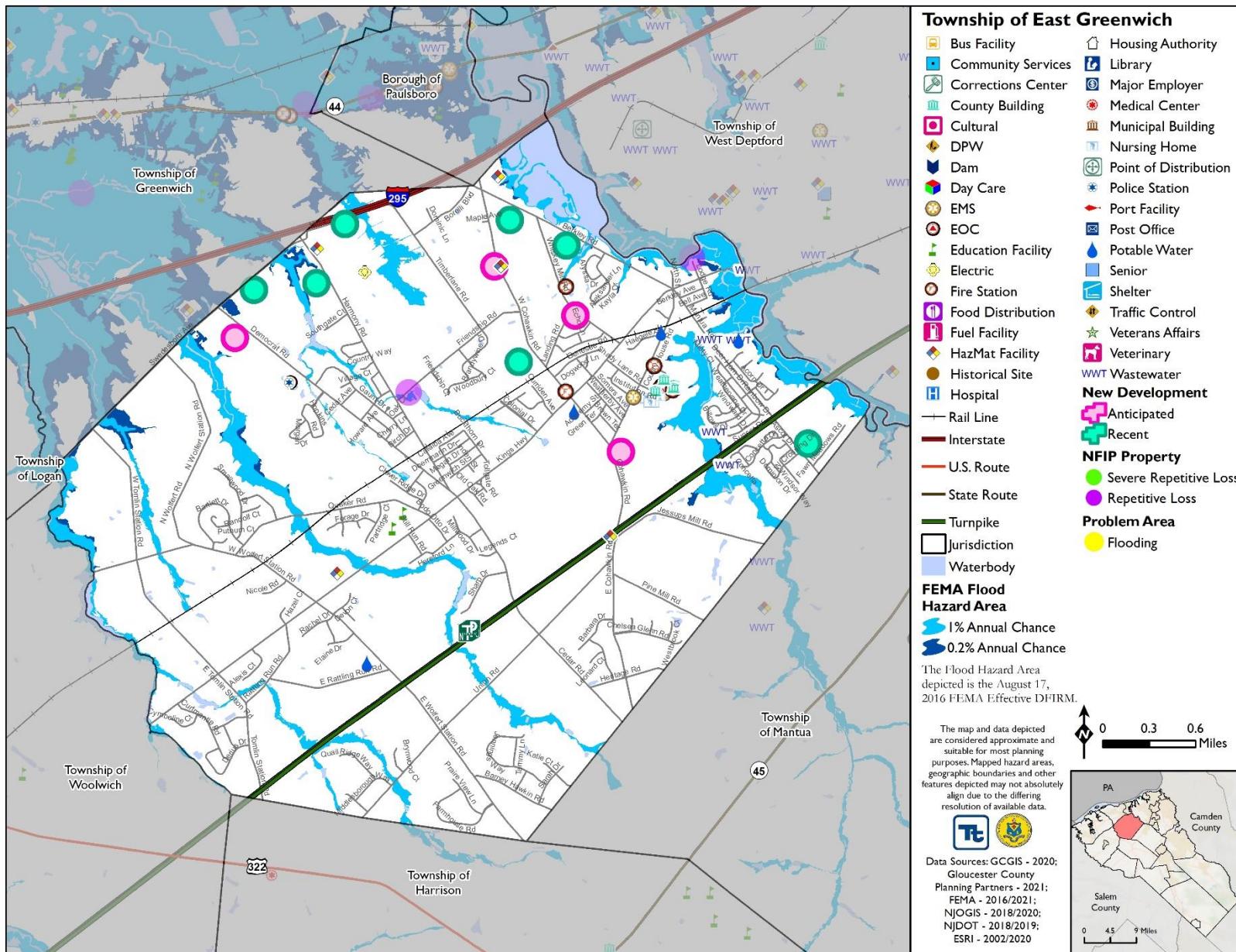
Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of East Greenwich has significant exposure. The maps also show the location of potential new development, where available.



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

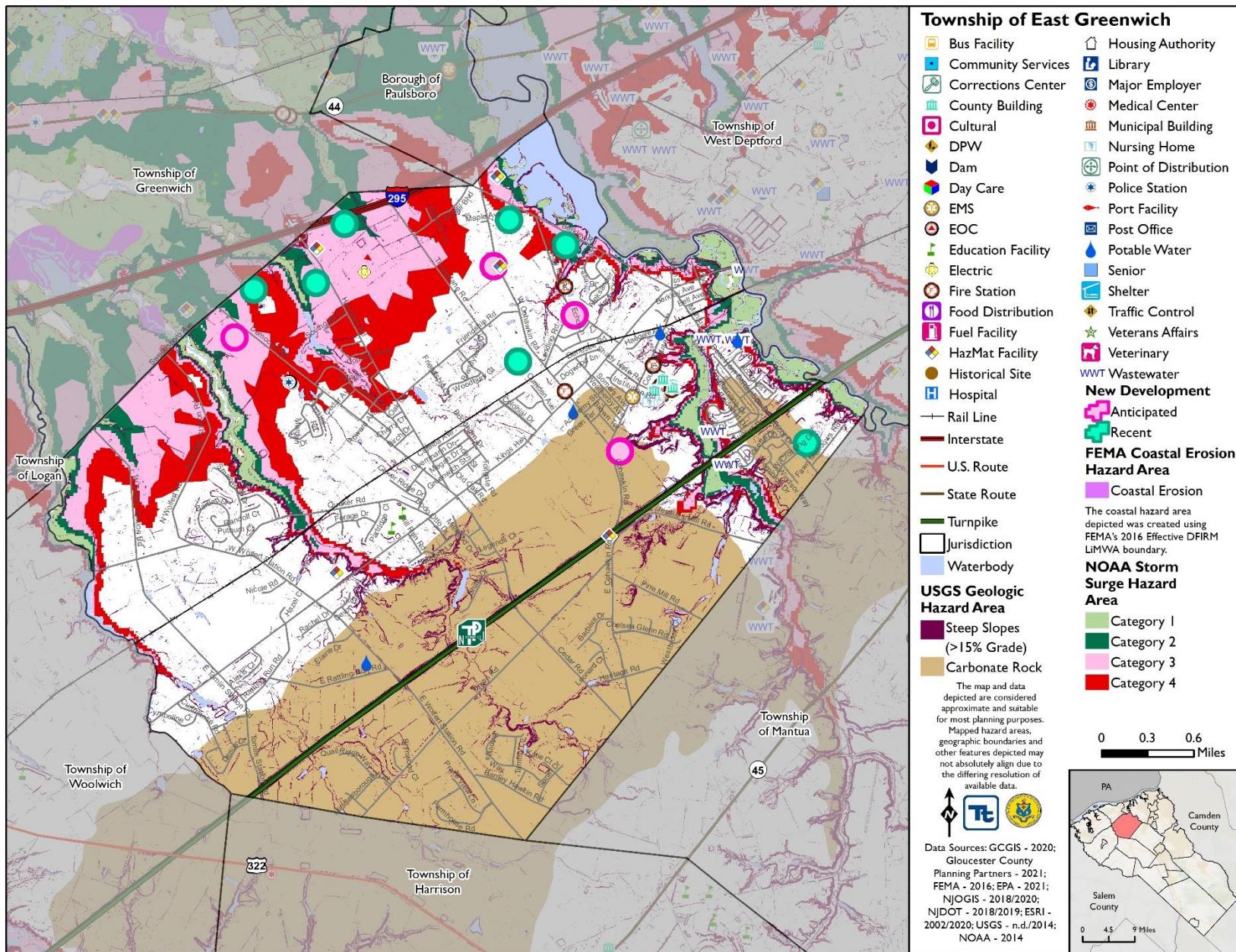


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Figure 9.4-2. Township of East Greenwich Hazard Area Extent and Location Map 2

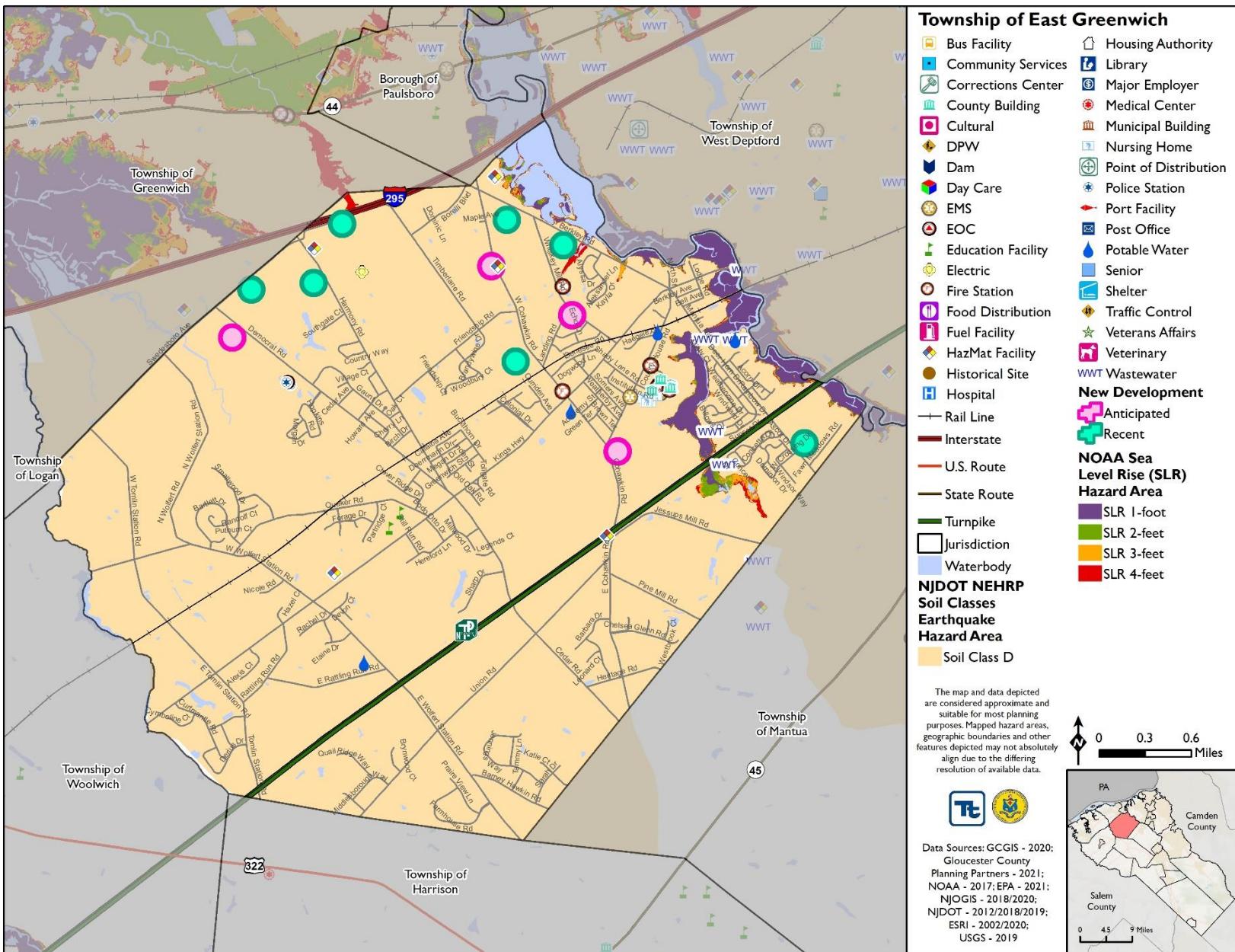


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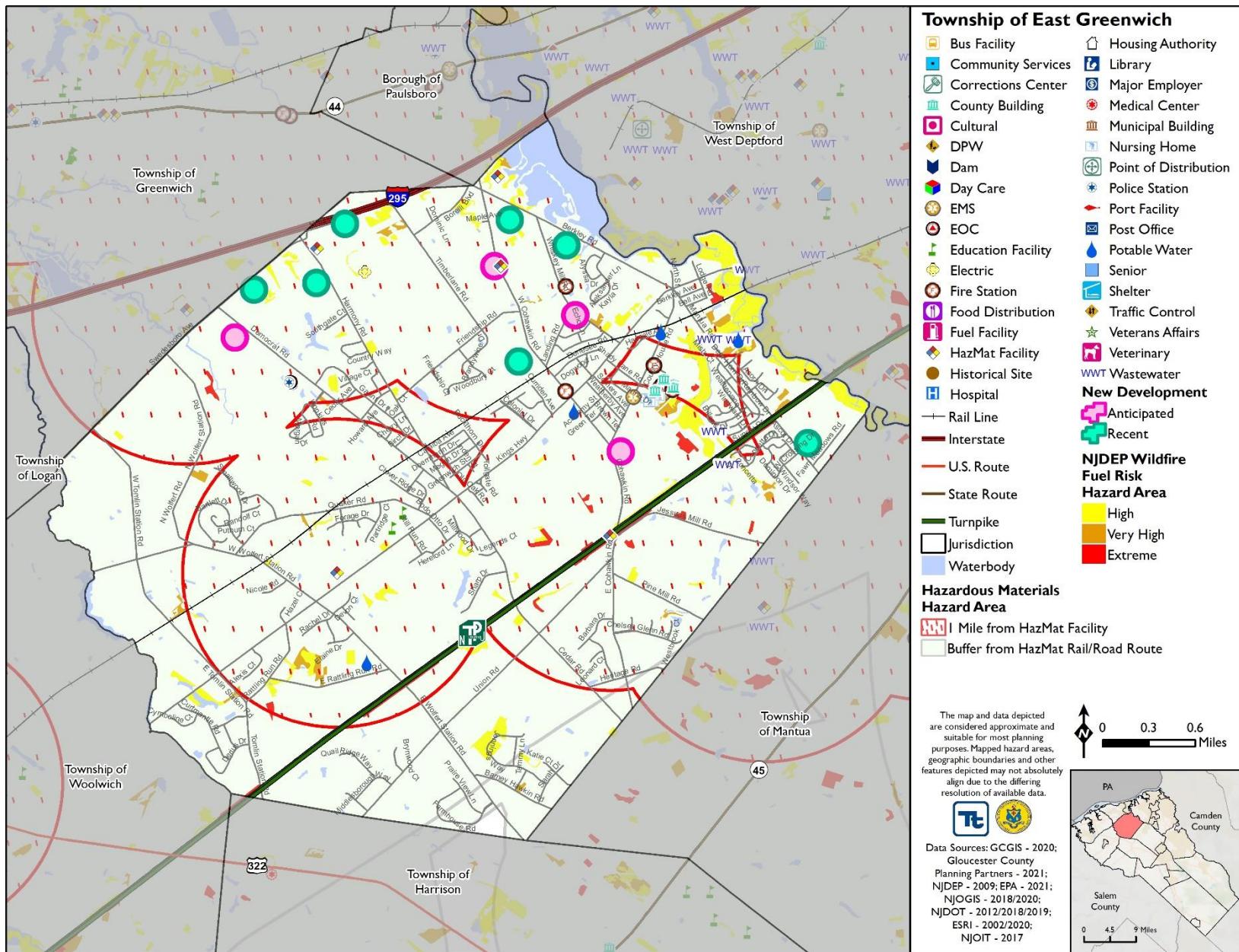
Figure 9.4-3. Township of East Greenwich Hazard Area Extent and Location Map 3



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



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## 9.4.6.1 Hazard Event History

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

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

*Table 9.4-11. Hazard Event History*

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



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

#### 9.4.6.2 Hazard Ranking and Vulnerabilities

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

#### Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 4 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Gloucester County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of East Greenwich. The Township of East Greenwich reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

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

*Table 9.4-12. Hazard Ranking Input*

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

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



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

## Critical Facilities

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

*Table 9.4-13. Potential Flood Losses to Critical Facilities*

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

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

### 9.4.6.3 Identified Issues

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

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

## 9.4.7 Mitigation Strategy and Prioritization

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

### 9.4.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2016 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own



table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and are discussed in the 'Capability Assessment' presented previously in this annex.

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Table 9.4-14. Status of Previous Mitigation Actions

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

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



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



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

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#### 9.4.7.2 Additional Mitigation Efforts

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

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

The Township of East Greenwich participated in a mitigation action workshop in August 2021 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

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

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

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

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

The table below (Table 9.4-16) summarizes the comprehensive range of specific mitigation initiatives the Township of East Greenwich would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

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



for each of the 14 evaluation criteria to assist with prioritizing your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.4-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

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

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



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

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



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

Notes:

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

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

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

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

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

Mitigation Category:

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

**CRS Category:**

- **Preventative Measures (PR)** - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection (PP)** - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information (PI)** - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects (SP)** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services (ES)** - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

**Table 9.4-17. Summary Evaluation and Action Priority**

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2022-E Greenwich-001	Friendship Road	1	1	1	1	1	1	0	0	0	1	1	1	0	0	9	High
2022- E Greenwich -002	Critical Facility Generators	1	1	1	1	1	1	0	0	1	1	1	1	0	0	10	High 
2022- E Greenwich -003	Animal Sheltering Plan and Kennels	1	1	1	1	1	1	0	0	0	0	1	1	0	0	8	Medium
2022- E Greenwich -004	Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High

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Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2022- E Greenwich -005	Municipal Debris Management Plan	1	1	1	1	1	0	0	0	0	0	1	1	0	0	7	Medium
2022- E Greenwich -006	RL/SRL Property Outreach	1	1	1	1	1	1	1	0	0	1	0	1	0	0	9	High
2022- E Greenwich -007	Traffic Studies	1	1	1	1	0	0	0	0	0	1	1	1	1	0	8	Medium
2022- E Greenwich -008	Fire House Upgrade	1	1	1	1	1	1	0	0	0	1	1	1	1	0	10	High 

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

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

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



## 9.4.8 Action Worksheets

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

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



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



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



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