



9.8 Township of Greenwich

This section presents the jurisdictional annex for the Township of Greenwich.

9.8.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Joseph Mecsey, IV, OEM Coordinator 321 Greenwich Street, Stewartsville, NJ 08886 (908) 339-1715 oem@greenwichtownship.org	Kimberly Viscomi, Clerk/Administrator 321 Greenwich Street, Stewartsville, NJ 08886 (908) 859-0909 ext. 10 clerk@greenwichtownship.org

9.8.2 Municipal Profile

Greenwich Township is located in southern Warren County and contains three unincorporated communities: Greenwich, Stewartsville, and Upper Stewartsville. The Township is bordered to the north by the Townships of Franklin and Harmony, to the south by Pohatcong Township, to the east by Morris County, and to the west by Lopatcong Township. According to the U.S. Census, the 2010 population for Township of Greenwich was 5,712.

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in section 9.8.8 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.8-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address	Parcel ID(s)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2010 to Present						
Janry Kennels	Comm.	1	Route 173	Block 42, Lot 14	N/A	Completed
4 Paws Playground	Comm.	1	County Route 632	Block 31, Lot 13	N/A	Under construction
Phillipsburg-Easton Honda	Comm.	1	County Route 519	Block 25, Lot 2.01	N/A	Completed
Known or Anticipated Development in the Next Five (5) Years						
Greenwich Solar	Comm.	N/A	Route 57	Block 15, Lot 2.01	N/A	Approved
Phillipsburg Hyundai	Comm.	2	Route 173	Block 40.01, Lot 1	N/A	Approval pending
Stewartsville Self Storage	Comm.	6	Route 57	Block 3, Lot 13	N/A	Approved



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address	Parcel ID(s)	Known Hazard Zone(s)	Description/Status of Development
Greenwich Center Expansion	Comm.	1	U.S. Route 22	Block 26, Lot 33.01	N/A	Submission pending

* Only location-specific hazard zones or vulnerabilities identified.

9.8.3 Natural Hazard Event History Specific to the Municipality

Warren County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 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. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.8-2. Hazard Event History

Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
February 12-13, 2008	Winter Storm	N/A	N/A	This event caused brought snow and ice and caused roadways to flood. Ravine Road was closed and there were several reported power outages. Residential mailboxes were damaged. The Township had 6.75 hours in police overtime.
October 28, 2008	Heavy Snow and Strong Winds	N/A	N/A	Ravine Road was closed as a result of this event and there were power outages reported in the Township. There was also police overtime.
February 12, 2009	High Wind	N/A	N/A	There were several power outages in the Township as a result of this event. Damages to residential properties included mailboxes, shed damage, and tree on vehicle. There was approximately 6.25 hours in police overtime for this event.
February 1-2, 2011	Winter Storm	N/A	N/A	This event caused roadway flooding and brought snow and ice to the roadways. North Main Street in the Township was closed and there were reported power outages in the Township. A police vehicle was damaged due to road infrastructure. The police department had approximately 14.5 hours of overtime.
March 11-12, 2011	Heavy Rain and Flooding	N/A	N/A	Roadway flooding was reported in the Township and Ravine Road was closed. There was police overtime as a result of this event.
July 3-4, 2011	Heavy Rain and Strong Wind	N/A	N/A	This event caused road closures in the Township due to downed trees and wires. This included: Rt. 519 in front of 462 trees blocking road, - Rt. 519 & Strykers Rd. Electric high tension wires down across road, - Rt. 22 west at Rt. 519 tree and wires down blocking road, - Front of 162 Rt. 173 wires across road, - 100 Springtown Rd. wires and tree fire, - Greenwich Church rd. & Beatty's Rd. tree and wire fire. Chimneys were blown off structures due to the high winds, with one of the structures having water damage from the rains. The volunteer fire company had a total of 178.5 hours of overtime for 17 firefighters.



Date(s) of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
August 26 – September 5, 2011	Hurricane Irene	DR-4021	Yes	During Hurricane Irene, the Township closed numerous roads that included: Ravine, Dumont, Greensridge, South Main Street, Route 57, and Fox Run Road. Ravine and South Main Streets flooded. Additionally, Ravine Road washed out and there was asphalt damage. Sinkholes developed around stormwater basins and piping on Adams Drive and Beaufort Road. Residential structures were damaged in the Township that included damage from trees. The Township lost power. Public assistance was requested. The Township had losses that totaled over \$30,000 for overtime (police, fire and DPW), vehicles, and equipment.
September 6 – September 11, 2011	Remnants of Tropical Storm Lee	DR-4039	Yes	During Tropical Storm Lee, the Township evacuated homes and businesses. Roads were closed throughout and included: Route 173, South Main Street, Ravine Road and Route 519. Ravine Road and South Main Street both flooded. Public assistance was requested by the Township. Losses to the Township included over \$2,000 for the volunteer labor, equipment and vehicles for the fire department.
October 29, 2011	Severe Storm	DR-4048	Yes	This storm led to multiple road closures in the Township. Greenwich Church Road, Greenwich Street, Route 173 and Washington Street were all closed due to power outages, downed wires or electrical equipment that blocked roads. Municipal roads flooded and were snow covered. Trees and tree limbs damaged residential homes, property and vehicles. Public assistance was requested and the Township had over \$4,000 in losses for police and DPW overtimes, equipment use and vehicles.
October 26 – November 8, 2012	Hurricane Sandy	DR-4086	Yes	Hurricane Sandy caused the Township to evacuate due to potential flooding and long-term power outages. Warming and charging stations were established at Greenwich Emergency Squad building, Stewartsville Presbyterian Church, and the Old Greenwich Church. There were numerous road closures in the Township that included multiple locations on North and South Main Streets, Maple Drive, Willow Grover Road, Washington Street, Lows Hollow Road, Fox Run Road, Horseshoe Way and Route 57. Damages in the Township included the tarp door of the salt shed, the recreation field shed destroyed, and the ball field backstop blew down and was destroyed. Numerous residential homes had roof and siding damage. Five residential homes had either trees or tree branches damaging the structures. Public assistance was requested and the Township had losses totaling over \$44,000 for police, fire, DPW, debris removal and damages.

9.8.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The risk ranking methodology is presented in Section 5.3. However, each municipality had the opportunity to adjust the final ranking based on municipal feedback. The following





summarizes the hazard vulnerabilities and their ranking in the Township of Greenwich. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Greenwich.

Table 9.8-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Dam Failure	Damage estimate not available	Occasional	24	Medium
Drought	Damage estimate not available	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$277,190 2,500-Year GBS: \$4,334,625	Occasional	28	Medium
Flood	1% Annual Chance: \$10,605,300	Frequent	18	Medium
Geologic	RCV Exposed to Carbonate Rock Areas: \$703,661,107	Occasional	36	High
Hurricane	100-year MRP: \$338,066.00 500-year MRP: 3470141 Annualized: \$34,775.00	Frequent	48	High
Nor'Easter	Damage estimate not available	Frequent	48	High
Severe Storm	100-Year MRP: \$338,066 500-year MRP: \$3,470,141 Annualized: \$34,775	Frequent	48	High
Severe Winter Storm	1% GBS: \$4,712,448 5% GBS: \$23,562,241	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$13,529,180	Occasional	16	Medium
Hazardous Materials	Damage estimate not available	Frequent	36	High

Notes:

GBS = General building stock; MRP = Mean return period.

- a. The general building stock valuation is based on the custom inventory generated for the municipality and based on improved value.
- b. High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using Hazus-MH 2.2 and the 2011 FEMA DFIRM for the 1-percent annual chance event. For the geologic and wildfire hazards, the improved value and estimated contents of buildings located within the identified hazard zones is provided.



National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Greenwich.

Table 9.8-3. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% Flood Boundary (3)
Greenwich, Township of	36	22	\$83,778	1	0	18

Source: FEMA, 2014

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of December 31, 2014 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. Number of claims includes open and closed claims. The number of claims represents claims closed by 12/31/2014.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Note (4) FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Note (5) A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Critical Facilities

The table below presents the number of critical facilities, by type, in the community located in the effective FEMA flood zones (1% and 0.2% annual chance boundaries).

Table 9.8-4. Number of Critical Facilities in the DFIRM 1% and 0.2% Annual Chance Flood Boundaries

Municipality	1% Annual Chance				0.2% Annual Chance			
	DPW	EOC	Fire	Police	DPW	EOC	Fire	Police
Greenwich, Township of	1	1	1	1	1	1	1	1

Source: Warren County, FEMA 2011

Other Vulnerabilities Identified by Municipality

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. Further, mitigation projects have been identified that may more specifically detail vulnerabilities in the community. There are no additional vulnerabilities identified at this time.



9.8.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education/Outreach and Community classification
- Self-Assessment of Capability
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Township of Greenwich.

Table 9.8-5. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	Yes	State, Local	Land Use Board	New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-28) On file with Township
Capital Improvements Plan	No			
Floodplain Management / Basin Plan	Yes	Federal Local	Federal Insurance Administration	Township Ordinance Chapter XVIII Federal Insurance Rate Map Federal Insurance Study
Stormwater Management Plan	Yes	State, Local	Township Engineer	Chapter 25 Township Ordinance (N.J.A.C. 5:21 7:8)
Open Space Plan	Yes	Local County State	Land Use Board	Element of Master Plan
Stream Corridor Management Plan	No			
Watershed Management or Protection Plan	No			
Economic Development Plan	No			
Comprehensive Emergency Management Plan	Yes	Local County Federal	Township OEM	On file with Township OEM Office
Emergency Response Plan	Yes	Local	Greenwich Twp Police	Township Ordinance 2-3.4
Post-Disaster Recovery Plan	No			
Transportation Plan	Yes	Local	Local	Element of Master Plan Chapter 7 Ordinance



Table 9.8-5. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Strategic Recovery Planning Report	No			
Other Plans:	No			
Regulatory Capability				
Building Code	Yes	State	Township and DCA	State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.) Township Ordinance
Zoning Ordinance	Yes	Local	Greenwich Twp	New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-1) Township Ordinance
Subdivision Ordinance	Yes	Local	Greenwich Twp	New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-1) Township Ordinance
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Greenwich Twp and NJDEP	Township Ordinance Chapter XVIII New Jersey Legislature (N.J.S.A. 40:48-1)
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	Federal, State, Local	Greenwich Twp Engineer	Chapter XXV Township Ordinance (N.J.A.C 7:13 Flood Hazard Area Control Act)
Growth Management Ordinances	Yes	State, Local	Greenwich Twp Zoning Board	Township Ordinance Chapter XVI
Site Plan Review Requirements	Yes	County, Local	Greenwich Twp Engineer	Township Ordinance Chapter XIV
Stormwater Management Ordinance	Yes	State, Local	Greenwich Twp Engineer	Chapter XXV Township Ordinance (N.J.A.C. 5:21 7:8)
Municipal Separate Storm Sewer System (MS4)	Yes	State, Local	Greenwich Twp Sewer Engineer	Chapter XXV Township Ordinance
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	Yes	State	State Requirement	Chapter 2-28.5 Township Ordinance
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No			

Administrative and Technical Capability

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





Table 9.8-6. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Greenwich Twp. Land Use Board
Mitigation Planning Committee	Yes	OEM
Environmental Board/Commission	Yes	Greenwich Twp. Environmental Commission
Open Space Board/Committee	Yes	Greenwich Twp.
Economic Development Commission/Committee	No	
Maintenance Programs to Reduce Risk	Yes	DPW, Superintendent
Mutual Aid Agreements	Yes	EMS, Fire, Police & OEM
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Michael S. Finnelli, P.E.
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Michael S. Finelli, P.E.
Planners or engineers with an understanding of natural hazards	Yes	Michael S. Finelli, P.E.
NFIP Floodplain Administrator	Yes	Michael S. Finelli, P.E.
Surveyor(s)	Yes	Finelli Engineering Consultants
Personnel skilled or trained in GIS and/or Hazus-MH applications	Yes	Finelli Engineering Consultants
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Greenwich Twp. OEM
Grant Writer(s)	Yes	Finelli Engineering Consultants, OEM & Police
Staff with expertise or training in benefit/cost analysis	Yes	Greenwich Twp. CFO
Professionals trained in conducting damage assessments	Yes	Greenwich Twp. OEM/ NJ Community Affairs

Fiscal Capability

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

Table 9.8-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
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





Table 9.8-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Other	Yes

Education/Outreach and Community Classifications

The table below summarizes education/outreach programs the community participates in and the classifications for community program available to the Township of Greenwich.

Table 9.8-8. Education/Outreach and Community Classifications

Program	Do you have/participate in this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	9	May 1, 2007
Building Code Effectiveness Grading Schedule (BCEGS)	No		
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	04/4Y	May 27, 2014
Storm Ready	No	NP	N/A
Firewise	No	NP	N/A
Disaster/Safety Programs in/for Schools	Yes		
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes		
Public-Private Partnerships	No		

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>



Self-Assessment of Capability

The table below provides an approximate measure of the Township of Greenwich’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.8-9. Self-Assessment of Capability

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability			X
Administrative and Technical Capability		X	
Fiscal Capability		X	
Community Political Capability	X		
Community Resiliency Capability			X
Capability to Integrate Mitigation into Municipal Processes and Activities.			X

National Flood Insurance Program

NFIP Floodplain Administrator (FPA)

Michael S. Finelli, P.E. is the municipal FPA for the Township of Greenwich.

Flood Vulnerability Summary

The Township does not formally maintain lists or inventories of properties damaged by floods. During Sandy, no structures were damaged within the municipality. The FPA makes Substantial Damage estimates; however, none were declared for Hurricane Sandy. Currently, there is no interest in mitigation in the Township. If there was interest, the property owner and their flood insurance company would be the funding sources.

Resources

The FPA is not the sole person assuming the responsibilities of floodplain administration. There is a balance of technical staff at the office. The FPA and staff provide NFIP administration services and functions to Greenwich that includes permit review, inspections, damage assessments and GIS. The Township also provides education and outreach to the community regarding flooding and its risks. This outreach includes stormwater management brochures and public meeting presentations. The FPA did not indicate of any barriers to running an effective floodplain management program. The FPA stated that he feels adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. The FPA would consider attending continuing education and/or certification training on floodplain management if it were offered.

Compliance History

The Township is currently in good standing with the NFIP and the most recent compliance audit was in spring 2014.

Regulatory

Greenwich Township's floodplain management regulations/ordinances meet the minimum requirements of FEMA and the State. There are other local ordinances, plans and programs that support floodplain management





in the Township. The planning and zoning boards consider efforts to reducing flood risk when reviewing variances.

Community Rating System

The Township of Greenwich does participate in the Community Rating System (CRS) program and has a rating of 9 as of June 1, 2014. The Township entered the CRS program on May 1, 2007.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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

Planning

The 2011 Comprehensive Farmland Preservation details the current state of farmland preservation in the Borough, as well as proposes preservation goals and other mitigation actions. At the time of the Plan's development, the Borough had already preserved approximately 720 acres of farmland; future goals were: 1 year target of 120 additional acres, 5 year target of additional 480 acres and 10 year target of 1,189 additional acres of farmland preservation.

Many goals of the 2011 Land Use Plan focus on the overall protection and preservation of natural resources, farmland and open space. The Plan places a high priority on farmland preservation and the retention of agricultural soils. In addition, the protection of water resources, limiting impervious coverage and discourage sprawl development are included goals. The Plan identifies critical environmental areas, such as steep slopes, and provides requirements on development within these areas.

The 2011 Open Space and Recreation Plan expands upon many of the goals from the Land Use Plan. Additional priority goals and objectives include, protecting and maintaining environmentally sensitive nature resources (floodplains, wetlands, steep slopes etc.), encouraging pedestrian and public transit linkages, and enhancing and expanding open spaces.

The Township's master plan does not incorporate hazard mitigation; however, this will be pursued in the next five years for the update of the master plan. See Table 9.8-12 for proposed mitigation actions referring to this initiative.

Currently, the Township does not have a stormwater management plan; however, this will be pursued in the next five years. See Table 9.8-12 for proposed mitigation actions referring to this initiative.

The Township currently has a Continuity of Operations (COOP) Plan current in place and it integrates mitigation. The Township also has a fire plan, transportation plan and natural resources protection plan/practices.

Regulatory and Enforcement (Ordinances)

The Township has multiple ordinances pertaining to the mitigation of hazards. These ordinances include the NFIP Flood Damage Prevention Ordinance (which is enforced beyond the FEMA minimum requirements), a stormwater management ordinance, a soil and soil erosion ordinance, and an environmental impact statement ordinance. The environmental impact statement ordinance requires the completion of an EIS for all proposed projects. When updating these and other ordinances, hazard mitigation is a priority.



Prior to land use, zoning changes or development permitting, the Township reviews the hazard mitigation plan and other hazard analysis to ensure its consistent and compatible land use. The Township encourages the consideration of low occupancy, low-density zoning in hazard areas when practical. The Township also limits development in high hazard areas. Additionally, the permit review process in the Township includes addressing hazards. The Township also incorporates hazard resistant construction standards into the design and location of new projects. Lastly, the Township's rezoning procedures recognizes hazard areas as limits on zoning changes.

Operational and Administration

The Township has established a Land Use Board, Environmental Commission, Farmland Preservation/Agricultural Committee and an Open Space Committee that aid in planning decisions to support the conservation and preservation of the Township's critical environmental features.

The Township has practices in place to protect infrastructure within the Township. Currently, the Township does not have a community resilience committee or advisor. However, this will be pursued in the next five years. See Table 9.8-12 for proposed mitigation actions referring to this initiative.

The Township's human resources manual has employee job descriptions that include hazard mitigation. The Township also has safe growth practices within the municipality.

Funding

The Township has access to a funding generated from the open space tax of 4 cents per \$100 of assessed value. The Township's capital improvement budget does not have a line item for mitigation project funding; however, this will be pursued in the next five years. See Table 9.8-12 for proposed mitigation actions referring to this initiative. Additionally, the Township has provided funding for mitigation projects identified in the previous hazard mitigation plan. Funding has also been provided to protect buildings and infrastructure in high hazard areas.

The Township's municipal/operating budget does not have a line item for mitigation project funding; this will be pursued in the next five years. See Table 9.8-12 for proposed mitigation actions referring to this initiative. In the future, mitigation actions will be looked at when allocating funding in the Township.

Education and Outreach

The Township currently uses the Nixle alert system to provide residents with emergency alerts, advisories and community messages. The Office of Emergency management also provides information regarding emergencies on the Township's website, as well as how to sign up for disaster readiness and response events and programs.

The Township currently does not offer training on best practices or other topics relating to hazard mitigation. However, this will be pursued in the next five years. See Table 9.8-12 for proposed mitigation actions referring to this initiative.

The Township offers training on grant applications and hazard identification within the Township. Additionally, the Township conducts outreach to the community on hazards that may impact the municipality. The Township also works with local school districts and assists with community service projects for the service organizations.

The Township reaches out to colleges and universities for technical assistance with natural hazard mitigation activities. The public outreach program within the community informs citizens on hazards in the Township.



9.8.6 Mitigation Strategy and Prioritization

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

Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2011 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.

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Table 9.8-10. Past Mitigation Initiative Status

2011 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Step (Include in 2016 HMP? or Discontinue)	Describe Next Step 1. If including action in the 2015 HMP, revise/reword to be more specific (as appropriate). 2. If discontinue, explain why
Greenwich 1: Acquisition/elevation of one Repetitive Loss (RL) property on Route 519.	TWP OEM	No Progress	1. 0% complete 2. Budget and funding 3. Property just became unoccupied	Include in 2016 HMP	1. Elevate structure above flood stage or have structure torn down. 2.
Greenwich 2: Hardening/retrofitting, burying utility lines along Ravine Road between SH 173 and Municipal Drive.	TWP OEM	No Progress	Up to utility companies due to only servicing 5 residential properties not feasible.	Discontinue	Services only five residential properties and two are seasonal.
Greenwich 3: Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	WCOEM, TWP OEM	No Progress	1. Funding and lack of materials 2. Manpower to present outreach program 3.	Include in 2016 HMP	1. Find resource to fund 2. Establish a group to present the program



Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

There are no additional mitigation projects/activities identified that have also been completed but were not identified in the previous mitigation strategy in the 2011 Plan.

Proposed Hazard Mitigation Initiatives for the Plan Update

The County hosted a mitigation action workshop in March 2015 and 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). In May 2015, the Township participated in a second workshop led by FEMA Region 2 and NJOEM and was provided the results to the risk assessment to further assist with the identification of mitigation actions.

Table 9.8-11 summarizes the comprehensive-range of specific mitigation initiatives the Borough 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, 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 9.8-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.8-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
Greenwich – 1 (old)	Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	N/A	All	1, 2	WCOEM, TWP OEM	High	Low	Grants with local cost share	Short Term / Ongoing	High	LPR, EAP	PR, PI
Greenwich – 2	Incorporate natural hazard risk/mitigation into the next master plan update.	N/A	All	4, 5	EMC and Engineering	High	Low	Local budget	Short Term	Medium	LPR, EAP	PR, PI
Greenwich – 3	Include hazard mitigation project funding in the municipal/operating budget and Capital Improvement Budget.	N/A	All	1, 2, 5	EMC and Engineering	High	Low	Local budget	Short Term	Medium	LPR, EAP	PR, PI
Greenwich – 4	Create and identify a community resilience committee and advisor for the Township.	N/A	All	1, 2, 3, 4	EMC and Engineering	High	Medium	Local budget	Short Term	Medium	LPR, EAP	PR, PI
Greenwich – 5	Provide training on best practices and other topics in relation to hazard mitigation for the Township	N/A	All	4, 5	EMC and Engineering	High	Low	Local budget	Short Term	Medium	LPR, EAP	PR, PI
Greenwich – 6 (LOI #814)	Support continuity of operations at critical facilities. At this time the following are identified: Purchase an emergency generator at municipal building, police, fire and EOC	Existing	All	1, 2, 6	Township	High	Medium	Grant funding with local cost share	Short Term	High	SIP	PP
Greenwich – 7	Merrill Creek dredge & debris removal	Existing	Flood, Hurricane/Tropical Storm	1, 2	Property Owner	High	High	Grants or after disaster	Ongoing	Low	NSP	NR
Greenwich – 8	Address Beattys Road flooding	Existing	Flood, Hurricane/Tropical Storm	1, 2	Township	High	Medium	Grants with local cost share	Short Term	Medium	SIP	PP
Greenwich – 9	Educate homeowners of maintaining property and foliage year road to	Existing	Wildfire	1, 2, 3	Township Fire	High	Low	Local, state &	Short Term	High	EAP	PI





Table 9.8-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	reduce risk of wildfire impacts				Department and OEM			federal grants				
Greenwich – 10	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/relocation to protect structures from future damage, with repetitive loss and severe repetitive loss properties as a priority when applicable. Phase 1: Identify appropriate candidates and determine most cost-effective mitigation. Phase 2: Work with the property owners to implement selected action based on available funding and local match availability.											
	See above.	Existing	All	1, 2	Engineering via NFIP FPA with NJOEM, FEMA support	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Ongoing (outreach and specific project identification); Long term DOF (specific project application and implementation)	High	SIP	PP
Greenwich - 11	Demolish structure that is falling off its foundation subject to high winds and flooding causing damage to two other residential homes	Existing	Hurricane/Tropical Storm, Severe Weather, Flood	1, 2	Engineering via NFIP FPA with NJOEM, FEMA support	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Short - DOF	Medium	SIP	PP
Greenwich - 12	Remove the dam on the Musconetcong River between Greenwich Twp. & Bloomsbury Borough, Hunterdon county catalyst in flooding along this area of the river.	Existing	Hurricane/Tropical Storm, Severe Weather, Flood	1, 2	Engineering, NJDEP, FEMA support	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Short - DOF	Medium	SIP	PP
Greenwich – 13	Relocate or build a new municipal building (police/OEM) which is	Existing	Flood, Dam Failure	1, 2, 6	Local Government, OEM/Police	High	High	Federal, State, Local	Long – DOF	Medium	SIP	PP





Table 9.8-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	located in the downstream inundation area of the Merrill Creek Reservoir.							grant funding				

Notes:

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

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program	Short	1 to 5 years
HMGP	Hazard Mitigation Grant Program	Long Term	5 years or greater
PDM	Pre-Disaster Mitigation Grant Program	OG	On-going program
HMA	Hazard Mitigation Assistance Program	DOF	Depending on funding

Timeline:

Costs:

Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

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

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Table 9.8-12. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
Greenwich – 1 (old)	Conduct all hazards public education and outreach program for hazard mitigation and preparedness.	1	1	1	0	0	1	0	1	1	1	1	1	1	0	10	High
Greenwich – 2	Incorporate natural hazard risk/mitigation into the next master plan update.	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
Greenwich – 3	Include hazard mitigation project funding in the municipal/operating budget and Capital Improvement Budget	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
Greenwich – 4	Create and identify a community resilience committee and advisor for the Township.	1	1	1	1	1	1	0	0	0	1	1	0	0	0	8	Medium
Greenwich – 5	Provide training on best practices and other topics in relation to hazard mitigation for the Township	1	1	1	0	0	1	0	1	1	1	1	1	1	0	10	Medium
Greenwich – 6 (LOI #814)	Support continuity of operations	1	1	1	1	1	1	1	0	1	0	0	1	1	0	10	High
Greenwich – 7	Merrill Creek dredge & debris removal	0	1	-1	-1	0	-1	-1	0	0	-1	1	-1	0	0	-4	Low
Greenwich – 8	Address Beattys Road flooding	0	1	1	1	1	0	-1	1	1	0	1	1	0	1	8	Medium
Greenwich – 9	Educate homeowners of maintaining property and foliage year road to reduce risk of wildfire impacts	1	1	1	0	0	1	0	1	1	1	1	1	1	0	10	High
Greenwich – 10	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or	1	1	1	1	1	0	-1	1	1	0	1	1	1	1	10	High



Table 9.8-12. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	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
	acquisition/relocation to protect structures from future damage																
Greenwich - 11	Demolish structure that is falling off its foundation subject to high winds and flooding causing damage to two other residential homes	1	1	0	1	1	0	-1	1	0	0	1	1	1	1	8	High
Greenwich - 12	Remove the dam on the Musconetcong River between Greenwich Twp. & Bloomsbury Borough, Hunterdon county catalyst in flooding along this area of the river.	1	1	0	1	1	1	-1	0	0	-1	1	-1	1	0	4	Medium
Greenwich - 13	Relocate or build a new municipal building (police/OEM) which is located in the downstream inundation area of the Merrill Creek Reservoir.	1	1	0	1	0	0	0	0	0	0	1	0	0	0	4	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



9.8.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.8.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Township of Greenwich that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Greenwich has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.8.9 Additional Comments

None at this time.

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

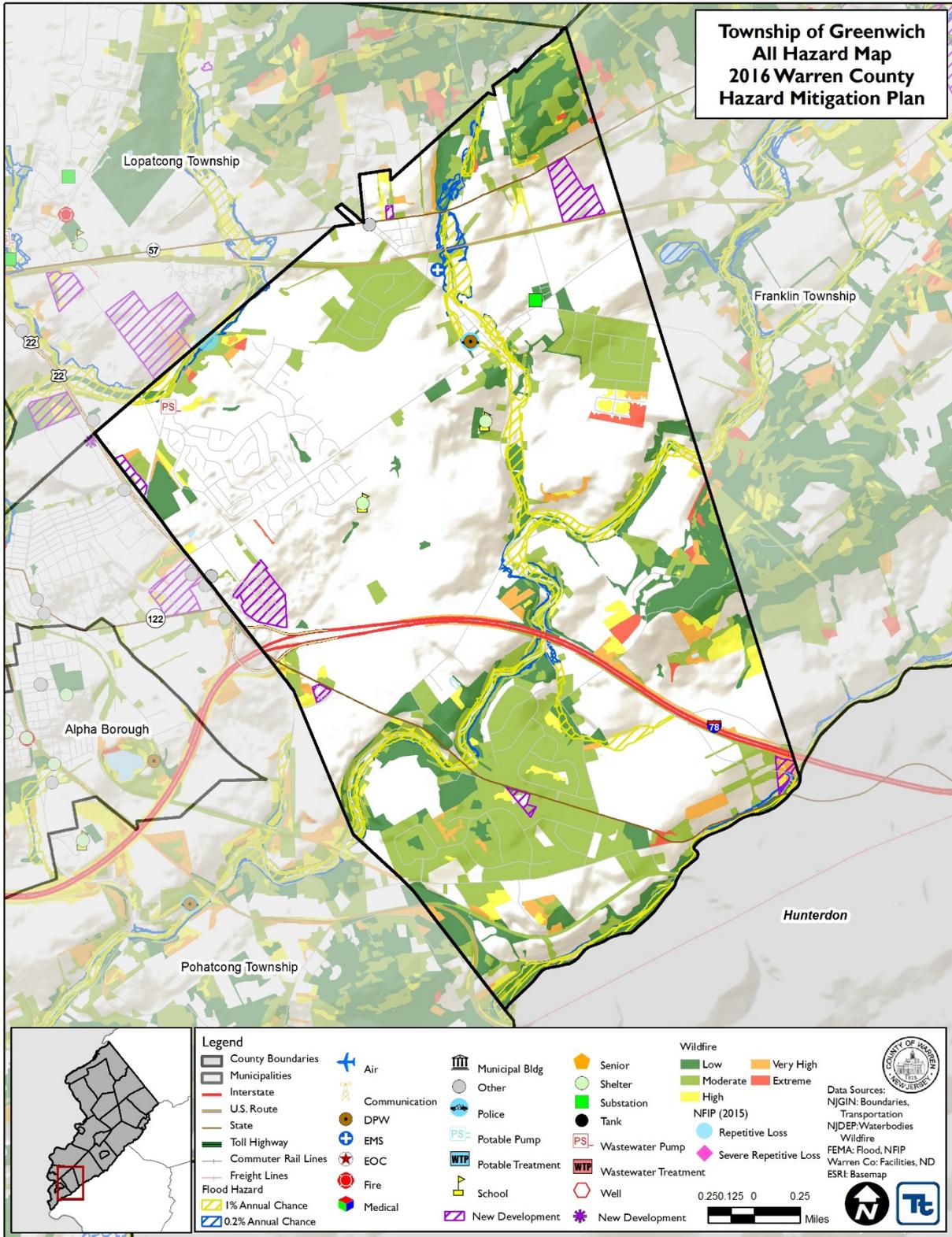
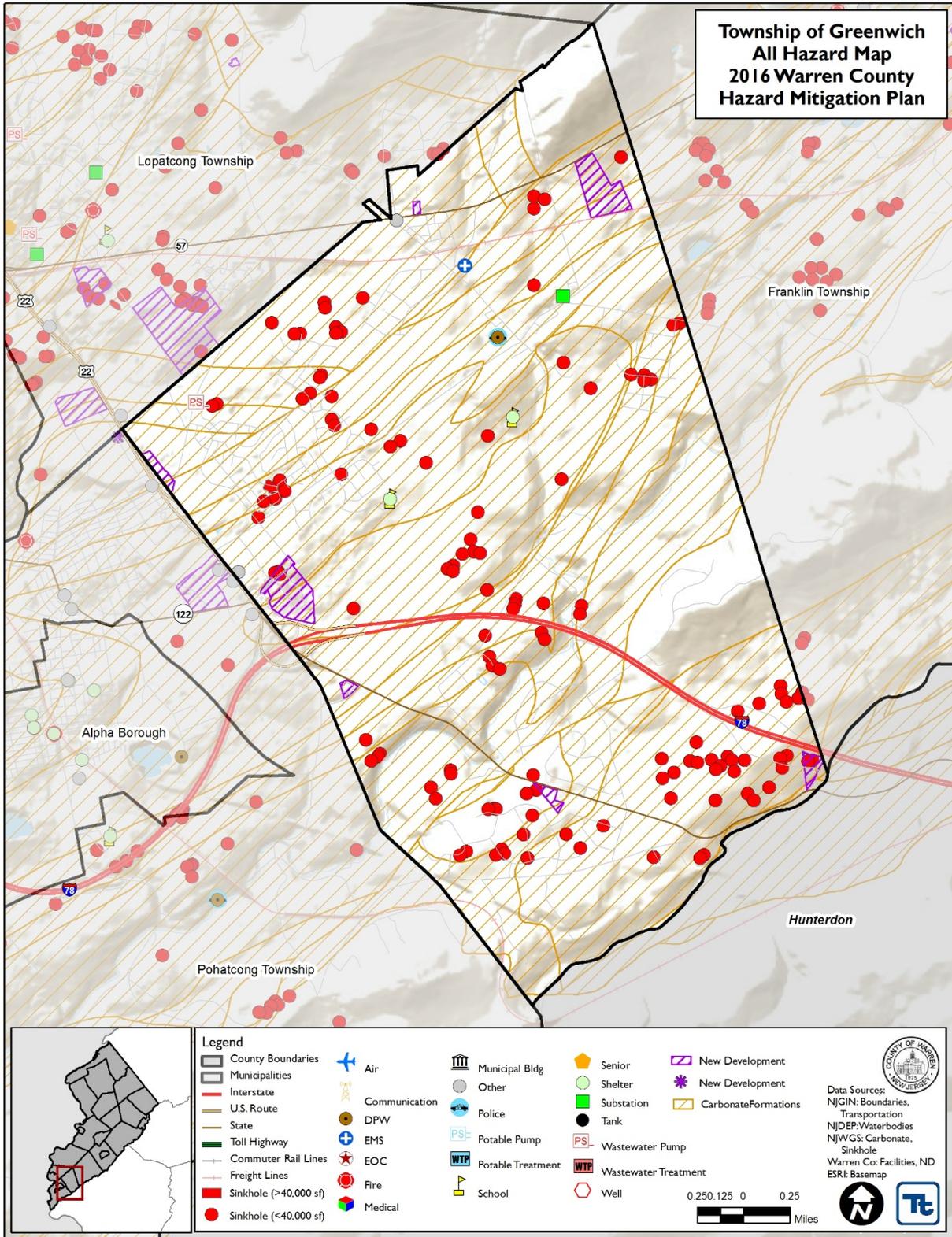




Figure 9.8-2. Township of Greenwich Hazard Area Extent and Location Map 2





Action Number: Greenwich - 6

Mitigation Action/Initiative: Support continuity of operations at critical facilities

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Loss of function of building when power outage occurs.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Install an emergency generator to power entire building during power outages.
	2. Co-Gen Facility
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Install an emergency generator to power entire building during power outages. Emergency Generator needed at municipal Bldg. Police, Fire & EOC
Action/Project Category	Structure and Infrastructure Project (SIP)
Goals/Objectives Met	Support continuity of operation pre-, during, and post-hazard events
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	Allows the police & fire department to continually function & serve the public
Estimated Cost	\$75,000. medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Township of Greenwich
Local Planning Mechanism	Township has budgeted their share of the cost for completing the project
Potential Funding Sources	FEMA Grant funding with local cost share
Timeline for Completion	April 2018
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 6

Mitigation Action/Initiative: Support Continuity of Operations

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Will allow the Police & Fire dept. operate & serve public
Property Protection	1	Maintains building security all other utilities services
Cost-Effectiveness	1	
Technical	1	Yes
Political	1	Yes
Legal	1	Yes
Fiscal	1	HMGP grant has been approved & Local share is budgeted
Environmental	0	Diesel generator will be used, no natural gas available
Social	1	No
Administrative	0	Annual outside service maintenance will be required
Multi-Hazard	0	yes
Timeline	1	Yes
Local Champion	1	Yes
Other Community Objectives	0	Capital improvement to Municipal building
Total	10	
Priority (High/Med/Low)	High	



Action Number: Greenwich - 7

Mitigation Action/Initiative: Merrill Creek dredge & debris removal

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storms, Hurricanes/Tropical Storms
Specific problem being mitigated:	Overflow of Merrill Creek banks during heavy rain events
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Remove debris and lower creek bottom to reduce overflow of banks from rain water runoff.
	2. Conduct feasibility study to determine additional mitigation options
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove debris and lower creek bottom to reduce overflow of banks from rain water runoff.
Action/Project Category	NSP
Goals/Objectives Met	Protect Life & Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	Property losses, road closures and possible evacuation
Estimated Cost	High
Priority*	Low
Plan for Implementation	
Responsible/Lead Agency/Department	Private Property owners
Local Planning Mechanism	None
Potential Funding Sources	FEMA Grants & or after disaster clean up
Timeline for Completion	OG
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 7

Mitigation Action/Initiative: Merrill Creek dredge & debris removal

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Reduce losses due to flooding
Cost-Effectiveness	-1	
Technical	-1	
Political	0	
Legal	-1	
Fiscal	-1	
Environmental	0	
Social	0	Disrupt establish neighborhoods
Administrative	-1	Outside help
Multi-Hazard	1	Reduce Flood Loss, road closures and water damage infrastructure
Timeline	-1	No
Local Champion	0	
Other Community Objectives	0	
Total	-4	
Priority (High/Med/Low)	Low	



Action Number: Greenwich - 10

Mitigation Action/Initiative: Support the mitigation of vulnerable properties

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Homes located within the floodplain and flood during heavy precipitation events
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Acquisitions
	2. Elevations
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove/Demo home and bridge that flood and catches debris causing flooding. Properties are located on: Ravine Road and Route 519
Action/Project Category	SIP
Goals/Objectives Met	Protect Life & Property
Applies to existing and/or new development; or not applicable	Not applicable
Benefits (losses avoided)	Physical property damage, loss of function
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Private Property owner
Local Planning Mechanism	
Potential Funding Sources	FEMA HMA Grants
Timeline for Completion	OG
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 10

Mitigation Action/Initiative: Support the mitigation of vulnerable properties

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevent potential drowning
Property Protection	1	Prevent property damage, loss of function reduce road closings/detours
Cost-Effectiveness	1	
Technical	1	
Political	1	Local government has received multiple complaints since abandon
Legal	0	
Fiscal	-1	No
Environmental	1	Yes
Social	1	No remove a problem
Administrative	0	Outside help will be needed for demo
Multi-Hazard	1	Yes
Timeline	1	Yes
Local Champion	1	Yes
Other Community Objectives	1	Environmental quality
Total	10	
Priority (High/Med/Low)	High	



Action Number: Greenwich - 8
Mitigation Action/Initiative: Address Beattys Rd. Flooding

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Weather, Hurricane/Tropical Storm
Specific problem being mitigated:	Storm water runoff road flooding and soil erosion
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Conduct engineering/feasibility study to determine best mitigation options to address flooding
	2.
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Rain water runoff floods road along with mud road closure and detours - Beattys Rd near intersection of South Main St
Action/Project Category	SIP
Goals Met	Protect Life & Property
Applies to existing and or new development, or not applicable	Not applicable
Benefits (losses avoided)	Road Closings/Detour
Estimated Cost	Medium
Priority*	Med
Plan for Implementation	
Responsible Organization	Township
Local Planning Mechanism	
Potential Funding Sources	Grants & local
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 8

Mitigation Action/Initiative: Beattys Rd. Flooding

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Prevent loss of function reduce road closings/detours
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	
Fiscal	-1	No
Environmental	1	Yes
Social	1	No will remove a problem
Administrative	0	Outside help will be needed initial construction/repair
Multi-Hazard	1	Yes
Timeline	1	Yes
Local Champion	0	
Other Community Objectives	1	Capital improvement
Total	8	
Priority (High/Med/Low)	Med	



Action Number: Greenwich - 11
Mitigation Action/Initiative: Washington St House Demolition

Assessing the Risk	
Hazard(s) addressed:	Hurricane/Tropical Storm, Severe Weather
Specific problem being mitigated:	Abandon house falling off foundation a high wind and flooding hazard
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Demo wind and flood-vulnerable structure
	2.
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	House is falling off its foundation subject to high winds and flooding causing damage to two other residential homes
Action/Project Category	SIP
Goals/Objectives Met	Protect Life & Property
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	Would avoid potential damage to other homes and life if collapse
Estimated Cost	Medium
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Privately owned
Local Planning Mechanism	
Potential Funding Sources	FEMA HMA Grant, local match
Timeline for Completion	Long Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 11

Mitigation Action/Initiative: Washington St House Demolition

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect lives of the families on either side of this structure
Property Protection	1	Prevent damage to homes on either side and or roads & utilities if collapse occurs
Cost-Effectiveness	0	Yes
Technical	1	Yes
Political	1	Yes
Legal	0	House is abandon
Fiscal	-1	No
Environmental	1	Yes
Social	0	
Administrative	0	Outside help
Multi-Hazard	1	Yes
Timeline	1	Yes
Local Champion	1	Yes
Other Community Objectives	1	
Total	8	
Priority (High/Med/Low)	High	



Action Number: Greenwich - 12
Mitigation Action/Initiative: Dam removal Musconetcong River

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	Dam on the Musconetcong River between Greenwich Twp. & Bloomsbury Borough, Hunterdon county catalyst in flooding along this area of the river.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Remove dam
	2.
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	Remove dam to reduce the flooding to the homes along river
Action/Project Category	SIP
Goals/Objectives Met	Protect Life & Property
Applies to existing and/or new development; or not applicable	Not applicable
Benefits (losses avoided)	Physical property damage, loss of function
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	Public, State DEP/EPA
Local Planning Mechanism	
Potential Funding Sources	Federal and State grants
Timeline for Completion	OG
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 12

Mitigation Action/Initiative: Dam removal Musconetcong River

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevent potential drowning
Property Protection	1	Prevent property damage, loss of function reduce road closings/detours
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	No
Environmental	0	
Social	0	
Administrative	-1	No
Multi-Hazard	1	Yes
Timeline	-1	
Local Champion	1	
Other Community Objectives	0	
Total	4	
Priority (High/Med/Low)	Med	



Action Number: Greenwich - 13

Mitigation Action/Initiative: Relocate the Municipal Building

Assessing the Risk	
Hazard(s) addressed:	321 Greenwich Street
Specific problem being mitigated:	Relocation or build a new municipal building out of the area of the Merrill Creek Reservoir inundation area.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Relocate the building
	2. Build a new building at a new location
	3. Do nothing
Action/Project Intended for Implementation	
Description of Selected Action/Project	New Municipal building location would ensure continued municipal operations during severe flooding and potential dam breach.
Action/Project Category	SIP
Goals/Objectives Met	1, 2, 6 (Continued Municipal operation Police/OEM)
Applies to existing and/or new development; or not applicable	Not applicable
Benefits (losses avoided)	Physical property damage, loss of function
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	OEM, Local Government
Local Planning Mechanism	
Potential Funding Sources	Federal and State grants
Timeline for Completion	Long – Depends on funding
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Action Number: Greenwich - 13

Mitigation Action/Initiative: Relocate the municipal building

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Prevent potential drowning/continue municipal services
Property Protection	1	Prevent property damage, loss of function, continued municipal services
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	0	
Fiscal	0	
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	Depends on available funding
Local Champion	0	
Other Community Objectives	0	
Total	4	
Priority (High/Med/Low)	Med	