



9.13 TOWNSHIP OF MILLBURN

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

9.13.1 Hazard Mitigation Planning Team

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

Table 9.13-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Captain Chris Beady / OEM Coordinator, Millburn Fire Department Address: Millburn Fire Department, 459 Essex Street, Millburn, NJ 07041 Phone Number: 973-564-7035 Email: cbeady@millburntwtp.org	Name / Title: Alex McDonald / Deputy Coordinator, Business Administrator Address: Millburn Town Hall, 375 Millburn Avenue, Millburn, NJ 07041 Phone Number: 973-564-7071 Email: amcdonald@millburntwtp.org
NFIP Floodplain Administrator	
Name / Title: Martha Callahan / Township Engineer, Engineering Department Address: Millburn Town Hall, 375 Millburn Avenue, Millburn, NJ 07041 Phone Number: 973-564-7052 Email: mcalahan@millburntwtp.org	

9.13.2 Jurisdiction Profile

According to the U.S. Census Bureau, the Township has a total land area of 9.876 square miles, of which 9.322 square miles is land and 0.554 square miles is water. The Township of Millburn is in southwestern Essex County and is bordered to the east by the Township of Maplewood, to the north by the Township of West Orange and the Township of Livingston, to the west by Morris County municipality of Chatham, and to the south by Union County municipalities of Summit and Springfield.

Once part of Elizabethtown and Newark, Millburn Township was part of Springfield Township and created by King Charles II for his brother, James, in 1664. In 1857, Millburn Township separated from Springfield Township. Millburn Township is home to the internationally known Paper Mill Playhouse where many Broadway shows have gotten their preview start much like the Tony Award winning musical Newsies. The first planned commuter suburb in America, Short Hills, is in Millburn Township (Township of Millburn New Jersey, 2014). Millburn Township operates under the Township form of government with a five-member Committee. Annually, the Committee selects one member to serve as Mayor (Township of Millburn New Jersey, 2014).

According to the U.S. Census, the 2010 population for the Township of Millburn was 20,149. The estimated 2017 population was 20,387, a 1.2 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 6.9 percent of the population is 5 years of age or younger and 12.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.



9.13.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. **Error! Reference source not found.** Table 9.13-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.13-1 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.13-2. Recent and Expected Future Development

Type of Development	2015	2016	2017	2018	2019
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	24	33	29	34	26
Multi-Family	0	0	0	1	0
Other (commercial, mixed-use, etc.)	0	1	0	0	0
Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Extra Space Storage	Commercial	1	30 Bleeker St.	Area of undetermined flood hazard (Zone D)	Self-storage facility.
296 Millburn LLC	Mixed-Use	1	296 Millburn Ave.	Area of minimal flood hazard (Zone X)	Apartments with first floor retail.
City of East Orange Water Co.	Commercial	1	440 Parsonage Hill Rd.	Zone AE	Restaurant on the property of a public golf course.
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Mack-Cali	Multi-Family	2	150 JFK Parkway	Area of minimal flood hazard (Zone X)	200 multi-family apartment units and a hotel. Under construction.
Red Ochre Investments LLC	Commercial	1	251 Essex St.	Area of undetermined flood hazard (Zone D)	Commercial office space. Received approval from Planning Board.
517 Millburn-Short Hills Corp.	Commercial	1	517 Millburn Ave.	Area of minimal flood hazard (Zone X)	Retail. Under construction.
271 Millburn Ave LLC	Mixed-Use	1	271 Millburn Ave.	Area of minimal flood hazard (Zone X)	Residential and restaurant. Received approval from Planning Board.

* Only location-specific hazard zones or vulnerabilities identified.



9.13.4 Capability Assessment

The Township of Millburn 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 legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Information on National Flood Insurance Program (NFIP) compliance.
- Classification under various community mitigation programs.
- The community's adaptive capacity for the impacts of climate change.

PLANNING, LEGAL AND REGULATORY CAPABILITY

The table below summarizes the legal and regulatory tools that are available to the Township of Millburn.

Table 9.13-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that Enforces (Federal, State, Regional, County, Local)	Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements							
Building Code	Yes	Millburn Township	Construction Official	State	Yes	No	No
<i>Comment: State of New Jersey Uniform Construction Code, N.J.A.C. 5:23. Adopted 2009. State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14 Adopted 9/3/2019 .</i>							
Zoning Code	Yes	Millburn Township	Zoning Official	No	Yes	Yes	N/A
<i>Comment: Township of Millburn Development Regulations and Zoning Ordinance. Adopted by Ordinance No. 1838-84 on December 18, 1984. Amended February 5, 2019. Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Checklist A for the Planning Board (Schedule F in the Development Regulations Appendix) includes a requirement for Floodway and Flood Hazard Area Limits and Wetlands for major site plans.</i>							
Subdivisions	Yes	Millburn Township	Planning Board	County	Yes	No	No
<i>Comment: Township of Millburn Development Regulations and Zoning Ordinance.</i>							
Stormwater Management	Yes	Millburn Township	Township Engineer	NJDEP	Yes	No	No
<i>Comment: Township of Millburn Development Regulations and Zoning Ordinance. Article 5 -Design and Performance Standards, Section 525 Stormwater Runoff. Ordinance No. 2394-2012.</i>							
Post-Disaster Recovery	No	-	-	-	-	-	-
<i>Comment:</i>							
Real Estate Disclosure	No	-	-	-	-	-	-
<i>Comment:</i>							
Growth Management	Yes	Millburn Township	Township Engineer	No	Yes	No	No



	Do you have this? (Yes/No)	Authority that Enforces (Federal, State, Regional, County, Local)	Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: Master Plan and Zoning Ordinance. State Mandated on a municipal level. See Zoning Ordinance; Also - Plan Endorsement Process via the State Development & Redevelopment Plan provides for the delineation of Growth Areas and Environs; Use of the endorsed plans in the implementation of state environmental regulations makes the Plan Endorsement process a growth management strategy.							
Site Plan Review	Yes	Millburn Township	Planning Board and Zoning Board of Adjustment	No	Yes	No	No
Comment: Township of Millburn Development Regulations and Zoning Ordinance. Planning Board and Zoning Board of Adjustment are responsible for enforcement. Dictated by the Municipal Land Use Law which sets forth minimum requirements for plans, etc., timeframes for development review. NJ Statute 40:27-6.2: The board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by county planning board and for the approval of those subdivisions affecting county road or drainage facilities. 40:27-6.10: Each municipal clerk shall file with the county planning board a copy of the planning and zoning ordinances of the municipality and shall notify the county planning board of the introduction of any revision or amendment of such an ordinance which affects lands adjoining county roads or other county lands, or lands lying within 200 feet of a municipal boundary, or proposed facilities or public lands shown on the county master plan or official county map.							
Environmental Protection	No	-	-	-	-	-	-
Comment:							
Flood Damage Prevention	Y	Millburn Township	Township Engineer and Zoning Board of Adjustment	FEMA	Yes	Yes	N/A
Comment: Township of Millburn Development Regulations and Zoning Ordinance. Article 7 -Flood Damage Prevention. Ordinance No. 2197-02; amended in entirety by Ord. 2287-07. Master plan Ordinance #2415-13 specified that Flood Damage Prevention Ordinance was updated to change FPA from Construction Official to Municipal Engineer for FPA responsibilities.							
Well Head Protection	Yes	Millburn Township	Planning Board or Zoning Board of Adjustment and the Board of Health, acting jointly and in consultation	No	No	No	No
Comment: Township of Millburn Development Regulations and Zoning Ordinance. Article 9-Well Head Protection. Ord. 2214-03.							
Emergency Management	No	-	-	-	-	-	-
Comment:							
Climate Change	No	-	-	-	-	-	-
Comment:							
Disaster Recovery Ordinance	No	-	-	-	-	-	-
Comment:							
Disaster Reconstruction Ordinance	No	-	-	-	-	-	-
Comment:							
Other: Grading, Drainage, Soil Erosion, and Sediment Control	Yes	Millburn Township	Township Engineer	Hudson, Essex, Passaic Conservation District	Yes	No	No
Comment: Township of Millburn Chapter XVII Grading, Drainage, Soil Erosion and Sediment Control. Ord. No. 2439-15. No person or entity shall clear, grade, transport, fill, excavate, remove or otherwise disturb any land area within the Township unless: 1. There has been a valid grading permit issued in accordance with Section 17-2 and this Chapter by the Township Engineer; or 2. The disturbance activity is exempt under subsection 17-1.3; or 3. The Planning Board or Board of Adjustment has approved a plan to provide for grading, drainage, soil erosion and sediment control for such land. Exemptions: a. Construction or alteration of any structure where a building permit is required and where the proposed new impervious area is less							



	Do you have this? (Yes/No)	Authority that Enforces (Federal, State, Regional, County, Local)	Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
than two hundred (200) square feet; or b. Land disturbance where a building permit is not required and where the proposed land disturbance is less than five hundred (500) square feet; or c. The proposed land disturbance is in connection with an application to the Township Planning Board or Zoning Board of Adjustment where approval by that Board includes approval of a plan meeting the requirements of subsection 17-1.1.							
Other: Historic Preservation	Yes	Millburn Township	Historic Preservation Commission	SHPO	No	No	No
Comment: Township of Millburn Development Regulations and Zoning Ordinance. Article 8-Historic Preservation. Ord. 10-87; 8-89; 10-89; Ord. 2470-16.							
Planning Documents							
Comprehensive / Master Plan	Yes	Millburn Township	Planning Board	No	Yes	No	2020-MILLBURN -003
Comment: June 1985; Master Plan Updated and Adopted December 2018. https://twp.millburn.nj.us/DocumentCenter/View/4616/Adopted-Millburn-Master-Plan-Reexamination-2018-PDF . The Planning Board is responsible for implementation. The Master Plan could reference the County Hazard Mitigation Plan during the next reevaluation.							
Capital Improvement Plan	Yes	Millburn Township	Millburn Township Chief Financial Officer	No	No	No	No
Comment: 8 Year Capital Program 2013-2020. South Mountain Drainage Engineering Project.							
Disaster Debris Management Plan	No	-	-	-	-	-	-
Comment:							
Floodplain or Watershed Plan	No	-	-	-	-	-	-
Comment:							
Stormwater Management Plan	Yes	Millburn Township	Township Engineer	NJDEP	Yes	No	No
Comment: Stormwater Management Plan May 2005. Not posted to website. The Stormwater Management Plan could reference the County Hazard Mitigation Plan during the next update.							
Stormwater Pollution Prevention Plan	Yes	Millburn Township	Township Engineer	NJDEP	Yes	No	No
Comment: Stormwater Pollution Prevention Plan May 2005. Not posted to website.							
Urban Water Management Plan	No	-	-	-	-	-	-
Comment:							
Habitat Conservation Plan	No	-	-	-	-	-	-
Comment:							
Economic Development Plan	No	-	-	-	-	-	-
Comment: Under Development by Business Administrator?							
Shoreline Management Plan	No	-	-	-	-	-	-
Comment:							
Community Wildfire Protection Plan	No	-	-	-	-	-	-
Comment:							
Community Forestry Management Plan	Yes	Millburn Township	Township Forester	No	No	No	No
Comment: The CFMP is not available online.							
Transportation Plan	Yes	Millburn Township	Planning Board	No	No	No	No



	Do you have this? (Yes/No)	Authority that Enforces (Federal, State, Regional, County, Local)	Authority	Other Jurisdiction Authority and specify (e.g., District, State, Federal)	State Mandated	Has this been integrated? If yes- how?	
						If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Comment: Pedestrian, Bicycle, and Vehicular Circulation are discussed as an element of the Master Plan.							
Agriculture Plan	No	-	-	-	-	-	-
Comment:							
Climate Action Plan	No	-	-	-	-	-	-
Comment:							
Tourism Plan	No	-	-	-	-	-	-
Comment:							
Business Development Plan	No	-	-	-	-	-	-
Comment:							
Other: Open Space Plan	Yes	Township of Millburn	Planning Board	No	No	No	No
Comment: June 1990; Master Plan Updated and Adopted Dec. 19, 2018 discusses Open Space, but not in separate plan.							
Other: Environmental Resource Inventory Report	Yes	Township of Millburn	Environmental Commission	No	Yes	No	No
Comment: March 11, 2014. https://www.twp.millburn.nj.us/DocumentCenter/View/3902/2014-Environmental-Resource-Inventory-PDF							
Response/Recovery Planning							
Comprehensive Emergency Management Plan	Yes	Township of Millburn	Millburn OEM	County, State	Yes	No	No
Comment: April 2017; Updated Plan accepted and adopted by Essex County OEM.							
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-	-	-
Comment:							
Post-Disaster Recovery Plan	Yes	Township of Millburn	Business Administrator	No	No	No	No
Comment: Feb 10, 2012; Updated Plan accepted and adopted by Essex County OEM.							
Continuity of Operations Plan	No	-	-	-	-	-	-
Comment:							
Public Health Plan	No	-	-	-	-	-	-
Comment:							
Other Emergency Response Plan	Yes	Township of Millburn	Business Administrator	No	Y /15es/No	Yes/No	Yes/No
Comment: Updated Plan accepted and adopted by Essex County OEM.							



Table 9.13-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	Yes
- If no, who does? If yes, which department?	Building Department
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	No All lands are 100% accounted for in the township.

ADMINISTRATIVE AND TECHNICAL CAPABILITY

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

Table 9.13-5. Administrative and Technical Capabilities

Staff/Personnel Resource	Available?	Department/Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board / Commission	Yes	Environmental Commission, Green Team
Open Space Board / Committee	No	-
Economic Development Commission / Committee	No	-
Warning Systems / Services (reverse 911, outdoor warning signals)	Yes	SwiftReach
Maintenance program to reduce risk	Yes	Pubic Works clears catch basin and waterways prior to an event
Mutual aid agreements	Yes	Fire Department
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Township Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Township Engineer, Construction Official
Planners or engineers with an understanding of natural hazards	Yes	Township Engineer
Staff with training in benefit/cost analysis	Yes	Chief Financial Officer
Staff with training in green infrastructure	No	-
Staff with education/knowledge/training in low impact development	No	-
Surveyors	Yes	Engineering Contractor
Personnel skilled or trained in GIS applications	Yes	Engineering Contractor
Stormwater engineer	No	-
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	OEM
Watershed Planner	No	-



Staff/Personnel Resource	Available?	Department/Agency/Position
Environmental Specialist	No	-
Grant writers	Yes	Administration Contractor
Resilience Officer	No	-
Other	No	-

FISCAL CAPABILITY

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

Table 9.13-6. Fiscal Capabilities

Financial Resource	Accessible or Eligible to Use?
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, sewer from tax collector
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
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	No
Other: Sewer Connection Fee	Yes

EDUCATION AND OUTREACH CAPABILITY

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

Table 9.13-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website?	Yes
<ul style="list-style-type: none"> If yes, briefly describe. 	Emergency info for residents. Links to organizations. Could link to plan in future.
Do you use social media for hazard mitigation education and outreach?	Yes
<ul style="list-style-type: none"> If yes, briefly describe. 	Facebook, Twitter, Instagram
Do you have any citizen boards or commissions that address issues related to hazard mitigation?	Yes
<ul style="list-style-type: none"> If yes, briefly describe. 	Environmental Commission, Mayor's Rahway River Coalition
Do you have any other programs already in place that could be used to communicate hazard-related information?	Yes
<ul style="list-style-type: none"> If yes, briefly describe. 	Pamphlets and mailings. Brightsign board in lobby does communicate hazard information.
Do you have any established warning systems for hazard events?	Yes
<ul style="list-style-type: none"> If yes, briefly describe. 	SwiftReach

**COMMUNITY CLASSIFICATIONS**

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

Table 9.13-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	4 Residential, 3 Commercial	2011
Public Protection (Fire ISO Protection Class)	Yes	3	2007
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-

ADAPTIVE CAPACITY

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

The municipality has access to resources to determine the possible impacts of climate change upon the municipality. The administration is supportive of integrating climate change in policies or actions. Climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality. The 2018 update to the Master Plan includes Goal 6 *Develop and implement strategies to address town-wide sustainability, resiliency and to adapt to global climate change.*

Table 9.13-9. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low
Coastal Erosion and Sea Level Rise	Low
Coastal Storm	Low
Drought	Medium
Earthquake	Medium
Extreme Temperature	High
Flood (<i>riverine / flash flood, SLR</i>)	Medium
Geological Hazards (<i>landslides and subsidence/sinkholes</i>)	Low
Severe Storm (<i>high wind, tornado, TSTM, and hail</i>)	High
Winter Storm (<i>heavy snow, blizzards, and ice storms</i>)	High
Wildfire	Low
Civil Disorder	Low
Cyber Attack	Medium
Disease Outbreak	Low
Economic Collapse	Medium
Hazardous Substances	Medium
Utility Interruption	High
Terrorism	Medium
Transportation Failure	Low

Notes:

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

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

**NATIONAL FLOOD INSURANCE PROGRAM**

This section provides specific information on the management and regulation of the regulatory floodplain. Millburn has 33 repetitive loss properties and 0 severe repetitive loss properties.

Table 9.13-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering and Building
Who is your floodplain administrator? (department/position)	Engineer, Engineering
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	2007
Does your floodplain management program meet or exceed minimum requirements?	Meets
• If exceeds, in what ways?	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	CAC: 2009 CAV: 1993
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, state what they are.	N/A
Are any RiskMAP projects currently underway in your jurisdiction?	Yes
• If so, state what they are.	1 LOMA submitted
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	No
• If no, state why.	Downtown might not be accurate.
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
• If so, what type of assistance/training is needed?	N/A
Does your jurisdiction participate in the Community Rating System (CRS)?	No
• If yes, is your jurisdiction interested in improving its CRS Classification?	N/A
• If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction?	263
• What is the insurance in force?	\$83,283,300
• What is the premium in force?	\$231,531
How many total loss claims have been filed in your jurisdiction?	308
• How many claims are still open or were closed without payment?	79
• What were the total payments for losses?	\$6,633,853
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?	No

Policies and Claims from <https://bsa.nfipstat.fema.gov/reports/1011.htm> and <https://bsa.nfipstat.fema.gov/reports/1040.htm> as of 09/30/2018

ADDITIONAL AREAS OF EXISTING INTEGRATION

In the performance period since adoption of the 2015 HMP, the Township of Millburn made progress on integrating hazard mitigation into other initiatives. The following plans and programs currently integrate components of the HMP and strategy:

- The OEM plan specifies an evacuation and shelter plan.
- The building code accounts for many types of hazards.



- The township has a restrictive steep slopes ordinance and enforces DEP regulations for floodplain development.
- The Township of Millburn participates in the Sustainable Jersey program and achieved Silver certification. Actions for certification on October 10, 2018 with 365 points were provided in the certification report at http://www.sustainablejersey.com/certification/participating-communities/certification-report/?tx_sjcert_certification%5Bcertification%5D%5B__identity%5D=662&tx_sjcert_certification%5Baction%5D=show&tx_sjcert_certification%5Bcontroller%5D=Certification&cHash=173c4a6160b85c95d381dd86c734fd7e.

9.13.5 Hazard Event History Specific to the Jurisdiction

Essex County has a history of hazard events, as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 4.4 (Hazard Profiles) and includes a chronology of events that affected Essex County and its jurisdictions. The Township of Millburn's history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Essex County. Table 9.13-11 provides details regarding municipal-specific loss and damages the Township experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.13-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
January 22-23, 2016	Winter Storm, Blizzard DR-4264	Yes	Low pressure moving across the deep South on January 21 and January 22 intensified and moved off the Mid Atlantic coast on January 23, bringing heavy snow and strong winds to northeast New Jersey, and blizzard conditions to the urban corridor and some nearby areas. At Newark Airport, the storm total snowfall was 24.5 inches, where winds gusted to 39 mph.	Force Account Labor Costs (Cat. A) - \$77,090.49 Force Account Equipment Costs (Cat. B) - \$41,342.50
3/14/17	Winter Storm	No	Rapidly deepening low pressure tracked up the eastern seaboard on March 14, bringing 8 to 13 inches of heavy snow and sleet, along with strong winds across Northeast New Jersey.	The Township did not report any losses for this event.
1/4/18	Winter Storm	No	The low pressure rapidly intensified through January 4, as it moved north-northeast along the coast. The rapid intensification of the storm led to heavy snow, strong winds, and near-blizzard conditions across northeast New Jersey, with 8.4 inches of snow and winds gusts of 44 MPH reported at Newark Liberty Airport.	The Township did not report any losses for this event.
3/7/18	Winter Storm	No	A strong low-pressure system tracked along the coast through late March 7 and early morning on March 8 bringing heavy wet snow, strong	Force Account Labor Costs (Cat. A) - \$396,594.33 Force Account Equipment Costs (Cat. B) - \$188,055.09



Date(s) of Event	Event Type (disaster declaration if applicable)	Essex County Designated?	Summary of Event	Summary of Local Damages and Losses
			gusty winds, and thundersnow across northeast New Jersey. Snowfall rates ranged from 1 to 3 inches per hour at times, resulting in 1 to 2 feet, which brought down trees and some power lines.	
8/4/18	Flash Flood		A developing area of low pressure along a surface trough helped produce heavy rainfall across parts of northeast New Jersey on the morning of August 4th that resulted in flash flooding. Rainfall amounts ranged from 1-3 inches in many places. Between the afternoon of August 3rd and the afternoon of August 4th, the Caldwell, NJ ASOS measured 2.75, and CoCoRaHS observers in Park Ridge and Hawthorne measured 2.90 and 2.95, respectively, with a CWOP station in Scotch Plains reporting 2.42. Old Short Hills Road was closed due to flooding in Millburn.	The Township did not report any losses for this event.
11/15/18	Winter Storm	No	A wave of low pressure developed along the Middle Atlantic coast November 15. The heavy, wet snow significantly impacted the evening rush hour with 1-2 inch per hour snowfall rates. Hundreds of trees, tree limbs, and branches were brought down by the weight of the snow, causing many power outages. Newark Airport reported 6.4 inches of snow.	The Township did not report any losses for this event.
1/30/19	Strong Wind	No	Strong winds occurred behind low pressure and cold front, with 30 mph sustained winds measured at Caldwell Airport.	The Township did not report any losses for this event.

Notes:

9.13.6 Jurisdiction-Specific Vulnerabilities and Hazard Ranking

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Table 9.13-12 summarizes the hazards of greatest concern and risk to the Township of Millburn.

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



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

REPETITIVE FLOOD LOSSES

The table below summarizes the repetitive and severe repetitive flood losses in the Township of Millburn.

- Number of repetitive loss (RL) properties: 33
- Number of severe repetitive loss (SRL) properties: 0
- Number of RL/SRL properties that have been mitigated: Unknown

RL and SRL as of 03/31/2019; SRL includes SRL properties that have been verified only (SRL_Indicator = V).

CRITICAL FACILITIES

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

Table 9.13-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Community Congregation Church	Church	-	-	
Eco Radio Comm Site	Communication	-	-	
Verizon Switching Station	Communication	-	-	
Campbells Pond Dam	Dam	x	x	Do not have the jurisdiction to mitigate
Canoe Brook Dam	Dam	x	x	Do not have the jurisdiction to mitigate
Canoe Brook Reservoir #1 Dam	Dam	x	x	Do not have the jurisdiction to mitigate
Canoe Brook Reservoir #2 Dam	Dam	-	-	
Diamond Mill Dam	Dam	x	x	Do not have the jurisdiction to mitigate
Taylor Park Pond	Dam	x	x	Do not have the jurisdiction to mitigate
Millburn First Aid Squad*	EMS	-	-	-
Millburn Township Fire Department*	Fire	-	-	-
Millburn Township Fire Department Station 2*	Fire	-	-	-
Millburn Library*	Government	-	-	-
Millburn Town Hall*	Government	-	-	-
Gero Park Rec Center	Park	-	-	-
Eco Canine and Bomb Headquarters	Police	-	-	-
Millburn Police Department*	Police	-	-	-
White Oak Ridge Pumping Station 1*	Potable Pump Station	-	-	-
White Oak Ridge Pumping Station 2*	Potable Pump Station	-	-	-
East Orange Water Commission	Potable Treatment	-	-	-
Canoe Brook Water Treatment Plant*	Potable Treatment	-	-	-



Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Orange Water Pumping Station-Well 3*	Potable Well	-	-	-
Orange Water Pumping Station-Well 4*	Potable Well	-	-	-
Short Hills Mall	Retail	-	-	-
B'nai Jeshurun Early Childhood Center	School	-	-	-
Deerfield Elementary School	School	-	-	-
Far Brook School	School	-	-	-
Glenwood Elementary School	School	-	-	-
Hartshorn Elementary School	School	-	-	-
Millburn Middle School	School	-	-	-
Millburn Sr. High School	School*	-	-	-
Montessori Children's Academy	School	-	-	-
Saint Rose of Lima School	School	-	-	-
Saint Stephen's Preschool	School	-	-	-
South Mountain Elementary School	School	-	-	-
The Pingry School	School	-	-	-
The Washington School	School	-	-	-
Wyoming Elementary School	School	-	-	-
Millburn Library	Shelter	-	-	-
Millburn Sr. High School	Shelter	-	-	-
Bauer Center*	Recreation	x	x	Proposed Mitigation Action 009
Millburn	Train Station	-	-	-
Short Hills	Train Station	-	-	-
Sanitary Pump #1*	Wastewater Pump	-	-	-
Sanitary Pump #2*	Wastewater Pump	-	-	-
Sanitary Pump #3*	Wastewater Pump	-	-	-
Sanitary Pump #4*	Wastewater Pump	-	-	-
Sanitary Pump #5*	Wastewater Pump	-	-	-

Source: Essex County, 2019; FEMA 2014/2017/2018; HAZUS-MH v4.2

* Identified lifeline

ADDITIONAL IDENTIFIED VULNERABILITIES

According to the preliminary 2014 FEMA Flood Insurance Study (FIS), stream bank overflow along the East Branch and West Branch Rahway River, the Passaic River, Canoe Brook, Taylor Brook, and Great Hills Brook is the principal flood problem within the Township of Millburn. Such flooding along the East Branch and West Branch Rahway River has caused damage to some homes and a number of commercial establishments. Flooding along the brooks primarily affects private residences and property in Millburn (FEMA FIS 2014).

Additionally, the municipality has identified the following hazard problems and/or problem areas for flooding

Millburn Township experiences flooding in areas of poor drainage and along the East and West Branches of the Rahway River. Alleviating the flooding issue requires modifying the local storm drainage system and stormwater management practices. No structures built solely for flood protection exist in the Township of Millburn (FEMA FIS 2014).

Other areas prone to flooding in the Township include:

- South Mountain section of Millburn.



- Wyoming section of Millburn.
- Meadowbrook section of Short Hills.
- Downtown area of Millburn that surrounds the West Branch of the Rahway River.
- Millburn Avenue near the East Branch of the Rahway River.

HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps were generated for the Township of Millburn that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps have been generated only for those hazards that can be clearly identified using mapping techniques and technologies and for which the Township of Millburn has significant exposure. A map of the Township of Millburn hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain, as well as identified critical facilities within the municipality.

HAZARD RANKING

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; and 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 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Essex County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Township of Millburn. The Township of Millburn has reviewed the Essex County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community, as reported in Table 9.13-14.

During the review of the hazard ranking, the Township indicated the following:

- The Township changed the hazard ranking for flood from low to medium due to the Rahway and Passaic Rivers having floodplains in the town.
- The Township changed the hazard ranking for wildfire from low to medium due to the presence of the South Mountain Reservation, Cora Hartshorn Arboretum, and Greenwood Gardens in the Township.
- The Township changed the hazard ranking for cyber attack from low to medium, as these have been witnessed already in the township.
- The Township changed the hazard ranking for economic collapse from medium to low.
- The Township changed the hazard ranking for transportation failure from low to medium.

Table 9.13-14. Township of Millburn Hazard Ranking Input

Coastal Erosion and Sea Level Rise	Coastal Storm	Drought	Earthquake	Extreme Temperature	Flood
Low	Low	Medium	Medium	Low	Medium



Geological Hazards	Severe Storm	Winter Storm	Wildfire	Civil Disorder	Cyber Attack
Low	High	High	Medium	Low	Medium

Disease Outbreak	Economic Collapse	Hazardous Substances	Utility Interruption	Terrorism	Transportation Failure
Low	Low	Low	High	Low	Medium

9.13.7 Mitigation Strategy and Prioritization

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

PAST MITIGATION INITIATIVE STATUS

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

Table 9.13-15. Status of Previous HMP Mitigation Actions

2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
Millburn-1 Millburn Haran Circle dike generator.	Township OEM	Complete	-	-
Millburn-2 Millburn Gilbert Place generator.	Township OEM	In progress.	Yes	2020-MILLBURN - 001
Millburn-3 Millburn Ridgewood Road generator.	Township OEM	Discontinue. Town evaluated and decided not a possibility.	-	-
Millburn-4 Millburn Police Station and EOC generator.	Township OEM	Complete	-	-
Millburn-5 Inflow/Infiltration to protect infrastructure during sanitary sewer back-ups.	Township	In progress	Yes	2020-MILLBURN - 002
Millburn-6 Fix undermined retaining wall at Arboretum Brook by stabilizing slopes susceptible to erosion.	Township DPW	Complete	-	-
Millburn-7 Township of Millburn Community Rating System membership.	Township	Discontinue. Town evaluated and decided not a possibility.	-	-
Millburn-8 Enroll local Floodplain Manager in CFM education and prepare for exam.	Township	Complete.	-	-
Millburn-9 Add drainage structures to Chatham Road.	Township	Discontinue. Town evaluated and decided not a possibility.	-	-



2015 Action Number Action Description	Responsible Party	Status (In Progress, No Progress, Ongoing Capability, or Completed)	Include in the 2020 HMP Update?	
			Check if Yes	Enter 2020 HMP Action #
Millburn-10 Participate in Firewise program	Township OEM	In progress.	Yes	2020-MILLBURN - 003
Millburn-11 Improve flood risk assessment for NFIP properties using GIS.	Township	Complete. Spacial Data Logic, data mapping contractor, provided updated maps.	-	-
Millburn-12 Form partnerships to support floodplain management.	Township	Complete. Mayors' Rahway River Coalition	-	-
Millburn-13 Improve stormwater drainage system capacity for Meadowbrook Road drainage.	Township DPW	Discontinue. Town evaluated and decided not a possibility.	-	-
Millburn-14 South Mountain storm pumps.	Township DPW	In progress	Yes	2020-MILLBURN - 004
Millburn-15 New drainage system to be constructed on Knollwood Road.	Township DPW	Complete	-	-
Millburn-16 Drainage infrastructure for private properties added to South Mountain.	Township DPW	Discontinue. Town evaluated and decided not a possibility because of easements.	-	-
Millburn-17 Participate in Storm Ready program and educate the public on how to prepare for hazards and disasters.	Township OEM	Continue. Expected in September.	Yes	2020-MILLBURN - 005
Millburn-18 Mitigation plan for 50-year storm event along east and west branches of Rahway River.	Township	Discontinue. Town evaluated and decided not a possibility.	-	-
Millburn-19 Taylor Park dam. Replace outdated leaking dam, repair undermining of concrete discharge apron and reconstruct 100ft of retaining wall along West Branch of Rahway river.	Township	Complete	-	-
Millburn-20 Support the mitigation of vulnerable structures via retrofit (e.g., elevation, flood-proofing) or acquisition/relocation	Township Engineering, FPA	In progress.	Yes	2020-MILLBURN - 006
Millburn-21 375 Millburn Ave – Town Hall - Elevate/Floodproof to the equivalent of 1 foot above the 500 Year Floodplain	Township OEM	Discontinue. Town evaluated and decided not a possibility.	-	-

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

- The Township did not identify additional mitigation projects that were completed but not identified in the previous HMP.

PROPOSED HAZARD MITIGATION INITIATIVES FOR THE PLAN UPDATE

The Township of Millburn participated in a risk assessment workshop in September 2019 in which detailed information was provided about assets exposed and vulnerable to the identified hazards of concern. The Township of Millburn participated in a mitigation action workshop in October 2019 and was provided a Mitigation Toolbox



that included a mitigation catalog developed specifically for Essex County and its hazards of concerns; challenges and opportunities identified during the capability and risk assessments; and the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 *Selecting Appropriate Mitigation Measures for Floodprone Structures* (March 2007) and FEMA *Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards* (January 2013). Section 6 (Mitigation Strategy) and Appendix X (Mitigation Strategy Supplement) provide a more complete description of the Mitigation Toolbox and its resources.

Table 9.13-16 summarizes the comprehensive-range of specific mitigation initiatives the Township of Millburn would like to pursue in the future to reduce the effects of hazards. Some of these initiatives might be previous actions carried forward for this HMP update. Initiatives are dependent upon available funding (grants and local match availability) and can be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the 4 FEMA mitigation action categories and the 6 CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 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 actions as *High*, *Medium*, or *Low*. The table below summarizes the evaluation of each mitigation initiative, listed by action number.

Table 9.13-17 provides a summary of the prioritization of all proposed mitigation initiatives for this HMP update.



Table 9.13-16. Proposed Hazard Mitigation Initiatives

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-MILLBUR N -001	Short Hills Gardens Channel	Retaining wall requires stabilization at Short Hills Gardens (469 Short Hills Ave).	Fix undermined retaining wall at Short Hills Gardens by stabilizing slopes susceptible to erosion.	New	Flood	1.2, 2.2	Township Engineering	HMGP, PDM	High	High	Medium	High	SIP	PP
2020-MILLBUR N -002	Tree Service Contract	After storms, trees on public and private properties require immediate service.	Adopt contract to keep tree management service on retainer. Update current EOP to reflect contract	New	All	1.2, 6.2	Township Administration, DPW	Municipal Budget	High	Low	Short	High	EAP	ES
2020-MILLBUR N -003	Master Plan and HMP Integration	Master Plan does not integrate Essex County HMP	Include discussion of Essex County HMP in next update.	New	All	4.1, 5.4	Planning Board	Municipal Budget	Medium	Low	Long	Medium	LPR	PP, PI
2020-MILLBUR N -004	Gilbert Place generator.	The pumps at Gilbert Place do not have backup power.	Purchase and install a backup generator.	Existing	All	1.2, 6.1	Township OEM	HMGP, Municipal Budget	High	\$270,000	Short	High	SIP	PP
2020-MILLBUR N -005	Participate in Firewise program	The South Mountain Reservation is a risk for wildfire.	Township is enrolled as Firewise Ambassador and will further Firewise program development	Existing	Wildfire	1.1, 3.1	Township OEM	Municipal Budget	High	Low	Long	High	LPR	PR



Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-MILLBUR N -006	Participate in StormReady program and educate the public on how to prepare for hazards and disasters.	Millburn Township is subject to extreme weather during storms.	Township enrolled in the StormReady program to increase community readiness.	Existing	All	1.2, 3.1, 3.2	Township OEM	Municipal Budget	High	High	Long	High	LPR	PR
2020-MILLBUR N -007	South Mountain storm pumps.	The South Mountain Neighborhood floods from stormwater not flowing to the Rahway River during storms.	Install pumps in the South Mountain neighborhood to push the floodwater over the berm and into the Rahway River.	Existing	Flood, Severe Weather, Severe Winter Weather	1.2, 2.2	Township DPW	FEMA HMA Grants, Municipal Budget	High	High	Long	High	SIP	SP
2020-MILLBUR N -008	Inflow/ Infiltration to protect infrastructure during sanitary sewer back-ups.	During rain events, stormwater infiltrates the sanitary sewer pipes to cause backups.	Perform an I&I study to determine the sources of infiltration into the sanitary system.	Existing	Flood	1.2, 2.2	Township	Municipal Budget	High	High	Long	High	SIP	SP
2020-MILLBUR N -009	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/ relocation	Vulnerable structures are in the floodplain and subject to repetitive loss.	Compile a list of vulnerable locations and identify mitigation strategy for each.	Existing	Flood, Coastal Storm, Severe Weather, Winter Storm	1.2, 2.2	Township Engineering, FPA	Municipal Budget	High	Medium	Long	High	SIP	PP

Notes:

Acronyms and Abbreviations:

CAV Community Assistance Visit
CRS Community Rating System

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation.



DPW Department of Public Works
 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

PDM Pre-Disaster Mitigation Grant Program

Cost:

The estimated cost for implementation.

Benefits:

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

Mitigation Category:

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

CRS Category:

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

Table 9.13-17. Summary of Prioritization of Actions

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-MILLBURN -001	Short Hills Gardens Channel	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-MILLBURN -002	Tree Service Contract	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-MILLBURN -003	Master Plan and HMP Integration	1	1	1	0	1	1	1	0	0	1	1	0	0	0	8	Medium



Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-MILLBURN-004	Gilbert Place generator.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-MILLBURN-005	Participate in Firewise program	1	1	1	0	1	1	1	1	1	1	0	0	1	0	10	High
2020-MILLBURN-006	Participate in StormReady program and educate the public on how to prepare for hazards and disasters.	1	1	1	0	1	1	1	1	1	1	1	0	1	1	12	High
2020-MILLBURN-007	South Mountain storm pumps.	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2020-MILLBURN-008	Inflow/ Infiltration to protect infrastructure during sanitary sewer back-ups.	1	1	1	1	1	1	1	0	1	1	1	1	0	1	12	High
2020-MILLBURN-009	Support the mitigation of vulnerable structures via retrofit (e.g. elevation, flood-proofing) or acquisition/ relocation	1	1	1	1	1	1	1	0	0	1	1	1	1	1	12	High

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



Table 9.13-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Coastal Erosion / Sea Level Rise								
Coastal Storm		x	x	x	x	x	x	x
Drought								
Earthquake								
Extreme Temperature								
Flood	x	x	x	x	x	x	x	x
Geological hazards								
Severe Weather		x	x	x	x	x	x	x
Severe Winter Weather		x	x	x	x	x	x	x
Wildfire	x	x	x	x	x		x	x
Civil Disorder								
Cyber Attack								
Disease Outbreak								
Economic Collapse (new)								
Hazardous Substances								
Utility Interruption		x		x	x			x
Terrorism								
Transportation Failure								

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

9.13.8 Staff and Local Stakeholder Involvement in Annex Development

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

Table 9.13-19. Contributors to the Annex

Entity	Title	Method of Participation
Chris Beady	OEM Coordinator	POC, Annex Meeting 1, Annex Meeting 2, reviewed notes
Martha Callahan	Township Engineer	Annex Meeting 1, Annex Meeting 2, reviewed notes
James Distano	Public Works Superintendent	Annex Meeting 2, reviewed notes
Robert Echavarria	Fire Chief/DEP Coordinator	Annex Meeting 2, reviewed notes
Jimmy Homs	Asst. Business Administrator	Annex Meeting 1, Annex Meeting 2, reviewed notes



Entity	Title	Method of Participation
Alex McDonald	Business Administrator	Annex Meeting 1, Annex Meeting 2, reviewed notes
Michael Mulligan	Captain Millburn PD	Annex Meeting 1, reviewed notes
Jesse Moehlman	Administrative Analyst	Annex Meeting 2, reviewed notes

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Figure 9.13-1. Township of Millburn Hazard Area Extent and Location Map

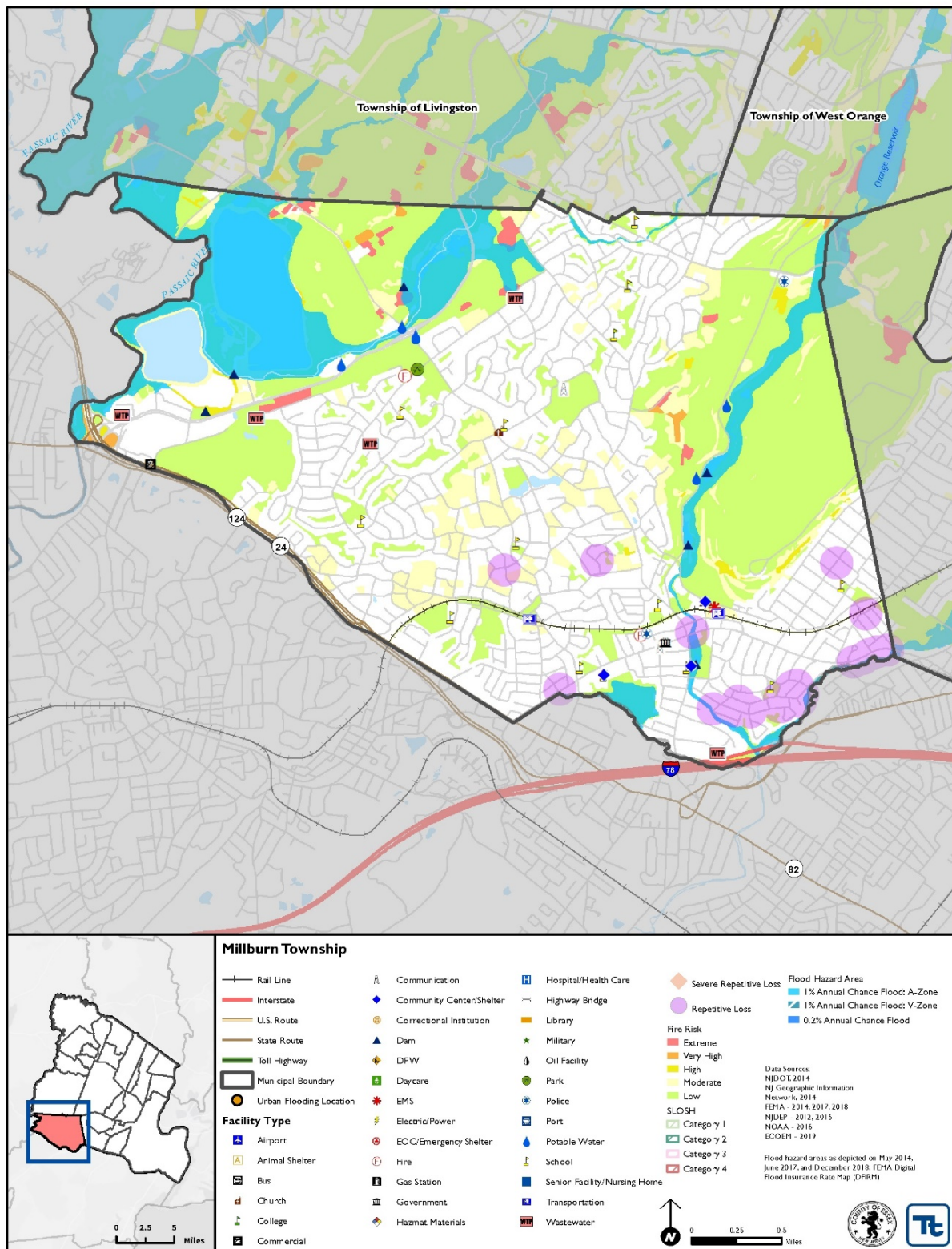
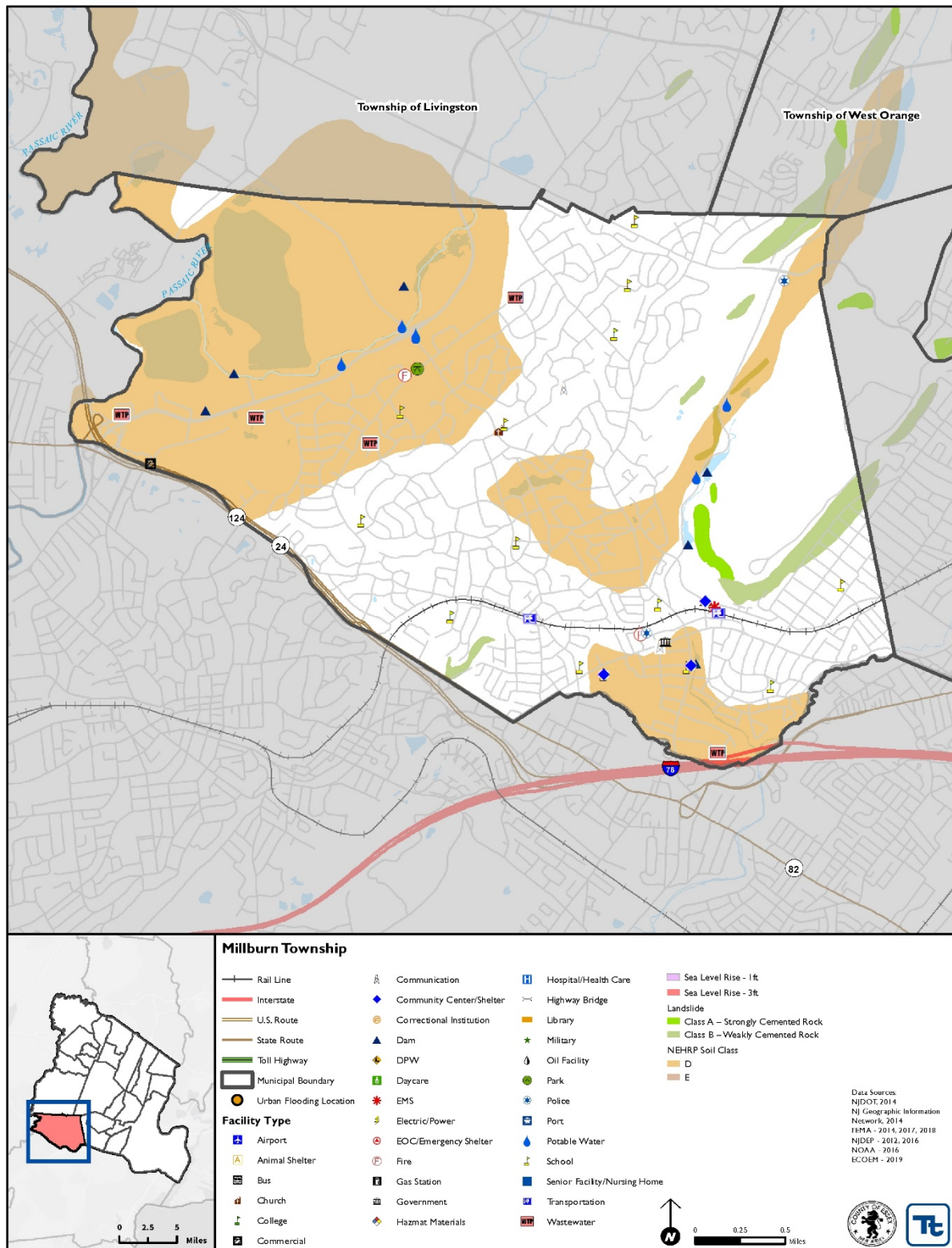




Figure 9.13-2. Township of Millburn Hazard Area Extent and Location Map 2





Name of Jurisdiction: Millburn Township
Name and Title Completing Worksheet: Martha Callahan, Township Engineer

Action Worksheet			
Project Name:	Short Hills Gardens Channel		
Project Number:	2020-MILLBURN -001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	Retaining wall requires stabilization at Short Hills Gardens (469 Short Hills Ave).		
Action or Project Intended for Implementation			
Description of the Solution:	Fix undermined retaining wall at Short Hills Gardens by stabilizing slopes susceptible to erosion.		
Is this project related to a Critical Facility or Lifeline?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Level of Protection:	100-year	Estimated Benefits (losses avoided):	High
Useful Life:	40 years	Goals Met:	1.2, 2.2
Estimated Cost:	High	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 month
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	Town budget
Responsible Organization:	Township Engineering	Local Planning Mechanisms to be Used in Implementation if any:	n/a
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Stabilize and backfill	Low	Temporary ensure
	Fix retaining wall	\$400,000	Complete concrete flume
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Name of Jurisdiction: Millburn Township
Name and Title Completing Worksheet: Martha Callahan, Township Engineer

Action Worksheet	
Project Name:	Short Hills Gardens Channel



Project Number:	2020-MILLBURN -001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	Town has jurisdiction over property.
Fiscal	1	
Environmental	1	Culvert is a major stormwater conveyance.
Social	1	
Administrative	1	Will save time from repetitive repairs.
Multi-Hazard	0	
Timeline	1	
Agency Champion	1	Township Engineer already has plans.
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Millburn Township
Name and Title Completing Worksheet: Alex McDonald, Township Administrator

Action Worksheet			
Project Name:	Tree Service Contract		
Project Number:	2020-MILLBURN -002		
Risk / Vulnerability			
Hazard(s) of Concern:	All		
Description of the Problem:	After storms, trees on public and private properties require immediate service.		
Action or Project Intended for Implementation			
Description of the Solution:	Adopt contract to keep tree management service on retainer. Update current EOP to reflect contract.		
Is this project related to a Critical Facility or Lifeline?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Level of Protection:	n/a	Estimated Benefits (losses avoided):	High
Useful Life:	Length of contract	Goals Met:	1.2, 6.2
Estimated Cost:	Low	Mitigation Action Type:	EAP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Short
Estimated Time Required for Project Implementation:	Short	Potential Funding Sources:	Municipal Budget
Responsible Organization:	Township Administration	Local Planning Mechanisms to be Used in Implementation if any:	n/a
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Hire on case by case	n/a	Reactionary
	Contract for emergencies	n/a	Proactive
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Name of Jurisdiction: Millburn Township
Name and Title Completing Worksheet: Alex McDonald, Township Administrator

Action Worksheet	
Project Name:	Tree Service Contract
Project Number:	2020-MILLBURN -002



Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Keeps roads clear and restore power after storms.
Property Protection	1	Emergency vehicles can pass during events.
Cost-Effectiveness	1	
Technical	1	
Political	1	Township is supportive of implementation.
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	Provides assistance to residents looking for help during events.
Administrative	1	
Multi-Hazard	1	Power outages, transportation failure, storm events
Timeline	1	
Agency Champion	1	Township Administrator has researched alternatives.
Other Community Objectives	1	
Total	14	
Priority (High/Med/Low)	High	