9.10 TOWN OF DOVER

This section presents the jurisdictional annex for the Town of Dover. The annex includes a general overview of the Town of Dover; an assessment of the Town of Dover'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.

9.10.1 Hazard Mitigation Planning Team

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

Table 9.10-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Name / Title: Richard Cloughley, Coordinator/Dover OEM Address: 37 North Sussex Street Dover, New Jersey 07801 Phone Number: 973-366-2200 x1155, 862-849-7850 Email: rcloughley@dover.nj.us	Name / Title: Anthony Rosario, Deputy Coordinator/Dover OEM Address: 37 North Sussex Street Dover, New Jersey 07801 Phone Number: 973-366-2200 x1156, 973-224-7733 Email: arosario@dover.nj.us
NFIP Floodplain Administrator	
Name / Title: Greg Chontow, Construction Official/Construction Department Address: 37 North Sussex Street Dover, New Jersey 07801 Phone Number: 973-366-2200 x2117 Email: gchontow@dover.nj.us	

9.10.2 Jurisdiction Profile

The Town of Dover is located in the central region of Morris County; it is bordered by the Township of Rockaway to the north and east, Randolph and Victory Gardens to the south, and Mine Hill and Wharton to the west. Major waterways in the Town include, the Rockaway River and Jackson Brook. According to the U.S. Census, the 2010 population for the Town was 18,517, and the total area is 2.73 square miles, 2.68 square miles of land and 0.05 square miles of water. There are no unincorporated communities in the Town.

According to the U.S. Census, the 2010 population for the Town of Dover was 18,157. The estimated 2017 population was 18,307, a 0.8 percent increase from the 2010 Census. Data from the 2017 U.S. Census American Community Survey indicate that 4.9 percent of the population is 5 years of age or younger and 9.8 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.10.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.10-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figures 9.10-1 and 9.10-2 at the end of this annex illustrate the geographically-delineated hazard areas and the location of potential new development.

Table 9.10-2. Recent and Expected Future Development

Type of Development	2014	2015	2016	2017	2018
Number of Building Permits for New Construction Issued Since the Previous HMP					
Single Family	0	7	5	2	3
Multi-Family	0	0	1	0	1
Other (commercial, mixed-use, etc.)	0	1	0	0	1
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					
Gunther's Mill	Residential	26	69 King Street	-	Redevelopment of old mill
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Meridia Project	Residential	218	1 W Dickerson Street	-	Anticipated
Wawa	Commercial	1	210 E Blackwell	Floodplain	Anticipated
Cubesmart - Storage	Commercial	1	6 Commerce Center	-	Anticipated

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

9.10.4 Capability Assessment

The Town of Dover 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.

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

Planning, Legal and Regulatory Capability

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

Table 9.10-3. Planning, Legal and Regulatory Capability

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Codes, Ordinances, & Requirements					
Building Code	Yes	State, Local	Yes		-
Comment: *State mandated on local level under NJAC 5:23-3.14. International Building Code – New Jersey Edition, 2018, NJAC 5:24-3.14. Chapter 150, Construction Codes, Uniform. Adopted by the Mayor and Board of Aldermen of the Town of Dover 12-27-1976 with amendments.*					
Zoning Code	Yes	Local	Yes	No	-
Comment: *Per State of NJ Municipal Land Use Law (MLUL) L. 1975, s. 2, eff Aug 1, 1976, 40-55D-62: 49. Power to zone, requires all jurisdictions to have current zoning and other land development ordinances after the planning board has adopted the land use element and master plan. Dover Code Chapter 236 Land Use and Development, Article IV Zoning, administered by the Planning Department.*					
Subdivisions	Yes	Local	Yes	No	-
Comment: *Dover Code Chapter 236 Land Use and Development, Article V Land Subdivision and Site Plan. Administered by the Planning Department.*					
Stormwater Management	Yes	Local	Yes	No	-
Comment: *Title 7 of the NJ Administrative Code (N.J.A.C. 7:8); Dover Code Chapter 236, Article VB. Administered by the Planning Department.*					
Post-Disaster Recovery	No	-	-	-	-
Comment:					
Real Estate Disclosure	Yes	State – Division of Consumer Affairs	Yes	Yes	-
Comment: *N.J.A.C. 13:45A-29.1; Before signing a contract of sale, all purchasers must receive a New Jersey Public Offering Statement (POS) approved by the New Jersey Real Estate Commission. The POS provides information such as proximity to hospitals, schools, fire and police, as well as any hazards, risks or nuisances in or around the subdivision.*					
Growth Management	No	State	Yes	No	-
Comment: *State mandated at local level;*					
Shoreline Development	No	-	Yes	-	-
Comment: *NJ Coastal Area Facility Review Act (N.J.S.A. 13:19) or CAFRA regulates almost all development along the coast for activities including construction, relocation, and enlargement of buildings or structures, and excavation, grading, shore protection structures, and site preparation. This law is implemented through NJ's Coastal Zone Management Rules N.J.A.C. 7:7E-1 et seq.*					
Site Plan Review	Yes	Local	No	No	-
Comment: *Dover Code Chapter 236 Land Use and Development, Article VI Land Subdivision and Site Plan. Administered by the Planning Department.*					
Environmental Protection	Yes	State, Local	Yes	No	-
Comment: *The rules that are utilized by the NJDEP and other environmental agencies are codified at Title 7 of the NJ Municipal Administrative Code. Chapter 84 establishes the Shade Tree Commission; Chapter 366 Trees provides for the protection of shade trees. Chapter 383 Water allows for the declaration of a water emergency.*					
Flood Damage Prevention	Yes	Local	Yes	-	-
Comment*: Chapter 236 Land Use and Development, Art VI Flood Damage Prevention. Administered by the Construction Official. The ordinance currently lacks the state required 1 foot freeboard requirement. It is the purpose of this Article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designated to:* • *Protect human life and health.* • *Minimize expenditure of public money for costly flood control projects.* • *Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.* • *Minimize prolonged business interruptions.* • *Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard.*					

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
• *Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood-blight areas.* • *Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.*					
Wellhead Protection	No	-	-	-	-
Comment:					
Emergency Management	Yes	Local	No	No	-
Comment: *Chapter 20 Fire Department, Volunteer; Chapter 57 Police Department; Chapter 189 Fire Prevention.*					
Climate Change	No	-	-	-	-
Comment:					
Disaster Recovery Ordinance	No	-	-	-	-
Comment:					
Disaster Reconstruction Ordinance	No	-	-	-	-
Comment:					
Other	No	-	-	-	-
Comment:					
Planning Documents					
Comprehensive / Master Plan	Yes	Local	Yes	No	-
Comment: *Master Plan, 2007. Administered by the Planning Department and adopted by the Planning Board.*					
Capital Improvement Plan	Yes	Local	Allowed	No	-
Comment: *Per NJSA 40:55D-29 the governing body is authorized to direct the planning board to prepare a CIP with at least a six year planning horizon. Administered by the Administration.*					
Disaster Debris Management Plan	No	-	-	-	-
Comment:					
Floodplain or Watershed Plan	Yes	Local	No	No	-
Comment: *Dover Code Chapter 236, Article VI. Administered by the Construction Department.*					
Stormwater Management Plan	Yes	Local and State	Yes	No	-
Comment: *Per NJDEP Storm Water Management Rule (N.J.A.C. 7:8, et seq.). The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). Stormwater Management Plan, April 2005.*					
Stormwater Pollution Prevention Plan	No	-	-	-	-
Comment:					
Urban Water Management Plan	Yes		No	Yes/No	Yes/No
Comment: *Part of the Town's master plan*					
Habitat Conservation Plan	No	-	-	-	-
Comment:					
Economic Development Plan	No	-	No	-	-
Comment:					

	Do you have this? (Yes/No)	Authority that enforces (Federal, State, Regional, County, Local)	State Mandated / Allowed	Has the HMP been integrated in the last 5 years? If yes- how?	
				If yes- how? Describe in comments	If no - can it be a mitigation action? If yes, add Mitigation Action #.
Shoreline Management Plan	No	-	-	-	-
Comment:					
Community Wildfire Protection Plan	No	-	-	-	-
Comment:					
Community Forest Management Plan	No	-	-	-	-
Comment:					
Transportation Plan	Yes	Local	No	No	-
Comment: *Transportation Plan administered by the Planning Department and adopted by the Planning Board.*					
Agriculture Plan	No	-	-	-	-
Comment:					
Climate Action Plan	No	-	-	-	-
Comment:					
Tourism Plan	No	-	-	-	-
Comment:					
Business Development Plan	No	-	-	-	-
Comment:					
Other	Yes	Local	No	No	-
Comment: *April 2005-North Sussex Street Landfill Redevelopment; June 2006-Bassett Highway Redevelopment Plan.*					
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP) / Emergency Operations Plan (EOP)	Yes	Local	Yes	No	No
Comment: *Per the NJ Civilian Defense and Disaster Control Act (App.A:9_43.2) Counties and municipalities must have written Emergency Operations Plans to be reviewed every 2 years. The Town's EOP was updated on April 17, 2018 and expires April 17, 2022.*					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-	-
Comment:					
Post-Disaster Recovery Plan	No	-	No	-	-
Comment:					
Continuity of Operations Plan	No	-	-	-	-
Comment:					
Public Health Plan	No	-	-	-	-
Comment:					
Other	No	-	-	-	-

Table 9.10-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits?	

Criterion	Response
- If no, who does? If yes, which department?	If the area is not deemed 'area need of redevelopment' then development approval is not needed. If it is located in an 'area need of redevelopment' it needs approval the Planning Board and Governing Body
Does your jurisdiction have the ability to track permits by hazard area?	Approvals by the Planning Board are tracked by hazard area
Does your jurisdiction have a buildable lands inventory? -If yes, please describe briefly. -If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes; however, the Town is fully developed but areas available for development are known

ADMINISTRATIVE AND TECHNICAL CAPABILITY

The table below summarizes potential staff and personnel resources available to the Town of Dover.

Table 9.10-5. 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	No	-
Open Space Board / Committee	No	-
Economic Development Commission / Committee	Yes	Committee of the Mayor & Board of Aldermen
Warning Systems / Services (reverse 911, outdoor warning signals)	No	-
Maintenance program to reduce risk	Yes	Fire
Mutual aid agreements	Yes	Planning Board
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering & Planning
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering & Construction
Planners or engineers with an understanding of natural hazards	Yes	Engineering
Staff with training in benefit/cost analysis	No	-
Staff with training in green infrastructure	No	-
Staff with education/knowledge/training in low impact development	No	-
Surveyor	No	-
Stormwater engineer	No	-
Personnel skilled or trained in GIS applications	No	-
Local or state water quality professional	Yes	Water Superintendent
Scientist familiar with natural hazards in local area	No	-
Emergency manager	Yes	Office of OEM
Watershed planner	No	-

Staff/Personnel Resource	Available?	Department/Agency/Position
Environmental specialist	No	-
Grant writers	No	-
Resilience Officer	No	-
Other	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Dover.

Table 9.10-6. 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
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Clean Water Act 319 Grants (Nonpoint Source Pollution)	Yes – the Town has to comply with the Clean Water Act because they provide public water
Other	Yes, Morris County Flood Mitigation Grant Program

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Dover.

Table 9.10-7. Education and Outreach Capabilities

Criterion	Response
Do you have a public information officer or communications office?	Yes – Public Safety Director
Do you have personnel skilled or trained in website development?	Yes – done in-house
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	Yes – Town of Dover Facebook page
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Local Emergency Planning Committee
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	Mass notification system (RAVE), Town newsletter
Do you have any established warning systems for hazard events? • If yes, briefly describe.	Mass notification system (RAVE) and public notification system (air horn)

Community Classifications

The table below summarizes the classifications for community programs available to the Town of Dover.

Table 9.10-8. Community Classifications

Program	Participating?	Classification	Date Classified
Community Rating System	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (Fire ISO Protection Class)	Yes	4	2017
Storm Ready Certification	No	-	-
Firewise Community Classification	No	-	-
Sustainable Jersey	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 each hazard and the jurisdiction's rating.

- Does the municipality have access to resources to determine the possible impacts of climate change upon the municipality? No
- Is the administrative supportive of integrating climate change in policies or actions? Yes
- Is climate change already being integrated into current policies/plans or actions (projects/monitoring) within the municipality? No

Table 9.10-9. Adaptive Capacity

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

NATIONAL FLOOD INSURANCE PROGRAM

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

Table 9.10-10. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Construction Department
Who is your floodplain administrator? (name, department/position)	Construction Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	1994
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet minimum federal requirements but not state requirements.
When was the most recent Community Assistance Visit or Community Assistance Contact?	1991
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state what they are.	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what they are.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, state why.	No – the current maps are showing areas in the 100-year area that are at a higher elevation (above the base flood elevation)
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?	Training and assistance in floodplain management and administration are needed
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving its CRS Classification? • If no, is your jurisdiction interested in joining the CRS program?	No
How many flood insurance policies are in force in your jurisdiction?* • What is the insurance in force? • What is the premium in force?	Policies in force: 222 Insurance in force: $59,676,800 Premium in force: $745,933
How many total loss claims have been filed in your jurisdiction?* • How many claims are still open or were closed without payment? • What were the total payments for losses?	Total loss claims: 571 Claims still open or closed without payment: 73 Total payments for losses: $7,116,449
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

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

ADDITIONAL AREAS OF EXISTING INTEGRATION

- **Code Enforcement:** The Code Enforcement Department is responsible for enforcing a number of the Town's Codes including the Property Maintenance Code and Zoning Code. The Certificate of Compliance regulations are also managed and enforced by the Code Enforcement Department.
- **Economic Development:** The Department of Economic Development is organized to retain, attract and grow businesses, enhance small and minority business capacity, and spur real estate development throughout the Town of Dover. The Department executes economic development activities to produce and sustain economic growth, generate jobs and create well-being for the residents of Dover.
- **Fire Prevention Bureau:** The Town of Dover Fire Prevention Bureau works to prevent fires and minimize the risk of life and property loss through education and fire code enforcement.

9.10.5 Hazard Event History Specific to the Jurisdiction

Morris County has a history of hazard events, as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles in Section 4.4 (Hazard Profiles) and includes a chronology of events that affected Morris County and its jurisdictions. The Town of Dover's history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Morris County. Table 9.10-11 provides details regarding municipal-specific loss and damages the Town experienced during hazard events. Information provided in the table below is based on reference material or local sources.

Table 9.10-11. Hazard Event History

Date(s) of Event	Event Type (disaster declaration if applicable)	Morris County Designated?	Summary of Event	Summary of Local Damages and Losses
January 21-24, 2016	Severe Winter Storm and Snowstorm (DR-4264)	Yes	An impulse from the west coast traversed the midsection of the country, then developed into a low pressure system as it tracked across the Gulf states before intensifying along the Carolina coast into a major nor'easter, producing record snowfall in parts of New Jersey on January 23rd. It then moved out to sea after passing by the mid-Atlantic coast early on January 24th. Wind gusts up to 60 MPH produced blizzard conditions as visibilities dropped to one-quarter mile or less in spots. Snow began during the evening hours on the 22nd, then continued, heavy at times through the 23rd before ending early on the 24th. Snowfall totals included 30.0 inches in Long Valley, 29.0 inches in Madison, 26.0 inches in Budd Lake, 25.3 inches in Green Pond, 22.5 inches in Butler, 21.0 inches in Chatham, and 18.0 inches in Marcella. At one point during the storm, up to 270,000 customers were without power.	Road closures throughout a significant portion of the Town; power outages; emergency personnel overtime
March 6-7, 2018	Severe Winter Storm and Snowstorm (DR-4368)	Yes	Precipitation gradually overspread the region during the overnight hours of March 6th to the 7th. 12 to 24 inches was observed across large parts of Morris County. The snow contained large amounts of liquid, making it heavy and wet. This resulted in downed trees, limbs,	Road closures throughout a significant portion of the Town; power outages; emergency personnel overtime

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

9.10.6 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 9.10-10 summarizes the Town of Dover risk assessment results and data used to determine the hazard ranking.

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.

Table 9.10-12. Risk Assessment Summary

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
Dam Failure	Partial or complete failure of a dam There are 2 dams in the Town, according to NJDEP.	Population impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		The number of building impacted is dependent on the capacity of the dam, the extent of the dam failure inundation area and the severity of the failure.		Economic impacts include dam/building/infrastructure repairs; debris removal/disposal; utility impacts.		Low
Disease Outbreak	Disease Outbreaks which include: Mosquito-Borne Diseases, Tick-Borne Diseases, Campylobacteriosis, Influenza, Mumps, Ebola	Population impacted is dependent on the disease and severity of the outbreak; in some cases immuno-compromised persons are more vulnerable.		Structural impacts due to disease outbreak would be limited.		Economic losses can include County financial impacts to monitor/address outbreaks; lost wages or commercial interruptions; depends on the severity and type of disease outbreak.		Low
Drought	Prolonged drought event - The County is serviced by water supplies who primarily get water from groundwater sources; some surface water sources.	Entire population exposed. Population on surface water supplies may be impacted first; water restrictions/contamination; increased wildfire risk.		Droughts are not expected to cause direct damage to buildings.		Losses include aesthetic, landscape/nursery/agricultural industry impacts.		Low
Earthquake	"100, 500-, 2,500-Year Mean Return Period (MRP) Events evaluated NEHRP Soils D&E (soft soils that amplify ground shaking are present in the County"	NEHRP D&E:	5,195	NEHRP D&E:	1,384	100-year Loss:	$0	High
		Liquefaction Class 4:	0	Liquefaction Class 4:	0	500-year Loss:	$1,990,142	
						2,500-year Loss:	$31,020,026	
Extreme Temperature	Extreme temperature event (heat or cold)	Over 65 Population:	1,801	Physical impacts due to extreme temperatures would be limited.		Loss of business function is possible due to unexpected repairs (i.e. pipes bursting) or power failures.		Low
		Population Below Poverty Level:	2,050					
Flood	100- and 500-Year Mean Return Period Event	100-year	1,406	100-year	482	100-year Loss:	$380,283,612	High
		500-year	2,160	500-year	683			
Geological	High Landslide Susceptibility Areas and Areas developed over carbonate rock	Class A:	0	Class A:	0	Class A:	0	Moderate
		Class B:	62	Class B:	14	Class B:	$5,262,947	

Hazard of Concern	Hazard/ Scenario Area Evaluated	Population		Buildings		Economy (Loss)		Certainty Factor
		Carbonate Bedrock:	0	Carbonate Bedrock:	0	Carbonate Bedrock:	$0	
Harmful Algal Bloom	Any body of water or area adjacent that is susceptible to harmful algal bloom.	Population in contact (e.g., swimming) or drinking water from surface water impacted can result in a range of health effects		General building stock impacts due to harmful algal bloom are not anticipated. Critical facilities (i.e., water treatment plants) could lead to plant closures.		Economic impacts range from recreational closure of impacted waterbodies; cost to sample/monitor/remediate.		Low
Hazardous Substance	Release of a hazardous substance from a fixed site.	Population impacted will depend on the type of material and scale of the incident. May include population within small radii of site.		The degree of damages to a building depends on the scale of the incident.		The degree of damages depends on the scale of the incident.		Low
Infestation	Infestation including: Insects [e.g. Gypsy Moth, Mosquitoes, Spotted Lanternfly, Emerald Ash Borer], White-Tailed Deer, Rodents	Population impacted will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Physical impacts will be limited to indirect impacts from invasive species which affect crops and vegetation.		Economic impact will depend on the type and severity of infestation and may cause an increased risk for disease outbreak.		Low
Severe Weather	Severe Weather Event	Entire population exposed; The degree of impact to the population depends on the scale of the incident.		Entire building stock is exposed; The degree of impact depends on the scale of the incident.		Annualized Loss:	$23,850	High
						100 -Year Loss:	$648,924	
						500-year Loss:	$3,780,186	
Severe Winter Weather	Severe Winter Weather Event	All residents/commuters/visitors are exposed; socially-vulnerable populations may be at increased risk.		All buildings are exposed; the degree of impact depends on the scale of the incident.		The cost of snow and ice removal and repair of roads/infrastructure can impact operating budgets.		Low
Wildfire	Wildfire Fuel Hazard areas (High, Very High, Extreme)	Wildfire:	0	Wildfire:	3	Wildfire:	$17,000,114	Moderate

Repetitive Flood Losses

The table below summarizes the repetitive and severe repetitive flood losses in the Town of Dover.

- Number of repetitive loss (RL) properties: 48
- Number of severe repetitive loss (SRL) properties: 3
- Number of RL/SRL properties that have been mitigated: *0*

Note: The number of SRL properties excludes RL properties.
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.

Table 9.10-13. Potential Flood Losses to Critical Facilities and Lifelines

Name	Type	Exposure		Status of Mitigation
		1% Event	0.2% Event	
Dover Municipal Complex (Fire Department, Police Department, Municipal Building) at 37 N Sussex Street*	Fire, Police, EOC, Municipal Hall	X	X	2020-DOVER-003
Town of Dover Public Library	Library	X	X	2020-DOVER-003
Regency Grande Nursing & Rehab Center	Senior	X	X	2020-DOVER-003
Dover Housing Authority – 215 East Blackwell St	Housing	X	X	2020-DOVER-003

Additional Identified Vulnerabilities

The jurisdiction has identified the following vulnerabilities within their community:

- The Town has 48 repetitive loss properties and three severe repetitive loss property.
- The Dover Municipal Complex, Public Library, and Regency Grande Nursing & Rehab Center are located in the 100-year floodplain. The Municipal Complex is a critical facility.
- The flood damage prevention ordinance lacks the state mandated 1-foot freeboard requirement.

Hazard Area Extent and Location

Hazard area extent and location maps were generated for the Town of Dover 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 Town of Dover has significant exposure. Refer to Figures 9.10-1 and 9.10-2.

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 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; its potential impacts on people, property, and the economy; community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each plan participant may have differing degrees of risk exposure and vulnerability compared to Morris County as a whole. Therefore, each jurisdiction ranked the degree of risk to each hazard as it pertains to their community factoring in their capabilities to withstand impacts and rebound after the event. The table below summarizes the hazard rankings of potential natural hazards for the Town of Dover. The Town of Dover has reviewed the Morris County hazard ranking table, as well as its individual results, to reflect the relative risk of the hazards of concern to the community. During the review of the hazard ranking, the Town agreed with the calculated ranking for the hazards of concern.

Table 9.10-14. Town of Dover Hazard Ranking Input

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

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

9.10.7 Mitigation Strategy and Prioritization

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

PAST MITIGATION INITIATIVE STATUS

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

Table 9.10-15. 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 #
DT-1: Acquisition of eight repetitive loss properties along the Rockaway River.	Town Administrator	No Progress		

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 #
DT-2: Town Water Works facility bridge to access the wells and administrative structures needs to be replaced (town is close to securing necessary permits).	Director of Public Works	In Progress; permitting completed.	X	2020-DOVER-001
DT-3: Town Hall needs a new backup power (generator) and new wiring.	Town Administrator	Complete		
DT-4: Emergency shelter at Dover High School needs a backup power (generator).	School Superintendent	No Progress	X	2020-DOVER-002
DT-5: Acquisition/elevation of eight repetitive loss properties along East Blackwell Street.	Town Administrator	Same as DT-1?		
DT-6: Elevation/acquisition of two repetitive loss properties on Hudson Street.	Town Administrator	No Progress	X	2020-DOVER-003
DT-7: Elevation/acquisition of three Repetitive Loss properties on Richards Avenue.	Town Administrator	No Progress	X	2020-DOVER-003
DT-8: Develop all-hazards public education and outreach program for hazard mitigation and preparedness	Town Administrator	Ongoing capability		
DT-9: Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	County and Municipal OEM	Ongoing capability		

The Town of Dover did not identify addition mitigation projects/activities that were completed but not identified in the 2015 HMP mitigation strategy.

Proposed Hazard Mitigation Initiatives for the Plan Update

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

Table 9.10-16 summarizes the comprehensive-range of specific mitigation initiatives the Town of Dover 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 four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 criteria were used to evaluate each action, including an evaluation of the benefits and costs. For each new mitigation action, a numeric rank was assigned (-1, 0, or 1) for each of the 14 evaluation criteria. The results of this evaluation, in addition to input from the jurisdiction, were then used to prioritize the mitigation initiatives as 'High', 'Medium', or 'Low.' Table 9.10-17 summarizes the evaluation of each mitigation initiative and the resulting priority, listed by Action Number.

Table 9.10-16. Proposed Hazard Mitigation Initiatives and Associated Priority

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-DOVER-001 (previous action)	Town Water Works facility	Bridge to access the wells and administrative structures needs to be replaced. Town has secured permits.	Replace the Water Works bridge. This will improve the integrity of the bridge.	Existing	All Hazards	3	Director of Public Works	Municipal budget	Access maintained to Water Works	$125,000	Within 3 years	Low	SIP	PP
2020-DOVER-002 (previous action)	Generator for Emergency shelter at Dover High school	Shelter at Dover High School lacks a backup generator.	The Town will acquire and install a backup generator.	Existing	All Hazards		Dover High School Superintendent, OEM	HMGP, PDM, Municipal budget	Ensures continuity of operations of shelter	$50,000	1 year	High	SIP	PP, ES
2020-DOVER-003 (previous action)	Feasibility Study of the Rockaway River	The Rockaway River is the primary source of flooding which impacts the repetitive loss and severe repetitive loss properties. Impacts of fixing the problem are unknown, including impacts to downstream municipalities, wetlands, and tributaries to the River.	Conduct a feasibility study of the Rockaway River in the Town to determine the best solution(s) to reduce or alleviate the flooding within the Town, including the repetitive loss properties, of which many are old multi-family homes (i.e.,	New and Existing	Flood, Severe Weather	2, 3	Town OEM, Town Engineer	HMGP, BRIC, municipal budget	Increase in flood protection	$100,000+	Within 5 years	High	LPR, SIP	SP, PP

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
			elevation may not be feasible; acquisition is a loss of tax rateables). The study will identify potential mitigation projects. The Town will identify the best solution and implement the project. Once the study and project are complete, it will increase flood protection to homes, businesses, and critical facilities.											
2020-DOVER-004	Disease Outbreak Education and Outreach Program	The Town currently does not have a disease outbreak program and does not have the proper education materials for its residents.	Develop a town-wide education and outreach program focusing on high-risk, airborne diseases.	N/A	Disease Outbreak	1	Town Public Health Nurse	Town Budget	Increased public awareness	<$10,000	Within one year	Medium	EAP	PI

Initiative Number	Mitigation Initiative Name	Description of the Problem	Description of the Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Cost	Timeline	Priority	Mitigation Category	CRS Category
2020-DOVER-005	Crane Hill Generator	Crane Hill pumping station provides drinking water to one-third of the Town. During a power outage, the station is not operational and cannot provide drinking water to residents.	Purchase and install permanent generator. During power outages, the pumping station will remain operational and provide drinking water to the Town.		All Hazards	3	Town Water Superintendent	FEMA HMGP	Ensures continuity of operations	$50,000	Within two years	High	SIP	PP
2020-DOVER-006	DPW Facility Generator	The DPW Facility located at 211 North Sussex Street does not have backup power. During a power outage, the facility is not operational. They cannot use the fuel pumps or equipment.	Purchase and install permanent generator to the DPW facility (211 North Sussex Street). This will provide continuity of operations during a power outage and allow fuel pumps to function and mechanics to repair vehicles and equipment.	Existing	All	3	Town DPW	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget	Ensures continuity of operations	$75,000	Within 2 years	High	SIP	PP
2020-DOVER-007	All Access Utility Vehicle	The Town does not have proper equipment to	Purchase an all access utility vehicle to be	N/A	All	3	Town OEM	UASI, DHS	Increased emergency response capabilities.	$50,000	Within 2 years	Medium	SIP	ES

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
		reach flooded areas. This restricts their rescue capabilities and response time.	used during natural hazard events. This will allow the Town to respond to emergencies during all weather events.											
2020-DOVER-008	Update Flood Damage Prevention Ordinance	The current ordinance does not include the state requirements of one foot above the base flood elevation.	Update the flood damage prevention ordinance to set the one foot above the base flood elevation for new or substantial construction.	New and Existing	Flood	2, 3, 4	Town Administrator, Town Board	Local Budget	Meet state standards, less flood exposure for future development	<$10,000	Within one year	High	LPR	PR
2020-DOVER-009	Town wide Flood Warning System	The Town does not have a way of determining flood levels to prepare the population for proper warnings and/or evacuations.	Install an automated flood warning system. This will include sensors (rain, water level, weather) installed along the Rockaway River in the Town.	New and Existing	Flood, Severe Weather	2, 3	Town OEM, Town Engineer	HMGP, NWS, USGS, Municipal budget	Increased flood warning.	$50,000	Within 5 years	High	SIP	ES

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-DOVER-010	Purchase Portable Flood Walls	East Blackwell Street is a primary road (county-owned) in the Town that is floodprone.	Purchase portable flood walls to be deployed prior to a heavy rain event.	Existing	Flood, Severe Weather	3	Town OEM, Town DPW	HMGP, Municipal budget	Flood protection for East Blackwell Street. Emergency response times kept low.	$1 Million	Within 5 years	High	SIP	PP, ES

Notes:

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

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

Timeline:
The time required for completion of the project upon implementation

Cost:
The estimated cost for implementation.

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

Mitigation Category:

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

CRS Category:

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

- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

Table 9.10-17. Summary of Evaluation and Action Priorities

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-DOVER-001 (previous action)	Town Water Works facility	0	1	0	1	0	0	0	0	0	1	1	1	0	0	5	Low
2020-DOVER-002 (previous action)	Generator for Emergency shelter at Dover High school	1	1	1	1	1	0	0	1	1	1	1	1	1	1	12	High
2020-DOVER-003 (previous action)	Feasibility Study of the Rockaway River	1	1	1	1	1	1	0	1	1	0	1	0	0	0	10	High
2020-DOVER-004	Disease Outbreak Education and Outreach Program	1	1	1	1	1	1	0	1	1	0	1	1	0	0	10	High
2020-DOVER-005	Crane Hill Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-DOVER-006	DPW Facility Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2020-DOVER-007	All Access Utility Vehicle	1	1	0	1	1	1	0	1	1	1	1	1	1	1	12	High
2020-DOVER-008	Update Flood Damage Prevention Ordinance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High

Initiative Number	Mitigation Initiative Name	Life Safety	Property Protection	Cost Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2020-DOVER-009	Town wide Flood Warning System	1	1	1	0	1	1	0	1	1	1	1	0	1	1	11	High
2020-DOVER-010	Purchase Portable Flood Walls	1	1	0	1	1	0	0	1	1	1	1	0	1	1	10	High

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

Table 9.10-18. Analysis of Mitigation Actions by Hazard and Category

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Disease Outbreak		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006	2020-DOVER-004		2020-DOVER-002, 2020-DOVER-007			
Drought		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Earthquake		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Extreme Temperature		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Flood	2020-DOVER-008	2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-003, 2020-DOVER-005, 2020-DOVER-006, 2020-DOVER-010			2020-DOVER-002, 2020-DOVER-007, 2020-DOVER-009, 2020-DOVER-010	2020-DOVER-003		
Geologic		2020-DOVER-001, 2020-			2020-DOVER-			

Hazard	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
		DOVER-002, 2020-DOVER-005, 2020-DOVER-006			002, 2020-DOVER-007			
Harmful Algal Bloom		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Hazardous Substances		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Infestation		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Severe Weather		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-003, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007, 2020-DOVER-009	2020-DOVER-003		
Severe Winter Weather		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			
Wildfire		2020-DOVER-001, 2020-DOVER-002, 2020-DOVER-005, 2020-DOVER-006			2020-DOVER-002, 2020-DOVER-007			

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

RED = high ranked hazard
ORANGE = medium ranked hazard
YELLOW = low ranked hazard

9.10.8 Staff and Local Stakeholder Involvement in Annex Development

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

Table 9.10-19. Contributors to the Annex

Entity	Title	Method of Participation
Anthony Rosario	Deputy OEM Coordinator	Secondary POC, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Richard Cloughley	OEM Coordinator	Primary POC, attended plan participant meetings, provided impact data, contributed to the mitigation strategy
Greg Chontow	Construction Official/Construction Department	NFIP Floodplain Administrator, provided impact data

Figure 9.10-1. Town of Dover Hazard Area Extent and Location Map 1

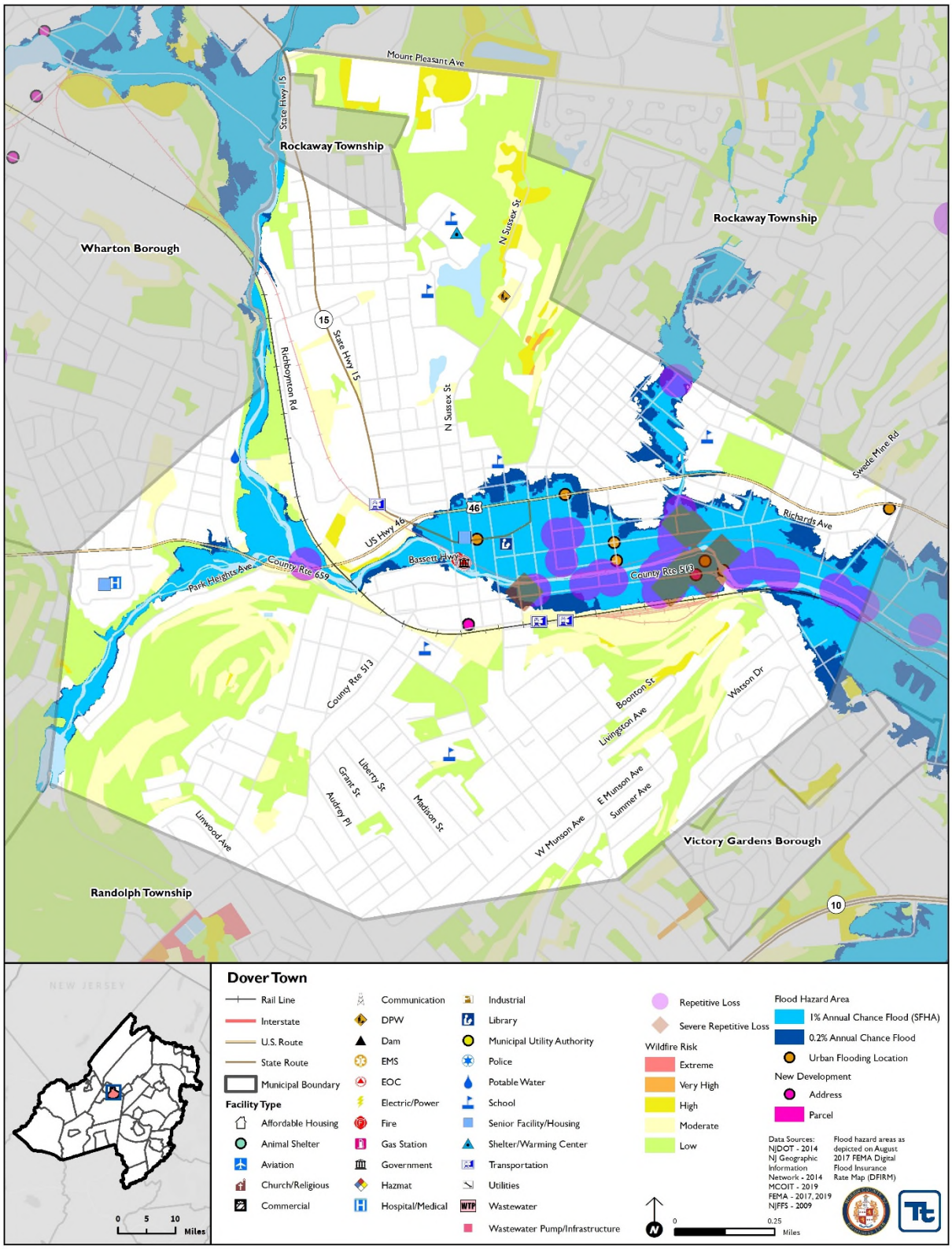
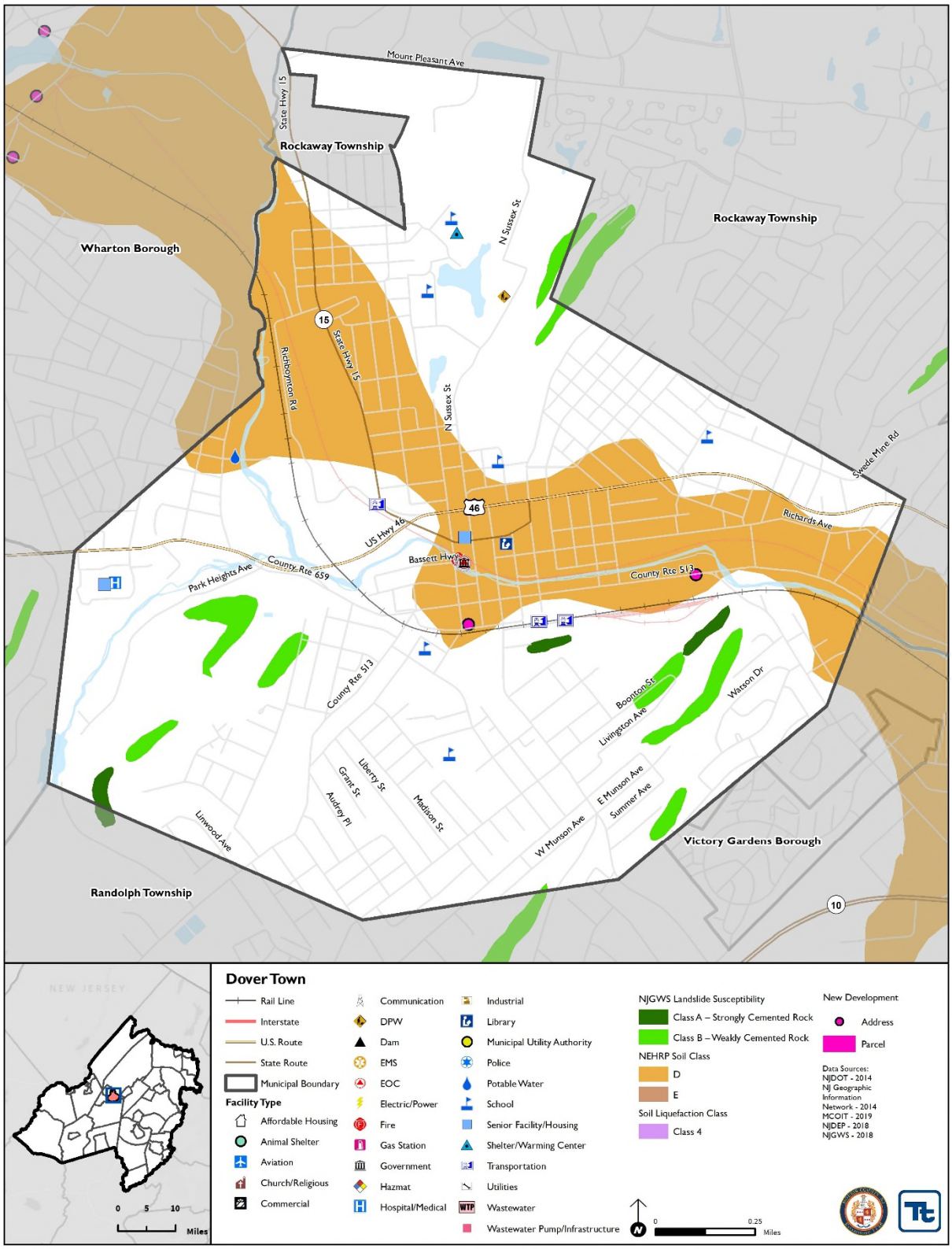


Figure 9.10-2. Town of Dover Hazard Area Extent and Location Map 2



Action Worksheet			
Project Name:	Generator for Emergency shelter at Dover High school		
Project Number:	2020-DOVER-002		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The Emergency Shelter at Dover High School lacks a backup generator.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install permanent generator. During power outages, the Emergency Shelter will remain operational.		
Is this project related to a Critical Facility?	Yes ☒	No ☐	
Level of Protection:	N/A	**Estimated Benefits (losses avoided):**	Ensures continuity of operations of shelter
Useful Life:	20 years	**Goals Met:**	2
Estimated Cost:	$50,000	**Mitigation Action Type:**	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	**Potential Funding Sources:**	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Dover High School Superintendent, OEM	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard Mitigation, Emergency Management

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Problem continues.
	Install solar panels	$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Generator for Emergency shelter at Dover High school	
Project Number:	2020-DOVER-002	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Project will protect critical services of Emergency Shelter at Dover High School
Property Protection	1	Project will protect the Emergency Shelter at Dover High School from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	0	The Town does not have the legal authority to complete the project without the School's permission
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Dover High School Superintendent, OEM
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Feasibility Study of the Rockaway River		
Project Number:	2020-DOVER-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	The Rockaway River is the primary source of flooding which impacts the repetitive loss and severe repetitive loss properties. Impacts of fixing the problem are unknown, including impacts to downstream municipalities, wetlands, and tributaries to the River.		
Action or Project Intended for Implementation			
Description of the Solution:	Conduct a feasibility study of the Rockaway River in the Town to determine the best solution(s) to reduce or alleviate the flooding within the Town. The study will identify potential mitigation projects. The Town will identify the best solution(s) and implement the project. Once the study and project are complete, it will increase flood protection to homes, businesses, and critical facilities.		
Is this project related to a Critical Facility or Lifeline?	Yes ☒	No ☐	
Level of Protection:	100-year flood	**Estimated Benefits (losses avoided):**	Increase in flood protection
Useful Life:	N/A	**Goals Met:**	2, 3
Estimated Cost:	$100,000+	**Mitigation Action Type:**	Local Plans and Regulations, Structure and Infrastructure Projects
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Within 5 years
Estimated Time Required for Project Implementation:	5 years	**Potential Funding Sources:**	HMGP, BRIC, municipal budget
Responsible Organization:	Town OEM, Town Engineer	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard mitigation planning, stormwater planning
Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Elevating properties	$10.2 million	Too costly, only protecting certain number of homes
	Acquiring properties	$10+ million	Too costly, loss of tax base in the Town
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Feasibility Study of the Rockaway River	
Project Number:	2020-DOVER-003	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Protects life from flooding.
Property Protection	1	Reduction in flooding risk to properties
Cost-Effectiveness	1	
Technical	1	Technically feasible project
Political	1	
Legal	1	The Town has the legal authority to conduct the project.
Fiscal	0	Project will require grant funding.
Environmental	1	
Social	1	Project would reduce flooding impacts.
Administrative	0	
Multi-Hazard	1	Flood, Severe Weather
Timeline	0	Within 5 years
Agency Champion	1	Town OEM, Town Engineer
Other Community Objectives	0	
Total	10	
Priority (High/Med/Low)	High	

Action Worksheet

Project Name:	Crane Hill Generator		
Project Number:	2020-DOVER-005		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	Crane Hill pumping station provides drinking water to one-third of the Town. During a power outage, the station is not operational and cannot provide drinking water to residents.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install permanent generator. During power outages, the pumping station will remain operational and provide drinking water to the Town.		
Is this project related to a Critical Facility?	Yes ☒	No ☐	
Level of Protection:	N/A	**Estimated Benefits (losses avoided):**	Ensures continuity of operations
Useful Life:	20 years	**Goals Met:**	2
Estimated Cost:	$50,000	**Mitigation Action Type:**	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	**Potential Funding Sources:**	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Town Water Superintendent	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard Mitigation, Emergency Management

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Problem continues.
	Install solar panels	$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Crane Hill Generator	
Project Number:	2020-DOVER-005	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Project will protect critical services of Crane Hill pumping station
Property Protection	1	Project will protect Crane Hill pumping station from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Town Water Superintendent
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	

Action Worksheet

Project Name:	DPW Facility Generator		
Project Number:	2020-DOVER-006		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	The DPW Facility located at 211 North Sussex Street does not have backup power. During a power outage, the facility is not operational. They cannot use the fuel pumps or equipment.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase and install permanent generator to the DPW facility (211 North Sussex Street). This will provide continuity of operations during a power outage and allow fuel pumps to function and mechanics to repair vehicles and equipment.		
Is this project related to a Critical Facility?	Yes ☒	No ☐	
Level of Protection:	N/A	**Estimated Benefits (losses avoided):**	Ensures continuity of operations
Useful Life:	20 years	**Goals Met:**	2
Estimated Cost:	$75,000	**Mitigation Action Type:**	Structure and Infrastructure Projects (SIP)
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Immediately after funding received
Estimated Time Required for Project Implementation:	1 year	**Potential Funding Sources:**	FEMA HMGP and PDM, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Municipal Budget
Responsible Organization:	Town DPW	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard Mitigation, Emergency Management

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Problem continues.
	Install solar panels	$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	DPW Facility Generator	
Project Number:	2020-DOVER-006	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Project will protect critical services of DPW.
Property Protection	1	Project will protect DPW from power loss.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The Town has the legal authority to complete the project.
Fiscal	0	Project requires funding support.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	1 year
Agency Champion	1	Town DPW
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	

Action Worksheet

Project Name:	Town wide Flood Warning System		
Project Number:	2020-DOVER-009		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	Currently, the Town does not have a method to identify flood levels of the Rockaway River until the River crests. The Town does not have a way of determining flood levels to prepare the population for proper warnings and/or evacuations.		
Action or Project Intended for Implementation			
Description of the Solution:	Install an automated flood warning system. This will include sensors (rain, water level, weather) installed along the Rockaway River in the Town. The sensors will report via radio a central receiver at the EOC that will send data and warning information. As the river hits the various flood stages, the Town will release appropriate warnings to residents.		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	Flood warning	**Estimated Benefits (losses avoided):**	Increased flood warning with better quality data
Useful Life:	15 years	**Goals Met:**	2, 3
Estimated Cost:	$50,000	**Mitigation Action Type:**	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Within 5 years
Estimated Time Required for Project Implementation:	3 months	**Potential Funding Sources:**	HMGP, NWS, USGS, Municipal budget
Responsible Organization:	Town OEM, Town Engineer	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard mitigation, emergency management

Three Alternatives Considered (including No Action)

Alternatives:	Action	Estimated Cost	Evaluation
	No Action	$0	Current problem continues
	Rely on the NWS updates	$0	Do not provide real-time information, delay in information could impact the Town on responding properly
	Conduct manual readings of the river by emergency personnel	Staff time	Inaccurate and time consuming

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet

Project Name:	Town wide Flood Warning System	
Project Number:	2020-DOVER-009	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Provides improved flood warning
Property Protection	1	Provides the opportunity to move movable property prior to a flood
Cost-Effectiveness	1	
Technical	0	Requires technical support from USGS or NWS
Political	1	
Legal	1	The Town has the legal authority to complete the project
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Town OEM, Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	

Action Worksheet	
Project Name:	Purchase Portable Flood Walls

Project Number:	2020-DOVER-010		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Weather		
Description of the Problem:	East Blackwell Street is a primary road (county-owned) in the Town that is floodprone. The floodplain extends across the wall. During a flooding event, this roadway becomes inundated and is impassable by emergency personnel and vehicles. There are alternate routes to get pass the area, but not into the area and it doubles the response time.		
Action or Project Intended for Implementation			
Description of the Solution:	Purchase portable flood walls to be deployed prior to a heavy rain event. The walls will be four feet high and approximately 2,400 feet in length. The DPW will be responsible for deploying. When not being used, the flood walls will be stored at the DPW facility. The walls will allow East Blackwell Street to remain open during flooding events and allow emergency personnel and vehicles to access the south side of the Town.		
Is this project related to a Critical Facility or Lifeline?	Yes ☐	No ☒	
Level of Protection:	100-year	**Estimated Benefits (losses avoided):**	Flood protection for East Blackwell Street. Emergency response times kept low.
Useful Life:	15 years	**Goals Met:**	3
Estimated Cost:	$1 million	**Mitigation Action Type:**	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Within 5 years
Estimated Time Required for Project Implementation:	1 month	**Potential Funding Sources:**	HMGP, Municipal budget
Responsible Organization:	Town OEM, Town DPW	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard mitigation, emergency management

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Current problem continues
	Elevate roadway	$10 million+	Too costly, construction time can be lengthy
	Install permanent floodwall	$10 million+	Too costly, time consuming, Town would need permission from private property owners and NJDEP

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet	
Project Name:	Purchase Portable Flood Walls

Project Number:	2020-DOVER-010	
Criteria	**Numeric Rank (-1, 0, 1)**	**Provide brief rationale for numeric rank when appropriate**
Life Safety	1	Keeps emergency response times low
Property Protection	1	Protects East Blackwell Street from flood damage
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	0	Use of the floodwall on the County road would likely require County permission
Fiscal	0	Project requires funding support
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	Within 5 years
Agency Champion	1	Town OEM, Town DPW
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	